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MONTHLY REPORT • ECONOMIC AND FINANCIAL MARKET OUTLOOK
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NATURAL RATE OF INTEREST

— US — Euro area



ECONOMIC & FINANCIAL ENVIRONMENT

FINANCIAL MARKETS

The Fed: from forward guidance to data-dependency

INTERNATIONAL ECONOMY

International credibility, key to Mexico's new six-year term

PORTUGUESE ECONOMY

Portugal: have we reached the end of the golden recovery of the labour market?

DOSSIER: THE FUTURE OF FINANCIAL CONDITIONS: A PARADIGM SHIFT?

Low interest rates: for how much longer?

The consequences of the new environment of financial conditions: entering uncharted territory

MONTHLY REPORT - ECONOMIC AND FINANCIAL MARKET OUTLOOK

February 2019

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The era of low interest rates

Never before have reference rates been so low for so long. This phenomenon, which is widespread across many countries, looks set to continue for some time to come. We are in the midst of a new era of low interest rates, and with it, new risks can emerge.

One of the indicators suggesting that the current environment of low interest rates is set to continue is the interest rate expectations that are implicit in the market prices of financial assets. The ECB is expected to begin raising the reference rate over the next few quarters but, according to the markets, it will do so at such a slow pace that it will still lie below 1% some five years from now. In the US, the cycle of interest rate hikes appears to be coming to an end. In fact, in this case the markets are no longer ruling out the possibility of the Fed even lowering rates next year. If this scenario ends up coming to fruition, the federal funds rate will have remained below 2.5% for more than 15 years. By comparison, between 1960 and 2000, the it never fell below 2.5%.

This change of era is partly a result of better monetary policy management, which has made it possible to maintain lower inflation rates, and partly one of a far-reaching economic and social structural transformation, linked primarily to population ageing and to technological progress. These phenomena have been present for many years now and, by applying upward pressure to savings while depressing the propensity to invest, they caused interest rates that balance the supply and demand of savings to gradually decline. We analyse these factors and their impact on interest rates in detail in the articles of this edition's Dossier.

The risks associated with this new interest rate environment are no less significant. Particularly relevant is the greater political pressure on central banks to implement a more accommodative monetary policy. Ultimately, this could question the independence of the central banks. Trump's constant questioning of the Fed to try and get it to curb its rate hikes is a good example of this.

The purchase of public debt by the main central banks helped to contain the impact of the global economic and financial crisis, but it also changed the rules of play. *A priori*, it served as an exceptional measure to fight a crisis without precedent. But in the new environment of low interest rates, central banks are likely to have to resort to this tool in order to stimulate the economy. The Fed has already announced that it will keep much of the public debt it purchased on its balance sheet. The ECB has also made it clear that it will maintain its balance sheet at its current size for at least a few more years to come.

In this context, the temptation to demand greater stimuli from the monetary authorities will be hard to resist, especially given the high levels of public debt in most developed economies, which make the impact of an increase in rates on the public finances much higher now. In addition, there are growing demands for an alleged «democratisation» of all institutions.

However, it is worth recalling that the independence of the central banks, together with the establishment of reasonable monetary policy objectives, has enabled an era with some of the greatest stability and economic progress in history. Their independence has been essential to prevent them from directly funding public expenditure, which tends to result in periods of hyperinflation and, ultimately, deep economic, financial and social crises. The case of Venezuela is a prime example of this. Furthermore, this institutional design has helped to ensure that the tools used to achieve sustained and inclusive economic growth have been fiscal policy and so-called supply-side policies, just as it should be.

In the era of low interest rates, central banks will have to make very responsible decisions. It is then that the importance of them being independent will become clear. Will we be able to resist the temptation?

Oriol Aspachs
Director of Macroeconomics
and Financial Markets
31 January 2019

Chronology

JANUARY 2019

- 15 The UK Parliament rejects the withdrawal agreement signed between the Government and the EU by 432 votes to 202.
- 25 The longest partial government shutdown in US history comes to an end after 35 days.

NOVEMBER 2018

- 5 The US reinstates sanctions on Iran.
- 21 The European Commission recommends launching an excessive deficit procedure against Italy.
- 25 The EU and the United Kingdom sign a Brexit agreement.

SEPTEMBER 2018

- 24 The US implements a new tariff rise on 200 billion dollars of Chinese imports. China applies a new tariff rise on 60 billion dollars of US imports.
- 26 The Fed raises the official rate by 25 bps, bringing it up to the 2.00%-2.25% range.
- 30 Canada is incorporated into the preliminary trade agreement between the US and Mexico to replace the North American Free Trade Agreement (NAFTA).

DECEMBER 2018

- 7 OPEC and its partners agree to cut crude oil production by 1.2 million barrels per day between January and June 2019.
- 13 The ECB confirms that it is bringing the net purchases of assets to an end in December 2018.
- 19 The Fed raises the official rate by 25 bps, placing it within the 2.25%-2.50% range.

OCTOBER 2018

- 12 The rating agency Moody's improves Portugal's credit rating, from Ba1 to Baa3 (once again investment grade).
- 19 The rating agency Moody's downgrades Italy's credit rating, from Baa2 to Baa3.

AUGUST 2018

- 20 Greece completes the third bailout programme after eight years of supervision by the EU, the ECB and the IMF.
- 23 The second phase of tariff hikes between the US and China enters into force (on 16 billion dollars of imports, out of the total of 50 billion).
- 27 The US and Mexico announce a preliminary trade agreement to replace the North American Free Trade Agreement (NAFTA).

Agenda

FEBRUARY 2019

- 4 Spain: registration with Social Security and registered unemployment (January).
- 6 Portugal: employment and unemployment (Q4).
- 8 Portugal: international trade (December).
- 12 Portugal: CPI (January).
- 14 Japan: GDP (Q4).
Portugal: GDP flash estimate (Q4).
- 21 Spain: international trade (December).
- 22 Spain: loans, deposits and NPL ratio (December).
- 26 Portugal: state budget execution (January).
- 27 Euro area: economic sentiment index (February).
- 28 Spain: CPI flash estimate (February).
Spain: balance of payments (December).
Portugal: employment and unemployment (January).

MARCH 2019

- 4 Spain: registration with Social Security and registered unemployment (February).
- 7 Governing Council of the European Central Bank meeting.
- 12 Portugal: CPI (February).
Portugal: international trade (January).
- 19 Spain: quarterly labour cost survey (Q4).
- 19-20 Federal Open Market Committee meeting.
- 22 Spain: loans, deposits and NPL ratio (Q4).
European Council meeting.
- 27 Spain: balance of payments (Q4).
Spain: net international investment position (Q4).
Portugal: state budget execution (February).
- 28 Spain: CPI flash estimate (March).
Euro area: economic sentiment index (March).
- 29 Spain: balance of payments (January).
Spain: household savings rate (Q4).
GDP breakdown (Q4).
Portugal: employment and unemployment (February).

The expansion continues in an environment of greater downside risks

The global economy is operating in a demanding environment. Although global growth remains buoyant (it is estimated that in 2018 it stood at 3.7%, virtually the same as in 2017), the indicators show that the second half of 2018 saw a moderation in global economic growth. On the one hand, this reflects a change in the environment, which in recent quarters has become more demanding due to the concurrence of tighter global financial conditions and the erosion of confidence (which has been penalised by trade tensions and geopolitical conflicts). In addition to these factors, which will need to be closely monitored over the coming months, is the simple fact that some of the major economies have entered a more mature phase of the cycle (such as the US, where the expansion is only a few months from becoming the longest in the country's modern history). Furthermore, fears have been raised by uncertainty over the true extent of the slowdown in China's economy. Therefore, the macroeconomic scenario points towards a certain moderation of growth in 2019, a year in which the greater maturity of the cycle will have to face a risk map more dominated by downside factors.

The turmoil of the end of 2018 gives way to a calm start to 2019. Following a turbulent end to 2018, with sharp declines in the stock markets that reflected doubts over the strength of global growth in 2019, the new year began with greater calm. On the one hand, in the financial markets, investor sentiment improved thanks both to the negotiations between the US and China aimed at resolving their trade tensions and to the messages of greater patience coming from the major central banks. In fact, both the Federal Reserve Bank of the US (Fed) and the European Central Bank (ECB) have incorporated the increase in downside risks into their respective scenarios and, following their monetary policy meetings in January, they conveyed their intention not to tighten monetary conditions over the coming months. On the other hand, sentiment was also supported by the publication of various economic activity indicators which, while pointing towards a moderation in global growth, suggest that this moderation is reasonably gentle.

The euro area shifts down a gear. A good example of why this slowdown in growth should not set the alarm bells ringing can be found in the euro area. Despite growth standing at a moderate 0.2% quarter-on-quarter in Q4 (1.2% year-on-year), the figures known for the most important countries proved to be a slight improvement over expectations. These included Germany (where it was feared that growth would be negative, due to the automotive sector having to adapt to the new emissions

regulations) and France (which was affected by the yellow vest protests). Yet, Italy –in its current uncertain political environment- registered negative quarter-on-quarter growth. All in all, GDP growth of the euro area for the whole of 2018 stood at 1.8%. While this figure is well below the exceptional 2.5% growth seen in 2017, it can largely be attributed to a less favourable external environment and the presence of temporary factors that are restricting growth and proving to be more persistent than expected. However, domestic demand remains strong and well supported both by accommodative financial conditions and by the good performance of the labour market. Therefore, the main driver of growth in the euro area will continue to support the expansionary phase of the business cycle over the next few quarters.

Spain and Portugal are converging towards more sustainable rates of expansion due to the fading of the factors that temporarily stimulated growth, such as low oil prices and the depreciation of the euro. Spain ended the year with GDP growth of 0.7% quarter-on-quarter in Q4 (2.4% year-on-year). This was above expectations as external demand surprised on the upside despite the more adverse international context. For 2018 as a whole, growth stood at 2.5% (3.0% in 2017), confirming the gradual slowdown in economic activity towards more sustainable levels. By components, domestic demand was the main driver of growth in 2018, providing a contribution of +2.9 pps and offsetting the negative net contribution from the foreign sector (-0.4 pps). This highlights a dichotomy between the strength of domestic demand (hoisted up by the buoyancy of the labour market and continued accommodative financial conditions in the euro area) and the constraint imposed by the foreign sector in net terms (reflecting the deterioration of the international context, in an environment of geopolitical tensions, the slowdown of the euro area and the upward pressure on imports from domestic demand). This dichotomy not only occurred in Spain, but also characterised the macroeconomic scenario in Portugal (for which GDP data for the whole of 2018 are not yet available, although all the indicators suggest that they will reflect a strong and positive contribution from domestic demand and a slight negative one from the external sector). Therefore, in 2019 both economies will maintain favourable growth rates, underpinned by cyclical strengths (such as the recovery of the labour market) and the structural improvements implemented in recent years, although they will converge towards slightly more moderate levels due to the maturity of the cycle and the constraints of the external environment.

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

Financial markets

	Average 2000-2007	Average 2008-2015	2016	2017	2018	2019	2020
INTEREST RATES							
Dollar							
Fed funds	3.43	0.48	0.64	1.39	2.50	3.00	3.25
3-month Libor	3.62	0.69	0.98	1.61	2.79	3.20	3.20
12-month Libor	3.86	1.18	1.67	2.05	3.08	3.35	3.25
2-year government bonds	3.70	0.72	1.18	1.84	2.68	3.10	3.00
10-year government bonds	4.70	2.70	2.49	2.41	2.83	3.30	3.20
Euro							
ECB depo	2.05	0.50	-0.40	-0.40	-0.40	-0.20	0.25
ECB refi	3.05	1.13	0.00	0.00	0.00	0.25	0.75
Eonia	3.12	0.77	-0.35	-0.34	-0.36	-0.10	0.40
1-month Euribor	3.18	0.93	-0.37	-0.37	-0.37	-0.08	0.42
3-month Euribor	3.24	1.13	-0.32	-0.33	-0.31	-0.04	0.44
6-month Euribor	3.29	1.30	-0.22	-0.27	-0.24	0.12	0.62
12-month Euribor	3.40	1.51	-0.08	-0.19	-0.13	0.27	0.79
Germany							
2-year government bonds	3.41	0.85	-0.76	-0.69	-0.60	-0.05	0.73
10-year government bonds	4.30	2.21	0.29	0.35	0.25	1.05	1.88
Spain							
3-year government bonds	3.62	2.59	-0.13	-0.04	-0.02	0.64	1.37
5-year government bonds	3.91	3.16	0.30	0.31	0.36	1.08	1.78
10-year government bonds	4.42	4.13	1.43	1.46	1.42	2.05	2.68
Risk premium	11	192	114	110	117	100	80
Portugal							
3-year government bonds	3.68	4.85	0.76	-0.05	-0.18	0.71	1.63
5-year government bonds	3.96	5.42	2.05	0.46	0.47	1.30	2.15
10-year government bonds	4.49	5.90	3.75	1.84	1.72	2.35	3.03
Risk premium	19	369	346	149	147	130	115
EXCHANGE RATES							
EUR/USD (dollars per euro)	1.13	1.33	1.05	1.18	1.14	1.23	1.24
EUR/JPY (yen per euro)	129.50	127.13	122.41	133.70	127.89	129.15	131.44
USD/JPY (yen per dollar)	115.34	96.09	116.06	113.02	112.38	105.00	106.00
EUR/GBP (pounds per euro)	0.66	0.83	0.85	0.88	0.90	0.86	0.85
USD/GBP (pounds per dollar)	0.59	0.62	0.80	0.75	0.79	0.70	0.69
OIL PRICE							
Brent (\$/barrel)	42.32	90.70	54.92	64.09	57.67	67.00	66.00
Brent (euros/barrel)	36.35	67.78	52.10	54.17	50.68	54.47	53.23

■ Forecasts

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

International economy

	Average 2000-2007	Average 2008-2015	2016	2017	2018	2019	2020
GDP GROWTH							
Global	4.5	3.3	3.3	3.8	3.7	3.4	3.4
Developed countries	2.7	1.1	1.7	2.4	2.2	1.9	1.7
United States	2.7	1.4	1.6	2.2	2.8	2.3	1.9
Euro area	2.3	0.2	1.9	2.5	1.8	1.4	1.5
Germany	1.6	1.0	2.2	2.5	1.5	1.3	1.7
France	2.0	0.6	1.1	2.3	1.5	1.6	1.6
Italy	1.5	-1.0	1.3	1.6	0.8	0.2	0.8
Portugal	1.5	-0.6	1.9	2.8	2.1	1.8	1.7
Spain	3.8	-0.4	3.2	3.0	2.5	2.1	2.0
Japan	1.5	0.3	0.6	1.9	0.8	1.0	0.6
United Kingdom	2.8	1.0	1.8	1.8	1.4	1.5	1.6
Emerging countries	6.6	5.2	4.4	4.7	4.7	4.4	4.5
China	11.7	8.6	6.7	6.9	6.6	6.2	6.0
India	9.7	6.7	7.9	6.2	7.4	6.9	6.2
Indonesia	5.5	5.8	5.0	5.1	5.1	4.9	4.8
Brazil	3.6	2.3	-3.3	1.1	1.3	2.1	2.0
Mexico	2.4	2.0	2.9	2.1	2.0	2.3	2.3
Chile	5.0	3.4	1.3	1.5	3.8	3.2	3.0
Russia	7.2	1.1	-0.2	1.5	1.7	1.9	2.0
Turkey	5.4	5.0	3.2	7.3	3.7	-1.5	1.5
Poland	4.0	3.2	3.1	4.8	5.3	3.7	2.9
South Africa	4.4	2.0	0.7	1.3	0.6	1.5	1.8
INFLATION							
Global	4.2	3.9	2.8	3.2	3.7	3.8	3.4
Developed countries	2.1	1.6	0.8	1.7	2.0	1.6	1.8
United States	2.8	1.7	1.3	2.1	2.4	2.1	1.9
Euro area	2.1	1.5	0.2	1.5	1.7	1.6	1.7
Germany	1.7	1.4	0.4	1.7	1.9	1.8	1.8
France	1.8	1.3	0.3	1.2	2.1	1.7	1.7
Italy	1.8	1.4	0.0	1.3	1.2	1.2	1.4
Portugal	3.0	1.3	0.6	1.6	1.2	1.3	1.5
Spain	3.2	1.5	-0.2	2.0	1.7	1.6	1.7
Japan	-0.3	0.4	-0.1	0.5	1.0	0.8	1.2
United Kingdom	1.9	2.6	0.7	2.7	2.5	2.2	2.1
Emerging countries	6.8	6.0	4.2	4.3	4.8	5.1	4.4
China	1.7	2.7	2.0	1.6	2.1	2.4	2.4
India	4.5	9.0	4.9	3.3	4.0	4.2	4.9
Indonesia	8.4	6.0	3.5	3.8	3.2	3.3	2.7
Brazil	7.3	6.2	8.8	3.5	3.7	4.1	4.1
Mexico	5.2	4.1	2.8	6.0	4.9	4.1	3.4
Chile	3.1	3.5	3.8	2.2	2.4	2.9	3.0
Russia	14.2	9.5	7.1	3.7	2.9	4.9	4.0
Turkey	27.2	8.1	7.8	11.1	16.2	19.5	12.0
Poland	3.5	2.3	-0.2	1.6	1.2	2.5	2.5
South Africa	5.3	6.1	6.3	5.3	4.6	4.4	5.3

Forecasts

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

Spanish economy

	Average 2000-2007	Average 2008-2015	2016	2017	2018	2019	2020
Macroeconomic aggregates							
Household consumption	3.6	-1.1	2.8	2.5	2.4	2.0	1.9
Government consumption	5.0	0.8	1.0	1.9	2.3	1.5	1.2
Gross fixed capital formation	6.0	-4.1	2.9	4.8	5.2	3.6	2.9
Capital goods	5.3	-0.3	5.3	6.0	6.0	3.3	3.0
Construction	6.2	-7.0	1.1	4.6	5.5	3.6	2.9
Domestic demand (vs. GDP Δ)	4.6	-1.6	2.4	2.9	2.9	2.2	1.9
Exports of goods and services	4.8	2.4	5.2	5.2	2.2	3.1	4.0
Imports of goods and services	7.1	-1.5	2.9	5.6	3.6	3.5	4.1
Gross domestic product	3.8	-0.4	3.2	3.0	2.5	2.1	2.0
Other variables							
Employment	3.4	-1.9	3.1	2.8	2.6	2.2	1.6
Unemployment rate (% of labour force)	10.5	21.0	19.6	17.2	15.3	13.6	12.2
Consumer price index	3.2	1.5	-0.2	2.0	1.7	1.6	1.7
Unit labour costs	3.3	0.3	-0.6	0.2	1.1	2.2	2.3
Current account balance (cum. % GDP)	-6.0	-2.1	2.3	1.8	0.9	0.6	0.6
External funding capacity/needs (cum., % GDP)	-5.3	-1.7	2.5	2.1	1.1	0.8	0.8
Fiscal balance (cum., % GDP) ¹	0.4	-7.3	-4.3	-3.0	-2.7	-2.0	-1.4

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

■ Forecasts

Portuguese economy

	Average 2000-2007	Average 2008-2015	2016	2017	2018	2019	2020
Macroeconomic aggregates							
Household consumption	1.7	-0.5	2.4	2.3	2.3	1.8	1.8
Government consumption	2.3	-0.8	0.8	0.2	0.7	0.8	0.3
Gross fixed capital formation	-0.3	-4.2	2.4	9.2	4.2	3.7	4.4
Capital goods	1.3	-1.0	7.6	13.7	7.0	6.5	5.5
Construction	-1.6	-7.0	-1.3	8.3	2.6	2.2	2.2
Domestic demand (vs. GDP Δ)	1.5	-1.4	2.1	3.1	2.4	2.0	2.1
Exports of goods and services	5.2	3.4	4.4	7.8	3.9	4.1	3.2
Imports of goods and services	3.6	1.2	4.7	8.1	4.9	2.2	3.6
Gross domestic product	1.5	-0.6	1.9	2.8	2.1	1.8	1.7
Other variables							
Employment	0.4	-1.4	1.2	3.3	2.4	0.9	0.5
Unemployment rate (% of labour force)	6.1	12.3	11.1	8.9	7.0	6.5	6.2
Consumer price index	3.0	1.3	0.6	1.6	1.2	1.3	1.5
Current account balance (cum. % GDP) ¹	-9.4	-4.9	0.6	0.5	-0.3	-0.2	-0.2
External funding capacity/needs (cum., % GDP) ¹	-7.9	-3.4	1.6	1.4	0.7	0.6	0.5
Fiscal balance (cum., % GDP) ¹	-4.4	-6.8	-2.0	-3.0	-0.7	-0.7	-0.5

Note: 1. Four-quarter cumulative total.

■ Forecasts

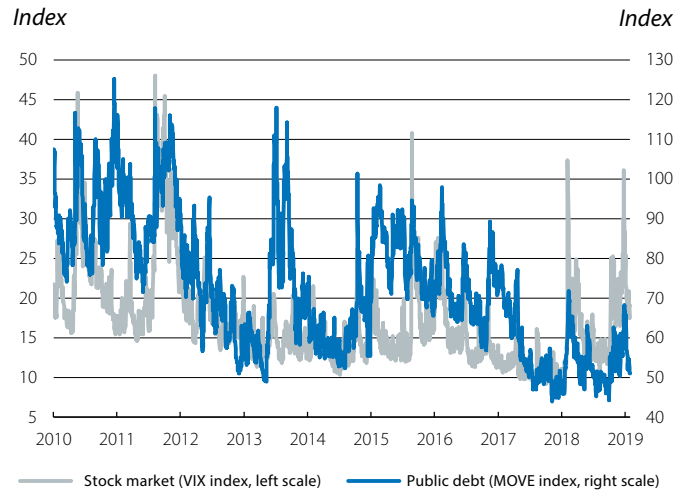
Calm returns to the markets

Volatility eases at the beginning of the year. Following an end to 2018 marked by stock market losses, the first few weeks of 2019 brought some calm to the financial markets. Investor sentiment found support on the negotiations to defuse the trade tensions between the US and China, as well as the display of greater patience by the major central banks. In particular, the Fed showed signs of pausing its plan of rate hikes (at least for the next few months, while it assesses the impact of the monetary tightening carried out to date), while the ECB reiterated its intention to maintain accommodative financial conditions in the euro area. Thus, in January, stability was the dominant theme in fixed-income markets, where sovereign yields remained at moderate levels and even declined slightly, while the foreign exchange market saw a slight depreciation of the US dollar. On the other hand, this calmness in investor sentiment fuelled a rally in stock markets, where the indices of the main advanced and emerging economies advanced strongly, and in commodity markets, where oil prices recovered following their sharp decline at the end of 2018.

Stock markets begin the year on a positive note. The improvement in investor sentiment, together with a positive start to the earnings season relating to Q4 2018 (especially in the US), hoisted up the main international stock market indices in January. In the US, the S&P 500 index climbed around 8% over the month as a whole, while the major trading floors of the euro area saw gains of around 6% (Eurostoxx 50 +5.3%, DAX +5.8%, CAC +5.5%, Ibex 35 +6.1% and PSI 20 +8.4%). Emerging-economy stock markets also registered significant growth (MSCI index for the whole bloc +8.7%). This was especially the case in Latin America (MSCI Latin America +14.9%), with Brazil's stock market performing particularly well (+10.8%), as well as in the Asian economies (MSCI Emerging Asia +7.3%).

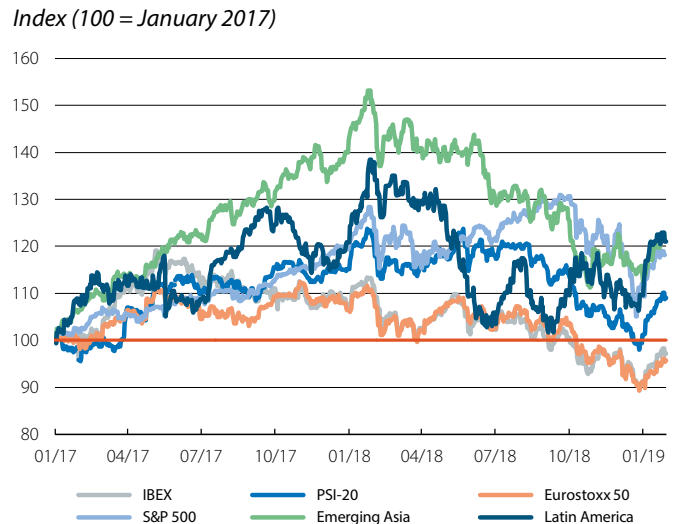
The ECB will maintain accommodative financial conditions. After bringing net asset purchases to an end in December, the ECB left its monetary policy stance unchanged at its first meeting of the year and focused on assessing the status of the euro area's business cycle. Faced with the persistence of uncertainties surrounding global geopolitical tensions, vulnerabilities in some emerging economies and spikes of financial volatility, the ECB pointed out that the balance of risks has shifted to the «downside». In addition, the ECB was cautious after the latest economic activity indicators proved to be weaker than expected. Although Draghi reiterated that the likelihood of a recession is low and that the medium-term outlook remains well supported by the strength of domestic demand, he also noted that growth is likely to be less buoyant in the short term. With this assessment of the scenario, the ECB reiterated its intention to maintain an accommodative financial environment by keeping official interest rates at their current levels and by reinvesting the

Implicit volatility in the financial markets



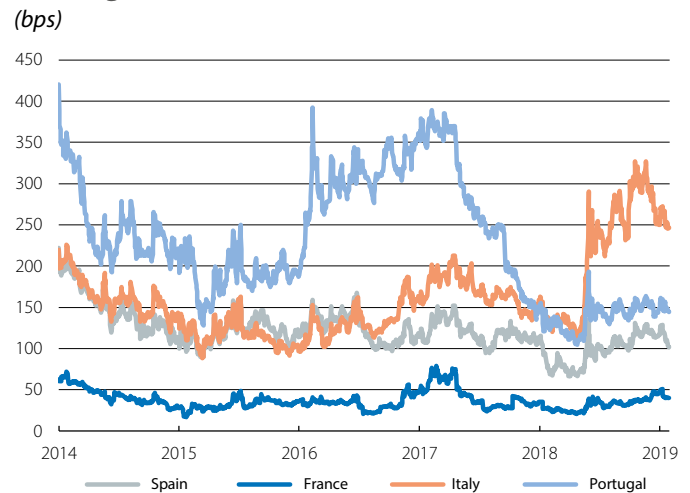
Source: CaixaBank Research, based on data from Bloomberg.

Main international stock markets



Source: CaixaBank Research, based on data from Bloomberg.

Euro area: risk premiums of 10-year sovereign bonds



Source: CaixaBank Research, based on data from Bloomberg.

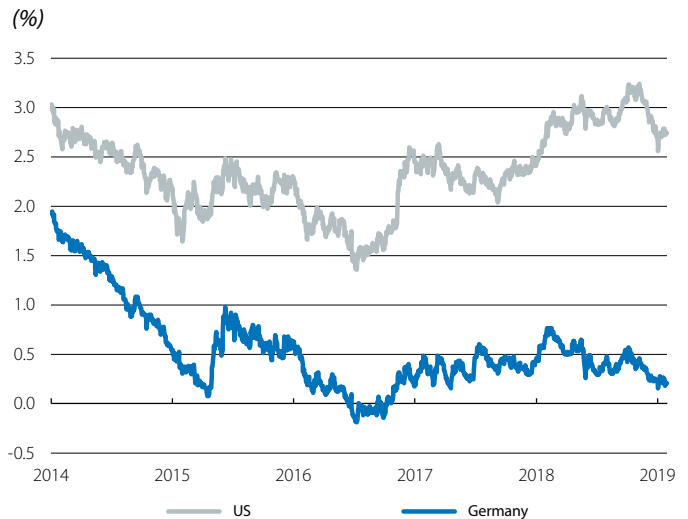
principal payments of the assets on its balance sheet for a long period of time.

The Fed pauses interest rate hikes. At its first meeting in 2019, the Fed kept interest rates within the 2.25%-2.50% range, with a decision that was widely expected after having already increased rates by 25 bps in December. However, the meeting was more than a mere formality and the Fed sent important messages relating to the future path of monetary policy. In particular, although it gave a positive assessment of the macroeconomic scenario, the Fed placed greater emphasis on the downside risk factors (such as the slowdown in global growth, geopolitical tensions and the tightening of financial conditions), which are generating uncertainty in relation to the performance of the economy over the coming quarters. On this note, the Fed stated that it will be patient with regards to future changes to interest rates and it ceased making explicit reference to the expectation of further increases.

Interest rates remain contained and emerging currencies recover. The messages of patience from the central banks determined the dynamics of the fixed-income markets in January, as interest rates on both sovereign and corporate debt remained stable or even declined slightly. Specifically, in the US, yields on 10-year sovereign bonds fluctuated at around 2.70% (closer to their levels of late 2017 than to their high-point of 2018, when they reached over 3.20%). In the euro area, meanwhile, the peripheral risk premiums decreased and Germany's 10-year sovereign yields fell below 0.20%. The foreign exchange markets also acknowledged the messages from the banks, and the signs of a pause by the Fed resulted in a moderate appreciation of the main emerging market currencies against the US dollar. In contrast, the euro remained relatively stable at around 1.14 dollars, while the pound sterling fluctuated to the sound of the votes of the British Parliament on Brexit (generally appreciating against the major currencies).

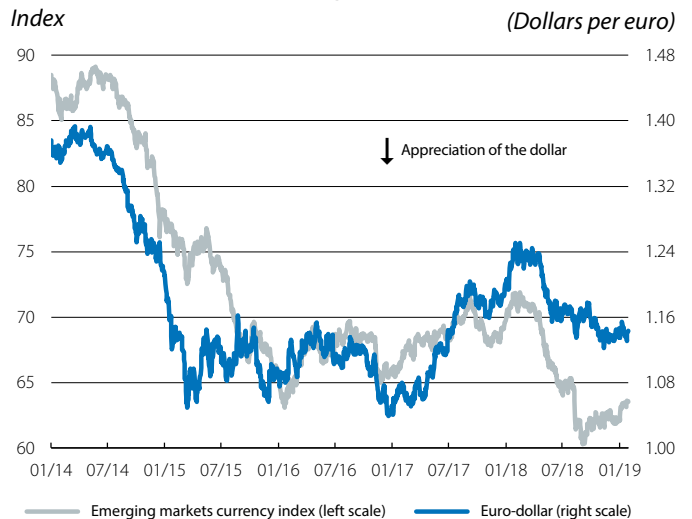
Oil prices stabilise. After collapsing more than 40% in the last quarter of 2018 (from around 85 dollars per barrel in September to 50 dollars in mid-December), in January the price of the barrel of Brent began to recover up to 60 dollars. This price increase was supported by the implementation of the new oil production cuts announced by OPEC and its partners in early December. Further support was provided by improved investor sentiment, which also drove up the prices of other raw materials, such as copper, other industrial metals and agricultural products.

Yields on 10-year sovereign bonds



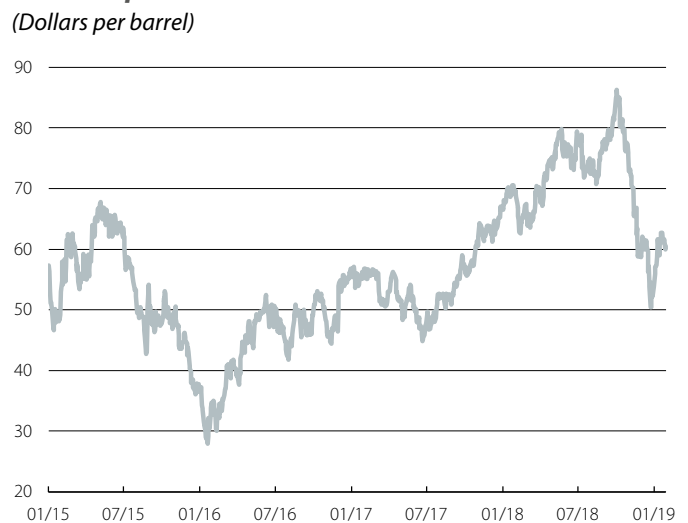
Source: CaixaBank Research, based on data from Bloomberg.

International currencies against the US dollar



Source: CaixaBank Research, based on data from Bloomberg.

Brent oil price



Source: CaixaBank Research, based on data from Bloomberg.

The Fed: from forward guidance to data-dependency

The Fed is about to close the chapter of unconventional measures. After having begun to reduce its balance sheet,¹ the latest statements from the members of the Fed show their desire to leave the future evolution of interest rates more open. So, from now on, the future path of rates will be more uncertain and will depend to a greater extent on trends in the economic and financial indicators.

A history of unconventional communication

The use of communication as a monetary policy tool intensified following the outbreak of the financial crisis. With short-term interest rates at 0% and faced with no possibility to cut them further to offer even more accommodative financial conditions, the Fed decided to declare very explicitly its intention to keep them at very low levels for a long period of time. The objective: to change investors' and savers' long-term expectations, thereby further reducing long-term rates.

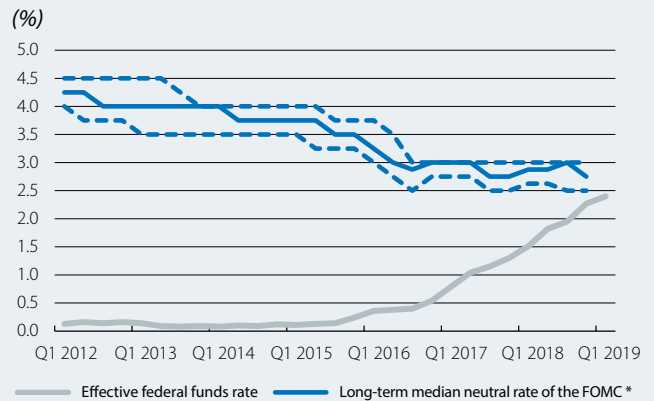
When the economic recovery began to settle, the Fed also used communication to actively manage expectations about the first reference rate hike. Furthermore, once rates began to rise, forward guidance continued to be a key tool for the central bank, which began to indicate quite clearly the speed at which it would increase interest rates. This reorientation of its communications was necessary to ensure that the interest rate normalisation process would be gradual and would not jeopardise the economic recovery, given the contrast between market expectations that were sceptical about rate rises and a macroeconomic scenario that made them necessary. Thus, in a sense the Fed switched on «auto pilot», raising reference rates up to the 2.25%-2.50% range.

Normalised macroeconomic situation, normalised communication from the Fed

At the actual stage, interest rates are no longer accommodative but rather are in neutral territory: they neither stimulate nor restrict the business cycle.² A good example of this is the fact that, as we can see in the first chart, the current official rate is already very close to what the members of the Fed estimate to be the long-term neutral rate. Therefore, the end of accommodative monetary policy, coupled with the fact that the economy is in a mature phase of the cycle (where there is less certainty over the optimal path for the central bank),

1. The Fed announced the end of net purchases of assets in 2014 and the gradual reduction of reinvestments in 2017.
 2. The neutral rate is a non-observable variable that currently stands at 2.5%, according to estimates by K. Holston, T. Laubach and J.C. Williams (2017), «Measuring the Natural Rate of Interest: International Trends and Determinants», Journal of International Economics, vol. 108.

US: neutral and effective interest rate



Note: * Median of the vote on the long-term neutral interest rate according to the participants at the meeting of the Fed. 75% of the voters' choices lie between the dotted lines, after excluding the two highest and the two lowest observations.
 Source: CaixaBank Research, based on data from Bloomberg.

has led the Fed to alter its communications. In particular, given the importance of monitoring the business cycle at the current economic outlook in order to calibrate the upcoming interest rate movements, several voices from within the Fed argue that monetary policy should provide less forward guidance over the coming quarters and be more data-dependant instead.

The consequences of normalising communication

A key effect of giving a relatively precise indication on the future direction of monetary policy is the lower degree of uncertainty over how interest rates will evolve. To the extent that the central bank is credible to investors and analysts, they will align their expectations regarding the future path of interest rates with the Fed's indications. As a result, financial asset market prices will be less volatile.

One way to test this conjecture is to analyse the sensitivity of market prices to the release of economic variables. Normally, when an economic indicator is higher than expected (for example, a higher-than-expected job creation figure), investors assume that the Fed could be forced to raise interest rates more quickly. However, if the Fed is credible in its future orientation, investors should be less sensitive to surprises in the data. Indeed, when we examine the sensitivity of US sovereign interest rates,³ we see how, since the Fed has been actively using communication to indicate the future trend in interest rates, the sensitivity of market prices to

3. Specifically, we analysed fluctuations in the sovereign interest rate on the days when the US monthly employment report prepared by the Bureau of Labor Statistics (BLS) is released. The estimated sensitivity corresponds to the coefficient β of the formula $\Delta i_t = \alpha + \beta(\Delta E_t - \Delta E_t^e) + \varepsilon_t$, where Δi_t indicates the fluctuation of the interest rate on the 2-year US sovereign bond on the day the job creation figure is released, ΔE_t is the job creation figure published by the BLS and ΔE_t^e is the job creation figure expected by the Bloomberg consensus.

economic surprises has decreased.⁴ Therefore, it is possible that the greater focus that the Fed is placing on the trends in the indicators may be rekindling this sensitivity, which can come with greater financial volatility.

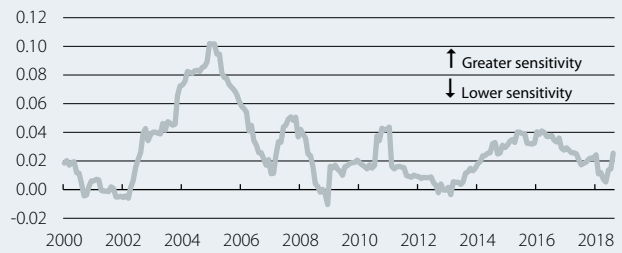
Relying on the indicators: which ones and what do they tell us?

From now on, it will once again be key to analyse in detail the indicators that the members of the Fed focus on when making their decisions. To this end, in the table below there is a list of the indicators that the Fed places particular emphasis on in its speeches, press releases and meeting minutes, and we show what the recent trend in each one of them suggests.

On the one hand, the main activity and labour market indicators are consistent with a strong economy that is growing above its potential. In addition, the trend in inflation and expectations thereof have not been a cause for concern for the Fed, as they lie around the target rate of 2%. On the other hand, we note how various financial indicators show a less encouraging trend. This could partly be a result of the more restrictive monetary policy that the Fed itself has carried out, with the aim of tightening financial conditions to curb the emergence of imbalances. However, the financial corrections also largely reflect the erosion caused by geopolitical tensions and worsening global investor sentiment due to fear that, with the expansion entering a mature phase, the sources of cyclical growth are becoming exhausted and the economy is slowing down more suddenly.

US: sensitivity of the yield on 2-year sovereign debt to economic surprises

Sensitivity coefficient



Note: We estimated the equation $\Delta i_t = a + \beta(\Delta E_t - \Delta E_t^e) + \varepsilon_t$, where Δi_t indicates the fluctuation of the yield on the 2-year US sovereign bond on the day the job creation figure is released, ΔE_t is the job creation figure published by the BLS and ΔE_t^e is the job creation figure expected by the Bloomberg consensus. We estimated the regression using data from the 24 months prior to t and we show the value of the parameter β over time.
Source: CaixaBank Research, based on data from Bloomberg.

Faced with this combination of uncertainty, financial volatility and indicators that point in different directions, the Fed is likely to pause the current pace of rate hikes in order to assess more thoroughly the lagged macroeconomic effects of those implemented to date.⁵ Nevertheless, we must not forget that on the other side of the scales lie a labour market beyond full employment and a risk of the economy overheating. In this regard, the Taylor rule⁶ suggests that the official interest rate still currently stands 0.4 pps below the rate that inflation and unemployment prescribe. Therefore, this pause should not prevent the Fed from raising interest rates further in this cycle.

US: heatmap

	Indicator	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Economic activity (quarterly)	GDP	Green	Green	Green	Green
	Employment cost index	Green	Green	Green	Green
	Government purchases	Green	Green	Green	Green
	Residential investment	Green	Green	Green	Green
	Starts of single-family housing	Orange	Green	Green	Green
	Starts of multi-family housing	Green	Green	Green	Green
	Disposable income	Green	Green	Green	Green
	Investment in capital goods	Green	Green	Green	Green
	Investment in intellectual property	Green	Green	Green	Green

	Indicator	09/2018	10/2018	11/2018	12/2018
Financial conditions	Financial condition index	Green	Green	Green	Green
	S&P 500	Green	Orange	Orange	Orange
	Dollar index	Green	Green	Green	Green
	Futures on the Fed funds rate	Green	Green	Green	Orange
	10-year sovereign debt yields	Green	Green	Orange	Orange
	Slope of the yield curve (10y - 3m)	Orange	Orange	Orange	Orange
	Volatility index (VIX)	Green	Orange	Green	Orange
	Private credit spread (HY - IG)	Green	Orange	Orange	Orange
	Risk credit spread (IG - Sov.)	Green	Green	Green	Orange

	Indicator	09/2018	10/2018	11/2018	12/2018
Labour market	Non-farm payroll change	Green	Green	Green	Green
	Unemployment rate	Green	Green	Green	Green
	Under-employment rate	Green	Green	Green	Green
	Employment rate	Green	Green	Green	Green
	Private sector job openings	Green	Green	Green	Green
	Private sector job quits	Green	Green	Green	Green
	Average hourly earnings	Green	Green	Green	Green
Economic activity	Industrial production	Green	Green	Green	Green
	Hours worked in industry	Green	Green	Green	Green
	Building permit issuance	Green	Orange	Green	Green
	Sales of existing housing	Green	Green	Green	Green
	Consumption	Green	Green	Green	Green
Prices	Consumer confidence	Green	Green	Green	Green
	Manufacturing index (ISM)	Green	Green	Green	Green
	Non-manufacturing index (ISM)	Green	Green	Green	Green
	Headline inflation (PCE)	Green	Green	Green	Orange
	Core inflation (PCE)	Green	Green	Green	Green
	Headline inflation (CPI)	Green	Green	Green	Orange
	Core inflation (CPI)	Green	Green	Green	Orange
Inflation expectations 5y - 5y	Green	Orange	Orange	Orange	

Note: Green colours suggest more rate hikes by the Fed, while orange colours suggest the opposite. The colours have been determined according to the values of each variable within five percentiles of its own sample. The colour white indicates that no data is available as of the date of the analysis.
Source: CaixaBank Research, based on data from Bloomberg.

4. The increase in the sensitivity observed between 2014 and 2015 coincides with the period in which the Fed set a certain reduction in the unemployment rate as a condition for the first rate hike.
5. It is estimated that monetary policy takes at least 6 to 12 months to affect economic activity as a whole. See, for example, E.L. George (2019), «Are We There Yet?», The U.S. Economy and Monetary Policy.

6. Specifically, $i_t^{Taylor} = \rho(i_{t-1}^{Taylor}) + (1 - \rho)[(r_t^n + \pi^*) + 1.5(\pi_t - \pi^*) - 0.5(u_t - u_t^n)]$ where $\rho=0.5$ is the smoothing parameter, r_t^n is the natural rate of interest estimated according to the Holston-Laubach-Williams model (2017), π_t is the current core inflation and $\pi^* = 2\%$ the target inflation rate, and u_t and u_t^n are the observed and natural unemployment rate, respectively.

Interest rates (%)

	31-Jan	31-Dec	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	-0.31	-0.31	0	0.1	2.0
1-year Euribor	-0.11	-0.12	1	0.8	8.2
1-year government bonds (Germany)	-0.51	-0.57	5	5.5	5.4
2-year government bonds (Germany)	-0.56	-0.61	5	4.6	-2.3
10-year government bonds (Germany)	0.15	0.24	-9	-9.3	-57.2
10-year government bonds (Spain)	1.20	1.42	-22	-22.0	-21.3
10-year government bonds (Portugal)	1.62	1.72	-10	-10.2	-32.8
US					
Fed funds	2.50	2.50	0	0.0	100.0
3-month Libor	2.74	2.81	-7	-7.1	94.9
12-month Libor	3.02	3.01	2	1.5	72.8
1-year government bonds	2.54	2.60	-5	-5.2	66.3
2-year government bonds	2.46	2.49	-3	-3.0	29.7
10-year government bonds	2.63	2.68	-5	-5.5	-16.0

Spreads corporate bonds (bps)

	31-Jan	31-Dec	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
Itraxx Corporate	71	89	-18	-17.8	26.7
Itraxx Financials Senior	84	109	-24	-24.2	42.4
Itraxx Subordinated Financials	172	228	-57	-56.9	75.1

Exchange rates

	31-Jan	31-Dec	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
EUR/USD (dollars per euro)	1.145	1.147	-0.2	-0.2	-8.5
EUR/JPY (yen per euro)	124.650	125.830	-0.9	-0.9	-8.9
EUR/GBP (pounds per euro)	0.873	0.899	-2.9	-2.9	-0.4
USD/JPY (yen per dollar)	108.890	109.690	-0.7	-0.7	-0.5

Commodities

	31-Jan	31-Dec	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
CRB Commodity Index	412.8	409.2	0.9	0.9	-6.9
Brent (\$/barrel)	61.9	53.8	15.0	15.0	-11.1
Gold (\$/ounce)	1,321.2	1,282.5	3.0	3.0	-2.0

Equity

	31-Jan	31-Dec	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
S&P 500 (USA)	2,704.1	2,506.9	7.9	7.9	-4.2
Eurostoxx 50 (euro area)	3,159.4	3,001.4	5.3	5.3	-11.7
Ibex 35 (Spain)	9,056.7	8,539.9	6.1	6.1	-12.9
PSI 20 (Portugal)	5,129.0	4,731.5	8.4	8.4	-8.5
Nikkei 225 (Japan)	20,773.5	20,014.8	3.8	3.8	-11.5
MSCI Emerging	1,049.9	965.8	8.7	8.7	-15.9

Global growth shifts down a gear

The global expansion continues at a more moderate pace.

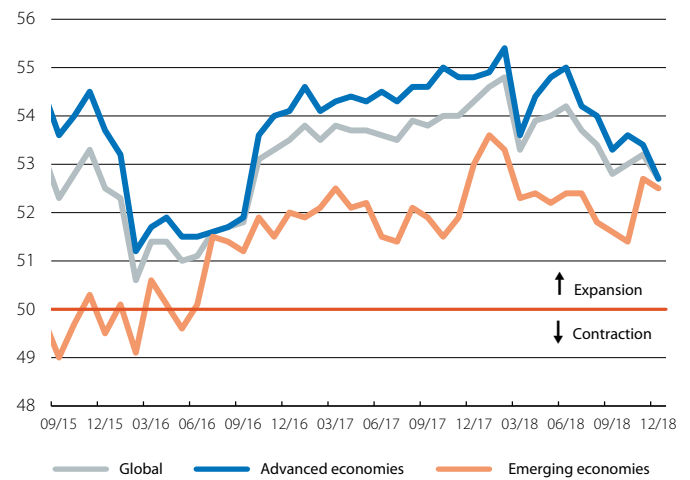
This is what the latest global economic activity indicators suggest, such as the global composite Purchasing Managers' Index (PMI), which remains in expansionary territory (above 50 points) but fell to 52.7 points in December, the lowest level since September 2016. Likewise, the IIF Growth Tracker index, which seeks to estimate emerging markets growth, fell for the fifth consecutive month in December, although it still points to solid growth rates. This moderation in the pace of global economic activity seen in recent months is the result of a combination of factors. Specifically, idiosyncratic factors in advanced economies (particularly in Europe) have added to the tightening of global financial conditions, the deterioration in confidence due to trade tensions and uncertainty over the true extent of the slowdown of the Chinese economy. Given that these factors are expected to persist over the coming quarters, this supports a more moderate growth scenario for 2019 (3.4%, according to CaixaBank Research). Similarly, the IMF shares a similar view. In its economic forecast update in January, it revised its global economic growth forecasts for 2019 slightly downwards, to 3.5% (-0.2 pps), and to 3.6% for 2020 (-0.1 pp). The IMF also pointed out that the escalating trade tensions continue to be a source of risk, although the 90-day truce in the introduction of new tariffs between the US and China and the reasonably positive tone in the subsequent negotiations have allayed concerns about a trade war.

Uncertainty around Brexit persists. In the UK, the House of Commons overwhelmingly rejected the Withdrawal Agreement drawn up between the Government and the EU by a (see the third chart). Following the vote, Prime Minister Theresa May, of the Conservative Party, has to devise an alternative plan that can gather sufficient parliamentary support. In order to win the support of the Eurosceptic wing of her party and of the Irish DUP, the Prime Minister has opted to try to negotiate new concessions with Brussels on the backstop clause on Ireland. In this context, the existing difficulties to achieve a majority in Parliament increase the likelihood of the United Kingdom ending up asking for an extension to the negotiations beyond the date of Brexit (29 March). They also open up the possibility to a large number of alternatives, ranging from the ratification of an amended Withdrawal Agreement to a softer Brexit (for instance, with a permanent customs union) or even a second referendum. On the other hand, the events of the past few weeks (such as the approval in the House of Commons of several amendments) suggest that there is a clear majority in the British Parliament in favour of avoiding a no-deal Brexit.

EURO AREA

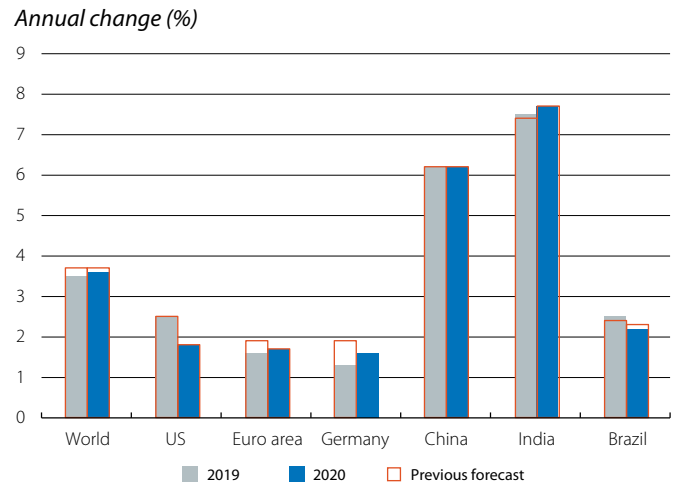
Slowdown in the growth of euro area economic activity. Specifically, the GDP of the euro area registered a 0.2%

Economic activity indicators: composite PMI Index



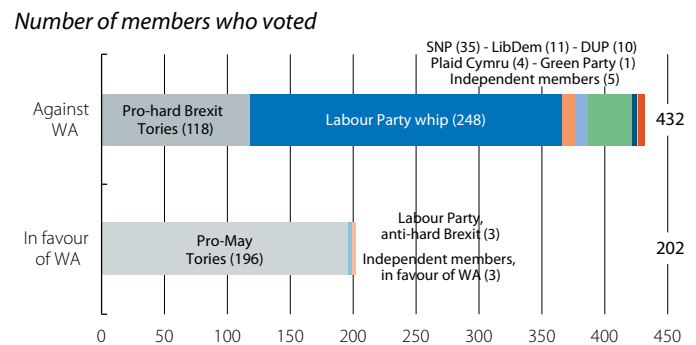
Source: CaixaBank Research, based on data from Markit.

IMF: GDP forecasts for 2019 and 2020



Source: CaixaBank Research, based on data from the IMF (WEO, January 2019).

Brexit: vote on the withdrawal agreement (WA) in the House of Commons



Note: There are 639 members of parliament with the right to vote. Source: CaixaBank Research, based on data from the BBC.

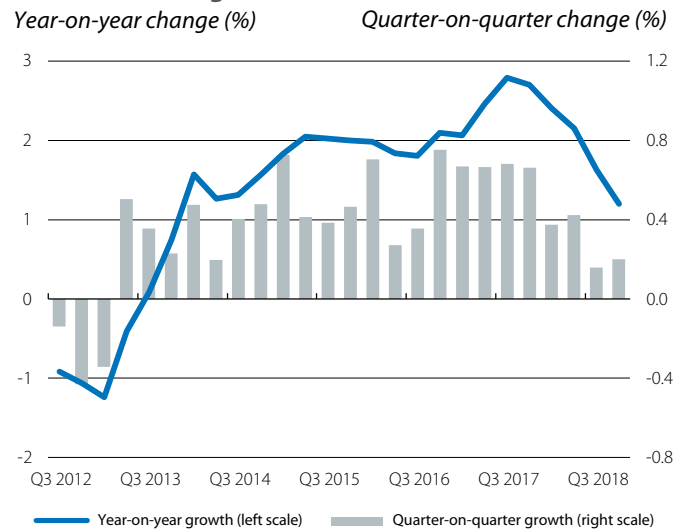
quarter-on-quarter growth (1.2% year-on-year) in the last quarter of the year, in line with CaixaBank Research's forecasts and that adds to the gradual growth slowdown of recent quarters. For 2018, the economy expanded by 1.8%, a steady pace but far from the exceptional growth registered in 2017 (2.5%). In part, this reflects a less favourable external environment, the presence of temporary impediments that are proving more persistent than expected (such as the automotive sector's slow adjustment to the new European emissions regulations) and the entry into a more mature phase of the business cycle (it is estimated that the euro area closed its output gap in 2018). However, domestic demand remains strong, supported by accommodative financial conditions and the good performance of the labour market. Therefore, over the coming quarters, the euro area economy is expected to continue to grow, albeit at a moderate pace that is more in line with its potential. Across countries, for which we have data on, Spain registered particularly strong growth of 0.7% quarter-on-quarter, as did France, with a quarter-on-quarter growth of 0.3% (a lower figure was expected due to the impact of the yellow vest protests). On the other hand, Italy's GDP fell by 0.2% quarter-on-quarter, meaning that the country technically fell into recession (two consecutive quarters with negative quarter-on-quarter growth). Germany's growth figure for the whole of 2018 was also released (1.5%), which implies that Q4 2018 growth laid between 0% and 0.3% quarter-on-quarter.

The latest economic activity indicators suggest that growth remains modest in Q1 2019. Specifically, the composite PMI index for the whole of the euro area, which measures business sentiment, fell for the fifth consecutive month in January down to 50.7 points, its lowest since July 2013 (but still above the 50-point threshold that marks the expansionary territory). By countries, the index deteriorated most notably in France, reaching 47.9 points (48.7 in December), which indicates a contraction of economic activity (having been affected by the yellow vest protests). On the other hand, Germany's PMI rebounded slightly, going from 51.6 points in December to 52.1 points in January. The Economic Sentiment Index (ESI), meanwhile, stood at 106.2 points in January, below the Q4 2018 average for (108.8 points). Finally, consumer confidence, despite having weakened slightly over recent months, remains above its historical average. In this context, we expect private consumption to continue to grow at a good pace and support euro area growth.

US

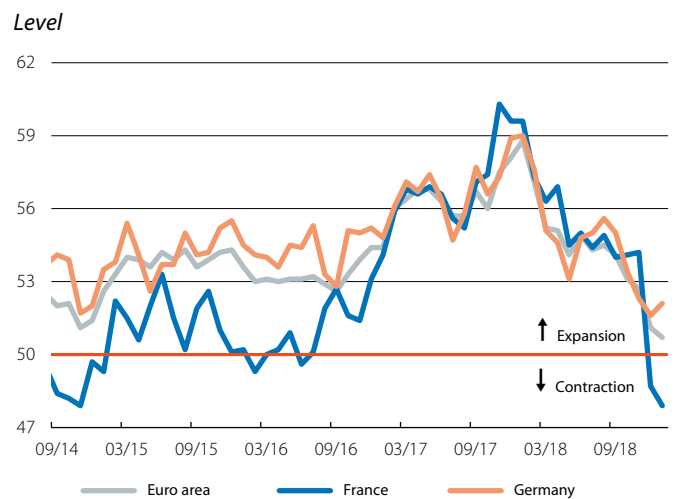
Economic activity remains strong, but some indicators point towards a normalisation of growth. On the one hand, the field survey that is regularly produced by the Fed (known as the Beige Book) continues to indicate a significant rate of economic expansion. On the other hand, a number of indicators point towards a moderation of growth over the coming months and quarters. These include the consumer

Euro area: GDP growth



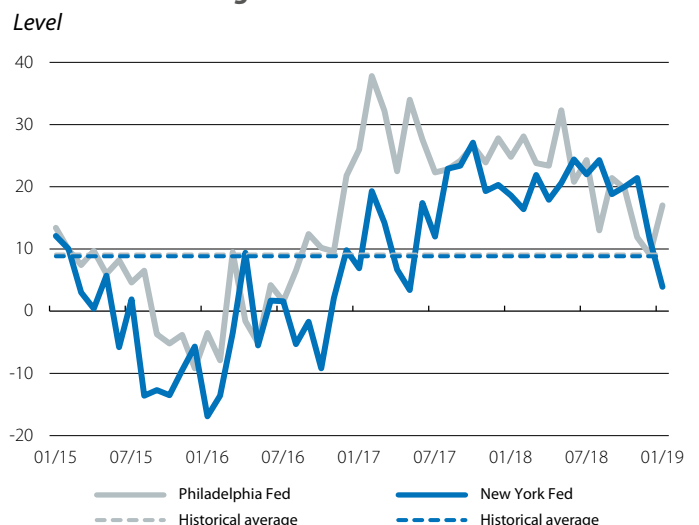
Source: CaixaBank Research, based on data from Eurostat.

Euro area: composite PMI economic activity indicator



Source: CaixaBank Research, based on data from Markit.

US: manufacturing indices



Source: CaixaBank Research, based on data from Thomson Reuters Datastream.

sentiment index developed by the University of Michigan, which decreased to 90.7 points in January – its lowest level since 2016 –, and the manufacturing indicator prepared by the Federal Reserve Bank of New York, which in January dropped to levels of 2017 (the coincident economic activity index) and 2016 (in the case of the expectations index). As we have already been anticipating for some months, this partly reflects the fading of the fiscal stimulus as well as the maturity of the business cycle (which is why growth can be expected to approach its potential rate, slightly below 2%). However, uncertainty surrounding trade tensions and the partial US government shutdown that lasted almost the entire month of January (the longest in history) could have begun to weigh down economic sentiment.

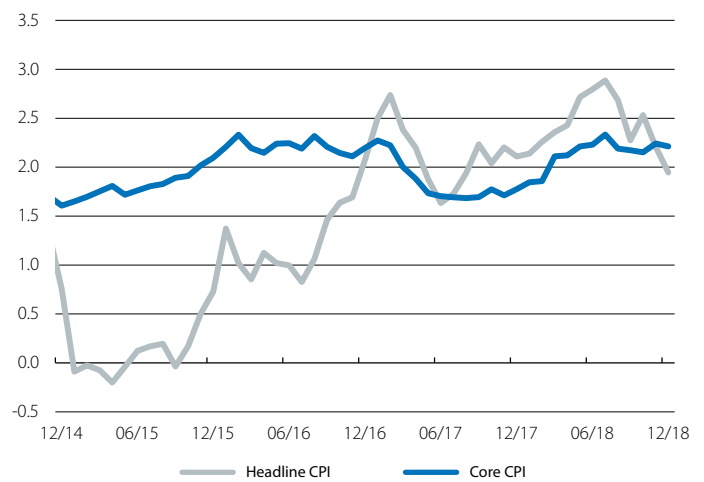
Inflationary pressures remain in line with the Fed’s medium-term target. In particular, US headline inflation moderated in December down to 1.9% (2.2% in November), largely driven by the fall in energy prices. Meanwhile, core inflation, which excludes the most volatile components such as energy and food prices, remained at 2.2%, supported by the positive tone of economic activity. Over the coming months, the energy components will probably weigh down headline inflation due to the base effect of the sharp decline in the oil price in the last quarter of 2018. However, this effect will be temporary and the dynamics of core inflation will continue to be supported by the strength of the labour market.

CHINA

China ends 2018 confirming its economy has cooled. Specifically, GDP growth stood at 6.4% year-on-year in Q4 2018, which places the figure for the whole year at 6.6%. This is in line with the Government’s target, as well as our projections. Although the official data continue to show a gradual slowdown in the economy, as the tertiary sector takes on a more prominent role, other indicators suggest that the growth slowdown could be more pronounced than the official data suggest. These include alternative economic activity indices (including CaixaBank Research’s, as shown in the penultimate chart) and others, such as exports (which fell by 4.4% year-on-year in December) and the Purchasing Managers’ Index (PMI, which stood at 49.4 points in December, its lowest in almost three years). This suggests that the economy may have been affected by the trade tensions with the US and the tariffs imposed by the US Government on Chinese imports (which have begun to have a significantly impact on China’s export sector). For 2019, we expect the slowdown to continue, albeit gradually thanks to the implementation of new stimulus measures by the Chinese Government, such as greater public investment in infrastructure.

US: CPI

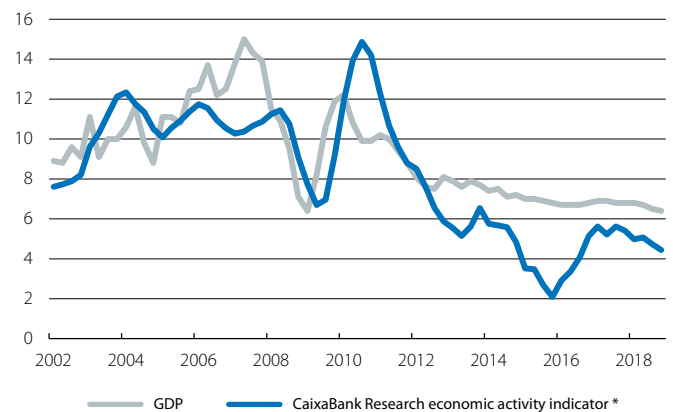
Year-on-year change (%)



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

China: GDP versus the CaixaBank economic activity indicator

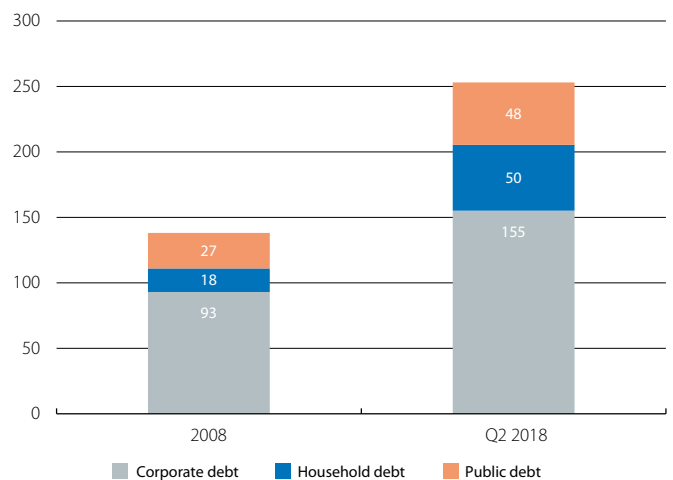
Year-on-year change (%)



Note: * Moving average of the last four quarters of the economic activity index. Source: CaixaBank Research, based on data from the People’s Bank of China and from the National Statistical Office of China.

China: non-financial sector debt

(% of GDP)



Source: CaixaBank Research, based on data from the Bank for International Settlements.

International credibility, key to Mexico's new six-year term

Mexico is an emerging *sui generis* economy. It has a higher income per capita compared to most other emerging countries. A portion of its qualitatively important industrial and service sectors are significantly integrated into the global economy. Furthermore, this segment of the Mexican economy benefits from a human capital that is comparable to that of many advanced countries. At the financial level, the market's depth and integration is also higher than that of most emerging economies. It has also been ambitious in proposing structural reforms (although their results have certainly been less successful than desired). Finally, it has demonstrated two key premises in its economic policy: an orthodox approach to its public finances and an independent monetary policy, which have resulted in a comparatively lower level of macroeconomic imbalances compared to other emerging economies. This combination has put the country in a better position to deal with adverse shocks than it was in previously.¹

Despite this favourable starting position, the notable political change posed by the new six-year presidential term (2018-2024), under the leadership of Andrés Manuel López Obrador, and more uncertain relations with the US than in the past have raised questions over the country's real prospects for the coming years. In particular, there are questions over whether the economy will manage in an increasingly demanding global environment. Above all, it is important to assess whether Mexico's economy is vulnerable to three possible shocks of global origins, given how important global factors are for Mexico. These shocks include a sharper-than-expected slowdown in the US,² a significantly lower-than-expected trend in the oil price³ and a greater tightening of global financial conditions compared to what is currently anticipated.⁴

With regards to the first of these effects, it is well known that the Mexican economy is closely connected to that of the US. Therefore, we would expect to see a significant adverse impact in the event of an adverse shock in the latter country. Based on our own estimates, and as can be seen in the second chart, if US growth in 2019 were 1 pp

1. As an example, the significant tightening of monetary policy has put the country in a position to deal with a potential reference rate reduction in the future, if necessary. Many other emerging economies do not benefit from such a stand point. Furthermore, the fiscal policy margin is greater than in other economies, whose counter-cyclical capacity is limited by fiscal imbalances.

2. The US accounts for 80% of Mexico's exports.

3. Oil production accounted for 3.4% of Mexico's GDP at the end of Q3 2018.

4. We estimate a Vector Autoregressive for US and Mexican GDP, for the Brent oil price, for the financial conditions index in advanced economies and for the Mexican exchange rate against the dollar. We use a sample of quarterly data from Q2 2003.

Mexico: macroeconomic forecasts

Annual percent change, unless otherwise indicated

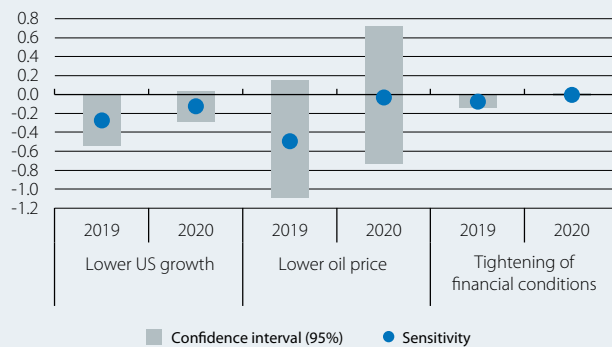
	Average 2008-2016	2017	2018 (e)	2019 (f)	2020 (f)
GDP	2.1	2.1	2.0	2.3	2.3
Inflation	3.9	6.0	4.9	4.1	3.4
Fiscal balance (% of GDP)	-3.4	-1.1	-2.2	-2.5	-2.9
Public debt (% of GDP)	46.4	54.2	53.8	53.7	53.9
Current account (% of GDP)	-1.6	-1.7	-1.3	-1.3	-1.5
External debt (% of GDP)	29.0	37.1	37.8	36.4	35.3

Notes: (e) estimate, (f) forecast.

Source: CaixaBank Research, based on data from the National Institute of Statistics and Geography of Mexico (INEGI) and the IMF.

Mexico: response of GDP to different shocks*

Impact on annual growth (pps)



Note: * A -1-pp shock is applied to annual GDP growth for 2019. A -10% shock is applied compared to the Brent oil price forecasts for 2019. A -0.5-point shock is applied in one quarter to Goldman Sachs' financial conditions index of advanced economies.

Source: CaixaBank Research, based on data from BEA, INEGI, Goldman Sachs and Thomson Reuters Datastream.

lower than expected, Mexico's growth would drop from the 2.3% estimated by CaixaBank Research for 2019 to 2.0%, and from 2.3% to 2.2% in 2020.

A second shock could result from a substantially lower-than-expected trend in the oil price. If the average price of crude oil in 2019 were 10% lower than expected, the historical relations suggest that Mexico's growth would be 0.5 pps lower than in the central scenario in 2019, while it would not be affected in 2020. This is clearly a significant impact for 2019, but the estimate based on historical data is likely to be overestimating it to some extent, since in recent years the importance of oil in the economy has declined.⁵

5. As illustrated by the fact that its production has gone from representing 7.4% of GDP in 2008 to 3.4% in Q3 2018. Typically, a shock of this nature could materialise through Pemex, whereby a reduction in its revenues could end up leading to lower tax revenues and affecting the perceived sovereign risk.

One last shock could be generated by a sudden tightening of financial conditions. If the financial conditions of the advanced countries were to tighten by 0.5 points in early 2019 (slightly more than the tightening registered during the episode known as «taper tantrum» in May 2013, for example), Mexico's growth for the year would be 0.1 pps lower than anticipated in the central scenario.⁶ Unlike with oil, where the historical relationship may be overestimating the impact to some degree, in this situation it is quite possible that the final effect is being underestimated, given the unusual developments in financial conditions seen during the years of quantitative expansion of the advanced countries' central banks.⁷

The information provided by the above econometric exercise allows us to build alternative scenarios to the central forecasts (see the third chart). Specifically, taking the aforementioned underestimation and overestimation biases into consideration, we look to the corresponding side of the confidence interval to correct this bias. So, in order to develop the scenario involving a slowdown in North America, it is considered that the shock of US growth would probably be accompanied by a certain rise in global financial volatility. Therefore, the impact on Mexico would be somewhat greater than the sensitivity discussed above. Specifically, in this scenario, a more reasonable drain on Mexico's growth would be -0.5 pps in 2019 and -0.3 pps in 2020. In a second scenario involving a fall in the oil price, the aforementioned decline in the importance of the oil sector suggests that the country's sensitivity to this shock would be somewhat less and that growth in 2019 would fall by 0.3 pps, with no change in 2020. Finally, in a third scenario involving a tightening of global financial conditions, the impact on Mexico's growth in 2019 would be -0.1 pps. In short, while the negative impact of these three shocks is not overbearing, it is by no means negligible, since it could push growth significantly below the long-term figure (an annual average of 2.5% over the last two decades), especially if more than one of them were to coincide.

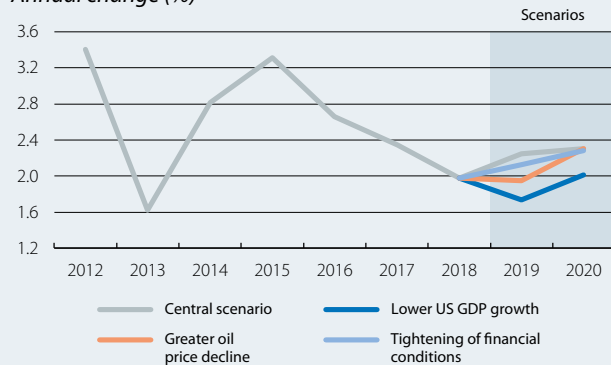
Despite the external source of these shocks, containing the potential negative effects will depend in no small measure on Mexico's ability to maintain its international credibility, which is currently high and above that of virtually any other emerging country. As mentioned in the introduction, the country has demonstrated a reasonably orthodox fiscal policy and an independent monetary policy – two elements that have given it an

6. It should be noted that, due to the particularities of Mexico's economy mentioned earlier, the country's financial conditions have a strong correlation with those of advanced economies, and less so with those of emerging countries.

7. Since 2009, the volatility of GDP growth in emerging economies has been less sensitive to the financial conditions in advanced economies.

Mexico: GDP growth in different scenarios *

Annual change (%)



Note: * The scenarios are developed on the basis of the shocks described in the text.

Source: CaixaBank Research, based on data from BEA, INEGI, Goldman Sachs and Thomson Reuters Datastream.

important anchor of stability and have provided a reasonably healthy macroeconomic picture. Therefore, it is key that the economic policy decisions of the new Government keep its reputation intact.

In this regard, the first decisions taken suggest that the new Government is sensitive to these needs and that, besides its communication style and one or two more controversial matters (such as a possible change to the regulation of banking fees, raising the minimum wage and suspending Mexico City's new airport), it is adopting a pragmatic approach. In particular, investors have welcomed the draft budget, both because of many of the measures it includes and because it is based on macroeconomic forecasts that are in line with analysts' consensus. It forecasts that, in 2019, a primary surplus of 1% of GDP will be achieved (slightly higher than that estimated for 2018, which is 0.8%). This is an ambitious goal that will help to stabilise public debt. It also foresees a total deficit of 2.5% of GDP. Although the containment of expenditure set out in the draft may seem somewhat optimistic, and we cannot rule out the possibility of deviations in terms of revenues, its key traits have reduced the risk of an excessive increase in expenditure (or perhaps only postponed it, depending on how the budget implementation progresses). This is based on various social transfers that were announced during the election campaign and before the inauguration of the new Government.⁸ In short, the draft budget offers an important signal in the right direction to reaffirm Mexico's commitment to macroeconomic stability. The country has much at stake, and setting off in the right direction was key.

8. The increase in transfers of various new programmes has been offset by the reorganisation of many other pre-existing programmes, which are being shut down.

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

UNITED STATES

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
Activity									
Real GDP	1.6	2.2	2.5	2.6	2.9	3.0	–	...	–
Retail sales (excluding cars and petrol)	3.4	4.1	5.3	4.4	5.2	5.4	4.9	4.6	...
Consumer confidence (value)	99.8	120.5	126.0	127.1	127.2	132.6	137.9	136.4	126.6
Industrial production	–1.9	1.6	3.0	3.4	3.4	5.0	4.2	4.1	4.0
Manufacturing activity index (ISM) (value)	51.3	57.4	58.7	59.7	58.7	59.7	57.5	58.8	54.3
Housing starts (thousands)	1,177	1,208	1,259	1,317	1,261	1,234	1,217	1,256	...
Case-Shiller home price index (value)	189	200	205	209	211	212	214	214	...
Unemployment rate (% lab. force)	4.9	4.4	4.1	4.1	3.9	3.8	3.8	3.7	3.9
Employment-population ratio (% pop. > 16 years)	59.7	60.1	60.1	60.3	60.4	60.4	60.6	60.6	60.6
Trade balance ¹ (% GDP)	–2.7	–2.8	–2.8	–2.9	–2.9	–2.9	–3.0	...	...
Prices									
Headline inflation	1.3	2.1	2.1	2.2	2.7	2.6	2.5	2.2	1.9
Core inflation	2.2	1.8	1.8	1.9	2.2	2.2	2.1	2.2	2.2

Note: 1. Cumulative figure over last 12 months.

Source: CaixaBank Research, based on data from the Department of Economic Analysis, Department of Labor, Federal Reserve, Standard & Poor's, ISM and Thomson Reuters Datastream.

JAPAN

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
Activity									
Real GDP	0.6	1.9	2.0	1.2	1.4	0.1	–	...	–
Consumer confidence (value)	41.7	43.8	44.5	44.4	43.7	43.4	43.0	42.9	42.7
Industrial production	0.2	2.9	2.7	2.0	1.3	–0.1	2.5	0.6	–1.0
Business activity index (Tankan) (value)	7.0	19.0	25.0	24.0	21.0	19.0	–	19.0	–
Unemployment rate (% lab. force)	3.1	2.8	2.7	2.5	2.4	2.4	2.4	2.5	...
Trade balance ¹ (% GDP)	0.7	0.5	0.5	0.4	0.4	0.1	0.0	–0.2	–0.2
Prices									
Headline inflation	–0.1	0.5	0.6	1.3	0.6	1.1	1.4	0.9	0.3
Core inflation	0.6	0.1	0.3	0.4	0.3	0.3	0.4	0.3	0.3

Note: 1. Cumulative figure over last 12 months.

Source: CaixaBank Research, based on data from the Communications Department, Bank of Japan and Thomson Reuters Datastream.

CHINA

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
Activity									
Real GDP	6.7	6.8	6.8	6.8	6.7	6.5	–	6.4	–
Retail sales	10.4	10.3	9.9	9.9	9.0	9.0	8.6	...	...
Industrial production	6.1	6.6	6.2	6.6	6.6	6.0	5.9	5.4	5.7
PMI manufacturing (value)	50.3	51.6	51.7	51.0	51.6	51.1	50.2	50.0	49.4
Foreign sector									
Trade balance ¹ (value)	512	420	420	404	377	349	345	349	352
Exports	–8.4	7.9	9.6	13.7	11.5	11.7	14.3	3.9	–4.4
Imports	–5.7	16.3	13.4	19.4	20.6	20.4	20.3	2.9	–7.6
Prices									
Headline inflation	2.0	1.6	1.8	2.2	1.8	2.3	2.5	2.2	1.9
Official interest rate ² (value)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Renminbi per dollar (value)	6.6	6.8	6.6	6.4	6.4	6.8	6.9	6.9	6.9

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

Source: CaixaBank Research, based on data from the National Bureau of Statistics of China and Thomson Reuters Datastream.

EUROPEAN UNION

Activity and employment indicators

Values, unless otherwise specified

	2016	2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18	01/19
Retail sales (year-on-year change)	1.6	2.3	1.7	1.7	1.1	2.3	1.1	...	...
Industrial production (year-on-year change)	1.6	3.0	3.1	2.4	0.7	1.2	-3.3	...	...
Consumer confidence	-7.8	-6.0	-4.2	-5.3	-5.7	-5.9	-6.6	-8.3	-7.9
Economic sentiment	104.2	110.1	113.2	111.8	110.9	109.7	109.5	107.4	106.2
Manufacturing PMI	52.5	57.4	58.3	55.5	54.3	52.0	51.8	51.4	50.5
Services PMI	53.1	55.6	56.4	54.6	54.4	53.7	53.4	51.2	50.8
Labour market									
Employment (people) (year-on-year change)	1.4	1.6	1.5	1.5	1.3	...	...	-	-
Unemployment rate: euro area (% labour force)	10.0	9.1	8.5	8.3	8.0	7.9	7.9	7.9	...
Germany (% labour force)	4.2	3.8	3.5	3.4	3.4	3.3	3.3	3.3	...
France (% labour force)	10.1	9.4	9.2	9.0	9.1	9.1	9.1	9.1	...
Italy (% labour force)	11.7	11.3	10.9	10.7	10.3	10.5	10.5	10.3	...
Spain (% labour force)	19.6	17.2	16.2	15.4	15.0	14.4	14.4	14.3	...

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

Prices

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

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
General	0.2	1.5	1.4	1.3	1.7	2.1	2.2	2.0	1.6
Core	0.8	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.1

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

Foreign sector

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

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
Current balance: euro area	3.4	3.5	3.5	3.6	3.9	3.6	3.5	3.3	...
Germany	8.5	8.0	8.0	8.0	8.2	7.8	7.8	7.6	...
France	-0.8	-0.6	-0.6	-0.4	-0.3	-0.5	-0.5	-0.5	...
Italy	2.5	2.8	2.8	2.7	2.7	2.7	2.7	2.7	...
Spain	2.3	1.8	1.8	1.8	1.5	1.2	1.0	0.9	...
Nominal effective exchange rate¹ (value)	94.3	96.5	98.6	99.6	98.5	99.2	98.9	98.3	98.4

Note: 1. Weighted by flow of foreign trade. Higher figures indicate the currency has appreciated.

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

Credit and deposits of non-financial sectors

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

	2016	2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	10/18	11/18	12/18
Private sector financing									
Credit to non-financial firms ¹	1.8	2.5	3.0	3.3	3.7	4.2	3.9	4.0	4.0
Credit to households ^{2,3}	1.7	2.6	2.8	2.9	2.9	3.1	3.2	3.3	3.3
Interest rate on loans to non-financial firms ⁴ (%)	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	...
Interest rate on loans to households for house purchases ⁵ (%)	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.6	...
Deposits									
On demand deposits	10.0	10.1	10.2	9.2	8.0	7.3	7.3	7.1	6.9
Other short-term deposits	-1.9	-2.7	-2.5	-2.2	-1.5	-1.4	-1.0	-1.0	-0.8
Marketable instruments	2.7	1.4	-1.3	-5.6	-3.2	-5.3	-4.7	-5.8	0.6
Interest rate on deposits up to 1 year from households (%)	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	...

Notes: 1. Weighted by flow of foreign trade. 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 European Central Bank.

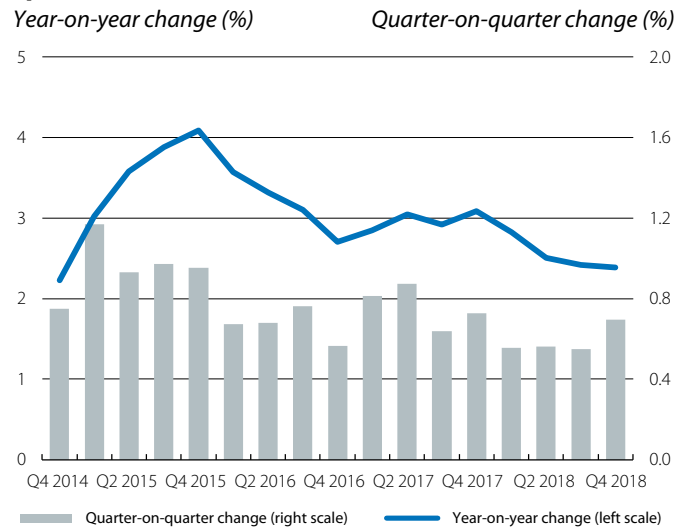
The strength of domestic demand compensates for a less favourable external environment

The Spanish economy sees a very gradual moderation in its growth rate. GDP ended the year on a good note, growing in Q4 by 0.7% quarter-on-quarter and 2.4% year-on-year. Thus, for the whole of 2018 the Spanish economy grew by 2.5% (3.0% in 2017). This was in line with analysts' expectations and confirmed the gradual slowdown in economic activity towards more sustainable levels of growth. By component, domestic demand was the main driver of growth (+2.9 pps). This offset the negative net contribution of the foreign sector (-0.4 pps), which was weighed down by an international context that has deteriorated due to the trade tensions between the US and China and the uncertainties at the European level (Brexit, the conflict between Italy and the European Commission, and other factors restricting growth in the euro area). For 2019, we expect economic activity to continue to advance at a slightly more moderate rate than in recent years, but still above the rate of most countries in the euro area. Economic activity will be underpinned by the strength of job growth and persistent accommodative financial conditions in the euro area, which will continue to support consumption and investment. However, the persistence of a less favourable external environment and being surrounded by geopolitical and macrofinancial uncertainties suggests that external demand will continue to provide a very limited net contribution to growth.

The economic activity indicators are offering mixed signals. On the one hand, various indicators reflect a slowdown in industry, brought about by the poor performance of the energy sector (which is notoriously volatile) and the automotive sector. The latter has been particularly affected by the new European emissions regulations, as well as by the trade tensions. In particular, in November the industrial production index fell by 2.6% year-on-year (seasonally adjusted and corrected for calendar effects), while turnover in the sector fell by 2.7% year-on-year (three-month moving average). Furthermore, in December the PMI index for the manufacturing sector fell 1.5 points down to 51.1 points. On the other hand, the indicators in the services sector proved more encouraging. Turnover increased in November (+6.1%) and the services PMI index remained at a comfortable 54.0 points in December for the third consecutive month.

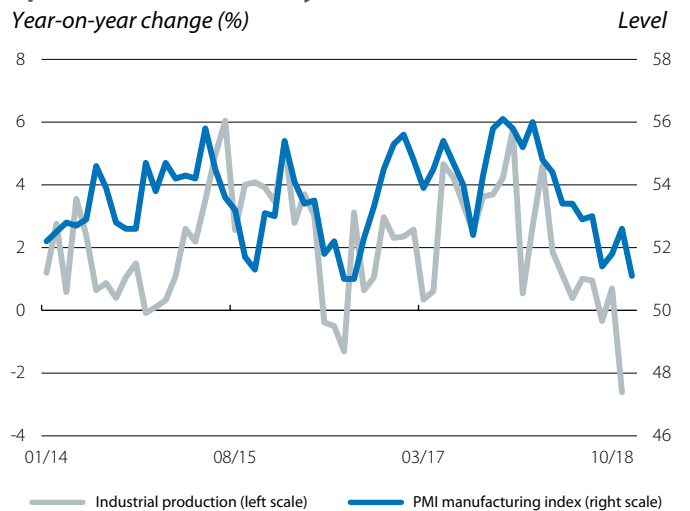
The labour market ended 2018 on a high note. According to data from the labour force survey (LFS), the number of people in employment increased by 566,000 in Q4 (four-quarter cumulative figure), a similar number to the increase in people registered with Social Security over the same period (564,000). As such, according to the LFS, the pace of job creation accelerated to 3.0% year-on-year in Q4 2018 following several quarters of a slight slowdown (2.5% in Q3 2018). This was partly brought about by the turnaround in public sector job creation, which rose by 4.4% year-on-year (+3.0% year-on-year in Q4 2017). Unemployment, meanwhile, dropped significantly in 2018, reaching 14.4% in Q4 2018 (a -2.1pp

Spain: GDP



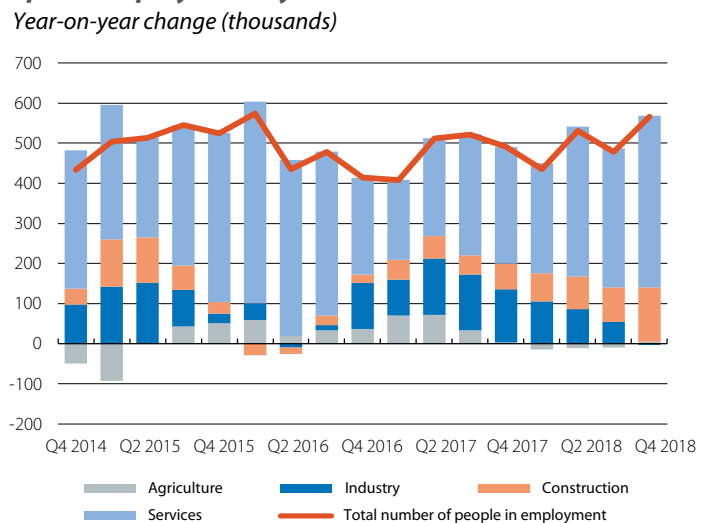
Source: CaixaBank Research, based on data from the National Statistics Institute.

Spain: economic activity indicators



Source: CaixaBank Research, based on data from the INE and Markit.

Spain: employment by sector



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

decrease over the past four quarters). Looking ahead to 2019, the improvement in the labour market is expected to continue. However, after an exceptionally good end to last year, the improvement speed is likely to moderate in line with the growth expectations for the Spanish economy.

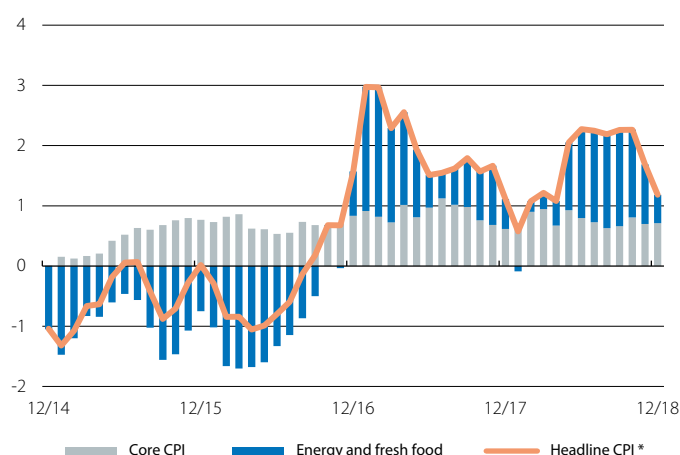
Inflation is moderated by energy prices. In January, headline inflation slowed to 1.0%, 0.2 pps lower than December. While awaiting the breakdown by component, the National Statistics Institute attributes this trend to the drop in the price of gas and the slowdown in fuel prices. January's decline continues that of the previous month, for which the breakdown by component is already available and in which headline inflation fell by 5 decimal points down to 1.2%, while core inflation remained at 0.9%. Therefore, on average for 2018, headline inflation stood at 1.7%, with core inflation at 0.9%.

The external surplus loses steam. In November, the current account balance remained positive, but fell to 0.9% of GDP (12-month cumulative figure), 0.9 pps lower than last year. The erosion witnessed in the past 12 months has occurred in a more adverse external environment, with an overall deterioration in the balance of goods (-0.5 pps versus November 2017) and a lower surplus in the balance of services (-0.4 pps versus November 2017). Specifically, the balance of trade for goods registered a deficit of 2.7% of GDP (12-month cumulative figure). This deterioration is largely attributable to the balance of non-energy goods and, in particular, to the contrast between the slowdown in non-energy exports (2.5% in November versus 3.2% in October, based on 12-month cumulative figures) and the strength of imports (4.0% in November and 4.1% in October). The trade surplus for services, meanwhile, moderated due to the slowdown in exports of non-tourist services and the increase in imports of tourist services. Over the coming months, the less favourable external environment and the pull of domestic demand on imports will probably continue to erode the current account balance, although the decline in the oil price in late 2018 could offer some relief.

The General State Budgets for 2019 incorporate a fiscal adjustment in revenues. The public accounts presented in January in Congress incorporate the majority of the measures already announced in the draft sent to Brussels in October, but with a greater reduction to the deficit, from 2.7% of GDP to 1.3% (-0.5 pps compared to the draft of October, after the Senate failed to approve the new deficit plan agreed with the European Commission). The positive effect of the business cycle would reduce the budget deficit by around 0.5 pps, making additional measures necessary to adjust the remaining 0.9 pps. The budgets place most of these measures on the revenue side (creation of a tax on financial transactions, a digital tax, a minimum rate for corporation tax, etc.), although their final impact is highly uncertain and they will be difficult to implement. Therefore, the adjustment could end up being less than that proposed, as has already been pointed out by the Bank of Spain and the Independent Authority for Fiscal Responsibility (AIReF). In any case, it should be borne in mind that the accounts are pending parliamentary approval, and if they are not finally approved, this would lead to a lower reduction to the deficit.

Spain: CPI

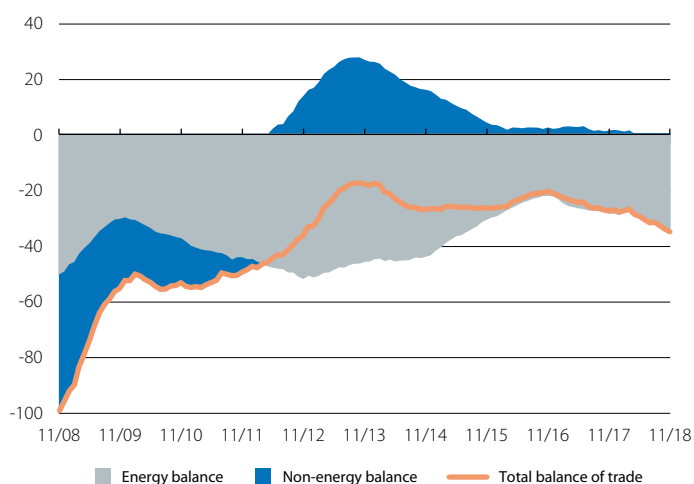
Contribution to year-on-year growth (pps)



Note: * Year-on-year change.
Source: CaixaBank Research, based on data from the National Statistics Institute.

Spain: balance of trade

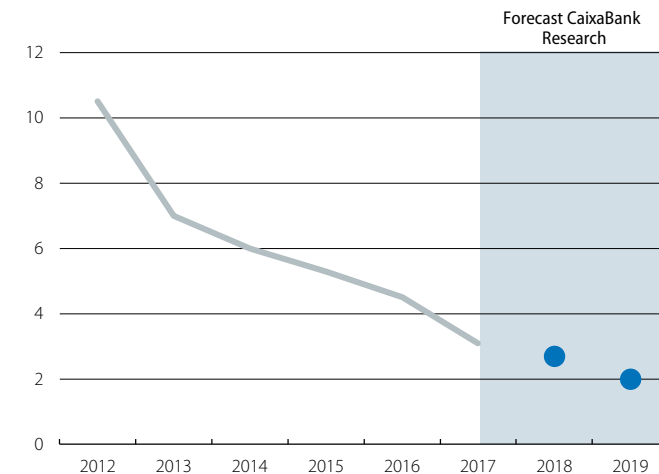
12-month cumulative figures (EUR billions)



Source: CaixaBank Research, based on data from the Department of Customs.

Spain: budget deficit

(% of GDP)



Source: CaixaBank Research, based on data from Eurostat.

Activity and employment indicators

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

	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	11/18	12/18	01/19
Industry									
Industrial production index	1.9	3.2	2.7	0.9	0.4	...	-2.8	...	...
Indicator of confidence in industry (value)	-2.3	1.0	2.8	1.2	-2.6	-1.9	-0.8	-3.4	-4.0
Manufacturing PMI (value)	52.9	54.8	55.3	53.7	52.4	51.8	52.6	51.1	52.4
Construction									
Building permits (cumulative over 12 months)	43.7	22.9	25.1	28.1	25.8	...	24.7	...	...
House sales (cumulative over 12 months)	13.1	14.1	15.8	15.6	13.1	...	10.6	...	...
House prices	1.9	2.4	2.7	3.8	3.2	...	-	-	-
Services									
Foreign tourists (cumulative over 12 months)	8.2	10.0	8.2	5.3	1.5	0.9	0.7	1.1	...
Services PMI (value)	55.0	56.4	56.8	55.8	52.6	54.0	54.0	54.0	...
Consumption									
Retail sales	3.8	0.9	1.8	0.1	-0.2	1.3	1.1	0.8	...
Car registrations	11.4	7.9	11.8	9.2	17.0	-7.6	-12.6	-3.5	...
Consumer confidence index (value)	-6.3	-3.4	-3.9	-3.0	-3.7	-6.2	-4.9	-7.2	-6.9
Labour market									
Employment ¹	2.7	2.6	2.4	2.8	2.5	3.0	-	-	-
Unemployment rate (% labour force)	19.6	17.2	16.7	15.3	14.6	14.4	-	-	-
Registered as employed with Social Security ²	3.0	3.6	3.4	3.1	2.9	3.0	2.9	3.1	...
GDP	3.2	3.0	2.8	2.5	2.4	2.4	-	-	-

Prices

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

	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	11/18	12/18	01/19
General	-0.2	2.0	1.0	1.8	2.2	1.7	1.7	1.2	1.0
Core	0.8	1.1	1.0	1.0	0.8	0.9	0.9	0.9	...

Foreign sector

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

	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	11/18	12/18	01/19
Trade of goods									
Exports (year-on-year change, cumulative over 12 months)	1.7	8.9	5.8	5.2	4.5	...	3.6	...	...
Imports (year-on-year change, cumulative over 12 months)	-0.4	10.5	6.6	6.9	6.2	...	5.8	...	...
Current balance	25.2	21.5	20.8	17.9	13.8	...	10.5	...	...
Goods and services	36.0	33.6	33.5	29.8	25.7	...	23.2	...	...
Primary and secondary income	-10.7	-12.1	-12.7	-12.0	-11.9	...	-12.7	...	...
Net lending (+) / borrowing (-) capacity	27.8	24.2	23.8	21.2	17.3	...	14.3	...	...

Credit and deposits in non-financial sectors³

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

	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	11/18	12/18	01/19
Deposits									
Household and company deposits	2.5	2.8	2.5	3.0	3.4	3.7	3.3	4.0	...
Sight and savings	16.0	17.6	12.3	11.0	10.3	10.0	9.9	9.7	...
Term and notice	-16.0	-24.2	-23.1	-20.7	-18.7	-16.7	-17.2	-15.7	...
General government deposits	-14.2	-8.7	16.7	17.6	10.4	14.3	20.5	8.4	...
TOTAL	1.2	1.9	3.2	3.8	3.8	4.4	4.4	4.2	...
Outstanding balance of credit									
Private sector	-3.6	-2.2	-2.2	-2.8	-2.3	-2.3	-2.1	-2.8	...
Non-financial firms	-5.3	-3.6	-4.4	-6.4	-5.6	-5.9	-5.4	-6.9	...
Households - housing	-3.7	-2.8	-2.4	-2.0	-1.7	-1.4	-1.4	-1.4	...
Households - other purposes	2.0	3.7	4.9	5.0	5.5	4.6	4.6	4.0	...
General government	-2.9	-9.7	-12.5	-9.4	-8.9	-11.8	-11.2	-11.7	...
TOTAL	-3.6	-2.8	-2.9	-3.2	-2.7	-2.9	-2.7	-3.4	...
NPL ratio (%)⁴	9.1	7.8	6.8	6.4	6.2	6.1	6.0	6.1	...

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

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

Portugal: solid growth but constrained by the global slowdown

The economic outlook is positive, but not without risks.

Domestic demand continues to show strength and is well supported by the buoyancy of the labour market (both in terms of job creation and income recovery), by the gradual recovery of lending and by an environment that is conducive to public investment (given that a general election will be held in October). Therefore, the prospects for growth remain favourable and the economy is expected to continue to grow at close to 2%, comfortably above its historical average of the last 20 years. However, external sources of uncertainty (geopolitical tensions, temporary factors restricting growth in the euro area, etc.) are weighing down the economic activity of Portugal's main trading partners. If this uncertainty persists for longer than expected, or if it intensifies, it could restrict Portugal's economic activity, given the country's considerable trade openness. In light of this, and the revisions to global growth and that of the euro area in particular, at CaixaBank Research we have revised the forecast for Portugal's growth in 2019 and 2020 slightly downwards, although we still expect to see healthy rates of growth (1.8% and 1.7%, respectively).

Some indicators suffered temporary setbacks in Q4 2018.

In particular, in the last quarter of the year, the automotive sector was affected by a depletion of its stocks and an extended period of strikes by dockworkers in the port of Setúbal. These events restricted the economy's exports and may have led to a reduction in the contribution of the automotive sector (which accounts for around 7% of GDP) to growth in Q4 2018. Given these constraints, GDP in Q4 (which is published on 14 February) could be somewhat lower than expected. Nevertheless, these are temporary factors whose impact will fade over the coming quarters. Furthermore, the outlook for Portugal's economic activity remains favourable and benefits from the structural improvements implemented in recent years (particularly in terms of increased competitiveness, a more flexible labour market and the greater weight of tradable sectors).

Inflation remained contained in 2018. Inflation in Portugal is following a moderate trend and inflationary pressures are lower than those of the euro area as a whole. Thus, headline inflation as measured by the harmonised index of consumer prices (HICP) stood at 1.2% on average in 2018 (well below the 1.7% of the euro area as a whole). On the other hand, core inflation, which excludes the components with the most volatile prices such as energy and unprocessed food, stood at 0.9%.

The labour market is entering a phase of consolidation.

Whereas 2017 was marked by a significant reduction in

Portugal: growth forecasts

Annual change (%)

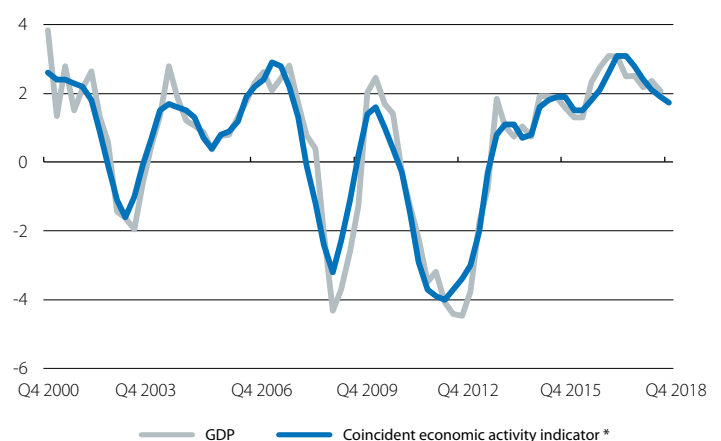
	2017	2018 (e)	2019 (f)	2020 (f)
GDP	2.8	2.1	1.8	1.7
Private consumption	2.3	2.3	1.8	1.8
Public consumption	0.2	0.7	0.8	0.3
Gross fixed capital formation	9.2	4.2	3.7	4.4
Exports	7.8	3.9	4.1	3.2
Imports	8.1	4.9	2.2	3.6

Notes: (e) Estimate. (f) Forecast.

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

Portugal: GDP and coincident economic activity indicator

Year-on-year change (%)



Note: * Level.

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

Portugal: harmonised index of consumer prices (HICP)

Annual change (%)



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

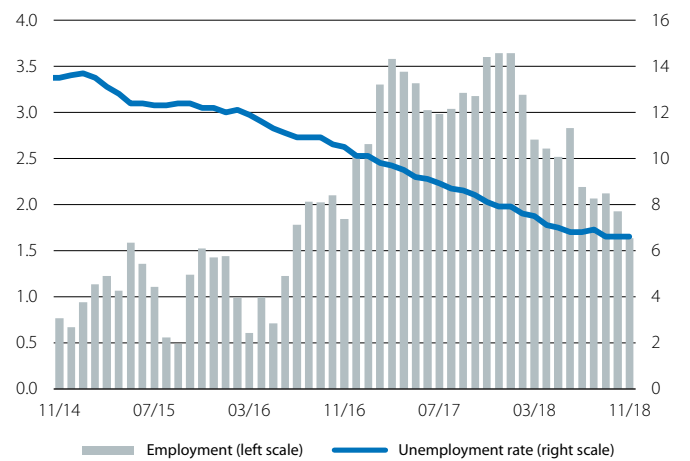
unemployment (the unemployment rate fell by 2.2 pps to 8.9%) and a substantial rate of job creation (above 3%), 2018 was marked by the consolidation of the recovery in the labour market. This suggests that it has entered a more mature phase of the cycle, with smaller declines in unemployment rates and less pronounced employment growth (see the Focus «Portugal: have we reached the end of the golden recovery of the labour market?» in this very *Monthly Report*). Indeed, in November employment growth slowed to 1.6% year-on-year (1.9% in October), while in December 2018 the unemployment rate stood at 6.7%. This is the same figure as that of November and only 0.1 pp higher than the 6.6% registered in October (its lowest point since the end of 2002). Therefore, the unemployment rate for the whole year on average will have been 7.0%, its lowest annual level since 2004.

The public accounts showed improvement in 2018.

According to cash flow data, the budget balance will have ended 2018 at -1.0% of GDP, which is an improvement on the -1.3% of 2017 thanks to the greater buoyancy of revenues (5.2% year-on-year, based on data up to December) compared to expenditure (4.5% year-on-year). This improvement was favoured by the business cycle, which facilitated the growth in tax revenues and contributory receipts (5.3% year-on-year), two components that together account for almost all of the increase in revenues seen in 2018. In light of these figures, which are based on cash flow criteria, it is worth recalling that the European Commission assesses countries' public accounts on the basis of national accounting criteria, which are due to be published on 26 March.

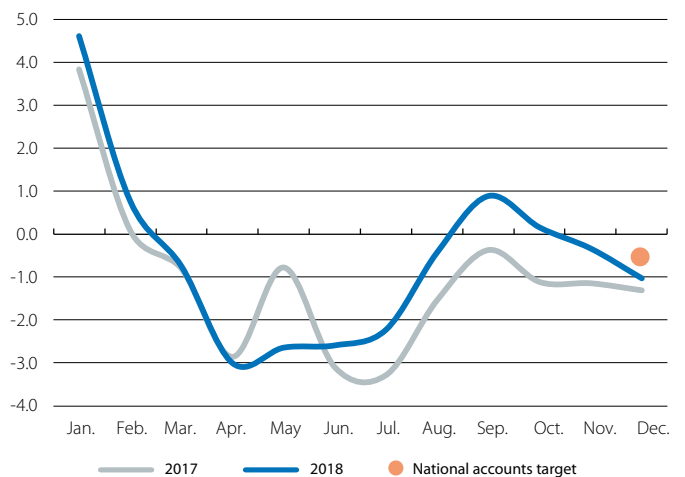
The banks are taking advantage of the economic outlook to clean up their balance sheets. The non-performing loan rate fell to 11.3% in Q3 2018, a 0.4-pp reduction compared to the previous quarter. This placed the total of non-performing loans in absolute terms at 31,171 million euros in Q3, which is 19,288 million euros below the high-point reached in Q2 2016. However, despite the improvement, this rate remains high and above the euro area average (3.4% in September). On the other hand, thanks to strong growth in consumer lending (11.7% year-on-year) and a recovery in residential lending (-1.1% compared to the -2.2% of November 2017), in November 2018 the total balance of lending to individuals stabilised following three months of moderate increases (which had brought an end to eight years of contraction). The stock of lending to companies, meanwhile, continued to decline (-4.3% year-on-year) due to the sales of non-performing loan portfolios that the banks are carrying out in order to clean up their balance sheets (correcting for this effect, the company loans portfolio increased by 1.1% year-on-year).

Portugal: employment and unemployment rate*
Year-on-year change (%)



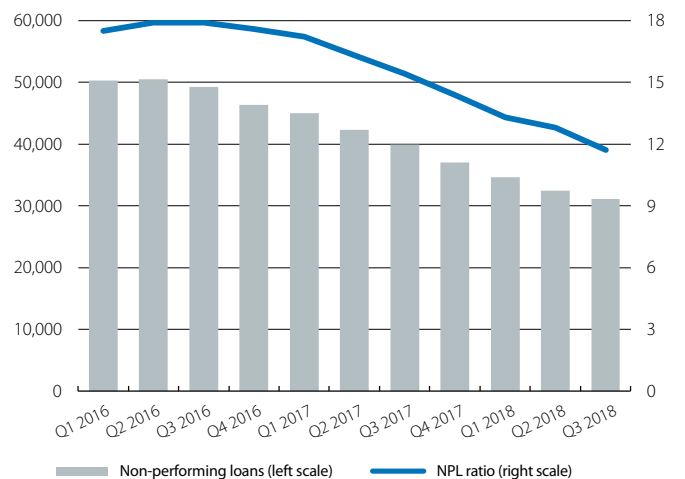
Note: * Seasonally-adjusted data.
Source: CaixaBank Research, based on data from Datastream.

Portugal: central government balance
(% of GDP)



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

Portugal: non-performing loans
(EUR millions)



Source: CaixaBank Research, based on data from the Bank of Portugal.

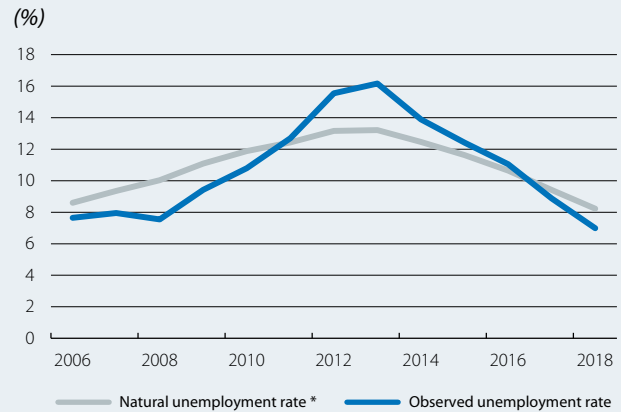
Portugal: have we reached the end of the golden recovery of the labour market?

The reduction of unemployment has been the most significant aspect of the Portuguese economic recovery in recent years, to the point where the number of unemployed is currently lower than it was before the 2008 financial crisis.¹ Furthermore, we need to go back to the end of 2002 to find an unemployment rate as low as that registered in the second half of 2018 (6.7%). Faced with the slowdown in the economy expected in 2019 and the recent stabilisation of the unemployment rate, it is a good time to analyse what path unemployment might follow in the future.

This matter requires us to talk about the concept of the natural unemployment rate, i.e. the rate beyond which the reduction of unemployment generates growing wage or inflationary pressures (also known as the NAWRU or NAIRU).² Although the natural rate of unemployment is not observed directly, its link with inflation allows us to estimate it based on the relationship between observed unemployment and inflation (the so-called Phillips curve). Specifically, if there is a sustained acceleration in inflationary and wage pressures above their reasonable levels (such as an inflation rate of 2%, for instance), we can deduce that the observed unemployment rate is below its natural rate.

What do we know about Portugal's natural rate of unemployment? As can be seen in the chart, between 2008 and 2013 both the observed and the natural unemployment rate rose rapidly. This suggests that the labour market was affected by both the economic cycle and by structural factors. In fact, during periods of recession, the lower economic activity initially causes business activity to reduce or even come to an end, destroying jobs. As the recession intensifies, the amount of time for which people are unemployed also increases. This makes their re-entry into the labour market more difficult, since their skills gradually deteriorate and cease to meet the market's requirements. In this context, the number of people in long-term unemployment increases, as occurred in Portugal between 2008 and 2013.³ In addition, structural unemployment is accentuated not only by this loss of skills but also by a greater imbalance between the skills that are required by the market and those that the workers possess (the so-called skills mismatch). This was observed in the last recession, both in Portugal and in other economies of the euro area

Portugal: measures of unemployment



Note: * Unemployment rate consistent with stable wage growth (non-accelerating wage rate of unemployment, or NAWRU) calculated by the European Commission.
Source: CaixaBank Research, based on data from the European Commission and Datastream.

(probably due to the construction crisis, which led to the consequent destruction of many jobs in the sector).⁴

However, with the economic recovery, some of these structural factors are undone. As can be seen in the chart, the natural rate of unemployment has fallen to 8.2% in 2018 (as estimated by the European Commission). This figure is higher than the observed unemployment rate (which probably stood at 7% in 2018), reflecting a greater maturity of the labour market and suggesting the possibility of stronger wage dynamics. In fact, the net monthly average remuneration of employees grew by 3.8% year-on-year on average in the first three quarters of 2018, although this trend may also reflect other factors.⁵ There are also other trends that reflect the greater maturity of the labour market. Specifically, the unemployment rate stabilised at 6.7% in December for the second consecutive month, while growth in employment slowed down, although there is still scope for recovery in sectors where firms have difficulties finding suitable workers (such as construction).⁶

In short, with the labour market having thoroughly consolidated its recovery, it is possible that the lower rate of unemployment will contribute to stronger wage pressures in the future. Nevertheless, the estimates of the natural rate of unemployment must be interpreted with caution, since they vary over time and depending on the methodology used to calculate them.⁷

1. In 2018, on average there were around 364,000 people in unemployment (data available up to November), notably less than the 418,000 registered in 2008.

2. NAIRU (non-accelerating inflation rate of unemployment) and NAWRU (non-accelerating wage rate of unemployment) are the unemployment rates consistent with stable inflation/wage growth.

3. In 2013, people in long-term unemployment accounted for 62% of the total number of unemployed.

4. European Central Bank (2014), «The impact of the economic crisis on euro area labour markets», *Monthly Bulletin*, November.

5. Such as the elimination of an additional tax on income that had been established in 2011.

6. This is reflected in the annual costs survey of the economy for 2017.

7. European Central Bank (2015), «Comparisons and contrasts of the impact of the crisis on euro area labour markets», Occasional Paper Series.

The sun is (still) shining in Portugal

Tourism has always been a very important sector for the Portuguese economy, and in recent years its importance has increased even further. The sector, which accounts for 10% of the country's employment, has registered strong growth in recent years, well above that of the economy as a whole. This development has been largely driven by the arrival of international tourists, who have also contributed to the vitality of the Portuguese real estate market that has recently been observed. In 2018, however, the sector has shown the first signs of deceleration. Given the significant role it plays, it is important to analyse the consequences of this slowdown for the Portuguese economy.

The gross value added (GVA) generated by tourism has been growing at a rate above that of the Portuguese economy as a whole. For instance, in 2017 it achieved a growth rate of 13.6%, compared to nominal GDP growth of 4.4%. Therefore, as a result of this buoyancy, the tourism sector is taking on an even greater importance than before, and in 2017 it accounted for 7.5% of the national GVA.

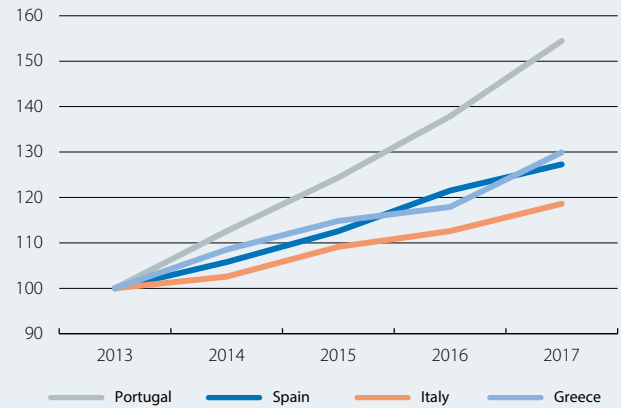
Tourism is also a key sector for Portugal's external accounts, especially due to its enormous contribution to the current account balance. As an example, if we exclude the contribution from the tourism sector, in 2017 the current account balance would have been -5.1% of GDP (versus the +0.5% actually registered). In addition, the sector's external surplus has increased in recent years, with tourism exports rising from 5.4% of GDP in 2013 to 7.8% in 2017, a growth well above that of imports (tourism exports as a proportion of total exports rose from 13% to 19% between 2013 and 2017, whereas tourism imports as a proportion of the total remained at 5%). Thus, in recent years the tourism sector has fed the country's external lending capacity, in a context of a deterioration in the balances of the other components.

The strong performance of the Portuguese tourism sector is even more evident when comparing it with other European Mediterranean countries (see first chart). Portugal has registered a growth in the inflow of tourists well above that of countries such as Spain, Italy or Greece, which offer similar tourist attractions in terms of climate and culture. Specifically, between 2013 and 2017, these countries registered an increase in the inflow of tourists of around 25%, compared to 55% growth in Portugal.

Following the notable growth of the sector in recent years, 2018 has brought with it the first signs of a slowdown, with a stabilisation in the number of non-resident tourists.¹ Faced with these indicators, we

Portugal: inflow of tourists

Index (100 = 2013)



Source: CaixaBank Research, based on data from Eurostat.

Portuguese tourism sector: sensitivity of GDP

Annual change (%)

	2018 *	Central scenario	Alternative scenario
Tourism exports	10.0	5.0	0.0
Impact on GDP growth (pps) **		-0.15	-0.35

Notes: * Estimate based on data available up to November.

** Differential compared to CaixaBank Research's GDP growth forecast for 2019.

Source: CaixaBank Research.

conducted a sensitivity test (see table) to analyse what impact a slowdown in tourism exports in 2019 would have on GDP.² According to these estimates, in the scenario of a moderate slowdown in the tourism sector as suggested by the indicators (central scenario), the slowdown would deduct 0.15 pps from GDP growth. On the other hand, a hypothetical scenario involving the stagnation of the sector could deduct up to 0.35 pps from growth, a figure that illustrates the importance of tourism for the national economy.

Overall, the outlook for the sector over the next few years is positive. Proof of this is the fact that, despite some signs of a slowdown, revenues per room remain on the rise. This reflects the improvement achieved in the quality of Portugal's tourist services and indicates that the sector is better prepared to weather an environment of stabilisation or even one with a slight moderation in demand.

1. With a 0.2% year-on-year change in the number of non-resident guests in hotels between January and November 2018.

2. The calculations are based on the weight of tourism exports as a proportion of the GDP of the economy as a whole.

Activity and employment indicators

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

	2016	2017	Q2 2018	Q3 2018	Q4 2018	09/18	10/18	11/18	12/18	01/19
Coincident economic activity index	1.7	2.9	2.2	1.9	1.8	1.9	1.8	1.8	1.7	...
Industry										
Industrial production index	2.4	4.0	0.5	-1.8	-1.1	-0.5	0.2	-3.1	-0.3	...
Confidence indicator in industry (<i>value</i>)	-0.7	2.3	0.0	0.4	-0.6	-1.2	-1.1	-0.7	0.0	-2.2
Construction										
Building permits (<i>cumulative over 12 months</i>)	7.9	19.8	11.5	13.0	...	13.0	...	...	...	...
House sales	18.8	20.5	23.7	18.4	...	18.4	...	...	...	...
House prices (<i>euro/m² - valuation</i>)	3.7	5.1	6.1	6.2	...	6.2	6.2	6.2	...	...
Services										
Foreign tourists (<i>cumulative over 12 months</i>)	10.9	12.3	7.6	3.8	...	2.5	1.2	0.7	...	...
Confidence indicator in services (<i>value</i>)	7.3	13.8	14.4	16.5	12.2	16.7	8.6	11.7	16.2	19.1
Consumption										
Retail sales	2.7	4.1	2.6	2.3	4.7	0.9	5.9	4.3	3.8	...
Coincident indicator for private consumption	1.9	2.6	2.4	1.9	1.4	1.7	1.5	1.4	1.2	...
Consumer confidence index (<i>value</i>)	-11.1	0.5	2.8	-1.4	-2.2	-1.5	-0.4	-3.4	-2.7	-7.9
Labour market										
Employment	1.2	3.3	2.4	2.1	...	2.1	1.9	1.5	1.4	...
Unemployment rate (% labour force)	11.1	8.9	6.7	6.7	...	6.6	6.6	6.7	6.7	...
GDP	1.9	2.8	2.4	2.1	...	2.1	...	...	...	...

Prices¹

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

	2016	2017	Q2 2018	Q3 2018	Q4 2018	09/18	10/18	11/18	12/18	01/19
General	0.6	1.6	1.2	1.8	0.8	1.8	0.8	0.9	0.6	0.5
Core	0.8	1.3	0.9	1.3	0.5	1.4	0.3	0.5	0.5	...

Foreign sector

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

	2016	2017	Q2 2018	Q3 2018	Q4 2018	09/18	10/18	11/18	12/18	01/19
Trade of goods										
Exports (<i>year-on-year change, cumulative over 12 months</i>)	0.8	10.0	7.4	7.0	...	7.0	6.4	4.6	...	...
Imports (<i>year-on-year change, cumulative over 12 months</i>)	1.5	13.5	9.8	8.6	...	8.6	7.3	7.3	...	...
Current balance	1.1	0.9	0.0	-0.4	...	-0.4	-0.2	-1.0	...	...
Goods and services	3.8	3.5	3.1	3.1	...	3.1	3.2	2.1	...	...
Primary and secondary income	-2.7	-2.6	-3.1	-3.5	...	-3.5	-3.4	-3.1	...	...
Net lending (+) / borrowing (-) capacity	3.0	2.7	1.9	1.6	...	1.6	1.8	1.0	...	...

Credit and deposits in non-financial sectors

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

	2016	2017	Q2 2018	Q3 2018	Q4 2018	09/18	10/18	11/18	12/18	01/19
Deposits²										
Household and company deposits	3.7	1.7	4.3	4.4	...	4.7	3.8	4.0	...	...
Sight and savings	19.5	15.7	15.3	13.6	...	14.9	13.5	14.0	...	...
Term and notice	-3.2	-5.8	-2.9	-2.1	...	-2.3	-2.9	-3.1	...	...
General government deposits	-17.9	1.3	-0.8	1.0	...	1.4	2.2	0.5	...	...
TOTAL	2.3	1.6	4.0	4.2	...	4.5	3.7	3.8	...	...
Outstanding balance of credit²										
Private sector	-3.9	-4.0	-1.8	-1.4	...	-1.3	-1.6	-1.6	...	...
Non-financial firms	-5.6	-6.5	-3.7	-3.7	...	-3.5	-4.6	-4.3	...	...
Households - housing	-3.3	-3.1	-1.6	-1.2	...	-1.1	-1.1	-1.1	...	...
Households - other purposes	-0.5	0.9	4.1	5.8	...	5.7	6.1	5.3	...	...
General government	-9.4	9.3	14.8	-12.4	...	-11.2	-11.2	-10.6	...	...
TOTAL	-4.2	-3.5	-1.1	-1.9	...	-1.8	-2.1	-2.1	...	...
NPL ratio (%)³	17.2	13.3	11.7	11.3	...	11.3	...	...	...	...

Notes: 1. Harmonized indexes. 2. Aggregate figures for the Portuguese banking sector and residents in Portugal. 3. Period-end figure.

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

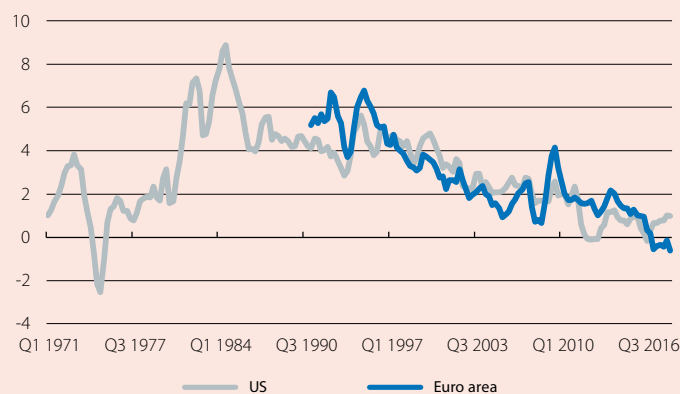
Low interest rates: for how much longer?

A metric for measuring the stance of monetary policy: the natural rate of interest

The last 30 years have witnessed a sustained decline in real interest rates in the main developed economies (see first chart).¹ An initial reading can lead us to the conclusion that this decline could be synonymous with conditions in the financial markets

Long-run real interest rate *

(%)



Note: * The long-run real interest rate is defined as the interest rate on the 10-year sovereign bond less inflation. In the case of the euro area, a weighted average of the sovereign rates of all the Member States is used.

Source: CaixaBank Research, based on data from Thomson Reuters Datastream.

becoming more accommodative in recent decades. However, this is not necessarily the case. Let us take the example of an economy that is entering a recession and whose central bank reacts by lowering interest rates to zero. Let us also suppose, for the sake of simplicity, that in this country inflation drops to zero during the recession. As such, in this economy the real interest rate is zero and, if we are guided by the first chart, it lies below its historical average. Nevertheless, it could be the case that the severity of the recession was such that the most appropriate response from the central bank for stabilising the fluctuations in prices and production would be to generate a drop in the nominal interest rate, causing the real interest rate to become negative. If this were the case, a real interest rate equal to zero, as low as it may seem, may be too high and lead to restrictive financial conditions. Therefore, we need a benchmark that allows us to distinguish between accommodative and restrictive conditions. This benchmark should also serve as a guide for understanding what level interest rates can be expected to converge towards over time. The natural rate of interest is this benchmark, and we dedicate this first section of the Dossier to describing this concept and how it has evolved over the last few decades.

The concept of a natural rate of interest has its origins in the Swedish economist Knut Wicksell (1989), although it has been reformulated and brought back into focus recently.² Very succinctly, we can define the natural rate of interest as the interest rate that is consistent with activity growing according to its potential and a constant inflation rate. Thus, the natural rate of interest enables us to assess whether a particular real interest rate is accommodative or restrictive. If the real interest rate is above the natural rate, economic growth will lie below its potential and there will be downward pressure on prices, and vice versa. Similarly, the natural rate of interest offers us a point towards which interest rates can be expected to converge. In short, rather than simply looking at the trend in nominal or real interest rates in the economy, we must build a picture of the trend followed by the natural rate of interest. This will give us a more precise idea of whether or not interest rates can be expected to remain low for many years, and whether or not these low interest rates will generate an accommodative macrofinancial environment.

In addition, the natural rate of interest is not an immutable number and it depends, in turn, on other structural aspects of the economy. More specifically, all factors that can affect the supply and demand for savings will also have an impact on the natural rate of interest. So, as we shall see later in this Dossier, structural changes related, for instance, to households' savings habits (with an impact on the supply side), productivity growth (impact on the demand side by affecting return on investment) or demographic dynamics (impact on the supply side) will all affect the natural rate of interest.

Unfortunately, like many of the variables that are of interest in the economy, the natural rate of interest is not directly observable in the data. Therefore, economists have developed models and statistical techniques which allow us to estimate this variable, although, of course, all such estimates are subject to a notable degree of uncertainty. The second chart shows the estimates made by Holston *et al.* (2016)³ for the US, the euro area and the United Kingdom, as well as our own estimate for Spain, produced according to the methodology used by Holston *et al.* (2016).

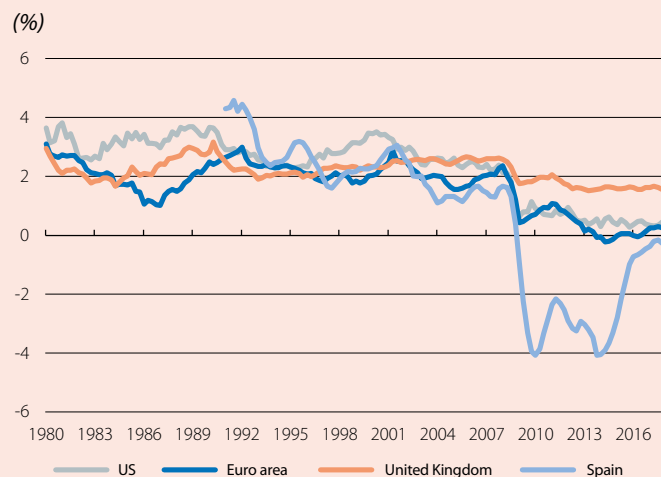
1. The real interest rate is defined as the nominal interest rate less inflation.

2. See, for example, M. Woodford (2003), «Interest and Prices: Foundations of a Theory of Monetary Policy», Princeton University Press: Princeton.

3. K. Holston, T. Laubach and J. Williams (2016), «Measuring the Natural Rate of Interest: International Trends and Determinants», Federal Reserve Bank of San Francisco, Working Paper 2016-11.

We can draw various conclusions from the chart. Firstly, the natural rate of interest fluctuates over time. In addition, although the estimate of the natural rate of interest has been produced independently for each country or region, the chart shows that the natural rate follows a similar pattern across these countries and regions. This suggests that there are forces of a global nature that are affecting it. Secondly, the natural rate of interest has followed a slightly downward trend between 1980 and 2008 in all the economies considered (less sharp in the case of the United Kingdom). Also, with the onset of the financial crisis of 2008, the natural rate of interest dropped in all economies and, even today (with data up to Q2 2018), it has still not recovered to pre-crisis levels. What lies behind these trends? The model of Holston *et al.* (2016) allows us to break the trajectory of the natural rate of interest down into two components: the potential growth of the economy and a residual variable that captures other factors, such as changes in investors' aversion to risk. According to this breakdown, the fall in the natural rate of interest was largely due to the decline of the economies' potential growth, although in the case of the euro area and Spain, cyclical factors captured in the residual variable also account for a significant proportion of the fall that took place at the beginning of the recession. Finally, the chart shows that the fall in the natural rate of interest was much more pronounced in Spain than in the euro area as a whole. Without a doubt, this differing behaviour may reflect the fact that the financial crisis was more severe in Spain than in other countries in the region (the financial and sovereign debt crisis coincided with the real estate crisis). However, it could also suggest the presence of differential structural factors that prevented the Spanish economy from adjusting to the economic crisis in a less severe manner. An example of a differential factor is the labour market. A more flexible labour market that generates smaller increases in the rate of unemployment during a recession should help to reduce the incentive for households to increase their savings on a precautionary basis, which in turn should result in a less sudden drop in the natural rate of interest.

Natural rate of interest



Note: Holston, K., Laubach, T. and Williams, J. (2016), «Measuring the Natural Rate of Interest: International Trends and Determinants», Federal Reserve Bank of San Francisco, Working Paper 2016-11.
Source: CaixaBank Research, based on data from K. Holston et al. (2016).

Armed with the necessary theoretical tools, we can now move on to assess the orientation of common monetary policy over the period in question. In the third chart, we show the gap between the real interest rate and the natural rate. A positive value of the gap indicates that the real interest rate lies above the natural rate and, therefore, that monetary policy is restrictive, and vice versa.

As we can see, prior to the crisis, common monetary policy turned out to be slightly more expansive for Spain than it was for the euro area overall. However, this situation was reversed very sharply during the financial crisis and the subsequent sovereign debt crisis. This is because the accommodative measures implemented by the ECB, while sufficient to make monetary policy neutral for the euro area as a whole, were insufficient to offset the sharp decline in the natural rate interest in Spain. Focusing on the most recent period, estimates suggest that, at present, common monetary policy is practically neutral for Spain and slightly expansive for the whole of the euro area.

It should be noted that although these estimates are subject to a high degree of uncertainty,⁴ the results shown here are qualitatively similar to those obtained by other authors using different methodologies. As an example, Fries *et al.* (2016)⁵ estimated the natural rate of interest for Germany, France, Italy and Spain and also found that the natural rate of interest has fallen over the last 20 years. In addition, they found that common monetary policy was expansionary for Spain during the period leading up to the financial crisis, approximately neutral for Germany, France and Italy between 2009 and 2013, and contractionary for Spain between 2009 and 2013.

4. See footnote 3.

5. See S. Fries, J.S. Mésonnier, S. Mouabbi and J.P. Renne (2017), «National natural rates of interest and the single monetary policy in the Euro Area», Bank of France, Working Paper 611.

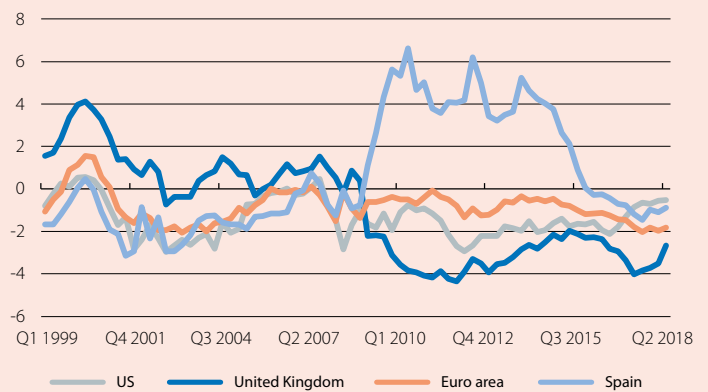
What is behind the decline in the natural rate of interest?

The list of factors is long and can be classified into three major groups: those that would have restricted investment, those that would have encouraged saving, and cyclical factors related to the Great Recession (which would explain the most pronounced decline in 2008-2010, shown in the second chart). The pressure of these cyclical elements (such as the high level of private sector debt, which restricts the ability to spend and invest, or the loss of optimism over future growth, which might be understandable after having suffered a long and intense recession in recent years) gradually fades as the expansionary phase sets in. Nevertheless, the evidence suggests that the other factors respond to structural forces, such as long-term growth potential or population ageing, which may continue to influence interest rates over the coming decades (and, therefore, the wider financial environment). Let us see how.

Lower propensity to invest

As discussed previously, the models closely tie the evolution of the natural rate of interest closely to trends in productivity growth. The reason for this is simple: productivity growth is the source of long-term economic growth and, therefore, it determines the extent to which new investment opportunities arise. However, as can be seen in the fourth chart, productivity growth has declined steadily over the past few decades. This trend has not only occurred in parallel with the steady decline in interest rates but, like the latter, it has also had a widespread effect on

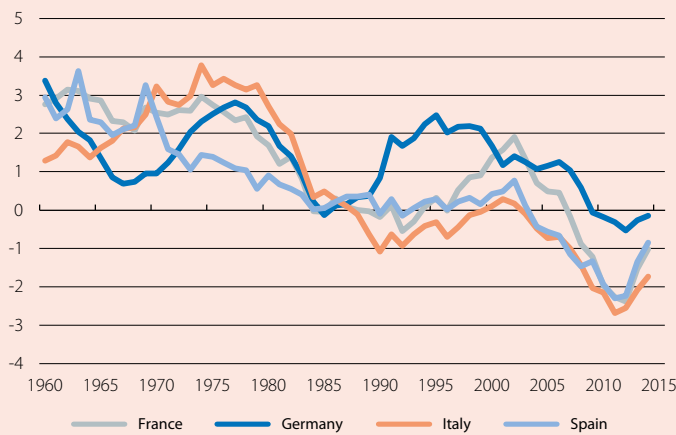
Gap between the real and natural rates of interest * (%)



Note: * The real interest rate is calculated based on the nominal interest rate on 2-year sovereign bonds less core inflation. For the euro area, a weighted average of the sovereign bonds of all the Member States has been used.
Source: CaixaBank Research, based on data from Thomson Reuters Datastream and K. Holston et al. (2016).

Total factor productivity

Annual change (% , 10-year moving average)



Source: CaixaBank Research, based on data from Feenstra, R. C., Inklaar, R. and Timmer, M. P. (2015), «The Next Generation of the Penn World Tables», *American Economic Review*, 105(10), 3150-3182.

Gourio (2018)⁸ suggest that the change in economic structure would indeed have contributed to the decline in the natural rate of interest.

Another factor that could be behind the slowdown in productivity is population ageing.⁹ In fact, demography is the strongest force highlighted by studies that examine the decline in interest rates. This is illustrated by the estimates of Eggertsson *et al.*

has declined steadily over the past few decades. This trend has not only occurred in parallel with the steady decline in interest rates but, like the latter, it has also had a widespread effect on the major international economies.⁶ Figures such as the economist from Northwestern University, Robert Gordon, argue that weaker productivity growth is a reflection of underlying trends.⁷ These trends include, on the one hand, the end of the diffusion of the first two industrial revolutions (the first, led by the steam engine and the railway, and particularly the second which, with inventions such as electricity, the internal combustion engine and running water, facilitated processes such as urbanisation). On the other hand, Gordon also argues that the decline in productivity growth also reflects a lesser economic impact from the Third Industrial Revolution.

In addition to the slowdown in productivity, the boom in information and communication technologies, with computers and the internet at the helm, has shifted the economic structure towards industries that are more intensive in intangible capital and, in general, have lower investment requirements. In fact, the results of Farhi and

6. See the Dossier «Technological change and productivity» in the MR02/2018.

7. See R. Gordon (2012), «Is US economic growth over? Faltering innovation confronts six headwinds», NBER Working Paper n° 18315.

8. See E. Farhi and F. Gourio (2018), «Accounting for Macro-Finance Trends: Market Power, Intangibles, and Risk Premia» NBER Working Paper n° 25282.

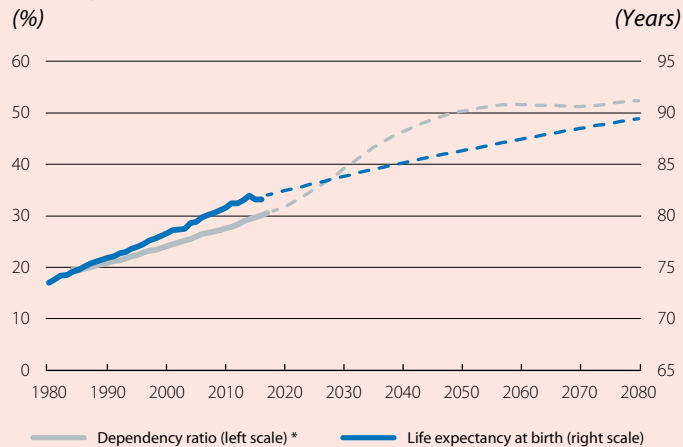
9. The article «Population ageing and its macroeconomic impact», in the Dossier of the MR11/2018, analyses how ageing directly affects economic growth.

(2017),¹⁰ who analysed a –4,02 pp decline in the natural rate of interest in the US between 1970 and 2015. These authors estimate that lower productivity growth would have contributed –1.9 pps to its decline. However, they assign an additional –3.66 pp decline to demographic trends,¹¹ which indicates that demography acts on rates through other channels, besides through its impact on productivity.

Greater propensity to save

As we explained in a recent report,¹² population ageing has significant consequences for savings and is key to understanding the trend in interest rates over the medium and long term. This force acts through three different channels. Firstly, the increase in life expectancy encourages people to save more while they are of working age in order to provide for a longer retirement. Secondly, the reduction in fertility reduces the supply of labour, thus increasing the relative abundance of capital in the productive process and applying downward pressure on its rate of return. Finally, the increase in the fraction of the population in retirement has an ambiguous effect on savings. On the one hand, this group has lower savings rates since they draw down on much of the wealth they have accumulated during their working lives (known as the «flow effect»). On the other hand, this group possesses a greater volume of savings which they have accumulated throughout their working lives (the «stock effect»). Virtually all studies document that population ageing has had a negative impact on interest rates in recent decades. What is more, many estimates (such as Carvalho *et al.*, 2017¹³ or Gagnon *et al.*, 2016¹⁴) suggest that it has been the main driving force behind the decline in the natural rate of interest. Nevertheless, there is no consensus on what its dominant mechanism is: some, such as Carvalho *et al.* (2017), emphasise the role of longer life expectancy, while others, such as Gagnon *et al.* (2016), highlight the role of the lower fertility rate and the resulting increase in the ratio of capital per worker. Looking ahead to the future, ageing is a process which is set to continue, as shown by the fifth chart. In this regard, the majority of studies conclude that it will continue to apply downward pressure on interest rates. However, as Goodhart and Pradhan (2017)¹⁵ argue, this need not necessarily be the case. Faced with the great uncertainty that always surrounds forecasts, we cannot rule out the possibility that, in the future, the «flow effect» may be greater than the «stock effect», nor that households may not be sufficiently insightful to anticipate that, with a longer life expectancy, they should save more during their working lives.

Demographic forecasts for the euro area



Note: * Proportion of the population over the age of 65 compared to the working-age population, aged 16 to 64.

Source: CaixaBank Research, based on data from Eurostat and the World Bank.

Savings have also been affected by another important force: a preference for safe-haven assets. In fact, the decline in interest rates is not observed to the same extent across all asset classes. As Del Negro *et al.* (2017)¹⁶ point out, it is more pronounced in assets that are considered relatively safer, such as US sovereign debt, and less so in others that entail more risk, such as corporate debt with a low credit rating. The observation of this growing differential between the returns on assets with lower and higher risk suggests that, since the late 1990s (coinciding with the Asian crises), there has been an increase in risk aversion (which would have been accentuated by the Great Recession) and in the demand for relatively safe assets (which has been accentuated, in turn, by the emergence of China and the resulting increase in savings at the global level). In this regard, Del Negro *et al.* (2017) decompose the interest rate on US government debt into a safety premium (a price paid for its low risk of default) and a liquidity premium (which

captures the value of owning an asset for which there are many buyers and sellers). In this context, an increase in the risk or liquidity premiums implies that investors value an asset's safety and liquidity more, so they are willing to accept a lower

10. Eggertsson, G. *et al.* (2017), «A Model of Secular Stagnation: Theory and Quantitative Evaluation», NBER Working Paper n.º 23093.

11. They estimate that the increase in public debt in this period would have mitigated the downward pressure on rates.

12. See the article «The demographic cycle of savings and interest rates» in the Dossier of the MR11/2018.

13. Carvalho, C. *et al.* (2017), «Demographic Transition and Low U.S. Interest Rates», Federal Reserve Bank of San Francisco Economic Letter, 11.

14. Gagnon, E. *et al.* (2016), «Understanding the New Normal: the Role of Demographics», Finance and Economics Discussion Series, Board of Governors of the Federal Reserve System.

15. Goodhart, C. and Pradhan, M. (2017), «Demographics will reverse three multi-decade global trends», BIS Working Papers n.º 656.

16. Del Negro, M. *et al.* (2017), «Safety, Liquidity, and the Natural Rate of Interest», Staff Report n.º 812, Federal Reserve of New York.

return. In fact, the authors document that, in parallel to the decline in the natural rate of interest, there has been an increase in both premiums. In other words, given that the natural rate is associated with a safe and liquid asset (specifically, central bank reserves), these dynamics suggest that part of the decline in the interest rate is the result of an increase in risk aversion and a preference for relatively safe assets.

Question marks

Before concluding, we must add one more element to all the forces described above. Given that the natural rate is not observable and must be estimated using economic models, the estimate depends on which variables are included in the model and what relationships are assumed to exist between them. If important variables are omitted, or if the «Neo-Keynesian» relationships between interest rates, economic activity and inflation that are typically used are incorrect, even the very existence of a decline in the natural rate could be called into question. For example, in the years leading up to the Great Recession, the buoyancy of economic activity could have been due to a significant expansion in lending (and not necessarily due to the differential between the natural rate and the interest rate set by monetary policy). Nevertheless, when Juselius *et al.* (2016)¹⁷ incorporate a variable that captures the status of the business cycle and estimate the natural rate again, we still observe a sustained decline in the interest rate, albeit of a somewhat lower magnitude.

What will come next?

As we have seen, there is a wide range of factors behind the natural rate of interest. The most important of them, demography, follows relatively predetermined trends and, according to the majority of studies, will continue to weigh down on interest rates over the coming decades. As such, beyond the rate hikes and cuts performed by the central banks for cyclical reasons, monetary policy and the financial environment of the future are likely to be determined by a context of relatively low interest rates. Nevertheless, there are many other factors that are difficult to predict. They include the financial cycle, cyclical constraints and risk aversion. Yet the key factor for reversing the pressures exerted by population ageing is the future of productivity. That said, this will be no easy task: there would need to be a strong push to counteract the demographic headwinds (Eggertsson *et al.* (2017) estimate that, in the US, sustained productivity growth at around 2.5% would be needed – a figure well above the 0.5% average for 2014-2017 and even the 1.3% average for 1992-2007). Only then could the natural rate of interest be hoisted up to levels at which the 0% threshold would no longer be a concern for the central banks.

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17. Juselius, M. *et al.* (2016), «Monetary policy, the financial cycle and ultra-low interest rates», BIS Working Papers n° 569.

The consequences of the new environment of financial conditions: entering uncharted territory

Monetary policy at a crossroads

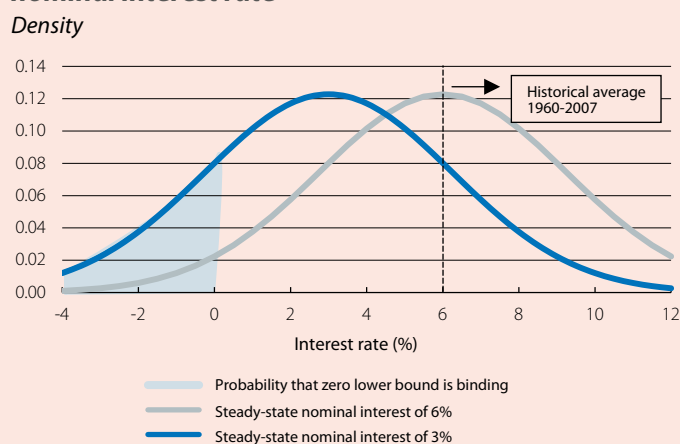
As we have seen in the first article of this Dossier, all the indicators suggest that interest rates will remain at relatively low levels over the next few years. In this context, central banks are expected to have less room for manoeuvre if they continue to operate with traditional tools. In fact, various studies (see the first chart) show how lower interest rates will lead to the monetary authorities hitting the zero lower bound much more frequently.¹ As an example, two macroeconomists from the Federal Reserve System, Michael Kiley and John Roberts, estimate that with a steady-state nominal interest rate of 3% (a very reasonable figure with an inflation target of 2% and a natural rate of around 1%), 40% of the time nominal rates in the US should stand at 0%.² How should monetary policy tackle this unparalleled challenge and what are the consequences for the macroeconomic scenario?

As the legendary baseball player Yogi Berra said: «It is dangerous to make forecasts... especially about the future». Nevertheless, we can start by making note of what must not or cannot be done. Several studies show that following simple monetary rules, such as the famous Taylor rule, is not feasible in an environment with low natural rates of interest and low inflation, given that this rule would often advise setting rates considerably below 0%. In particular, Kiley and Roberts estimate that with a steady-state nominal interest rate of 3%, if a Taylor rule that excluded the possibility of setting negative rates were followed, average GDP over the long term would lie well below its potential (with an output gap of between -1.1% and -2.3%), while inflation would be below the 2% target (between 0.1% and 1.2%). In other words, monetary policy must find ways to prevent this macrofinancial environment from causing vast deviations in inflation and GDP relative to their targets.

What role can central banks play? Two broad avenues of action have been proposed. One option is to continue to use the interest rate as the main tool and redefine the purpose of the central bank. The alternative is to maintain the same objective (typically, inflation of around 2% over the medium term) and incorporate new monetary policy tools. It is this alternative path that has been pursued following the financial crisis of 2008.

By keeping the reference rate as the main tool, a central bank can increase its room for manoeuvre if it increases its inflation targets. Raising inflation would make it possible to achieve negative real interest rates and would place the nominal interest rate above zero. In this regard, there are three main options: set a higher inflation target, set the target in terms of the level of prices, or set the target in terms of the level of nominal GDP. Each of these three options has different advantages,³ but none of them are entirely convincing in their ability to achieve the objective, which could potentially lead to a loss of credibility for the central bank. A good example of such a situation is Japan, where its central bank has been trying, for many years and unsuccessfully, to distance its economy from the risk of deflation. However, it has not achieved its goal due to the fact that inflation expectations are slow to adjust to the new targets and, ultimately, they do not adjust fully.

US: probability distribution of the steady-state nominal interest rate



Note: A rate of 3% is coherent with a medium-term inflation target of 2% and a natural rate of interest of around 1%. We use a normal distribution with a standard deviation of 3.25% for both distributions (historical average between 1960 and 2007).

Source: CaixaBank Research, based on data from M. Kiley and J. Roberts (2017), «Monetary Policy in a Low Interest Rate World», Brookings Papers.

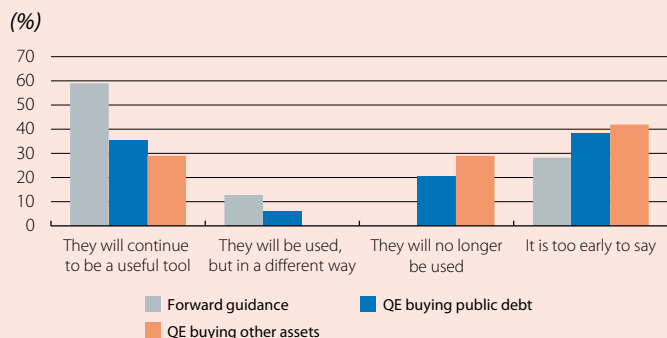
1. This lower bound is imposed by the existence of the alternative of withdrawing deposits and storing resources as cash, obtaining an interest rate equal to 0% (or slightly negative, if we take storage costs into account).

2. See M. Kiley and J. Roberts (2017), «Monetary Policy in a Low Interest Rate World», Brookings Papers.

3. For a more detailed discussion, see the Focus «Monetary policy frameworks for the future», in the MR10/2017.

An alternative framework would be to maintain the current targets and add non-conventional measures (especially communication and balance sheet policies, such as asset purchases) to the set of common tools available to the central banks, with a view to complementing traditional monetary policy. These measures may be justified in environments with very low rates in which the monetary policy transmission mechanism has been damaged. One advantage of this option is that the measures can be calibrated more precisely to the specific needs of the moment.

Survey of central banks: will non-conventional tools continue to be used in the future?



Note: Survey conducted in 2016 among the governors of the 95 main central banks worldwide, with a 58% response rate, including 16 governors of central banks in advanced economies.

Source: CaixaBank Research, based on data from A. Blinder, M. Ehrmann, J. de Haan and D. Jansen (2016), «Necessity as the mother of invention: Monetary policy after the crisis», Central Bank of the Netherlands.

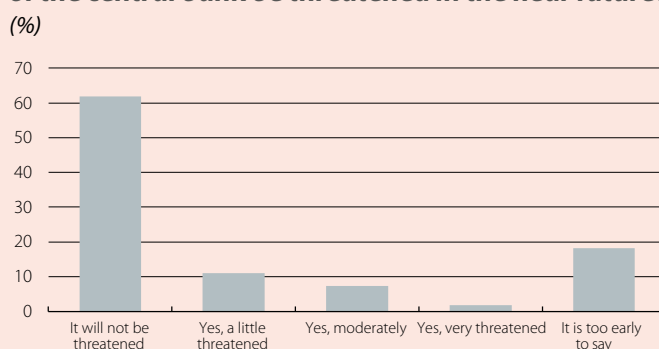
by acquiring large volumes of public and private bonds. This is a direct and credible mechanism for indicating that rates will remain low for a long period of time (it is credible because, if they were raised, the central bank would incur considerable capital losses on the assets acquired). This makes it possible to lower long-term interest rates, raise asset prices and improve the financial conditions of economic players. Ultimately, the aim is to offer support to aggregate demand. This policy also has its limits, however. On the one hand, it is essential that it is well synchronised with the traditional policy of setting rates and that there is thorough communication regarding its timing for it to be credible (otherwise, there may be episodes of financial turmoil, such as the taper tantrum of 2013). On the other hand, there are limits to the amount and type of debt that central banks can buy.

Interestingly, we already have some evidence that non-conventional tools are here to stay. Specifically, a team of economists conducted a survey in 2016⁴ among the chairmen of 95 central banks (with a 58% participation rate) in which they were asked whether they believed that non-conventional monetary policy tools would continue to be used in the future. Among the survey respondents, 72% considered that forward guidance will continue to be an important tool for the monetary policy of the future. As for quantitative easing (QE) asset purchase programmes, the enthusiasm was lower: 41.2% of those surveyed thought that the purchases of public debt by central banks will continue to be used in the monetary policy tool kit of the future, while 29% believed that purchase programmes involving other assets will continue to be valid in the future.

Starting with communication, in environments with limited margin to lower rates, the monetary authorities can provide indications on the future path of monetary policy to try to convince economic players that they will keep rates low in the future (a technique known as forward guidance). If such announcements are viewed as credible, it makes it possible to reduce longer-term interest rates and to increase asset prices today by stimulating the economy. However, this policy has its limits: it is not always easy to make such announcements credible. This is especially difficult in situations that are likely to generate temporary inconsistency dilemmas – that is, situations in which the best solution would be to deviate from the commitment when the time comes to execute it.

Asset purchase programmes, also known as quantitative easing (QE), involve expanding central banks' balance sheets

Survey of central banks: will the independence of the central bank be threatened in the near future?



Note: Survey conducted in 2016 among the governors of the 95 main central banks worldwide, with a 58% response rate, including 16 governors of central banks in advanced economies.

Source: CaixaBank Research, based on data from A. Blinder, M. Ehrmann, J. de Haan and D. Jansen (2016), «Necessity as the mother of invention: Monetary policy after the crisis», Central Bank of the Netherlands.

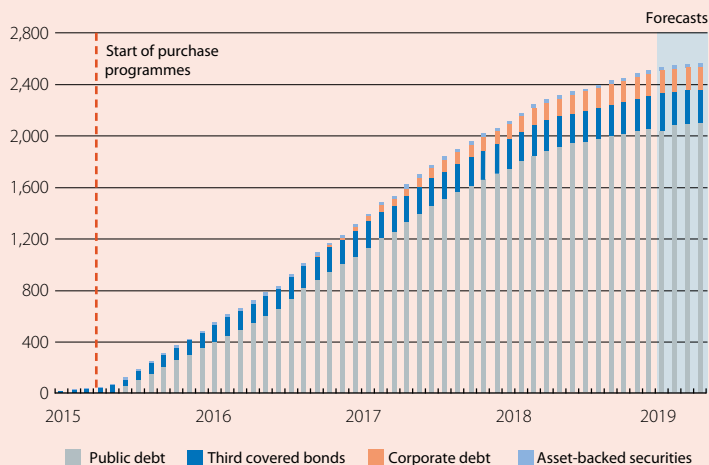
4. A. Blinder, M. Ehrmann, J. de Haan and D. Jansen (2016), «Necessity as the mother of invention: Monetary policy after the crisis», Central Bank of the Netherlands.

Finally, we must briefly highlight three major challenges that monetary policy will face in the future if non-conventional tools are chosen to be used. Firstly, central banks must shore up their independence in the face of growing political pressure to influence monetary policy that is generated when a central bank accumulates public debt on its balance sheet. We must remember that exercising monetary policy is an arduous task that requires technical judgement and it should not give in to the temptation to be governed by political intents.

Secondly, consideration should be given to rethinking the objectives of monetary policy and whether financial stability should be one of them. This debate will take on more importance in the future, since greater use of non-conventional monetary policies could increase the risk of financial instability. This is the case, on the one hand, because using these tools to achieve the central bank's long-term goals could lead to an increase in financial fluctuations in the short term, as has occurred with at least one of the announcements made by the Fed regarding asset purchases.⁵ Let us not forget that the monetary authorities are less accustomed to using these tools, making it more difficult for them to be optimally tailored. On the other hand, this is because, as the economist Lucrezia Reichlin explains, the flattening of the yield curve that is caused by the use of non-conventional tools, as a result of them reducing long-term rates, could put financial institutions that have little flexibility in their balance sheets in a predicament.⁶ An example of this are institutions that have liabilities with predetermined yields, such as life insurers and defined benefit pension plans.

Cumulative net asset purchases by the ECB

(EUR billions)



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

Thirdly, central banks and major financial institutions subject to national and supranational supervision should work shoulder to shoulder to improve their mechanisms for international coordination in a more globalised world, as well as to determine the degree to which they overlap with macroprudential tools. This should not come as a surprise: asset purchase programmes amplify the spillovers of monetary policy, as we have already seen in the current environment. In effect, these programmes have generated abundant liquidity in the advanced economies which, in an environment of low interest rates, has been directed at neighbouring economies. This puts the central banks of the recipient countries under pressure, since the resulting capital inflows apply upward pressure on the value of their currencies and generate deflationary pressures. This is especially pronounced in small, open economies: Denmark, Sweden and Switzerland are clear examples of countries affected by the QE of the

ECB. If they want to avoid sudden appreciations of their currencies and manage the capital inflows, the recipient economies are forced to adopt more accommodative monetary policies than their domestic economic conditions require, which can also feed financial instability.⁷

In the end, monetary policy must decide what form it wants to take in the future, and this will require an in-depth rethink of the objectives and the tools that are used.

The impact of low rates on the banking sector

The environment of low rates, like the one we expect for the next few years to come, will have major consequences for the banking sector. It is important to keep in mind that this environment applies downward pressure on the sector's profitability.⁸ This is because low interest rates erode the interest margin, that is, the difference between what the bank earns on credit

5. See J.C. Berganza, I. Hernando and J. Vallés (2014), «Los desafíos para la política monetaria en las economías avanzadas tras la Gran Recesión», Occasional Papers n° 1404, Bank of Spain.

6. See H. Pill and L. Reichlin (2016), «Non-Standard Monetary Policy and Financial Stability», London Business School Working Paper.

7. See the article «Monetary policy: from independence to interdependence» in the Dossier of the MR09/16.

8. See P. Hernández de Cos (2018), «¿Reinventar la banca o mejorar su gestión?», Opening of the 14th IESE Banking Sector Conference, Bank of Spain.

facilities, loans and mortgages and what it pays on deposits, since in the latter case banks can scarcely reduce interest rates below 0%. Therefore, when rates are very low, a further decrease has a greater impact on what the bank receives from its assets than on what it has to pay on its liabilities (which include deposits). This intuition has been widely endorsed by the economic literature, which has empirically documented that, in environments with low interest rates, banks earn a lower interest margin on average than they do in high-rate environments.⁹

Following on from this, an article published by the ECB¹⁰ helps us to quantify the effect that a prolonged period of low interest rates has on the profitability of banking in Europe: the impact is negative and statistically significant. Specifically, if interest rates remain near their current levels for three more years – a scenario that is perfectly feasible –, it would apply downward pressure on profitability, as measured using return on assets (ROA),¹¹ of approximately 0.06 pps (the average ROA for the EU as a whole in 2018 was 0.5%). In addition, if the environment of low rates were to persist until 2022, the impact on profitability between 2012 and 2022 would amount to –0.1 pp in net terms (i.e. taking into account the positive effect of low interest rates on economic activity).

In this environment, the sector can be expected to continue to focus on more profitable business activities. These include lending to companies or consumers on the asset side of the business, and asset management activities such as investment funds, pension plans and savings insurance, which generate income through fees. It can also be expected that this environment of low interest rates will continue to act as a catalyst for greater concentration in the sector. This process could have a wider-reaching impact beyond the strictly national scope, with more flexible and integrated European regulation facilitating the creation of truly pan-European banks. In this regard, completing the banking union would represent a giant leap.

Public debt and low rates: careful with short-sightedness!

Finally, it is time to analyse how low interest rates that persist over a long period of time affect the sustainability of public debt. This is a key issue in the current environment, given the high levels of public debt that exist in most developed countries.

The path followed by public debt depends on three key variables: the interest rate at which each country's Treasuries are financed, the primary public deficit and, of course, the speed at which the economy grows in nominal terms.

The way in which each of these variables has an impact on public debt is intuitive: the lower the interest rate at which the Treasuries are financed and the lower the primary deficit, the more public debt is reduced (or the less it increases). On the other hand, the higher the growth of the economy, the more the debt to GDP ratio decreases. Intuitively, if the primary deficit is equal to zero, public debt (as a percentage of GDP) will increase when the cost of debt is greater than the nominal growth of the economy, and vice versa.¹²

Currently, the cost of debt has reduced significantly, largely due to the expansionary monetary policy carried out by the major central banks. This has enabled many developed countries to stabilise their public debt, despite continuing to register primary budget deficits.

All in all, there are several factors that could once again raise the cost of debt in the medium-term. On the one hand, the advanced economies are already in a more mature phase of the business cycle, so a moderation in the pace of growth can be expected over the next few years. On the other hand, although we expect the natural rate of interest to remain low, the interest rate at which the Public Treasury is financed could rise, not due to fundamental reasons but rather because of risk premiums. In this regard, investors have already shown a high degree of sensitivity to increases in public debt, so risk premiums could increase again if the perception of risk among investors were to deteriorate. This is more likely to occur in contexts such as the current one, characterised by high financing needs.

9. See S. Claessens *et al.* (2017), «Low-For-Long Interest Rates and Banks», CEPR Discussion Paper 11842.

10. See C. Altavilla, M. Bouchinha and J.L. Peydró (2017), «Monetary policy and bank profitability in a low interest rate environment», ECB Working Paper 2105.

11. ROA is an indicator that measures the profitability of a company's total assets, calculated as the ratio between profit and total assets. It expresses the company's financial profitability, regardless of how the assets are financed (whether with internal capital or third-party resources).

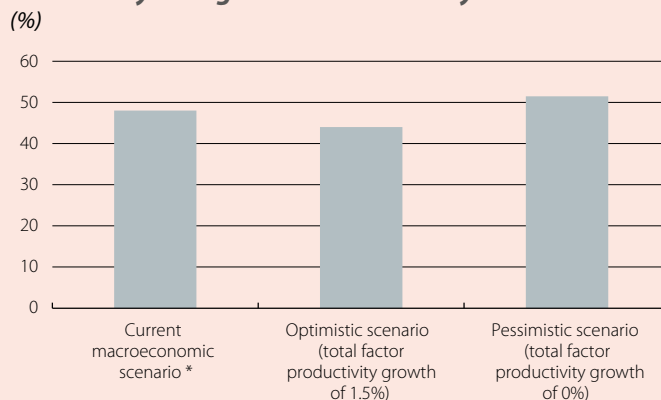
12. Formally, $\Delta B = (r - g) * B + d$, where B is public debt as a percentage of GDP, d is the primary deficit (i.e. excluding interest payments as a percentage of GDP), r is the interest rate of the Treasuries and g is the growth of the economy (both in real terms or in nominal terms).

Ultimately, the space generated by the low rates has not been used to achieve primary surpluses (on the contrary, relatively high primary deficits have remained in place), thus postponing the necessary adjustment to public debt. Therefore, one thing is clear: when the next recession comes, the scope available for carrying out countercyclical fiscal policies will be much smaller.

In fact, a detailed quantitative study by the Federal Reserve Bank of Minneapolis¹³ estimated the probability of the interest rate at which the US Treasuries are financed exceeding the economy's growth rate within five years. The study quantified it at almost 50%, much higher than many could imagine (and for 17 advanced economies that include the major countries of the euro area, it placed the probability at 30% within 5 years and at 38% within 10 years). It is important to emphasise that if this situation were to materialise, it would not necessarily mean that public debt would show explosive behaviour. To avoid this, however, primary surpluses would need to be maintained in a sustained manner over time.

These considerations become even more important if we consider the cost of inaction. For example, it is estimated that in the event of a return to a scenario with interest rates that exceed growth, the interest payments that the US Government would have to pay as a percentage of GDP would increase by between 1.8 and 3.5 pps, based on current debt levels. Clearly, complacency poses a risk, and this is something we must keep very much in mind when analysing the outlook for public debt in the medium term.

Probability of $r > g$ in the US within 5 years



Note: * The current scenario envisages a GDP growth for the next 5 years of 1.4%, which is derived from a population growth of 0.7% and a total factor productivity growth of 0.7%. The probabilities are calculated using a probit model that predicts the value of $r > g$ in the US (r is the long-run real interest rate and g , the real growth of the economy) in $t+1$, on the basis of the value at t of $r-g$, public debt, real GDP per capita growth, and population growth with a sample beginning in 1870.

Source: CaixaBank Research, based on data from N. Mehrotra (2018), «Debt sustainability in a low interest rate world», Working Paper n° 32, Hutchins Center.

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13. See N.R. Mehrotra (2017), «Debt Sustainability in a Low Interest Rate World», Working Paper n° 32, Hutchins Center.

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