

# MR05

MONTHLY REPORT • ECONOMIC AND FINANCIAL MARKET OUTLOOK  
NUMBER 423 | MAY 2018



## ECONOMIC & FINANCIAL ENVIRONMENT

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### FINANCIAL MARKETS

*On the likelihood of a recession in the US*

### INTERNATIONAL ECONOMY

*The US and China: escalation of the trade conflict*

### EUROPEAN UNION

*The long road towards a secure European bond*

### SPANISH ECONOMY

*Should we be concerned about the low household savings rate?*

## DOSSIER:

### MONEY: PAST, PRESENT AND FUTURE

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*From barter to cryptocurrency: a brief history of exchange*

*What can we expect from cryptocurrencies?*

*Digital money in the economy of the future: new possibilities, new challenges*

**MONTHLY REPORT -  
ECONOMIC AND FINANCIAL  
MARKET OUTLOOK**  
May 2018

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## Money in Switzerland

On 10 June, Swiss citizens will vote in a referendum on a radical reform of their monetary system. The proposal would mean that citizens would hold their accounts or deposits in the central bank, rather than in retail banks. For the proponents of the initiative, this paradigm shift would bring an end to credit bubbles, banking crises and public bailouts of the banking system.

The idea is not new and has precedents, such as the so-called Chicago Plan, a monetary reform whose main proponent was Henry Simons, professor at the University of Chicago during the Great Depression of the 20th century. That reform proposed the establishment of a requirement for retail banks to hold a 100% reserve on their deposits, which would mean the end of the so-called fractional-reserve banking and the separation of the two main functions performed by the banking sector: managing the payments system and issuing loans.

Similarly, the promoters of the Swiss referendum believe that its reform would allow the current system's alleged tendency to generate credit bubbles and excessive borrowing to be tackled at its roots. According to this train of thought, the fact that the banking system can use customers' on-demand deposits as a source of financing to issue credit makes borrowing too easy and cheap. It is also alleged that banks grant loans that are too risky because they trust that if things go wrong, the government will come to their rescue (what is referred to as moral hazard).

Certainly, the Swiss proposal would complicate access to credit and make it more expensive, but it seems an unnecessarily extreme way of achieving this objective. Not in vain, the national central banks in the current monetary system already have sufficient tools to influence the availability and cost of credit, if they consider it appropriate (for example, by setting the reference rates or reserve ratios).

As for the problem of moral hazard, it should be recalled that the main objective of the regulatory reforms of recent years has been precisely to prevent the use of public resources to resolve future bank crises (in addition to minimising the likelihood of them occurring). To this end, for example, the minimum capital requirements have been significantly increased, and rules have been introduced for the resolution of banks experiencing difficulties which force shareholders and creditors to absorb any potential losses.

The advocates of a change of system also argue that it would bring an end to bank runs, because no one would question the safety of deposits in the central bank. However, they seem to ignore the fact that with this system, banking credit would need to be financed with non-guaranteed term deposits and debt issues, sources which would be much more volatile than the current ones (especially when faced with the option of moving funds to an account in the central bank during periods of uncertainty). Lehman Brothers did not have any insured deposits, yet it was left without wholesale financing from one day to the next – a true bank run. Given these risks, the banks, which would bear more resemblance to investment banking institutions, would be required to either maintain very high levels of liquidity, which would further restrict the supply of credit, or to rely much more heavily on the provision of liquidity by the central bank, which would significantly increase the role of the monetary authority in the allocation of resources in the economy.

The Chicago Plan or its more recent replicas might have made sense at the time of the Great Depression. Today, however, as stated by the central bank of Switzerland in relation to the forthcoming referendum, it would be «an unnecessary experiment, a reform which would bring uncertainty and new risks, in addition to an increase in costs for banking customers».

**Enric Fernández**  
Chief Economist  
30 April 2018

## CHRONOLOGY

### APRIL 2018

- 13 The credit rating agency Moody's raises Spain's credit rating from Baa2 to Baa1.

### MARCH 2018

- 8 President Trump imposes tariffs on imports of steel and aluminium.
- 21 The Fed raises the fed funds rate by 25 bp to a range of 1.50%-1.75%.

### FEBRUARY 2018

- 5 Jerome Powell takes over as Chair of the US Federal Reserve, replacing Janet Yellen.

### JANUARY 2018

- 19 The Fitch ratings agency raises Spain's credit rating from BBB+ to A-.
- 31 The European Banking Authority (EBA) begins stress tests for Europe's banks for the period 2018-2020.

### DECEMBER 2017

- 13 The Fed raises the fed funds rate by 25 bp to a range of 1.25% to 1.50%.
- 15 Fitch ratings agency upgrades Portugal's credit rating to investment grade (BBB).  
The European Council ratifies the agreement reached with the UK regarding the Brexit terms.
- 20 The US passes tax reforms.

### NOVEMBER 2017

- 2 The Bank of England raises its benchmark interest rate by 25 bp to 0.50%.
- 30 OPEC announces it will extend oil production cuts until the end of 2018, nine months later than initially agreed.

## AGENDA

### MAY 2018

- 1-2 Federal Open Market Committee meeting.
- 2 Euro area GDP (Q1).
- 4 Registration with Social Security and registered unemployment (April).
- 7 Japan GDP (Q1).
- 9 Industrial production index (March).
- 18 Loans, deposits and NPL ratio (March).
- 22 International trade (March).
- 29 State budget execution (April).
- 30 Flash CPI (May).  
Economic sentiment index of the euro area (May).
- 31 Balance of payments (March).  
Quarterly national accounts (Q1).

### JUNE 2018

- 4 Registration with Social Security and registered unemployment (May).
- 6 Industrial production index (April).
- 12-13 Federal Open Market Committee meeting.
- 14 Governing Council of the European Central Bank meeting.
- 15 Quarterly labour cost survey (Q1).
- 18 Loans, deposits and NPL ratio (Q1 and April).
- 21 International trade (April).
- 25 Balance of payments (Q1).  
Net international investment position (Q1).
- 28 Household savings rate (Q1).  
Flash CPI (June).  
State budget execution (May).  
Economic sentiment index of the euro area (June).  
European Council meeting.
- 29 Balance of payments (April).

## Strong economic drive, with risks lurking on the horizon

**High global growth.** The latest indicators being published for Q1, including some GDP figures, confirm that the momentum of economic activity remains high. The indications are that Q1 2018 will have closed with strong global growth of around 4% (2.6% in the developed markets and 5% in the emerging markets). This start to 2018 supports CaixaBank Research's growth prediction for the year as a whole of 3.9% (similar to the 3.7% of 2017), which is similar to the forecast recently published by the IMF. With regards to the support factors, there are few new developments. Despite the normalisation process initiated by the Fed in the US, the continuation of accommodative monetary policies in the advanced economies continues to be the main driver of growth. There are not many new developments regarding the major countries that are driving the growth either. In the US, 2018 has started on a good footing (2.9% year-on-year growth). Although the pace of growth was slightly lower than in the previous quarter, it has been better than the market expected. This reaffirms the positive outlook for 2018 as a whole, with a growth rate that will continue to be supported by monetary policy which remains accommodative and on the high inertia of domestic demand, but also on the fiscal expansion which has been announced. China, meanwhile, grew by 6.8% in Q1, slightly above expectations. However, since this growth was partly due to one-off factors and doubts persist regarding the gap between the growth officially published and the true pace of the economy, we expect that the trend remains one of gradual deceleration.

**The financial markets acknowledge the deterioration in political and geopolitical risks.** Although the macroeconomic indicators are positive, the fluctuation of the markets in April reinforces the view that the period of very low volatility we have witnessed in recent years is now a thing of the past. To a large extent, this is the result of the change of tone that the monetary policy of the major central banks are beginning to adopt. Added to this factor are fears of a protectionist shift at a global level and the increase in geopolitical tensions. As such, the financial conditions have tightened slightly in recent months (more so in the US than in Europe), while volatility is clearly higher than the average for 2017. After years of being kept afloat by an environment of low interest rates, the stock markets are now seeing an increase in volatility and, in April, suffered further sessions of losses (albeit less marked than in previous months). Sovereign interest

rates, meanwhile, continued to rebound, slightly more notably in the US than in the euro area.

**Things are going well for Europe, and even better for Spain and Portugal.** The euro area continues to go through a positive phase. This is evident in both the rate of growth (in Q1 it remained at around 2.5%) and the high degree of cyclical synchronisation, with the major countries growing at rates of over 2% (with the familiar exception of Italy). Furthermore, despite the upturn in growth in 2017 and 2018, and unlike the US economy, the European economy still has a considerable margin for cyclical growth. In this favourable context, the Portuguese and Spanish economies remain in good shape. In Portugal, the slight slowdown that is estimated to have occurred in Q1 does not detract from the favourable outlook for 2018 as a whole (expected growth of 2.4%). In addition, the good performance of the Portuguese economy, which is making a significant contribution to correct the macroeconomic imbalances, has been ratified by a new upward revision of the country's credit rating and by the risk premium being kept at very low levels. The Spanish economy, meanwhile, has been growing at around 3.0% for three years now. This growth has been supported by the country's internal strengths, the recovery of its international competitiveness and a healthier macro environment, as well as some external tailwinds which, although losing intensity, continue to provide more sustained growth than anticipated. This is evident, for example, in the encouraging GDP figure for Q1 2018, which according to Spain's National Statistics Institute remained at a solid 0.7% quarter-on-quarter (2.9% year-on-year), very similar to the figure for Q4 2017. The strength of the economy is also helping to correct the fiscal imbalances. In 2017, the public deficit stood at 3.1% of GDP, 1.2 pps less than in 2016. This is a good starting point, which makes the deficit target of 2.2% of GDP in 2018 achievable. This balancing of the public finances is also in line with the gradual reduction of household and company debt, an important trend to underpin the economy's capacity for growth in the medium term as the tailwinds subside and the headwinds gather strength.

## FORECASTS

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

### International economy

	2017	2018	2019	2020	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018
<b>GDP GROWTH</b>										
<b>Global</b>	3.8	3.9	3.9	3.7	3.9	3.9	4.0	4.0	3.9	3.8
<b>Developed countries</b>	2.3	2.4	2.1	1.8	2.5	2.6	2.6	2.5	2.4	2.3
United States	2.3	2.7	2.2	1.9	2.3	2.6	2.9	2.8	2.7	2.6
Euro area	2.5	2.5	2.0	1.7	2.7	2.7	2.7	2.5	2.4	2.3
Germany	2.5	2.5	2.1	1.8	2.7	2.9	2.7	2.6	2.4	2.3
France	2.0	2.1	2.0	1.6	2.3	2.6	2.1	2.1	2.2	2.0
Italy	1.5	1.5	1.2	1.1	1.7	1.6	1.6	1.5	1.5	1.5
Portugal	2.7	2.4	2.3	2.2	2.4	2.4	2.3	2.3	2.4	2.4
Spain	3.1	2.8	2.4	2.3	3.1	3.1	2.9	2.8	2.7	2.6
Japan	1.7	1.5	1.0	0.9	1.9	2.1	1.9	1.6	1.3	1.2
United Kingdom	1.8	1.5	1.8	2.0	1.8	1.4	1.2	1.6	1.5	1.5
<b>Emerging countries</b>	4.8	4.9	5.1	5.0	4.9	4.8	5.0	5.0	4.9	4.9
China	6.9	6.5	6.3	6.0	6.8	6.8	6.8	6.6	6.4	6.3
India	6.4	7.3	7.5	7.5	6.5	7.2	7.0	7.2	7.4	7.5
Indonesia	5.1	5.5	5.6	5.9	5.1	5.2	5.5	5.5	5.5	5.6
Brazil	1.0	2.3	2.7	2.6	1.4	2.1	2.0	2.3	2.5	2.7
Mexico	2.0	2.1	2.4	2.3	1.5	1.5	1.2	1.9	2.5	2.6
Chile	1.5	3.1	3.2	2.9	2.5	3.3	3.1	3.5	2.9	3.0
Russia	1.5	2.0	2.3	2.0	2.2	0.9	1.8	1.8	2.1	2.1
Turkey	7.3	4.0	3.6	3.7	11.3	7.3	5.0	4.5	3.3	3.2
Poland	4.6	3.9	3.2	2.9	5.2	4.3	4.2	4.2	3.7	3.5
South Africa	1.3	1.6	1.6	2.0	1.3	1.9	2.3	1.8	1.4	1.0
<b>INFLATION</b>										
<b>Global</b>	3.1	3.2	3.2	3.1	3.0	3.2	3.1	3.2	3.3	3.1
<b>Developed countries</b>	1.7	1.9	1.8	1.8	1.6	1.7	1.8	2.0	2.0	1.8
United States	2.1	2.5	1.9	1.9	2.0	2.1	2.3	2.7	2.7	2.3
Euro area	1.5	1.4	1.8	1.8	1.5	1.4	1.3	1.5	1.5	1.4
Germany	1.7	1.5	1.9	1.9	1.7	1.6	1.4	1.6	1.6	1.5
France	1.2	1.5	1.8	1.8	0.9	1.2	1.5	1.7	1.6	1.4
Italy	1.3	1.1	1.6	1.6	1.3	1.1	0.9	1.1	1.3	1.2
Portugal	1.6	1.0	1.5	1.8	1.3	1.8	0.9	0.5	1.2	1.4
Spain	2.0	1.6	2.0	2.1	1.7	1.4	1.0	1.5	2.0	1.8
Japan	0.5	1.2	0.9	1.2	0.6	0.6	1.4	1.2	1.4	0.9
United Kingdom	2.7	2.5	2.3	2.1	2.8	3.0	2.7	2.6	2.5	2.2
<b>Emerging countries</b>	4.0	4.4	4.3	4.1	3.9	4.2	4.3	4.4	4.4	4.3
China	1.6	2.1	2.4	2.4	1.6	1.8	2.2	2.4	2.2	1.8
India	3.3	4.6	4.9	4.7	3.0	4.6	4.6	4.4	4.9	4.3
Indonesia	3.8	3.7	4.5	4.6	3.8	3.5	3.3	3.5	4.0	4.2
Brazil	3.5	3.3	4.1	4.1	2.6	2.8	2.8	3.4	3.6	3.6
Mexico	6.0	4.4	3.8	3.4	6.5	6.6	5.3	4.3	4.0	4.0
Chile	2.2	2.5	2.9	3.0	1.7	2.0	2.0	2.4	2.9	2.9
Russia	3.7	2.9	3.9	4.0	3.4	2.6	2.3	2.4	3.1	3.7
Turkey	11.1	9.8	8.8	7.4	10.6	12.3	10.3	10.3	9.5	9.0
Poland	1.6	1.3	2.7	2.5	1.5	1.8	1.0	1.0	1.4	1.9
South Africa	5.3	5.1	5.4	5.1	4.8	4.7	4.2	4.6	5.4	6.1

Forecasts

## Spanish economy

	2017	2018	2019	2020	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018
<b>Macroeconomic aggregates</b>										
Household consumption	2.4	2.6	2.0	1.9	2.4	2.5	2.8	2.7	2.4	2.4
General government consumption	1.6	1.2	0.8	0.7	1.4	2.4	1.6	1.3	1.1	0.9
Gross fixed capital formation	5.0	3.3	3.0	2.7	5.6	5.6	3.5	3.6	3.0	3.0
Capital goods	6.1	3.8	2.6	2.4	6.6	7.7	4.5	5.2	2.9	2.7
Construction	4.6	3.1	3.2	2.9	5.1	4.8	3.0	2.8	3.4	3.2
Domestic demand (contr. Δ GDP)	2.8	2.4	1.9	1.8	3.0	3.2	2.7	2.6	2.3	2.1
Exports of goods and services	5.0	3.5	4.2	4.1	5.6	4.4	3.0	3.1	3.6	4.5
Imports of goods and services	4.7	2.8	3.2	2.9	5.9	5.2	2.4	2.8	2.6	3.4
<b>Gross domestic product</b>	<b>3.1</b>	<b>2.8</b>	<b>2.4</b>	<b>2.3</b>	<b>3.1</b>	<b>3.1</b>	<b>2.9</b>	<b>2.8</b>	<b>2.7</b>	<b>2.6</b>
<b>Other variables</b>										
Employment	2.8	2.4	2.1	2.0	2.9	2.9	2.7	2.4	2.2	2.3
Unemployment rate (% labour force)	17.2	15.5	13.7	12.0	16.4	16.5	16.7	15.7	14.8	14.8
Consumer price index	2.0	1.6	2.0	2.1	1.7	1.4	1.0	1.5	2.0	1.8
Unit labour costs	-0.1	0.9	1.9	2.3	0.0	0.0	0.3	0.8	1.1	1.5
Current account balance (cum., % GDP) <sup>1</sup>	1.9	1.7	1.7	1.6	1.8	1.9	1.9	1.8	1.8	1.7
Net lending or borrowing rest of the world (cum., % GDP) <sup>1</sup>	2.1	1.9	1.9	1.8	2.0	2.1	2.1	2.0	2.0	1.9
Fiscal balance (cum., % GDP) <sup>2</sup>	-3.1	-2.4	-1.7	-1.2						

## Financial markets

<b>INTEREST RATES</b>										
<b>Dollar</b>										
Fed Funds	1.10	1.96	2.67	3.19	1.25	1.30	1.58	1.83	2.08	2.33
3-month Libor	1.26	2.37	2.94	3.28	1.32	1.47	1.93	2.39	2.52	2.66
12-month Libor	1.79	2.68	3.02	3.35	1.73	1.92	2.39	2.72	2.78	2.83
2-year government bonds	1.39	2.54	3.23	3.49	1.36	1.69	2.16	2.41	2.67	2.92
10-year government bonds	2.33	3.02	3.57	3.75	2.24	2.38	2.77	2.91	3.10	3.29
<b>Euro</b>										
ECB Refi	0.00	0.00	0.08	0.58	0.00	0.00	0.00	0.00	0.00	0.00
3-month Euribor	-0.33	-0.33	-0.07	0.42	-0.33	-0.33	-0.33	-0.33	-0.33	-0.33
12-month Euribor	-0.15	-0.18	0.22	0.77	-0.16	-0.19	-0.19	-0.19	-0.18	-0.14
2-year government bonds (Germany)	-0.75	-0.48	0.06	0.70	-0.72	-0.74	-0.57	-0.53	-0.45	-0.38
10-year government bonds (Germany)	0.36	0.72	1.25	1.91	0.42	0.38	0.62	0.60	0.75	0.90
<b>EXCHANGE RATES</b>										
\$/€	1.13	1.22	1.22	1.24	1.17	1.18	1.23	1.23	1.22	1.21
¥/€	126.64	131.88	130.42	127.81	130.38	132.92	133.07	131.03	131.51	131.90
£/€	0.88	0.88	0.87	0.85	0.90	0.89	0.88	0.88	0.88	0.88
<b>OIL</b>										
Brent (\$/barrel)	54.83	68.56	66.92	66.00	52.18	61.54	67.18	70.00	68.83	68.21
Brent (€/barrel)	48.62	56.17	54.89	53.46	44.84	51.95	55.46	56.90	56.27	56.07

Note: 1. Four quarter cumulative. 2. Cumulative over four quarters. Does not include aid to financial institutions.

Forecasts

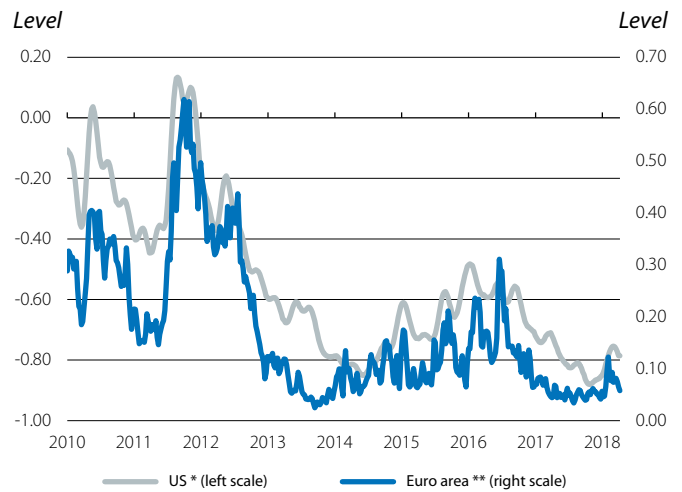
## FINANCIAL OUTLOOK · Financial markets are advancing in a more volatile environment

**Volatility takes root.** The fluctuations experienced by financial markets in April reinforce the view that the period of very low volatility we have witnessed in recent years is coming to an end. This is a result of less accommodative monetary policy, fears of a protectionist shift at a global level and the increase in geopolitical tensions. As such, financial conditions have tightened slightly in recent months (more so in the US than in Europe), as shown by the indices published by the Fed in the US and by the European Central Bank (ECB) in the euro area. Meanwhile, the VIX index, a popular indicator of volatility, fluctuated around the 19-point mark in April, well above the average for 2017. This change in the financial environment is supported by a positive macroeconomic scenario in which the Fed and the ECB are gradually withdrawing the monetary stimulus, albeit at different rates. After years of benefiting from an environment of low interest rates, stock markets are now seeing an increase in volatility and in April they suffered further sessions of losses (albeit less marked than in previous months). Sovereign interest rates, meanwhile, continued to rebound, slightly more notably in the US than in the euro area.

**The IMF emphasises the financial risks present in the current macroeconomic environment.** In its Global Financial Stability Report of April 2018, the International Monetary Fund (IMF) warns that, although accommodative financial conditions support global growth in the short term, factors such as unexpected spikes in inflation (followed by a faster-than-expected tightening of monetary policy), or a resurgence of uncertainty due to protectionist movements and increased trade tensions, pose a risk to global financial stability. Furthermore, the IMF highlights three vulnerabilities that have accumulated in recent years and that pose a risk to growth in the medium term: the high valuations of a wide range of assets, the significant borrowing levels of the emerging economies and the existence of imbalances in the dollar banking liquidity. The IMF warns that investors should avoid complacency in the current accommodative financial environment and must remain alert to the risks associated with interest rate rises, greater financial volatility and escalating trade tensions.

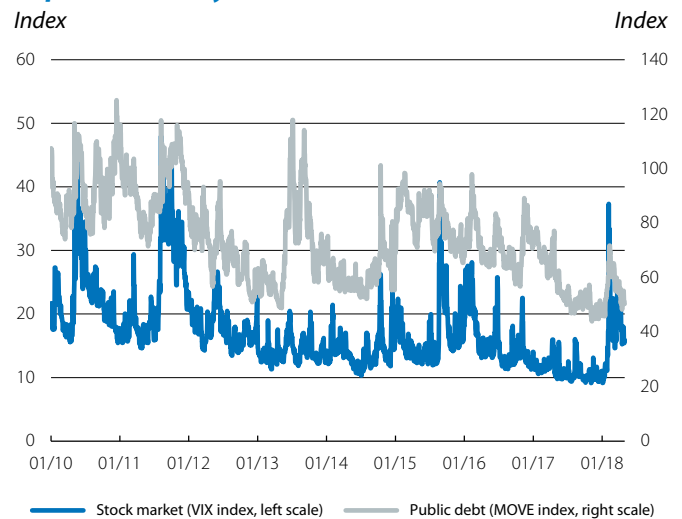
**The stock markets of the advanced economies are experiencing gains but with greater volatility.** The main trading floors of the advanced economies had an erratic start to the month of April as they continued to suffer the losses they had experienced at the end of March (which were closely linked to the escalating trade tensions between the US and China). Following this initial uncertainty, the main indices maintained a constructive tone until almost the last week of

### Indicators of financial conditions



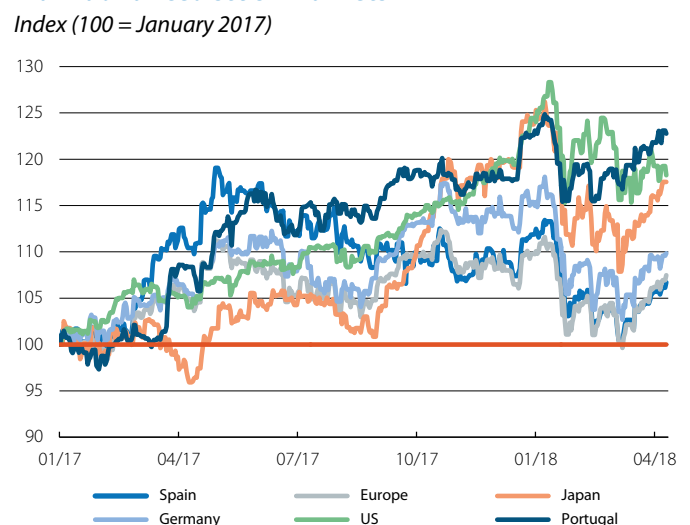
Notes: \* Financial Conditions Index of the Federal Reserve Bank of Chicago. \*\* Composite Systemic Stress Indicator of the ECB (two-week moving average). Source: CaixaBank Research, based on data from Bloomberg.

### Implied volatility in the financial markets



Source: CaixaBank Research, based on data from Bloomberg.

### Main advanced stock markets



Source: CaixaBank Research, based on data from Bloomberg.



April when losses once again broke out in the stock markets of the advanced economies. These losses arose amid fears of higher inflation, sovereign interest rate hikes and a poor performance of technology stocks. In the month as a whole, the main indices of the advanced economies closed up with moderate gains in the US (S&P 500 +0.3%) and somewhat greater gains in Europe (Eurostoxx 50 +5.2%, German DAX +4.3%, French CAC +6.8%, Italian MIB +7.0%, Spanish Ibex 35 +4.0% and the Portuguese PSI +2.9%).

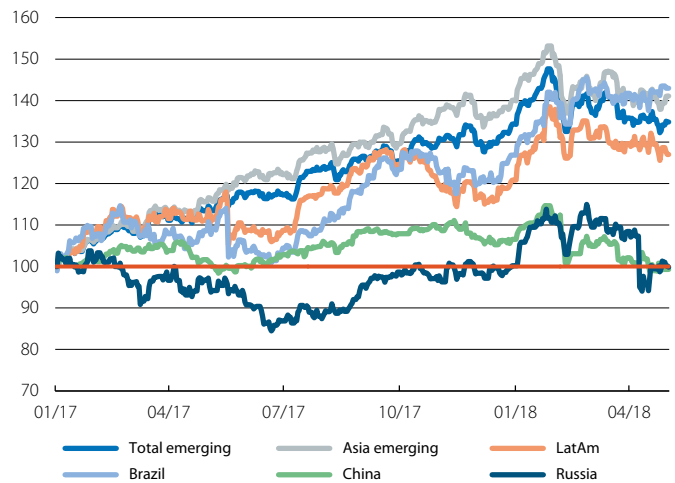
**Volatility penalises the emerging economy stock markets more.** As in the advanced economies, the indices of the emerging economies began the month of April erratically and with negative trading sessions. However, in the emerging stock markets, volatility and losses occurred throughout the rest of the month and the MSCI index for the region as a whole ended April with cumulative losses of 0.6%. Although the setbacks were widespread among the Latin American indices (MSCI index for Latin America -1.5%) and also affected the Asian indices (MSCI index for Emerging Asia 0.0% and the Shanghai Stock Exchange -2.7%), the Russian and Turkish stock markets deserve a special mention. In Russia, the RTS index plummeted more than 15% between 9 and 10 April (following a spike in geopolitical tensions with the US and the expectation of new sanctions on the Russian economy) and ended the month with a loss of 7.6%. In Turkey, meanwhile, the Istanbul stock exchange accumulated a loss of 9.3%, amid greater investor focus on the deterioration of the macroeconomic imbalances in the country's economy and the calling of early elections by President Recep Tayyip Erdogan.

**Upturn in US sovereign rates and more containment in the euro area.** In April, US sovereign yields picked up markedly once again due to greater investor confidence in the Fed's strategy of gradually tightening the financial conditions. The 2-year sovereign interest rate increased by 22 bps, while the 10-year rate rebounded by 21 bps and temporarily exceeded the 3.0% threshold for the first time since January 2014 (this trend of larger upturns in the short-term section of the yield curve has begun to raise fears of a recession in the US, something which we analyse this month in the Focus «On the likelihood of a recession in the US»). In Europe, meanwhile, sovereign rates are kept down by the expectation that the withdrawal of the ECB's monetary stimulus will be very gradual. As a result, their upturn was more moderate, with yields on 10-year German Bunds increasing by around 6 bps and the risk premiums remaining at contained levels.

**The ECB postpones new monetary policy decisions until the summer.** In its April meeting, the ECB kept the reference rates unchanged and recalled that net purchases of assets will continue at a monthly rate of 30,000 million euros until at least next September. The meeting, which did not provide any news regarding the future of the asset purchase programme, focused on the assessment of the recent slowdown of economic activity indicators in the euro area.

**Emerging stock markets by region**

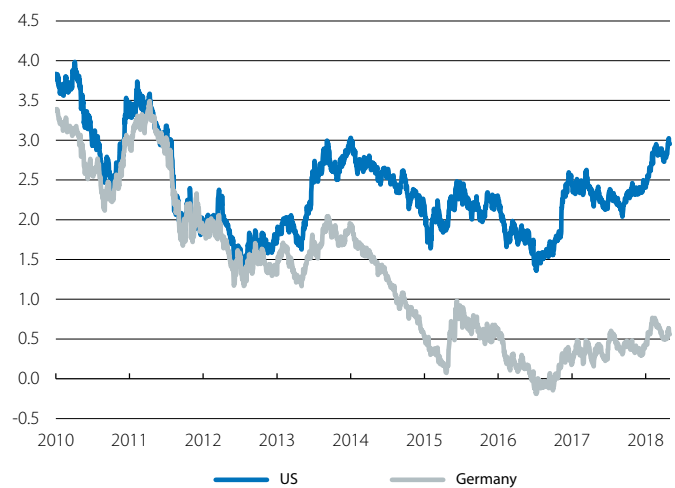
Index (100 = January 2017)



Source: CaixaBank Research, based on data from Bloomberg.

**Yield of 10-year government bonds**

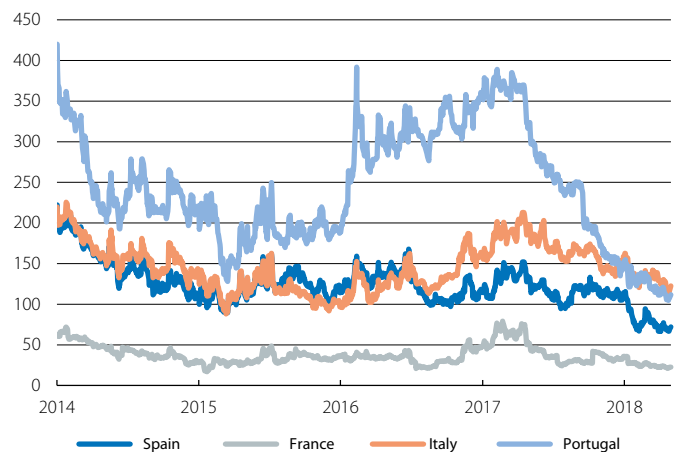
(%)



Source: CaixaBank Research, based on data from Bloomberg.

**Euro area: risk premium of 10-year government bonds**

(bps)



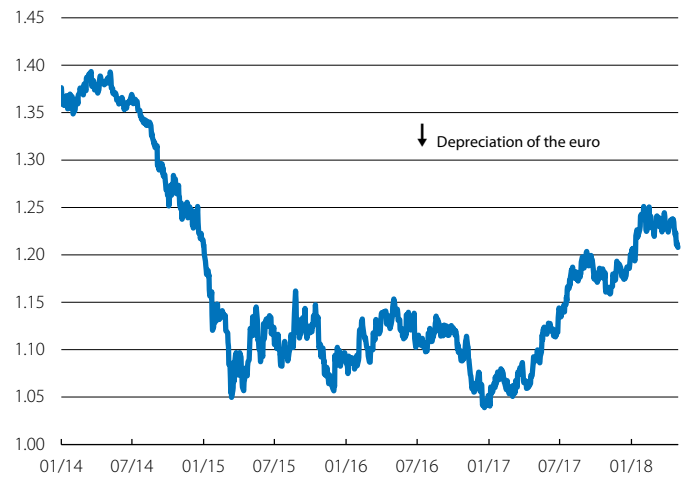
Source: CaixaBank Research, based on data from Bloomberg.

Overall, the Governing Council (GC) of the ECB is of the opinion that the indicators continue to support a scenario of solid and homogeneous growth (a vision we share here at CaixaBank Research) and, therefore, President Draghi stressed that his confidence in the recovery of inflation remains unchanged. However, Draghi also noted that in recent months, the negative risks surrounding global growth have been accentuated (particularly due to geopolitical and commercial factors). As such, the ECB postponed the announcements on the future of its asset purchase programme, which is due to end in September, until June or July. Here at CaixaBank Research, we expect this programme to be extended until December 2018, bringing the net purchases to an end in a phased manner. Beyond this horizon, the ECB is expected to implement a very gradual withdrawal of its monetary stimulus. On this point, in its April meeting the GC also reiterated its intention to maintain interest rates at their current levels well beyond the end of net asset purchases, and Draghi argued that monetary policy will evolve according to a strategy based on patience, prudence and persistence.

**The dollar recovers some ground.** After remaining stable during the first half of April, the dollar reversed part of the weakness shown in recent months and appreciated 2.1% against the main international currencies. It appreciated 2.0% against the euro (with a slight decline in the exchange rate to 1.21 dollars per euro), 1.8% against the pound sterling and 2.9% against the Japanese yen. The dollar also regained ground against the emerging market currencies, many of which were affected by idiosyncratic political factors. The worst performances against the dollar came from the Russian rouble (10.2%, with the geopolitical backdrop discussed above), the Brazilian real (6.1%, weakened by the increase in uncertainty surrounding the upcoming presidential elections brought about by the imprisonment of the former president Lula de Silva), the Mexican peso (2.9%, with Mexico facing presidential elections next July) and the Turkish lira (2.7%, with the underlying macroeconomic imbalances discussed above).

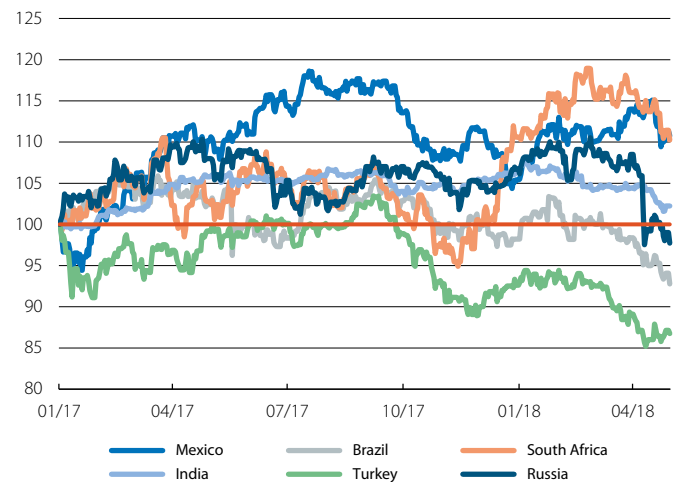
**The price of crude oil accentuates its strength.** The price of Brent oil continued last month's rising trend and stood at almost USD 75 per barrel, a level not reached since late 2014. Despite the threat that rebound in the production of shale would stabilise oil prices, the strength of oil prices in recent months has been sustained by both structural factors (strong growth in global demand, production cuts by OPEC and a sustained reduction of crude oil stocks in the US) and temporary factors (geopolitical uncertainty, particularly surrounding the possibility of the US reintroducing sanctions on Iran).

**Euro exchange rate against the US dollar**  
(US Dollar-Euro)



Source: CaixaBank Research, based on data from Bloomberg.

**Emerging currencies against the US dollar**  
Index (100 = January 2017)



Source: CaixaBank Research, based on data from Bloomberg.

**Brent crude oil price**  
(USD per barrel)



Source: CaixaBank Research, based on data from Bloomberg.

## FOCUS · On the likelihood of a recession in the US

April 2018 marked 106 months of expansion in the US economy, in what is the second longest growth phase in the last 170 years. What is more, it is only 14 months short of the all-time record held by the cycle of 1991-2001. Economic expansions do not die of old age and, as it happens, the economic data in recent quarters remains positive and indicates a good rate of growth. Nevertheless, there is one indicator in particular which has begun to arouse rumours about the possibility of the current expansionary phase coming to an end. It is the slope of the yield curve, an indicator which has correctly predicted every US recession of the past 50 years. Where does this predictive power come from? What is the current likelihood of recession according to this indicator? We analyse these issues below.

### An astonishing predictive history

The first chart shows the impressive predictive history of the slope of the yield curve since 1961. The blue line represents the spread between 10-year and 3-month sovereign interest rates, while the shaded bands indicate periods of recession. Clearly, each time the curve has been inverted (downward slope), the economy has entered into a recession after some 6 to 18 months (with one exception, at the end of 1966, when it only slowed down).

Economic theory has not yet developed a satisfactory causal explanation for this correlation, but there are two intuitive reasons behind the association between the two variables. Firstly, the tightening of monetary policy traditionally affects short-term interest rates more than long-term rates, which flattens the yield curve and, at the same time, slows down the economy over the medium term. Secondly, the slope of the yield curve contains information about expectations regarding future economic performance. Let's consider the following example, in which a saver has two options to lend money over a 10-year period: she can either (i) directly fix an interest rate over 10 years, or (ii) fix the interest rate over 1 year and renew it annually. Given that the saver compares the two alternatives, the 10-year interest rate reflects her expectation for the 1-year interest rate over the next 10 years (on balance, the saver is indifferent towards the two alternatives). Therefore, when the slope turns negative, it is a sign of the expectation that future interest rates will be lower than current rates. In other words, at some point, monetary policy is expected to

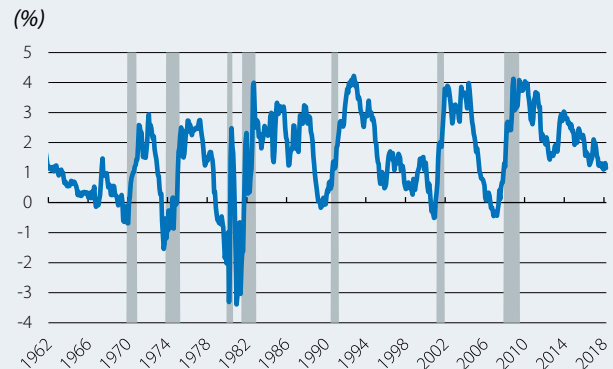
1. A probit model with data for the period between June 1961 and September 2016. The dependent variable indicates whether (or not) a recession occurs within 3 to 12 months, while the independent variable is the differential between 10-year and 3-month US sovereign interest rates.

become more expansionary because the economy will slow down and/or enter into a recession.

### The likelihood of recession in 2018

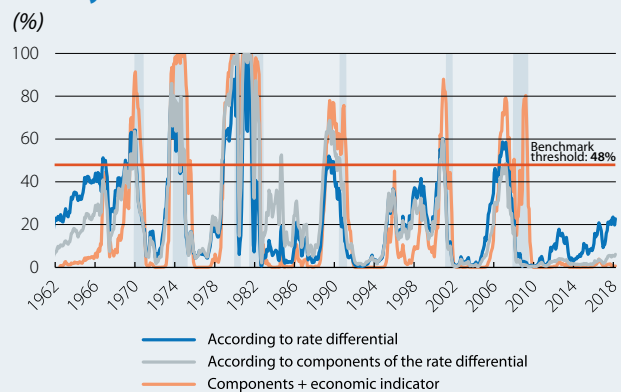
Given that this indicator has correctly anticipated the seven recessions that have occurred since 1961, the fact that the slope has steadily decreased from 300 bps in 2013 to the current 110 bps has fuelled the debate surrounding the possibility of a new recession. To quantify this possibility, in the second chart we present the probability of recession predicted by the slope of the yield curve, according to a statistical model.<sup>1</sup> As the blue line shows (we will discuss the grey and orange lines further below), the yield curve currently assigns a probability of 23% to the US going into recession sometime in the next 12 months. A useful benchmark for putting this figure into context is the probability of recession that the model

**US: recessions and the slope of the yield curve \***



**Note:** \* The shaded areas denote periods of recession. The slope of the yield curve is represented as the difference between 10-year and 3-month sovereign interest rates.  
**Source:** CaixaBank Research, based on data from Bloomberg and NBER.

**US: probability of recession according to the yield curve \***



**Note:** \* The shaded areas denote periods of recession.  
**Source:** CaixaBank Research, based on data from Bloomberg, the Federal Reserve Bank of New York and NBER.

indicates when the slope is perfectly flat: 48%.<sup>2</sup> Thus, although according to the yield curve the risk of recession is not negligible, it is still far from the levels that have historically provided a clear sign of a pending recession.

**Is this time different?**

One of the main criticisms of the use of the yield curve as a predictor of recessions is that economic and financial structures have evolved a great deal since the 1960s, so the past should not be extrapolated to predict how a radically different environment will evolve. One of the elements that change over time is the factors that determine the slope of the curve. Earlier, we discussed how long-term interest rates are a reflection of the expectations regarding the short-term interest rates that will prevail in the future. However, interest rates have another component: a term risk premium, which compensates savers for the additional risk of committing to a long-term investment.<sup>3</sup>

As can be seen in the third chart, the term premium is a significant component of interest rates and, moreover, it fluctuates over time. Furthermore, the levelling off of the yield curve in recent years is primarily due to how the term premium has changed (see the fourth chart). However, earlier we argued that the predictive power of the yield curve comes from the expectation component. Is it possible that the model will predict a lower probability of recession if we eliminate the term premium and use a more accurate measurement of expectations? The answer is yes. This is precisely what is happening in the grey line of the second chart, which corresponds to a model in which we break down the slope into the expectation component and the term premium component: the probability of recession is reduced to 6%. In the same spirit, the orange line shows that if we also add in information on indicators of economic activity, the probability of recession is reduced to 1%.

Although it is tempting to emphasise the mitigating effect of the term premium and the encouraging economic indicators, history recommends us to be cautious before declaring that «this time is different». For example, in an appearance at the Senate in 2007, when the sovereign curve was already inverted and indicated a 60% probability of recession, Ben Bernanke, the then chairman of the Fed, stated that «declines in the term premium (...) have led to a somewhat permanent flattening – or even inversion – of the yield curve, and that pattern does not necessarily predict

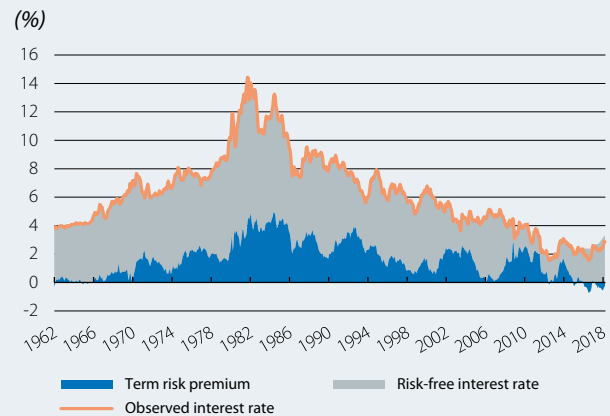
2. This is the benchmark because when the slope is inverted, the predictive history is virtually flawless.

3. For more information on the term premium, see the Focus «US Treasury term premia: not yet, but likely» in MR12/2014, and «The bias in market interest rate forecasts» in MR 10/2016.

slowing in the economy or a recession». However, we now know that, even on that occasion, the prediction of the yield curve was correct. In fact, the term premium is and has been a significant predictor of the likelihood of recession: each inversion of the yield curve has gone hand-in-hand with a compression of the differential of term premiums.

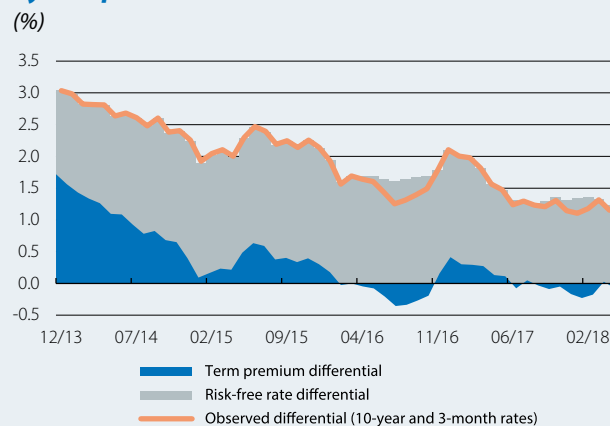
Finally, if we adjust the model to predict a less extreme scenario than recession, all of the specifications considered previously point towards an increase in the likelihood that growth will slow down in the coming quarters. This is a natural conclusion, since it is nothing more than a reflection of the fact that, besides the temporary boost provided by the fiscal stimulus of the Trump Administration, the US has been in the mature phase of the cycle for quite some months now, with a labour market showing high rates of employment and a level of real production which has already reached its potential.

**US: components of the 10-year sovereign interest rate**



*Note:* Breakdown according to T. Adrian, R. K. Crump, and E. Moench (2013), «Pricing the Term Structure with Linear Regressions», *Journal of Financial Economic*.  
*Source:* CaixaBank Research, based on data from the Federal Reserve Bank of New York.

**US: changes in the slope of the yield curve by component**



*Note:* Breakdown according to T. Adrian, R. K. Crump, and E. Moench (2013), «Pricing the Term Structure with Linear Regressions», *Journal of Financial Economics*.  
*Source:* CaixaBank Research, based on data from the Federal Reserve Bank of New York.

## KEY INDICATORS

## Interest rates (%)

	30-Apr	31-Mar	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
<b>Euro area</b>					
ECB Refi	0.00	0.00	0	0.0	0.0
3-month Euribor	-0.33	-0.33	0	0.0	0.0
1-year Euribor	-0.19	-0.19	0	-0.4	-6.9
1-year government bonds (Germany)	-0.63	-0.65	2	0.8	9.7
2-year government bonds (Germany)	-0.59	-0.54	-5	3.7	14.3
10-year government bonds (Germany)	0.56	0.66	-10	13.3	24.3
10-year government bonds (Spain)	1.28	1.54	-26	-28.7	-36.8
10-year spread (bps) <sup>1</sup>	72	88	-16	-42.0	-61.1
<b>US</b>					
Fed funds	1.75	1.50	25	25.0	75.0
3-month Libor	2.36	2.02	34	66.6	118.8
12-month Libor	2.77	2.50	27	66.3	99.6
1-year government bonds	2.23	2.06	17	49.8	117.2
2-year government bonds	2.49	2.25	24	60.7	122.8
10-year government bonds	2.95	2.86	9	54.5	67.0

## Spreads corporate bonds (bps)

	30-Apr	31-Mar	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Itraxx Corporate	54	52	2	9.6	-12.1
Itraxx Financials Senior	57	53	4	13.4	-16.9
Itraxx Subordinated Financials	116	114	2	11.1	-51.8

## Exchange rates

	30-Apr	31-Mar	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
\$/€	1.208	1.219	-1.0	0.6	10.9
¥/€	132.050	130.080	1.5	-2.4	8.7
£/€	0.878	0.886	-1.0	-1.2	4.3
¥/\$	109.340	106.680	2.5	-3.0	-1.9

## Commodities

	30-Apr	31-Mar	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
CRB Commodity Index	445.1	443.9	0.3	3.0	4.8
Brent (\$/barrel)	75.2	65.8	14.3	12.4	45.3
Gold (\$/ounce)	1,315.4	1,318.4	-0.2	0.9	3.7

## Equity

	30-Apr	31-Mar	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
S&P 500 (USA)	2,648.1	2,713.8	-2.4	-1.0	11.1
Eurostoxx 50 (euro area)	3,536.5	3,439.0	2.8	0.9	-0.6
Ibex 35 (Spain)	9,980.6	9,840.3	1.4	-0.6	-6.9
Nikkei 225 (Japan)	22,467.9	22,068.2	1.8	-1.3	17.0
MSCI Emerging	1,164.4	1,195.2	-2.6	0.5	19.1
Nasdaq (USA)	7,066.3	7,273.0	-2.8	2.4	16.8

Note: 1. Spread between the yields on Spanish and German 10-year bonds.

## ECONOMIC OUTLOOK · Strong global growth, but with upside risks

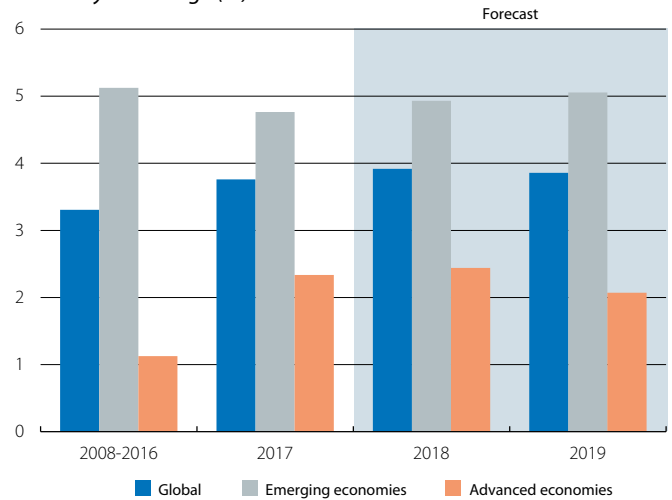
**Global outlook: the momentum remains strong.** With Q1 now over, the available indicators suggest that this period will have closed with growth as high as around 4%, somewhat above that registered in the second half of 2017. As has been pointed out earlier in these pages, a hallmark of the current cyclical phase is the high degree of synchronisation, such that both advanced and emerging economies are accelerating. The latter are showing higher rates of economic growth, as would be expected, with growth of around the 5% mark in Q1. Despite some qualitative indicators tilting downwards towards the end of the quarter (a possible reflection of the deterioration in the balance of risks, which we will return at in a moment), the global economy is expected to end up recording similar growth figures in 2018 to those of 2017, since the global drivers remain in place. This is a similar diagnosis to the one recently published by the IMF.

**Nevertheless, the balance of risks remains biased towards an eventual reduction in growth.** Despite the good start to the year, the outlook is not free of risks. In the macro-financial field, two risks are particularly significant: the growing level of global debt and the sensitivity of the financial markets (and of certain emerging markets) to a potential greater-than-expected tightening of the international financial conditions. The pockets of political uncertainty also remain a threat (protectionism, populism and geopolitical risks). In this category, perhaps the most notorious risk is the first one, that of a possible protectionist shift. As is well known, the US decision to apply tariffs on various imported products, and the likely response from China, have increased fears of an escalation of trade tensions. However, we must not forget that there are grounds for the US complaints, as China's trade practices do not conform to the standards of free trade applied by most countries. Therefore, even if it involves disruptive methods which generate instability in the short term, this course of action might end up leading the international trading system to function better in the medium term.

### UNITED STATES

**GDP grew at a solid 0.6% quarter-on-quarter in Q1 2018.** Although this is a slightly lower rate of growth than the previous quarter (0.6% quarter-on-quarter compared to 0.7% in Q4 2017) it has been a positive surprise. In year-on-year terms, the increase was 2.9%. By components of demand, the slight deceleration of growth was largely down to the slowdown in the rise of private consumption, public consumption and investment in housing. This, however, was partially offset by the positive contribution of the stock component, the slower growth in imports and the strength of non-housing

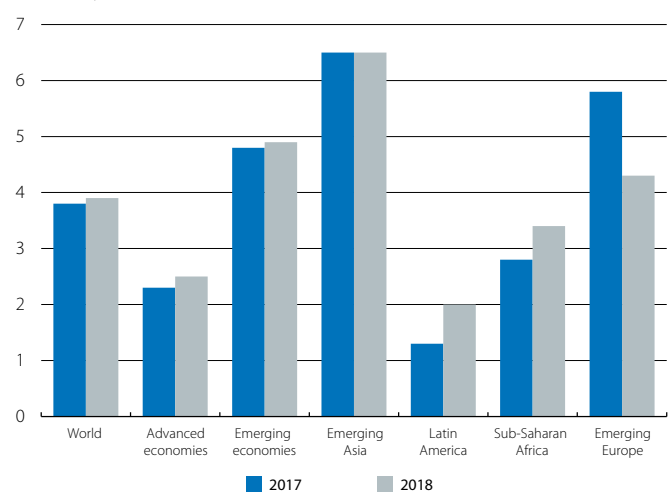
**Global GDP**  
Year-on-year change (%)



Source: CaixaBank Research.

**IMF: GDP forecasts for 2017 and 2018**

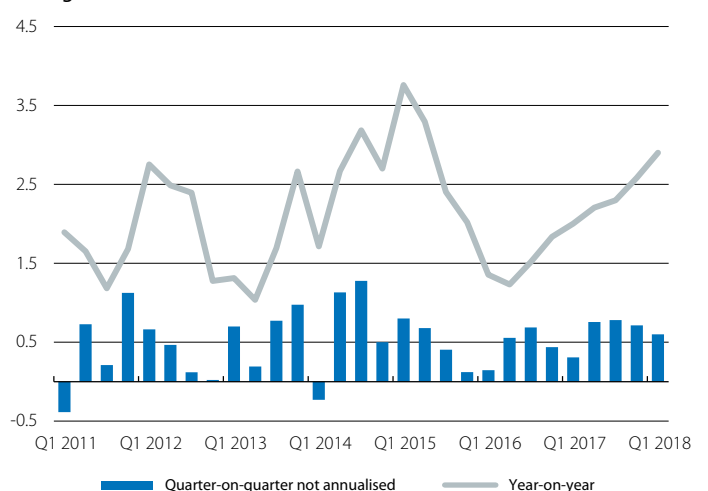
Year-on-year change (%)



Source: CaixaBank Research, based on data from the IMF (WEO, April 2018).

**US: GDP**

Change (%)



Source: CaixaBank Research, based on data from the Bureau of Economic Analysis.

investment. This slight slowdown in the economy is not a surprise, as some economic indicators had already shown signs of losing momentum at the end of the quarter, as has also happened at the global level. In addition to this is the idiosyncratic factor of the US national accounts. As acknowledged by the country's Bureau of Economic Analysis (BEA), there is a seasonality problem in the GDP trend line which causes it to be repeatedly lower in Q1 and higher in the following two quarters.

**The slight slowdown in Q1 does not change the underlying dynamics.** Despite the slowdown in growth in Q1, these atypical effects are expected to no longer apply in the following quarters. In particular, CaixaBank Research expects growth to accelerate in the remainder of this year, thanks to the combination of fiscal expansion, monetary conditions which remain accommodative despite the gradual increase in the reference rate by the Fed, and the strength of domestic demand, which will continue to be supported by a favourable labour market.

**A labour market typical of mature phases.** In this regard, it is worth recalling that despite the fact that only 103,000 jobs were created in March, which was fewer than expected, this figure is logical in view of the very high figure for the previous month (326,000 jobs). The figure for Q1 as a whole, however, shows more consistency than the high volatility of the monthly figures: over 600,000 jobs were created during the quarter, slightly below the figure for Q4 2017 (660,000). In addition, the unemployment rate stood at just 4.1% in March, while wages rose by 2.7% year-on-year. Finally, it should be noted that the rate of economic activity was maintained without any excessive changes during Q1 (60.3%, similar to that of 2017 as a whole).

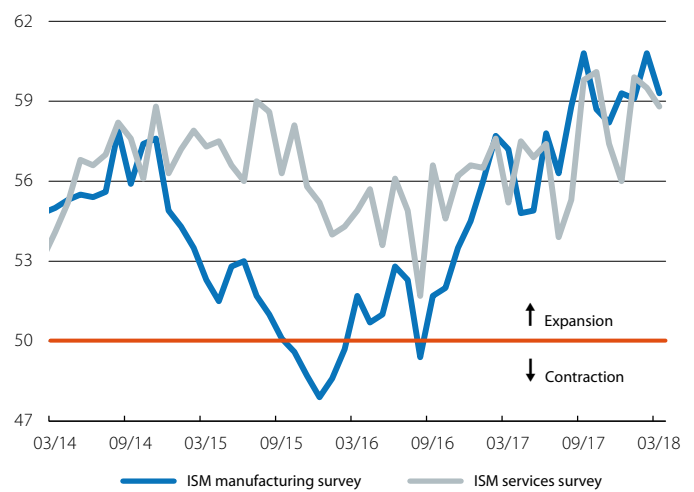
**Consumer prices, on the verge of entering an upward phase.** Inflation rose by 2 decimal points in March to 2.4% year-on-year. Similarly, core inflation (which does not include energy and food prices, usually subject to greater volatility) stood at 2.1%, 3 decimal points higher than in February. Despite the slowdown in the CPI on a month-on-month basis, due to the sharp drop in the energy component, both headline and core inflation stood above the figures for the past few months. This trend can be expected to continue as there is going to be a significant rise, given that last year's sharp fall in wireless telephony prices which occurred during these months will not be repeated this year. In this context, the minutes of the Fed showed greater confidence in the outlook for growth and inflation, which affirms the four interest rate rises predicted by CaixaBank Research for 2018.

## EMERGING ECONOMIES

**Capital inflows fall slightly, but remain high.** The underlying trend of the flow of capital (equities and debt) into the emerging economies is one of deceleration. However, the

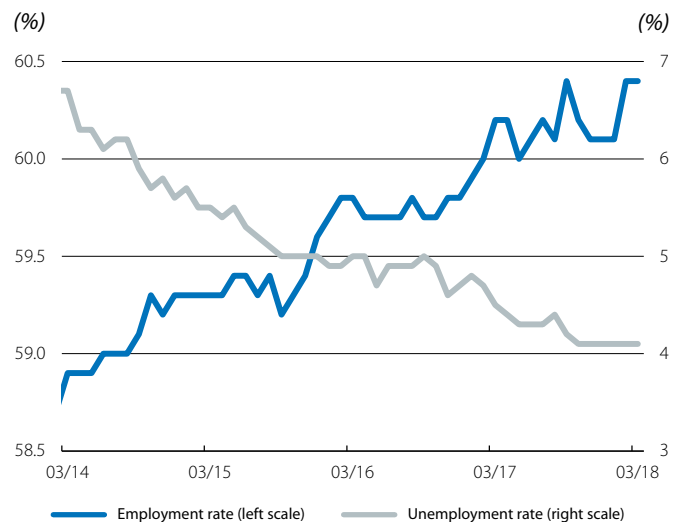
### US: economic indicators

Level



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

### US: labour market



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

### US: CPI

Year-on-year change (%)



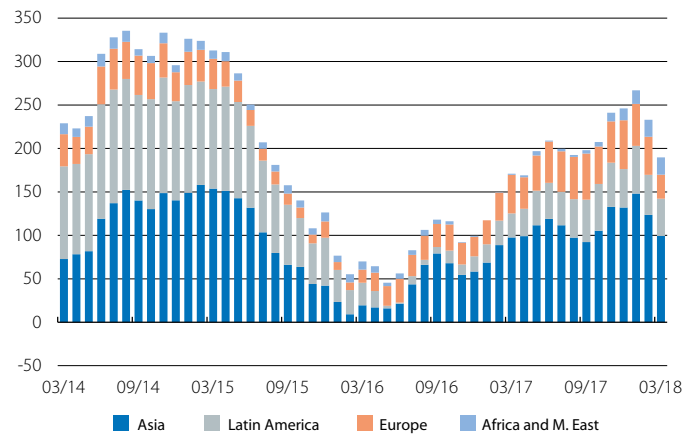
Source: CaixaBank Research, based on data from the Bureau of Labor Statistics.

current pace of inflows is by no means low, particularly if we take into account the fact that these economies are especially sensitive to the current environment, with a gradual tightening of global financial conditions (see the Focus «Growth in the emerging economies and global financial conditions: a close relationship» in this very *Monthly Report*) and the ever-present geopolitical and political uncertainty. In line with its high growth, emerging Asia remains the major receiver of financial capital.

**China, undergoing a slight deceleration.** In China, growth in Q1 was relatively high: GDP grew by a considerable 6.8% year-on-year, the same rate as in the previous two quarters. This progress was supported by temporary factors, such as greater levels of industrial activity (the low temperatures in January and February stimulated energy demand and reduced pollution levels, which in turn momentarily reduced the government’s regulatory pressure in its anti-pollution campaign) and a rebound in investment in housing. The economic data for March, which was published at the same time as GDP for Q1, showed a positive tone in line with the figure for growth. Industrial production rose by a considerable 6.0% year-on-year and retail sales grew by an impressive 10.1%. All in all, these short-term dynamics do not change the diagnosis that China will move into a phase of lower growth in 2018 due to the gradual withdrawal of economic stimuli.

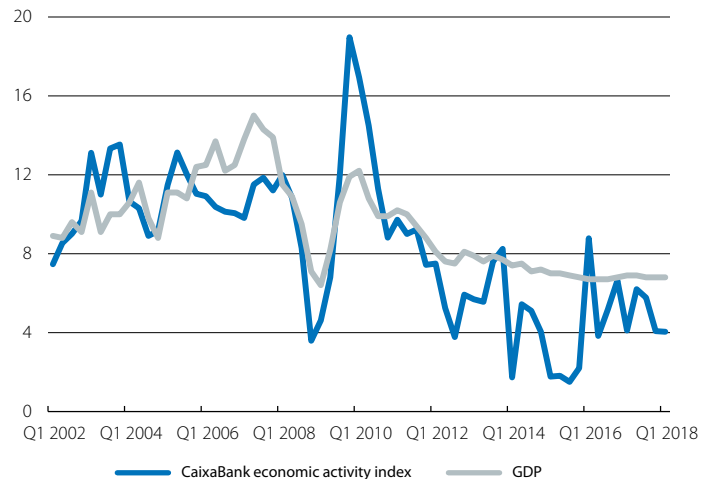
**Good growth in many emerging economies.** The rest of the main emerging markets are registering reasonably positive growth. Although each of these economies is subject to factors that both support and restrict growth, most of them are benefiting from the combination of global financing, which is still cheap and widely available, the synchronised acceleration of global growth and the upward trend in raw materials. In this context, it is perhaps the major emerging countries in Asia that are making the most of these positive factors, since they have comfortably achieved high levels of growth (year-on-year growth rates close to 6%). Others, however, continue to see their growth hampered by uncertainty, mainly of a political and geopolitical nature, such as in the case of Russia and Mexico. In Russia’s case, in the fourth quarter of 2017, GDP grew by 0.9% year-on-year, lower than expected and also lower than the 2.2% recorded in the previous quarter, bringing growth for 2017 as a whole to 1.5%. This weak end to the year, together with the imposition of new international sanctions, reaffirms the forecast for moderate growth in 2018 (2.0%). Mexico, meanwhile, grew by 1.2% according to the initial data for the quarter (compared to 1.5% in Q4 2017), well below the economy’s growth potential as a result of the political uncertainty (NAFTA negotiations and the presidential elections).

**Emerging economies: portfolio capital inflows\***  
12-Month cumulative balance (billion dollars)



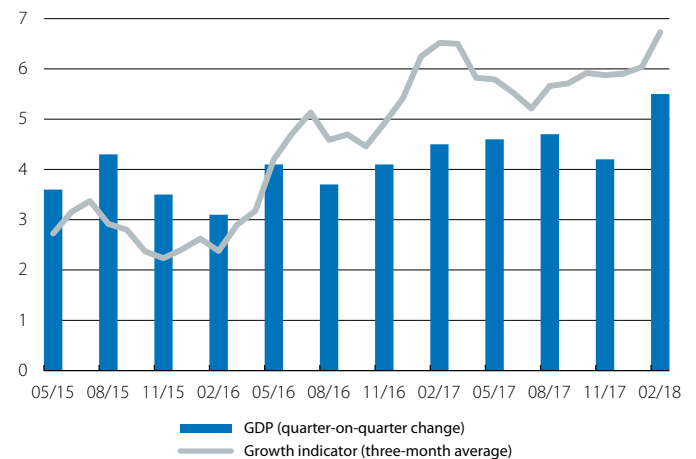
Note: \* Inflows from equities and debt.  
Source: CaixaBank Research, based on data from the IIF.

**China: GDP vs. economic activity index**  
Year-on-year change (%)



Source: CaixaBank Research, based on data from the National Statistics Office of China.

**Emerging economies: GDP and growth indicator of the IIF**  
Change (%)



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



## FOCUS · The US and China: escalation of the trade conflict

Following the US withdrawal from the Trans-Pacific Partnership (TPP) trade deal in 2017, and fully immersed in the difficult NAFTA renegotiations, Trump began 2018 by placing more burdens on international trade, this time focused against China. Without a doubt, this has increased fears of protectionist backsliding on a global scale.

Under the slogan «America first» policy, Trump has already declared an increase in import tariffs on solar panels, washing machines, aluminium and steel. He has also announced another possible 25% tariff increase on more than 1,300 Chinese products, valued at nearly 50 billion dollars. China did not take long to respond: faced with the American threat, it will apply a tariff increase of a similar size.

Although, for the time being, the actions between the two countries affect only a very small percentage of global trade flows (less than 1%), the climate of greater uncertainty could end up damaging the good rate of growth of the global economy.

Various factors are argued as triggering the US announcements. China's dumping practices<sup>1</sup>, particularly since it joined the World Trade Organization (WTO) in 2001, have been a source of constant friction between the US and the Asian giant. Not in vain, China has used unorthodox methods to support its exports by maintaining an undervalued exchange rate for years and offering subsidised prices for electricity, water and other services utilities for manufacturing companies that export, among other measures. As an example, China's subsidies to the shipbuilding industry reduced the sector's production costs by between 13% and 20% from 2006 to 2012. This has allowed major Chinese companies in the sector to enter the top 10 largest producers in the world in the space of just a few years.

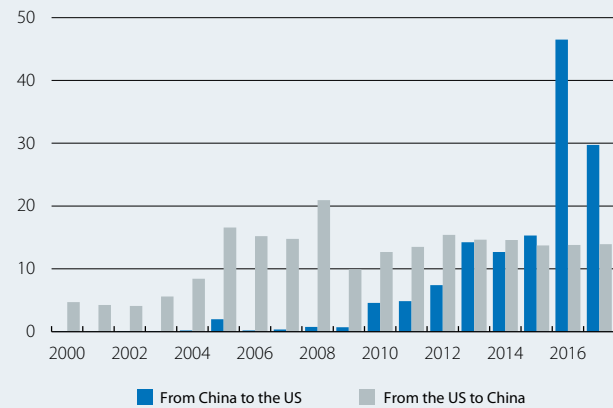
However, the US criticisms of China's practices go beyond the usual trade-related topics of dumping. Specifically, the complaints have recently focused on three aspects. Firstly, concerns have been raised over the pressures placed on North American companies operating on Chinese soil to transfer technology and intellectual property to the Chinese companies they collaborate with.

Secondly, there is criticism of the government aid that large Chinese companies receive to help them acquire American companies, especially in high-tech sectors. This situation also contrasts with the obstacles imposed on American companies that want to acquire Chinese companies (lack of reciprocity). For example, in 2015 Chinese direct foreign investment in the US exceeded that of the US on Chinese soil for the first time. This represents a change of direction in investment flows which, most likely, will only become more accentuated over time, as indicated by the most recent data for 2016 and 2017 (see attached chart).

1. Dumping practices consist of applying a sale price on exported products that is below the market price.

### Foreign Direct Investment

(Billion dollars)



Source: CaixaBank Research, based on data from «The US-China FDI Project».

The third area in which the US current protests against China have focused has been the theft of sensitive information from US companies through their computer networks being accessed.

At this point, it should be mentioned that although many disputes related to intellectual property and trademarks can be dealt with under the jurisdictional framework of the WTO, many others remain outside of this framework. For example, those related to the compulsory transfer of technology between companies fall outside of the WTO's remit. Perhaps the WTO can be criticised for not having done more to broaden consensus on the rules regarding trade and international relations. In fact, the greatest danger of the current escalation of trade tensions between the US and China is precisely the risk of the WTO losing its influence as a cornerstone for establishing such rules and as an arbitrator in disputes between countries.

Beyond the economic logic, Trump's actions can be interpreted as a mere political strategy, since the accusations of dumping, theft of technology and lack of reciprocity in investments are not something new in the country's economic relations with China. This is not, however, a strategy that is necessarily sure to end up favouring the Republican Party in the November midterm elections. The reprisals from China, if they occur, would affect sectors that play a major role in the economies of several swing states. In that case, if the electorate that is undecided and adversely affected by the Chinese tariffs blames Trump for the deterioration of their financial situation, the balance could tip in favour of Democratic candidates. That said, if there is one thing we have learned in the past few years, it is that when the debate is polarised, the reaction of voters does not always follow the economic logic. If we are wrong, tell that to the Brexiteers.

## FOCUS · Growth in the emerging economies and global financial conditions: a close relationship

The emerging economies are enjoying an invigorating economic momentum: since the Great Recession of 2009 and up until 2017, they grew at slightly more than 5% per year and are expected to continue to grow at this rate for the next five years, according to analysts' forecasts. As we have emphasised in other articles,<sup>1</sup> there should be no doubt that part of the economic boost stems from the unprecedented loosening of global financial conditions which began following the Great Recession. However, now that the monetary policy of developed countries is shifting towards a slow but relentless path to normalisation, the key question is to what extent the future tightening of global financial conditions will erode their economic growth.

Historically, the relationship between growth in the emerging economies and indices for global financial conditions has been very close.<sup>2</sup> Clearly, a correlation does not imply causation, but if we use more sophisticated econometric techniques, the correlation between the two set of variables remains very high. Specifically, we have analysed the ability to explain GDP growth in emerging countries of three benchmark indicators: financial conditions,<sup>3</sup> geopolitical factors<sup>4</sup> and financial volatility (VIX). These global factors account for a large part of the variance in growth, specifically 70% during the period between 2007 and 2012, the years most heavily affected by the Great Recession and by the introduction of non-conventional monetary policy, and 55% during the period between 2013 and 2017. Of the total variance explained, financial conditions are the most significant factor during both periods. What is more, this factor becomes increasingly important as we move away from the financial crisis (see first chart).

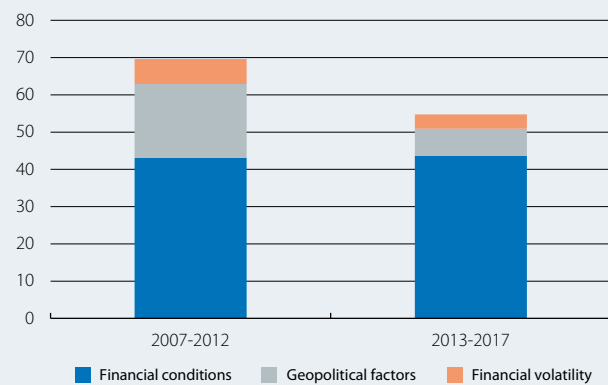
In order to sharpen the analysis of the impact the tightening of financial conditions could have on the growth of emerging markets, we have analysed the impulse-response functions of a VAR model (see second chart). The shock we have applied to the emerging economies corresponds to a 1.5 point tightening of the

financial conditions index. A tightening of this magnitude seems reasonable if we analyse how financial conditions have historically evolved during periods of rising interest rates in the US, together with the outlook for the next few years.<sup>5</sup> It turns out that a tightening of the financial conditions of this nature, if it were to occur suddenly, would have an impact on the growth of the emerging markets of around 1 pp after two quarters. This magnitude is far from negligible.

Of course, we expect that the tightening of financial conditions will occur much more gradually, which should allow the emerging economies to continue to maintain a high rate of growth. However, if the Fed has to accelerate the pace of interest rate hikes, for instance due to wage and/or inflationary pressures increasing more than expected, the impact on emerging countries could be remarkable.

### Global factors that explain the growth of emerging markets

Contribution of each factor to the explained variance (%)



Source: CaixaBank Research.

### Response of the growth of emerging markets to a global financial shock

(pps)



Note: A fourth-moment vector autoregression is estimated, including quarterly data on the growth of emerging economies, the global financial conditions index and the VIX index. The broken lines represent a 95% confidence interval.

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

1. See CaixaBank's MR02/18 for example.
2. Indices for global financial conditions are scarce. In this regression analysis, we use the global financial conditions (GFC) index by Goldman Sachs. This index summarises financial conditions by integrating information from different financial assets (interest rates, spreads, stock market prices and exchange rates) relating to a set of developed and emerging countries.
3. We have included the Goldman Sachs GFC index, the Federal Reserve Bank of Chicago GFC index, the S&P 500, the MSCI Emerging Markets index and the Bloomberg emerging stock markets index.
4. We have used the Iacoviello and Caldara risk index, the CaixaBank Research conflicts index and the global political uncertainty index by Baker, Bloom and Davis.
5. An additional benchmark is that in April 2013, during the episode known as «taper tantrum», this index rose by 1 pp in just two months.

## KEY INDICATORS

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

## UNITED STATES

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Activity</b>									
Real GDP	1.5	2.3	2.0	2.2	2.3	2.6	–	2.9	–
Retail sales (excluding cars and petrol)	3.7	4.1	4.1	3.0	2.8	2.2	3.7	4.1	3.9
Consumer confidence (value)	99.8	120.5	117.5	118.1	120.3	126.0	124.3	130.0	127.0
Industrial production	–1.9	1.6	0.2	1.9	1.3	3.0	2.9	4.4	4.3
Manufacturing activity index (ISM) (value)	51.4	57.4	56.6	55.8	58.7	58.7	59.1	60.8	59.3
Housing starts (thousands)	1.177	1.208	1.238	1.167	1.172	1.256	1.329	1.295	1.319
Case-Shiller home price index (value)	189	200	197	198	200	204	207.4	209.3	...
Unemployment rate (% lab. force)	4.9	4.4	4.7	4.3	4.3	4.1	4.1	4.1	4.1
Employment-population ratio (% pop. > 16 years)	59.7	60.1	60.0	60.1	60.2	60.1	60.1	60.4	60.4
Trade balance <sup>1</sup> (% GDP)	–2.7	–2.9	–2.7	–2.8	–2.9	–2.9	–3.0	–3.0	...
<b>Prices</b>									
Consumer prices	1.3	2.1	2.5	1.9	2.0	2.1	2.1	2.2	2.4
Core consumer prices	2.2	1.8	2.2	1.8	1.7	1.8	1.8	1.8	2.1

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 &amp; Poor's, ISM and Thomson Reuters Datastream.

## JAPAN

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Activity</b>									
Real GDP	0.9	1.7	1.3	1.6	1.9	2.1	–	...	–
Consumer confidence (value)	41.7	43.8	43.4	43.4	43.7	44.5	44.7	44.3	44.3
Industrial production	–0.2	4.5	3.9	5.8	4.6	4.1	0.8	2.2	3.9
Business activity index (Tankan) (value)	7.0	19.0	12.0	17.0	22.0	25.0	–	24.0	–
Unemployment rate (% lab. force)	3.1	2.8	2.9	2.9	2.8	2.7	2.4	2.5	2.5
Trade balance <sup>1</sup> (% GDP)	0.7	0.5	0.7	0.6	0.6	0.5	0.8	0.5	0.5
<b>Prices</b>									
Consumer prices	–0.1	0.5	0.3	0.4	0.6	0.6	1.3	1.5	1.1
Core consumer prices	0.6	0.1	0.1	0.0	0.2	0.3	0.4	0.5	0.4

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	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Activity</b>									
Real GDP	6.7	6.9	6.9	6.9	6.8	6.8	–	6.8	–
Retail sales	10.4	10.2	10.0	10.8	10.3	9.9	9.7	9.7	10.1
Industrial production	6.1	6.6	6.8	6.9	6.3	6.2	7.2	7.2	6.0
PMI manufacturing (value)	50.3	51.6	51.6	51.4	51.8	51.7	51.3	50.3	51.5
<b>Foreign sector</b>									
Trade balance <sup>1</sup> (value)	512	435	466	458	435	435	405	449	420
Exports	–8.4	8.5	7.8	9.0	6.9	10.1	10.3	43.7	–3.2
Imports	–5.7	16.1	23.9	14.3	14.7	13.2	36.9	6.7	14.6
<b>Prices</b>									
Consumer prices	2.0	1.6	1.4	1.4	1.6	1.8	1.5	2.9	2.1
Official interest rate <sup>2</sup> (value)	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35
Renminbi per dollar (value)	6.6	6.8	6.9	6.9	6.7	6.6	6.4	6.3	6.3

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.

## ECONOMIC OUTLOOK · Positive outlook despite the slight slowdown in growth

**A solid period in the cycle for the euro area economy.** The macroeconomic environment of the euro area has improved substantially over the last few quarters and is now showing stronger and more even growth, with the main countries growing at a rate of over 2% (with the exception of Italy). Domestic demand remains buoyant, supported by the accommodative monetary policy of the ECB and the improvements in the labour market, while exports are benefiting from greater global growth. As such, the cyclical trend in the growth of the euro area continues, and no major supply restrictions (such as difficulties in expanding production or hiring workers) have yet arisen to hinder it. In view of this, the IMF has revised its growth forecast for the euro area in 2018 upwards to 2.4%, 2 decimal points higher than the estimate of three months ago. By country, the improvement has been widespread, with notable upward revisions in Germany (+0.2 pps to 2.5%), France (+0.2 pps to 2.1%), Spain (+0.4 pps to 2.8%) and Portugal (+0.4 pps to 2.4%). The short-term risks are also balanced, although in the medium term the threat of a possible trade war with the US has arisen, in addition to the existing geopolitical risks and the risk of a further tightening of financial conditions. In any case, we anticipate that the rate of growth of the euro area will reduce only gradually to below 2% in 2020, constrained by the relatively low growth in productivity and the ageing of the population.

**Temporary slowdown in growth in Q1.** Most of the economic indicators (such as PMI and ESI) available for the first three months of the year indicate a lower rate of growth in Q1 2018. Industrial production, for example, increased at a slower pace in the months of January and February (3.5% versus 4.0% in Q4 2017). In France, for which GDP data is already available for Q1, quarter-on-quarter growth reached 0.3%, lower than the 0.7% of Q4 last year. Following on from this, economists reduced their outlook due to temporary factors such as adverse weather conditions and the uncertainty surrounding a possible trade war with the US, as well as political uncertainty in relation to the formation of a government in Germany. Nevertheless, several of the economic indicators available for the month of April indicate that the slowdown in the first few months of the year has stopped in Q2. Specifically, the composite PMI for the whole of the euro area remained at 55.2 points, the same figure as in March and well within expansive territory (above 50 points). Furthermore, composite PMI was slightly higher than in the previous month both in Germany and in France (55.3 and 56.9 points, respectively). In addition, the economic sentiment indicator (ESI) developed by the European Commission stabilised at 112.7 points in April, the same level as in the previous month.

### IMF forecasts for GDP

Annual change (%)

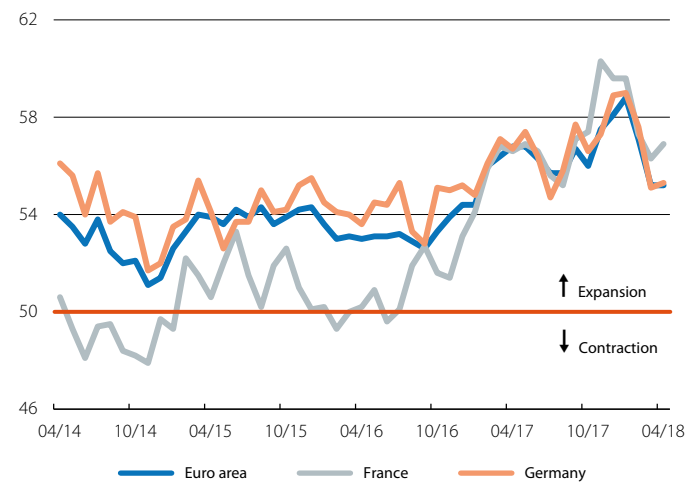
	GDP forecast			Change versus the forecast of January 2018*	
	2017	2018	2019	2018	2019
Euro area	2.3	2.4	2.0	▲ 0.2	=
Germany	2.5	2.5	2.0	▲ 0.2	=
France	1.8	2.1	2.0	▲ 0.2	▲ 0.1
Italy	1.5	1.5	1.1	▲ 0.1	=
Spain	3.1	2.8	2.2	▲ 0.4	▲ 0.1
Portugal	2.7	2.4	1.8	▲ 0.4	▲ 0.1
United Kingdom	1.8	1.6	1.5	▲ 0.1	=

Note: \* The previous forecast for Portugal corresponds to article IV (October 2017).

Source: CaixaBank Research, based on data from the IMF (WEO, April 2018).

### Euro area: composite PMI

Level

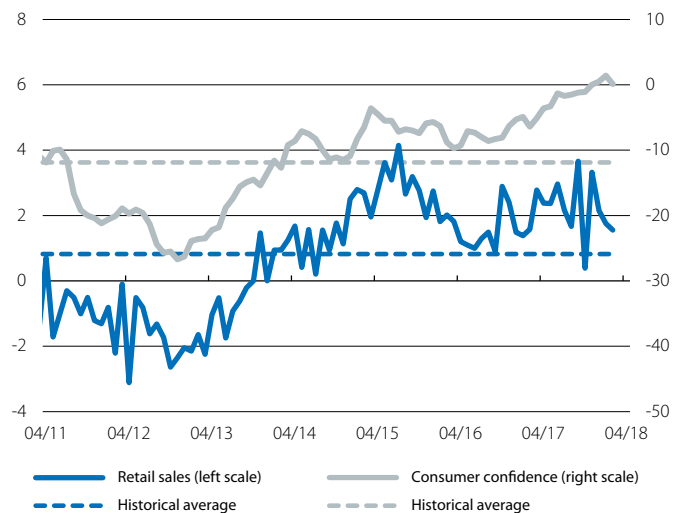


Source: CaixaBank Research, based on data from Markit.

### Euro area: consumption indicators

Year-on-year change (%)

Level



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

**Private consumption in the euro area continues to rise.**

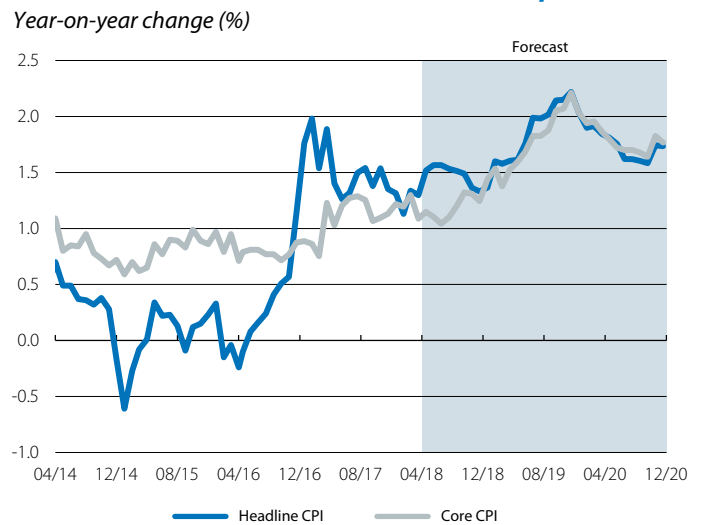
Retail sales rose by 1.8% in February year-on-year, a slightly higher rate than in January (1.5% year-on-year). Consumer confidence also remains high. Specifically, the consumer confidence index developed by the European Commission stood at 0.4 points in April, higher than in the previous two months (0.1) and than the average for 2017 (-2.5). This figure suggests that private consumption in Q2 2018 will continue to be one of the main drivers of growth in the euro area.

**Inflation continues its steady rise in March.** The harmonised index of consumer prices (HICP) for the euro area rose to 1.3% year-on-year in March, 2 decimal points higher than in the previous month. The increase is mainly due to the greater contribution from food prices, both among processed and non-processed foods. On the other hand, core inflation also stood at 1.3%, 1 decimal point higher than in February. Here at CaixaBank Research, we expect inflation to continue to follow an upward trend over the coming quarters, supported by the positive trends in the economy and the rise in oil prices, before gradually converging on the target inflation rate in 2019, albeit still below 2%.

**Momentum in lending activity supports growth.** The bank lending survey of the ECB shows that the demand for credit increased across all segments in Q1 2018. The survey also indicates that the conditions for access to credit improved significantly, particularly in terms of credit for companies and for home purchases. In this context, both companies and households are benefiting from greater access to credit, partly due to greater competition and a reduction in the perception of risk by banking institutions. The results of the survey also suggest that supply factors will not restrict the growth of lending in the short term.

**The fiscal adjustment in the euro area continued in 2017, supported by the strong momentum of the economy and the reduced spending on interest charges.** The budget deficit of the euro area reduced to 0.9% of GDP in 2017, 0.6 pps below the level registered in 2016 (1.5%) and close to the level of 2007 (0.6%). In addition, the public accounts of several countries in the euro area are already in surplus, and the countries that experienced the highest deficits during the financial crisis have reduced them considerably. France, for instance, has reached its lowest budget deficit in the last decade in 2017 (2.6% of GDP), and it expects to reduce it to 2% in 2018 and 2019. This represents a fiscal discipline not seen for years, supported by the growth of the economy. Public debt in the euro area as a whole, meanwhile, stood at 86.7% of GDP in 2017, a reduction of 2.3 pps compared to 2016 (89.0% of GDP). However, while the deficit has reduced to levels close to those recorded prior to the financial crisis, the level of debt remains 21.7 pps above that of 2007. It is, therefore, important that those countries with high levels of public debt commit to reducing them faster in order to bring them down to more sustainable levels before the next economic crisis hits.

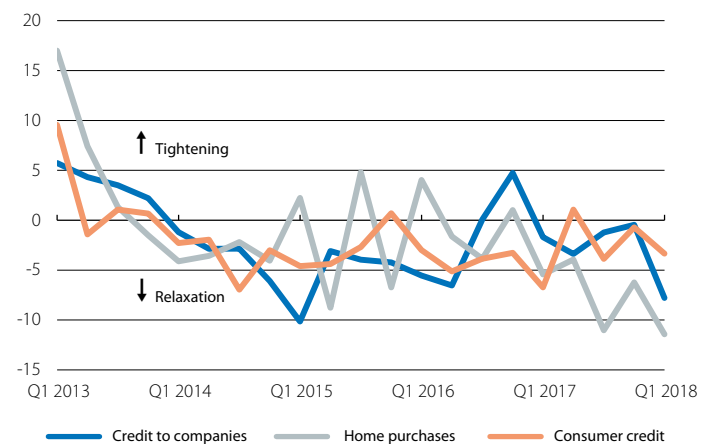
**Euro area: harmonised index of consumer prices**



Source: CaixaBank Research, based on data from Eurostat.

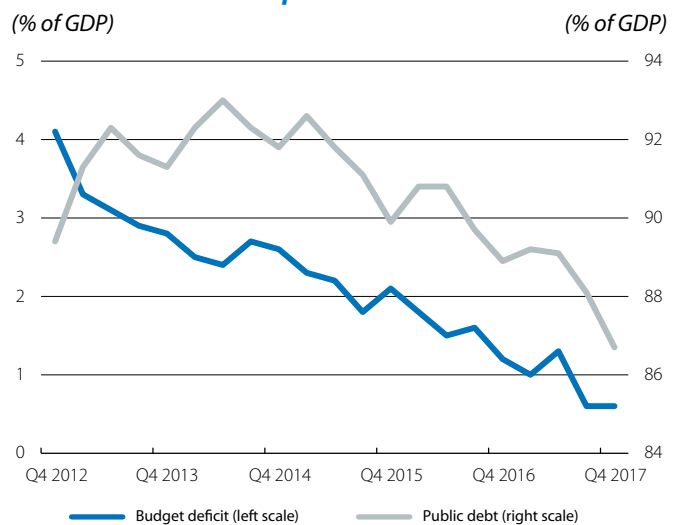
**Euro area: bank lending survey**

Entities that are tightening (+) or relaxing (-) the criteria for loan approval (% net)



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

**Euro area: deficit and public debt**



Source: CaixaBank Research, based on data from Eurostat.

## PORTUGAL

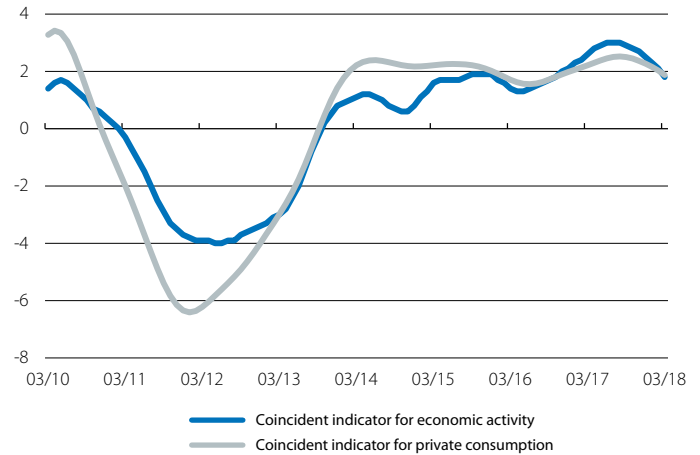
**Moderation in the pace of growth in Q1.** Pending the GDP data for the first quarter of the year, the economic indicators point towards a slight slowdown in the pace of progress. In particular, the coincident indicators for economic activity and for private consumption in March rose by 1.8% and 1.9%, respectively, lower than in the preceding months. Despite this slowdown, the indicators are still high, suggesting that growth should remain buoyant in 2018. In addition, the good performance of the Portuguese economy, which is making a significant contribution to correcting the macroeconomic imbalances, has been ratified by a new upward revision of the country's credit rating (by the Canadian rating agency DBRS).

**The labour market continues to gradually improve.** There is no better demonstration of the turnaround in the Portuguese economy in recent years than the progress of its labour market. Employment has increased by half a million people since 2013, reaching 4.7 million people in employment in 2017. The pace of job creation also remains high, and in February it increased by 3.0% year-on-year. The unemployment rate, meanwhile, fell to 7.4% in March, and is at its lowest level since 2004. With regards to the next few quarters, we expect the progress in the labour market to continue and the unemployment rate to fall below 7% in 2019.

**The current account surplus has reduced slightly, reflecting the deterioration in the balance of goods and income.** Specifically, in February, the deficit in the cumulative trade balance of goods reached 12,500 million euros for the 12-month period (+23.4% higher than the deficit recorded in the same period last year). This greater deficit is largely due to the strong increase in imports of transport equipment and capital goods, as a result of increased activity in the Portuguese economy. However, the surplus of the balance of services continues to grow. In February, it increased to 15,900 million euros, an improvement of 17.5% compared to the previous year. This improvement reflects the strengthening of the Portuguese tourism sector, although it was not enough to offset the deterioration in other balances. On the other hand, the balance of primary and secondary incomes registered a deficit of 2,900 million euros, as a result of lower incomes received from Portuguese investment abroad.

### Portugal: coincident indicators of economic activity and private consumption

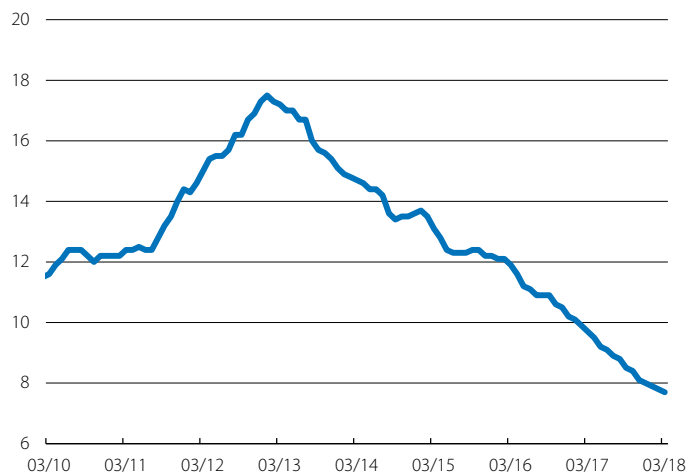
Year-on-year change (%)



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

### Portugal: unemployment rate

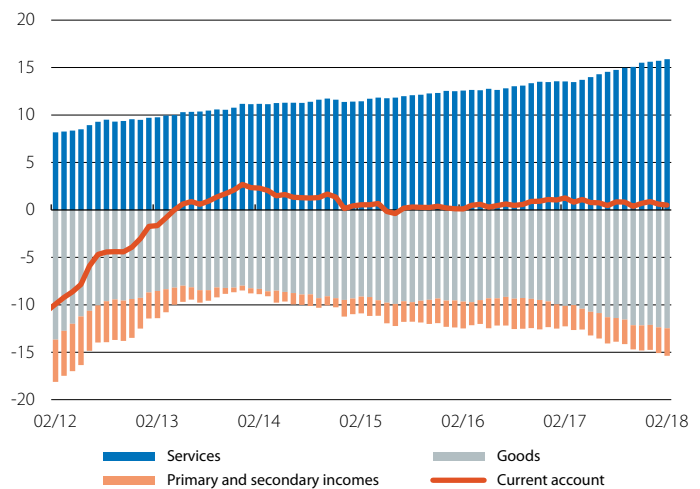
(% of the active population)



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

### Portugal: current account

12-month cumulative balance (EUR billions)



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

## FOCUS · The long road towards a secure European bond

The economic recovery is beginning to gather strength in Europe. After several years of intense debate and some major reforms, including the progress achieved in the banking union, we could be forgiven for thinking that the euro area has an institutional framework that is sufficiently robust to take on the challenges of the future. However, some of the cracks that the financial crisis revealed are yet to be resolved. One such weakness is the so-called doom loop, referring to the untrusting relationship that can arise between a country's public sector and its banking sector during a recession.

One of the factors that contribute to the doom loop is that in each country, the banks' portfolios of sovereign bonds have a bias in favour of the public debt of their country. As such, during a financial crisis, if there is an increase in the risk premium on sovereign bonds, it affects the risk premium of the banks, which in turn limits their lending capacity and ultimately has an adverse impact on the country's economy. This can lead to a vicious circle being created between a country's public sector and its banking sector.<sup>1</sup>

In order to break this chain of events, the European Commission is considering ways to encourage banks to hold a more diversified portfolio of sovereign bonds. Of course, the most sensible thing to do would be to reduce the barriers that still hinder the creation of pan-European banks<sup>2</sup> and to move towards a fiscal union, which would include the issuance of European public debt backed by a European budget, among other things.

However, progress on these two fronts appears to be very difficult, at least in the short term, which is why the Commission is studying how to obtain a secure European bond without having to establish a fiscal union first to support the issuance of such an asset.<sup>3</sup> Specifically, the proposal being considered involves an entity (either public or private) buying a diversified portfolio of euro-area sovereign bonds on the secondary market, based on a transparent and predictable weighting scheme, and issuing sovereign bond-backed securities (SBBS). These securities would be split into two tranches: senior and subordinated. Although the portfolio underlying both securities would be the same, the subordinated tranche would be the first to absorb any losses that occur, as well as offering a higher rate of return consistent with this greater level of risk. In practice, if the subordinated tranche were to represent a total of 30% of the portfolio, for example, the senior tranche would only incur losses if the portfolio's defaults exceeded 30% of its value.

1. The doom loop can also arise where there is discontentment among the weak banks towards the government because of the expectation of recapitalisation using public funds, an issue which the new banking institution resolution framework is seeking to resolve.
2. The pan-European banks would hold a diversified bond portfolio, in addition there being efficiency gains resulting from trading in a larger and more integrated market.
3. See ESRB (2018), «Sovereign bond-backed securities: a feasibility study».

The senior tranche of the SBBS, meanwhile, would be composed of extremely secure assets, thanks to the principles of diversification and seniority. On the one hand, by being backed by a diversified portfolio of sovereign bonds, the asset holder's exposure to the risk of default in any particular sovereign bond would be very limited. Furthermore, the subordinated tranche would protect the senior tranche against potential losses in the portfolio.<sup>4</sup>

Such an asset could help to reduce the link between banking risk and sovereign risk, as it would make it easier for banks to diversify their portfolio of sovereign bonds. Nevertheless, in order for banks to be prepared to buy this asset, the regulator would need to treat SBBS in the same way as it treats sovereign bonds.<sup>5</sup>

SBBS also have other desirable characteristics. Firstly, they would obviously enable an increase in the supply of risk-free assets.<sup>6</sup> What is more, a secure asset at the European level could attract greater demand at the global level, which would ultimately reduce the costs of financing for euro area member countries. Finally, another positive aspect of SBBS is that their implementation would not distort the fiscal discipline mechanisms imposed upon governments by the markets, since the issuer of the securities would only buy a fraction of a country's bonds in circulation (at market price) and governments would remain ultimately responsible for obtaining financing in the market.

The proposal does, however, also present some problems. One of the most significant is that it is not clear that SBBS will work as expected during a financial crisis, just when they would be needed the most. Specifically, during periods of high uncertainty, demand for the subordinated tranche would be likely to fall significantly, which in turn would limit the volume of secure assets that could be issued. In fact, the most vocal critics fear that in this context, political pressure on states to provide some degree of guarantee on the issuance of subordinated assets in order to continue to issue senior securities would mount. This would lead to an unwanted pooling of the fiscal risk, without any of the benefits associated with traditional sovereign rescue mechanisms,<sup>7</sup> such as the ability to issue assistance loans conditional on structural reforms and fiscal adjustment measures being introduced.

4. According to the ESRB (2018), if the subordinated tranche were to represent 30% of the portfolio and the expected loss due to default were 100%, it would take, for example, the failure of the Greek, Portuguese and Italian bonds in order for the senior tranche to begin to suffer losses.

5. Under the current regulatory framework, sovereign bonds do not involve any cost in terms of capital, whereas SBBS, being a complex financial product, do.

6. Assuming that the subordinated tranche were to represent around 30% of the portfolio, the senior tranche would represent a greater volume of assets than all of the portfolio's bonds that independently receive the best credit rating.

7. Such as the European Stability Mechanism (ESM).

## FOCUS · Made in Portugal: the new Portuguese export boom

The Portuguese foreign sector has been gaining prominence in recent years. Between 2005 and 2017, exports increased their share of GDP by 16 pps in nominal terms, and now stand at over 40% of GDP. Exports have also played a key role in the recovery of the Portuguese economy. Since 2010, they have been the fastest growing component of demand, with an average growth rate of 6.2% per year. Therefore, it is important to analyse the extent to which exports can continue to act as a driver of growth in the coming years. To this end, an analysis of the destinations behind this growth in trade can provide an initial explanation.

Data on goods trading by country of origin and destination<sup>1</sup> show that the positive performance of the Portuguese export sector between 2005 and 2017 has been widespread. They also show that there has been diversification in the destinations to which goods are exported. Portuguese exports of goods to EU countries – its main market – have increased by 46% since 2005 in nominal terms. Furthermore, this growth has been accompanied by greater diversification in the European destinations to which the exports are going. In particular, Portugal has reduced the proportion of its exports going to its main markets (Spain, Germany, France and the United Kingdom)<sup>2</sup> and has taken advantage of the eastward enlargement of the EU to export an increasing amount to countries with a high potential for growth, such as Poland and Romania.

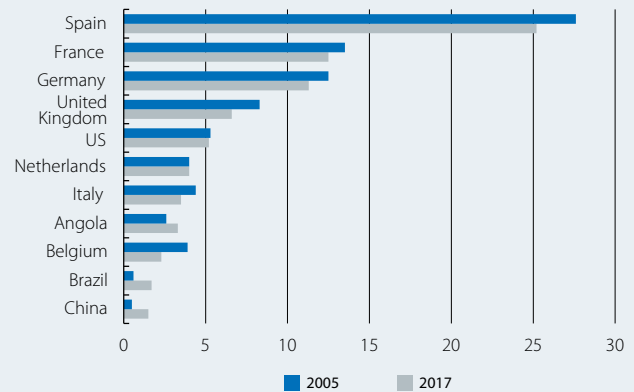
Furthermore, the dependence of Portuguese exports on European countries has decreased substantially,<sup>3</sup> while markets outside the EU have gained considerable importance, increasing their share of total exports from 19.7% in 2005 to 26.8% in 2017. In fact, exports to non-EU countries have doubled since 2005 and account for much of the growth in exports (around 40% of it). Among these markets, the US is particularly important and remains Portugal's biggest non-European trading partner – exports to US have grown 57% since 2005. In Angola and Brazil, Portuguese exports have doubled and increased fivefold in the past 12 years, respectively. In both cases, the fact that Portugal has very close ties with these former colonies helps to consolidate the position of Portuguese companies in these markets. Another positive note is China which, in the context of greater bilateral cooperation with Portugal in various areas (such as investment and culture), has become one of its most important trading partners, with Portuguese companies quadrupling their revenues from exports of goods.

1. Data from the IMF. Exports of goods accounted for 65% of total exports.
2. These countries account for 56% of exports of goods, 6.1 pps less than in 2005.
3. Going from 80.3% of total Portuguese exports of goods in 2005 to 73% in 2017.
4. Measured in terms of domestic added value.

Part of the increase in Portugal's trading volume in recent years can be explained by its greater participation in global production chains. This greater integration into the global economy implies that a portion of the Portuguese products sold abroad represent inputs of products that end up being consumed in other countries. In light of this, we can look at how Portugal's final foreign demand has changed over time.<sup>4</sup> The most recent data from the OECD, from 2011, show that the geographical diversification of Portuguese exports since 2005 is even greater than it was prior to that year. In particular, the final demand from non-EU countries has gone from representing 32% of the total to 41%, in part thanks to the growing demand for Portuguese products in the countries of the ASEAN bloc,<sup>5</sup> China and India.

### Portugal: distribution of exports of goods by destination

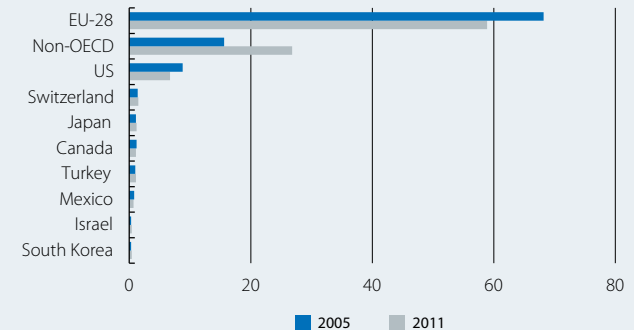
(% of total exports of goods)



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

### Portugal: domestic added value incorporated into final foreign demand\*

(% of the total)



Note: \* Captures the added value which Portugal exports both directly, through exports of final products, and indirectly, through exports of intermediate products that reach the end consumer through other countries.

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

5. Indonesia, Thailand, Brunei, Cambodia, Laos, Malaysia, Myanmar, Philippines, Singapore and Vietnam.



## KEY INDICATORS

## Activity and employment indicators

Values, unless otherwise specified

	2016	2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18	04/18
Retail sales (year-on-year change)	1.6	2.3	2.6	2.5	2.0	1.5	1.8	...	...
Industrial production (year-on-year change)	1.7	3.0	2.5	4.0	4.2	3.7	2.9	...	...
Consumer confidence	-7.8	-2.5	-2.7	-1.5	-0.2	1.4	0.1	0.1	0.4
Economic sentiment	104.1	110.7	109.5	111.8	114.4	115.1	114.4	112.7	112.7
Manufacturing PMI	52.5	57.4	57.0	57.4	59.7	59.6	58.6	56.6	56.0
Services PMI	53.1	55.6	56.0	55.3	55.9	58.0	56.2	54.9	55.0
<b>Labour market</b>									
Employment (people) (year-on-year change)	1.3	1.6	1.6	1.7	1.6	-	...	-	-
<b>Unemployment rate: euro area</b> (% labour force)	10.0	9.1	9.1	9.0	8.7	8.6	8.5	...	...
Germany (% labour force)	4.2	3.8	3.8	3.7	3.6	3.5	3.5	...	...
France (% labour force)	10.1	9.4	9.5	9.5	9.1	9.0	8.9	...	...
Italy (% labour force)	11.7	11.3	11.2	11.2	11.0	11.1	10.9	...	...
Spain (% labour force)	19.6	17.2	17.3	16.8	16.6	16.2	16.1	...	...

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	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Current balance: euro area</b>	3.8	3.7	3.7	3.4	3.7	3.7	3.9	3.9	...
Germany	8.6	8.0	8.5	8.0	8.0	8.0	8.3	8.2	...
France	-0.9	-0.8	-1.1	-1.2	-0.7	-0.8	-0.6	-0.6	...
Italy	2.6	2.8	2.7	2.6	2.7	2.8	2.7	2.7	...
Spain	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	...
<b>Nominal effective exchange rate<sup>1</sup> (value)</b>	94.3	96.5	93.7	95.2	98.5	98.6	99.4	99.6	99.7

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.

## Financing and deposits of non-financial sectors

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

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Private sector financing</b>									
Credit to non-financial firms <sup>1</sup>	1.8	2.5	2.2	2.3	2.4	3.0	3.4	3.2	3.3
Credit to households <sup>1,2</sup>	1.7	2.6	2.3	2.6	2.7	2.8	2.9	2.9	3.0
Interest rate on loans to non-financial firms <sup>3</sup> (%)	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	...
Interest rate on loans to households for house purchases <sup>4</sup> (%)	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.6	...
<b>Deposits</b>									
On demand deposits	10.0	10.1	9.5	10.3	10.6	10.1	9.8	9.4	8.4
Other short-term deposits	-1.9	-2.7	-2.3	-2.9	-3.0	-2.4	-1.9	-2.3	-2.0
Marketable instruments	2.7	0.9	5.7	0.6	-0.6	-2.2	-6.3	-6.0	-7.8
Interest rate on deposits up to 1 year from households (%)	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	...

Notes: 1. Data adjusted for sales and securitization. 2. Including NPISH. 3. Loans of more than one million euros with a floating rate and an initial rate fixation period of up to one year. 4. 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.

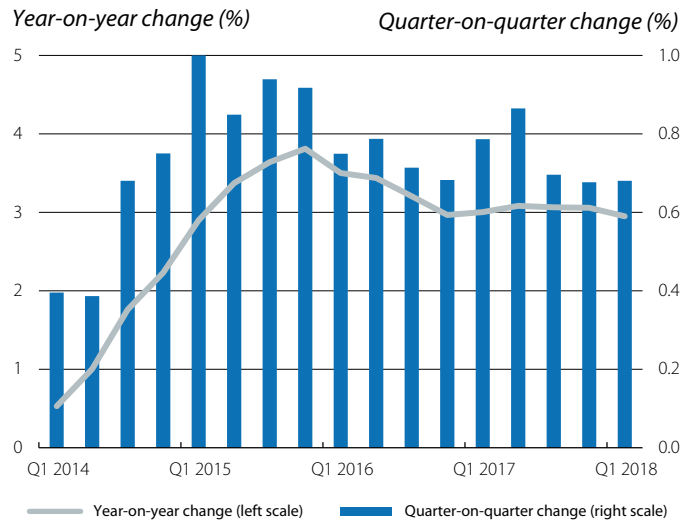
## ECONOMIC OUTLOOK · The positive start to 2018 looks set to continue

The Spanish economy continues to gain strength. According to the initial data provided by the Spanish National Statistics Institute, GDP growth for Q1 2018 remained at a solid 0.7% quarter-on-quarter (2.9% year-on-year). The Spanish economy has been growing at around 3.0% for three years now. This growth has been supported by the country's internal strengths, the recovery of its international competitiveness and a healthier macro environment, as well as some external tailwinds which, although losing intensity, continue to provide more sustained growth than anticipated. As such, while the euro area continues to grow at a good rate, to the benefit of the Spanish foreign sector, the negative effects of higher oil prices are mitigated by the appreciation of the euro. Also, the financial conditions remain highly accommodative and the ECB is adopting an attitude of extreme caution towards the withdrawal of monetary stimuli. Added to this is the improvement in the credit rating of Spain's sovereign debt, which supports the reduction in the risk premium against the German bund, which in April stood below 70 bps, its lowest since 2009. On 13 April, the rating agency Moody's upgraded Spain's credit rating (from Baa1 to Baa2), joining the revisions already applied by Fitch and S&P in March. All these factors contributed to the IMF revising its forecasts for growth in the Spanish economy upwards, from 2.4% to 2.8% in 2018 and from 2.0% to 2.2% in 2019. This brings them more in line with the forecasts of CaixaBank Research, which remain unchanged at 2.8% and 2.4%, respectively.

Investment remains encouraging and private consumption highly buoyant. On the supply side, business confidence is high and the economic activity indicators for Q1 2018 have maintained the upturn seen at the end of the year, when there was significant spending on manufacturing investment. In March, the PMI manufacturing and services indices both fell by more than a point, but this does not change the overall picture as they remain at levels similar to those of previous years and are in line with expansionary phases of economic activity. On the demand side, the synthetic indicator of private consumption shows a clear upward trend. Retail sales were also strong, rising by 1.9% year-on-year in March, which is above the average for 2017. Together with the improvement in consumer confidence in April, this is another factor that reinforces our conviction that private consumption, which accounts for 57% of GDP, is performing well in the first half of this year.

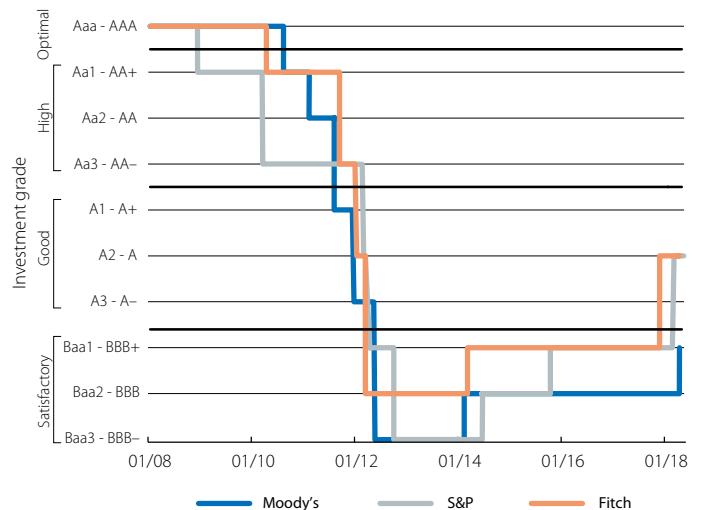
Despite the slight slowdown, the labour market continues to follow an underlying favourable trend. The Active Population Survey for Q1 2018 shows that jobs continue to be created at a good pace, with jobs growth of 0.5% quarter-on-quarter in seasonally adjusted terms. This is a figure similar to

### Spain: GDP



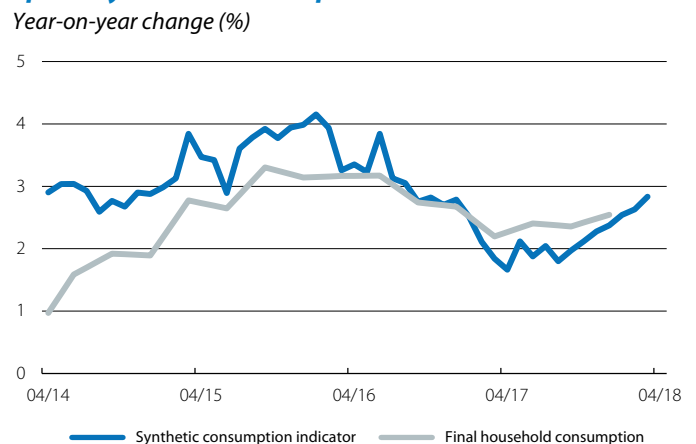
Source: CaixaBank Research, based on data from the Spanish National Statistics Institute.

### Spain: sovereign rating



Source: CaixaBank Research, based on data from Bloomberg.

### Spain: synthetic consumption indicator



Note: The synthetic consumption indicator is composed of the following indicators: sales in large consumer companies, passenger car registrations, domestic availability of consumer manufacturing companies, the retail trade deflated turnover index, deflated wage-earner remuneration and the consumer confidence index.

Source: CaixaBank Research, based on data from the Ministry of Economy and Competitiveness.

Q4 2017, albeit somewhat lower than the average for the first three quarters of 2017 (0.7%). The data for Social Security registrations in March also point towards a slight slowdown, with an increase of 3.3% year-on-year, slightly below the 3.6% corresponding to the average for 2017. This continuity in the creation of new jobs will allow the rate of unemployment, which remains high at 16.7% despite having dropped 2 pps in the last year, to continue to fall. Meanwhile, the increase in the number of wage-earners employed under collective labour agreements was 1.5% in March, slightly higher than the 1.3% for the same period in 2017.

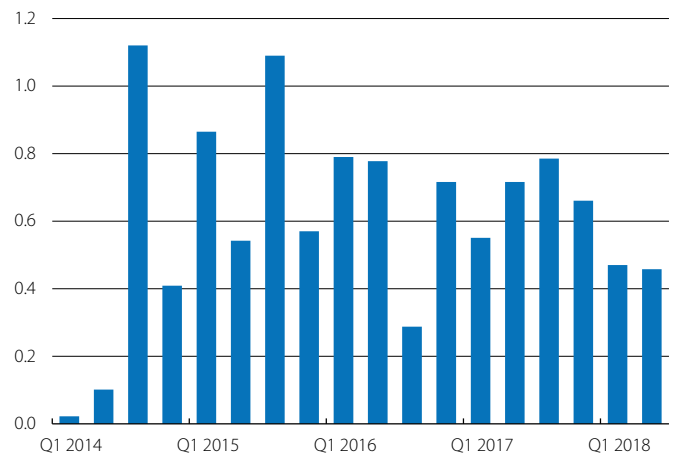
**The strength of economic activity is occurring in an environment of very moderate inflationary pressures.**

Headline inflation for April was 1.1%, despite the rise in oil prices which exceeded 70 US dollars per barrel, 35.1% above the level of the same period of 2017. The inflationary effects of a higher oil price lead us to revise the average inflation forecast for 2018 upwards, from 1.5% to 1.6%. This revision is only moderate compared to the increase in the price of crude oil, due to three compensating factors. The first of these factors is the exchange rate, since a stronger euro against the US dollar brings the appreciation of oil down to 14.6% in euro terms. Secondly, the recent decline in the price of electricity helps to dampen inflation, as the price in March was 1.4% below the level of the same period last year. The third compensating factor lies in the core component of the CPI (the headline CPI without energy or non-processed foods, which have an 81.2% weighting in the index), which has proven very moderate in recent months. As such, although the calendar effect of Easter, which fell in March this year whereas in 2017 it fell in April, brought about a logical increase in the price of tourist packages and of private road transport services, these increases had less of an impact. This is because core inflation experienced only a minimal increase, going from 1.1% in February to 1.2% in March, which indicates that the inflationary pressures, including those that might arise from higher wages, appear to be under control for the time being.

**The current account balance will end 2018 in the black, despite higher oil prices.** The recent increase in the price of oil also caused CaixaBank Research to reduce the current account surplus forecast for 2018 by 1 more decimal place, bringing it to 1.7% of GDP, 0.2 pps below the figure for 2017. The revision is contained, since the higher cost of energy is offset by the strength of exports of goods and services, as well as by the good performance expected in the income balance, which continues to benefit from the low interest rates on Spain's debt (for further details, see the Focus «Spain's current account is continuing on the right track» in this *Monthly Report*). The customs data for February reinforce the thesis that the current account surplus will be sustained. This is because exports of goods grew by 7.1% year-on-year (on a 12-month cumulative basis), while non-energy exports, more in line with the underlying trends, grew by 6.1%, slightly below the peaks of Q4 2017 but higher than the 4.3% average for the period

**Spain: employment**

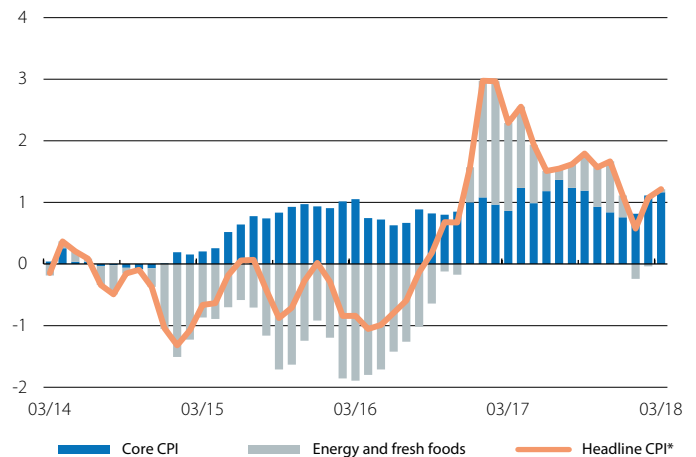
Year-on-year change (%)



Note: Seasonally adjusted data. Source: CaixaBank Research, based on data from the Spanish National Statistics Institute (Active Population Survey).

**Spain: GDP**

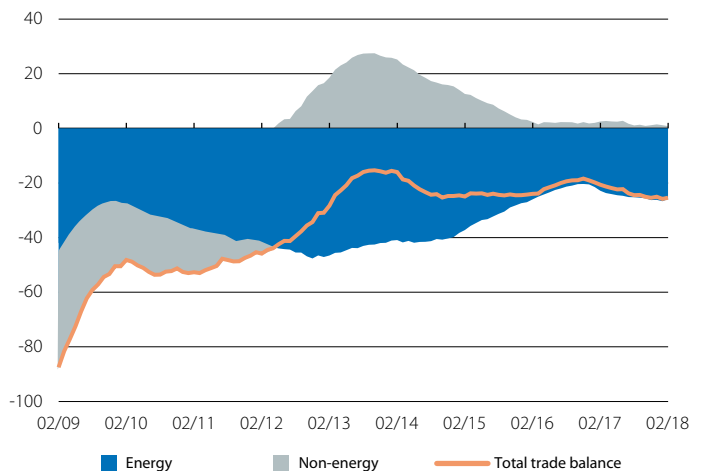
Contribution to year-on-year growth (pps)



Note: \* Seasonally adjusted data. Source: CaixaBank Research, based on data from the National Statistics Institute.

**Spain: trade balance**

12-month cumulative balance (EUR billions)



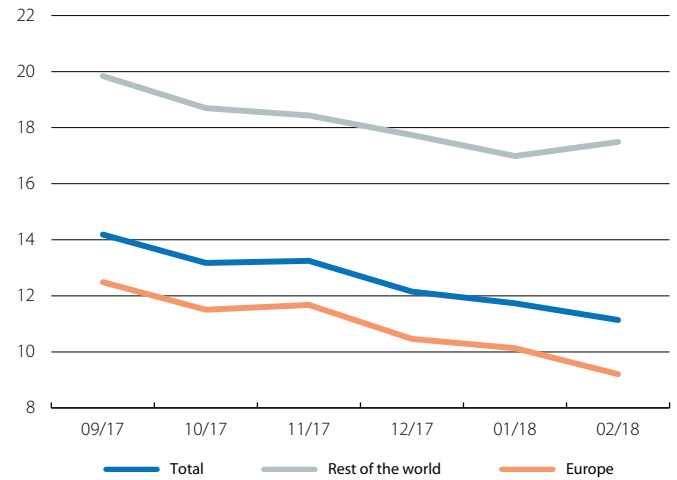
Source: CaixaBank Research, based on data from the Customs Department.

between January 2013 and February 2018. This export bonanza compensates for the rise in imports resulting from the spike in energy prices and a higher domestic demand for other goods (imports of non-energy goods rose by 6.8% year-on-year for the cumulative 12-month period, which also exceeds the 5.3% average for the past few years, although it shows signs of a slowdown). As for the balance of services, exports of non-tourist services increased more than imports, while the tourism sector matched its best year. The challenge for the tourism sector in 2018 will be to match or exceed the figures from 2017, which was an exceptionally good year. In February, 4.2 million international tourists visited Spain, 2.6% more than in 2017, and their total expenditure was 4.7% higher than in February 2017. This increase in spending can be explained by the greater influx of tourists from outside of Europe, as they spend more per person per day on average than European tourists.

**The strength of the economy is helping to correct the fiscal imbalances.** In 2017, the budget deficit stood at 3.1% of GDP, 1.2 pps less than in 2016. This improvement makes meeting the deficit target for 2018 of 2.2% of GDP achievable (for further details, see the Focus «The balancing of the public finances, at the mercy of economic improvement» in this *Monthly Report*). The budgetary implementation data show that in the first two months of 2018, the combined deficit of the general government fell by 1 decimal point compared to the same period in 2017, contributing to the 9-decimal point reduction required to achieve the goal by the end of the year. Furthermore, according to the data up to March already published, the central government deficit fell by one decimal point to 0.4% of GDP. This improvement in the balance of the public finances is in line with the gradual improvement of the financial situation of households and non-financial corporations, which continue to reduce their borrowing. Having cut their levels of debt from their peaks by 23.8 and 36.9 pps of GDP, respectively, in Q4 2017 they stood at 61.3% and 96.8%. Healthier public and private finances will provide support to underpin the economy's capacity for growth in the medium term.

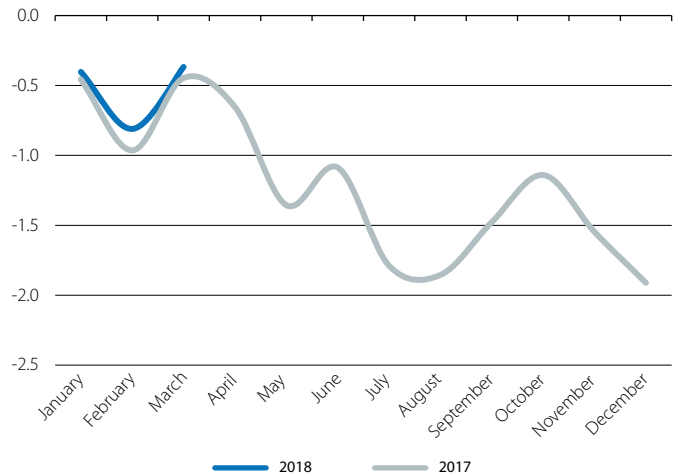
**The real estate market continues on an upward path,** with housing sales growing by 17.4% in January on a year-on-year basis (12-month cumulative sales) and more than 480,000 transactions recorded, a level not reached since Q1 2009. Coinciding with this increased level of activity, the house price index published by the Spanish National Statistics Institute, which is based on transactions, rose by 7.2% year-on-year and indicates a trend of acceleration. The largest increases were in the Community of Madrid, Catalonia and the Balearic Islands, with year-on-year increases reaching 12.3%, 10.0% and 9.1%, respectively. On the supply side, construction is expected to continue its recovery and to make a positive contribution to economic growth beyond 2018. An example of this is the number of licenses issued for new construction projects. Although in January the number increased by 24.4% year-on-year (on a cumulative 12-month basis), it still has some way to go, since it currently stands at 30.2% of the level for the period from 1993 to 1997 inclusive, prior to the real estate bubble.

**Spain: expenditure of international tourists**  
Year-on-year change in the 12-month cumulative data (%)



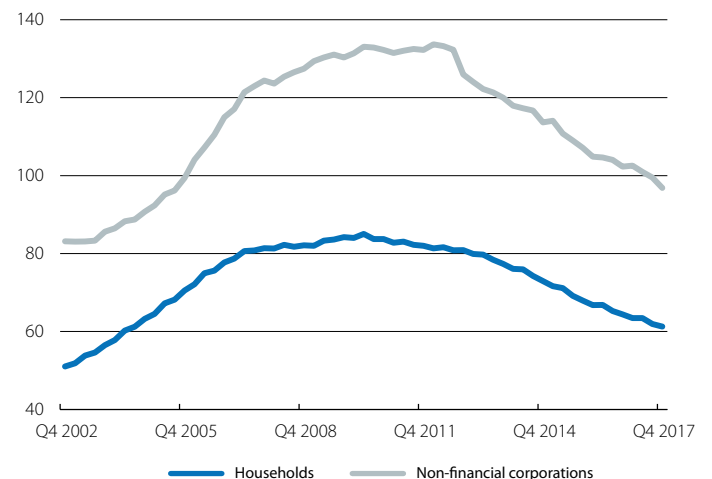
Source: CaixaBank Research, based on data from the Spanish National Statistics Institute.

**Spain: central government balance**  
(% of GDP)



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

**Spain: private sector debt**  
(% of GDP)



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

## FOCUS · The balancing of the public finances, at the mercy of economic improvement

The public finances in Spain are improving year after year. The general government deficit stood at 3.1% of GDP in 2017, which represents a reduction of 1.2 pp compared to the deficit recorded in 2016 and allows the stability target agreed with the European Commission to be met. This notable decrease has been possible, above all, thanks to expenditure cutbacks of 1 pp of GDP. In particular, expenditure on debt interest, employee salaries and social benefits saw the biggest reductions (as a percentage of GDP). On the other hand, the improvement of revenues, particularly tax revenues and social security contributions which increased by 6.4% and 4.9%, respectively, contributed to the reduction by 0.2 pp of GDP.

While the reduction of the general government deficit is positive in itself, how this reduction is being achieved is also very significant. Judging by the areas in which the bulk of the reduction was focused, the positive performance of the economy was the main factor responsible for the improvement. In other words, a large part of the reduction was cyclical, not structural.

However, measuring the structural reduction of a country's budget deficit is not something trivial, since it is not a variable that can be observed directly.

### So how is it possible to assess what part of the reduction of the budget deficit is structural?

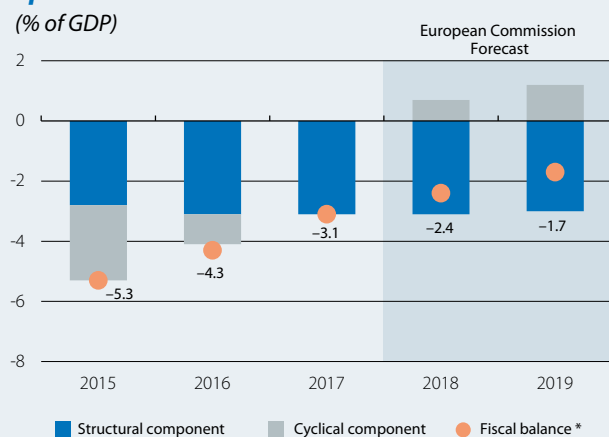
Usually, the benchmark measurement is the change in the structural balance, which is the general government fiscal balance we would observe when the economy is at its full capacity, i.e. when the observed GDP is equal to potential GDP. This measurement cannot, of course, be observed directly, so it has to be estimated using relatively sophisticated statistical techniques. This is what the European Commission does, in order to then take into account changes in this measurement when assessing whether or not the targets set in the excessive deficit procedure have been met. According to this procedure and following the deterioration of the structural balance experienced in 2016, in 2017 Spain was required to improve its structural deficit by 0.5 pp of GDP,<sup>1</sup> something which has not happened (see chart).

Looking forward to 2018, the positive economic outlook suggests that the public finances in Spain will continue

their gradual improvement and that the public deficit will come close to the target of 2.2% of GDP. This improvement will be possible thanks to the containment of non-financial expenditure, which is limited to 1.3% in accordance with the expenditure limit approved in July 2017, as well as to the increase in tax revenues, which are expected to grow by almost 6%. Nevertheless, the absence of structural cost-reduction measures for this year suggests that, as in 2017, the reduction of the public deficit will only occur thanks to the improvement of the cyclical balance, while the reduction of the structural balance of 0.5 pp of GDP agreed with the European Commission will not be achieved. In a context of economic expansion such as the current one, and with a level of public debt hovering around 100% of GDP, it might be advisable to accompany the cyclic reduction of the deficit with measures that will help to reduce the structural deficit.

Finally, it is worth mentioning the problems associated with estimating the structural balance. These problems stem from the fact that the calculation of the structural balance is based on an estimate of potential GDP, and this estimate is subject to significant measurement problems. Conscious of this limitation, many governments supplement their structural balance reduction estimates with bottom-up analyses, which are based on estimating the fiscal impact of the main budgetary measures. In fact, the proposal for the 2018 General State Budgets estimates the impact of some expansionary measures, such as the tax breaks for lower incomes and large families, at 2,000 million euros. Although these analyses also present certain difficulties in their calculation, they provide a good supplement to the structural balance estimates.

### Spain: fiscal balance



Note: \* Excludes losses for assistance provided to financial institutions.

Source: CaixaBank Research, based on data from the European Commission (11/2017).

1. Council of the European Commission (2016), «Council Decision: giving notice to Spain to take measures for the deficit reduction judged necessary in order to remedy the situation of excessive deficit», Ecofin 742, UEM 282.

## FOCUS · Spain's current account is continuing on the right track

Spain's current account ended 2017 with a balance of 1.9% of GDP and recorded its fifth consecutive year in surplus. It is also noteworthy that the current account surplus for 2017 is equal to that of 2016 in terms of percentage of GDP, despite there being several restricting factors: in 2017, oil prices rose; domestic demand grew significantly, fuelling imports, and the declining trend in interest rates which began in 2012 came to an end, limiting the reduction of interest payments on Spain's high levels of external debt.

### What factors helped to bring about this situation in 2017?

Broadly speaking, the strength of exports, in both goods and services, and the lower net debtor position relative to the rest of the world were the key factors. With regard to the trade balance of goods, the strength of exports played an important role, with an 8.1% growth in the year. This made it possible to partially offset the rise in energy spending (0.8% of GDP) and the increase in imports of non-energy goods. During the year, the balance of goods «only» fell by 0.6 pps of GDP.

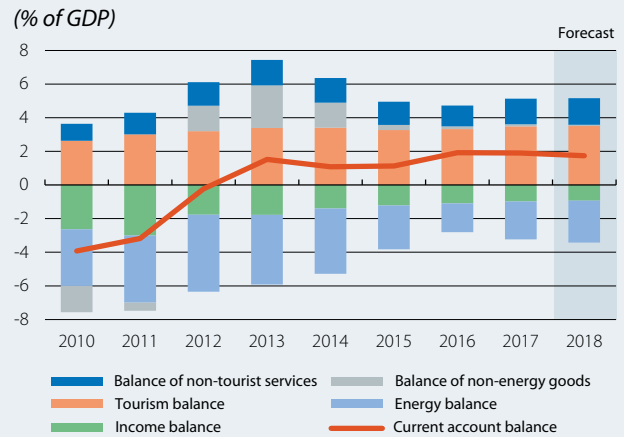
As for the balance of services, the change registered in tourist services, as well as non-tourist services, is of particular note. 2017 was a very good year for tourism, with a 10.1% rise in exports, more than compensating for the strong increase also registered in imports (Spaniards travelling abroad). Exports of non-tourist services are worthy of a special mention, with growth of 10.5%. This was most notable in high value-added sectors, such as telecommunications and IT, and particularly in business consultancy and technical services related to trade. All of this enabled the balance of services to improve by 0.4 pps of GDP in 2017.

Finally, the third factor which helped to maintain the current account surplus at 1.9% of GDP was the income balance, which experienced an improvement of 0.1 pps of GDP compared to 2016. The lower income deficit can be explained both by the lower yield offered by Spanish debt, which reduced the payments made to foreign debt holders, and by the reduction of the volume of debt in foreign hands. This more than offset the slight decline in the performance of assets held by Spaniards abroad.

### What can we expect in 2018?

On the one hand, the strength of exports of goods and non-tourist services is expected to continue, due to the gains achieved in their competitiveness in recent years and the positive tone of the global economy, particularly

### Spain: the composition of the current account balance



Source: CaixaBank Research, based on data from the Bank of Spain and the Ministry of Economy, Industry and Competitiveness.

that of the euro area, Spain's main trading partner. In addition, the latest tourism figures indicate continued signs of health in the sector. The latest data on tourist arrivals for the month of February shows an increase of 2.6%, an impressive figure considering that the previous year was already high following years of sustained and significant increases. Of particular note is the fact that tourist spending is growing at an even faster rate than tourists entering the country (4.7% in February).

Nevertheless, there will continue to be significant headwinds. The price of oil continues to rise and is expected to end the year higher than 2017, which will lead to a further decline in the balance of energy goods. We also expect imports of goods and services to remain buoyant, thanks to the recovery in domestic economic activity. As for interest rates, although no new declines are anticipated, all the indicators suggest they will remain relatively stable this year, hence no major changes in the income balance are expected. All in all, 2018 is likely to end with a current account surplus slightly below that of 2017, albeit still high, which will allow external debt to continue to decline.

## FOCUS · Should we be concerned about the low household savings rate?

The household savings rate lay below 6% of gross disposable income in 2017,<sup>1</sup> a figure similar to 2007 just before the real estate bubble burst, and well below the peak reached in 2009 of 13.4%. What factors explain the sharp decline that has occurred in the last few years? Should it be cause for concern?

The decline in the savings rate can largely be put down to the strong growth in consumption, which in recent years has increased at a higher rate than gross disposable income (GDI). This dynamic is taking place in a very positive economic environment, in which there is less uncertainty regarding the economy's capacity to grow and households' employment expectations have improved significantly (see first chart).<sup>2</sup> This has led households to take action on decisions regarding the purchase of durable goods that had been postponed during the financial crisis.<sup>3</sup> Nevertheless, the boost to consumption provided by pent-up demand is expected to lose momentum, which should lead to a gradual slowdown in household consumption.

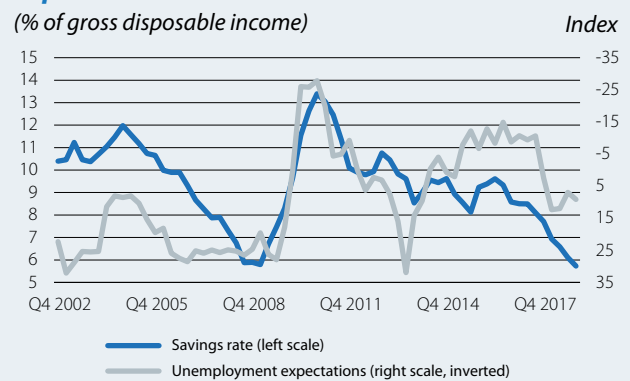
On the other hand, the growth in households' GDI is expected to remain relatively high over the next few years. While it is true that some moderation is to be expected in the pace of job creation, which has been extremely high in recent years, this is likely to be partially offset by wage growth, which will gain strength as the economy enters a more mature phase of the cycle. This should allow the savings rate to stop falling, or even to begin to gradually rise.

There are two additional aspects worth mentioning which make the assessment of the current level of the savings rate very different to 2007. Firstly, the reduction in savings has not been accompanied by an increase in households' liabilities, as was the case in the years prior to the finance crisis (see second chart). On the contrary, in 2017 households continued to reduce their levels of borrowing, albeit less intensely than in previous years, bringing debt as a percentage of GDI down to 99.8%, compared to 135.1% in 2007.

1. First of all, it is worthwhile remembering that savings in this context is what results from the difference between income and consumption in a given period. It should not be confused with what is commonly understood as household «savings» in terms of holdings (which are known as households' financial assets or wealth).
2. In addition to the reduction in uncertainty, the growth in consumption could also be related to the wealth effect following increases in the value of assets (financial and real estate). However, the Spanish population's propensity to consume more when faced with an increase in their wealth is considered to be relatively limited (see «Effects of real estate wealth on consumption: results from the Household Finances Survey», Bank of Spain, May 2005).
3. For an analysis on changes in the consumption of durable goods during the recovery, see the article «The recovery of consumption in Spain: reasons and outlook», from the Dossier of the MR10/2017.

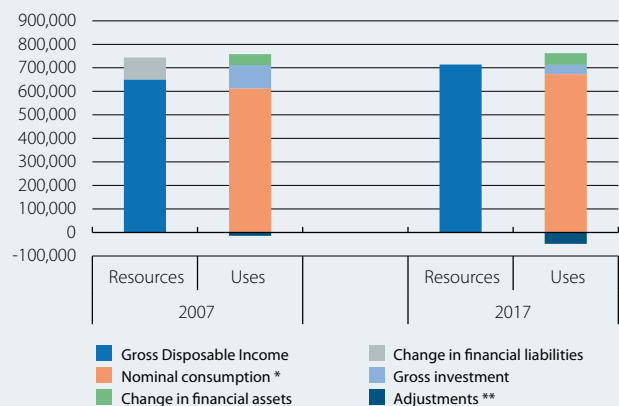
Secondly, the decline in the savings rate that has occurred in the last few years has gone hand in hand with an increase in financial assets. In 2017, the latter increased by 7 pps of GDI. This is allowing for a significant recovery in households' net financial wealth, which in 2017 reached 192% of GDI, versus 146% in 2007. On the other hand, only 5.5% of GDI was allocated to gross investment (mainly real estate investment), whereas in 2007 the figure was 15.3%. In other words, there has been an important change in the use (or allocation) of household resources, which highlights the fact that families' financial decisions are quite different to a decade ago: whereas in 2007 households increased their level of borrowing to invest in real estate assets, the current situation indicates a much more contained level of investment and a level of borrowing that continues to fall.

### Spain: savings rate and unemployment expectations \*



**Note:** \* The unemployment expectations reflect the net percentage of households that expect the number of unemployed persons to increase over the next 12 months, versus the percentage of households that expect the number to fall.  
**Source:** CaixaBank Research, based on data from the Spanish National Statistics Institute and the European Commission.

### Spain: household resources and uses (Thousands)



**Notes:** \* Nominal consumption is calculated as the difference between gross disposable income and gross savings. \*\* Adjustment between financial and non-financial accounts, among others. Figures in nominal terms.  
**Source:** CaixaBank Research, based on data from the Spanish National Statistics Institute.

## KEY INDICATORS

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

### Activity indicators

	2016	2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18	04/18
<b>Industry</b>									
Electricity consumption	0.1	1.7	1.4	0.5	3.0	-2.0	3.6	5.1	...
Industrial production index	1.9	3.2	2.8	2.8	5.2	0.1	3.1	...	...
Indicator of confidence in industry (value)	-2.3	1.0	-0.5	-0.1	4.3	4.2	2.4	1.9	3.3
Manufacturing PMI (value)	53.2	54.8	54.9	53.6	55.9	55.2	56.0	54.8	...
<b>Construction</b>									
Building permits (cumulative over 12 months)	43.7	22.9	18.4	23.5	25.1	24.4	...	...	...
House sales (cumulative over 12 months)	13.1	13.8	12.2	13.3	14.5	15.1	16.4	...	...
House prices	1.9	2.4	1.6	2.7	3.1	-	...	-	-
<b>Services</b>									
Foreign tourists (cumulative over 12 months)	8.2	9.9	10.2	10.3	9.1	8.3	7.8	...	...
Services PMI (value)	55.0	56.4	57.8	56.8	54.5	56.9	57.3	56.2	...
<b>Consumption</b>									
Retail sales	3.8	0.9	2.0	1.1	0.3	2.1	1.9	1.8	...
Car registrations	11.4	7.9	6.3	6.7	10.8	20.3	13.0	2.1	...
Consumer confidence index (value)	-3.8	-0.7	1.5	0.2	-1.5	1.3	0.4	-3.5	-0.7

Source: CaixaBank Research, based on data from the Ministry of Finance, Ministry of Public Works, INE, Markit and European Commission.

### Employment indicators

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Registered as employed with Social Security<sup>1</sup></b>									
Employment by industry sector									
Manufacturing	2.8	3.1	3.0	3.1	3.1	3.2	3.3	3.4	3.2
Construction	2.6	6.1	5.3	6.1	6.1	7.1	7.6	7.2	5.7
Services	3.2	3.6	3.4	3.8	3.6	3.6	3.5	3.5	3.5
Employment by professional status	3.5	4.2							
Employees	3.5	4.2	4.0	4.4	4.1	4.1	4.1	4.0	3.8
Self-employed and others	1.0	0.8	0.9	0.9	0.7	0.5	0.5	0.9	1.0
<b>TOTAL</b>	<b>3.0</b>	<b>3.6</b>	<b>3.4</b>	<b>3.8</b>	<b>3.5</b>	<b>3.5</b>	<b>3.4</b>	<b>3.5</b>	<b>3.3</b>
<b>Employment<sup>2</sup></b>	<b>2.7</b>	<b>2.6</b>	<b>2.3</b>	<b>2.8</b>	<b>2.8</b>	<b>2.6</b>	<b>-</b>	<b>2.4</b>	<b>-</b>
<b>Hiring contracts registered<sup>3</sup></b>									
Permanent	14.2	12.4	15.4	10.2	11.0	12.9	15.2	15.4	8.4
Temporary	7.2	7.3	12.1	9.6	5.0	2.6	6.3	5.4	-6.5
<b>TOTAL</b>	<b>7.8</b>	<b>7.7</b>	<b>12.4</b>	<b>9.6</b>	<b>5.5</b>	<b>3.4</b>	<b>7.1</b>	<b>6.5</b>	<b>-5.0</b>
<b>Unemployment claimant count<sup>3</sup></b>									
Under 25	-12.6	-12.2	-13.3	-17.3	-9.4	-8.7	-9.7	-8.5	-8.4
All aged 25 and over	-8.2	-9.1	-9.2	-10.3	-8.7	-8.0	-7.4	-7.4	-7.5
<b>TOTAL</b>	<b>-8.6</b>	<b>-9.3</b>	<b>-9.6</b>	<b>-10.9</b>	<b>-8.8</b>	<b>-8.0</b>	<b>-7.5</b>	<b>-7.5</b>	<b>-7.6</b>

Notes: 1. Mean monthly figures. 2. LFS estimate. 3. Public Employment Offices.

Source: CaixaBank Research, based on data from the Ministry of Employment and Social Security, INE and Public Employment Offices.

### Prices

	2016	2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18	04/18
<b>General</b>	<b>-0.2</b>	<b>2.0</b>	<b>2.0</b>	<b>1.7</b>	<b>1.4</b>	<b>0.6</b>	<b>1.1</b>	<b>1.2</b>	<b>1.1</b>
Core	0.8	1.1	1.1	1.3	0.8	0.8	1.1	1.2	...
Unprocessed foods	2.3	2.6	2.5	-0.2	4.0	1.6	0.3	1.6	...
Energy products	-8.4	8.2	8.0	5.4	4.1	-1.7	1.4	1.3	...

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



## Foreign sector

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

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18
<b>Trade of goods</b>								
Exports (year-on-year change, cumulative over 12 months)	1.7	8.9	5.1	5.6	7.6	8.9	8.1	7.6
Imports (year-on-year change, cumulative over 12 months)	-0.4	10.5	3.7	5.7	9.0	10.5	9.7	8.7
<b>Current balance</b>	<b>21.5</b>	<b>22.1</b>	<b>21.8</b>	<b>22.0</b>	<b>21.0</b>	<b>22.1</b>	<b>22.0</b>	<b>22.5</b>
Goods and services	33.7	33.5	32.2	33.4	32.7	33.5	32.8	33.6
Primary and secondary income	-12.2	-11.4	-10.4	-11.5	-11.7	-11.4	-10.8	-11.1
<b>Net lending (+) / borrowing (-) capacity</b>	<b>24.2</b>	<b>24.8</b>	<b>24.2</b>	<b>24.3</b>	<b>23.5</b>	<b>24.8</b>	<b>25.0</b>	<b>25.5</b>

Source: CaixaBank Research, based on data from the Department of Customs and Special Taxes and Bank of Spain.

## Public sector

Percentage GDP, cumulative in the year, unless otherwise specified

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18
<b>Net lending (+) / borrowing (-) capacity<sup>1</sup></b>	<b>-4.5</b>	<b>-3.1</b>	<b>-0.5</b>	<b>-2.2</b>	<b>-1.6</b>	<b>-3.1</b>	<b>-</b>	<b>-</b>
Central government	-2.7	-1.9	-0.5	-1.1	-1.5	-1.9	-0.4	-0.9
Autonomous regions	-0.8	-0.3	-0.2	-0.7	0.1	-0.3	0.0	0.0
Local government	0.6	0.6	0.1	0.1	0.5	0.6	-	-
Social Security	-1.6	-1.5	0.1	-0.5	-0.6	-1.5	0.1	0.1
<b>Public debt (% GDP)</b>	<b>99.0</b>	<b>98.3</b>	<b>99.7</b>	<b>99.5</b>	<b>98.5</b>	<b>98.3</b>	<b>-</b>	<b>-</b>

Note: 1. Includes aid to financial institutions.

Source: CaixaBank Research, based on data from the IGAE, Ministry of Taxation and Bank of Spain.

## Credit and deposits in non-financial sectors<sup>1</sup>

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

	2016	2017	Q1 2017	Q2 2017	Q3 2017	Q4 2017	01/18	02/18	03/18
<b>Deposits<sup>2</sup></b>									
Household and company deposits	2.5	2.8	3.2	2.5	2.3	3.2	2.5	2.4	2.5
Sight and savings	16.0	17.6	18.6	18.8	17.2	15.9	13.1	12.0	11.4
Term and notice	-16.0	-24.2	-22.0	-24.9	-25.1	-24.6	-23.5	-23.1	-22.6
General government deposits	-14.2	-8.7	-28.0	-26.7	6.8	13.1	12.9	16.1	20.9
<b>TOTAL</b>	<b>1.2</b>	<b>1.9</b>	<b>1.0</b>	<b>0.5</b>	<b>2.6</b>	<b>3.7</b>	<b>3.0</b>	<b>3.0</b>	<b>3.4</b>
<b>Outstanding balance of credit<sup>2</sup></b>									
Private sector	-3.6	-2.2	-2.7	-2.1	-2.3	-1.9	-1.7	-2.2	-3.0
Non-financial firms	-5.3	-3.6	-4.3	-3.0	-3.9	-3.3	-2.9	-4.4	-6.4
Households - housing	-3.7	-2.8	-3.0	-2.8	-2.7	-2.6	-2.6	-2.5	-2.4
Households - other purposes	2.0	3.7	3.6	3.2	3.3	4.5	4.5	6.5	5.0
General government	-2.9	-9.7	-3.2	-12.6	-11.6	-11.4	-15.7	-10.4	-11.1
<b>TOTAL</b>	<b>-3.6</b>	<b>-2.8</b>	<b>-2.7</b>	<b>-2.9</b>	<b>-3.0</b>	<b>-2.5</b>	<b>-2.7</b>	<b>-2.6</b>	<b>-3.5</b>
<b>NPL ratio (%)<sup>3</sup></b>	<b>9.1</b>	<b>7.8</b>	<b>8.8</b>	<b>8.4</b>	<b>8.3</b>	<b>7.8</b>	<b>7.9</b>	<b>7.8</b>	<b>...</b>

Notes: 1. Aggregate data from Spain's banks. 2. Residents in Spain. 3. Data up to end of period.

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

## MONEY: PAST, PRESENT AND FUTURE

## From barter to cryptocurrency: a brief history of exchange

Money. What do you think of when you read this word: «money»? Perhaps you have thoughts of a pleasant situation, such as an evening in an elegant restaurant or a holiday on a beach paradise. But not only that. Quite possibly, you will also have visualised the image of a banknote, some coins or a credit card. Money is not a car, or a tasty meal, or even an exotic holiday for that matter. Money is a metal coin, a paper banknote, a plastic card, that is, an object with no intrinsic value whatsoever. Imagine if the richest person in the world were to travel back in time and encountered the men and women of the Stone Age, loaded with bags full of bundles and bundles of banknotes: where today we see wealth, they would see little more than paper to make fire with. What for them would be making the best use of the banknotes, for us would be the destruction of a fortune. What has happened to cause people to see such different things in a piece of paper? We will find the answer in key moments in the history of money.

### The birth of money

We begin this story a long time ago when there was no money; a time when it was not possible to sell a product, such as a sack of wheat, and obtain an object (called money) whose only use would be to exchange it again to buy the desired product, such as a set of leather boots. At that time, trade was carried out through barter: if the owner of the sack of wheat wished to obtain some leather boots, they had to find someone who possessed some boots and wanted to buy wheat. For barter to work, each party had to want exactly what the other party was offering, and in the quantity and at the moment in time they were offering it (the so-called «double coincidence of wants»). As you can imagine, this state of affairs imposed severe restrictions on economic activity, specialisation and technological development. In an extreme example, someone devoted themselves exclusively to studying the laws of the universe might have had a challenging life as it could not have been easy to find many ranchers and farmers willing to exchange meat and vegetables for long and complex discussions on theoretical physics.

The diversity and complexity of the economy accentuated the problems of barter to find a mutual coincidence of wants, and long lists of exchange prices were drawn up (if Charlie exchanged carrots for peas with Hailey, who in turn exchanged some carrots for wood with Amelie, how many peas should Charlie offer for a piece of wood?). At this juncture, money offered a technology to facilitate exchanges: it emerged as an object which, as it became accepted by more people, made it possible to conduct exchanges between more types of goods. With its appearance, a butcher could buy vegetables, footwear, clothing, and so on, without having to find a farmer, a shoemaker or a tailor who wanted to sell their goods in exchange for meat. In this way, the butcher no longer had to devote time to producing his own footwear and clothing and could specialise even more in the production of meat. In other words, money not only acted as a catalyst for the economy, enabling all kinds of transactions to be carried out, but it also enabled workers to become more specialised.

In addition to offering a means of payment, money also fulfils two other important functions: it acts as a unit of account (it fixes the price of all goods and services in the same unit) and as a store of value (which makes it possible to easily move resources between different regions and moments in time). However, the implementation of this technology was not easy and there is a long and curious list of objects which served as money in different regions and eras: whale teeth, grains of rice, cowry shells, livestock and even slaves. In fact, it must have required some courage for someone to agree to the sale of the product of their own work (meat, vegetables, tools, clothing, etc.) in exchange for a whale tooth or a few cowry shells for the first time. This act highlights the importance of trust in one's neighbour, something which we will discuss later on. In any case, the object which ended up dominating was the metal coin (gold, silver or an alloy of both, such as the Lydia currency of the 6th century B.C.), possibly favoured by its intrinsic value (the precious metal itself) and the fact that it was small, durable, and easy to transport and to divide into smaller units.

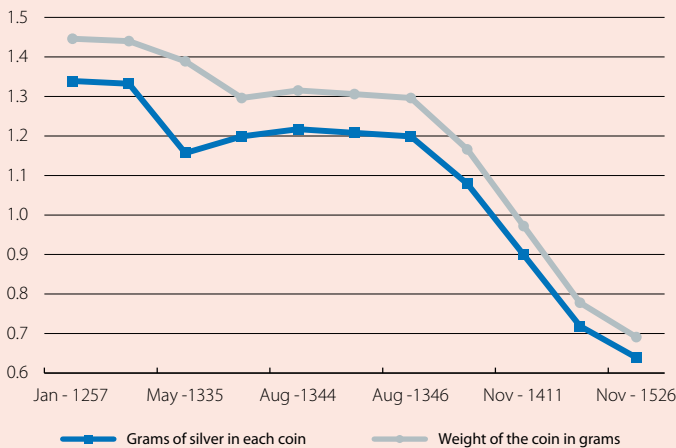
### From the decline of the coin to the emergence of a new form of money

The strong expansion of trade in the European age of Renaissance meant that the market was flooded by coins from a wide range of territories. In addition, the trade of the time required a broader spectrum of coin denominations that would facilitate both small transactions (with coins of little value) and large transactions (with high-value coins). Despite the high demand for low-denomination coins (which were used to carry out the majority of exchanges), for coin producers it was much more profitable to produce higher denomination coins (since it offset their production cost better). Thus, this often resulted in shortages of small coins and fed the incentives of private agents to produce their own coins.

With all of these elements combined, merchants found themselves in an environment in which a wide variety of different coins coexisted. For example, in 1606, a report by the Dutch parliament identified 341 different silver coins and 505 gold coins. In addition, the coin producers showed a systematic tendency to degrade their value by reducing both the precious metal content and the size of the coins themselves (see the case of the English penny in the chart below). The coexistence of so many different coins began to be problematic because it became increasingly difficult and costly to determine each one's true gold or silver content. Furthermore, this uncertainty was heightened by the fact that it was the low-quality coins that dominated the market: everyone wanted to get rid of the bad coins and hoarded the good ones, which paradoxically led to the low-quality coins being used the most in transactions (this is known as «Gresham's law»).

### Value of the English penny: 1257-1526

Weight and silver content (grams)



Source: CaixaBank Research, based on data from John Munro.

deposits was recorded, and for sellers, an increase. A crucial feature of this system was that the Bank of Amsterdam was responsible for analysing the metal content of the coins and for certifying that the accounts only contained good-quality coins. In doing so, the Bank reduced the uncertainty and gave its clients a sense of security and trust. Not only that, however: by processing the transactions through the accounting books, it implemented a new form of money that was no longer directly embodied in a physical object.

### The Government takes control: the creation of central banks

Other cities such as Rotterdam followed the example of the Bank of Amsterdam and, later, central governments joined the initiative by creating the first central banks. Little by little, these central banks would gain a monopoly over the issuing of money and would eliminate the great diversity of coins in circulation. The first of these was the Riksbank, the central bank of Sweden, which was created in 1668 tasked with providing credit to the government and a system of payments to merchants. It was followed by the Bank of England in 1694, which was also born with the aim of providing credit lines to the government in order to finance the war against France. In addition, although it was created as a private entity, the Bank of England received government authorisation to issue banknotes backed by gold, which it held in reserves (a privilege that no other bank had). Similarly, in 1716, John Law got the support of the French monarchy to found the General Bank in Paris. This was a private bank which he used to grant credit to the government and to issue banknotes which, in addition to being backed by gold deposits, were attractive because the French government accepted them as a means for paying taxes.

Although the banknotes of the Bank of England were not the first (in fact, historians pinpoint the birth of paper money in China some time before the 10th century B.C. and, in the western world, in the US colonies in the late 17th century A.D.), its good reputation was key for the consolidation of paper currency. In fact, the Bank of England, which was governed by a gold standard system (it held gold reserves, which could be exchanged for banknotes at a fixed rate), gained a monopoly over the issuing of money in England. It achieved this thanks to the support of the government, which amended the legislation to prevent other agents from issuing money, as well as thanks to its good reputation for satisfying requests to convert banknotes into gold and the fact that the paper currency issued by the central bank could be used to pay taxes.

At this juncture, there were two major innovations. On the one hand, the emergence of the cylinder press allowed the production of coins to be mechanised and standardised, leading them to become much more similar to each other and, therefore, more difficult to counterfeit. Also, governments took advantage of this innovation to increase the production of their own currency, at the expense of other rivals on the market. This reduced the diversity of coins in circulation and began to lay the foundations for the monopoly that central governments would eventually impose.

On the other hand, in 1609, the Bank of Amsterdam was established in the Netherlands. In this important trade city of the time, the bank opened accounts (backed by deposits of cash), allowing its customers to channel their exchanges and transactions. This saved them from having to exchange cash because the transactions were settled with entries in the bank's accounting books: for buyers, a reduction in their

The central role which the Bank of England carved out for itself in the international financial system of the 19th century gave way to the domination of the Fed in the 20th century. Through their actions, both made it clear that the central banks had taken control of the supply of money. The emergence of the central banks not only reduced uncertainty regarding the quality of the money in circulation, but also imposed a mechanism for stabilising prices, since the convertible nature of the banknotes tied the supply of money to the reserves of gold. In this sense, the steady supply of gold prevented an explosion in the supply of money, which would result in runaway inflation. In addition, by having a monopoly over the issuing of money, the central banks became the banks that served the banks, since they supplied them with liquidity. This put them in the ideal position to manage monetary policy (by influencing interest rates with the liquidity provided to retail banks) and to play the role of lender of last resort in the event of a bank run. All in all, in little more than 200 years, central banks went from being a source of funding for governments to being independent entities that were key in order to establish an environment of greater macroeconomic and financial stability.

### *Trust and fiat money: the case of the US dollar*



Source: CaixaBank Research, from [www.shutterstock.com](http://www.shutterstock.com).

#### *In God We Trust*

With the end of the Bretton Woods system in 1971, under which the Fed undertook to convert dollar bills into gold, the world moved on to a monetary system purely based on fiat money: today, if you were to go to the counter at the Fed to convert a dollar bill, you would only receive an identical dollar bill in exchange. In other words, fiat money is backed by itself. Its only value lies in the fact that we all trust that everyone else will accept that piece of paper as a means for conducting exchanges. This has led some economists to say that fiat money requires faith in eternity: faith in the concept that tomorrow, the day after tomorrow, the next day and the next, and so on, citizens will accept the banknotes we possess today as a means of payment. In fact, there is no clearer illustration of this faith than the very inscription that appears on the US dollar bill: *In God We Trust*, which also shows that the good reputation of the central banks was key to generating a climate of trust that made it possible to abandon the gold-based collateral of money.

#### **Conclusion**

We end this story by returning to the question with which we began: why, when we think about money, do we immediately conjure up concepts such as wealth and happiness, instead of thinking of a piece of paper, metal or plastic? The answer can be found in the (almost) infinite liquidity of these objects in which money is embodied. They are so easy to convert into any kind of goods or services, that we see them directly as what they can become, not as what they are: objects with no intrinsic value whatsoever. This leap is the result of technological and institutional improvements that have led us to evolve from an economy based on barter to the current payment systems based on fiat money and, increasingly, on digital money (such as credit cards or payment systems through mobile phones), as well as from hand-written entries in the accounting books of the Bank of Amsterdam to the electronic records of today's bank accounts. What will be the next step in this history of money? Will Bitcoin or other cryptocurrencies be the next revolution? We invite you to continue your journey into the future in the next articles of this Dossier.

*Cristina Farràs and Adrià Morron Salmeron*  
CaixaBank Research

## What can we expect from cryptocurrencies?

In 2009, the elusive Satoshi Nakamoto, the pseudonym used by one or several people to maintain their anonymity, published a paper in which he described how to create the equivalent of cash in a digital form, and launched the software that created Bitcoin, the first cryptocurrency.<sup>1</sup> Since then, cryptocurrencies have proliferated and their market value has grown dramatically. In this article, we will take a detailed look at what cryptocurrencies are, what the technology that makes them possible consists of and what prospects they offer. As we shall see, although we are sceptical about the foundations that underpin the growth of cryptocurrencies, the technology that underlies them offers a wide range of alternative applications.

Let us start with a short overview of the evolution of the cryptocurrency market. As shown in the table, the market value of cryptocurrencies has undergone a sharp increase in the last two years. However, this euphoria dissipated, at least partially, following rumours in mid-January 2018 that the authorities in South Korea and China planned to introduce restrictions on their use. Also, while the market for cryptocurrencies is extremely volatile, it has not raised major concerns regarding its impact on macrofinancial stability. This is due to the fact that cryptocurrencies still represent a very small fraction of the world's GDP. At their peak, they barely represented 1% of GDP, which contrasts, for example, with the market valuations of technology companies during the euphoria of the dot-com boom, which reached a value of approximately 30% of global GDP.<sup>2</sup>

### Cryptocurrencies: table of indicators

	Dec-15	Dec-16	Dec-17	07-Jan-18	Apr-18
Types of cryptocurrencies	561	633	1,308	1,355	1,543
Market capitalisation (in millions of US Dollars)	6,998	14,834	483,711	823,859	307,877
Percentage of global GDP *	0.01%	0.02%	0.61%	1.03%	0.39%
Electricity cost	62 TWh per year, approximately equal to the annual electricity consumption of Switzerland				

*Note:* \* Global GDP in current prices in dollars.

*Source:* CaixaBank Research, based on information from: Carney, M. (2018); <https://coinmarketcap.com>; <https://digiconomist.net/bitcoin-energy-consumption>.

It is necessary to understand what cryptocurrencies are in order to assess how the market has evolved over time. In simple terms, a cryptocurrency is a form of digital money, combined with a payment system. As digital money, cryptocurrencies offer nothing new: the digitised version of money has already been part of our lives for many years, and we use it on a regular basis in the form of electronic bank accounts and debit and credit cards. However, the payment system of cryptocurrencies does represent an innovation. For the first time, we can now exchange money digitally, relatively securely and anonymously, directly between buyer and seller without the transaction having to be processed in a centralised manner by an intermediary, such as a bank.<sup>3</sup>

This has been made possible thanks to blockchain technology. Before the blockchain, the direct digital exchange of money between users was not possible due to the risk of counterfeit. At the end of the day, an electronic account is nothing more than a computer file, and if there were nobody to check that this file had not been altered fraudulently, the value that appears in the account could be modified or falsified. The blockchain seeks to minimise this risk in two ways. Firstly, it creates a public record of all the transactions that are carried out in cryptocurrency. Any new transaction is added to the chain of previous transactions, hence the name blockchain, and becomes public as well. This allows any user who receives a payment to verify that the other user has the funds to make that payment. For example, if Javier wanted to pay two bitcoins to María through the blockchain, it is possible to check that Javier had received two bitcoins from Ana previously and, therefore, that he has sufficient funds to pay María. Secondly, it establishes a system through which the process of verifying transactions is performed in a decentralised manner and carries a cost.<sup>4</sup> This mechanism makes it more difficult for fraudulent transactions to be entered.

As mentioned above, cryptocurrencies have managed to bring the benefits of cash to the digital world. Not only do they make it possible to make payments directly between buyer and seller, but the transactions can also be anonymous. This anonymity is due to the fact that, although the transaction ledger contained on the blockchain is public, the digital signatures used to execute the transactions are protected with encrypted codes that preserve users' identity.

However, as fascinating as the technical details of cryptocurrencies may be, their future depends on their viability as a form of money. As explained in the article of this same Dossier «From barter to cryptocurrency: a brief history of exchange», economists believe that an item can be accepted as money if it can fulfil three basic functions: being a means of payment, a stable store of value and a unit of account. Let us assess cryptocurrencies according to each of these dimensions.

Firs of all, it seems unlikely that cryptocurrencies will become an effective means of payment. Trust is the main element that underpins any currency. Although the money we use today is a form of fiat currency (it has no intrinsic value), we feel comfortable

1. See Satoshi Nakamoto (2009), «Bitcoin: A Peer-to-Peer Electronic Cash System».

2. See Mark Carney, (2018), «The Future of Money».

3. In practice, the current digital payment system does not just involve one intermediary, but up to four: the buyer's bank, the seller's bank, the company that owns the card and the regulator (usually the country's central bank). Clearly, this system is far from anonymous.

4. In practice, the verification system is carried out using computers which must solve numerical algorithms derived from the field of cryptography. Thus, the cost of verifying the transactions is materialised through the electricity consumed by the computers. This cost is by no means trifling. As can be seen in the table, the verification system for Bitcoin is estimated to currently consume an amount of electricity equivalent to the annual electricity consumption of a country such as Switzerland.

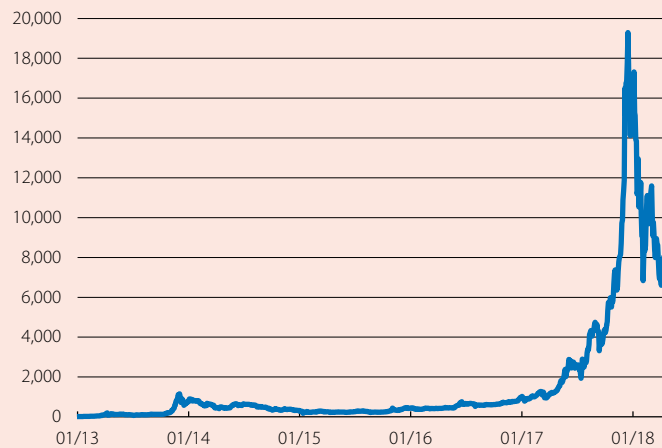
using it because we know that other people will accept it as a means of exchange. This is the case largely because the currency is backed by a government which forces its citizens to accept it as a means of payment (the currency is legal tender). This is not the case for cryptocurrencies: no government supports their use and, given that they have no intrinsic value, their value as a means of payment therefore resides purely in the expectation that other people will accept it as such.

In addition, the competition from the traditional means of payment is fierce. Compare the 65,000 transactions per second that visa can carry out with the 1,500 that are possible with Ripple, a cryptocurrency specifically designed to increase the number of transactions per second that it can process, or Bitcoin's 7 transactions per second.<sup>5</sup>

It is also not clear to what extent cryptocurrencies can become a good store of value. An example of this is the high volatility of their price (see chart). In a comparison with the euro, while in the last four months Bitcoin has lost about 60% of its value, the average annual fluctuation in the value of the euro over the past 15 years has been 1.6%. And Bitcoin is one of the most stable cryptocurrencies.

### Price of Bitcoin

(US Dollars)



Source: CaixaBank Research, based on data from <https://blockchain.info>.

This volatility is largely due to the point we mentioned earlier: cryptocurrencies have value to the extent to which we expect others to assign it value, something which is highly volatile by its very nature. Furthermore, continuing with the previous comparison, traditional currencies have a stable value not only because governments back them, but because there is a central bank that adjusts their supply at any given time according to the economic conditions that prevail and, therefore, the demand that exists for them. This is vital, hence the key role that the central banks have acquired in developed economies. This is not the case, however, for the majority of cryptocurrencies, the supply of which is governed by predetermined rules that do not take into account the demand that exists for them.<sup>6</sup>

Finally, cryptocurrencies also do not appear to act as a unit of account. The Bank of England, for example, reports that most sellers that accept Bitcoin update their prices at high frequencies to ensure a stable price with respect to traditional currencies, such as the US dollar or the pound. In addition, it reports that it is not aware of any company that operates in

Bitcoin and has its accounts denominated in cryptocurrency.<sup>7</sup> As such, it seems that the users of cryptocurrencies continue to use traditional currencies as a unit of account in place of cryptocurrencies themselves.

If that were not enough, cryptocurrencies involve certain added risks. Firstly, the nature of the blockchain means that transactions are not reversible. Therefore, if a transfer is made by mistake, there is no way to undo it. Also, cryptocurrencies can be subject to computer hacks. In fact, some of these hacks have managed to circumvent the system of user anonymity.

Cryptocurrencies also suffer from regulatory risk. As the use of cryptocurrencies has become more popular, governments have begun to regulate their use. In some cases, this has occurred gradually. For example, the US has classified cryptocurrencies as financial assets with regards to their tax treatment. Several countries have also begun to regulate the key players within the system of cryptocurrencies, such as the exchanges where cryptocurrencies can be bought and sold for traditional currencies. However, other states have adopted a more hostile attitude, such as China, where the government has severely limited the use of cryptocurrencies across large sections of its economy. This type of risk is what led to the fall in the value of cryptocurrencies observed in January 2018.

In short, despite the recent euphoria that cryptocurrencies have aroused, we are sceptical about their potential for growth, given the inherent risks they involve and their limited potential to replace traditional currencies. Nevertheless, our scepticism does not apply to the technology that underlies cryptocurrencies: the blockchain. This technology makes it possible to keep a decentralised, comprehensive and public record of any transaction. The technology is still young, and its potential applications beyond the field of cryptocurrencies are vast. We explore one of them in the article of this Dossier, «Digital money in the economy of the future: new possibilities, new challenges». We encourage you to stay on board and keep reading!

Oriol Carreras Baquer  
CaixaBank Research

5. See M. Carney (2018), <https://ripple.com> and <https://blockgeeks.com/guides/blockchain-scalability/>.

6. For example, the system for Bitcoin establishes that 21 million units will be reached in 2040 and that new bitcoins will cease to be minted from that moment.

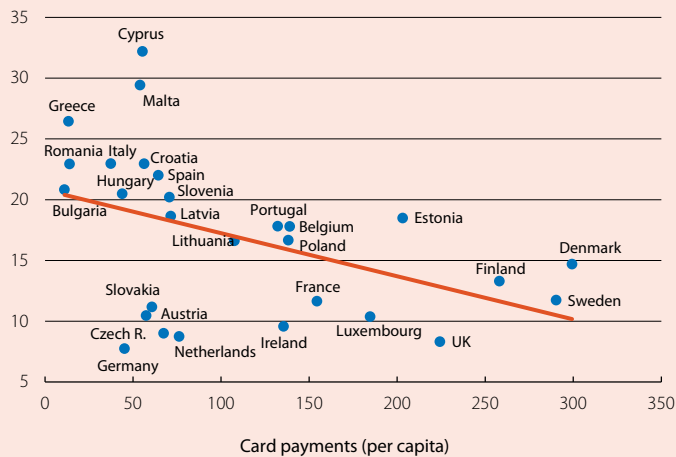
7. See Mark Carney, (2018), «The Future of Money».

## Digital money in the economy of the future: new possibilities, new challenges

The bewildering technological advances that we are witnessing today open the door to a more widespread use of digital currencies in the not-too-distant future. But what is the potential of these currencies and how far can they go? In this article, the last stop of our journey on the history of money, we will travel into the future to reflect on these topics and their possible implications. It is a futuristic and exciting field, given that today we have more questions than certainties. But this should not discourage us, as the great French writer Victor Hugo said: «The future has many names. For the weak it is the unattainable. For the fearful, the unknown. For the brave, it is opportunity».

### The shadow economy and card payments (2015)

Shadow economy (% of GDP)



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

option, but as we have seen in the article «What can we expect from cryptocurrencies?» in this same Dossier, they suffer from certain limitations which make it difficult for their use to become successfully widespread. In contrast, the institutional mechanisms which the central banks enjoy in the financial system can help their implementation to be more fruitful. Thanks to their reputation and credibility,<sup>1</sup> central banks have the capacity to ensure that the CBDC becomes legal tender and to generate a climate of trust so that it is perceived as a reliable and safe asset. In addition, a central bank has many more resources, more information and technical capacities in order to implement an appropriate monetary policy at any given time and to preserve the digital currency's stability as a unit of account, thus avoiding sudden fluctuations in its price. This contrasts with the pitfalls that a private digital currency would face; at the end of the day, it is difficult for a private entity that is responsible for implementing a digital currency to have the relevant tools to design a credible standard of monetary supply with socially desirable objectives, such as stability in the price and in economic activity. This leads us to an initial conclusion on this intrepid «journey into the future» we have embarked upon: a digital currency backed by the central bank will stand more chance of being successfully implemented and used than a private digital currency. For this reason, in the rest of this article we will focus on analysing how the CBDC could be implemented, before delving into its advantages and disadvantages. In all scenarios, we will assume that the CBDC coexists with cash.

Broadly speaking, there are two natural ways to implement a CBDC, one of which is more limited (option 1) and the other of which is more disruptive (option 2). The first option would involve converting the euros we hold in our bank account into CBDC when making a payment or transfer, so that the transaction can be settled using the technology designed to implement the digital currency. Clearly, this first option would not affect individuals or companies when planning their domestic economies: simply, their euros would be converted into CBDC whenever they made a payment or transfer, and the underlying technology would allow the money to flow from sender to receiver without them noting any obvious change. It is worth emphasising that the creation of the CBDC would not introduce any substantial improvements in comparison to recent developments in payment systems. Two prime examples of these advances are the Single Euro Payments Area (SEPA), which sets a maximum period of one business day for the execution and settlement of euro-denominated transfers between 34 European countries, and the set of

1. For further details on the central banks, see the article «From barter to cryptocurrency: a brief history of exchange» in this Dossier.

services which allow for instantaneous financial transactions to be carried out using mobile phones. Significant progress has been made in both cases, without the need for a digital currency backed by the central bank. One advantage of the CBDC in this scenario could be, perhaps, the increase in the speed of transfers between payment systems that are not interconnected, such as in the case of international transfers. This is an area in which Bitcoin and other digital currencies have already demonstrated certain advantages.

The second option would go further than the mere creation of the CBDC for making payments. In option 2, the central bank would sponsor a digital currency without restrictions, which would become another asset available to individuals and households and, therefore, would compete with bank deposits and cash. This second avenue could be approached in different ways. The two most logical alternatives would be to allow individuals and companies to deposit a portion of their savings in the form of CBDC, either in digital wallets<sup>2</sup> or directly in accounts held in the central bank.

This scenario would represent a novelty in people's daily lives: households and companies could choose to place part of their savings directly in their digital wallets or in the central bank (it should be remembered that today, only a limited group of financial institutions can deposit money in the central bank). Interestingly, there is a historical precedent that is very similar to the second alternative for bringing about option 2, albeit without the digital medium of modern times, of course: up until the early 20th century, individuals and companies were allowed to deposit their money in both the Bank of England and the Bank of Sweden. However, this practice later ended, since in the age of paper it was highly impractical and occupied a lot of space to record all the details of the large number of accounts that had been opened.

From now on, we will focus on analysing the implications of option 2, since, unlike the first option, it would have significant repercussions. Let us begin by discussing its advantages. We have identified three potential benefits associated with the implementation of the CBDC. The first one would be a potential reduction in the size of the shadow economy. This is critically dependent on the degree of anonymity of the CBDC. The most reasonable solution would be for the CBDC to be anonymous in small transactions but for there to be a certain level of control starting from a particular amount. If this were the case, a CBDC that became popular thanks to its speed and ease of use might discourage the use of cash and reduce the size of the shadow economy. Various studies support this theory<sup>3</sup> and have documented that an increase in the use of electronic payment systems decreases the size of the shadow economy. This negative relationship in the euro area can be seen in the first chart, and the figures are revealing: an increase of 100 euros per capita per year in card payments would reduce the shadow economy as a percentage of GDP by as much as 3.5 pps.

The second advantage would be households' and companies' access to a risk-free asset (by definition, the central bank cannot go bankrupt) which, unlike cash, would involve no storage costs.

Finally, a third advantage would be that the central bank could improve the effectiveness of monetary policy. Specifically, if the CBDC were to allow households and companies to open accounts directly in the central bank, the central bank could directly adjust the interest rates on the assets of households and companies. This could prove to be a useful tool in financial crises if the mechanism for transmitting monetary policy does not work well. In fact, setting an interest rate on the CBDC would also affect the deposits of retail banks, since they would have to offer a sufficiently attractive remuneration in order to prevent their customers from transferring their deposits to the central bank. In any case, the debate surrounding the benefits of such a tool should revolve around the extent to which it would improve the effectiveness of monetary policy in comparison to the instruments currently available to the central bank. It is worth remembering that in recent years, the central banks have had a much more direct influence on the costs of financing for individuals and companies, through the purchases of public debt securities (see second chart) and corporate debt that they have carried out through their various quantitative easing (QE) programmes.<sup>4</sup>

Despite the advantages we have discussed regarding this implementation of the CBDC, we would be foolish to fall into complacency, since there are also risks that are by no means insignificant. The main risk of creating a widely-used CBDC would be the risk of the central bank having an excessively important role in the distribution of resources in the economy, as well as the risk of a potential rise in the cost of credit, depending on the central bank's actions. To understand why, it must be borne in mind that

2. These wallets could be disconnected from retail banks. They would be very similar to the wallets of today, where we keep banknotes and cash, but in a digital format.

3. For further details, see the article «The shadow economy: too great a burden» in the Dossier of the MR09/13.

4. According to data from the IMF, 9 out of the 15 billion dollars of assets acquired by the central banks that have embarked on QE programmes in the last decade are sovereign debt securities.



with this implementation of the CBDC, a portion of the banking deposits of households and companies held in retail banks would be converted into CBDC (either held in digital wallets or in the accounts of the central bank). Therefore, in order for the retail banks to continue to finance the demand for credit, the most natural avenue would be for them to obtain the necessary liquidity from the central bank. If the central bank decided to take on this more interventionist role as a supplier of liquidity, the retail banks would be highly dependent on the liquidity that the central bank would provide.

If the central bank is able to adapt quickly and the distribution of liquidity is carried out applying the appropriate criteria, the problem would be resolved. However, if this is not the case, it could result in a rise in the cost of credit. In fact, the increased role of the central bank in distributing resources in the economy could lead to distortions in their allocation (a decentralised mechanism in the hands of the private sector will always lead to a more efficient allocation) and could complicate the setting of prices based on market criteria. This last point is only novel to a certain extent, since we can draw a parallel with the greater role that central banks have taken through their ultra-expansive QE policies in the last decade. In this regard, the Bank for International Settlements has repeatedly expressed fears that interest rates kept at abnormally low levels for such a long time are generating distortions in the valuation of some financial assets and are contributing to prolonging the upward spiral in the levels of debt of the major economies.

If the central bank were to waive this interventionist role and adopt a hands-off stance to liquidity problems, on the other hand, retail banks would have to obtain the resources necessary to finance the demand for credit themselves (possibly by increasing rates on deposits, to prevent customers from transferring their money to the central bank), and this would also end up producing a rise in the cost of credit.

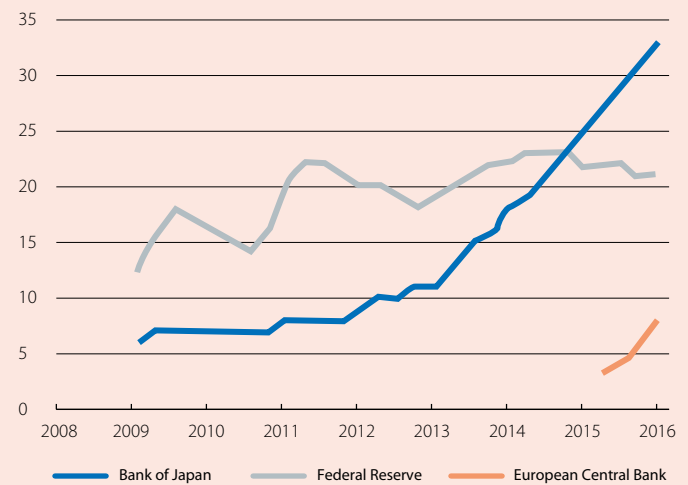
Finally, it is worth adding that the potential dependence of the economy on the central bank could be particularly pronounced in times of recession, since it is precisely during periods of economic crisis that individuals and companies tend to be more risk averse. As a result, they would surely convert more of their assets from retail bank deposits into CBDC, which could lead to episodes of financial instability. These risks must not fall on deaf ears. In fact, they have been highlighted by the Bank for International Settlements and by the member of the ECB Yves Mersch<sup>5</sup> when displaying their reticence with regard to the desirability of this option.

In short, we end our intense journey with the conviction that the possibility of the central banks deciding to issue their own digital currency to a wide audience in the future is no pipe dream. This possibility is a prime example of how technological development is making us rethink the current system. In the next few years, the main central banks and financial bodies will spell out the advantages and disadvantages of these currencies and it will be important to closely follow the developments that arise in this field. This article contributes to the discussion by identifying possible repercussions of issuing a currency of this kind. Debate around the matter is, and will be, more than welcome, provided that the costs are thoroughly analysed and the possible implications are well understood.

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### Public debt in the hands of the central banks

(% of total public debt)



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

5. See the report «Central bank digital currencies» (2018), by the Committee on Payments and Market Infrastructures of the BIS and Y. Mersch (2017), «Digital Base Money: an assessment from the ECB's perspective», speech at the Bank of Finland.

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As of 31 March 2017

	MILLION €
Customer funds	351,420
Loans and advances to customers, gross	223,249
Profit attributable to Group, YTD	704
Market capitalisation	23,150
Customers (millions)	15.7
Employees	37,107
Branches	5,318
Retail branches in Spain	4,618
Number of ATMs in Spain	9,394

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	MILLION €
Social	307.5
Excellence in research and training	91.1
Raising awareness of culture and knowledge	121.4
<b>TOTAL BUDGET</b>	<b>520</b>

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