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MONTHLY REPORT • ECONOMIC AND FINANCIAL MARKET OUTLOOK

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ECONOMIC & FINANCIAL ENVIRONMENT

FINANCIAL MARKETS
The Fed's new strategy

INTERNATIONAL ECONOMY
The macroeconomic fragility of interest rates

SPANISH ECONOMY
Tracking inequality in real-time: impact of the activity rebound

DOSSIER: THE RISE IN DEBT IN TIMES OF PANDEMIC: HOW SHOULD WE DEAL WITH IT?

The debt burden of the COVID-19 crisis

What to do in the face of surges in public debt: a historical tour

European public debt in the medium term: sustainability and challenges

Does monetary policy lose effectiveness when economies are more indebted?

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October 2020

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

CaixaBank Research
www.caixabankresearch.com
research@caixabank.com

Enric Fernández
Chief Economist

Oriol Aspachs
Director of Research

Sandra Jódar
Director of Banking Strategy

Adrià Morron Salmeron
Monthly Report coordinator

Javier Garcia-Arenas
Dossier coordinator

BPI Research (UEEF)
www.bancobpi.pt /
<http://www.bancobpi.pt/grupo-bpi/estudos-e-mercados/mercados-financeiros>
deef@bancobpi.pt

Paula Carvalho
Chief Economist

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The opportunity of the European recovery plan

The European recovery plan – Next Generation EU (NGEU) – represents a unique opportunity for Spain. If we play our cards right, our country could receive 140 billion euros over the next few years, half in the form of non-repayable transfers and half in the form of loans. This amount is equivalent to 11% of last year's GDP, meaning that it could represent a flow of resources amounting to 2% of GDP per year for six years (hopefully more at first, when it is most needed, and less towards the end). This is a sufficiently large volume so as to support the short-term economic recovery, but it also provides a huge incentive to transform our economy in the long term. We therefore stand before a unique opportunity to relaunch, reform and modernise the Spanish economy.

What should the European funds be used for? What reforms should accompany the various projects? These are two questions worth considering in depth. In the lines that follow, we just offer five objectives that should be pursued. The best measures can meet several of these objectives at once since, as several examples show, they are not necessarily at odds with each other.

1. Boost the short-term recovery. With GDP expected to fall by around 12.5% this year, there is a need to identify projects that have the capacity to boost multiple sectors and regions and that create as many jobs as possible. Construction is one sector with the potential to meet these requirements and, therefore, play a leading role. Of course, we are not proposing a resurrection of the overinflated construction sector of Spain's past. Refurbishing housing, promoting affordable rental housing and, in the sphere of infrastructure, urban transport or freight rail networks are examples of projects that could be pursued.

2. Particularly benefit the sectors that are hardest hit. The tourism sector is the most obvious case. It is also a sector in which we know that Spain will continue to have a huge competitive advantage worldwide when we overcome the pandemic. We should do everything in our power to ensure that, when it does bounce back, it does so even stronger. For this sector – and others – we could seek inspiration in France's proposal to support the recapitalisation of companies. The amendment to the state aid framework proposed by the European Commission will also provide an opportunity to provide additional support to the hardest hit sectors, which are already heavily indebted, with non-repayable grants.

3. Facilitate the green transition and the digital transformation. The European Commission has rightly highlighted these areas as being key, since they are two challenges that will determine the future shape of our economy. We need to invest not only in adapting to them – for example, by improving the energy efficiency of housing or by digitising the health system and schools – but also in seeking to take a leading role in these transformations by promoting research and the transfer of technology and knowledge between academia and firms.

4. Improve productivity in a sustainable manner. Of course, research is key for this, but so is improving training in general, including child education, compulsory education, vocational training and the continuous training of workers. In the labour market, we have long known that Spain needs to reform its active employment policies and reduce duality. This is also a good time to rethink all those rules (tax, labour, etc.) that penalise the growth of our companies.

5. Develop a governance framework that is appropriate for the recovery plan itself. The process for selecting and monitoring projects should be based on rigorous criteria, with assessments performed by professionals. Under this heading of governance we could also include all the reforms aimed at bolstering the public administration, which needs to be more flexible, agile and have greater technical capabilities. All this will be key to ensuring effectiveness in the selection and implementation of projects in coordination with the private sector.

NGEU is a plan born out of trust between EU Member States and European institutions, although we know that some countries had their doubts. Much is at stake in the coming years. Among the most important elements: whether or not we are worthy of that trust.

Enric Fernández
Chief economist
30 September 2020

Chronology

AUGUST 2020

- 27 The Fed updates the strategic framework for monetary policy and announces that it will pursue an average inflation rate of 2%, temporarily tolerating higher inflation following periods with inflation below 2%.

JUNE 2020

- 4 The ECB expands the envelope for the pandemic emergency purchase programme (PEPP) by 600 billion euros (to 1.35 trillion), extends its duration until mid-2021 and announces a programme of reinvestments for the PEPP until the end of 2022.
- 21 The Government of Spain ends the state of alarm.

SEPTEMBER 2020

- 25 The European Council approves the granting of 87.4 billion euros in SURE loans to 16 Member States. Spain will receive 21.3 billion.
- 28 The official global COVID-19 death toll surpasses 1 million people.

JULY 2020

- 21 The European Council approves a 750-billion-euro recovery plan to combat the COVID-19 crisis (360 billion in loans and 390 billion in transfers), to be financed with debt issued by the EU.

MAY 2020

- 5 The German Constitutional Court rules that the PSPP (the Public Sector Purchase Programme that the ECB has been implementing since 2015) does not take due account of the principle of proportionality and calls for an analysis of its costs and benefits within three months.
- 27 The European Commission proposes a recovery plan which includes a 750 billion-euro fund financed by issues of debt by the Commission itself and in which 500 billion euros would be distributed among EU countries in the form of (non-refundable) transfers.

Agenda

OCTOBER 2020

- 1 Portugal: NPL ratio (Q2).
- 2 Spain: registration with Social Security and registered unemployment (September).
- 8 Portugal: industry turnover (August).
- 12 Portugal: services turnover (August).
- 15 Spain: financial accounts (Q2).
- 15-16 European Council meeting.
- 20 Portugal: credit portfolio (August).
- 22 Spain: loans, deposits and NPL ratio (August).
- 23 Portugal: coincident economic activity indicators (September).
- 27 Spain: labour force survey (Q3).
- 29 Spain: CPI flash estimate (October).
Governing Council of the European Central Bank meeting.
US: GDP (Q3).
- 30 Spain: GDP flash estimate (Q3).
Euro area: GDP (Q3).

NOVEMBER 2020

- 4 Spain: registration with Social Security and registered unemployment (October).
Portugal: employment (Q3).
- 4-5 Federal Open Market Committee meeting.
- 6 Spain: industrial production (September).
- 9 Portugal: international trade (September).
- 13 Portugal: GDP flash estimate (Q3).
- 16 Japan: GDP (Q3).
- 18 Governing Council of the European Central Bank meeting.
- 20 Portugal: Fitch rating.
Portugal: coincident economic activity indicators (October).
- 24 Spain: loans, deposits and NPL ratio (September).
- 27 Spain: state budget execution (October).
Euro area: economic sentiment index (November).
- 30 Spain: CPI flash estimate (November).

Differences between countries

The virus does not distinguish between people or countries. Therefore, the pandemic is global in nature, as is the economic recession. Nevertheless, there are significant differences between countries, both in the health and in the economic spheres. Those able to better manage the pandemic are experiencing a more buoyant economic recovery.

Globally, China is recovering particularly well, having contained the pandemic for the time being without the need to impose severe mobility restrictions. This has led to a notable recovery in economic activity, and retail sales, industrial production and exports are already registering positive growth rates in year-on-year terms.

In contrast, developed countries are having more difficulties in containing the pandemic. In fact, many of them are experiencing a second wave of infections, forcing new mobility restrictions to be imposed. It is still too early to assess what the impact of the new measures will be, but some business confidence indicators, such as the European PMIs, already suggest a slowdown in the rate of recovery. The mood in the financial markets has also turned with the new wave of infections. Risk aversion reared its head again in September, demand for safe-haven assets increased, and the asset classes most sensitive to the business cycle, such as stocks and commodities, registered losses.

But there are also significant differences among developed countries. Germany is one of the countries weathering the crisis the best. It is managing to contain the second wave without having to enforce excessively restrictive measures, and this is resulting in a less pronounced deterioration in the economy, as well as a faster recovery. At the opposite end of the spectrum, the Spanish economy is among those suffering the most. September brought a shift in the trend shown by CaixaBank's internal data on card spending.

We are confident that the containment measures being implemented will prevent us from falling back into a situation like that of the spring. Nevertheless, the environment of high uncertainty, which looks set to stay, coupled with the mobility restrictions that will have to be imposed in regions where outbreaks occur, will severely limit the economy's ability to recovery over the coming months. Thus, at the end of this year we anticipate that GDP will remain 6.1 pps below its pre-crisis level for the euro area as a whole and 11.2 pps below in Spain.

Beyond better preventive management of the pandemic – something for which there is clearly scope in many countries –, it will not be until we can carry out rapid and reliable tests en masse and on a recurring basis, and ultimately until we have an effective vaccine, that the pace of recovery will be able to significantly accelerate. We expect these catalysts will be activated next year and, therefore, our forecast scenario incorporates a significant and widespread rebound in economic activity in 2021, with growth rates ranging from 5.1% in the US to 6.6% in the euro area and 8.6% in Spain.

These figures are significant, yet they will not be enough to return economic activity to pre-crisis levels. The length of time during which the economy will have endured the pressure of the virus will end up leaving scars. Many businesses will have to close their doors permanently despite the many aid programmes put in place, and many people will end up losing their jobs.

In this context, in the short term it is essential to make every effort to improve the preventive management of the pandemic. This is without doubt not only the best health policy to pursue, but also the best economic policy. The two policies must go hand in hand; there is no trade off between them.

In parallel, traditional economic policy tools must run at full steam. On the monetary side, the Fed has already made it clear that under the new mandate financial conditions will remain highly accommodative for longer than we previously expected. As for the ECB, although differences of opinion have once again increased within its Governing Council, we are confident that it will announce an extension of its support measures in the coming months.

With regard to fiscal policy, there is broad consensus that decisive action must be taken. Nevertheless, if this desire is to translate into effective action, it is imperative for there to be broad political consensus – something that has become more difficult in countries affected by political fragmentation. The urgency of the moment, however, demands that an extra effort be made. The success of that undertaking will largely determine whether the differences between countries are reduced, or not.

Oriol Aspachs
Head of Research

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

Financial markets

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
INTEREST RATES							
Dollar							
Fed funds (upper limit)	3.43	0.55	2.50	1.75	0.25	0.25	0.25
3-month Libor	3.62	0.75	2.79	1.91	0.30	0.30	0.35
12-month Libor	3.86	1.26	3.08	1.97	0.60	0.60	0.70
2-year government bonds	3.70	0.80	2.68	1.63	0.30	0.30	0.50
10-year government bonds	4.70	2.58	2.83	1.86	0.95	1.00	1.20
Euro							
ECB depo	2.05	0.32	-0.40	-0.50	-0.50	-0.50	-0.50
ECB refi	3.05	0.90	0.00	0.00	0.00	0.00	0.00
Eonia	3.12	0.55	-0.36	-0.46	-0.45	-0.45	-0.45
1-month Euribor	3.18	0.67	-0.37	-0.45	-0.45	-0.45	-0.43
3-month Euribor	3.24	0.85	-0.31	-0.40	-0.45	-0.45	-0.40
6-month Euribor	3.29	1.00	-0.24	-0.34	-0.40	-0.40	-0.35
12-month Euribor	3.40	1.19	-0.13	-0.26	-0.35	-0.35	-0.30
Germany							
2-year government bonds	3.41	0.55	-0.60	-0.63	-0.60	-0.50	-0.45
10-year government bonds	4.30	1.82	0.25	-0.27	-0.30	-0.15	0.00
Spain							
3-year government bonds	3.62	2.06	-0.02	-0.36	0.06	0.22	0.26
5-year government bonds	3.91	2.59	0.36	-0.09	0.21	0.38	0.44
10-year government bonds	4.42	3.60	1.42	0.44	0.60	0.65	0.70
Risk premium	11	178	117	71	90	80	70
Portugal							
3-year government bonds	3.68	4.02	-0.18	-0.34	0.17	0.33	0.38
5-year government bonds	3.96	4.67	0.47	-0.12	0.39	0.53	0.59
10-year government bonds	4.49	5.35	1.72	0.40	0.65	0.75	0.80
Risk premium	19	353	147	67	95	90	80
EXCHANGE RATES							
EUR/USD (dollars per euro)	1.13	1.29	1.14	1.11	1.18	1.20	1.22
EUR/JPY (yen per euro)	129.50	126.40	127.89	121.40	125.40	128.40	130.54
USD/JPY (yen per dollar)	115.34	98.97	112.38	109.25	106.27	107.00	107.00
EUR/GBP (pounds per euro)	0.66	0.83	0.90	0.85	0.91	0.91	0.90
USD/GBP (pounds per dollar)	0.59	0.64	0.79	0.76	0.77	0.76	0.74
OIL PRICE							
Brent (\$/barrel)	42.3	82.5	57.7	65.2	42.0	55.0	60.0
Brent (euros/barrel)	36.4	63.2	50.7	58.6	35.6	45.8	49.2

Forecasts

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

International economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
GDP GROWTH							
Global	4.5	3.4	3.6	2.9	-4.5	6.2	4.0
Developed countries	2.7	1.3	2.2	1.7	-6.5	5.4	2.9
United States	2.7	1.5	3.0	2.2	-5.3	5.1	3.9
Euro area	2.2	0.7	1.9	1.2	-8.2	6.6	2.1
Germany	1.6	1.3	1.6	0.6	-5.8	5.5	1.7
France	2.2	0.8	1.7	1.2	-11.5	7.9	2.7
Italy	1.5	-0.5	0.7	0.3	-10.8	7.2	1.6
Portugal	1.5	0.0	2.6	2.2	-10.0	5.9	3.4
Spain	3.7	0.3	2.4	2.0	-12.5	8.6	3.7
Japan	1.5	0.5	0.3	0.7	-6.0	3.3	1.4
United Kingdom	2.9	1.1	1.3	1.4	-10.4	8.7	2.2
Emerging and developing countries	6.5	5.1	4.5	3.7	-3.3	6.6	4.8
China	10.5	8.3	6.6	6.1	2.0	8.0	4.6
India	9.7	6.9	6.8	4.9	-10.3	9.5	7.3
Indonesia	5.5	5.6	5.2	5.0	-1.0	4.0	5.0
Brazil	3.6	1.6	1.3	1.1	-7.0	3.2	2.4
Mexico	2.4	2.1	2.2	-0.3	-10.0	3.5	2.2
Chile	5.0	3.0	4.0	1.1	-4.7	3.5	2.5
Russia	7.2	0.9	2.5	1.3	-5.5	3.5	2.2
Turkey	5.4	5.1	2.8	0.9	-4.3	4.0	3.4
Poland	4.0	3.4	5.2	4.1	-4.6	4.2	2.2
South Africa	4.4	1.8	0.8	0.2	-10.4	3.4	5.3
INFLATION							
Global	4.2	3.8	3.6	3.6	3.0	3.0	3.2
Developed countries	2.1	1.5	2.0	1.4	0.5	1.5	1.7
United States	2.8	1.7	2.4	1.8	1.2	2.2	2.2
Euro area	2.1	1.4	1.8	1.2	0.2	0.8	1.4
Germany	1.7	1.3	1.9	1.4	0.5	0.9	1.5
France	1.8	1.2	2.1	1.3	0.4	0.9	1.4
Italy	1.9	1.5	1.2	0.6	-0.2	0.6	1.2
Portugal	3.0	1.2	1.0	0.3	0.1	0.9	1.3
Spain	3.2	1.4	1.7	0.7	-0.2	1.7	1.6
Japan	-0.3	0.3	1.0	0.5	0.0	0.2	0.2
United Kingdom	1.9	2.4	2.5	1.8	0.7	1.2	1.4
Emerging countries	6.7	5.7	4.8	5.0	4.4	4.2	4.3
China	1.7	2.5	2.1	2.9	2.4	2.6	3.4
India	4.5	8.0	3.9	3.7	4.2	4.1	4.7
Indonesia	8.4	5.5	3.3	2.8	2.0	4.4	4.4
Brazil	7.3	6.1	3.7	3.7	2.6	3.3	4.0
Mexico	5.2	4.2	4.9	3.6	2.5	2.5	3.5
Chile	3.1	3.4	2.7	2.3	2.9	3.1	3.3
Russia	14.2	8.7	2.9	4.5	3.1	3.5	4.0
Turkey	27.2	8.4	16.2	15.5	11.8	10.4	8.0
Poland	3.5	2.0	1.2	2.1	2.8	2.7	2.7
South Africa	5.3	6.1	4.6	4.1	3.9	4.2	4.4

Forecasts

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

Spanish economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
Macroeconomic aggregates							
Household consumption	3.6	-0.6	1.8	0.9	-12.1	8.6	2.9
Government consumption	5.0	0.9	2.6	2.3	3.1	1.6	1.3
Gross fixed capital formation	5.6	-2.8	6.1	2.7	-17.3	13.7	4.0
Capital goods	4.9	-0.5	5.4	4.4	-25.9	9.1	4.0
Construction	5.7	-5.2	9.3	1.6	-18.1	14.1	4.0
Domestic demand (vs. GDP Δ)	4.4	-0.7	2.8	1.5	-9.5	7.9	2.7
Exports of goods and services	4.7	3.1	2.3	2.3	-26.6	15.1	9.1
Imports of goods and services	7.0	-0.3	4.2	0.7	-20.2	13.0	6.2
Gross domestic product	3.7	0.3	2.4	2.0	-12.5	8.6	3.7
Other variables							
Employment	3.2	-1.0	2.5	2.3	-8.5	0.4	3.6
Unemployment rate (% of labour force)	10.5	20.5	15.3	14.1	17.5	18.9	16.3
Consumer price index	3.2	1.4	1.7	0.7	-0.2	1.7	1.6
Unit labour costs	3.0	0.1	1.2	2.3	8.1	-5.5	2.2
Current account balance (% GDP)	-5.9	-0.8	1.9	2.0	1.1	1.5	1.9
External funding capacity/needs (% GDP)	-5.2	-0.4	2.4	2.4	1.5	2.0	2.2
Fiscal balance (% GDP) ¹	0.4	-6.7	-2.5	-2.8	-12.8	-7.6	-5.4

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

■ Forecasts

Portuguese economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
Macroeconomic aggregates							
Household consumption	1.7	0.1	2.9	2.2	-8.3	6.7	3.5
Government consumption	2.3	-0.6	0.9	1.1	-0.2	2.3	0.2
Gross fixed capital formation	-0.3	-2.0	5.8	6.7	-10.3	-1.7	4.1
Capital goods	1.2	1.2	7.5	3.7			
Construction	-1.5	-4.4	4.6	9.0			
Domestic demand (vs. GDP Δ)	1.3	-0.5	3.1	2.8	-7.7	4.6	3.0
Exports of goods and services	5.2	4.0	4.5	3.7	-21.3	19.7	11.9
Imports of goods and services	3.6	2.2	5.8	5.3	-16.2	15.6	10.8
Gross domestic product	1.5	0.0	2.6	2.2	-10.0	5.9	3.4
Other variables							
Employment	0.4	-0.6	2.3	1.0	-3.9	-0.8	1.7
Unemployment rate (% of labour force)	6.1	11.8	7.0	6.5	8.3	10.4	9.0
Consumer price index	3.0	1.2	1.0	0.3	0.1	0.9	1.3
Current account balance (% GDP)	-9.2	-3.6	0.4	-0.1	-1.9	-1.0	-0.6
External funding capacity/needs (% GDP)	-7.7	-2.2	1.4	0.9	-0.9	0.8	1.3
Fiscal balance (% GDP)	-4.6	-6.1	-0.3	0.1	-9.0	-4.0	-2.6

■ Forecasts

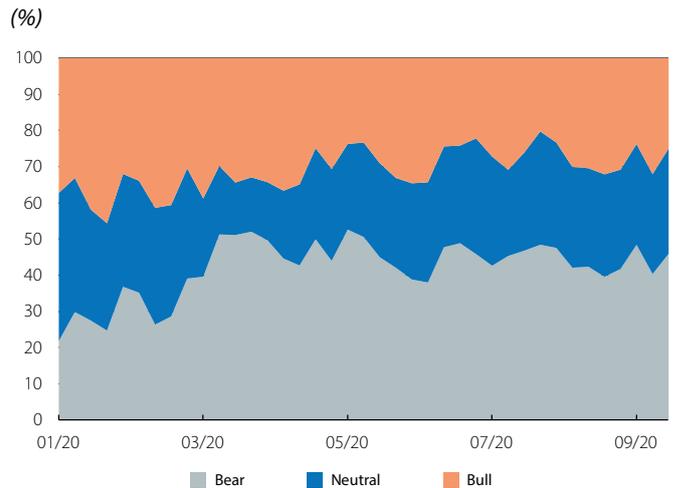
Financial markets leave the optimism of summer behind

Investor sentiment once again tilts towards risk aversion. Following a summer in which investors were optimistic about the revival of economic activity and the support from economic policies, in September the mood turned. The rise in COVID-19 cases, a less vigorous economic recovery and a lack of agreement in the US Congress on a new round of fiscal stimulus dampened risk appetite and impacted assets most closely linked to the business cycle. Thus, the major stock market indices registered widespread declines and commodity prices fell, while demand for safe-haven assets (such as the dollar, the Japanese yen, or German and US sovereign debt) increased. Nevertheless, the volatility of the financial markets is now much more moderate than it was in March and April, partly thanks to the continued support from the major central banks. However, in a highly demanding macroeconomic and financial environment dominated by the pandemic, volatility remains higher than prior to the outbreak, especially in the equity and currency markets.

Stock markets register losses not witnessed since March. In this context of risk aversion and reduced optimism among investors, the major international stock indices registered widespread declines, slowing down the recovery that began in April. The setback was particularly notable in the US, where just a few months earlier technology and e-commerce stocks had been trading at unusually high levels. In September, the stock price corrections of the main companies of these sectors dragged down the S&P 500 index, which registered its first monthly losses since March. In the euro area the declines were smaller, but there was significant disparity between regions. While the German stock market index fell by around 1%, the indices of the periphery fell by between 3% and 5%. Emerging economies also registered widespread losses in the equity markets, although, as has been the case since COVID-19 reached Latin America, the declines in the Latin American indices were greater than those in Asia.

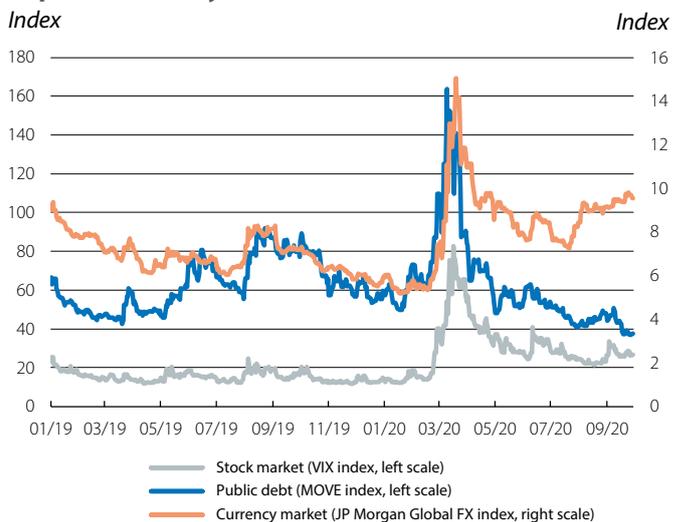
The dollar strengthens once again while the euro tempers its rally. Following the gains registered in the summer by the main currencies against the US dollar, in September the fading of investor sentiment led to an appreciation of the currencies considered safe havens. The dollar thus appreciated 2% against a series of major currencies, while the Japanese yen appreciated even against the dollar. In contrast, there was widespread weakening of emerging-economy currencies, with the Russian rouble and, as was the case in July and August, the Turkish lira suffering the most. In the latter case, the marked macroeconomic imbalances and investors' lack of confidence in the Turkish authorities' ability to reverse the economic crisis brought the exchange rate against the dollar to new all-time lows. The euro, on the other hand, undid some of the progress it had made since the beginning of July, when the European

US: market sentiment



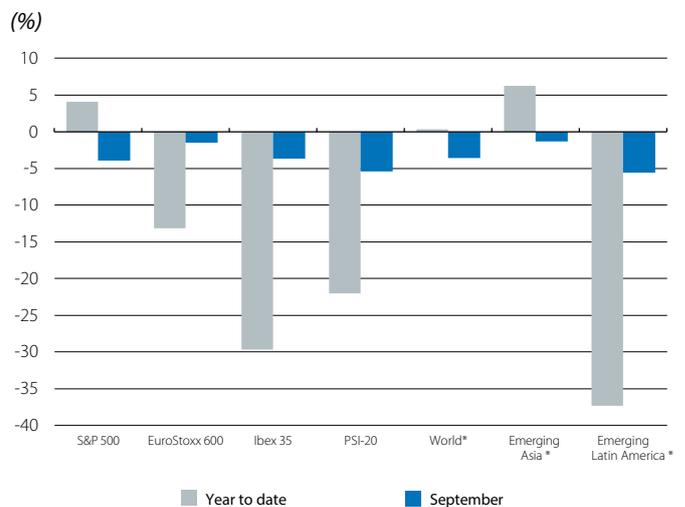
Note: The percentage of investors responding to the American Association of Individual Investors survey about their sentiment: optimistic (bull), pessimistic (bear) or neutral.
Source: CaixaBank Research, based on data from Bloomberg.

Implicit volatility in the financial markets



Source: CaixaBank Research, based on data from Bloomberg.

Performance of the main stock market indices



Note: * MSCI indices.
Source: CaixaBank Research, based on data from Bloomberg.

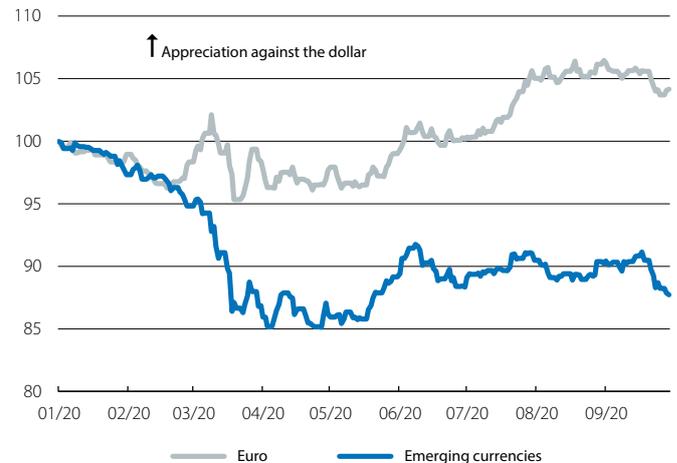
Council had finally approved the Next Generation EU fiscal stimulus, and stood above 1.17 dollars per euro.

The ECB remains on the course set in June. The ECB's September meeting went without major announcements, and the Governing Council (GC) reiterated its intention to provide accommodative financial conditions to support the euro area's economic recovery. This continuity comes in response to economic activity performing in line with the ECB's projections in recent months. Its new macroeconomic forecasts thus reflected no major changes, although both the expected decline in GDP in 2020 and the rebound in 2021 are now more moderate. On the price front, Lagarde stated that there is no risk of deflation in the euro area, even if disinflationary pressures dominate the scenario. In particular, the ECB president expressed concern (but also a disparity of views among GC members) over how the appreciation of the euro in recent months could affect inflation. However, Lagarde assured that the ECB will use the full amount of the PEPP (1.35 trillion euros) by June 2021 and that it is prepared to provide additional monetary stimulus if necessary.

The Federal Reserve adjusts its communications to its new strategy. After recalibrating its inflation and employment targets in August (see the Focus «[The Fed's new strategy](#)» in this same *Monthly Report*), the Fed changed its forward guidance on the first interest rate hike to bring it in line with the new strategic framework. Now, following the September meeting, the Fed assures that rates will remain at their current level at least until full employment is reached, and inflation is both at 2% and on track to be slightly above this level for some time to come. Based on the new macroeconomic table, this first rate hike would not occur until at least 2024. The Fed's new forecasts also indicate that its members now expect economic activity to perform better than previously, although Jerome Powell continued to emphasise the downside risks. The chair of the Fed reiterated that the economic scenario is highly demanding, that the pace of the recovery will be determined by how the pandemic develops and that the Fed will act with all its tools if necessary.

Sovereign rates remain at very low levels. The exceptionally dovish monetary policy being offered by both the ECB and the Fed places US and German sovereign interest rates at very low levels. On top of this, during September the increase in risk aversion plunged the sovereign rates of safe-haven countries even further, with yields on the US treasury and the German *bund* falling by 2 and 13 bps, respectively. On the other hand, risk premiums in the euro area periphery narrowed, allowing sovereign interest rates in Spain, Italy and Portugal to recover to close to their pre-pandemic levels. In the case of Spain, this occurred despite S&P Ratings downgrading the economic outlook for the sovereign rating from stable to negative, while keeping the credit rating unchanged at A (still one and two notches higher than Fitch and Moody's, respectively).

International currencies against the dollar
Index (100 = 1 January 2020)



Source: CaixaBank Research, based on data from Bloomberg.

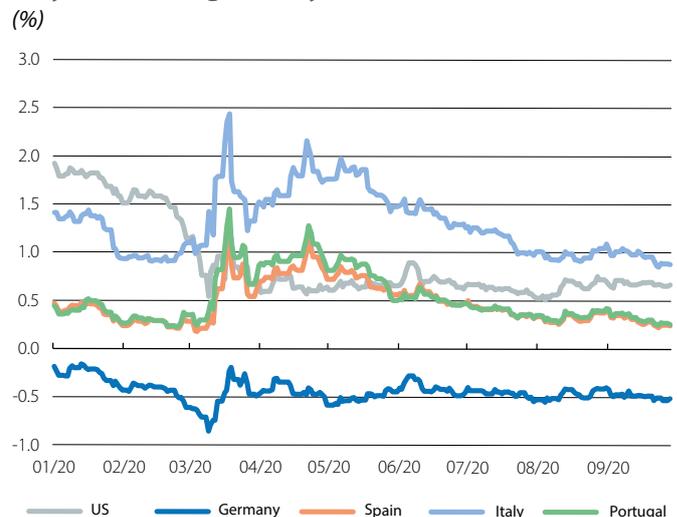
Macroeconomic forecasts of the ECB and the Federal Reserve

	2020	2021	2022
ECB			
GDP	-8.0 (-8.7)	5.0 (5.2)	3.2 (3.3)
Inflation	0.3 (0.3)	1.0 (0.8)	1.3 (1.3)
Federal Reserve			
GDP	-3.7 (-6.5)	4.0 (5.0)	3.0 (3.5)
Inflation	1.2 (0.8)	1.7 (1.6)	1.8 (1.7)
Unemployment rate	7.6 (9.3)	5.5 (6.5)	4.6 (5.5)
Official interest rate	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)

Notes: In brackets, forecasts from the June meetings. For the ECB, we show the baseline scenario. For the Fed, the median of the FOMC members is shown, referring to the year-on-year change of Q4 of the corresponding year.

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

10-year sovereign debt yields



Source: CaixaBank Research, based on data from Bloomberg.

The Fed’s new strategy

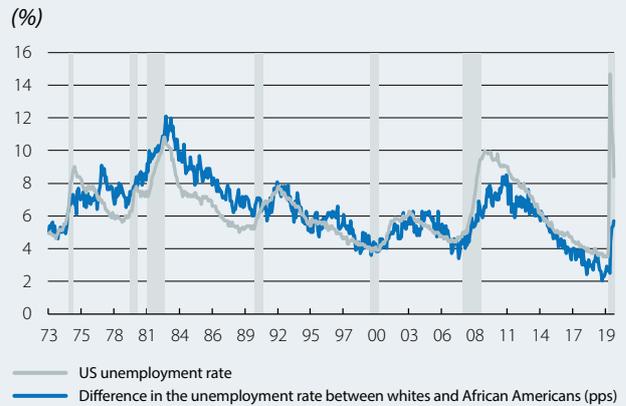
After more than a year and a half of research and debate, the US Federal Reserve has just changed the strategy that governs its monetary policy. The aim is to adjust to structural changes in the economy, such as the loss of buoyancy in productivity, the lower sensitivity of inflation to unemployment (i.e. the flattening of the Phillips curve) and the fall in the natural interest rate. With this review, the Fed is responding to these dynamics, since they determine its margin for action and thus its ability to anchor inflation expectations around its objective.¹

The new framework that will govern the Fed’s strategy

The Fed’s mandate (stable prices, maximum employment, and moderate long-term interest rates) has not changed, and neither have its objectives. What the Fed has adjusted is the strategy with which it seeks to achieve its 2% inflation target and maximum employment. In particular, from now on it will pursue an inflation rate of 2% *on average over time*. With this new strategy, the Fed has committed to temporarily tolerate inflation rates above 2% to offset periods when inflation falls below this level.² The Fed has also adjusted how it assesses the performance of the labour market throughout the economic cycle, stressing the importance of maintaining full employment for as long as possible. Under the previous framework, in contrast, the Fed feared inflationary pressures that could emerge from the labour market when the economy was in full expansion.

These adjustments are aimed at increasing the Fed’s margin for manoeuvre, on the one hand, and pursuing a more inclusive labour market, on the other. Specifically, at times like the present, when the Fed has limited room to cut rates,³ the promise of tolerating higher inflation over the coming years allows it to further reduce market interest rates by managing expectations: the Fed has expressed its intention to maintain a dovish monetary policy for longer, even when inflationary pressures begin to rise as the economy improves. Furthermore, in recent years the Fed has found that vulnerable communities and lower-income groups particularly benefit from economic expansion when the economy is in the most mature phase of the cycle. This is well illustrated in the first chart, which shows how the difference in the unemployment rate between whites and African Americans spikes during recessions and then decreases steadily until the end of the expansion. In fact, in the last expansion, although the unemployment rate suggested that the economy as a whole had reached full

US: difference between the unemployment rate among whites and African Americans (%)



Note: The shaded areas denote periods of recession according to the NBER.
Source: CaixaBank Research, based on data from Bloomberg.

employment, unemployment among African Americans and Hispanics still fell by 3.5 and 2.25 pps, respectively, while the labour participation rate among women rose by 3 pps. The Fed has also found that better labour market outcomes can be achieved without inflationary pressures arising that jeopardise price stability.

How will the Fed behave?

In the current context, dominated by disinflationary pressures and an incomplete recovery in economic activity, the Fed’s new strategic framework suggests that monetary policy will remain dovish for quite some time. To show this, we simulate a macroeconomic model of the US⁴ under the Fed’s old and new strategies. Under the old framework, the Fed takes action when expected inflation deviated from its previous medium-term inflation target of 2%. For instance, in 2015 it raised the reference rate because it believed that inflation was going to increase, despite it still lying below 2% at the time. In contrast, in order to assess the new framework, we assume that the Fed responds when the average inflation rate over the past five years deviates from the 2% target. If we focus on the last cycle of rate hikes (2015-2018), with the Fed’s new strategy it would have raised interest rates much more gradually and would have placed them 100 bps below the level they ended up at (bringing them to the 1.25-1.50% range, rather than the 2.25-2.50% range actually reached). On the other hand, if we perform a similar exercise,⁵ but looking ahead to the

1. For further details, see the Focus [«The ECB and the Fed: two mandates, one target»](#) in the MR02/2020 and the article [«The uncertainty surrounding the natural rate of interest»](#) in the Dossier of the MR03/2020.
2. While it has not made it explicitly clear, this commitment does not appear to be symmetrical: following periods with inflation above 2%, the Fed will seek to bring inflation back to 2% (and not below this level).
3. Fed’s reference rate is already at practically 0% and it has barely been able to reduce it by 150 bps. In previous recessions it started from higher levels and tended to cut rates by between 450 and 500 bps.

4. A semi-structural general equilibrium model, which in the short term is determined by aggregate demand, while in the long term aggregate supply and demand are equal.
5. The rule that simulates the Fed’s old framework is: $i_t = \rho * i_{t-1} + (1 - \rho) * [i^* + 1.5 * (\pi_t^e - 2) + (u_t^* - u_t)]$ while that of the new framework is: $i_t = \rho * i_{t-1} + (1 - \rho) * [i^* + 1.5 * (\frac{1}{20} \sum_{t-19}^t \pi_t - 2) + \min\{(u_t^* - u_t), 0\}]$, where i is the interest rate, ρ is a smoothing parameter and π is the underlying inflation of PCE, i^* is the nominal natural rate of interest according to the latest estimate by the members of the FOMC, and u_t^* and u_t are the natural rate of unemployment and the unemployment rate predicted by the Congressional Budget Office, using quarterly data.

next few years, a rule consistent with the Fed’s previous strategy would tell us that it would start raising interest rates at the end of 2023. In contrast, with the new strategy the central bank would not start raising rates until early 2025.

Nevertheless, it should be noted that the definition of the new framework is vague, so this model only gives us an indication of how the Fed may end up behaving. For instance, the Fed has not specified the period over which it will assess the average inflation target. It is also not clear how it will act if inflation deviates suddenly from the 2% target. After all, it is quite possible to have a scenario in which the average inflation rate of the last few years remains below 2% while current inflation climbs to well above 2%. How much above 2% would inflation have to be in order for the Fed to act?

Similarly, the ‘full employment’ objective must be assessed from a broad perspective. The new strategy is far from reducing monetary policy decisions to rules that are predefined by specific formulas. On the contrary, the new strategy opens the door to a greater exchange of views. Indeed, at the September meeting there were already two dissidents who preferred a different forward guidance of interest rates to the one approved. This greater flexibility also has its costs, especially if it generates uncertainty and volatility or dents the institution’s credibility.

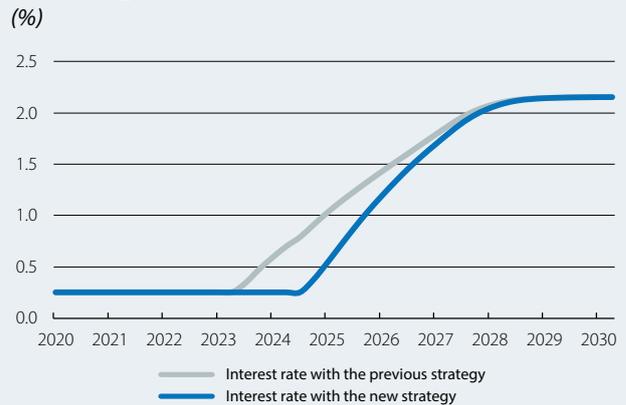
What impact will it have on the economy?

During the hours following the announcement of the new strategy, there were moderate spikes in inflation expectations in the financial markets (measured using different market prices), but they were somewhat insignificant and short-lived. This lack of reaction partly reflects the fact that the announcement did not come as a surprise to investors and was reasonably in line with their expectations. Nevertheless, it is also consistent with an outcome that is common in studies analysing the impact of inflation targets based on an average over time: macroeconomic variables behave relatively similarly under the new and old strategies.⁶

One of the major factors that will determine the new strategy’s effectiveness will be the Fed’s ability to influence expectations. In this regard, credibility will be key. If the intention to tolerate more inflation is highly credible, then the strategy will be effective in managing expectations of the Fed’s rate and thus in anchoring a low-interest-rate environment in the markets that will stimulate the economy. But credibility is a double-edged sword. If market players are not confident of the central bank’s ability to generate more inflation in the future, and if expectations fail to react to the new strategy, then the desired stimulus will not be achieved and the normalisation process will be slower.

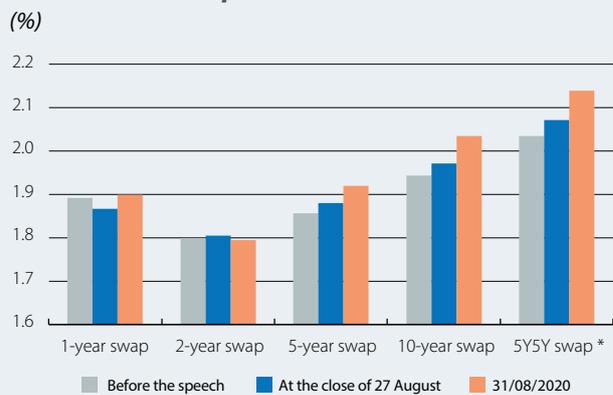
6. With the current expectation of such low interest rates, the fact that the first rate hike is postponed by, say, a year has little impact on the actual variables today. See D. Reifschneider and D. Wilcox (2019). «Average Inflation Targeting Would Be a Weak Tool for the Fed to Deal with Recession and Chronic Low Inflation». Policy Briefs PB19-16. Peterson Institute for International Economics. Our simulations produce a similar result.

US: expected Federal Reserve interest rate according to different Taylor rules



Note: The rule that simulates the Fed’s old framework is: $i_t = \rho * i_{t-1} + (1-\rho) * [i^* + 1,5 * (\pi_t^e - 2) + (u_t^* - u_t)]$ while that of the new framework is: $i_t = \rho * i_{t-1} + (1-\rho) * [i^* + 1,5 * (\frac{1}{20} \sum_{j=0}^{19} \pi_{t-j}^e - 2) + \min \{ (u_t^* - u_t), 0 \}]$.
Source: CaixaBank Research, based on data from the Congressional Budget Office.

US: inflation swaps at different maturities



Notes: Powell gave his speech at 3:10pm on Thursday 27 August, so the grey column shows the market price at 3:00pm. * Inflation over 5 years, 5 years from now.
Source: CaixaBank Research, based on data from Bloomberg.

Lessons for other central banks

Central banks’ objectives have changed over time, and monetary policy has adjusted to each period. In the 1980s, the main enemy of central banks was inflation, and monetary policy managed to create tools to control it. Now, after various structural changes in the economy, the new challenge is low inflation, so the tools and strategies must be adapted once again. The Fed has been the first to take steps, albeit with changes that are clearly more gradual than radical. Nevertheless, it does offer two clues for other central banks that are currently revising their strategies (such as the ECB): the willingness to tolerate a little more inflation and to base their monetary policy more heavily on observed data rather than model-based projections.

Màxim Ventura Bolet, Ricard Murillo Gili and Eduard Llorens i Jimeno

Interest rates (%)

	30-Sep.	31-Aug.	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Euro area					
ECB Refi	0.00	0.00	0	0.0	0.0
3-month Euribor	-0.50	-0.48	-2	-11.5	-7.5
1-year Euribor	-0.44	-0.38	-6	-19.4	-10.7
1-year government bonds (Germany)	-0.60	-0.54	-5	3.6	8.4
2-year government bonds (Germany)	-0.70	-0.65	-5	-10.0	7.9
10-year government bonds (Germany)	-0.52	-0.40	-13	-33.7	6.4
10-year government bonds (Spain)	0.25	0.41	-16	-22.0	11.6
10-year government bonds (Portugal)	0.26	0.42	-16	-17.9	12.2
US					
Fed funds	0.25	0.25	0	-150.0	-175.0
3-month Libor	0.23	0.24	-1	-167.5	-179.3
12-month Libor	0.36	0.45	-9	-163.6	-149.3
1-year government bonds	0.12	0.11	1	-144.9	-146.4
2-year government bonds	0.13	0.13	0	-144.2	-127.7
10-year government bonds	0.68	0.70	-2	-123.4	-84.5

Spreads corporate bonds (bps)

	30-Sep.	31-Aug.	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Itraxx Corporate	60	54	5	15.6	1.7
Itraxx Financials Senior	78	61	17	26.7	10.5
Itraxx Subordinated Financials	154	129	25	40.0	10.8

Exchange rates

	30-Sep.	31-Aug.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
EUR/USD (dollars per euro)	1.172	1.194	-1.8	4.5	6.8
EUR/JPY (yen per euro)	123.650	126.410	-2.2	1.5	5.3
EUR/GBP (pounds per euro)	0.907	0.893	1.6	7.2	1.8
USD/JPY (yen per dollar)	105.480	105.910	-0.4	-2.9	-1.4

Commodities

	30-Sep.	31-Aug.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
CRB Commodity Index	406.0	394.8	2.8	1.1	4.5
Brent (\$/barrel)	41.0	45.3	-9.6	-38.0	-29.8
Gold (\$/ounce)	1,885.8	1,967.8	-4.2	24.3	25.3

Equity

	30-Sep.	31-Aug.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
S&P 500 (USA)	3,363.0	3,500.3	-3.9	4.1	13.9
Eurostoxx 50 (euro area)	3,193.6	3,272.5	-2.4	-14.7	-7.3
Ibex 35 (Spain)	6,716.6	6,969.5	-3.6	-29.7	-25.1
PSI 20 (Portugal)	4,067.0	4,301.1	-5.4	-22.0	-17.1
Nikkei 225 (Japan)	23,185.1	23,139.8	0.2	-2.0	8.3
MSCI Emerging	1,082.0	1,101.5	-1.8	-2.9	8.6

The global economy, at 95%

All the indicators suggest an incomplete recovery of the global economy in Q3. Pending the publication of GDP data for Q3 2020, the information currently available suggests that the global economy will have rebounded significantly compared to Q2, but that the recovery will still be far from complete. Whether it is data on mobility, industrial production, consumption or economic sentiment, when viewed together the various indicators suggest that the recovery is incomplete and, in recent weeks, the latest data suggest a certain stagnation. The global economy has remained at 95%. The scale of this unprecedented economic shock, the enormous uncertainty it entails and the persistence of the pandemic stand in the way of a complete and rapid recovery. The pandemic will thus remain the major determining factor for the economic scenario over the coming quarters and will continue to dictate economic activity until an effective vaccine and/or treatment is available. In this regard, our forecasts anticipate that global GDP will fall by around 4.5% in 2020, before recovering in 2021.

ADVANCED ECONOMIES

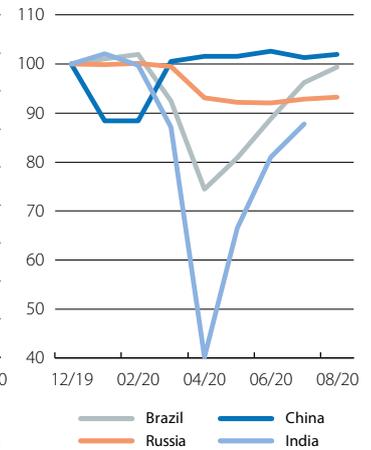
While there are differences between countries, on the whole advanced economies have followed a similar path in Q3: an initial recovery that has gradually lost strength during the quarter. In recent weeks, economic activity indicators such as the PMIs for August and September reflect a loss of buoyancy in the recovery (even stagnation) in the face of the rise in new coronavirus infections. In Europe, there is a resurgence of COVID-19 cases and the number of new daily infections has exceeded that of the US, which thus far has been one of the most concerning focal areas of the pandemic. This rise in cases has already led some countries to tighten measures to contain the virus. Although the situation is being managed with specific and more localised measures, uncertainty remains high and is weighing down the economy, despite the large number of measures taken by governments in advanced economies to help businesses and workers.

In the euro area, the collapse in economic activity in Q2 has given way to a partial recovery in Q3. The GDP declines registered in the main euro area countries in the second quarter of the year were unprecedented since the Second World War (in quarter-on-quarter terms, -11.8% for the euro area as a whole, -9.7% in Germany, -13.8% in France, -12.8% in Italy, and -17.8% in Spain). To the extent that these falls reflected the impact of the lockdown in spring, the lifting of the mobility restrictions has been accompanied by a marked rebound in European economic activity. Nevertheless, the underlying picture remains one of an incomplete and gradual revival. In fact, in the closing weeks of Q3, euro area economic activity indicators reflect a slowdown in the recovery. In particular, the strong rebound in retail sales following the

Advanced economies: industrial production
Index (100 = December 2019)



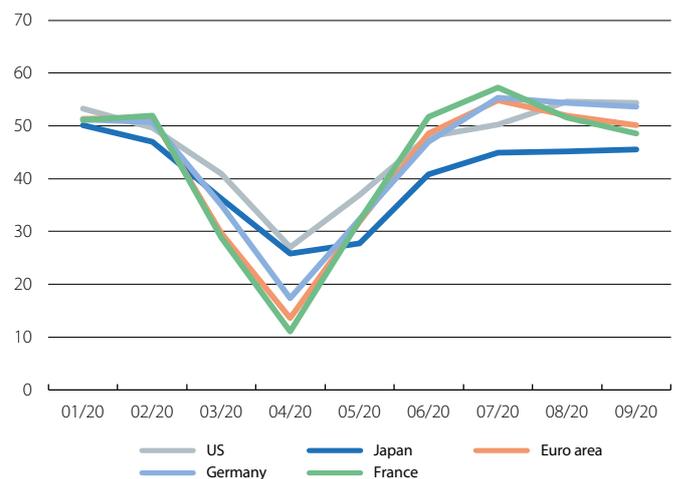
Emerging economies: industrial production
Index (100 = December 2019)



Source: CaixaBank Research, based on data from Refinitiv.

Advanced economies: composite PMI

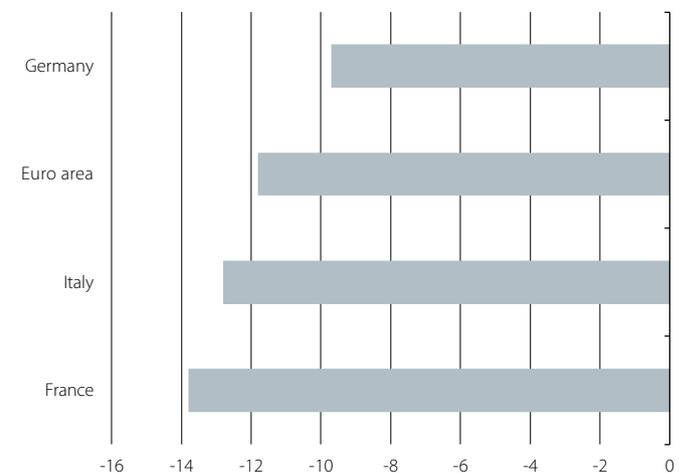
Level



Source: CaixaBank Research, based on data from Markit.

European Union: GDP

Quarter-on-quarter change (%), Q2 2020



Source: CaixaBank Research, based on data from Eurostat.

lifting of the lockdown during the summer has lost strength in recent months (they fell by 1.3% month-on-month in July in the euro area as a whole) and in some countries they still remain below the level of February (for instance, Italy's retail sales in July were around 13% below the February level). Unemployment continues to rise too (albeit very slowly, thanks to the widespread use short-time work compensation schemes) and the euro area's unemployment rate reached 8.1% in August (+0.9 pps *versus* its pre-pandemic level). Finally, the severity of the economic scenario is also reflected in inflation figures that remain very weak: in September, headline inflation fell to -0.3% year-on-year, while core inflation shrunk to +0.2% (the lowest core inflation figure in euro area history).

Recalibration of the euro area macroeconomic forecasts.

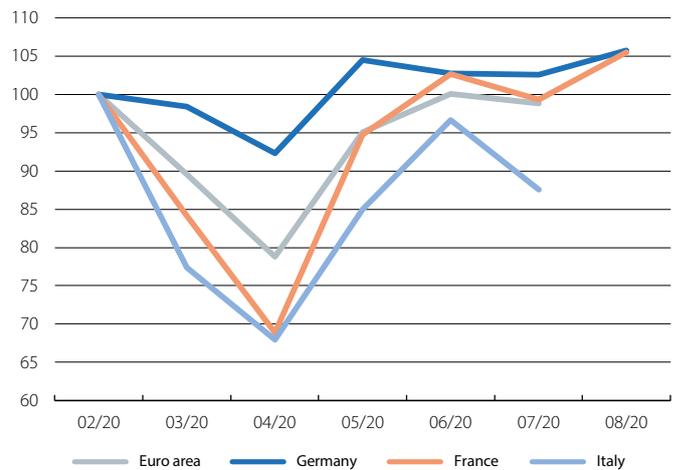
A smaller than expected drop in economic activity in Q2, together with the evident slowdown in the recovery at the end of Q3, has led us to recalibrate our macroeconomic forecasts for the euro area. In 2020, we now anticipate a fall in GDP of 8.2% in the euro area (versus a previous forecast of -10.4%). This revision is comparable by country: up to -5.8% in Germany (previously -7.3%), -11.5% in France (previously -12.9%), and up to -10.8% in Italy (previously -14.0%). Nevertheless, economic activity in the euro area is not expected to return to its pre-crisis level until 2023. In this regard, policies to boost the recovery and the transformation of the economy will be key (see the Focus «The effectiveness of fiscal policy in times of COVID» at www.caixabankresearch.com). Given how crucial EU support will be in this phase, the approval of the SURE programme is a very positive development. According to the agreement ratified in September, this European fund will disburse some 87 billion euros in the form of loans to European countries to help finance their national temporary workforce reduction programmes.

In the US, the recovery in economic activity in Q3 is showing more resilience, despite the persistence of the virus. The decline in GDP in Q2 (of 9.1% quarter-on-quarter) may be much greater than the contraction suffered during the Great Recession, but it is lower than that endured by other advanced economies, largely due to the country's less stringent lockdown. However, the US remains one of the main focal areas of the pandemic, with over 40,000 new cases every day. Therefore, although the composite PMI remains comfortably above the 50-point threshold (54.4 in September), consumer confidence (which also continues to recover) remains low. Specifically, in September the consumer confidence index stood at 101.8 points, still below the level of February (132.6). Similarly, the New York Federal Reserve's high-frequency economic index was practically stuck at -5% throughout September, and for Q3 as a whole it suggests that GDP will have been around -6% below its level in Q3 2019.

The high uncertainty surrounding the political environment in the US compounds economic uncertainty. In its latest forecasts for the US economy, the Fed highlighted the high

Retail sales

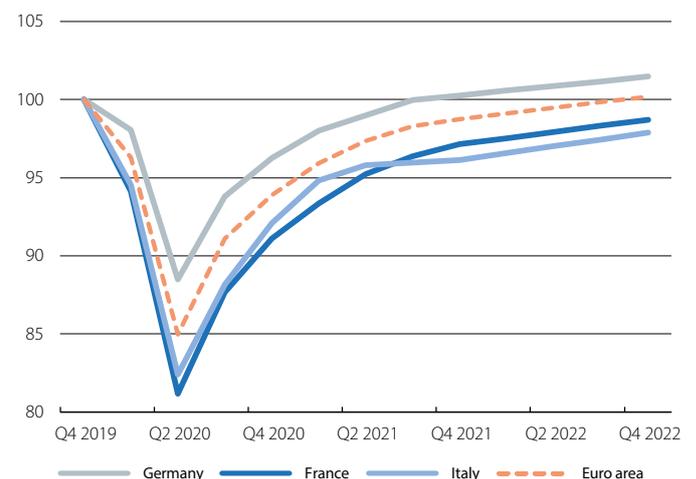
Index (100 = February 2020)



Source: CaixaBank Research, based on data from Eurostat.

Euro area: GDP forecasts

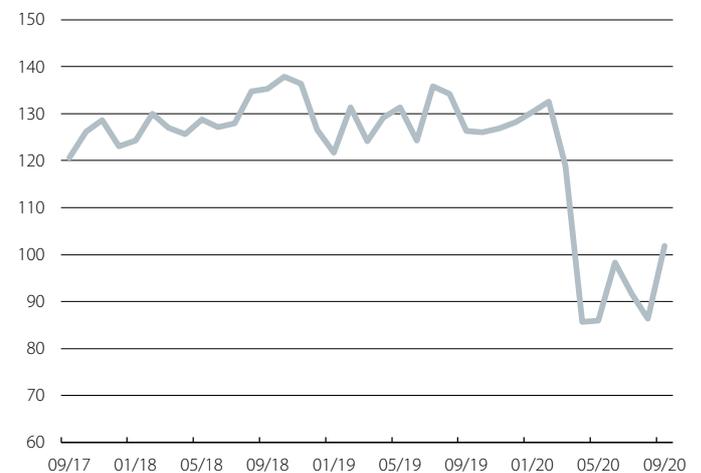
Index (100 = Q4 2019)



Source: CaixaBank Research, based on data from Eurostat.

US: consumer confidence index

Index



Source: CaixaBank Research, based on data from the Conference Board.

degree of uncertainty surrounding the economic scenario. This uncertainty is well illustrated by the disparity between the Q3 growth figures predicted by the GDP forecast models of the Atlanta Fed and the New York Fed: 32.0% annualised quarter-on-quarter growth in the case of the former, compared to 14.1% in the latter. In addition, the uncertainty over how the pandemic will develop is compounded by the political uncertainty in the US, with the presidential and congressional elections just around the corner (on 3 November) and tough negotiations that lie ahead on a potential new fiscal package. Such a fiscal package would come in addition to the measures already approved to date, which amount to around 15% of GDP (9% in direct spending measures and 6% in guarantees and other liquidity-related measures).

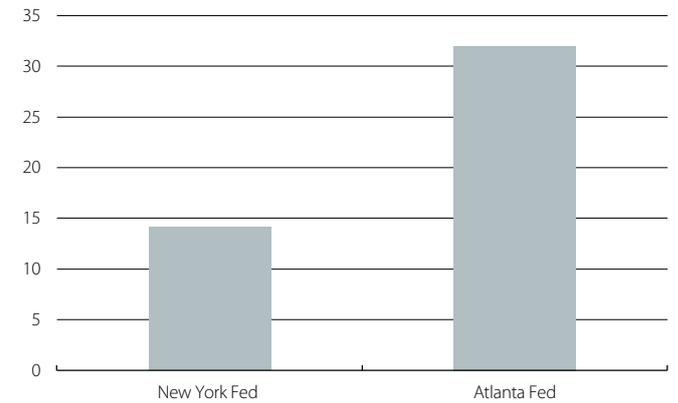
EMERGING ECONOMIES

The recovery is proving highly uneven among emerging economies. As was evident in the GDP data for Q2, the initial impact of the COVID-19 crisis on emerging economies was highly varied and largely dependent on the macroeconomic imbalances that existed prior to the shock (inflation, budget deficit, private debt, etc.) and the degree of exposure to the most active outbreaks of the pandemic. Similarly, with the recovery underway, the intensity of the recovery also differs from country to country. In Turkey and Brazil, where the drop in GDP in Q2 was somewhat less dramatic (-9.9% and -11.4% year-on-year, respectively), the PMI suggests an improvement in economic activity in recent months. In Mexico, however, the PMI remains well below the 50-point threshold separating contractionary from expansionary territory, and it has shown little improvement in recent months. On the other hand, India's economy, which suffered one of the biggest contractions among the world's large countries (-23.9% year-on-year), is still showing signs of significant weakness.

China, meanwhile, continues to recover, although there are differences between sectors. China was the first country to suffer the economic shock of the COVID-19 outbreak, and it is also the country that has been in the economic recovery phase for the longest. In fact, industrial production has been growing again in year-on-year terms since April, at a time when most countries were tightening measures to contain the virus. On the other hand, retail sales, which in recent years were growing faster than industrial production, only returned to positive year-on-year growth in August (0.5%), an indication of how the pandemic and the uncertainties it entails continue to weigh down consumption.

US: Q3 growth forecasts

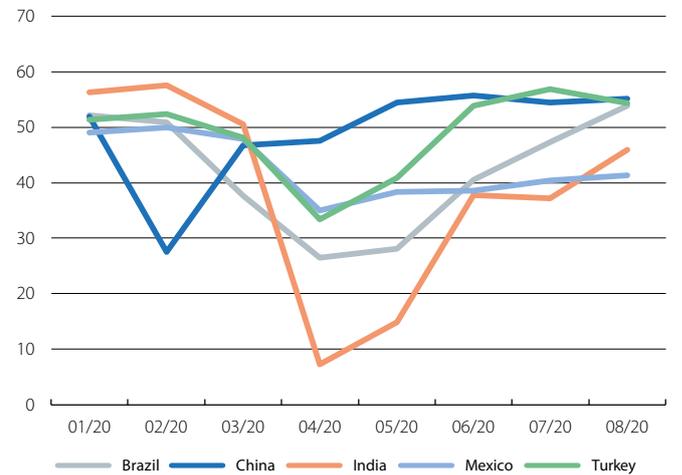
Annualised quarter-on-quarter change (%)



Source: CaixaBank Research, based on data from the New York Fed and the Atlanta Fed.

Emerging economies: composite PMI

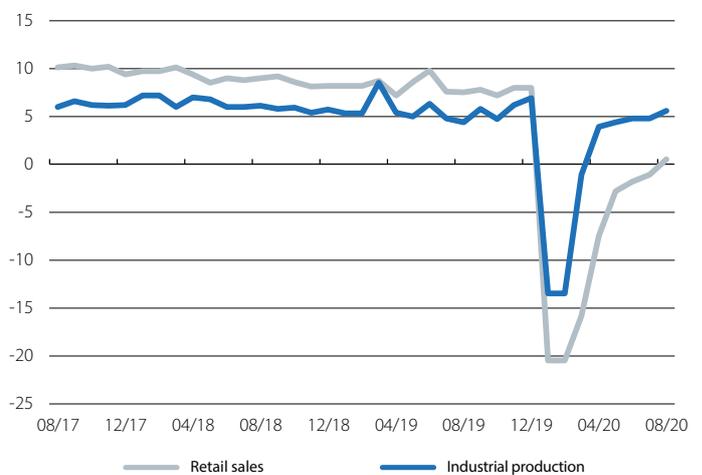
Level



Note: Composite PMI for Brazil, China and India and manufacturing PMI for Mexico and Turkey. Source: CaixaBank Research, based on data from Markit.

China: retail sales and industrial production

Year-on-year change (%)



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

The macroeconomic fragility of interest rates

- The unprecedented blow that the COVID-19 crisis has dealt to the economy lies in stark contrast with the current low interest rates and risk premiums. Nevertheless, the macroeconomic fundamentals remain good indicators of the interest rates observed in the market.
- We estimate that the deterioration in these fundamentals would have applied substantial upward pressure to rates across the euro area. This pressure, which has not materialized in the market, serves as a measure of the success of economic policy, but also as a reminder of how important it is for economic policy to remain active over the coming quarters.

In 2020, European economies will endure a fall in GDP far worse than any other in their modern history. Moreover, it will be accompanied by a very sharp rise in government debt, which will raise public debt ratios to new all-time highs.¹ However, despite this unprecedented deterioration in the economy caused by the COVID-19 pandemic, the financing cost of public debt is almost at an all-time low: in September, Germany and France's 10-year sovereign interest rates were even negative (–0.5% and –0.2%), while Spain and Portugal's rates were slightly below 0.3%. To what extent can the macroeconomic fundamentals explain these interest rate levels?

Interest rates and macroeconomic fundamentals

Public debt yields depend on the macroeconomic fundamentals of the country in question and on the global environment. For instance, a state's payment capacity depends on its level of indebtedness, as well as on expectations about its public surplus or deficit and the future growth of the economy. Furthermore, the situation of the European economy as a whole determines the monetary policy that is set by the ECB, which it uses to influence the many different types of interest rates. Global factors also play an important role (for example, interest rates in other economies, which offer an alternative investment opportunity), as does investors' risk appetite. With all these ingredients, and based on the historical relationships between them, we can estimate the sovereign interest rate that is consistent with the macroeconomic fundamentals: the so-called «macro rate».²

The first chart illustrates that macro fundamentals often serve as good indicators of market interest rates. However, in recent years there are two important periods of divergence: in 2020, with the COVID-19 outbreak, and in

10-year European sovereign debt yield* (%)



Notes: * Weighted average of Germany, Austria, Belgium, Spain, France, Ireland, Italy, the Netherlands and Portugal. ** Interest rate predicted by the macroeconomic fundamentals (global financial conditions, ECB monetary policy, public debt, and growth and inflation expectations) and estimated based on historical relationships up until the end of 2014.
Source: CaixaBank Research, based on data from Refinitiv, Eurostat and Consensus Economics.

2015, with the start of the ECB's unconventional monetary policy that resulted in interest rates remaining persistently below the macro rate. However, this divergence from 2015 onwards is somewhat expected, since our macro rate does not include the asset-purchasing programmes initiated by the ECB five years ago as part of the macroeconomic fundamentals. However, after years of unconventional monetary policy and with the prospect of these tools remaining very much active over the coming years, it is useful to incorporate the ECB's unconventional measures into our macro rate estimate.³

As the second chart shows, including unconventional monetary policy as one of the macroeconomic fundamentals helps us to better explain the decline in market interest rates in recent years. However, with the COVID-19 outbreak we continue to see a marked decoupling between the observed rates and macro rates. Specifically, the macro rate for the euro area as a whole suggests that the deterioration in the macroeconomic fundamentals should have led to an increase in the euro area's sovereign interest rate of around 100 bps greater than that observed.^{4,5}

1. The forecasts of the consensus of analysts suggest an increase in the public debt ratio in 2020 of more than 15 pps for the euro area as a whole. According to historical data collected by the IMF, which dates back to the mid-19th century, this will lead to new highs in the debt of countries such as Germany, Italy and Portugal. This is not the case for Spain and France because, more than 100 years ago, they had achieved ratios of 160% and 240%, respectively.

2. We estimate a panel regression for the 10-year sovereign rates of Germany, Austria, Belgium, Spain, France, Ireland, Italy, the Netherlands and Portugal with the following explanatory variables: expectations on the 3-month Euribor, real GDP growth and inflation, the ratio of public debt to GDP, an indicator of stock market volatility, the 10-year US sovereign rate and an indicator of euro area stress (a binary variable that equals 1 if a sovereign risk premium becomes significantly stressed). Initially, to avoid considering the ECB's unconventional monetary policy as one of the fundamental factors, we estimate the regression with data for the period between 2000 and 2014.

3. We re-estimate the regression of the previous note, including data up until the beginning of 2020 and adding the asset purchases that the ECB has amassed on its balance sheet since 2015 as another of the explanatory variables.

4. An ECB estimate concludes that the monetary measures taken between March and June would have reduced the euro area's sovereign rate by 45 bps. See J. Hutchinson and S. Mee «The impact of the ECB's monetary policy measures taken in response to the COVID-19 crisis», Economic Bulletin 5/2020, ECB.

In fact, this decoupling can be interpreted as a measure of the success of the economic policy response and, in particular, of the ECB's decisive action and the EU's shared fiscal effort.⁶ A good demonstration of this can be found in how risk premiums in the euro area periphery have behaved. The third and fourth charts show how the initial surge in periphery risk premiums in the market was reasonably consistent with that projected by the macro rate and, therefore, by the deterioration in the macroeconomic fundamentals. However, there was a widespread retreat in stress levels following the ECB's battery of announcements throughout the spring and the EU's various fiscal packages.

Among the EU's various shared fiscal measures, one of the most positive developments for risk premiums has been the agreement to issue European debt backed by the EU budget. Although the issuance of European debt will not begin until 2021, this agreement sends an important signal of commitment to the European integration project, which reduces the perception of sovereign risk and helps to keep sovereign risk premiums down. Nevertheless, it should also be borne in mind that the issuance of European debt will increase the supply of high-quality bonds which, in the medium term (2023-2024 according to some estimates)⁷ could lead to an increase in financing costs for states with a lower credit rating due to the increased competition when vying for purchasers of debt.

Finally, the current environment is so demanding that, despite the decisive steps taken by economic policy to date, policymakers cannot afford to lower their guard. The discrepancy between the observed market interest rate and the macro rate is not only a measure of their success: it also tells us that, without ambitious action, we would be observing substantially higher interest rates and risk premiums in the market, in some cases even approaching levels that could fuel doubts about the sustainability of public debt.⁸

Adrià Morron Salmeron

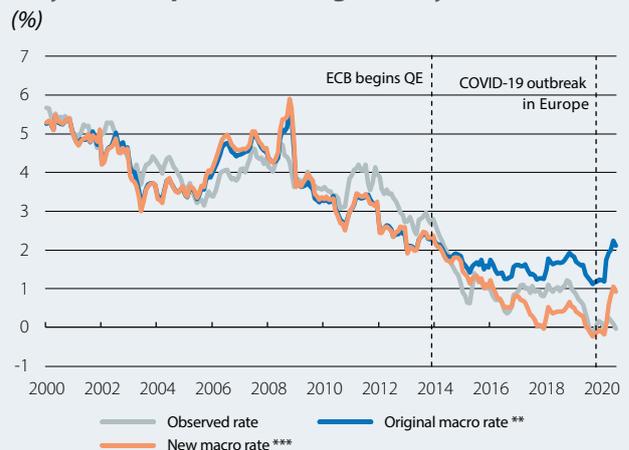
5. In the second chart, the rebound in the macro rate which incorporates the ECB's unconventional policy is somewhat higher than that of the original macro rate. The reason for this is that the sensitivity of interest rates to changes in growth and inflation expectations has increased since 2015. This could reflect the fact that they serve as an indirect measure of expectations as to whether the ECB will withdraw or intensify its asset purchases, which have had such a significant impact on market interest rates.

6. For a summary of both actions, see the notes «El Consejo Europeo llega a un acuerdo histórico sobre el Plan de Recuperación Europeo» and «Gracias a una actuación contundente, el BCE respira y se da un tiempo» at www.caixabankresearch.com.

7. See Miguel Carrión Álvarez (2020). «The EU recovery plan: funding arrangements and their impacts». Funcas.

8. We analysed the sensitivity of public debt to changes in interest rates in the Focus, «Should we be concerned about the sustainability of public debt in the euro area?» in the MR05/2020.

10-year European sovereign debt yield * (%)



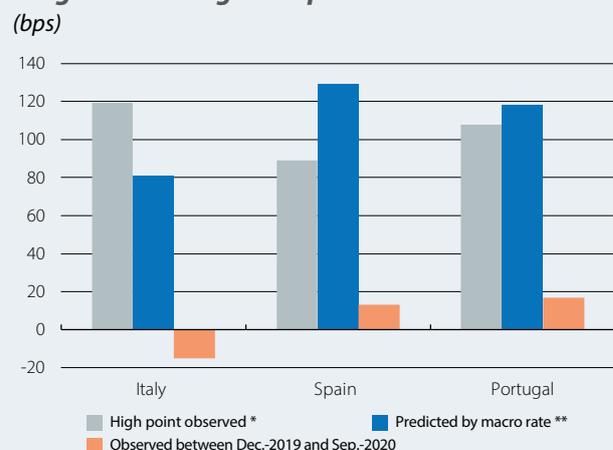
Notes: * Weighted average of Germany, Austria, Belgium, Spain, France, Ireland, Italy, the Netherlands and Portugal. ** Interest rate predicted by the macroeconomic fundamentals (global financial conditions, conventional ECB monetary policy, public debt, and growth and inflation expectations) and estimated based on historical relationships up until the end of 2014. *** We add the ECB's asset purchases as a new fundamental and re-estimate the macro rate based on the historical relationships up until the beginning of 2020. Source: CaixaBank Research, based on data from Refinitiv, Eurostat and Consensus Economics.

Sovereign risk premium for 10-year peripheral debt * (bps)



Notes: * Weighted average for Spain, Ireland, Italy and Portugal. ** Risk premium predicted by the macroeconomic fundamentals (global financial conditions, conventional and unconventional ECB monetary policy, public debt, and growth and inflation expectations) and estimated based on historical relationships up until the beginning of 2020. Source: CaixaBank Research, based on data from Refinitiv, Eurostat and Consensus Economics.

Surge in sovereign risk premiums (bps)



Notes: * Difference between the highest risk premium observed (with daily closing data) during March, April and May 2020 compared to that observed on 31 December 2019. ** Difference between the risk premium predicted by the macroeconomic fundamentals as of December 2019 and July 2020. Source: CaixaBank Research, based on data from Refinitiv, Eurostat and Consensus Economics.

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

UNITED STATES

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Activity									
Real GDP	3.0	2.2	2.1	2.3	0.3	-9.0	-	-	-
Retail sales (excluding cars and petrol)	4.7	3.9	4.2	4.0	3.1	-4.9	3.0	3.5	4.0
Consumer confidence (value)	130.1	128.3	132.1	127.0	127.3	90.0	98.3	91.7	86.3
Industrial production	3.9	0.9	0.2	-0.7	-1.9	-14.4	-10.7	-7.4	-7.7
Manufacturing activity index (ISM) (value)	58.9	51.2	49.4	48.1	50.0	45.7	52.6	54.2	56.0
Housing starts (thousands)	1,248	1,295	1,288	1,433	1,484	1,079	1,265	1,492	1,416
Case-Shiller home price index (value)	211	217	217	219	222	223	223	225	...
Unemployment rate (% lab. force)	3.9	3.7	3.6	3.5	3.8	13.0	11.1	10.2	8.4
Employment-population ratio (% pop. > 16 years)	60.4	60.8	60.9	61.0	60.8	52.9	54.6	55.1	56.5
Trade balance ¹ (% GDP)	-2.2	-2.7	-2.9	-2.7	-2.6	-2.7	-2.7	-2.8	...
Prices									
Headline inflation	2.4	1.8	1.8	2.0	2.1	0.4	0.6	1.0	1.3
Core inflation	2.1	2.2	2.3	2.3	2.2	1.3	1.2	1.6	1.7

JAPAN

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Activity									
Real GDP	0.3	0.7	1.7	-0.7	-1.9	-10.1	-	-	-
Consumer confidence (value)	43.6	38.9	37.1	38.1	36.0	24.7	28.4	29.5	29.3
Industrial production	1.0	-2.7	-1.9	-6.7	-4.3	-20.5	-21.0	-14.7	-11.7
Business activity index (Tankan) (value)	20.8	6.0	5.0	0.0	-8.0	-34.0	-	-	-27.0
Unemployment rate (% lab. force)	2.4	2.4	2.3	2.3	2.4	2.8	2.8	2.9	3.0
Trade balance ¹ (% GDP)	-0.2	-0.3	-0.4	-0.3	-0.2	-0.5	-0.5	-0.7	-0.5
Prices									
Headline inflation	1.0	0.5	0.3	0.5	0.5	0.1	0.1	0.3	0.2
Core inflation	0.3	0.6	0.6	0.7	0.7	0.3	0.4	0.4	-0.1

CHINA

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Activity									
Real GDP	6.7	6.1	6.0	6.0	-6.8	3.2	-	-	...
Retail sales	9.0	9.0	7.6	7.7	-18.2	-4.0	-1.8	-1.1	0.5
Industrial production	6.2	5.8	5.0	5.9	-7.3	4.4	4.8	4.8	5.6
PMI manufacturing (value)	50.9	49.7	49.7	49.9	45.9	50.8	50.9	51.1	51.0
Foreign sector									
Trade balance ^{1,2}	352	421	426	421	361	412	...	...	...
Exports	9.9	0.5	-0.3	1.9	-13.4	0.1	0.5	7.2	9.5
Imports	15.8	-2.7	-6.2	3.4	-3.0	-9.7	2.7	-1.4	-2.1
Prices									
Headline inflation	2.1	2.9	2.9	4.3	5.0	2.7	2.5	2.7	2.4
Official interest rate ³	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Renminbi per dollar	6.6	6.9	7.0	7.0	7.0	7.1	7.1	7.0	6.9

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

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

EURO AREA

Activity and employment indicators

Values, unless otherwise specified

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Retail sales (year-on-year change)	1.6	2.3	2.7	2.0	-1.1	-6.9	-2.6	1.3	0.4
Industrial production (year-on-year change)	0.7	-1.3	-1.6	-2.1	-5.8	-20.3	-20.4	-12.0	-7.7
Consumer confidence	-4.9	-7.1	-6.8	-7.6	-8.8	-18.5	-18.8	-14.7	-15.0
Economic sentiment	111.5	103.1	102.0	100.6	100.0	69.4	67.5	75.8	82.4
Manufacturing PMI	55.0	47.4	46.4	46.4	47.2	40.1	39.4	47.4	51.8
Services PMI	54.5	52.7	52.8	52.3	43.8	30.3	30.5	48.3	54.7
Labour market									
Employment (people) (year-on-year change)	1.5	1.2	1.2	1.1	0.4	-2.9	-0.1	-	-
Unemployment rate (% labour force)	8.2	7.6	7.5	7.4	7.3	7.6	7.6	7.8	8.0
Germany (% labour force)	3.4	3.1	3.0	3.2	3.6	4.2	4.2	4.3	4.4
France (% labour force)	9.0	8.5	8.5	8.2	7.8	7.1	6.9	6.6	7.1
Italy (% labour force)	10.6	9.9	9.6	9.5	9.1	8.5	8.7	9.4	9.8
Real GDP (year-on-year change)	1.9	1.2	1.4	1.0	-3.2	-14.7	-	-	-
Germany (year-on-year change)	1.6	0.6	0.8	0.4	-2.2	-11.3	-	-	-
France (year-on-year change)	1.7	1.2	1.6	0.8	-5.7	-18.9	-	-	-
Italy (year-on-year change)	0.7	0.3	0.5	0.1	-5.6	-17.7	-	-	-

Prices

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
General	1.8	1.2	1.0	1.0	1.1	0.2	0.1	0.3	0.4
Core	1.2	1.2	1.1	1.3	1.3	1.1	1.2	1.1	1.3

Foreign sector

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Current balance	3.0	2.4	2.3	2.4	2.1	2.3	2.2	2.3	...
Germany	7.4	7.1	6.9	7.1	7.1	6.7	6.6	6.8	...
France	-0.6	-0.7	-0.7	-0.7	-0.8	-1.8	-1.7	-2.1	...
Italy	2.5	3.0	2.6	3.0	3.1	2.8	2.7	2.8	...
Nominal effective exchange rate¹ (value)	95.1	92.4	92.5	91.4	91.2	93.4	93.0	94.1	94.9

Credit and deposits of non-financial sectors

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Private sector financing									
Credit to non-financial firms ²	3.9	3.8	3.9	3.5	3.9	7.0	7.3	7.1	7.1
Credit to households ^{2,3}	3.0	3.4	3.4	3.5	3.6	3.0	3.0	3.0	3.0
Interest rate on loans to non-financial firms ⁴ (%)	1.2	1.2	1.1	1.2	1.1	1.2	1.2	1.2	1.2
Interest rate on loans to households for house purchases ⁵ (%)	1.6	1.5	1.5	1.4	1.4	1.4	1.5	1.4	1.4
Deposits									
On demand deposits	7.9	8.0	8.6	8.8	9.3	12.9	13.0	13.1	14.1
Other short-term deposits	-1.5	0.3	0.7	0.3	-0.2	0.4	0.7	0.8	1.4
Marketable instruments	-4.2	-1.9	0.1	-3.3	3.8	7.2	6.3	9.2	11.4
Interest rate on deposits up to 1 year from households (%)	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2

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

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

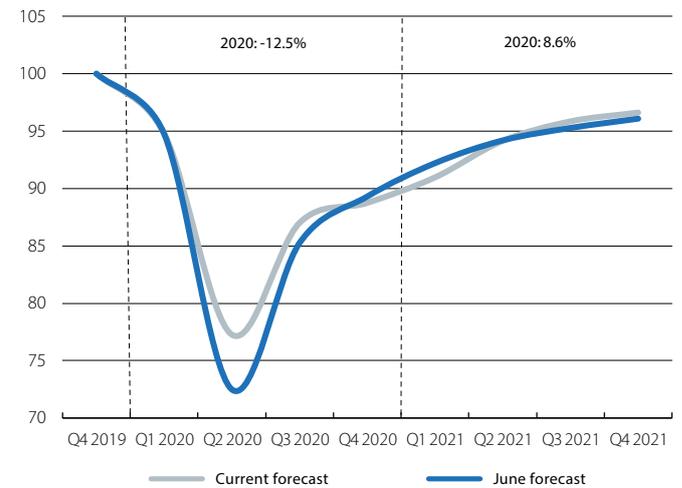
Notable but incomplete revival in activity

The economy experiences a revival, but the pandemic will continue to set the pace for activity. The indicators available to date show us that the Spanish economy has experienced a significant revival since the lockdown was lifted. Furthermore, the National Statistics Institute revised its GDP estimate for Q2 2020 up to -17.8% quarter-on-quarter. The economic impact of the lockdown was thus somewhat less than anticipated, which leads us to recalibrate our 2020 GDP growth forecast from -14.0% to -12.5%. Nevertheless, the increased level of mobility following the return from holidays and with the start of the new school year refocuses all the attention on how the pandemic will develop. Our macroeconomic forecasts are compatible with the emergence of new outbreaks, which are expected to be controlled with specific and localised measures, as the data currently suggest. In the last month, the number of infections confirmed by PCR test has stood at around 8,000 cases a day, a rate similar to at the peak between March and April. However, the current infection rate is not putting the same level of strain on the health system because most cases are asymptomatic or less severe. Moreover, as the mobility data show, the measures being taken to combat the new outbreaks are not impeding the return to activity that we are witnessing throughout the country. Nevertheless, uncertainty surrounding the economic forecasts remains very high, as they crucially depend on how the pandemic will develop.

The improvement in economic activity has been highly asymmetrical between sectors. The latest indicators show that, while economic activity has gradually returned to normal, the recovery process is still far from over. The recovery is also proving to be disparate depending on the sector. In particular, while the PMI index for the manufacturing sector stood at 50.8 points in September, placing it in expansionary territory and well above the low of 30.8 points registered in April, the counterpart indicator for the services sector fell by 5.3 points to 42.4 points, due to the impact of the rise in coronavirus infections worldwide. In July, industrial production fell by 6.4% year-on-year, clearly less than the -14.3% decline of the previous month. In August, retail sales fell by 2.4% year-on-year, a slightly lower decline than in the previous month (-3.9%) but much lower than that registered at the height of the crisis (-31.6%). Finally, in September, total card spending registered on CaixaBank POS terminals and cash withdrawals showed a decrease of 12% year-on-year, a slightly lower drop than in the previous month (-9%). By component, in-person consumer spending by Spanish residents performed particularly well, standing 4% above the level of September 2019. This contrasts with the performance of spending by foreigners, which still registered a drop of around 70% year-on-year. This latter figure is a sign of the difficulties that the tourism sector is enduring, as it is bearing the full brunt of the pandemic's impact on confidence and economic activity. Once we compile all the information from these indicators together, our Nowcasting GDP forecast model gives us a GDP growth forecast for Q3 2020 around 12% quarter-on-quarter.

The recovery of the labour market continues. Social Security affiliation continued to show encouraging data in September, with an increase in the number of registered workers (+84,000 people, bringing the total figure to 18.87 million). This is the

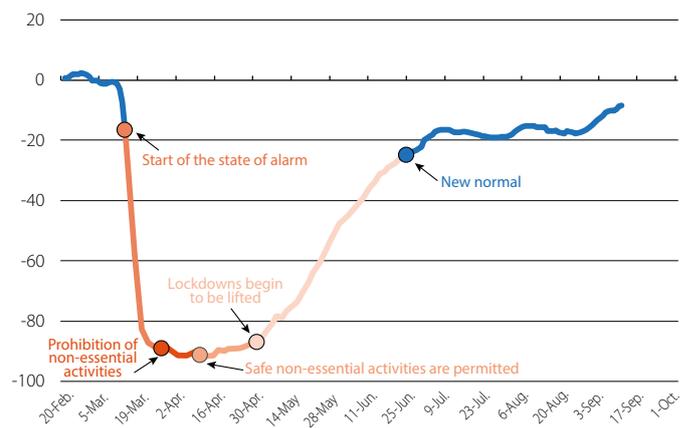
Spain: changes in real GDP
Index (100 = Q4 2019)



Source: CaixaBank Research.

Mobility of the population in retail

Change relative to the baseline level * (%)

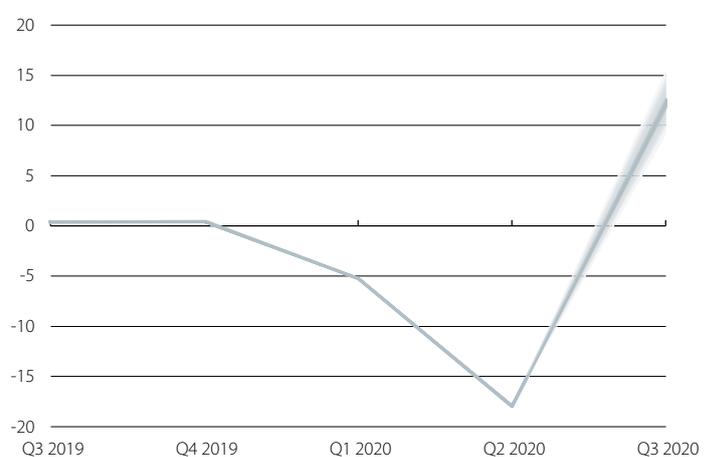


Notes: 7-day average figures. * The baseline level corresponds to the average mobility recorded on the same day of the week between 3 January and 6 February.

Source: CaixaBank Research, based on data from Google Mobility Report.

Spain: GDP

Quarter-on-quarter change (%)



Note: 90% confidence interval.

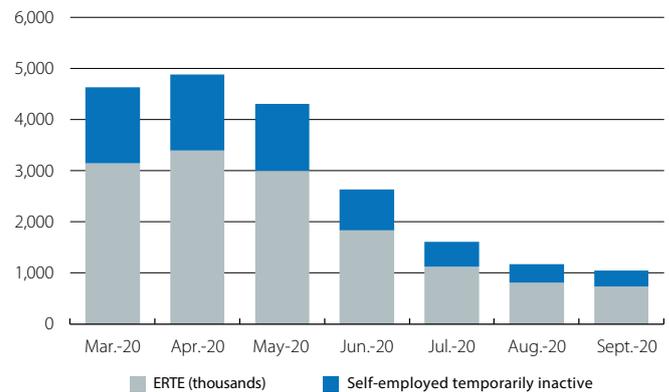
Source: CaixaBank Research, based on data from the National Statistics Institute.

fifth month with a gradual improvement. In addition, the number of employees affected by ERTE (furlough) schemes continued to fall during September, albeit it at slower pace than in previous months. At the end of September, 729,000 Social Security affiliates remained under ERTE schemes (84,000 less than at the end of August). This figure implies that some 6,000 people returned to work each day, which is fewer than in previous months (+10,000 in August, +23,000 in July). Thus, almost 80% of the Social Security affiliates who were under ERTE schemes in April have now returned to work, although the majority of those who remain affected by such schemes are concentrated in certain sectors that have been harder hit by the crisis and are having more trouble resuming activity. In a significant development, the extension of these schemes until the end of January 2021 has now been approved. Among other measures, the agreement includes a new type of ERTE specifically intended for those sectors hardest hit by the crisis, notably tourism and retail. Overall, we estimate that the number of Social Security affiliates who were actually working in September, and were not affected by ERTE schemes (whether total or partial) or registered as being temporarily inactive (in the case of self-employed workers), was around 17.8 million (-7.4% year-on-year), an increase of 373,000 workers compared to the previous month.

The impact of the COVID-19 crisis begins to be felt in housing prices. Indicators for the real estate market show a significant recovery in activity in the sector, following the standstill during the state of alarm. On the demand side, home sales recovered well in July and increased by 20% month-on-month, although in cumulative terms for the year to date there is still a year-on-year decline of 25.8%. On the supply side, the construction sector has also quickly restarted its activity. In August, cement consumption was only 2.1% below the level of August last year, with a notable recovery from the 50% fall registered in April. Despite the revival of activity, the main housing price indices have already begun to show the impact of the crisis on the market. According to the valuation data, the decline in housing prices accelerated in Q2 2020, with a 1.8% quarter-on-quarter fall (-0.8% in Q1 2020). In year-on-year terms, the price fell for the first time since Q1 2015 (-1.7% year-on-year). According to the data from property sales, meanwhile, prices remained virtually stagnant in quarter-on-quarter terms (+0.1%) and slightly up in year-on-year terms (+2.1%). Over the coming quarters, we expect the decline in housing prices to continue. Nevertheless, it is important to emphasise that the sector was in a much better situation prior to the COVID-19 crisis than it had been prior to the previous recession, which gives us some confidence in its ability to recover.

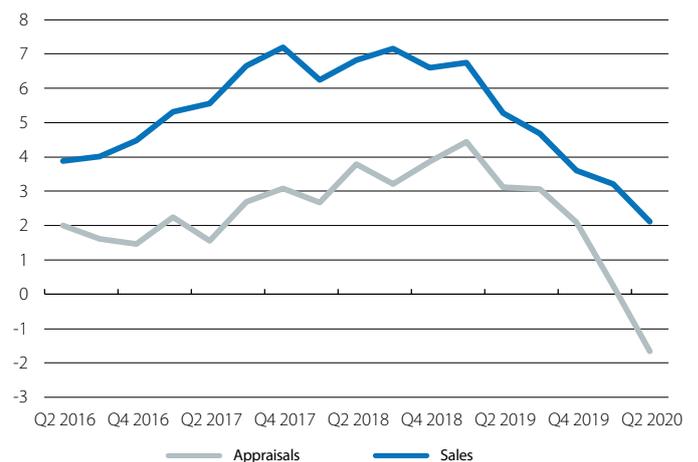
Household savings show a marked rise following the lockdown. In Q2 2020, the household savings rate rose sharply (11.2% in cumulative terms for the last four quarters, compared to 7.9% in Q1 2020), reaching its highest level since 2010. This increase in savings reflects a much more pronounced decline in household consumption than in incomes (a -6.3% year-on-year change in consumption, versus -1.1% in incomes). Specifically, while consumption was stifled both as a result of people's inability to realise certain types of expenditure during the lockdown and due to the uncertainty surrounding the economic outlook, household incomes benefited from the multitude of policies introduced since the spring to safeguard people's purchasing power (e.g. ERTE schemes), which partially offset the negative impact of the rise in unemployment.

Spain: Social Security affiliates under ERTE schemes and self-employed registered as temporarily inactive
Month-end numbers (thousands)



Notes: The «ERTE» category includes both total and partial ERTE schemes due to force majeure and those due to objective causes. The number of self-employed workers registered as being temporarily inactive is our own estimate.
Source: CaixaBank Research, based on data from MITRAMISS (the Ministry of Labour and Social Economy, and the Ministry of Inclusion, Social Security and Migration).

Spain: housing prices
Year-on-year change (%)



Source: CaixaBank Research, based on data from the National Statistics Institute and the Ministry of Industry, Transport and Mobility (MITMA).

Spain: savings rate
(% of gross disposable income) *



Note: * Four-quarter moving average.
Source: CaixaBank Research, based on data from the National Statistics Institute.

Tracking inequality in real-time: impact of the activity rebound

Throughout history, pandemics and wars have had a profound impact on income and wealth distribution,¹ so it is no surprise that the COVID-19 crisis has set off all the alarms. Indeed, the economic impact of this pandemic is of such a magnitude that the rise in inequality could have been extreme, were the action of the public sector not there to dampen it. On the other hand, the recovery in economic activity after the Spring lockdowns has already begun to be reflected in the inequality indices, which are gradually declining from their high levels registered at the peak of the crisis.

These are the main messages drawn from the update of the inequality tracker performed by the team of researchers from Pompeu Fabra University, the Institute of Political Economy and Governance (IPEG) and CaixaBank Research.² By analysing internal CaixaBank data, specifically payroll payments (logically anonymised) and applying big data techniques to manage the large volume of information available (some three million payrolls are analysed each month),³ we have built the tools necessary to track the impact that the economic crisis is having on workers' wage incomes and on wage inequality in general, in real-time.⁴

Specifically, when we analyse changes in wage income without incorporating transfers from the public sector, we see that inequality (measured using the Gini index) registered a sudden and sharp increase during the months of March and April. However, beginning in May and especially during June, as the lockdowns began to be lifted and economic activity began to be revived, the Gini index clawed back some of the ground it had lost over the previous months. Thus, while in April the Gini index was 11 points above the level recorded in February,⁵ in June the increase versus pre-crisis levels amounted to 6 points. This is still a very significant increase, but clearly lower than that recorded at the peak of the crisis.

1. See W. Scheidel (2018). «The great leveler: Violence and the history of inequality from the Stone Age to the twenty-first century». Princeton University Press. Wade (2020). An unequal Blow. Science. Vol. 368, Issue 6492, pages 700-703.

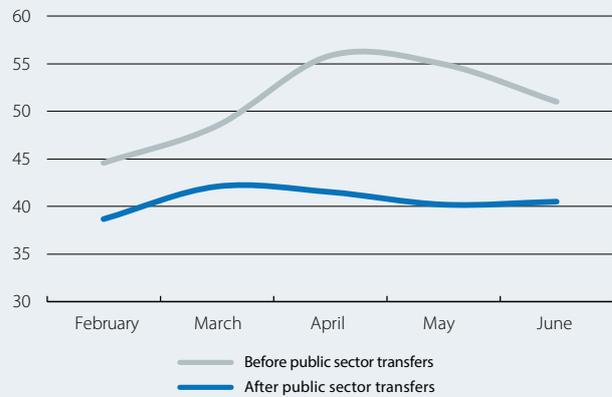
2. The team consists of Oriol Aspachs (CaixaBank Research), Ruben Durante (ICREA-UPF, IPEG and Barcelona GSE), Alberto Graziano (CaixaBank Research), Josep Mestres (CaixaBank Research), José G. Montalvo (UPF, IPEG and Barcelona GSE) and Marta Reynal-Querol (ICREA-UPF, IPEG and Barcelona GSE).

3. With 27% of all payrolls, CaixaBank has the highest market share in Spain.

4. Aspachs *et al.* (2020). «Real-Time Inequality and the Welfare State in Motion: Evidence from COVID-19 in Spain». Barcelona GSE Working Paper.

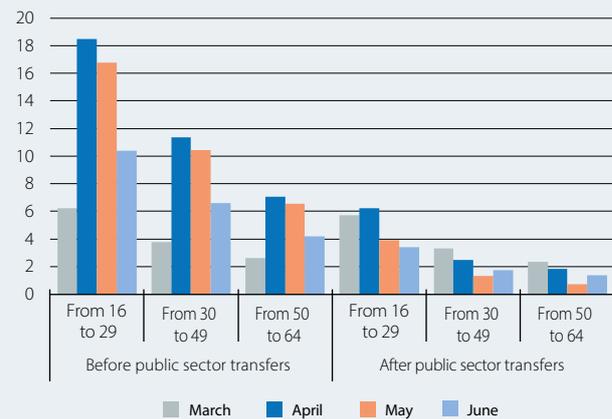
5. To put these 11 points into context, according to OECD data they are equivalent to the inequality gap between the US (Gini index of 39 points) and Sweden (Gini index of 28).

Spain: monthly changes in the Gini index
Index



Note: Seasonally adjusted index.
Source: CaixaBank Research.

Spain: changes in the Gini index by age group
Change versus February 2020 (points)



Note: Change in the seasonally adjusted index.
Source: CaixaBank Research.

When we take account of transfers made by the public sector, such as unemployment benefits or those received by workers affected by furlough schemes (ERTEs), the picture is somewhat different. The rise in the level of inequality is still pronounced, but much lower. In this case, the Gini index for June was «only» 2 points higher than the figure for February and 1.6 points below the level reached in April.

Moreover, the impact of the crisis is not uniform across the different groups within society. The rise in inequality, both before and after transfers from the public sector, was particularly marked among younger people and immigrants. In the case of young people, the increase in the Gini index amounted to 18 points in April when excluding public sector transfers, and 6 points when these transfers are incorporated into the

analysis. For people born outside Spain, the increase in the index was 17 points before public sector transfers and 5 points after.

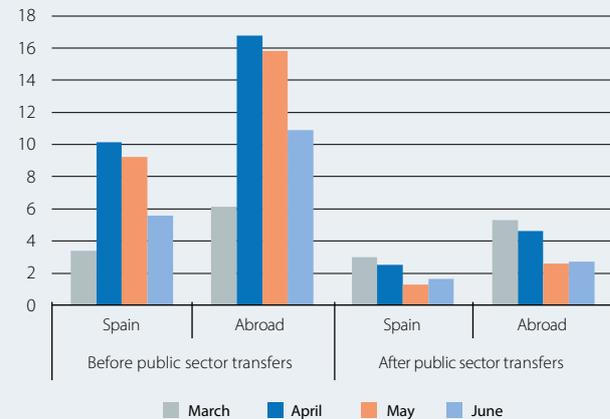
It is important to emphasise that young people and immigrants are also the groups who are benefiting the most from the revival of the labour market. As can be seen in the charts, the Gini index before public sector transfers fell significantly for both groups between May and June, registering a 7-point reduction in each case.

The significant swings in the Gini index of these two groups reflect a well-known problem of the Spanish labour market: its duality. These groups have more people working in precarious conditions and, therefore, they suffer the most when economic shocks occur: they account for a large portion of the workers who lose their jobs and they are less covered by public sector aid. For this same reason, they are also the groups that are benefiting the most from the current economic revival. However, reducing the duality of the labour market is imperative for reducing their vulnerability in the long term.

Finally, the analysis of the changes in inequality by autonomous community region also reveals some marked differences. As can be seen in the charts, the increase in the Gini index in April was pronounced and widespread across all regions when excluding public sector transfers. However, the rise was particularly pronounced in the Balearic Islands and the Canary Islands, two autonomous communities where tourism plays a particularly important role. In contrast, in June

Spain: changes in the Gini index by country of birth

Change versus February 2020 (points)



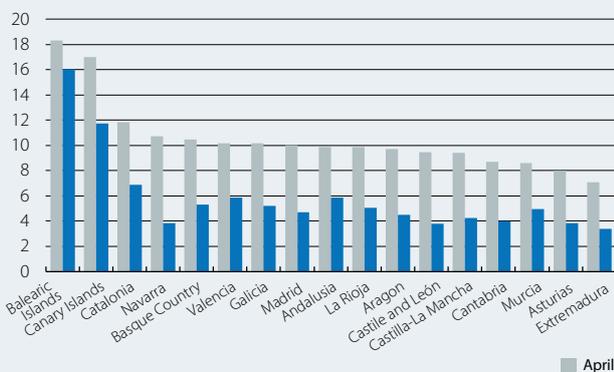
Note: Seasonally adjusted data.
Source: CaixaBank Research.

inequality had reduced considerably across the board thanks to the rebound in activity after the Spring lockdowns, although some differences remained. However, once we take public sector transfers into account, the increase is much lower, and the regional differences are substantially reduced.

*Oriol Aspachs (CaixaBank Research),
Ruben Durante (ICREA-UPF, IPEG and Barcelona GSE),
José G. Montalvo (UPF, IPEG and Barcelona GSE),
Alberto Graziano (CaixaBank Research),
Josep Mestres (CaixaBank Research) and
Marta Reynal-Querol (ICREA-UPF, IPEG and Barcelona GSE).*

Spain: changes in the Gini index by Autonomous Community before public sector transfers

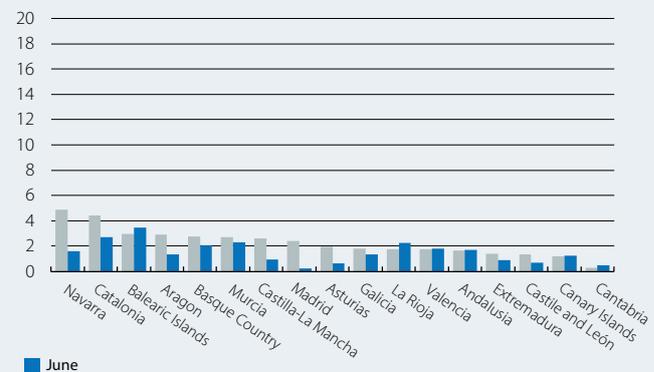
Change versus February 2020 (points)



Note: Seasonally adjusted index.
Source: CaixaBank Research.

Spain: changes in the Gini index by Autonomous Community after public sector transfers

Change versus February 2020 (points)



Workplace pension schemes: an option that is taking hold

- The Ministry of Social Security points to British workplace pension schemes as a benchmark for the reform of the Spanish pension system.
- The workplace pension system in the United Kingdom is based on an automatic enrolment model which, since its introduction in 2012, has achieved positive results by substantially improving the level of participation in such schemes among young people and low-income groups.
- In Spain, promoting such workplace pension schemes could be a good way to encourage the use of private saving mechanisms across much of society. Currently, only 1 in 10 workers has a pension plan of this type.

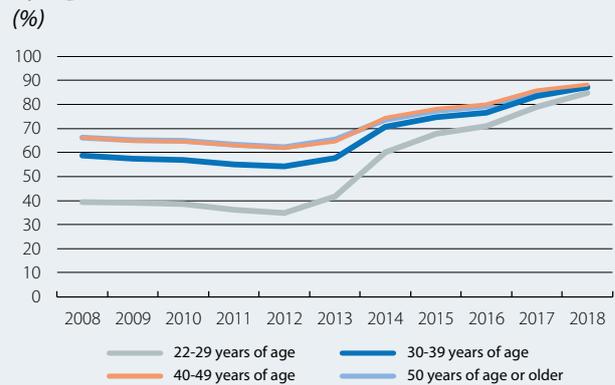
The pension reform currently being prepared in Spain is a hot and pressing issue. After all, the structural deficit of the Social Security system (around 18 billion euros) and the need to ensure the system’s long-term sustainability in the face of demographic ageing are inescapable challenges for our economy. In this context, the minister for Inclusion, Social Security and Migration, José Luis Escrivá, has announced that he intends to boost workplace pension schemes (also known as company pension) in order to encourage long-term saving, as well as indicating that the British model could serve as a good example to follow.

What does this model involve and to what extent is it exportable to Spain? Since 2012, British companies have had to automatically enrol their employees in a company pension scheme (provided they meet certain conditions: a salary of over 10,000 pounds, aged over 22, etc.), although workers can voluntarily opt out within one month. It is therefore intended to give economic players the necessary «push» to start saving and not to leave it for later. In addition, minimum annual contributions are required, representing 8%¹ of the worker’s salary² (before April 2019 this figure was 5%, and since 2012 it has been gradually increasing up to 8%). These contributions are split as follows: a contribution of 3% is made by the company³ and one of 5% by the employee (although in general their contribution is effectively 4%, thanks to a personal income tax deduction).⁴

For the time being, workplace pension schemes appear to be achieving their goal of getting more people to save for retirement. Specifically, in 2018, 87% of the 21.5 million British workers eligible for these company

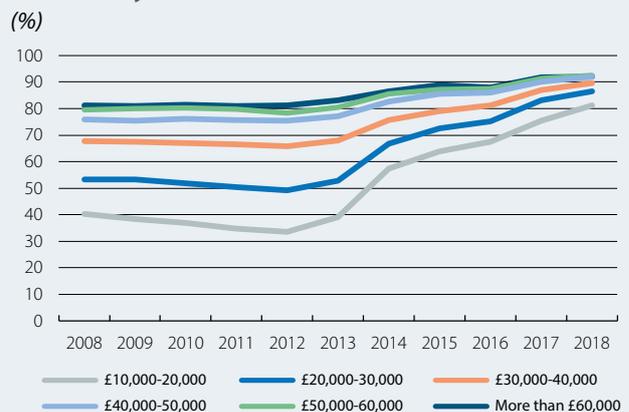
1. The 8% figure was established because the Pensions Commission which devised the reform in 2005 projected that, with this figure, an workplace pension scheme would provide the average wage earner with a pension upon retirement equivalent to 15% of their salary, compared to 30% in the case of the public pension.
 2. This 8% is applied to so-called qualifying earnings, rather than the salary eligible for pensions: namely, the salary that lies between 6,420 and 50,000 pounds per year. These bands are updated annually.
 3. Some of these schemes give the company the option to contribute more than the 3% legal minimum, in which case the employee can reduce their contribution provided that the total comes to at least 8%.
 4. People on high incomes (over 50,000 per year) can subsequently request a higher tax deduction, as their marginal rate is above 20%. In such cases, the employee’s effective contribution can end up being less than 4%.

UK workplace pension schemes: participation rate among eligible workers by age bracket



Source: CaixaBank Research, based on data from the «Automatic Enrolment Evaluation Report 2019» by the UK Department for Work and Pensions.

UK workplace pension schemes: participation rate among eligible workers by income bracket



Source: CaixaBank Research, based on data from the «Automatic Enrolment Evaluation Report 2019» by the UK Department for Work and Pensions.

pension schemes (out of a total of 30 million workers) participated in them, compared to 55% prior to the 2012 reform. On the other hand, only 9% on average withdrew in the month following enrolment.

If we look at the participation data in more detail, we also see some promising results. On the one hand, as can be seen in the first chart, the increase in the participation rate has been particularly high among workers under

30 years of age, a group for which saving is particularly beneficial in the long term but which must also be offered attractive incentives in order to do so. Specifically, the participation rate among workers aged between 22 and 29 who are eligible for company schemes (almost 700,000 in 2018) rose from 35% in 2012 to 85% in 2018. On the other hand, the system has also served to encourage saving among those on low incomes: the participation rate among British workers with an income of between 10,000 and 20,000 pounds who are eligible for company schemes (more than 1 million workers in 2018) rose from 34% in 2012 to 81% in 2018 (see second chart).

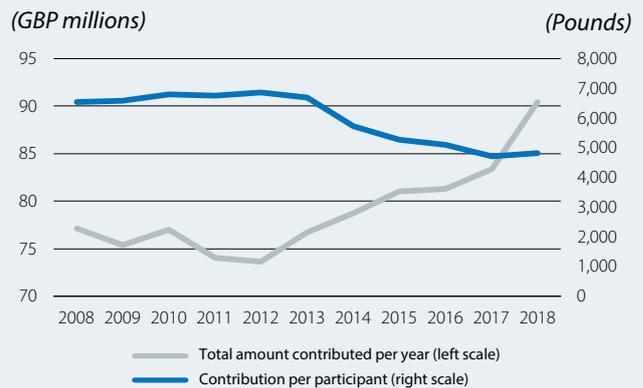
As for the volume of contributions, the total amount contributed to these plans in 2018 came to 90 billion pounds (4.2% of UK GDP), representing an average contribution per participant of 4,800 pounds. As a point of reference, the annual public pension received by a British employee who retires after 35 years of making social security contributions is around 9,000 pounds a year. However, it is proving difficult to get workers to make substantial contributions to these plans: 64% of these savings were contributions from companies, compared to 26% from employees (and only 27% of private sector workers contribute more than 5% of their salary that is eligible for a pension).

To what extent is the British model of private workplace pensions exportable to Spain? Such comparisons are always difficult, given the institutional differences and particularities of the two pension systems. However, the introduction of mechanisms that complement the public pension system could be of great help in the face of the foreseeable decline in the public pension replacement rate – i.e. the ratio between the average pension and the average wage. This rate currently stands at 73%, a figure that will be difficult to sustain in the face of demographic pressures (the average replacement rate of public pensions across OECD countries is 40%).

Workplace pension plans are virtually testimonial in Spain, so an automatic enrolment model similar to the British one could significantly boost private saving. As a point of reference, only 1 in 10 workers in Spain had such a plan in 2018, and 66% of those workers made no contributions. As for individual pension plans, there are some 7.5 million of them – also a low figure when compared to the number of workers (see fourth chart).

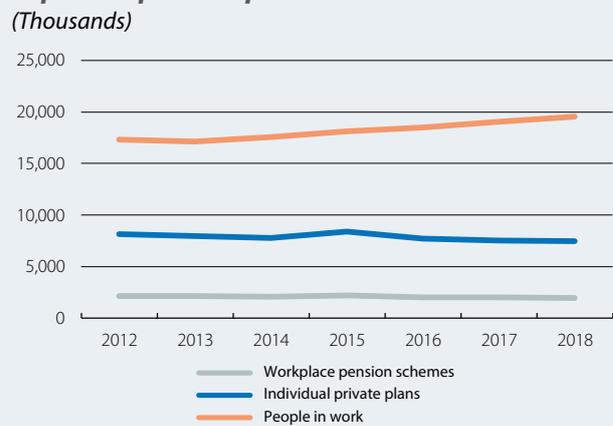
Nevertheless, implementing such a system in Spain would come with significant challenges. One such challenge is designing the system so that it does not significantly increase the labour cost to firms, while also making it sufficiently attractive to workers (which will no doubt require tax deductions). Another lies in how to ensure it reaches as many people as possible and improves inclusiveness: in the United Kingdom, for instance, a gap exists in that there are over 8 million workers who are not eligible for these plans, including

UK workplace pension schemes: annual contributions



Source: CaixaBank Research, based on data from the «Official statistics on workplace pension participation and saving trends of eligible employees: 2008-2018», produced by the UK Department for Work and Pensions.

Spain: number of participating accounts in private pension plans



Source: CaixaBank Research, based on data from the 2018 statistical report on supplementary social security instruments, produced by the Directorate-General for Insurance and Pensions of Spain.

those on less than 10,000 pounds a year and the self-employed. One key difference with the United Kingdom is the fact that, even prior to the 2012 reform, these pension schemes were already somewhat widespread across the country. In part, it has to be said, this is because the replacement rate of public pensions in the UK has historically been much lower than in most advanced economies.

Javier Garcia-Arenas

Activity and employment indicators

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Industry									
Industrial production index	0.3	0.7	1.0	0.3	-6.4	-24.4	-14.3	-6.4	...
Indicator of confidence in industry (value)	-0.1	-3.9	-2.0	-5.2	-5.4	-27.8	-23.2	-12.7	-11.8
Manufacturing PMI (value)	53.3	49.1	48.2	47.2	48.2	39.4	49.0	53.5	49.9
Construction									
Building permits (cumulative over 12 months)	25.7	17.2	13.0	8.0	0.0	-13.4	-16.1	-21.4	...
House sales (cumulative over 12 months)	14.2	3.6	2.0	-2.0	-3.7	-12.3	-15.5	-18.8	...
House prices	6.7	5.1	4.7	3.6	3.2	2.1	-	-	-
Services									
Foreign tourists (cumulative over 12 months)	4.0	1.5	2.0	1.4	-0.9	-22.6	-32.7	-41.5	-50.5
Services PMI (value)	54.8	53.9	53.5	53.6	42.5	28.4	50.2	51.9	47.7
Consumption									
Retail sales	0.7	2.3	3.4	2.3	-3.8	-18.4	-4.8	-3.9	-2.4
Car registrations	7.8	-3.6	-7.9	5.1	-27.6	-68.6	-36.7	1.1	-10.1
Consumer confidence index (value)	-4.2	-6.3	-5.8	-10.5	-10.3	-27.9	-25.6	-25.6	-28.7
Labour market									
Employment ¹	2.7	2.3	1.8	2.1	1.1	-6.0	-	-	-
Unemployment rate (% labour force)	15.3	14.1	13.9	13.8	14.4	15.3	-	-	-
Registered as employed with Social Security ²	3.1	2.6	2.5	2.2	1.2	-4.4	-4.6	-3.8	-2.7
GDP	2.4	2.0	1.8	1.7	-4.2	-21.5	-	-	-

Prices

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
General	1.7	0.7	0.3	0.4	0.6	-0.7	-0.3	-0.6	-0.5
Core	0.9	0.9	0.9	1.0	1.1	1.1	1.0	0.6	0.4

Foreign sector

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Trade of goods									
Exports (year-on-year change, cumulative over 12 months)	2.9	1.8	1.7	1.8	1.0	-7.2	-7.2	-8.2	...
Imports (year-on-year change, cumulative over 12 months)	5.6	1.0	3.0	1.0	-1.0	-9.3	-9.3	-10.6	...
Current balance	23.2	26.6	23.7	26.6	27.1	17.6	17.6	15.3	...
Goods and services	32.8	37.5	34.5	37.5	38.0	27.7	27.7	25.6	...
Primary and secondary income	-9.5	-10.9	-10.8	-10.9	-10.9	-10.1	-10.1	-10.3	...
Net lending (+) / borrowing (-) capacity	29.0	30.8	29.7	30.8	31.3	21.5	21.5	19.2	...

Credit and deposits in non-financial sectors³

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

	2018	2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	06/20	07/20	08/20
Deposits									
Household and company deposits	3.2	5.4	5.4	5.4	4.5	7.9	7.6	9.1	...
Sight and savings	10.9	10.7	10.3	10.3	8.9	13.0	12.1	14.1	...
Term and notice	-19.9	-13.4	-13.2	-13.9	-16.4	-16.1	-15.9	-16.9	...
General government deposits	15.4	8.8	3.7	-2.1	-6.2	-6.6	-3.1	5.8	...
TOTAL	3.9	5.6	5.3	4.8	3.8	7.0	6.9	8.9	...
Outstanding balance of credit									
Private sector	-2.4	-1.5	-1.1	-1.5	-1.0	1.5	1.9	1.8	1.9
Non-financial firms	-5.5	-3.4	-2.3	-3.0	-1.7	6.1	7.1	6.7	7.0
Households - housing	-1.1	-1.3	-1.6	-1.5	-1.7	-2.1	-2.2	-1.9	-1.9
Households - other purposes	2.8	3.2	3.4	2.2	2.5	0.6	0.9	0.5	0.2
General government	-10.6	-6.0	-5.4	-1.2	1.7	0.1	-1.5	0.5	2.3
TOTAL	-2.9	-1.7	-1.4	-1.5	-0.9	1.5	1.7	1.7	1.9
NPL ratio (%)⁴	5.8	4.8	5.1	4.8	4.8	4.7	4.7	4.7	...

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

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

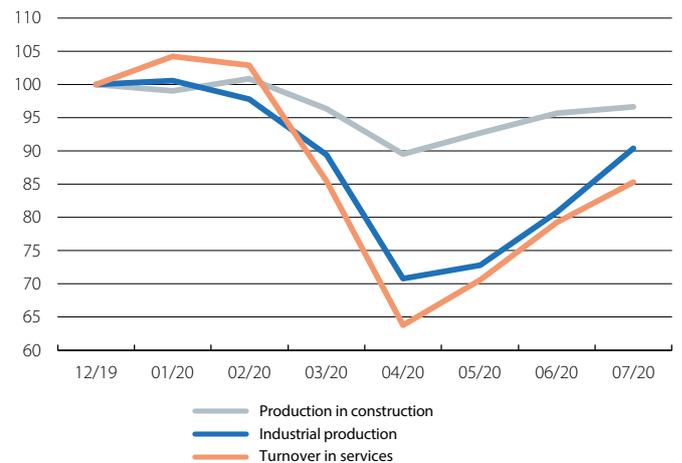
Despite the revival, COVID-19 continues to dictate the pace of the Portuguese economy

Following the revival of the summer, autumn started with a more mixed tone in economic activity. The GDP figures for Q2 confirmed a historic collapse in economic activity (–13.9% quarter-on-quarter and –16.3% year-on-year), although the lockdown had a somewhat less severe economic impact than initially anticipated. These figures lead us to adjust our GDP forecasts for 2020 as a whole to –10.0% (versus the previous forecast of –12.0%). However, this does not change the underlying picture: the pandemic is the major determinant of the economic scenario and it will continue to dictate the pace of economic activity until an effective vaccine and/or treatment is available. It is having a particularly significant impact on sectors such as tourism, which in Portugal accounts for a large part of economic activity (15% of GDP and 10% of employment in 2019). Thus, the recovery of the economy will be gradual and, in all likelihood, it will take years to reach pre-pandemic levels of activity. Indeed, the economic indicators suggest that the economy faces the autumn having achieved only an incomplete revival of its productive capacity. For instance, services turnover, industrial production and construction activity have been gradually recovering, yet they remain between 15% and 5% below pre-COVID levels. The latest sentiment indicators also reflect a mixed tone. In September, the economic climate indicator improved once again, driven by services and construction, but both the sentiment index for the industrial sector and the consumer confidence index deteriorated slightly. All in all, the coincident indicator for aggregate activity suggests that GDP will have rebounded significantly in Q3 compared to Q2, but it will still remain some 10% below the levels registered a year ago.

The impact of the COVID-19 crisis gradually filters through the labour market. The number of people registered as unemployed in job centres reached 409,331 in August, 2,029 more than in July and 93,769 more than at the start of the pandemic. In addition, preliminary data from the National Statistics Institute of Portugal suggest an increase in the unemployment rate in August up to 8.1%. By sector, this increase in unemployment was significant in the real estate, administrative and support service sectors, as well as in sectors associated with tourism (retail, and accommodation and catering), which are responsible for more than half of the increase in unemployment compared to the pre-pandemic figures from February. Finally, in July, the total number of hours worked remained 26% below the figure for February.

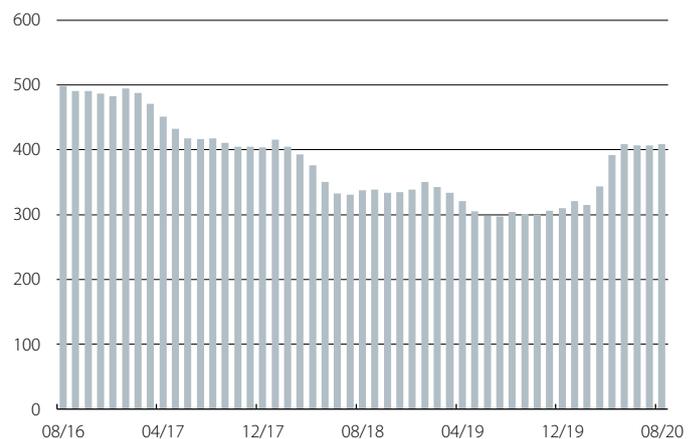
The external accounts deteriorate. In July, the current account deficit increased to –0.8% of GDP (1,536.5 million on a 12-month cumulative basis). In year-on-year terms, this represents an increase in the deficit of 990 million euros, largely due to the collapse in international tourism. Although part of the current account has shown improvement due to

Portugal: economic activity indicators
Index (100 = December 2019)



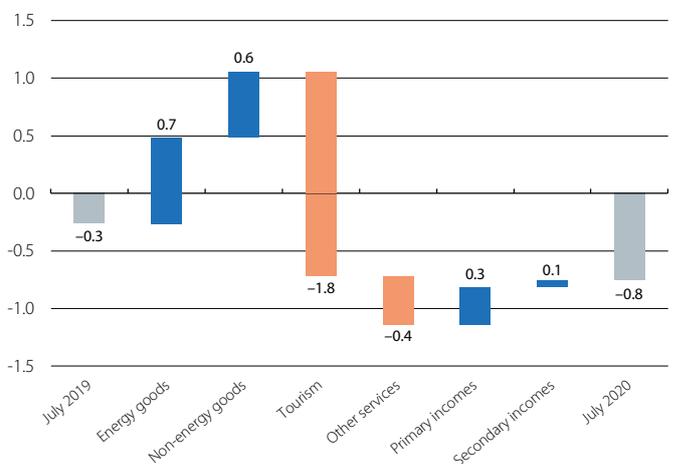
Note: Indices adjusted for calendar effects and seasonality.
Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal.

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



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

Portugal: current account balance
(pps of GDP)



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

the decline in the oil price (compared to July 2019) and the fact that imports of goods have fallen by much more than exports, based on data up to July the tourism balance had decreased by 3,921 million euros and subtracted almost 2 pps of GDP from the total external balance.

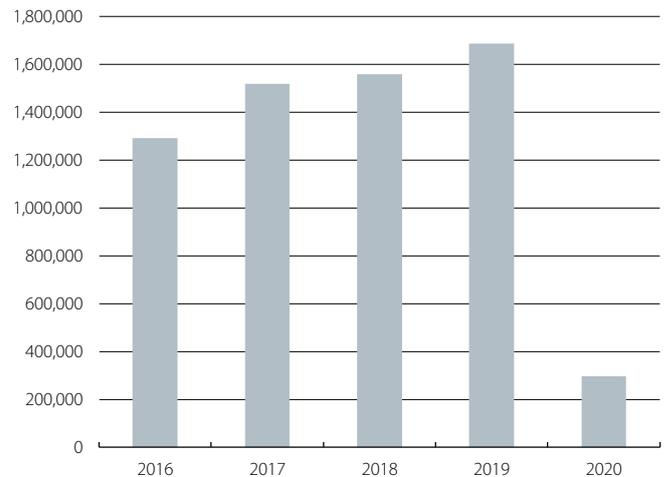
The tourism sector remains heavily affected by the pandemic. In July, the number of tourists was 64% below the figures recorded in July 2019, largely reflecting a 74% year-on-year drop in foreign tourism. The picture for August is expected to have been slightly rosier due to the opening of the travel corridor with the United Kingdom, a very important market for the Portuguese tourism sector. However, this corridor was closed again in September following new coronavirus outbreaks in Europe, and all the indicators suggest that tourism will remain heavily affected in the last months of the year.

Savings increase due to the restrictions and uncertainty about the environment. In Q2, the household savings rate increased to 10.6% (+3.1 pps compared to Q1). This increase reflected a greater fall in consumption (held back both by the restrictions on mobility and by households taking greater precautions in an uncertain environment) than in disposable household income (which was cushioned by supportive economic policies such as the deferral of tax payments, moratoriums on loan repayments and aid provided as part of the temporary workforce reduction programmes).

The general government deficit increases as a result of the fight against the pandemic. In August, the general government balance stood at -4.8% of GDP. This represents a clear decline compared to 2019 (in August last year there was a surplus of +0.3%) due to the measures introduced to help households and businesses cope with the economic impact of the COVID-19 crisis. The deficit reflects both an increase in total general government expenditure (+4.9% year-on-year in August) and a fall in revenues (-6.6% year-on-year). Over the coming months, the fight to contain the pandemic and the incomplete revival of economic activity will continue to weigh on the public accounts. Nevertheless, in September the European Council approved the granting of 5,900 million euros to Portugal as part of the SURE European loan programme (European funds to cover costs related to temporary workforce reduction programmes and other similar labour-related measures), which will help to cover a portion of the general government's funding needs generated by the COVID-19 pandemic.

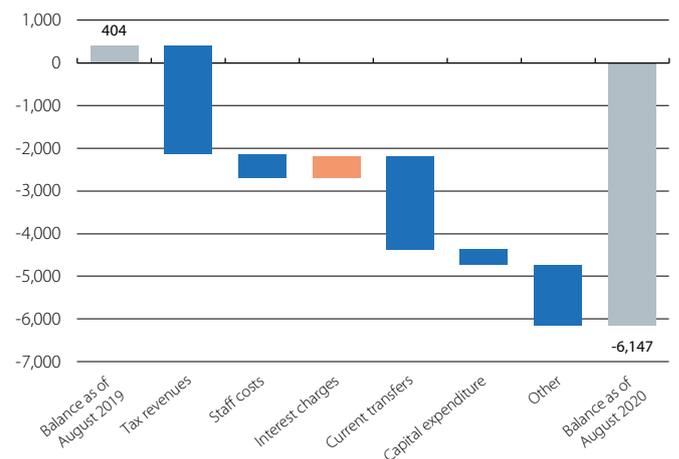
Housing prices slow down. In Q2 2020, the home price index rose by 0.8% quarter-on-quarter (7.8% year-on-year). While still showing growth, this represents a sharp slowdown compared to Q1 (4.9% quarter-on-quarter and 10.3% year-on-year). This slowdown should continue over the coming months, as a result of demand being weakened by uncertainty in the current economic context. This weaker demand can be seen, for instance, in the 21.6% year-on-year fall in home sales in Q2, driven by the sharp contraction in economic activity in April and May.

Portugal: arrivals of foreign tourists in July
(Number of people)



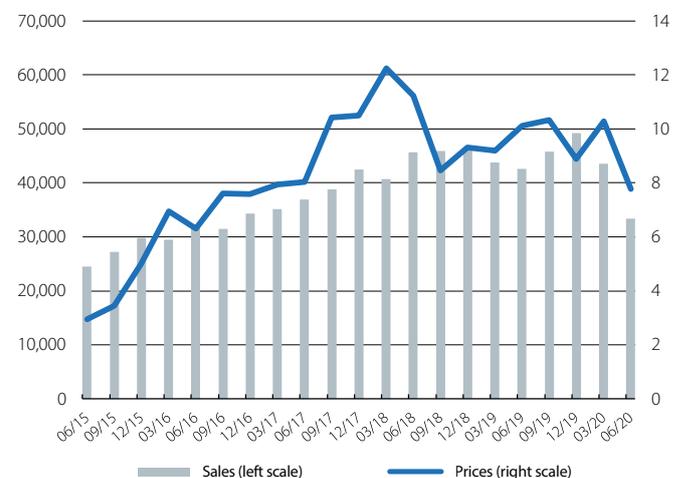
Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal.

Portugal: general government balance
(EUR millions)



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

Portugal: property prices and sales
(Number of sale transactions) Year-on-year change (%)



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

Activity and employment indicators

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

	2018	2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	07/20	08/20	09/20
Coincident economic activity index	3.0	0.8	-1.2	-4.4	-9.1	...	-11.2	-11.5	...
Industry									
Industrial production index	0.1	-2.2	0.4	-1.4	-23.5	...	-8.8	3.1	...
Confidence indicator in industry (<i>value</i>)	0.8	-3.2	-4.3	-4.6	-24.8	-19.1	-25.6	-17.3	-14.3
Construction									
Building permits (<i>cumulative over 12 months</i>)	20.3	5.9	5.9	1.6	-2.1	...	...	...	...
House sales	16.8	1.7	6.1	-0.7	-21.6	...	...	...	...
House prices (<i>euro / m² - valuation</i>)	8.6	10.4	11.1	11.2	8.9	...	8.0	7.0	...
Services									
Foreign tourists (<i>cumulative over 12 months</i>)	4.8	7.8	7.8	3.2	-29.7	...	-39.5	...	...
Confidence indicator in services (<i>value</i>)	14.1	12.9	10.6	5.8	-36.9	-37.2	-46.9	-37.1	-27.7
Consumption									
Retail sales	4.2	4.4	3.7	3.0	-12.9	...	-3.0	-4.4	...
Coincident indicator for private consumption	2.5	2.0	0.7	-3.7	-9.1	...	-11.3	-11.5	...
Consumer confidence index (<i>value</i>)	-4.6	-8.0	-7.1	-8.6	-27.7	-26.9	-28.3	-26.0	-26.3
Labour market									
Employment	2.3	1.0	0.5	-0.3	-3.8	...	-3.1	-3.0	...
Unemployment rate (<i>% labour force</i>)	7.0	6.5	6.7	6.7	5.6	...	7.9	8.1	...
GDP	2.9	2.2	2.3	-2.3	-16.3	...	...	...	...

Prices

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

	2018	2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	07/20	08/20	09/20
General	1.0	0.3	0.3	0.4	-0.3	0.1	0.1	0.0	-0.1
Core	0.7	0.5	0.4	0.2	-0.1	0.0	0.1	-0.1	-0.1

Foreign sector

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

	2018	2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	07/20	08/20	09/20
Trade of goods									
Exports (<i>year-on-year change, cumulative over 12 months</i>)	5.2	3.6	3.6	1.5	-6.7	...	-7.5	...	...
Imports (<i>year-on-year change, cumulative over 12 months</i>)	8.3	6.0	6.0	2.8	-7.7	...	-10.4	...	...
Current balance	0.8	-0.2	-0.2	-0.6	-0.9	...	-1.5	...	...
Goods and services	1.5	0.8	0.8	0.4	-1.1	...	-1.6	...	...
Primary and secondary income	-0.7	-1.0	-1.0	-1.0	0.2	...	0.1	...	...
Net lending (+) / borrowing (-) capacity	2.8	1.9	1.9	1.5	1.5	...	0.8	...	...

Credit and deposits in non-financial sectors

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

	2018	2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	07/20	08/20	09/20
Deposits¹									
Household and company deposits	4.7	5.2	5.2	6.4	9.0	...	8.8	...	...
Sight and savings	16.2	14.8	14.8	17.6	20.1	...	18.8	...	...
Term and notice	-3.3	-2.9	-2.9	-3.2	-1.0	...	-0.6	...	...
General government deposits	-32.3	5.6	5.6	-10.4	-15.7	...	-2.7	...	...
TOTAL	2.7	5.2	5.2	5.7	7.9	...	8.3	...	...
Outstanding balance of credit¹									
Private sector	-2.1	-0.1	-0.1	0.5	0.5	...	1.3	...	...
Non-financial firms	-4.5	-3.7	-3.7	-2.6	1.0	...	2.7	...	...
Households - housing	-1.7	-1.3	-1.3	-0.8	-0.3	...	0.0	...	...
Households - other purposes	4.2	16.5	16.5	15.7	2.2	...	2.4	...	...
General government	-12.9	-4.7	-4.7	-4.9	-9.7	...	-6.6	...	...
TOTAL	-2.6	-0.3	-0.3	0.2	0.1	...	1.0	...	...
NPL ratio (%)²	9.4	6.2	6.2	6.0	5.5	...	...	...	...

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

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

The debt burden of the COVID-19 crisis

The COVID-19 pandemic has shaken us to the core and has become a major part of our lives. It has changed our habits and altered the world we live in. From the small to the big: from replacing football or the weather as an informal (and formal) conversation topic to plunging the global economy into the worst recession in modern times. The COVID-19 crisis will also shape the world of the future. In these pages we have discussed teleworking, digitalisation and international trade.¹ Another of its legacies will be a large sack of debt. How much will it weigh and how will it dictate our lives in tomorrow's world? We will explore these questions in the following pages of this Dossier, but first, let us begin with the data.

Size, scope and speed

Faced with an exceptional blow, the rise in debt will also be exceptional: in size, speed and scope. The public sector will absorb the bulk of the increase, due to its capacity to borrow more and under better conditions (lower interest rates and longer maturities). As the table shows, this borrowing will push public debt up to almost unprecedented levels (the only historical precedents are closely linked to major wars).² Furthermore, the increase will be extremely sudden. For instance, Italy and Spain are expected to experience a surge in debt equivalent to 25 pps of GDP in a single year, whereas it took five and three years, respectively, to accumulate a similar increase following the 2007-2008 financial crisis (and that was starting from a position with greater fiscal margin).

Moreover, the table shows that the surge in public debt will occur in both advanced and emerging economies. Indeed, although the increases are somewhat smaller among emerging economies, their situation is particularly delicate because they have less fiscal margin to play with, they are more dependent on foreign financing and they are more prone to debt crises. This is why the debt relief programmes launched by the G-20, the IMF and other international agencies are particularly important.³

Whereas this increase in public debt is occurring from an already high starting point, households are generally starting from much lower levels of debt than in the run-up to the 2007-2008 financial crisis (see first chart). This at least suggests that they face the COVID-19 crisis with healthier balance sheets. However, the picture in the case of corporate debt is somewhat more mixed. Over the past decade, firms have clearly reduced their levels of debt in countries such as Spain, Italy and Portugal, while in the US and Germany their levels of debt have remained more moderate, and in France, high. Despite this, vulnerabilities have emerged, such as the deterioration in the quality of corporate debt in the US, especially due to the relatively large number of companies at risk of becoming «fallen angels» (companies whose debt is apparently investment grade but would become speculative grade with only a small downgrading of their credit rating) and the growth of debt among companies that already had high levels of debt to begin with.⁴ In addition, among emerging economies there has been a sharp rise in corporate debt in China, which has more than tripled since 2008.⁵

First clues in the data

China is precisely one of the first countries for which we have data to assess the initial impact of the COVID-19 crisis on private debt⁶ and it is significant: while household indebtedness barely increased by 2 pps of GDP in Q1 2020, non-financial corporate

Public debt: forecasts for 2020 and all-time highs

	Forecast: increase (pps)	Forecast: level (%)	All-time high (based on available data)
Advanced economies	17	122	Year 1835 (165%)
US	22	131	Year 2020
Japan	15	252	Year 2020
United Kingdom	10	96	Year 1947 (264%)
Euro area	16	101	–
Germany	12	72	Year 2020
Spain	25	121	Year 1880 (162%)
France	21	119	Year 1921 (237%)
Italy	25	160	Year 1920 (160%)
Netherlands	11	60	Year 1834 (247%)
Portugal	23	140	Year 2020
Emerging economies	9	62	Year 1882 (108%)
China	11	65	Year 2020
Brazil	9	98	Year 1884 (121%)
Mexico	8	61	Year 1986 (78%)
Emerging Europe	7	37	–

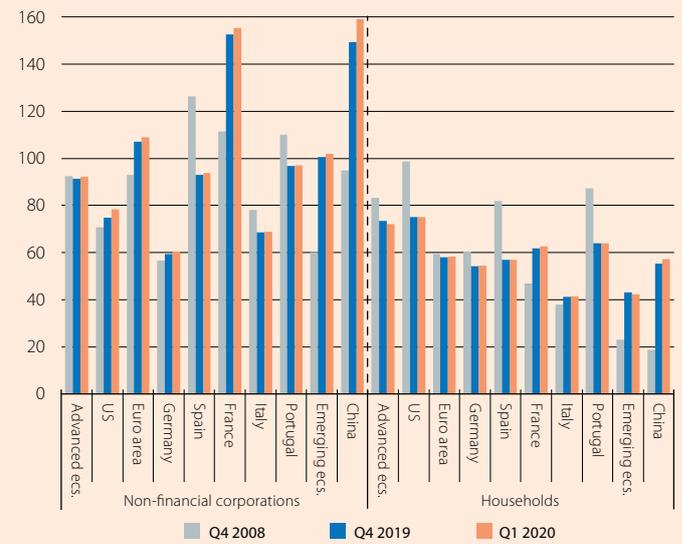
Source: CaixaBank Research, based on our own forecasts (for Spain and Portugal), forecasts from the consensus of Focus Economics of September 2020 (for the rest of the euro area) and from the IMF's Fiscal Monitor of April 2020 (the rest). Historical data from the IMF (Historical Public Debt Database).

1. See the Dossier «The world after COVID-19» in the MR05/2020 and the Dossier «Teleworking, a legacy of the pandemic» in the MR09/2020.
 2. The final scale of the increase is uncertain, since it depends on how much GDP will end up falling by in 2020 (this will determine the final scale of the automatic stabilisers, the discretionary measures and the public credit guarantees that are ultimately implemented).
 3. See C. Arellano *et al.* (2020). «Deadly Debt Crises: COVID-19 in Emerging Markets». NBER Working Paper.
 4. At the beginning of the year, between 10% and 15% of 'investment grade' corporate debt was just one or two notches away from dropping to 'speculative grade'. Recently, we analysed both of these vulnerabilities in the Focus «The vulnerabilities of corporate debt in the face of a historic shock», in the MR05/2020.
 5. We analyse its vulnerabilities in the Focus «China's corporate debt: a reason for concern?» in the MR10/2016.
 6. In China, the economic slump caused by the COVID-19 outbreak was concentrated in Q1 2020, the last quarter for which the BIS has published good-quality data on debt in an international comparison.

debt surged by 10 pps, bringing it close to the high points of 2015 and 2016 that caused so much concern. As for advanced economies, information is still scarce because the impact of the COVID-19 outbreak was concentrated in Q2 2020. Nevertheless, the first data available for the US⁷ show a jump in corporate debt and relative normality among households: between January and June, non-financial corporate debt rose by 9.4% (around double the total increase registered in 2019), while household indebtedness remained much more stable (+1.9%, a figure similar to that registered in the same period last year). In fact, when this data is disaggregated, it is clear that measures such as moratoriums on loans (especially mortgages) and public guarantees for credit lines have prevented a strain on household and corporate balance sheets. Moreover, the average US household has actually improved its financial safety net as a result of the aid received, precautionary savings and the recovery in financial asset prices. In any case, while the bulk of the rise in debt is likely to occur in the public sector given the large battery of economic measures introduced to combat the COVID-19 crisis, the improvement in household balance sheets is probably temporary. Furthermore, for both firms and households, much will depend on what happens to economic activity and the labour market over the coming quarters.

Private debt at the global level

(% of GDP)



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

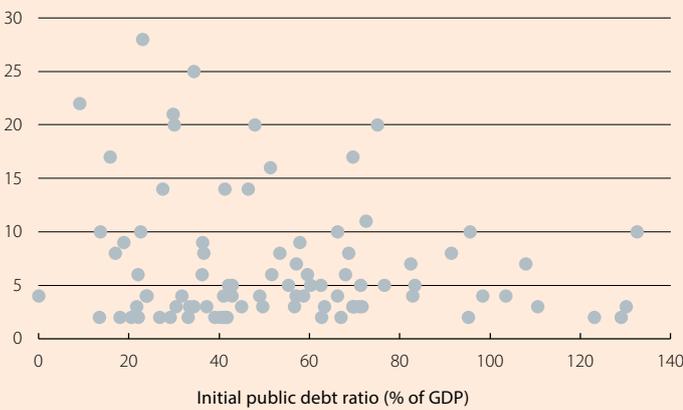
A less heavy burden than it appears?

In the following pages of this Dossier, we will analyse the lessons offered by other historical episodes and the potential consequences of this sharp, sudden and widespread rise in debt. But first, it is important to emphasise that the increase in debt is a necessary and effective response aimed at softening the blow of an unprecedented fall in household and business incomes:

borrowing involves cutting this exceptional decline up into smaller pieces and spreading them over time. In fact, the economic policy response itself encourages and facilitates debt growth, both in the public sphere (with a vast increase in spending through automatic stabilisers and discretionary measures) and in the private sphere (through guarantees and an accommodative monetary policy).

Public debt and r-g

Duration of the $r < g$ episode (years)



Note: Sample of 17 advanced economies between 1950 and 2016.
Source: CaixaBank Research, based on data from Jordà et al. (2017). «Macroeconomic History and the New Business Cycle Facts». NBER Macroeconomics Annual.

permanent damage, then household, business and government incomes will suffer and the debt burden will be heavier. Furthermore, provided that the recovery is on course, tackling the reduction of the debt will also be key. It may be tempting to rely on the comfort provided by an income growth (g) that exceeds interest payments (r), but historical experience advises caution: as shown in the last chart, the higher the debt, the shorter and less frequent these periods of $r < g$ tend to be.⁸

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7. The New York Fed's Quarterly Household Debt and Credit Report, and the Financial Accounts published by the Federal Reserve Board.
8. See W. Lian et al. (2020). «Public Debt and r - g at Risk». IMF Working Paper. The authors empirically expand on and support this fragility.

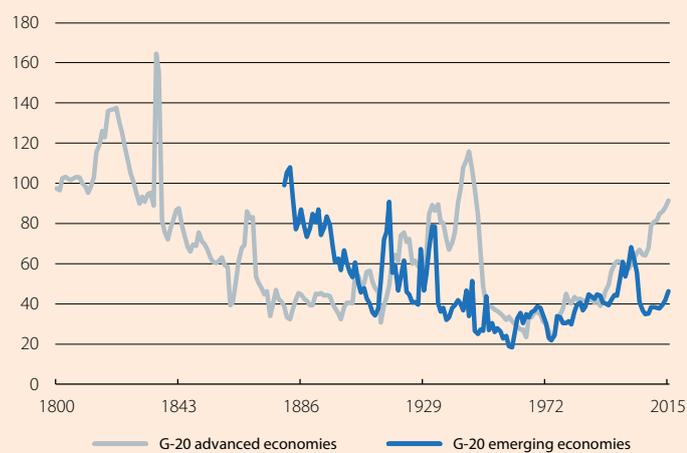
What to do in the face of surges in public debt: a historical tour

The hangover from the COVID-19 pandemic will take a heavy toll on the public finances. The IMF forecasts that global public debt will reach 101.5% of the world's GDP in 2020, almost 20 pps above the figure for 2019. In advanced economies, it will reach 122% of GDP.

Despite the magnitude of the figures, this is not an isolated episode in history. Over the centuries, other exceptional events, such as wars, economic crises and, yes, pandemics, have provoked similar state funding needs and triggered a surge in public debt. However, the approach to tackling these escalations has taken different paths.

Public debt

(% of GDP)



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

Public debt has been in the economic spotlight since only relatively recently. The option of issuing sovereign bonds and borrowing on the markets did not become widespread until the 17th century, with the formation of modern states that had a greater supply of public assets, and again in the 19th century, with the development of international capital markets. Until then, public indebtedness had been the exception rather than the rule.¹

Recent history shows us that escalations of debt can be managed in two ways. One of them is the orthodox approach, which involves reducing the level of debt by boosting economic growth and generating consistent primary surpluses (which exclude interest payments). The second method is the heterodox approach, which would include restructuring the debt, generating inflation to lower its value, or financial repression to lower interest rates. Taking a heterodox approach involves assuming serious risks, as it discourages international investors from purchasing debt and thus ends up shortening the duration of debt issues and increasing their cost.

In the 19th century, orthodox approaches clearly dominated. In particular, there were three episodes marked by a sharp rise in public debt, which have been studied by economists in great depth: the Napoleonic Wars in the United Kingdom (which triggered a surge in public debt to 194% of GDP in 1822, surpassing the Greek debt of 2012), the Franco-Prussian War, and the American Civil War. In all three cases, the debt was successfully reduced, although it took the United Kingdom almost a century to do so, by generating persistent and significant primary surpluses (averaging 1.6% of GDP between 1822 and 1913). Economic growth, in contrast, did little to help, since in all three cases it was, on average, below the rate at which the Treasury was financed. Obviously, these primary surpluses required very strict fiscal discipline: on the one hand, public spending was contained, and on the other, sweeping new tax measures were created (in the US and the UK, the creation of income tax was a key piece of the puzzle).

The panorama we see emerging from the 20th century has many more nuances. In advanced economies, two distinct periods of public debt accumulation can be distinguished. The first took place in the 1930s and '40s and was the result of the Great Depression and the funding needs of World War II. The second period lasted throughout the 1970s and '80s and was triggered by a slowdown in productivity, higher interest rates and increased public spending. This ushered in a trend of rising debt, which accelerated following the Great Recession and has lasted up until the present day. In emerging economies, major episodes of debt escalation include those in Latin America in the 1930s and 1980s, and another in the 1990s in East Asia.

In the last 100 years, two success stories of reducing high levels of public debt stand out, each one with a very different approach. The first took place after World War I: between 1921 and 1929, the public debt of the current G-20 advanced economies was reduced from 74.1% of GDP to 58.5%. This debt consolidation was achieved primarily through fiscal discipline, although a positive differential between growth and the interest rate also played a major role. This process culminated in the Hoover Moratorium in 1931, which allowed European economies to suspend their debt payments to the US related to World War I, a suspension that became definitive in 1934.

1. Some early examples include the loans which Pope Urban IV of Rome requested from Tuscan bankers to pay the troops of Italy's allies in the conflict with the Holy Roman Empire of the German Nation in 1260, or the issuance of debt securities by Italian cities, also in the Middle Ages, which generated payments to the creditor throughout their lifetime or in perpetuity, without the principal of the debt having to be repaid.

Breakdown of major reductions in public debt

Economy	Period	Initial debt/GDP	Final debt/GDP	Contribution from primary balance	Contribution from g-i	Contribution from other factors *
United Kingdom	1822-1913	194.1	28.3	180.5	-95.6	15.1
US	1867-1913	30.1	3.2	151.1	-46.3	-4.8
France	1896-1913	95.6	51.1	100.4	-1.9	1.6
G-20 advanced economies	1921-1929	74.1	58.5	64.0	53.0	-16.0
G-20 advanced economies	1945-1975	116.0	24.3	46.0	75.0	-21.0

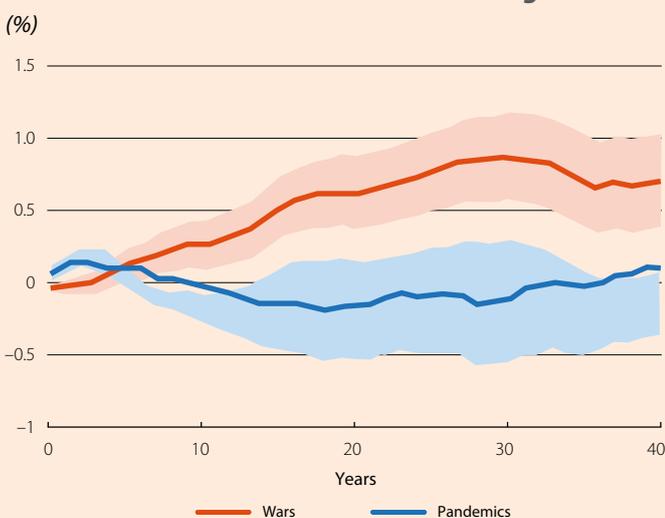
Note: * Other factors include foreign currency valuation effects, debt restructuring, defaults or bank recapitalisation costs.

Source: B. Eichengreen, A. El-Ganainy, R. Esteves and K.J. Mitchener (2019). «Public debt through the ages». National Bureau of Economic Research n° w25494.

The second case was the reduction in debt after World War II in advanced economies, bringing it from 116% of GDP in 1946 down to 24% in 1975. On this occasion, heterodox elements played a more important role, since real interest rates were in negative territory due to measures involving «financial repression» (such as interest-rate ceilings or higher capital reserve requirements for banks), combined with high inflation generated by expansionary monetary policies. These low rates, in conjunction with an economy in recovery marked by a strong revival in investment, led to a favourable differential between growth and interest rates that accounts for 75% of the reduction (see table).² In contrast, fiscal policy played a less important role.

Finally, it is interesting to analyse what lessons we can draw from past pandemics in terms of the sustainability of public debt. One encouraging element is that, using data from the United Kingdom, the empirical evidence³ shows that following pandemics the differential between growth and the real interest rate is persistently slightly positive (+50 bps on average for the 20 years following the pandemic, as shown in the last chart). This is because the lack of investment opportunities triggered by an excess of capital per worker and the increase in household savings tend to drive interest rates down. This favourable differential has

Post-pandemic debt sustainability: differential between the interest rate and growth



Notes: The interest rate used is the natural rate of interest (that which balances saving and investment). The study focuses on the 12 most severe pandemics that Europe has suffered since the Black Death. 95% confidence intervals.

Source: Ó. Jordà, S.R. Singh and A.M. Taylor (2020). «Longer-run economic consequences of pandemics». National Bureau of Economic Research, n° w26934.

are ways to gradually reduce it and to ensure its sustainability. In the current situation, little more can be asked of monetary policy: rates are at historic lows, and in the euro area the ECB's decisive action has served to suppress risk premiums and reduce financing costs. Therefore, a successful reduction in debt in the medium term will primarily require strong economic growth, and this will need to be accompanied by healthy and robust public finances. The game has only just begun.

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2. See B. Eichengreen, A. El-Ganainy, R. Esteves and K.J. Mitchener (2019). «Public debt through the ages». National Bureau of Economic Research n° w25494.

3. See Ó. Jordà, S.R. Singh and A.M. Taylor (2020). «Longer-run economic consequences of pandemics». National Bureau of Economic Research n° w26934.

European public debt in the medium term: sustainability and challenges

European public debt will experience a sharp rise in 2020. Specifically, it will go from 86% of euro area GDP in 2019 to 103%, according to the European Commission. This increase is inevitable, and to some extent desirable, given the current circumstances. Indeed, the macroeconomic shock caused by the COVID-19 pandemic is forcing the governments of the various Member States to take ambitious action to cushion the fall in economic activity and support the sectors hardest hit. Indeed, it can be argued that in order to avoid a long recession, the cost of the fiscal measures introduced should be similar to the decline in GDP.¹

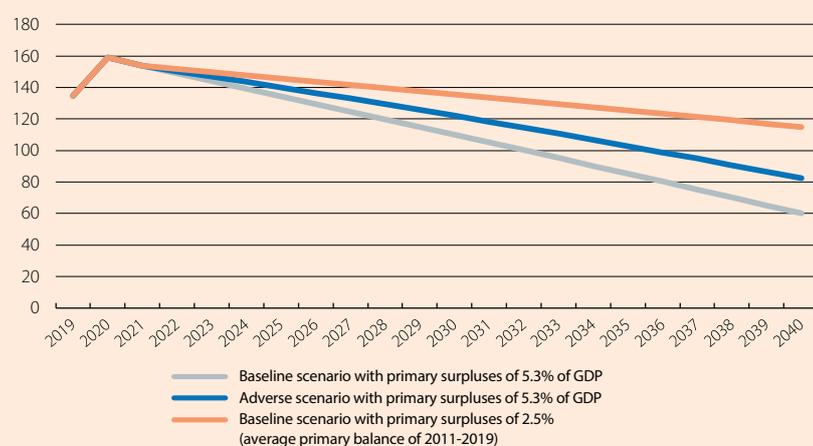
Nevertheless, while this increase in public debt is inescapable in the short term if we want to avoid an aggravation of the economic situation, it poses significant challenges in the medium term both in terms of sustainability and with regard to the macroeconomic effects it could entail.

On the sustainability front, the fact is that the situation is manageable provided that measures are taken to reduce public debt once the worst of the crisis has passed. According to the European Commission² public debt will peak in 2020, before gradually falling back down. As for how gradually: according to the Commission's simulations, in 2024 there is an 80% probability that euro area public debt will still stand at between 90% and 100% of GDP.

What factors can offer us cause for relative optimism? For starters, the ECB's ambitious asset purchase programmes in the secondary market have managed to reduce the risk premiums of the peripheral economies, making a spike in sovereign risk unlikely. Other factors worth highlighting include the positive differential between the growth rate of the economy (g) and interest rates (r) which are at historical lows, as well as the composition of European public debt (the maturity of the obligations has increased, and by mid-2020 it stood at around 7.5 years on average). This positive differential provides a safety net in the short term, but it will be essential to design a plan that ensures the sustainability of the public accounts; sooner or later, the interest rate at which the public treasury is financed will start to rise.³

Italy: paths of public debt reduction

(% of GDP)



Notes: A stable nominal GDP growth of 2.2% is assumed, in line with the IMF's long-term forecast as of October 2019. It is assumed that the cost of debt will remain constant at its 2019 level (2.5%). Deficit and public debt forecasts by the European Commission for 2020 and 2021. The adverse scenario assumes a 0.5-pp-lower GDP growth and a 50-bp-higher cost of debt.

Source: CaixaBank Research.

done in recent history. With the aforementioned average primary surplus of 2.5% of GDP, the debt would still be reduced, but it would not reach 60%... until 2065. To set the debt on a downward trajectory, sustaining primary surpluses above 0.6% of GDP would suffice.

In contrast, in Germany, which is starting from a position of very healthy public accounts, the situation is clearly better: the country could allow itself the luxury of sustaining primary deficits of 0.6% of GDP until 2040 (the average of the last eight years has been a primary surplus of 1.7%) in order to reach the level of 60% of GDP in that year.

1. See the editorial «[Exceptional measures for exceptional times](#)» in the MR04/2020.

2. See the report by the European Commission «[Assessment of public debt sustainability and COVID-related financing needs of euro area Member States](#)» of April 2020.

3. The historical evidence tells us that economies where $g-r > 0$, but which have a higher-than-average public debt to GDP ratio, have more than a 75% probability of falling into a situation in which $g-r < 0$, compared to a 25% probability in the case of those with a lower-than-average public debt to GDP ratio. See W. Lian, A.F. Presbitero and U. Wiriadinata (2020). «Public Debt and $r-g$ at Risk». IMF Working Paper 20/137.

Reducing public debt will be necessary to ensure that there are no sustainability issues that could lead to financial instability and difficulties in countries obtaining financing in the markets. But this is not the only reason: there is broad consensus among economists that failing to reduce high levels of public debt has negative consequences for growth in the short and medium term. In the short term, high debt is particularly problematic in the euro area as it is a monetary union in which national authorities primarily use fiscal tools to mitigate asymmetric economic shocks, and high debt means less scope for implementing countercyclical fiscal policies. We are already seeing this with the COVID-19 crisis if we compare Germany's ample fiscal margin with the tighter margins of countries with high levels of public debt such as Italy or Spain.

In the medium term, high public debt restricts growth mainly through two channels. On the one hand, the empirical evidence⁴ shows that the general government's increased funding needs reduce the funding that is available to the private sector. This results in lower corporate investment at the aggregate level. On the other hand, the need to raise taxes in the future in order to bring down public debt will reduce household consumption, as people's future disposable income will be lower.

We can illustrate this point with some figures in order to provide an idea of the macroeconomic impact in question. Two IMF economists⁵ estimate that, on average, an initial 10-pp increase in an economy's public debt to GDP ratio reduces the growth of its real GDP per capita by 0.2 pps per year. This effect is mainly explained by the reduction in investment and a lower accumulation of capital.

At the European level, a recent study⁶ estimates that an increase in public debt from 60% to 120% in the euro area's peripheral economies could lead to a permanent loss of around 3.0% of GDP in the long term. This exercise leaves us with another interesting lesson: the greater the degree of distortion of the taxes that are increased, the greater the negative impact of having high public debt. In other words, tax policy matters – a lot – hence the importance of having a simplified and efficient tax system.

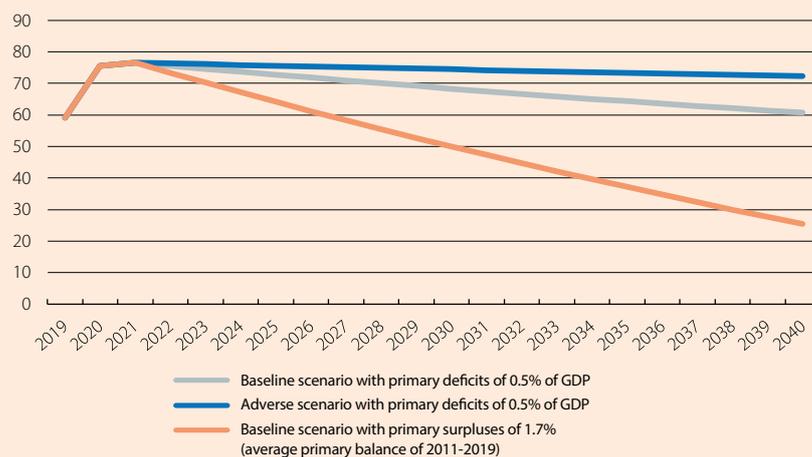
While it will be necessary to reduce public debt, there are good and bad ways to achieve this objective. More specifically, this process must be undertaken with great care: studies warn us that very rapid reductions in public debt in the absence of sustainability issues can generate rampant contractionary effects, while providing only minor benefits (in the form of a reduced likelihood of a debt crisis in the future).⁷ Furthermore, questions have begun to be raised over whether it is a good idea to focus too much on determining public debt thresholds that are considered negative for growth (traditionally around 90% of GDP, although they actually depend on the characteristics of each country's economy): some economists⁸ advise focusing less on absolute amounts and more on whether the debt is on a downward trajectory and whether its composition is reasonable.

In short, Europe faces the challenge of steadily reducing its public debt in the medium term. It is very encouraging to note that this process should be achievable without excessive doubts over its sustainability. As always, the main tools for achieving this will be boosting economic growth and ensuring sound management of the public accounts. The challenge will not be easy, especially in a continent with an ageing population where a significant portion of public spending is inertial. But the fact that overcoming the challenge ahead will not be easy does not mean that it cannot be done or, even less, that it should not be tried.

Javier Garcia-Arenas and Adrià Morron Salmeron

Germany: paths of public debt reduction

(% of GDP)



Notes: A stable nominal GDP growth of 3.3% is assumed, in line with the IMF's long-term forecast as of October 2019. It is assumed that the cost of debt will remain constant at its 2019 level (1.3%). Deficit and public debt forecasts by the European Commission for 2020 and 2021. The adverse scenario assumes a 0.5-pp-lower GDP growth and a 50-bp-higher cost of debt.

Source: CaixaBank Research.

4. See Y. Huang, U. Panizza and R. Varghese (2018). «Does public debt crowd out corporate investment? International evidence». IHEID Working Papers 08-2018.

5. J. Woo and M.S. Kumar (2015). «Public debt and growth». *Economica*, 82(328), 705-739.

6. P. Burriel *et al.* (2020). «Economic Consequences of High Public Debt: Evidence from Three Large Scale DSGE Models». ECB Working Paper Series n° 2450.

7. See M.J.D. Ostry, M.A.R. Ghosh and R.A. Espinoza (2015). «When should public debt be reduced?». *International Monetary Fund*.

8. See M. Pesaran *et al.* (2015). «Is there a debt-threshold effect on output growth?». (n° 245). Federal Reserve Bank of Dallas.

Does monetary policy lose effectiveness when economies are more indebted?

The economic recovery of the last decade was slow, despite the fact that monetary policy remained anchored in extraordinarily accommodative territory, with interest rates close to 0% or even negative.¹ Was this the fault of the heavy burden of debt we inherited from the financial crisis and the great recession? If the COVID-19 crisis is generating a sharp increase in debt, how will the effectiveness of monetary policy be affected in the coming years?

From debt to monetary policy: transmission mechanisms

One possibility is that it could become even more effective than before: various studies document that the macroeconomic impact of monetary policy largely stems from its impact on indebted households and firms.² This is reasonable: when interest rates fall, the burden on those in debt is relieved and resources are freed up to be used for consumption or investment. In contrast, the other group that can be particularly sensitive to interest rates – savers – tends to have a lower marginal propensity to consume:³ while monetary policy may produce large changes in the value of their assets, this will end up having a relatively smaller impact on macroeconomic variables such as aggregate consumption.

However, experience from the past 10 years suggests that the relationship between debt and monetary policy is more complex. Indeed, there is evidence that the slow pace of the economic recovery following the financial crisis and the great recession is explained, at least in part, by the burden of debt inherited from the crisis.⁴ This debt burden held back the recovery in demand due to several reasons. On the one hand, household consumption was constrained by the need to devote resources to repaying the debt⁵ and by the desire to rebuild savings buffers (for instance, for precautionary reasons or for retirement). On the other hand, in an uncertain and risk-averse environment, the more indebted firms and families could not increase their consumption and investment by taking on even more debt. Furthermore, the fall in financial asset and real estate prices following the crisis lowered the value of the collateral that firms and households need to borrow and finance their consumption and investment.⁶ Thus, although monetary policy remained heavily dovish, the debt burden limited the capacity of demand to respond to the low interest rates.

Overall, there are mechanisms that support an enhanced monetary-policy effectiveness and others that suggest that the debt burden on the economy can cause central banks to lose traction. What do the data say? Empirical studies find that monetary policy remains effective but loses strength in periods of high debt: its impact on GDP growth, consumption and investment is diminished.⁷ In addition, in the current environment the impact of monetary policy will also depend on the scars that the COVID-19 crisis leaves behind for investment opportunities, the desire to save and the redistributive effects of debt. If it damages productive capacity, the increase in precautionary saving persists or the debt burden falls on households and firms with fragile balance sheets, then the effectiveness of monetary policy will be more likely to be eroded.⁸

Propensity to consume based on income group
(Ratio between annual household spending and net income)



Note: Data relating to US households in 2019.

Source: CaixaBank Research, based on the Consumer Expenditure Survey conducted by the US Bureau of Labor Statistics.

1. The euro area and Spain took 6 and 9 years, respectively, to recover and consolidate the economic activity levels of 2008.

2. See J. Cloyne, C. Ferreira and P. Surico (2020). «Monetary policy when households have debt: new evidence on the transmission mechanism». *The Review of Economic Studies*, 87(1), 102-129.

3. The chart shows how the marginal propensity to consume decreases as income increases. Households with higher incomes (and less propensity to consume) also tend to be those with greater accumulated wealth.

4. See K. Dynan (2012). «Is a household debt overhang holding back consumption?». *Brookings Papers on Economic Activity*, 299-362.

5. See M. Di Maggio *et al.* (2017). «Interest Rate Pass-Through: Mortgage Rates, Household Consumption, and Voluntary Deleveraging». *American Economic Review*.

6. See N. Bhutta and B. Keys (2016). «Interest Rates and Equity Extraction during the Housing Boom». *American Economic Review*.

7. See S. Alpanda and S. Zubairy (2019). «Household debt overhang and transmission of monetary policy». *Journal of Money, Credit and Banking*, 51(5), 1265-1307.

8. The erosion of investment opportunities and the increase in precautionary saving can be reflected in a further decline in the natural rate of interest. The lower this rate is, the more the central bank must reduce the observable rates – something that is becoming increasingly difficult with rates that are already negative or close to 0%.

Faced with a loss of traction... is there room to shift up a gear?

A loss of effectiveness can force central banks to pursue a more aggressive monetary policy. In a way, this is already what banks such as the Fed, the ECB and the Bank of England have been forced to do in the last decade, and the Bank of Japan for even longer, with unconventional measures such as asset purchases (especially purchases of public debt). To mitigate the risk of a further loss of traction following the COVID-19 crisis, it is important that the bulk of the effort does not once again fall exclusively on monetary policy. Other spheres of economic policy must continue to take a step forward, both in the COVID-19 containment phase and later in the phase of boosting the recovery.

After all, with the rise in debt that the COVID-19 crisis will trigger, it will become increasingly difficult for monetary policy to shift up a gear. For instance, both in Japan and Europe, it has been documented how the combination of an increase in debt and accommodative financial conditions associated with the dovish monetary policies that have been applied can erode long-term economic growth: an accommodative financial environment enables the survival of highly indebted and unproductive firms, which slows down the reallocation of resources to emerging sectors and depresses aggregate productivity.⁹

Finally, there is another major risk that is more fundamental: fiscal dominance. This refers to the risk of the monetary authority feeling obliged to adapt monetary policy to suit the needs of fiscal policy. Any monetary action has fiscal consequences (rate hikes increase payments on public debt, while rate cuts allow those payments to be reduced). However, the more public debt central banks have on their balance sheets the greater the fiscal consequences of their decisions, and this could result in them becoming excessively restricted in their actions. Faced with this situation, all spheres of economic policy must share the effort to stimulate economic activity in order to avoid pushing monetary policy to even more extreme positions. Having robust institutions that protect central banks' independence will also be key. Otherwise, the COVID-19 crisis could also have repercussions for central banks' actions in the medium term and for the future performance of our economies.

Adrià Morron Salmeron and Javier Garcia-Arenas

9. See V. Acharya *et al.* (2020). «Zombie credit and (dis-)inflation: evidence from Europe». NBER Working Paper n° 27158.

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