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ABBREVIATIONS [*]

€	Euro
AFME	Association for Financial Markets in Europe
AMCESFI	Autoridad Macroprudencial Consejo de Estabilidad Financiera (Macroprudential Authority Financial Stability Council)
ATA	Average total assets
AUROC	Area under the receiver operating characteristics curve
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BMR	Benchmarks regulation
bn	Billion
bp	Basis points
CBS	Consolidated banking statistics
CBSO	Banco de España Central Balance Sheet Data Office
CCPs	Central counterparties
CCyB	Countercyclical capital buffer
CCR	Banco de España Central Credit Register
CDO	Collateralised debt obligation
CDS	Credit Default Swap
CEBS	Committee of European Banking Supervisors
CEMBI	Corporate Emerging Markets Bond Index
CESFI	Consejo de Estabilidad Financiera (Financial Stability Council)
CET1	Common Equity Tier 1 capital
CJEU	Court of Justice of the European Union
CLOs	Collateralised loan obligations
CNMV	Comisión Nacional del Mercado de Valores (National Securities Market Commission)
COE	Cost of equity
CPMI	Committee on Payments and Market Infrastructures
CPSS	Basel Committee on Payment and Settlement Systems
CRD	Capital Requirements Directive
CRR	Capital requirements regulation
DGSyFP	Dirección General de Seguros y Fondos de Pensiones (Directorate General of Insurance and Pension Funds)
EBA	European Banking Authority
ECB	European Central Bank
EDW	European Data Warehouse
EMMI	European Money Markets Institute
EMU	Economic and Monetary Union
EONIA	Euro overnight index average
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
€STR	Euro short-term rate
FLESB	Forward-Looking Exercise on Spanish Banks
FRA	Forward rate agreement
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSMA	Financial Services and Markets Authority (of Belgium)
FSR	Financial Stability Report
GDP	Gross domestic product
G-SIIs	Global Systemically Important Institutions
IAS	International Accounting Standards
ID	Data obtained from individual financial statements
IFRSs	International Financial Reporting Standards
IIP	International investment position
IMF	International Monetary Fund
INE	National Statistics Institute
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association
LCR	Liquidity coverage ratio
LSI	Less significant institutions
LSTI	Loan service to income

(*) The latest version of the explanatory notes and of the glossary can be found in the November 2006 edition of the *Financial Stability Report.*

LTI	Loan to income
LTP	Loan to price
LTV	Loan-to-value ratio (amount lent divided by the appraised value of the real estate used as collateral)
m	Million
MiFID	Markets in Financial Instruments Directive
MMSR	Money market statistical reporting regulation
NAFTA	North American Free Trade Agreement
MREL	Minimum Requirement for own funds and Eligible Liabilities
NPISHs	Non-profit institutions serving households
NPLs	Non-performing loans
OFIs	Other financial institutions
OIS	Overnight indexed swap
O-SIIs	Other systemically important institutions
OTC	Over the counter
PER	Price earnings ratio
pp	Percentage points
RTGS	Real-time gross settlement
ROA	Return on assets
ROE	Return on equity
RWA	Risk-weighted assets
SI	Significant institutions
SIFMA	Securities Industry and Financial Markets Association
SLIs	Specialised lending institutions
SMEs	Small and medium-sized enterprises
SSM	Single Supervisory Mechanism
S-VAR	Structural vector autoregression
TA	Total assets
TIPS	TARGET Instant Payment Settlement
TLTROs	Targeted Longer-term Refinancing Operations
T2	TARGET2
T2S	TARGET2-Securities
USMCA	United States, Mexico and Canada Agreement

ISO COUNTRY CODES

AT	Austria	IE	Ireland
BE	Belgium	IT	Italy
BG	Bulgaria	JP	Japan
BR	Brazil	KY	Cayman Islands
CH	Switzerland	LT	Lithuania
CL	Chile	LU	Luxembourg
CN	China	LV	Latvia
CY	Cyprus	MT	Malta
CZ	Czech Republic	MX	Mexico
DE	Germany	NL	Netherlands
DK	Denmark	NO	Norway
EE	Estonia	PL	Poland
ES	Spain	PT	Portugal
FI	Finland	RO	Romania
FR	France	SE	Sweden
GB	United Kingdom	SI	Slovenia
GR	Greece	SK	Slovakia
HR	Croatia	TR	Turkey
HU	Hungary	US	United States

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In the past six months, the risks to the stability of the Spanish financial system have increased. As in the global economy, macrofinancial risks have stepped up in Spain. This increase is the outcome, above all, of the recent global economic slowdown, particularly in Europe and China, and of the widespread increase in uncertainty. This setting might prompt increased volatility on financial markets and a rise in risk premia. And it might also trigger additional downside pressures on the profitability of the banking sector, which remains at low levels. Further, a specific risk to Spanish deposit institutions has been identified, derived from the potential increase in legal demands. Thus, the main factors of risk to the financial system identified in this Financial Stability Report (FSR) are the following (Table 1):

RISK FACTORS (a) TABLE 1

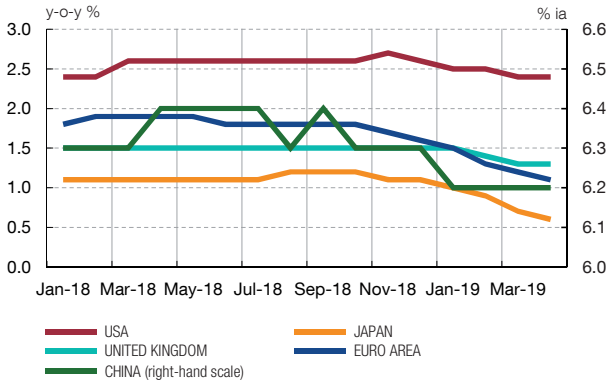
1	The global economic slowdown and, in particular, of Europe and China, combined with heightened geopolitical uncertainty, may mean a significant increase in risk premia which negatively impacts financial asset prices, both of corporate and government bonds and equities.	↑
2	In a setting of low margins, the profitability of Spanish banks will be subject to further pressure due to the consequences of the economic slowdown.	↑
3	Spanish deposit institutions are facing, with varying intensity, the legal risk of a potential increase in legal demands brought against them.	→

SOURCE: Banco de España.

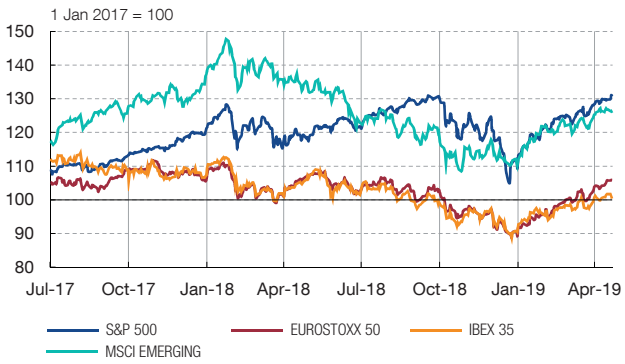
a The risks which appear in this table are calibrated using four colours: green denotes an absence of risk, yellow indicates low risk, orange, medium risk, and red, high risk. Consequently, at present the three risks are at a medium level. The time horizon for which these risks are defined is set by the FSR's frequency, i.e. half-yearly. The arrows indicate whether risk has recently increased, held stable or diminished.

1 **Economic slowdown and geopolitical uncertainty with a potential impact on asset prices through higher risk premia.** In 2019 to date, the sources of economic and geopolitical uncertainty in place in late 2018 appear to have increased. Global trade tensions persist and negotiations to achieve new agreements are facing substantial difficulties. Indeed, the indicators of the Chinese economy are feeling the effects of the trade tensions with the United States and of China's own macrofinancial imbalances. A significant slowdown in this economy might have major repercussions for other emerging economies that are recipients of its investment and the source of its goods and services imports. It is notable here how financial market tensions have returned in recent weeks in Turkey and Argentina, following the calm after drastic monetary and fiscal measures were adopted last year and the IMF financial assistance to Argentina. The economic recession in both countries, the low coverage of international reserves in Turkey and the scant headway in Argentina in macroeconomic stabilisation constitute their main vulnerabilities. In Europe, the risk of a disorderly Brexit has, following the European Council agreement, been put back to 31 October this year. Elsewhere, the uncertainty

A CONSENSUS FORECAST FOR 2019



B STOCK MARKET INDICES



SOURCES: Consensus and Datastream.

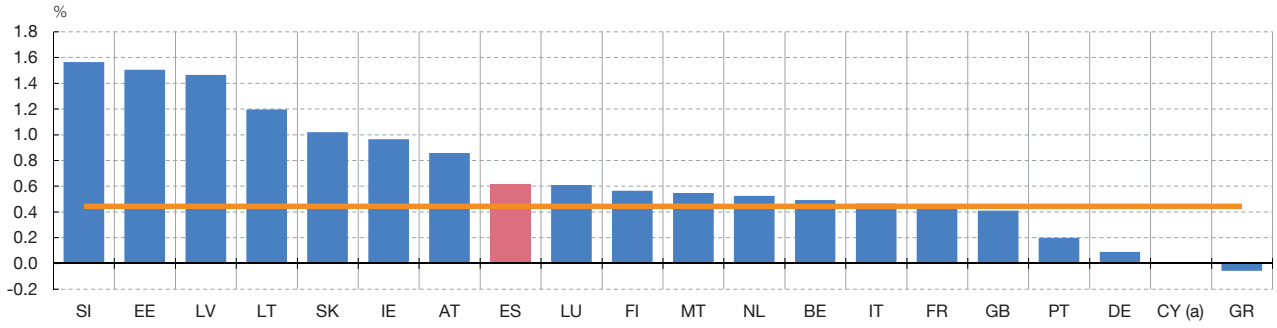
associated with Italy's fiscal situation remains in place, against a background of economic recession in the second half of 2018, and the German economy has slowed significantly. In Spain, uncertainty persists over the future course of economic policies.

This uncertain environment is affecting global economic activity. There have been particularly marked downward revisions in GDP forecasts (Chart A) across the board in the euro area. Yet stock market valuations (Chart B) have recouped much of the downward correction they underwent in late 2018 and risk premia have held at low levels. Compared with the previous FSR, the heightening of this slowing trend in the global economy might trigger a correction, via higher risk premia, of international financial market prices, with adverse consequences for global financial conditions and those in Spain. But the likelihood of a correction associated with sharper-than-expected monetary policy normalisation is fading, since central banks are prolonging ultra-expansionary policies to bolster activity, against a background of contained inflation expectations.

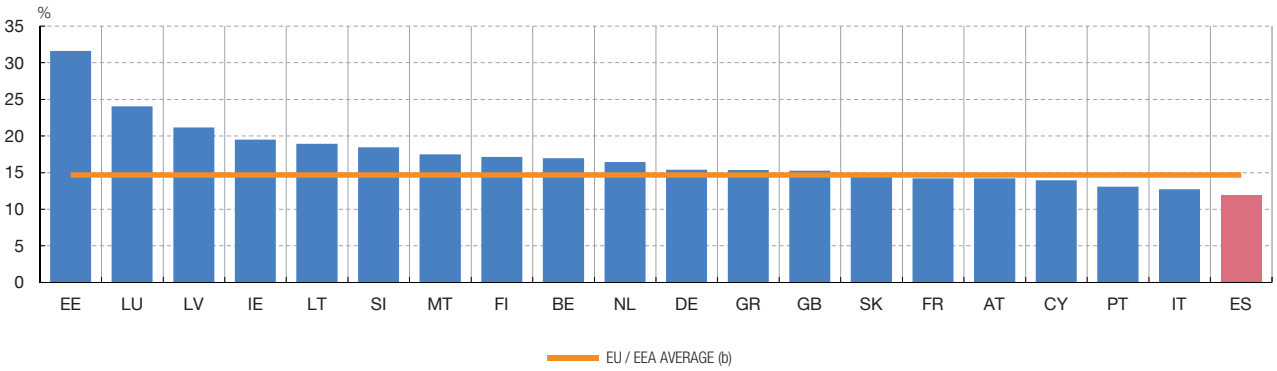
2 **Low margins and pressure on the profitability of Spanish financial institutions.** The net consolidated income of Spanish deposit institutions grew significantly in 2018. This was largely due to the greater positive contribution of extraordinary income, and to the decline in asset impairment losses. Yet ROA remained low, though it was above the average for European banks (Chart C). Looking ahead, the expectations of a global – and in particular European – economic slowdown and the subsequent delay in the ongoing monetary policy normalisation will subject deposit institutions' margins to greater pressure.

3 **Legal risk arising from the potential increase in legal demands against deposit institutions.** In recent years, the legal risk linked to legal suits affecting Spanish banks has increased significantly. Banks have been involved in a high number of legal processes, in which certain contractual conditions in their mortgage lending operations were questioned. The cost of these processes for institutions has materialised in a number of cases (e.g. in floor clauses, with more than €2.2 billion returned to customers up to January 2019), but there are still very important legal procedures pending resolution. The European Union

C RETURN ON ASSETS
December 2018



D CET1 RATIO
December 2018



SOURCE: EBA.

a Data not published by the EBA.
b EBA data include Iceland.

Court of Justice (EUCJ) is expected to respond in the second half of the year to legal issues tabled in relation to the use of the mortgage loan benchmark index (IRPH by its Spanish abbreviation). Depending on how the EUCJ rules, there might be an increase in legal demands against Spanish banks. This would impact those banks with a higher volume of IRPH-linked mortgage loans, requiring them to properly measure the potential contingent impact and to take suitable management and prevention measures.

More generally, the emergence of legal risk, among other factors, has led to a loss of reputation for the banking sector, both in Spain and in other countries. Banks should strive to reverse this development by providing their customers with financial products tailored to their needs and capabilities, while supplying the pertinent information clearly and transparently. Reputation and customer confidence are essential for developing banking business.

Against this background, the Spanish economy retains some factors of vulnerability. High public and external debt means that both the general government sector and the economy as a whole are comparatively more exposed to potentially costlier funding. This is associated, for instance, with potential rises in risk premia or with adverse macroeconomic developments. Households' financial position has tended to strengthen thanks to the reduction in their debt in recent years, and to the improvement in incomes and in employment as a result of the economic recovery. But some Spanish household segments remain in a situation of great fragility, with the household aggregate saving rate at a very low level. That is partly linked to households' greater resort to consumer credit which,

despite having eased in recent months, continues to grow at a notable pace. The business sector has also continued reducing its levels of debt, and new loans by financial institutions are concentrated in the most productive firms. That said, some segments remain more vulnerable, specifically smaller firms and, above all, those operating in the real estate and construction sector.

Regarding the real estate sector, the recovery in activity and in prices remains ongoing. In particular, the average level of estimates of prices in the sector veering off their medium term trend has increased, moving away from the negative range but currently standing close to equilibrium values. While no easing has been seen in lending standards for new loans, their growth rate is high. It will thus be necessary to remain vigilant in this market. In any event, new loans are not yet offsetting repayments of existing loans, meaning that lending to households for house purchase will continue falling at the aggregate level.

Deposit institutions continue to face the challenge of improving their levels of profitability and solvency. Indeed, the (best-quality) CET1 solvency ratio of Spanish banks fell over the past year, standing last among European jurisdictions (Chart D). That said, they announced an increase in their target capital ratios. Here, improving the statement of income is key to shoring up solvency levels, as is too the measurement of risks and their coverage through appropriate interest rates. Moreover, reducing operating costs, investing in new technologies and judiciously selecting business strategies are further factors for improving the profitability of the business in the medium and long term. Greater solvency will also contribute to meeting the MREL (Minimum Requirement for own funds and Eligible Liabilities) requirements with which Spanish banks must progressively comply in the coming years. These requirements may pose significant challenges for small and medium-sized institutions, with mainly retail funding sources and with less scope to access the wholesale funding markets.

The sensitivity of banks' capital ratios to the individual materialisation of some of the macroeconomic risks is high, but the banking system's aggregate solvency ratio is expected to hold at an appropriate level. As part of the stress tests and using specific elements of the Banco de España's FLESB methodology, this FSR analyses the potential impact of the independent materialisation of various identified macrofinancial risks. In particular, there are estimates for the impact of: i) a decline in global activity, ii) a reduction in consumer and business confidence in Spain, iii) a reversal of stock market prices, and iv) a reduction in house prices. The shocks are calibrated to capture extreme situations. For the 2018-2020, period, the maximum cumulative effect of the individual materialisation of these risks on Spanish GDP growth is around 6 pp and almost 30 pp on the growth of house prices. This would translate into an impact on financial institutions' average solvency ratio of 2 pp on average in this three-year horizon. However, it should not be forgotten that, in an adverse economic scenario, the simultaneous materialisation of several of these risks is possible.

Analysis of Spanish deposit institutions' interrelations with the rest of the financial system shows the Spanish economy to be highly banked and evidences the limited scale of direct interconnections. Deposit institutions amass a large portion of the Spanish financial system's assets, as is the case in the other European continental economies. However, their weight has declined since the global financial crisis, following a trend likewise seen in other jurisdictions. This has its advantages, since it enables both those supplying and demanding funds to broaden their investment and funding options, and allows risks to be better diversified. But it also poses challenges. By increasing

interconnections among financial institutions, the possibilities of contagion are duly raised. It is important to analyse and understand the sources of risks that these other actors might generate, given that they could operate through channels other than those traditional to banks. In Spain's case, while these interconnections have increased, they remain limited. Moreover, major short-term risks have not been detected in non-bank financial institutions (investment funds, insurance companies and pension funds).

The macroprudential policy stance pursued by the Banco de España in recent months has held stable. It is evident that i) systemic risk indicators are at low levels viewed from a broad historical perspective; ii) that there is some slowdown in consumer lending; and iii) that the analysis of the individual materialisation of macroeconomic risks identified shows that such risks would exert a significant but bearable impact on the average level of institutions' solvency. In light of this it has not been considered necessary to activate new macroprudential measures or re-calibrate those currently applicable. In particular, the countercyclical capital buffer (CCyB) holds unchanged at 0%, in keeping with the credit-to-GDP gap and other quantitative indicators of cyclical systemic risk. Nonetheless, the Banco de España is developing procedures to adapt the credit-to-GDP gap to the reality of the Spanish financial cycle and to take into account its relationship to other fundamental variables. At the same time, it will monitor other quantitative indicators and the medium-term projections for them.

1.1 Macroeconomic environment

1.1.1 INTERNATIONAL ENVIRONMENT

The global economy has slowed in recent quarters, against a background of persistent trade tensions. Global GDP grew by 3.6% in 2018, 0.1 pp down on 2017 and below expectations at the start of the year. It moved on a slowing path that steepened in the closing months of the year (Chart 1.1.A). Economic activity remained more robust in the United States, although there have also been signs of some easing in growth recently. In the other advanced economies, GDP growth was also below expectations, especially in the euro area. Against this background, monetary policy in the main advanced economies is adopting a more accommodative stance. Among the emerging economies, the economic indicators in China showed signs of deceleration, to which the authorities responded with new stimulus measures. There is also less dynamism in other regions, in particular in the more vulnerable economies such as Argentina and Turkey. The announced macroeconomic stabilisation programmes in both did not succeed in preventing increased tensions in recent weeks.

In the euro area, the slowdown in economic activity in 2018 was particularly sharp in the second half of the year. GDP growth, which stood at 1.8% in 2018, 0.7 pp down on 2017, slowed sharply in the final stretch of the year. This deceleration ran into early 2019 (Chart 1.1.B) and has affected most countries, in particular Germany. The downturn is in response to a lower contribution by the external sector to growth. Behind this lies the weakness, on one hand, of the member countries and, on the other, of products such as investment goods and automobiles, which are very important in respect of European specialisation. Further factors are the past appreciation of the euro, trade tensions and geopolitical uncertainty.[1] Some signs suggest that this weakness in external demand has already begun to feed through to domestic demand, in particular to investment and to employment.

The outlook for the world economy in 2019 is one of a moderate slowdown, but with significant downside risks. The recent sluggishness of the global economy has given rise to a downward revision of economic forecasts, in the advanced economies – especially in the euro area – and in the emerging countries (Chart 1.1.C). In particular, the persistency of the slowdown led to a lowering of the ECB's forecasts for 2019 and 2020 in March, to 1.1% and 1.6%, respectively, 0.6 and 0.1 pp less than forecast in December. Of note in this baseline scenario are the risks of more unfavourable than expected developments. These relate to the uncertainty of economic policy (trade policy in particular) and to the possibility of a sharper than foreseen slowdown in some systemic economies, such as China. The Chinese authorities face a dilemma as to whether to stimulate economic activity in the short term, containing the slowdown, at the expense of checking the path of correction of China's macrofinancial imbalances and potentially increasing the risk of a sharper adjustment in the future. Given China's growing weight in the world economy, a sharper than expected slowdown in this country might entail significant global consequences, through the trade, financial and confidence channels, and through the commodities markets (Chart 1.1.D). For the euro area, another major cause for concern is that the recession in Italy may ultimately worsen its fiscal position and Italian banks' balance sheets. Additionally, there is a very substantial risk of a possible disorderly no-deal Brexit.[2]

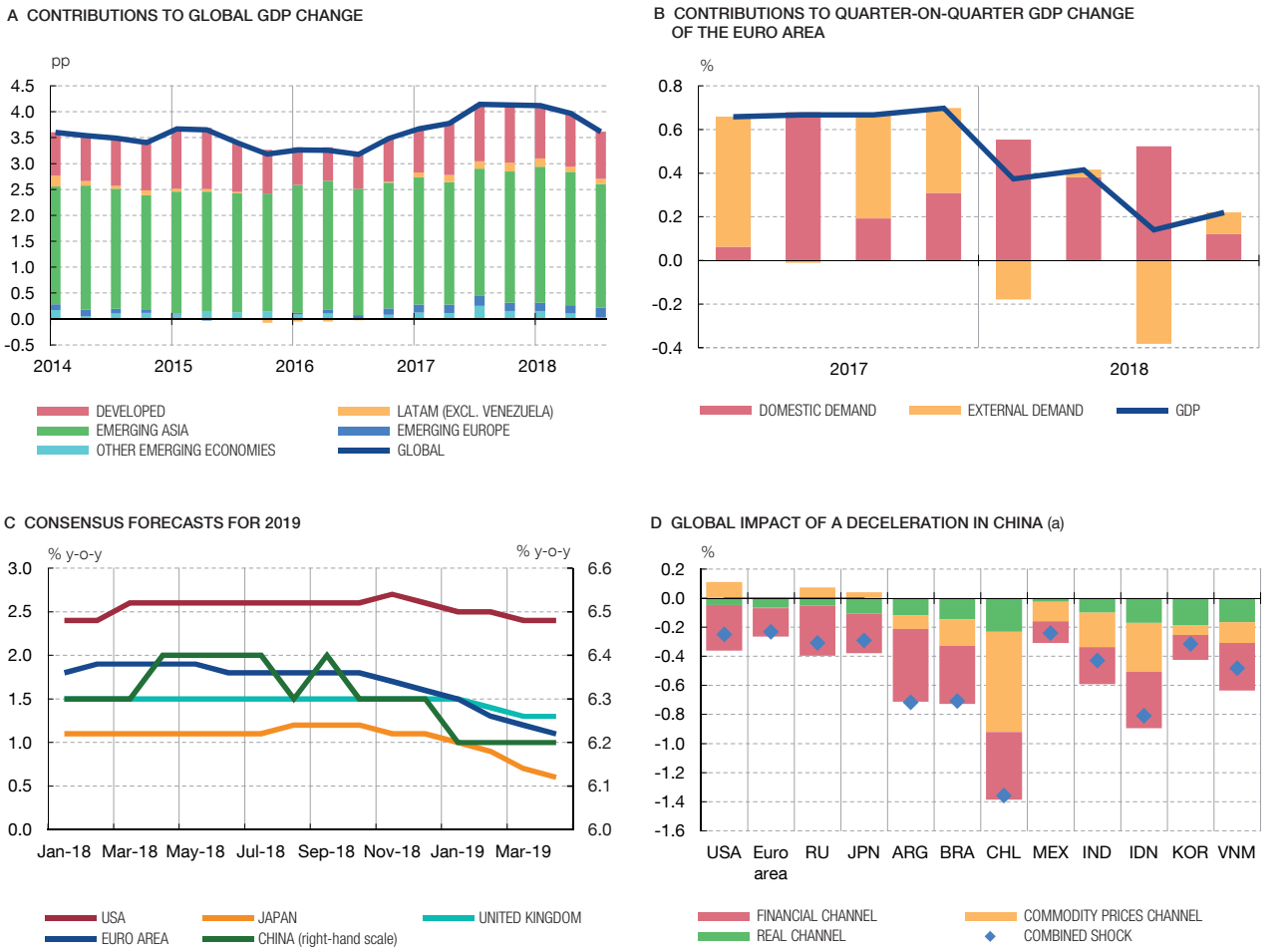
1 For further details see Box 2,"The impact of the slowdown in world trade on euro area exports", Quarterly report on the Spanish economy, *Economic Bulletin 1/2019*, Banco de España.

2 For further details see "Brexit: current situation and outlook", Documento Ocasional No. 1905 (March 2019), Banco de España.

SYSTEMIC COUNTRIES OF MATERIAL IMPORTANCE

CHART 1.1

The world economy is continuing to slow down, against a backdrop of significant risks to growth and downward revisions of economic forecasts. The increase in protectionist tensions, the possibility of a disorderly no-deal Brexit, an adjustment in financial markets or a sharper deceleration of the Chinese economy could have a severe impact on global activity.



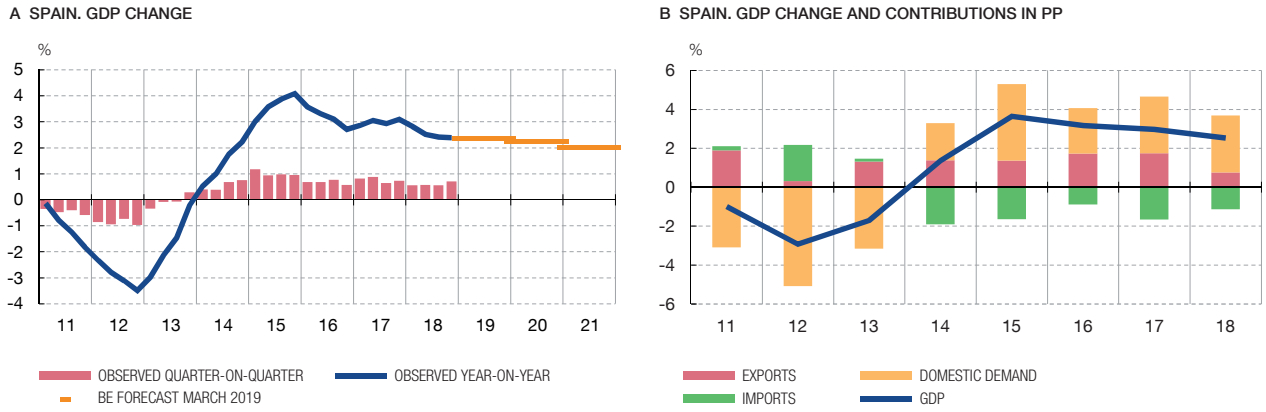
SOURCES: IMF, Eurostat, Consensus, IFS.

a Simulations using NiGEM. Impact on GDP growth in year one of a fall of 1 pp in potential growth and in domestic demand in China, which entails a decline of 7% in oil prices, of 8% in metal prices and adverse effects on global financial markets (correction of 10% in the stock markets of China, Europe, Japan and USA; increase of 50 bp in share risk premium; and increase of 60 bp in long-term interest rates of emerging economies).

The risks in the emerging economies of most importance for Spain are also significant. In Brazil, the new government has unveiled its proposal for Social Security reform. It has been favourably received by the markets, but faces a long and arduous process before approval. There is thus a risk that public debt will continue increasing notably in the coming years. In Mexico, there is concern too on the fiscal front, owing to the situation of the state-owned oil company PEMEX, and to the downward revision of the growth outlook for the economy. This has led several rating agencies to place the outlook for Mexican public debt in negative territory. Moreover, uncertainty persists over the performance of the external sector, since the USMCA treaty that is to replace NAFTA has still to be approved in the US, Mexican and Canadian legislative branches. Lastly, Argentina and Turkey continue their slow process of adjustment, with risks both in the external environment, essentially associated with the possible appreciation of the dollar, and on the domestic front. In particular, in Turkey, there is a risk that the recently implemented monetary and fiscal policies will be eased. And in Argentina, the presidential elections scheduled for late 2019

SPANISH GDP CHART 1.2

The upturn over the period 2019-2021 is projected to continue, albeit with a gradually slowing profile and downside risks. The buoyancy of GDP is estimated to have been underpinned by robust domestic demand, whereas exports are estimated to have slowed significantly.



SOURCES: INE and Banco de España.

might raise doubts over the country's future economic policy stance and prompt fresh turbulence on the markets that will hamper the macroeconomic adjustment.

1.1.2 SPAIN

In the final stretch of 2018, the Spanish economy retained its expansionary inertia, which is estimated to have run into the opening months of 2019. On Banco de España estimates, GDP is expected to have increased by 0.6% in quarter-on-quarter terms in 2019 Q1 (Chart 1.2.A), and by 2.4% year-on-year. As in 2018, this dynamism was mainly underpinned by robust domestic demand, while exports slowed significantly, reflecting the downturn in the external environment (Chart 1.2.B). Employment continued to increase in step with the growth in activity. This was conducive to a fresh decline in the unemployment rate, although it is also moving on a slowing path.

The short and medium-term outlook is for a continuation of growth, albeit at somewhat lower rates and with downside risks. The Banco de España's latest macroeconomic projections, published in March, envisage the continuation of the expansionary phase over the 2019-2021 period, but with GDP gradually slowing (Chart 1.2.A).[3] Conditioning this baseline scenario are domestic as well as external risks. Should these materialise, they might translate into a more unfavourable course of economic activity. The risks include most notably those associated with the still-indefinite short and medium-term fiscal policy path and, generally, the future economic policy stance.

1.2 Financial markets and real estate sector

1.2.1 FINANCIAL MARKETS

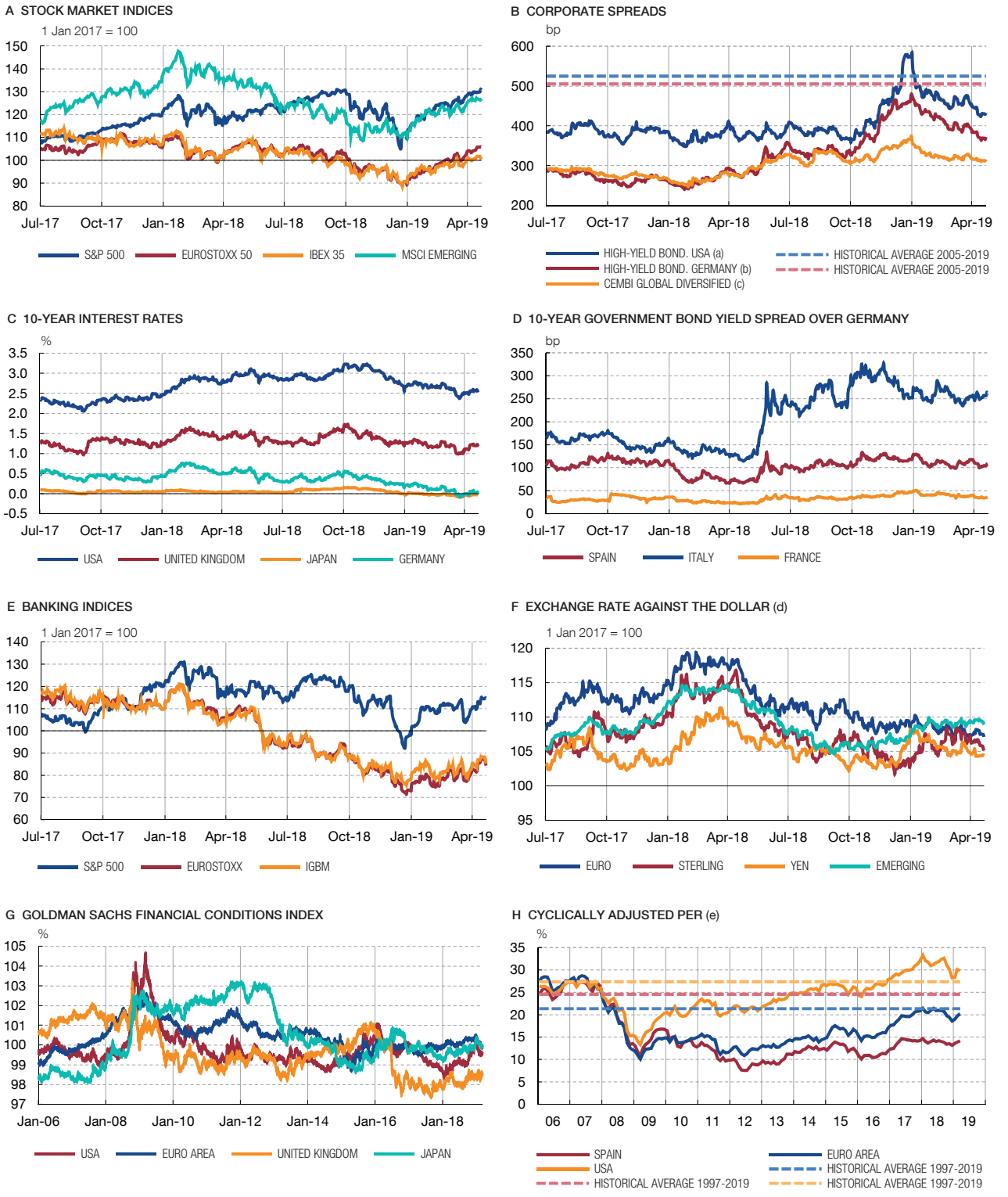
The closing months of 2018 saw an increase in investor risk aversion on global financial markets. As a result of this, there were across-the-board declines in share prices and increases in credit risk premia (Charts 1.3.A and 1.3.B), rises in volatility and cuts in the yields on top-quality long-term sovereign debt, which acted as a safe haven (Chart 1.3.C). Several factors prompted these developments: the publication of macroeconomic indicators which on the whole disappointed market expectations; the pessimism surrounding US/China trade negotiations; and a US Federal Reserve monetary policy that was less accommodative than expected by the market.

3 For further details see Box 1, "Macroeconomic projections for Spain" Quarterly report on the Spanish economy, *Economic Bulletin 1/2019*, Banco de España.

FINANCIAL MARKET INDICATORS

CHART 1.3

Following the bout of instability on global financial markets at end-2018, market indicators have recovered notably in the opening months of 2019 coinciding with the more accommodative stance of the main central banks, among other factors. The financial conditions in the main economies have tightened compared with the situation at the cut-off date of the previous FSR, but they remain lax, as suggested by the stock market rally, the fall in sovereign debt yields, lower corporate spreads and the relative stability of the dollar.



SOURCES: Robert J. Shiller, Datastream, JP Morgan and Bloomberg.

a Corporate bond spread: "B"-graded Merril Lynch bond over the US ten-year Treasury bond.
b Spread of Itraxx Crossover Europe over the German ten-year government bond.
c The CEMBI (Corporate Emerging Markets Bond Index) Broad Diversified is an index prepared by JP Morgan. It measures the corporate risk of the group of emerging countries and represents the spread of emerging countries' corporate debt yield in dollars over US corporate debt yield.
d Values higher than 100 denote depreciations of the dollar relative to 1 January 2017.
e The cyclically adjusted PER is calculated as the ratio of share prices to the ten-year moving average of profits.

Since the start of the year, the recovery on the financial markets has generally been notable. Global growth forecasts were admittedly revised downwards. But the more accommodative stance adopted by the US Federal Reserve in the final weeks of 2018 has meant that markets are currently not discounting any rise in benchmark interest rates in the US economy in 2019. Indeed, markets even anticipate a possible cut. That, together with greater optimism over the possibility of a US/China trade agreement, has prompted across-the-board stock market gains and the appreciation of other risky assets in early 2019. The measures implemented by China to counter the slowdown in its economy and some positive surprises in US corporate results also contributed to this pick-up on the markets.

The ECB has also adopted a more accommodative monetary policy stance. In March, the ECB Governing Council extended the minimum time horizon over which it expects to maintain its policy interest rates at their current levels ("at least until the end of 2019"). That prompted a further delay in market expectations about the date of the first rate rise in the region.[4] The Governing Council also agreed to launch a series of quarterly targeted long-term refinancing operations (TLTRO-III) commencing September 2019, with the intention of maintaining favourable financing conditions and fluid monetary policy transmission.

Against this backdrop, bank and several sovereign debt risk premia have fallen on euro area financial markets in 2019 to date. And, at the same time, stock market prices have partly recouped the losses in the final stretch of 2018. In Spain and Portugal, the risk premium on long-term sovereign debt vis-à-vis Germany has fallen by around 10 bp and 30 bp, respectively, since the start of the year. In Italy, after reaching a budgetary agreement with the European Commission and despite the fact the economy has gone into technical recession, this spread – which was highly volatile in late 2018 – has held relatively stable in 2019. Currently, it stands around 60 bp below its autumn peak (Chart 1.3.D). European banks' risk premia also fell. Euro area and Spanish bank share prices have recovered since the start of the year, though to a lesser extent than those of US banks. They have also shown greater sensitivity to unfavourable news, as could be seen in February following the release of 2018 results (Chart 1.3.E). In any event, the EuroStoxx banks index on European bourses and on the Madrid Stock Exchange stand over 20% below their levels at the onset of 2018.

Overall, financial conditions in the main world economies have tightened somewhat compared with the cut-off date for the previous FSR, but they remain easy. Since early 2019, the stock market pick-up, the decline in sovereign debt yields and the relative stability of the US dollar, following its continued strengthening over much of 2018 (Chart 1.3.F), have contributed to easing global financial conditions. These conditions remain easy in historical terms, despite tightening during the final stretch of 2018 (Chart 1.3.G).

The materialisation of some of the risks to global economic growth indicated in the previous section might trigger a correction in financial asset prices. This possible correction might primarily affect those markets showing greater vulnerabilities (cases in point being the leveraged loans and CLOs markets) or higher valuations, such as the US stock market (Chart 1.3.H) and the high-yield corporate debt segment (Chart 1.3.B). From this perspective, it cannot be ruled out that this potential realignment of prices might lead to accelerated asset sell-offs, with potentially disruptive effects on markets.

4 For further details see Box 4, "Market expectations about the euro area benchmark interest rate" Quarterly report on the Spanish economy, *Economic Bulletin 1/2019*, Banco de España.

This potential correction of financial asset prices would adversely affect financial stability in Spain through various channels. First, it would entail a tightening of financing conditions across various sectors, whose effect on the Spanish economy would be significant given its high external indebtedness. Further, the loss of value of assets might unfavourably affect financial intermediaries through two channels: directly, by affecting the market value of the traded assets held in their portfolios; and indirectly, by reducing household and corporate wealth, which would adjust their spending and investment decisions downwards, thereby amplifying the recent downturn in the macroeconomic environment and impairing the credit quality of banks' loan portfolios.

1.2.2 THE REAL ESTATE MARKET IN SPAIN

The real estate market has prolonged the recovery it embarked upon in 2014. The recent buoyancy of this market would, inter alia, be a reflection of favourable labour market developments and of highly favourable borrowing conditions for house purchases by households. Since 2013, there has been a slow but progressive absorption of the housing overhang that built up after the crisis (to below 500,000 units at present). A further consequence has been relatively high growth rates in house prices (6.6% year-on-year in 2018 Q4). Overall, average house prices have grown 22% in real terms from their trough in early 2014. That said, they remain 31% below their 2007 Q3 peak (Chart 1.4.A).[5] The indicators and models available, based on aggregate data and subject to high uncertainty, do not show generalised signs of overvaluation. Yet, as can be seen in Chart 1.4.B, some indicators suggest that house prices are now, on average, very close to their long-term equilibrium value, after having stood significantly below this level during the previous years.

Despite the sector's buoyancy, the levels of the main indicators of real estate activity are lower than those observed in the years in the run-up to the crisis. For example, the volume of housing transactions stood above 550,000 in 2018, marking a significant recovery from its floor. That said, this remains far below the 885,000 transactions recorded on average in the 2004-2007 period (Chart 1.4.C). The current supply of new housing, proxied by the number of building permits, accounted last year for little more than 10% of the pre-crisis peak. The diminished dynamism of supply in the current cycle compared with the previous expansion would be due, among other factors, to banks applying a more prudent lending policy to the construction and real estate development sector, to the existence of a high stock of unsold houses and to much more moderate growth in new household formation (95,000 in 2018, compared with an annual average increase of 435,000 in the 2004-2007 period). It is worth highlighting with regard to this latter determinant that, although in the final years of the previous expansionary cycle the supply of housing grew more sharply than new household formation, in the current cycle the dynamics of the two series are more closely in step (Chart 1.4.D). That suggests fundamentals have been more supportive of the recent growth in the sector.

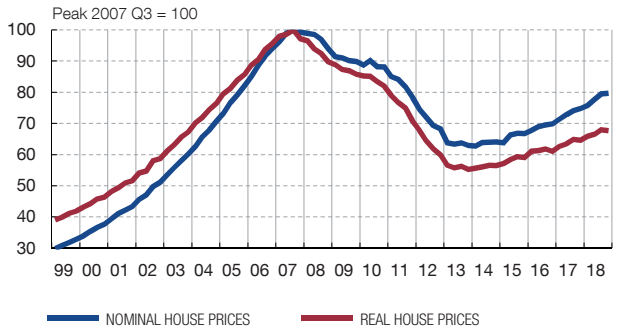
This recovering trend in real estate market activity and prices shows high geographical heterogeneity. While the recovery is practically across the board in Spain, there are notable regional disparities, in terms both of transactions and prices. The biggest increases have been in the major cities and in coastal areas. There, activity is more dynamic, and the thrust of foreign demand is greater and the population more concentrated.

5 For further details on the real estate sector in Spain, see the Banco de España Analytical Article "Recent housing market developments in Spain", by P. Alves and A. Urtasun (May 2019).

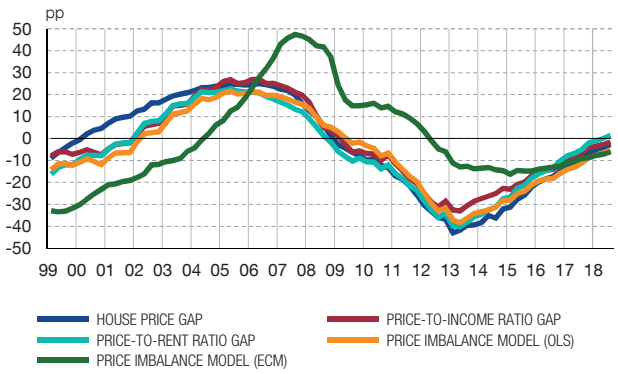
HOUSING MARKET ACTIVITY INDICATORS (a) CHART 1.4

Real estate market indicators have continued to pick up, although their levels are lower than in the years immediately prior to the crisis. Supply is less buoyant than in the previous upturn, reflecting a more prudent lending policy, an overhang of unsold housing and much more moderate growth in new household formation.

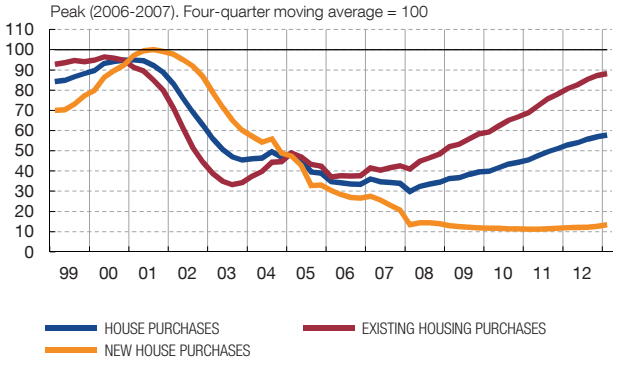
A HOUSE PRICES



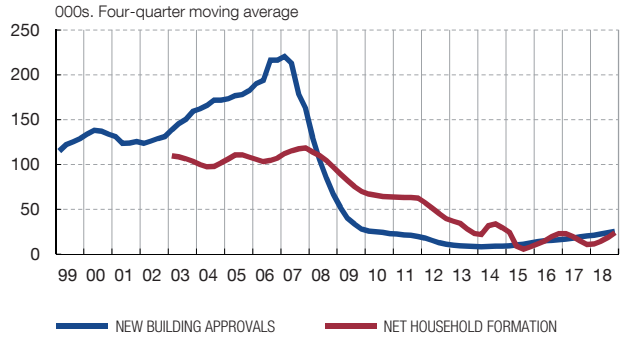
B INDICATORS OF HOUSE PRICE IMBALANCES (b)



C TRANSACTIONS



D HOUSING BUILDING PERMITS AND NET HOUSEHOLD FORMATION. UPTURN



SOURCES: ECB, Eurostat, INE and Ministerio de Fomento.

a Latest observation: 2018 Q4 (house prices), December (housing approvals) and 2018 Q4 (house purchases). Real house prices are deflated using the consumer price index.

b The five indicators include three gaps calculated as the difference between the value of the interest variable in each period and its long-term trend for: (i) house prices in real terms, (ii) the house prices-to-household-disposable-income ratio and (iii) the house prices-to-rent ratio. Two additional imbalance indicators are included for the house price variable in real terms based on econometric models. The first, which is estimated by Ordinary Least Squares (OLS), compares this variable with long-term trend estimations of household disposable income and mortgage interest rates. A second model, an Error Correction Model (ECM) compares this variable and the long-term equilibrium relationship between household disposable income, mortgage interest rates and fiscal effects. In all cases, long term trends are obtained using a one-tailed Hodrick-Prescott filter with a smoothing parameter equal to 400,000.

As with purchase prices, rental income has also increased significantly in the recent period and shown high geographical heterogeneity.[6] The momentum of rental income has been against a background of rising demand for this service, which is particularly marked in the youngest population segment.[7] The greater propensity to rent might be due to various factors. These include the impact of the crisis on this segment, changes in preferences linked to sociological factors and the adoption of measures that have brought the tax treatment of rental and owner-occupancy housing onto a more equal footing and have promoted the supply of rental housing, although some of these have recently been reversed.

6 On information from the Idealista real estate portal.

7 See the Banco de España Analytical Article "Evolución reciente del mercado del alquiler en España", by L. Matea and D. López (April 2019).

It appears necessary here to have a homogenous indicator of new rental prices. Renting as a means of covering the demand for residential services is gaining weight in Spanish society, and the information available is not as rich as that for owner-occupied housing. In particular, rental prices can provide key information for the analysis of financial stability. First, they can act as leading indicators of pressures in the demand or supply of residential services that may potentially feed through ultimately to house prices. Further, renting is one of the components of the return on housing, meaning it can be useful for determining the equilibrium level of house prices. Yet to date there is no official statistic on new rental prices for the Spanish economy as a whole and for its different regions and cities that can be used to this end.

Despite the growing dynamism observed in the sector, the contracting path of the outstanding balance of bank lending to development and construction activities has continued in recent months. The total outstanding balance of bank lending to construction and development companies declined by 18.6% in 2018, somewhat up on the previous year. This was essentially due to the high volume of repayments and to the sale of loan portfolios by credit institutions (Chart 1.5.A). In any event, these aggregate data mask high heterogeneity. In particular, Chart 1.5.B reveals that some institutions' credit exposure to the sector increased last year.

Conversely, mortgage financing to households has been more dynamic. New mortgage loans for house purchase increased by 17.1% in 2018, firming the recovery initiated some years back. Although the generation of new lending business is still far off the pre-crisis levels, it is already almost sufficient to offset the repayment of outstanding mortgage debt. As a result, the outstanding balance of household mortgages practically stabilised, following the successive fall-offs observed since the start of the crisis (Chart 1.5.C).

It is estimated that the conditions of access to mortgage lending[8] have tended to ease in recent years but, after the tightening observed during the crisis, current conditions are stricter than they were before 2008. The proportion of high-risk mortgages, measured as those with an LTV (loan-to-value) ratio of over 80%, has held relatively stable over the past 14 years (Chart 1.6.A). But other indicators point to stricter lending conditions now than prior to 2008.[9] This is the case of the LTP (loan-to-price) ratio, which shows a notable loss of weight of mortgage loans with a ratio above 80% (Chart 1.6.B), but also of the LTI (loan-to-borrower's income) ratio (Chart 1.6.C) and of the ratio of loan service (interest plus principal) to borrower's income (LSTI, Chart 1.6.D), whose distributions have shifted towards lower values. In recent years, there has also been a loss of weight in

8 The indicators used to analyse lending standards in mortgages are as follows: (i) Loan-to-Value (LTV): ratio of the mortgage loan capital to the property rated value; (ii) Loan-to-Price (LTP): ratio of the mortgage loan capital to the property transaction price in the property registry; (iii) Loan-to-Income (LTI): ratio of the mortgage loan capital to the borrower's annual income; (iv) Loan Service-to-Income (LSTI): ratio of the first mortgage loan instalment (annualised) to the borrower's annual income; (v) Term: maturity of the operation; and (vi) Interest rate spread: spread between the mortgage interest rate and that of a benchmark interest rate. For greater details on the construction of the LTV and LTP ratios and the changes therein, see the Analytical Article "The loan-to-value ratio for housing in Spain over the period 2004-2016". *Economic Bulletin 1/2019*, Banco de España.

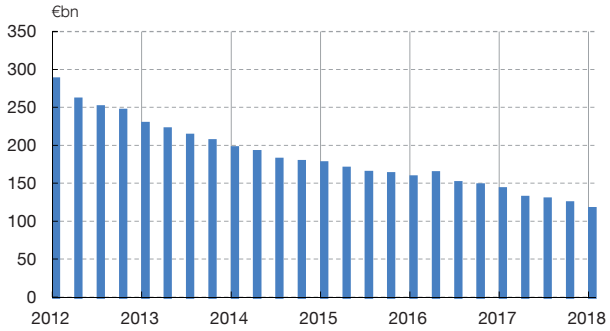
9 The information used in the panels of Chart 1.6 is from the Spanish Colegio de Registradores (Association of Registrars), supplemented with data from the European DataWarehouse (EDW), on the characteristics of securitised loans. The Spanish Association of Registrars provides itemised mortgage loan information on all operations recorded in Spanish property registries. The EDW, for its part, is a repository of bank securitisations, which compiles data on each mortgage loan backing the issuance of these instruments. While the representativeness of this database is much less than that of the Association of Registrars, particularly for after the crisis, the EDW allows a granular (credit by credit) analysis of certain mortgage characteristics, such as the income of borrowers, which is lacking in the Association of Registrars data.

CREDIT TO THE REAL ESTATE SECTOR

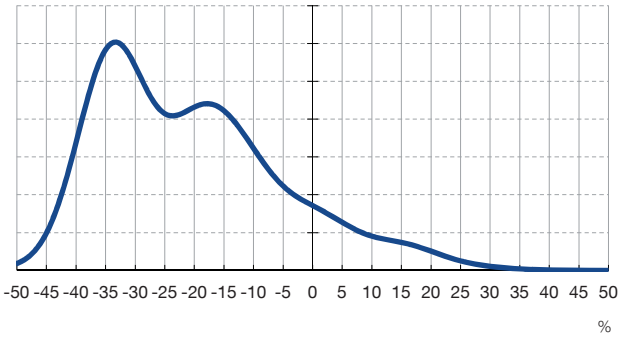
CHART 1.5

Outstanding credit to developers and builders fell sharply, although developments in credit to this sector are highly heterogeneous. New mortgage loans to households have been growing at a sustained rate. The outstanding amount of this type of credit is beginning to stabilise.

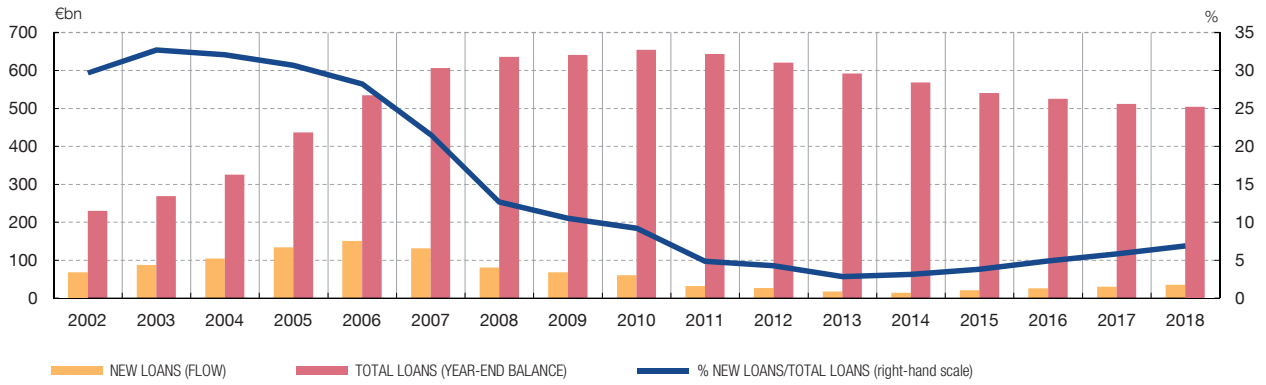
A CREDIT TO THE CONSTRUCTION AND REAL ESTATE ACTIVITIES SECTOR (a)



B CREDIT TO THE CONSTRUCTION AND REAL ESTATE ACTIVITIES SECTOR. DISTRIBUTION OF THE ANNUAL CHANGE IN DECEMBER 2018 (a) (b)



C MORTGAGE LOANS FOR HOUSE PURCHASE (c)



SOURCE: Banco de España.

a The panels refer to the oustanding credit in the construction (including development) and real estate activities sector.
b The panel shows the density function (or frequency distribution) of the year-on-year rates of change in credit in 2018, weighted by the credit corresponding to each deposit institution. This density function is approximated through a kernel estimator which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphical representation of that function.
c New lending volumes in 2014 relate to the twelve-month period from April 2014 to March 2015, since the 2014 data are not available from January. Total credit in 2014 is taken as the March 2015 figure to make it consistent with the new lending volumes.

mortgages at over 30 years (Chart 1.6.E). Although these interest rates spreads and the dispersion thereof across mortgages have recently narrowed (Chart 1.6.F), these indicators reveal more demanding lending conditions than those observed at the end of the last expansionary cycle. Specifically, the greater dispersion of interest-rate spreads across mortgages compared with the 2006 lows suggests that in the recent period there may have been greater discrimination among operations, whereby those perceived as riskier would pay a comparatively higher premium than less risky operations.

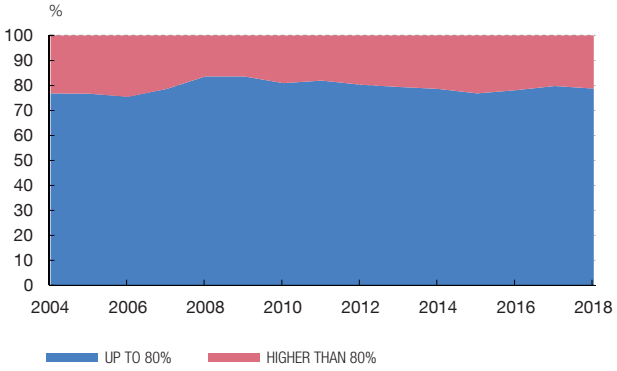
The new real estate credit agreements law, which will come into force in June, should be conducive to a decline in the current litigiousness in this market. The result should improve market functioning, though it might give rise to some tightening of the conditions applied. The entry into force of the new mortgage lending law will increase the legal security of these agreements, while strengthening their transparency and customer safeguards. Moreover, the introduction of stricter requirements for assessing borrower solvency should contribute to reducing credit risk in mortgage operations. From the

NORMALISATION OF MORTGAGE CREDIT STANDARDS (a)

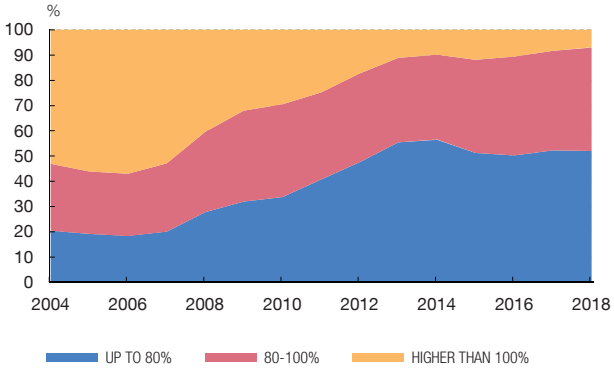
CHART 1.6

The proportion of loans with a high LTV (of more than 80%) remained stable. As for the LTP ratio, the weight of loans with a ratio of between 80% and 100% has increased (to the detriment of the weight of the segments above and below these values). The ratios which assess the ability to repay mortgages (the LTI and LSTI ratios) are estimated to be far off their pre-crisis levels (an improvement in credit standards). Furthermore, the weight of very long-term loans in mortgage financing remains low, whereas the interest rate spreads on mortgages are beginning to stabilise following a narrowing in recent years.

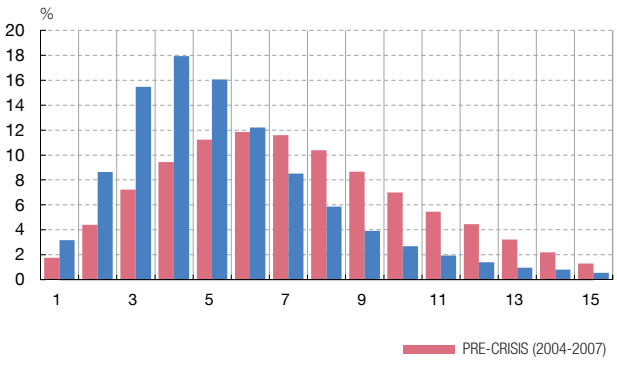
A LTV RATIO. DISTRIBUTION



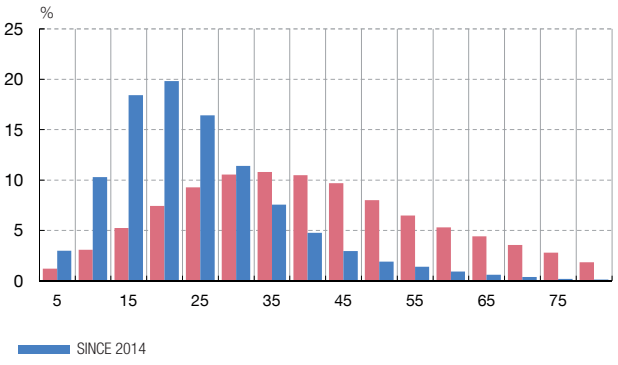
B LTP RATIO. DISTRIBUTION



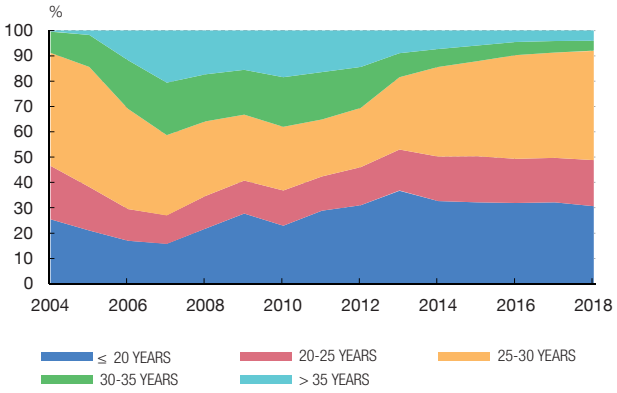
C LTI RATIO. DISTRIBUTION (b)



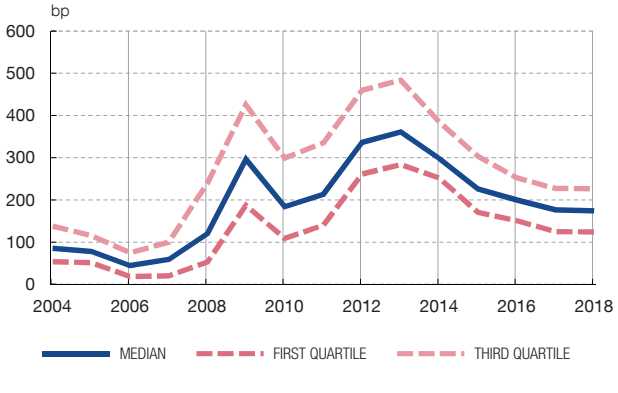
D LSTI RATIO. DISTRIBUTION (b) (c)



E MATURITIES. DISTRIBUTION



F INTEREST RATE SPREAD (d)



SOURCES: Colegio de Registradores and European DataWarehouse.

a Loans with housing as collateral and an individual as the borrower are included. The principal of the loans is accumulated (per period) in the distributions in order to define each segment within the distribution. In this chart the following abbreviations are used: LTV (loan to value), LTP (loan to price), LTI (loan to income) and LSTI (loan service to income).
b The denominator includes the annual income of the main borrower both in the LTI and the LSTI ratios.
c The mortgage repayment (numerator in the LSTI ratio) or the first monthly payment of the mortgage is annualised. It is calculated assuming that payments are constant over the life of the loan.
d Spread of forward interest swap rates. The base curve is that of the euro interest rate swap. The reference period is one year for floating rate mortgages and coincides with the maturity of the fixed-rate loans.

standpoint of borrowers, the new regulations increase their protection, but they might also entail some tightening of the conditions applied, especially in the case of the segments with a higher risk profile.[10]

1.3 The non-financial sectors

Overall, new lending to the non-financial private sector continued to expand in most segments, albeit at lower rates than in the first half of the year. According to the Bank Lending Survey, this slowdown might be due both to demand-side and, to a lesser extent, supply-side factors. However, after years of easing, these financing conditions remain easy. Bank funding and bond-issuing costs remain at historically low levels, without having undergone major changes in recent months.

This fomented the recovery in the net flow of financing extended to households, which has turned positive since June 2018, in cumulative 12-month terms, for the first time since December 2010 (Chart 1.7.A). Specifically, the financing of this sector showed a year-on-year growth rate of 0.4% in February 2019. This increase is due to the dynamism of consumer credit which, though it has slowed, continues to grow at double-digit rates, offsetting the slight contraction in the stock of financing for house purchase. Box 1.1 analyses the factors behind the recent developments in this portfolio, subject to specific monitoring by the Banco de España.

The cyclical upturn continued contributing to strengthening households' financial position. Household gross disposable income notably increased by 3.2% in 2018, boosted by the increase in employment and the rise in wages. Net household wealth continued to recover, underpinned by the increase in real estate asset prices. Household debt also fell as a percentage of GDP (Chart 1.7.C). Specifically, it declined by 2.2 pp on a year earlier to 58.9% (scarcely 1.3 pp above the euro area average). Combined with the low cost of debt, these developments have led the debt burden to continue falling in recent months, albeit very slightly, and to stand at relatively low levels from a historical perspective.

However, the household saving rate is at a historical low. Despite the increase in gross household income, the marked growth in household consumption in recent years has prompted a persistent decline in the saving rate to 4.9% of gross disposable income at end-2018 (compared with the low of 5.8% in 2018 in the previous upturn). Such dynamics do not only entail risk as regards the continuity of the robustness observed in consumption, but also with respect to the financial resilience of households in the face of unexpected shocks.

Moreover, this aggregate view masks high heterogeneity. The disaggregated information available shows high heterogeneity of households' financial situation. In particular, those that are most vulnerable in the population are the low-income segments. For these groups, the ratio of debt service (including principal repayment and interest) to gross household income is substantially higher than for other households with debt (Chart 1.8.A and B). Specifically, the mortgage debt burden stood in 2017 (the latest available information) at over 50% of income in the decile that includes the lowest incomes, whereas it was around 10% in that of the highest incomes. The outstanding balance of consumer credit accounted in 2018 for 16% of the annual disposable income of households in postcodes in the lowest income distribution quintile, compared with approximately 8% in the case of households in higher-income postcodes.

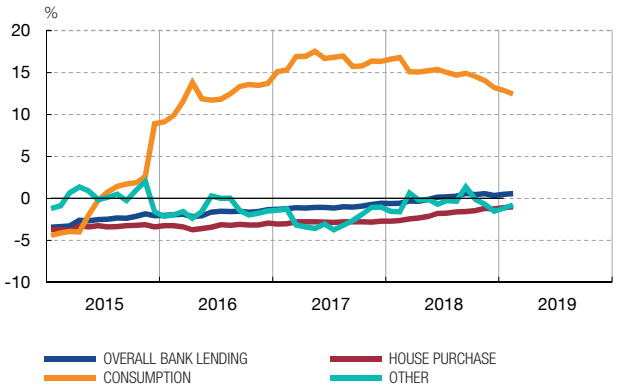
10 For further details see Box 5 "The law regulating real estate credit agreements", *Economic Bulletin 1/2019*, Banco de España.

FINANCING AND INDEBTEDNESS IN SPAIN

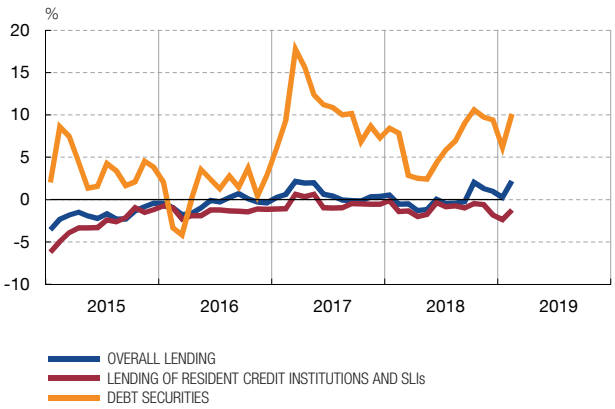
CHART 1.7

Lending to the non-financial private sector has continued its recovery and even posted positive growth rates in the second half of 2018. At the same time, debt ratios have continued their fall, prompting a fresh strengthening of households' and companies' financial positions. The structural budget deficit has not decreased in recent years and, consequently, the subdued decline in the general government debt ratio was due to the cyclical component and GDP growth, which represents a significant risk for the Spanish economy should the economic cycle change.

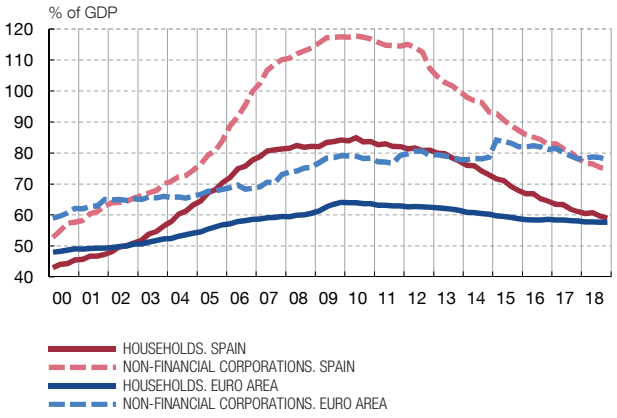
A LENDING TO HOUSEHOLDS BY PURPOSE. Y-O-Y CHANGE



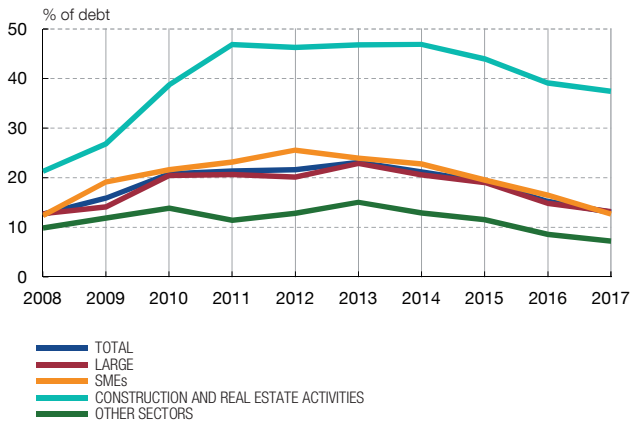
B LENDING TO NON-FINANCIAL CORPORATIONS. Y-O-Y CHANGE



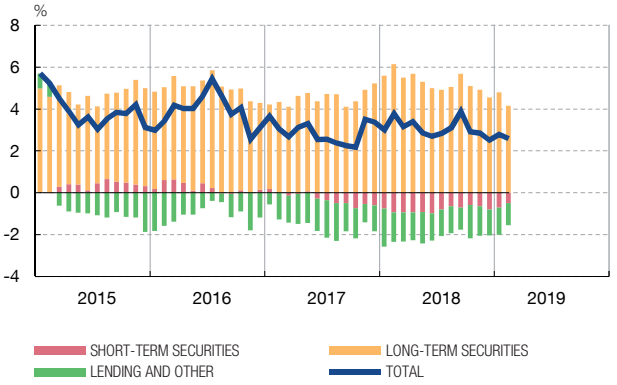
C DEBT RATIOS



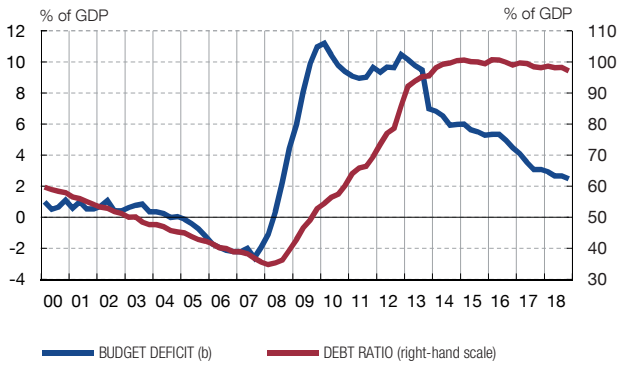
D FIRMS SUBJECT TO GREATER FINANCIAL PRESSURE IN TWO CONSECUTIVE PERIODS (a)



E GENERAL GOVERNMENT FINANCING. Y-O-Y RATES. CONTRIBUTION BY FINANCING INSTRUMENT



F FINANCIAL SITUATION OF GENERAL GOVERNMENT



SOURCES: Datastream, INE and Banco de España.

a The firms bearing a high degree of financial pressure are those for which the ratio (gross operating profit + financial revenue/ financial costs) is less than one.
b Four-quarter cumulative data.

This box analyses in greater detail some determinants of the behaviour of the consumer credit portfolio of Spanish deposit institutions. In particular, the size of this portfolio has expanded and the volume of NPLs increased since 2015, developments that have been closely linked to the expansionary behaviour of the segment of credit for the purchase of consumer durables. Specifically, over the last three years, consumer credit extended by deposit institutions and specialised lending institutions (SLIs) in Spain has grown by some €30 billion, increasing from somewhat more than €60 billion in December 2015 to almost €90 billion in December 2018 (i.e. growth of more than 40%). Credit for the acquisition of consumer durables has been the main driver of this growth, with year-on-year growth rates of close to or above 20% since late 2016. However, this growth slowed in the second half of 2018 (14.8% in December 2018, see Chart A).

As regards the NPLs in this segment, they began to increase in 2017, reaching growth rates of around 20% by mid-2018, although their growth edged down in the second half of the year, to 18.4% in December 2018 (see Chart B).

One factor that has contributed to the growth of credit mentioned above is the behaviour of SLIs. SLIs are a group of institutions that are not able to take deposits and that tend to grant credit in specific business segments (consumer credit, mortgage credit, cards, guarantees, etc.). In December 2018, this group of institutions accounted for 4.3% of total credit to the resident private sector. In the case of households, SLIs accounted for 5.6% of all credit granted as at that date. However, the sectoral composition of the credit granted to households by SLIs has been changing in recent years, with the proportion of consumer credit rising, to the detriment of credit for house purchase. Thus, in December 2018, 67% of the credit extended to households by SLIs was for the purpose of acquisition of consumer goods. This reflects the contrasting behaviour of the credit granted by these institutions for house purchase (with negative rates of change in recent years) and for consumption, with year-on-year growth rates of well above 10% since 2014.

The relationship between the consumption of durable goods and disposable income enables us to obtain an indicator of the possible existence of restrictions on lending for the consumption of this type of goods. This is because one would expect the correlation between consumption and disposable income to be lower (higher), the smaller (larger) the percentage of restricted agents. Chart C shows the estimation for different periods of the parameter associated with disposable income in a regression model that relates this variable to the aggregate consumption series. The estimates for pre-crisis

Chart A
YEAR-ON-YEAR RATE OF CHANGE OF CONSUMER CREDIT AND ITS COMPONENTS
Deposit-taking institutions and specialised lending institutions

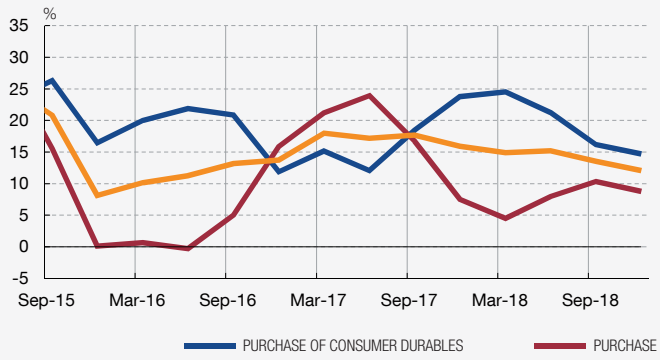
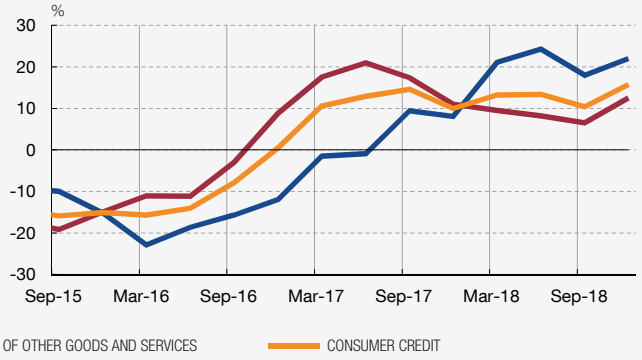


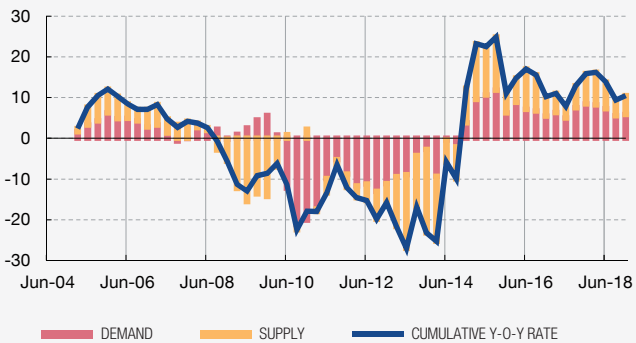
Chart B
YEAR-ON-YEAR RATE OF CHANGE OF NON-PERFORMING CONSUMER CREDIT AND ITS COMPONENTS
Deposit-taking institutions and specialised lending institutions



SOURCE: Banco de España.

Chart C
RELATIONSHIP BETWEEN DURABLE GOOD CONSUMPTION AND DISPOSABLE INCOME

Chart D
BREAKDOWN OF CONSUMER CREDIT SUPPLY AND DEMAND FACTORS. (a)



SOURCES: Banco de España and INE.

a The chart divides y-o-y growth (measured for each quarter) into two portions which relate to supply and demand factors. The breakdown is based on an SVAR

periods indicate that credit restrictions were at very low levels. The higher correlation estimated after the start of the crisis suggests that these restrictions increased significantly, to reach a peak in 2014. A change in trend is observed thereafter, and a reduction – albeit not continuous – has dominated in recent years. This suggests that greater access to bank credit, in the form of a significant increase in consumer credit, has enabled households to smooth their durable goods consumption. In addition, the shocks to the supply and demand for credit for the purchase of durable goods are analysed using a structural vector autoregressive model (SVAR). This model allows us to estimate the contemporaneous effects of shocks associated with supply and demand on changes in consumer credit and interest rates. Chart D shows the historical decomposition of supply and demand factors in the growth of credit for the purchase of durable goods (in cumulative year-on-year terms) between 2004 and 2018.

This chart shows, for example, how growth in this segment has been above 10% year-on-year practically every quarter since the beginning of 2015. Before the 2008 crisis, growth in this type of credit was associated both with supply and demand factors, although supply factors made a larger contribution. When the crisis arrived supply factors appear to have been more important in explaining the decline in credit during the first stage (2008-2010) and the last stage (2013-2014) of the credit contraction period from 2008 to 2014. By contrast, demand factors were the main determinants of the decline during the middle years (2010-2012) of this period. Finally, since late 2014 both types of factor have been contributing in very similar proportions to the increase in consumer credit for durable goods.

An analysis was also performed for consumer credit as a whole, to determine which bank characteristics are most closely related to the growth of total credit and NPLs. For this purpose, a panel was considered – with half-yearly frequency, from June 2015 to June 2018 (seven periods) – with data on the 30 individual institutions with the highest relative weights in the consumer credit portfolio. The model estimated includes temporary fixed effects to control for the set of systemic factors and individual effects to control for cross-bank heterogeneity. The following explanatory variables were considered: the return on assets (ROA), the average interest rate on consumer credit, the book solvency ratio, the net interest margin, the NPL ratio for the consumer credit portfolio, the institution's market share in total consumer credit and total assets.

With regard to the growth of the stock of consumer credit, this appears to be inversely related to the level of rates applied by institutions, their ex-ante return on assets and their market share. This suggests efforts to secure a greater presence and higher returns by expanding the consumer loan portfolio, an objective attained by means of lower interest rates (see Chart E).

In addition, as regards the growth of NPLs in the consumer credit portfolio, it is striking that those institutions with the highest NPL ratios seem to be the ones experiencing the smallest increases in NPLs. This suggests that a certain convergence is occurring in the average credit quality of consumer credit portfolios and that institutions with a lower initial portfolio quality have limited their expansion in this segment. The initial return on assets appears to be negatively correlated with the growth of NPLs, and also with the growth of total consumer credit, while the other explanatory variables show no significant effects (see Chart F).

In short, consumer credit continues to grow at double-digit rates, although it slowed significantly in the second half of 2018. Supply and demand patterns lie behind these developments, in particular the desire of institutions with a low market share to increase their weight in this segment. On the other hand, highlighting a certain fragility in the demand for credit in a very benign macrofinancial context, NPLs are rising at double-digit rates and accelerating.

The Banco de España will continue to monitor these developments closely. So far, they do not pose a risk to the stability of the Spanish financial system as a whole, nor do they require the adoption of macroprudential measures, but greater vigilance is needed in relation to credit conditions and the most dynamic institutions in this segment need to be monitored.

Chart E
CHANGE IN TOTAL CONSUMER CREDIT. SENSITIVITIES (a)

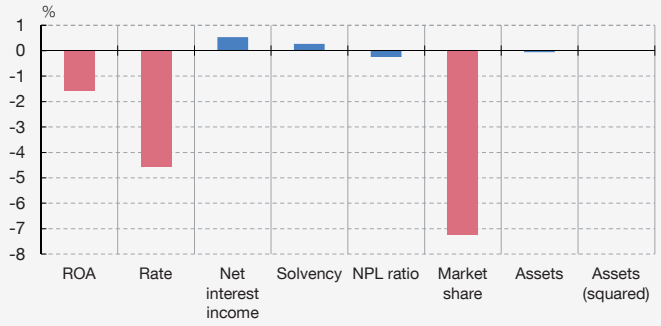
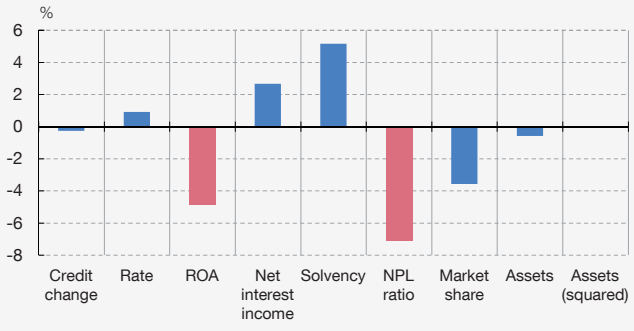


Chart F
CHANGE IN NPLs FOR CONSUMER CREDIT. SENSITIVITIES



SOURCE: Banco de España.

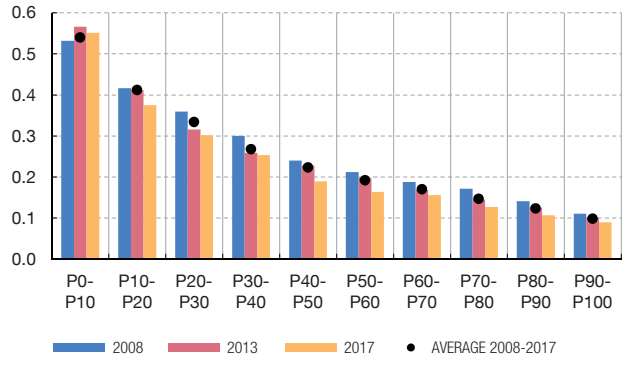
a ROA = return on assets, Rate = average interest rate on consumer credit. Net interest income = ratio of interest income to assets, Solvency = accounting solvency ratio, NPL ratio = NPL ratio for the consumer portfolio, Market share = market share of the institution in total consumer credit , Assets = total assets in the balance sheet, Assets (squared) = total assets in the balance sheet, squared. Statistically significant effects set at 5% are shown in red. For each explanatory variable, the panel data analysis shows the related regression coefficients.

HOUSEHOLD INDEBTEDNESS (a)

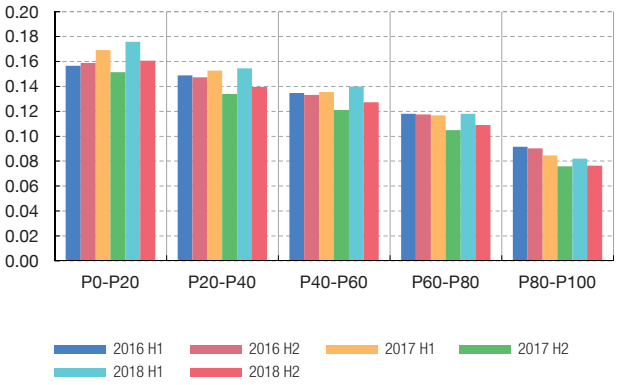
CHART 1.8

The breakdown of the available information shows that the financial position of households is highly heterogeneous. In particular, the most vulnerable segments of the population are those with the lowest income. The household debt (including repayments and interest) to income ratio is substantially higher for these segments than for other indebted households.

A HOUSEHOLD DEBT/GROSS INCOME



B AMOUNT OF CONSUMER LOAN/GROSS INCOME



SOURCES: INE, Ministerio de Hacienda and Banco de España.

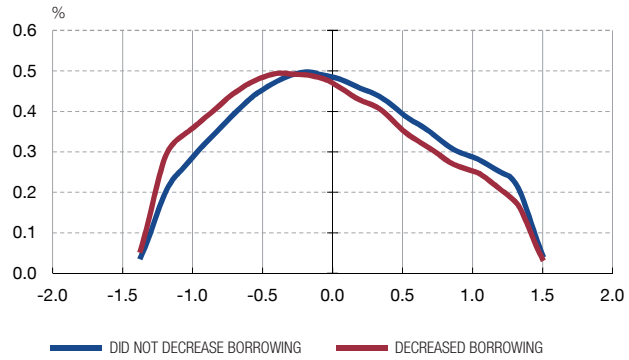
a The value of the ratio for the percentile range of the income distribution of the population indicated is shown on the x-axis for each date. Panel A was obtained from the Living Conditions Survey and Panel B by using information on post codes from the Central Credit Register and on personal income tax from the Ministry of Finance.

PRODUCTIVITY OF FIRMS AND BANK FINANCING

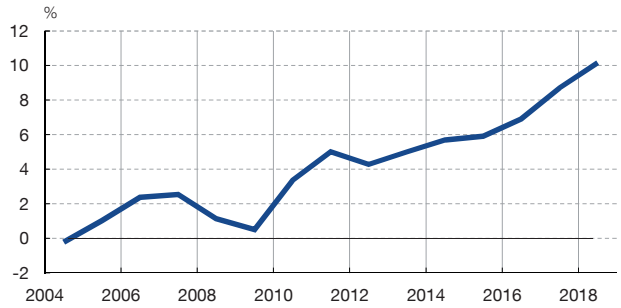
CHART 1.9

Available empirical evidence suggests that, after the crisis, banks discriminated between firms to a greater degree based on their credit quality and productivity levels when extending new loans. This should contribute to containing the rise in NPLs in future.

A PRODUCTIVITY DENSITY KERNELS FOR FIRMS THAT DID NOT DECREASE THEIR BORROWING IN 2018 AND OTHER (a)



B ACCUMULATED IMPACT OF PRODUCTIVITY ON THE CHANGE IN LENDING TO NON-FINANCIAL CORPORATIONS (b)



SOURCE: Banco de España.

a Total factor productivity is obtained from sectoral regressions of the logarithm of sales relative to the logarithms of total capital, inputs and employment and temporary controls. An estimation of the weights of capital and employment in the firm's production function is obtained. That used here is normalised.

b The differential impact was estimated for each date with respect to the two years prior to increasing productivity in a standard deviation through a regression of the change in bank financing at firm level on productivity and other firm-level and supply controls. Next, for each year the value estimated previously has been accumulated from 2004, thus obtaining a measurement of the impact on growth of the supply of lending to non-financial corporations associated with an increase in productivity from the first period analysed.

Net flows of overall financing of non-financial corporations have also held at positive levels since October, in cumulative 12-month terms (Chart 1.7.B). In February 2019, this sector's financial debt was growing at a year-on-year rate of 1.7%. Behind this aggregate performance are two very differentiated dynamics. On one hand, the loans by non-residents to non-financial corporations and the outstanding balance of fixed-income issues by these corporations have expanded in year-on-year terms in recent months, with the latter variable showing marked dynamism. On the other, the outstanding balance of credit provided to these corporations by resident credit institutions has

continued shrinking in year-on-year terms, with the rate of decline in recent months having increased. In any event, if the real estate and construction sectors are excluded, the decline is much more moderate. Moreover, the empirical evidence available suggests that, post-crisis, banks have discriminated to a greater extent among companies on the basis of their creditworthiness and their productivity (Chart 1.9.A and B) when assigning new credit flows. That should contribute to containing the increase in non-performing loans in the future. In this respect, Box 1.2 reviews the overall trend in financing to highly indebted companies, placing Spain's situation in this context.

The economic and financial position of the non-financial corporations sector has also continued strengthening. The debt-to-GDP ratio fell in 2018 by 3.5 pp to 74.5%, standing 3.4 pp below the euro area average (Chart 1.7.B). This, combined with the low cost of debt, has led this sector's debt burden to continue declining in recent months to historically low levels. According to the Banco de España Central Balance Sheet Data Office, non-financial corporations' ordinary profits increased by 5% in 2018, raising the return on equity by 0.8 pp in relation to the previous year. However, this aggregate view also masks high heterogeneity, meaning that there are still some vulnerably positioned segments concentrated in the group of smaller enterprises and, above all, in those operating in the real estate and construction sector (Chart 1.7.D).

Public-sector financing conditions have continued to be very favourable. Indeed, the interest rates on sovereign debt, which is the main source of financing for this sector, have held at historically low levels in recent months. They have even proved relatively insensitive to the political and fiscal uncertainty in Italy, which notably raised Italian sovereign debt issuing costs in the second half of 2018. That has allowed this sector to continue meeting its need for funds through long-term fixed-income securities, reducing its debtor positions in the form of short-term bonds and loans (Chart 1.7.E), and thereby raising the average life of outstanding debt and cutting back refinancing needs in the near future.

In any event, the high level of the ratio of public debt to GDP is a source of vulnerability for the Spanish economy. This ratio dipped to 97.1% of GDP in 2018, 1 pp down on 2017, but still 12 pp above the euro area average (Chart 1.7.F). Behind this decline is the increase in nominal output and the progressive reduction in the budget deficit. In particular, the general government budgetary imbalance fell by 0.6 pp in 2018 to 2.5% of GDP. This was, however, thanks to its cyclical component, as no improvement has been seen in its structural component since 2013. High public debt is a major factor of vulnerability for the Spanish economy ahead of potential rises in the cost of financing (although the lengthy maturities of public debt reduce refinancing risk) and of more adverse than expected developments in economic activity.

The Spanish economy's high negative net international investment position (IIP) is also a factor of vulnerability ahead of potential turbulence on international financial markets. Admittedly, the nation's negative net IIP has fallen by almost 21 pp of GDP since 2014. But it still stood at 77.1% of GDP in late 2018, a high level in historical terms and relative to other countries. That gives rise to a potentially significant degree of vulnerability ahead of any worsening in international capital markets (see Box 1.3).

Growth in leveraged loan issues[1] and in issues of securitisation instruments using leveraged loans as their underlying asset, especially Collateralised Loan Obligations (CLOs), and the possible easing of credit standards associated with these instruments, have been identified by various regulators[2] as significant risk factors for the stability of both the European and the US financial systems. Chart A shows that the overall volume of leveraged loan issues has indeed been very significant in recent years, with record issuance in 2017 of over €220 billion in Europe and over €1.36 trillion in the United States and with just a slight moderation in these volumes in 2018 (on average, US issuance amounts to six times European issuance throughout the period 201318). The aggregated data also show the declining significance, both in the United States and Europe, of high-yield (below investment grade) bond issues compared with leveraged loans provided directly by the banking sector to fund corporations with the most highly leveraged financial structures.

CLO issuance in Europe tripled between 2013 and 2018, while in the United States it rose by around 60%. However, in each of those years, the volume of issuance remained much higher in the United States than in Europe (see Chart B). In any event, CLO issuance[3] is growing against a backdrop of broader recovery in the securitisation market; in fact, towards the end of the period indicated, CLOs declined as a proportion of the total volume of Collateralised Debt Obligations (CDOs), which is a broader category of which CLOs are a fraction.

Beyond identifying these overall patterns, this Box aims to provide an in-depth analysis of leveraged loan issuance in Europe and of Spanish banks' exposure to leveraged non-financial corporations. If European corporations' leveraged loan issues are broken down by controlling parent company nationality (see Charts C and D), the United Kingdom comes out top both in 2017 (€131 billion) and 2018 (€74 billion), although in 2018 with a considerably narrower margin over the second-placed country (Germany, with €53 billion). The leveraged loan issuance volume of corporations whose parent group is based in Spain is much smaller (€26 billion in 2017 and less than €10 billion in 2018) and behind that of other countries (see Chart C). In all the countries considered there is a high percentage of loan issues in which significant banks (identified as participants in the EBA's transparency exercise for each country in the study) that share the same country of residence as the borrowers' parent companies participate. This figure is over 70% in both years in France, Spain and Italy, which is the country with the highest rate of national participation.[4]

1 There is no single definition of a leveraged loan; a debt instrument may be classified as such according to its rating or risk premium or according to accounting measures, such as a debt-to-EBITDA ratio over 6.
2 In its May 2018 Financial Stability Review, Box 5: Leveraged loans: a fast-growing high-yield market (pp 74 78), the ECB identified these developments as potential financial stability risks. The Federal Reserve, in its November 2018 Financial Stability Report, also identified an increase in 2017-18 in risky debt issuance (leveraged loans and speculative grade bonds) by non-financial corporations (pp 19 20) and in CLO issuance (pp 28 29), and noted the high tolerance for risk-taking with respect to non-financial corporations' debt as a vulnerability factor.
3 Leveraged loans are not the only possible underlying asset in CLOs, but they are the best proxy for the volume of securitisations linked to these loans.
4 On the data available, it is only possible to identify the participation of national banks in syndicated loans marked as leveraged loans on Thomson Reuters, but not the amount of risk assumed.

Chart A
ISSUANCE OF LEVERAGED LOANS AND HIGH-YIELD BONDS (a)

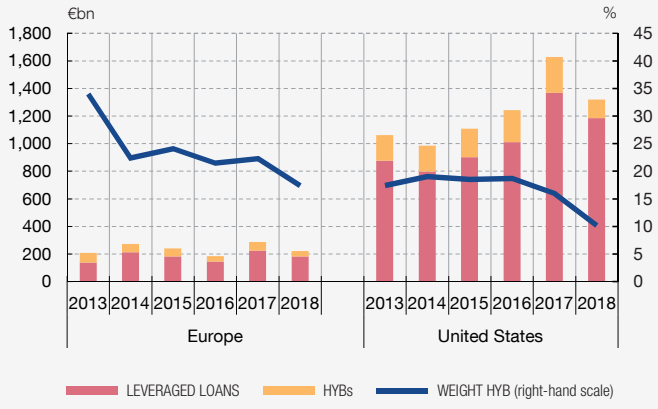
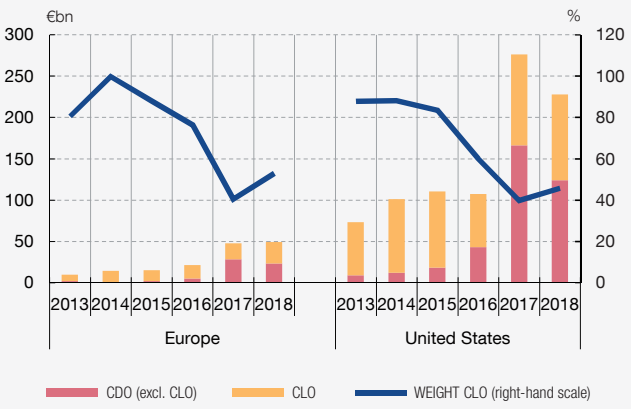


Chart B
CDO/CLO ISSUANCE (b)



SOURCES: Thomson Reuters, Dealogic, SIFMA-AFME, SIFMA, Datastream and Thomson Reuters Leveraged Loan Monthly - March 2018 and Year End 2018, Reuters Bond News November 2018.

a Leveraged loans are syndicated loans classified as leveraged or highly leveraged loans by Thomson Reuters based on a list of credit quality criteria. High-yield bonds are bonds classified as lower than investment grade in the Dealogic issuance database. The European issues relate to debtors the nationalities of whose parents are the major European economies (Germany, United Kingdom, France, Italy and Spain). Issuance data from Thomson Reuters shown in dollars are converted to euros using the euro/dollar exchange rate at the issuance date.
b SIFMA data on issuance of CDO and CLO securitisations, as well as Thomson Reuters' data on CLO issuance in the United States reported in dollars are converted each year at the related average euro/dollar rate. European CLO issuance data for 2018 relate to the January-November period.

Chart C
FLOW OF LEVERAGED LOAN ISSUANCE BY COUNTRY OF BORROWER (a)

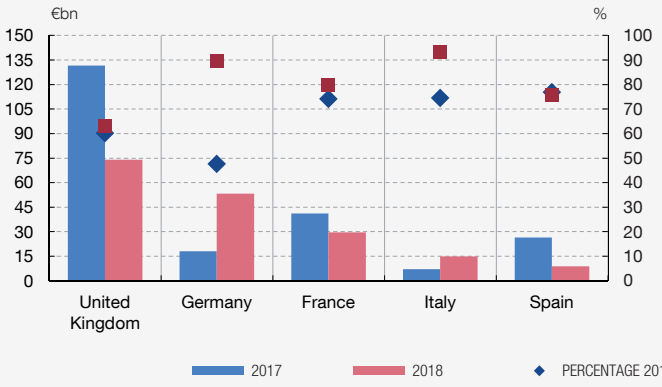
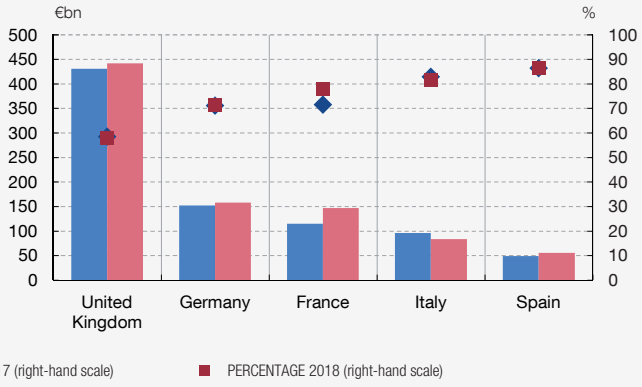


Chart D
STOCK OF LEVERAGED LOAN ISSUANCE BY COUNTRY OF BORROWER (a)



SOURCE: Thomson Reuters.

a The chart relating to issuance flow considers loans arranged in 2017 and 2018. The stock of issues in a given year considers all issues with arrangement dates until December of that year and loan maturity dates after December of that year, i.e., the balance of issues outstanding is considered. Percentages in 2017 and 2018 indicate the proportion of issues linked to borrowers in a country in which banks of that country intervene (significant institutions participating in the latest EBA's transparency exercise) in their capacity as TIer 1 agents of the bank syndicate providing the loan. The borrower's country is identified with the country of residence of its latest parent company.

Chart E
SYNDICATED LOANS TO NON-FINANCIAL CORPORATIONS

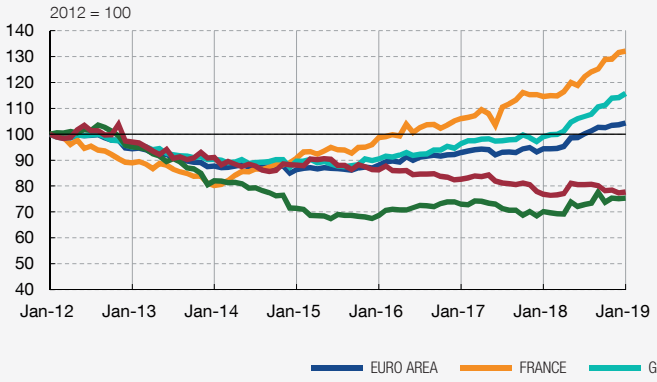
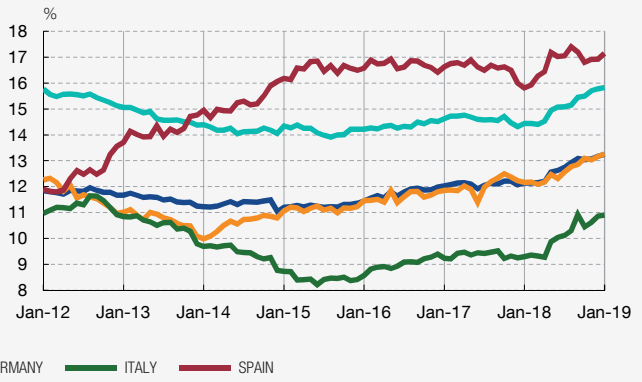


Chart F
SYNDICATED LOANS TO NON-FINANCIAL CORPORATIONS
As a percentage of loans to non-financial corporations



SOURCE: ECB.

Analysis of the total stock of outstanding leveraged loans at December 2017 and 2018 (see Chart D) offers similar conclusions to the flow analysis. Once again the United Kingdom is the most frequent country of residence for groups issuing leveraged loans (with €441 billion in 2018), significantly ahead of the second-placed country (France, with €158 billion in 2018). Considering total issuance, issues corresponding to Spanish borrowers are higher than issues corresponding to Italian borrowers (€83.3 billion compared with €53.3 billion in 2018).

Leveraged loans are generally classified as a subsegment of the broader market for syndicated bank loans, which do not only include loans extended to highly leveraged corporations.[5] In any event, European banks' exposure to syndicated loans (see Chart E) is another useful proxy for exposure to leveraged loans, as it represents a maximum level. Euro area banks' exposure to syndicated loans to non-financial corporations saw no significant change in the period 201218, but there are notable differences between one country and another. Cumulative growth in these syndicated loans in the period 201218 was approximately 16% in Germany and 30% in France, clearly expanding since 2014 and 2016, respectively. By contrast, both Spain and Italy saw cumulative declines of around 22%.

In 2018, exposure to syndicated loans at the European level (EU average) amounted to approximately 13.2% of total credit exposure to non-financial corporations, 1.3 pp more than in 2012 (see Chart F). This ratio has evolved quite differently from one

5 Thomson Reuters includes, in its list of leveraged loans, syndicated bank loans that are classed as leveraged or highly leveraged based on a list of credit quality criteria.

Chart G
DISTRIBUTION OF THE DEBT TO ASSET RATIO BY EXPOSURE DRAWN DOWN IN SYNDICATED LOANS (a)
December 2018

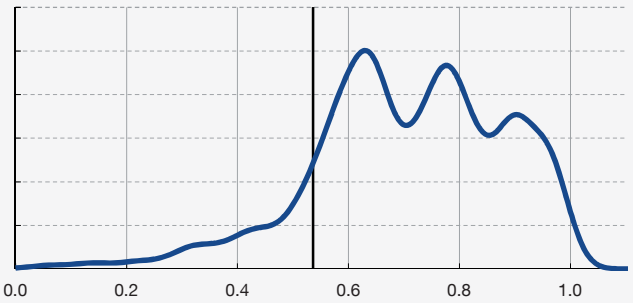
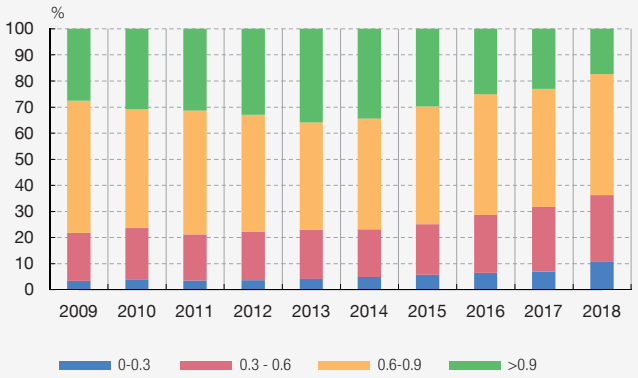


Chart H
PERCENTAGE OF VOLUME DRAWN DOWN BY DEBT RATIO BUCKET. LARGE FIRMS (b)



SOURCE: Banco de España.

a The panel shows the density function (or frequency distribution) of the debt ratio (total long- and short-term debt as a percentage of total assets) for firms with syndicated loans from Spanish deposit-taking institutions, weighted by the CCR credit amount as at December 2018 for each ratio category. This density function is approximated through a kernel estimator which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphic representation of that function. The vertical line indicates the median of the debt ratio measured for the group of large firms in the Central Balance Sheet Data Office (CBSO) of the Banco de España at the latest available date.

b The distribution of this panel is obtained by cross-checking the CBSO data, selecting such institutions that individually meet the requirements to be classified as a large firm in terms of number of employees, sales or total assets in accordance with Regulation EU 651/2014, with the CCR. CBSO data are used to classify the firms based on their debt ratio and CCR data provide the volume of drawndown exposure of Spanish banks to each of these categories. The year shown in the panel refers to measurement of the drawndown amount in the CCR (e.g. 2018), with the classification by debt ratio relating to the previous December (e.g. 2017).

country to another. In the case of Germany, Italy and France, a Ushaped pattern is observed, returning in 2018 to the 2012 level in the case of Germany and Italy and continuing to rise moderately in the case of France. By contrast, in the case of Spain the ratio is clearly climbing: as a percentage of total loans to non-financial corporations, syndicated loans rose from 11.9% in 2012 to 17.1% in 2018. This, together with the drop in absolute terms in syndicated loans granted by Spanish banks observed in Chart E indicates that the decline in volume in these loans has been less than the decline in volume in overall lending to non-financial corporations.

Although not all syndicated loans are granted to highly leveraged corporations, Chart G shows that in December 2018 the distribution of the debt ratio (total short and long-term debt to total assets) by volume of syndicated loans at Spanish deposit-taking institutions is concentrated at relatively high levels of the ratio.

The fact that the leveraged loan and associated securitisation business is concentrated in the United States and, within Europe, in the United Kingdom, does not mean that the proliferation of these instruments poses no risk to the Spanish financial system. The risks assumed through leveraged loans in Europe and the United States affect global sensitivity to possible shocks to the review of the required risk premia or corporations' financial position, and shocks originating in other systems may be passed through commercial and financial channels.

In addition, as shown in Chart F, as a proportion of total credit exposure to non-financial corporations, Spanish banks are not less exposed to syndicated loans than their European peers.

Lastly, Spanish deposit-taking institutions' exposure to leverage at large corporations is analysed, beyond the syndicated loan segment which, despite being an important risk category, might not include all exposures to highly leveraged corporations. Since 2009, data matching by the Banco de España's Central Balance Sheet Data Office (CBSO) and its Central Credit Register (CCR) shows lower credit exposure to more highly leveraged corporations (see Chart H), even though they account for a considerable proportion of total credit to large corporations in 2018. Specifically, the proportion of credit to corporations with debt ratios of 0.6-0.9 and of over 0.9, respectively, fell from 51% and 28% in 2009 to 46% and 17% in 2018. Exposure to less leveraged corporations mitigates the risks to the stability of the system, although the distribution of leverage observed indicates that the ability to pay of some corporations in this segment could be sensitive to a deterioration in macro-financial conditions, were the risks identified in this FSR to materialise.

In the years preceding the 2007/2008 global financial crisis, the Spanish economy posted persistent and growing current account deficits which reached 9.6% of GDP in 2007 and were barely offset by the modest capital account surplus (see Chart A). This continued recourse to external finance drove the net debtor position of the Spanish economy up from 34.7% of GDP in 1999 to 80.2% of GDP in 2008,[1] a record high at that time and well above the levels of other large European economies (see Chart B).

As a result of the crisis the Spanish economy underwent an internal process of adjustment of its current account balance which has taken it into surplus since 2013. This net lending to the rest of the world and the GDP growth reduced (in absolute terms) the negative net international investment position (IIP) of the Spanish economy by around 21 pp from the high in 2014 to 77.1% of GDP in 2018. This level, however, continues to be high and constitutes a source of vulnerability for the Spanish economy in the event of sudden changes in financing conditions on the global financial markets. In this respect, some studies have attempted to identify risk thresholds in external liabilities which, if exceeded, would be indicators of an appreciable increase in the vulnerability of the economy to international market turbulence. The Banco de España's analysis puts this threshold for the Spanish economy at 70% of GDP, a figure which, however, must be interpreted with caution given the methodological difficulties entailed in the construction of indicators of this type.[2] Moreover, the towering external debt of the Spanish economy is not amenable to correction in the short term, especially if it is taken into account that in the last few quarters the current and capital account surpluses have decreased and will for the next few years foreseeably hold at more moderate levels than those seen between 2014 and 2017.

To better understand the risks derived from the high debtor position of the Spanish economy, it is useful to analyse also which financial products are used to incur these debts and which resident institutional sectors are responsible for them. Chart C shows that the increase in the negative net IIP of Spain from 1999-2009 was due mainly to increased net liabilities in the portfolio investment and other investment categories. More specifically, in this period the Spanish economy financed its growing external imbalances mainly through portfolio investment in the form of debt instruments. As became clear upon the outbreak of the global financial crisis and the European sovereign debt crisis, the finance obtained through these instruments is particularly volatile (for example, in comparison with that raised in the form of direct investment) and liable to undergo sharp adjustments in response to changes in market sentiment. In this respect, it should be noted that the weight of these instruments in liabilities to the rest of the world has decreased in recent years from a high of 37% in 2006 to 28% in 2018.

Turning to the institutional sector, the breakdown in Chart D shows a marked change in the composition of the Spanish IIP. Thus, while in 2008 the resident private sector (i.e. other resident sectors and other monetary financial institutions) was responsible for 83% of Spain's negative net IIP, at present it only accounts for 19% of the total. By contrast, the weight of the public sector has increased notably from 22% in 2008 to 58% in 2018. Meanwhile, the Banco de España has gone from a creditor position in 2008 to being responsible for 23% of the current debtor position. Since most of the net external liabilities of the economy fall on the public sector, it is vital to underpin the sustainability of the public finances in order to forestall sharp changes in market sentiment and the reversal of external financing flows.

1 Changes in the IIP, in addition to being determined by the behaviour of the current account, also depend on valuation effects and other adjustments. In the period 1999-2008, these items made a negative contribution to IIP equivalent to 21 pp.

2 For more details, see Chapter 3 of the 2016 Annual Report of the Banco de España.

Chart A
CURRENT AND CAPITAL ACCOUNT BALANCES

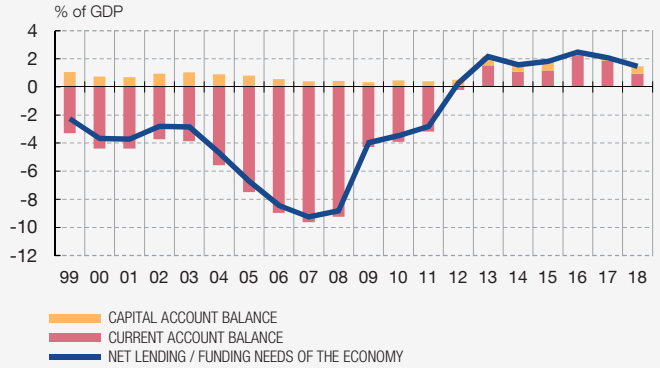
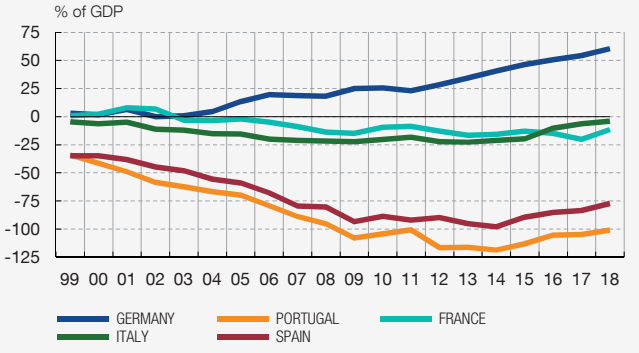


Chart B
NET IIP. INTERNACIONAL COMPARISON (a)



SOURCE: Banco de España.

a The net IIP is the difference between the value of the external assets and liabilities of resident sectors vis-à-vis the rest of the world.

Chart C
NET IIP. BREAKDOWN BY FUNCTIONAL CATEGORY (a)

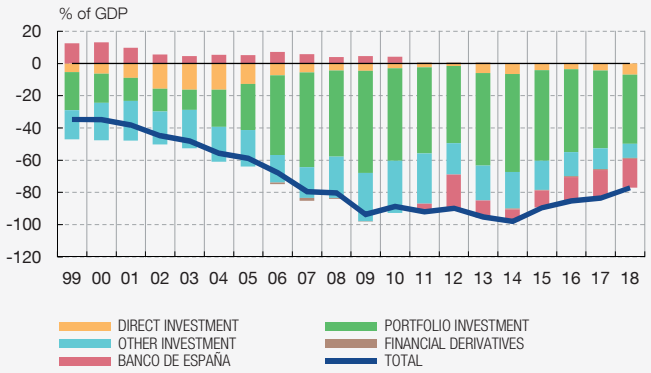


Chart D
NET IIP. BREAKDOWN BY INSTITUTIONAL SECTOR (a)

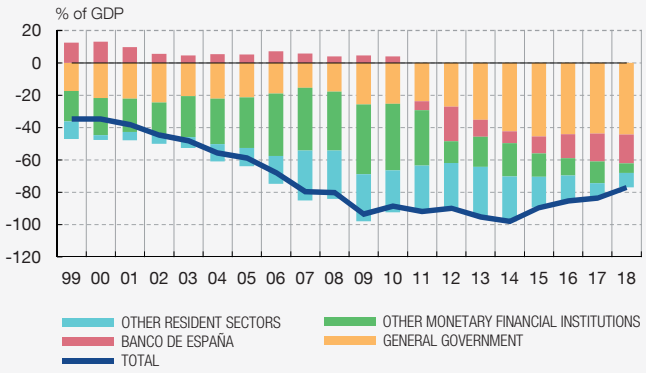


Chart E
EXTERNAL DEBT. INTERNACIONAL COMPARISON (b)

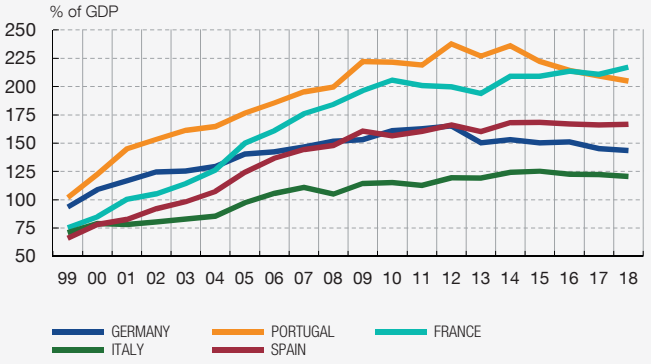
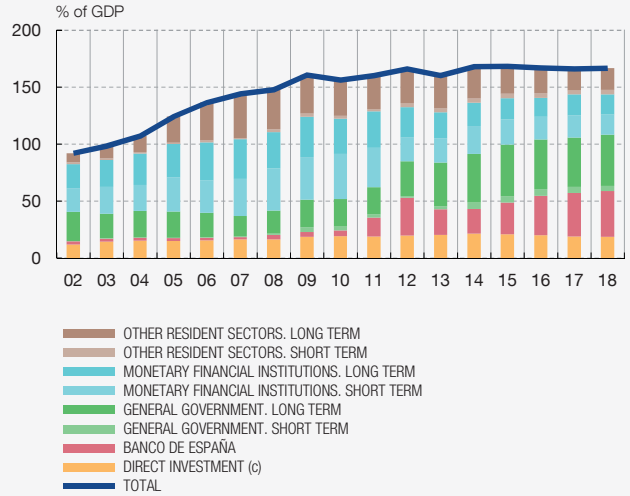


Chart F
GROSS EXTERNAL DEBT STRUCTURE BY INSTITUTIONAL SECTOR AND MATURITY (b)



SOURCE: Banco de España.

a The net IIP is the difference between the value of the external assets and liabilities of resident sectors vis-à-vis the rest of the world.
b The external debt comprises the balance of all liabilities giving rise to future payments of principal, interest or both (i.e. all financial instruments, except own funds, financial derivatives and monetary gold ingots).
c Including only direct investment in the form of debt.

Lastly, it is useful to supplement the information furnished by the IIP with that provided by gross external debt, an indicator which includes only the liabilities to the rest of the world that carry payment obligations.[3] In particular, this measure excludes all external liabilities in the form of holdings in capital, since these do not carry any future payment obligation and therefore do not pose the same risks to the sustainability and/or refinancing of external debt as other financing vehicles such as bonds or loans. Chart E shows that the gross external debt of the Spanish economy has barely shown signs of improvement in recent years, although it is in line with the euro area average. Since its peak in 2015, this indicator has only decreased by 2 pp to 166.7% of GDP in 2018. However, as regards its composition, there have been some changes in recent years which have helped to reduce its vulnerability. In particular, as shown by Chart F, the securities issued by the public sector, which generally carry lower refinancing and liquidity risk than those issued by the private sector, have increased their weight in the total gross external debt from 14% in 2008 to 30% in 2018. The same goes for the external liabilities of the Banco de España, closely linked to monetary policy implementation, and for certain associated risks even more limited than those of the public sector, whose weight in the gross external debt increased by 22 pp in the same period. The weight of long-term instruments, which likewise usually carry lower refinancing risk, has also increased.

3 External debt comprises all liabilities to non-residents that entail future repayment of principal, payment of interest or both. In practice, this includes all financial instruments except equity (shares and other equity, and investment fund units), financial derivatives and monetary gold ingots.

2.1 Deposit institutions

Credit risk

2.1.1 BALANCE SHEET STRUCTURE, RISKS AND VULNERABILITIES

Lending by deposit institutions corresponding to their business in Spain fell by 3.9% year-on-year in December 2018. Lending by Spanish banks stood at €1.15 trillion in December 2018, having decreased by 3.9%, at a faster pace than in 2017 (see Chart 2.1.A). As shown in Chart 2.2, this greater deleveraging was across the board in institutions, both in terms of total credit and that extended to non-financial corporations. However, part of the decline is explained by the sale of NPL portfolios by some institutions. If NPLs are excluded from the analysis, the decline would be just 1.8%.

New credit in the past year increased by 11 %, compared with 2017. In keeping with the favourable macroeconomic conditions of the past year, the volume of new credit grew at a notable pace, albeit insufficient to offset repayments. In the past year, lending to households and non-financial corporations, either through new loans or an increase in the principal drawn down in existing loans, amounted to €441 billion (see Chart 2.1.B).

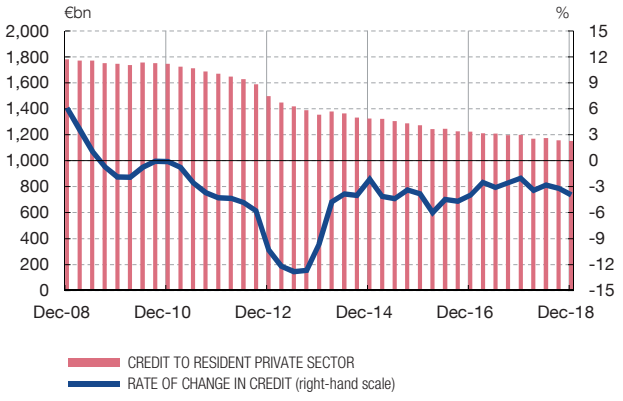
The volume of new credit grew in a setting of favourable credit supply conditions, in terms of interest rates and loan approval rates. Interest rates on new loans remained stable in 2018, with a narrow spread of 1 pp between loans of different sizes to firms, and a spread of 6 pp between the rate of new consumer loans and that of loans for house purchase. Interest rates on loans to firms amounting to less than €1 million continued their downward trend of recent years, with a decline of approximately 34 bp, while for larger loans, the interest rates remained slightly above 1.5% (see Chart 2.3.A). In the case of households, no significant changes were observed in the interest rates on loans for house

CREDIT TO THE RESIDENT PRIVATE SECTOR
Business in Spain, ID

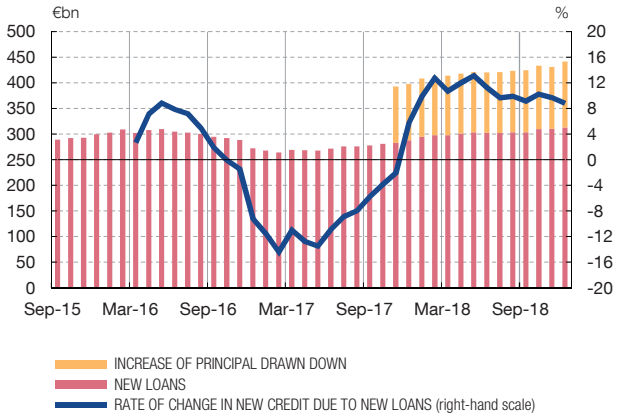
CHART 2.1

Total credit continued to decrease to €1.15 trillion in December 2018 (-3.9% compared with December 2017). New loans in the twelve months of 2018 grew by 8.8% compared with the previous year, total new credit (new loans plus an increase in the principal drawn down) reached €441billion, after this aggregate grew by 11% in the last year.

A CREDIT VOLUME AND YEAR-ON-YEAR RATE OF CHANGE



B NEW CREDIT VOLUME IN LAST 12 MONTHS AND YEAR-ON-YEAR RATE OF CHANGE



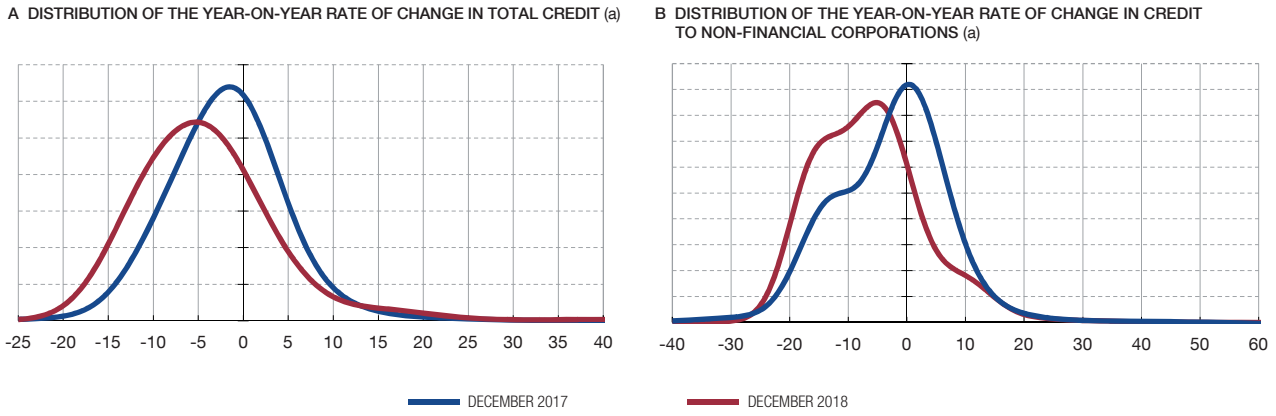
SOURCE: Banco de España.

a Before 2017 information was not available on the increase in the principal drawn down in existing loans. Consequently, the first data for this series, accumulated over twelve months, is represented in December each year. The rate of change shown only refers to new loans.

DISTRIBUTION BY INSTITUTION OF THE CHANGE IN CREDIT TO THE RESIDENT PRIVATE SECTOR
Business in Spain, ID. Deposit institutions

CHART 2.2

Credit to the resident private sector declined across institutions, both in terms of total credit and that extended to non-financial corporations. This is observed in the shift to the left in both distributions.



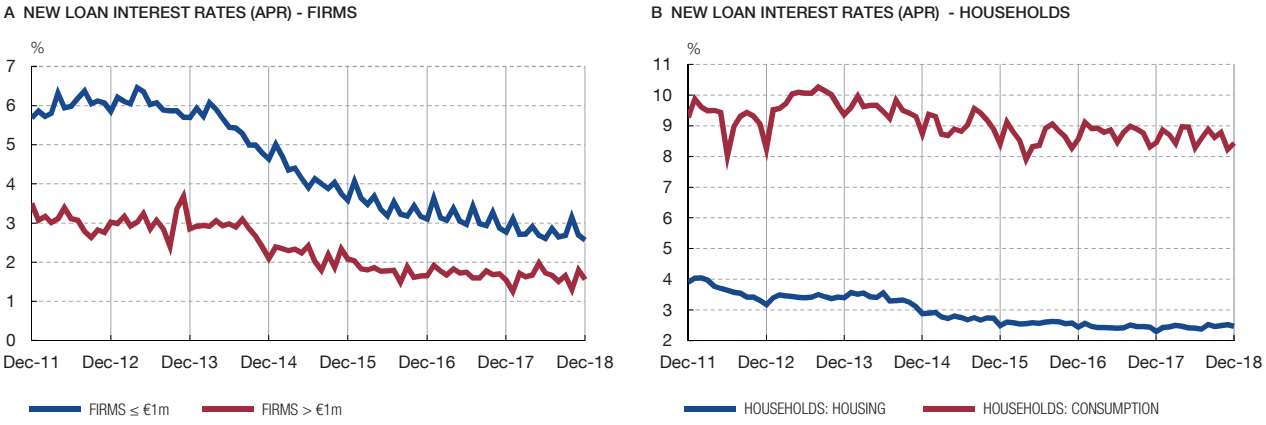
SOURCE: Banco de España.

a The graph shows the density function (or frequency distribution) of the year-on-year rate of change in credit for Spanish deposit institutions, weighted by the credit corresponding to each institution. This density function is approximated through a kernel estimator which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphical representation of that function.

INTEREST RATES ON NEW LOANS (a)
Business in Spain, ID

CHART 2.3

Interest rates on new loans remained stable during 2018. The spread on new business with large and small firms stood at approximately 1 pp in December 2018, considerably lower than the 3 pp recorded in 2013. The rate for new consumer loans to households held at above 8%, with a spread of approximately 6 pp over loans for house purchase.



SOURCE: Banco de España.

a The new loans of a period are defined as all the first-time loans arranged with customers and all the contracts existing in earlier periods whose amount, interest rate, maturity or other significant financial conditions in relation to interest rates have been renegotiated with customers in the month in question.

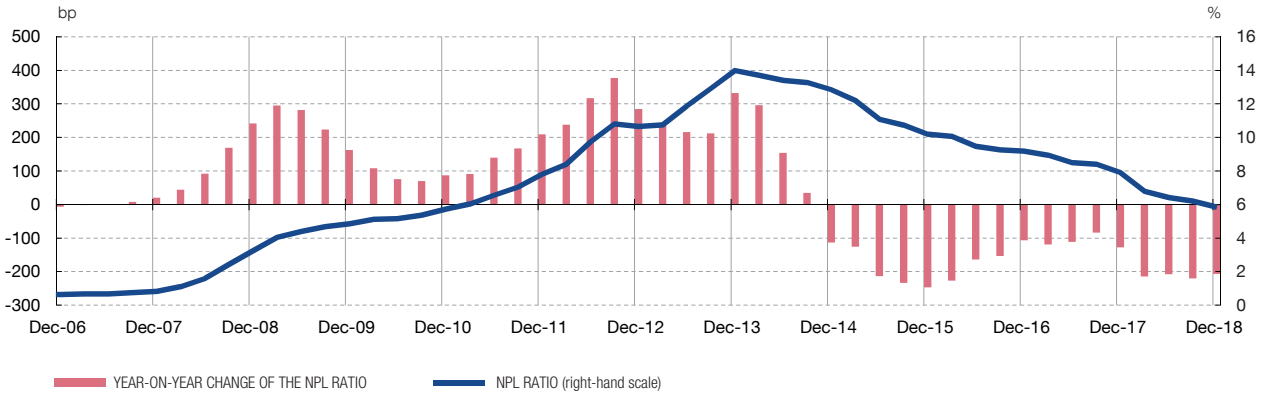
purchase or consumption (see Chart 2.3.B). Analysis of new loan applications by non-financial corporations in 2018 reveals that the number has declined somewhat, but that the approval rate has increased slightly, by as much as 1 pp, compared with the approval rate of 33% observed at end-2017.

Over the past year forborne loans decreased at the same rate as in 2017. The volume of forborne loans stood at €69.5 billion in December 2018, down 21% year-on-year. This was largely due to the 24.2% decrease in the volume of forborne loans of non-financial corporations.

NPL RATIO. RESIDENT PRIVATE SECTOR
Business in Spain, ID. Deposit institutions

CHART 2.4

The NPL ratio of the resident private sector continued the decline observed in recent years and reached 5.8% in December 2018, down by more than 2 pp on the same month of the previous year.



SOURCE: Banco de España.

In December 2018, the NPL ratio of the resident private sector stood at 5.8%, quickening the pace of decline of recent years. This ratio is the lowest observed since December 2010, following a decline of 207 bp in the past year and of 814 bp since December 2013, when the highest NPL ratio of the whole series was recorded (see Chart 2.4). The fall in the NPL ratio was the result of the sharp decline observed in non-performing assets in recent years. In particular, since December 2013, non-performing assets have decreased by more than €122 billion, which accounts for 64.5% of the total. In the past year, they have declined by €27.5 billion (-29.1%). As mentioned above, the decrease was largely due to the sale by some institutions of asset portfolios linked to construction and real estate activities. These declines were related to some extent to the intense pressure exerted by supervisors in recent years.

Over the past year, new NPLs decreased, NPLs written off remained stable and NPL recoveries and sales increased notably. Chart 2.5 shows a breakdown of NPL movements. New NPLs accounted for 27.3% of the initial volume of NPLs in 2018. Write-offs remained at 13.6% of total NPLs at the beginning of the period, although it should not be overlooked that, in absolute terms, they also fell significantly. Lastly, recoveries, which include foreclosed assets and NPLs sold to third parties, rose notably in absolute terms, to account for 42.8% of the amount at the beginning of 2018.

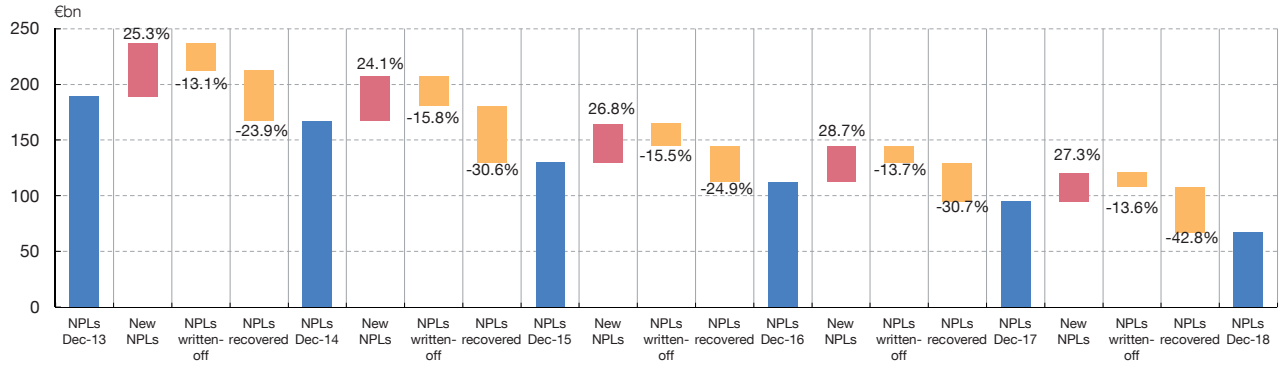
The downward trend in the volume of foreclosed assets was also more pronounced this year, to a large extent due to wholesale portfolio sales. The decline in foreclosed assets, which began in 2014, was appreciably more pronounced in 2018. From December 2017 to December 2018, the volume of these assets decreased by more than €20 billion, representing a year-on-year decline of more than 30% (see Chart 2.6.A).[1] In 2019, confirmation of the announced portfolio sales will further reduce the volume of foreclosed assets. By type, most foreclosed assets relate to construction and real estate development (see Chart 2.6.B), followed by assets stemming from lending to households for house purchase (more than 26%).

1 Wholesale sales have been conducted, in most cases, through a joint venture set up between the selling bank and the buyer, with the joint venture as the recipient of the real estate assets subject to the transaction. The selling bank keeps a minority interest in the joint venture's capital. The impact of foreclosed real estate assets on the selling bank's balance sheet is significantly reduced as only the value of the holding in the joint venture is considered, instead of the whole value of the foreclosed assets.

FLOW OF RESIDENT PRIVATE SECTOR NPLs (a)
Business in Spain, ID

CHART 2.5

With respect to the previous year, in 2018 new NPLs decreased, NPLs written-off remained stable and NPLs recovered, which include those sold to third parties, increased notably. As a result, the total volume of NPLs decreased by €27.5 billion.



SOURCE: Banco de España.

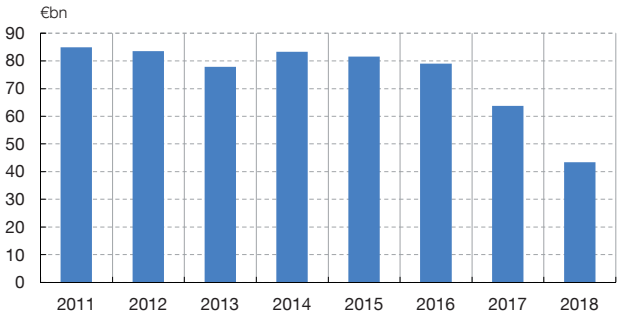
a Shown beside each bar is the percentage each item represents of the total NPLs at the beginning of the period. NPLs recovered include non-performing loans that become performing again, foreclosed assets and NPLs sold to third parties.

FORECLOSED ASSETS

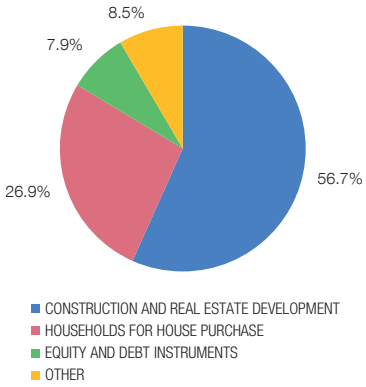
CHART 2.6

In 2018 the downward trend in foreclosed assets, which began in 2014, became more pronounced. Foreclosed assets have decreased by more than €20 billion with respect to December 2017, representing a year-on-year fall of more than 30%.

A FORECLOSED ASSETS



B BREAKDOWN OF FORECLOSED ASSETS. DECEMBER 2018



SOURCE: Banco de España.

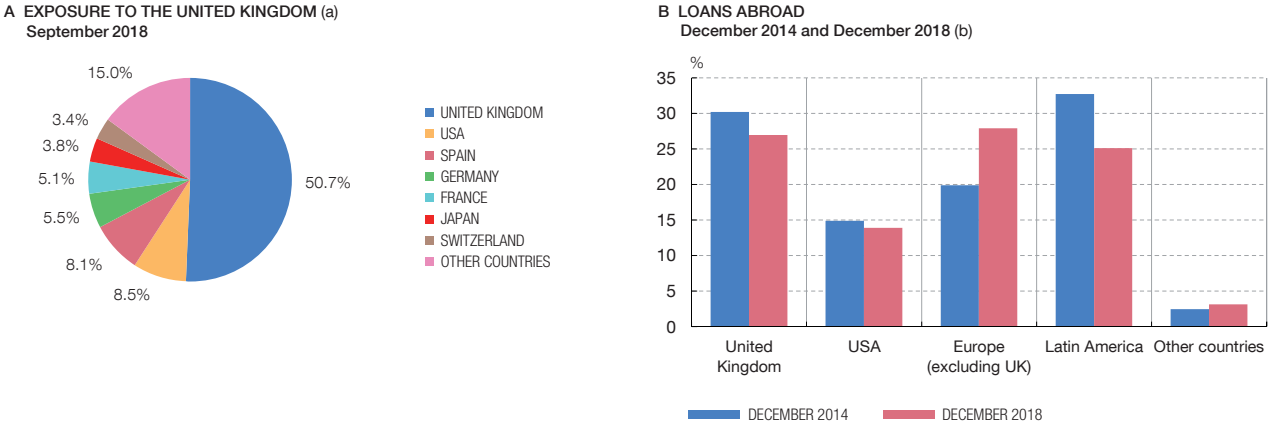
In short, the credit quality of business in Spain has continued to improve, made possible by an accommodative monetary policy and driven by favourable macroeconomic conditions and supervisory pressure. In this regard, the risks affecting the potential growth of the Spanish economy identified in this FSR are factors that will significantly influence the continuation of this positive development.

The consolidated assets of Spanish deposit institutions stood at €3,550 billion in 2018, a year-on-year increase of 0.5% (Annex 1). This slight increase in consolidated assets was the result of the performance of business abroad, where financial assets (mainly loans) rose by 2.8% year-on-year and, to a lesser extent, of business in Spain, where financial assets grew by 0.3%. The greater geographical diversification led to financial assets abroad accounting for 48% of consolidated financial assets in December 2018.

EXPOSURE TO THE UNITED KINGDOM AND LOANS ABROAD
Consolidated data

CHART 2.7

The exposure of foreign banks to the United Kingdom in September 2018 is similar to that of UK banks. The United States (8.5%) and Spain (8.1%) have the highest exposure among foreign banks to the United Kingdom which concentrates more than 25% of the loans abroad of Spanish deposit institutions. Particularly noteworthy in the period 2014-2018 is the growth in loans to Europe (excluding the United Kingdom) and the decrease in the weight of loans to Latin America.



SOURCES: BIS and Banco de España.

a Panel A shows the outstanding balance of loans based on the direct counterparty according to the consolidated banking statistics (CBS) of the BIS.
b Panel B shows the relative weight at each date of the loans in each geographical area as a percentage of total loans outside Spain.

Spanish and US banks have the highest exposure to the United Kingdom and may therefore be more affected by the uncertainty surrounding Brexit (see Chart 2.7.A). Spain is the European country with the highest exposure to the United Kingdom, followed by Germany and France. However, the exposure of Spanish banks to the United Kingdom arises from the activity of subsidiaries with financial autonomy and a retail-oriented business model. This means that the main risk of a disorderly Brexit for Spanish banks is the potential deterioration of the British economy, although this risk has recently eased as a result of the agreement reached with the European Council to delay Brexit until 31 October 2019. The activity abroad of Spanish banks is mainly concentrated in Europe and Latin America and, to a lesser extent, in the United States and Turkey. Particularly noteworthy in the period 2014-2018 is the growth in loans to the rest of Europe (excluding exposure to the United Kingdom), from 19.8% in December 2014 to 27.9% in December 2018, contrasting with the decrease in loans to Latin America, which fell by 7.6 pp to 25.1% in December 2018 (see Chart 2.7.B).

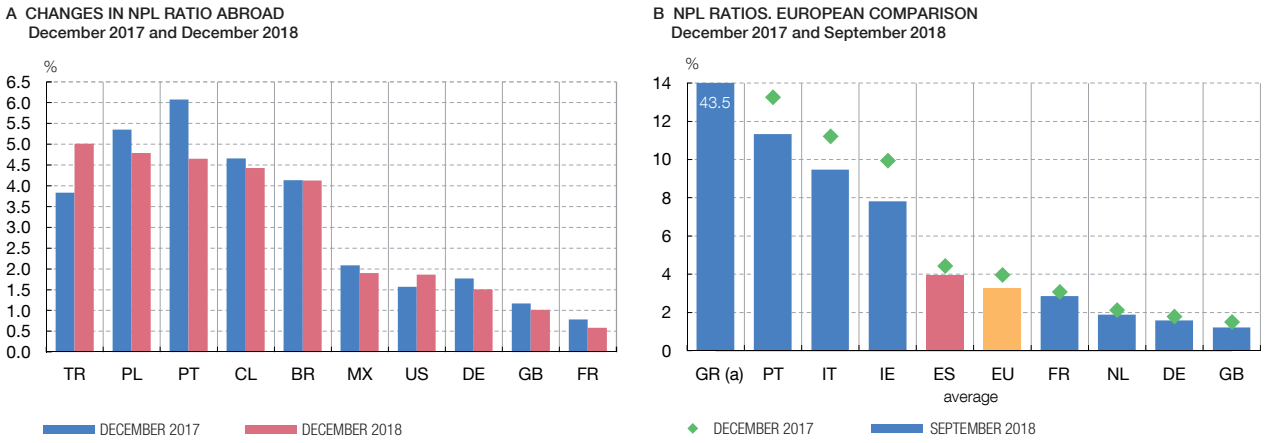
Consolidated non-performing assets, including loans and debt securities, decreased by 14.4% year-on-year (see Annex 1). The decrease in the volume of consolidated non-performing assets pushed the total non-performing assets ratio down to 3.2 %, a decrease of 61 bp with respect to that recorded in December 2017 (3.8 %). In the case of loans abroad, this decrease was across the board, except in Turkey (+1.2 pp, to 5%) and the United States (+0.3 pp, to 1.9%). The largest decreases were observed in Portugal (–1.5 pp to 4.6%) (see Chart 2.8.A).

The non-performing loans ratio of Spanish banks is slightly higher than the European average. According to the data published by the European Central Bank in its consolidated banking statistics, over the past year, Spanish banks reduced their NPL ratio by 0.5 pp, to stand at 3.9% in September 2018 (the latest available data), compared with 3.3% in Europe. Ireland, Italy and Portugal are the countries which have reduced their NPL ratio

NPL RATIO
Consolidated data

CHART 2.8

The NPL ratio abroad decreased in 2018 in the main countries where Spanish deposit institutions are present, except for in Turkey and the United States. The NPL ratio stands between 5% in Turkey and 0.6% in France. In Europe the NPL ratio also continued to fall and reached 3.3% in September 2018.



SOURCES: Banco de España and ECB.

a The NPL ratio in Greece is 43.5% (45% in December 2017).

the most, by about 2 pp (see Chart 2.8.B), although they remain significantly above the European average.

Liquidity and financing conditions

The liquidity coverage ratio (LCR) measures the short-term resilience of Spanish deposit institutions faced with withdrawals of funds. Specifically, the LCR compares the stock of high-quality liquid assets (HQLA) that may be easily and quickly converted into cash (liquidity), with the net outflows of funds that institutions would have to address in an adverse scenario (set by the regulator) lasting 30 days. The regulatorily required level for this ratio must be above 100%, that is, institutions must always have sufficient liquid assets to cope with outflows of funding under a stress scenario of 30 days.

In December 2018, the aggregate LCR stood at 170%, well above the regulatory minimum. Chart 2.9.A shows how the LCR has generally trended upwards since 2016, to stand at 170%, driven by the build-up of liquid assets, since the denominator of the ratio remained relatively stable. By institution, Chart 2.9.B shows the slight shift to the right of the distribution between 2017 and 2018, evidencing that a larger number of institutions had a higher level of this ratio in December 2018.

The LCR of Spanish institutions was slightly higher than the European average in December 2018. In particular, based on the data published quarterly by the European Banking Authority in its risk dashboard,[2] the ratio in Spain was 162.3%, compared with the European average of 152% (see Chart 2.10), lower than the ratio observed in the United Kingdom, but higher than those of the rest of the large EU economies.

Monetary policy developments in the euro area affect the liquidity and financing conditions of the wholesale funding market. The expansionary monetary policy applied

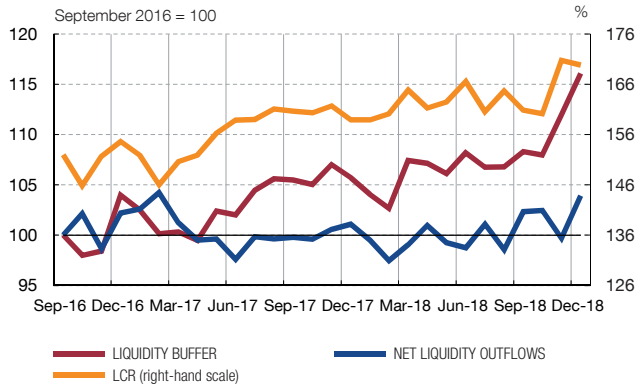
2 See http://www.eba.europa.eu/risk-analysis-and-data/risk-dashboard

LIQUIDITY COVERAGE RATIO
Consolidated data

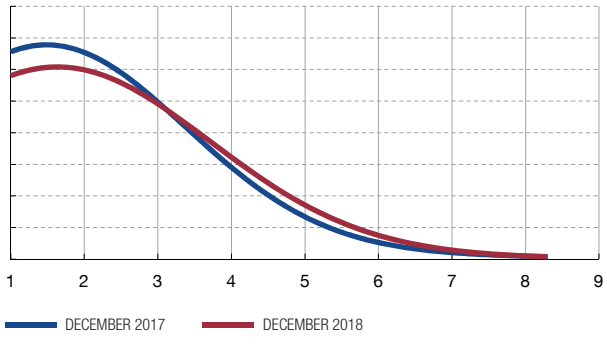
CHART 2.9

The LCR of Spanish deposit institutions has risen since it began to be measured in September 2016, driven by the build-up of liquid assets. The distribution across institutions has varied slightly in the last year towards a higher level of the ratio.

A AGGREGATE LCR
September 2016-December 2018 (a)



B DISTRIBUTION OF LCR BASED ON NET LIQUIDITY OUTFLOWS (b)



SOURCE: Banco de España.

a The aggregate LCR at each date is calculated as the sum of the HQLAs of all institutions divided by the sum of net liquidity outflows of all institutions.
b The panel shows the density function (or frequency distribution) of the LCR for Spanish deposit institutions, weighted by net cash outflows corresponding to each institution. This density function is approximated through a kernel estimator which allows a non-parametric estimate of the density function, yielding a continuous and smoothed graphical representation of that function.

by the ECB since June 2014 has led to an increase in the Eurosystem's balance sheet (from €2,000 billion to €4,700 billion,[3] see Chart 2.11.A), mainly due to its purchase programme, which recently underwent changes. From January 2019, the ECB will only reinvest the principal payments from maturing securities. In March 2019, the ECB announced that it would continue to make funding available to credit institutions through the Eurosystem and that it would maintain the current benchmark rates throughout 2019.

Funding provided by the Eurosystem to the Spanish banking sector in recent years has been very high. The Eurosystem provides liquidity through its asset purchase programmes and its refinancing operations, amounting to €2,635 billion and €728 billion, respectively, in April 2019. Almost all of the refinancing granted by the Eurosystem to date (€719 billion)[4] has consisted of four targeted longer-term refinancing operations known as TLTRO-II, which have provided banks with stable, long-term funding with very favourable conditions. Spanish banks have obtained funding amounting to nearly €168 billion,[5] which accounts for 23% of the total liquidity received by all Eurosystem banks (see Chart 2.11.B) and slightly more than 15% of Spain's GDP. Spanish banks, together with Italian banks, are those that have relied the most on these TLTRO-II operations to obtain long-term refinancing.

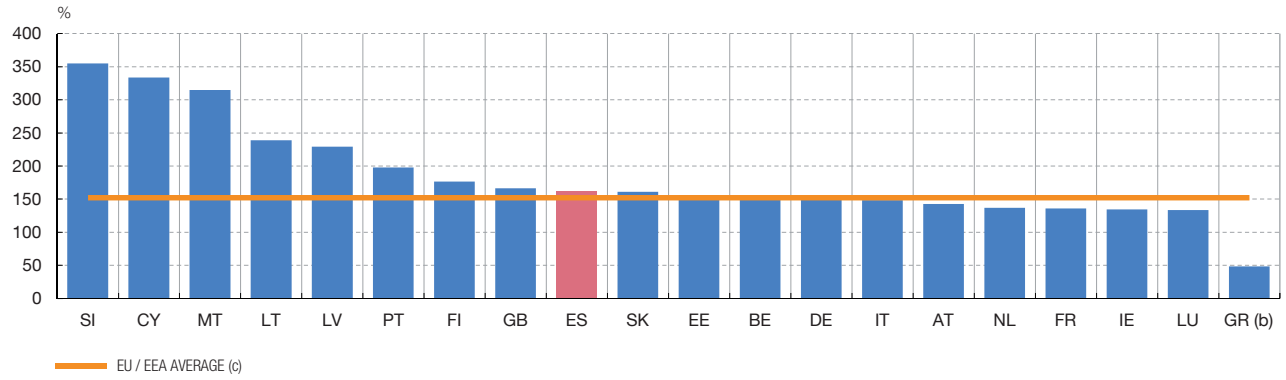
According to the measures announced by the Governing Council of the ECB in March 2019, banks will be able to obtain abundant funding through the Eurosystem for an extended period of time. Specifically, the ECB confirmed that the regular one-week and three-month lending operations will continue to be executed at a fixed rate with full allotment of banks' requests for liquidity, only subject to having sufficient collateral, at least until

3 The surplus liquidity in the system increased from €200 billion to €1,851 billion in the same period. Of this amount, €1,265 billion relates to excess reserves and €586 billion to the deposit facility.
4 The remainder, €9 billion, related to the Eurosystem's main refinancing operations.
5 Of this amount, €115.6 billion were granted in June 2016, €41.5 billion in March 2017, and the rest (€10 billion) in September and December 2017.

LIQUIDITY COVERAGE RATIO. EUROPEAN COMPARISON (a)
SSM COUNTRIES AND UNITED KINGDOM. December 2018

CHART 2.10

The liquidity coverage ratio (LCR) at the European level stood at 152% as at December 2018, far above the required minimum threshold of 100%. The European countries as a whole posted a ratio of over 100%, with the exception of Greece.



SOURCE: EBA.

a The data refer to a sample of 149 institutions, and the LCR is calculated as the weighted average of the ratios of each country's institutions.
b Greek banks monetised their liquid assets to cover their neck liquidity needs. That placed the LCR below 100% in the period of tension that has prevailed to date, in accordance with the provisions of Art. 4 (3) of Commission Delegated Regulation (EU) 2015/61 of 10 October 2014.
c EBA data include Iceland.

March 2021.[6] Moreover, it decided to launch a new series of quarterly operations, starting in September 2019 and ending in March 2021 (TLTRO-III). At the date of this report going to press, the ECB has announced that these operations will have a maturity of two years, will be conducted at a variable rate indexed to the interest rate on the main refinancing operations (currently 0%), and that further details on these operations will be communicated in due course.

Activity on the euro area unsecured interbank money markets remains very low. The EONIA trading volume is very low and has continued to decline in recent months (see Chart 2.11.C). The fall in the volumes of activity of the Spanish and European interbank markets are explained by: i) the conditions of surplus liquidity in the system, which means that banks do not need have recourse to interbank market funds since their liquidity requirements are already covered; ii) the new regulatory framework, which favours secured lending transactions[7] and iii) banks' aversion to counterparty risk, which emerged during the financial crisis and which has led to structural changes with banks opting for transactions backed by collateral instead of unsecured ones.

Most of the activity in unsecured money markets is conducted by institutions that do not have access to the ECB's deposit facility, which helps to explain the differences between the EONIA and €STR interest rates. These institutions include European non-bank financial corporations (asset management companies, pension funds, insurance companies) and non-EU resident banks. These institutions have received abundant liquidity as holders of substantial asset volumes now absorbed by the ECB in the framework of its "asset purchase programme". The surplus liquidity is deposited in European banks which, in turn, place it in the deposit facility. The deposits of banks that do not have access to the deposit facility in European banks are made at lower rate than that of the deposit facility itself, which explains why the €STR rate, also applied to this type of transactions, is below the deposit facility rate. In contrast, the EONIA, only applied to transactions between EU

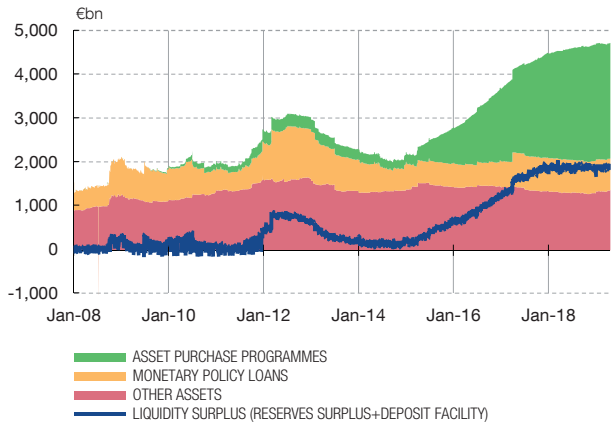
6 Specifically, until the end of the reserve maintenance period starting in March 2021.
7 Specifically, solvency regulations reduce capital requirements for collateralised exposures.

WHOLESALE FUNDING

CHART 2.11

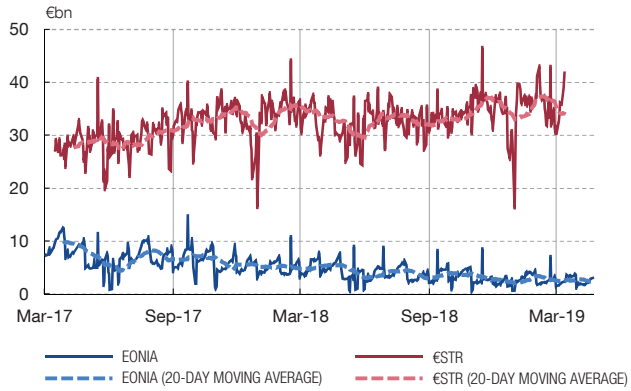
Activity on the euro area unsecured interbank money markets remains very low, while the funding provided by the Eurosystem has been very high in recent years. Spanish institutions reduced their aggregate issuance activity in 2018, compared with the previous year.

A EUROSYSTEM BALANCE SHEET AND LIQUIDITY SURPLUS

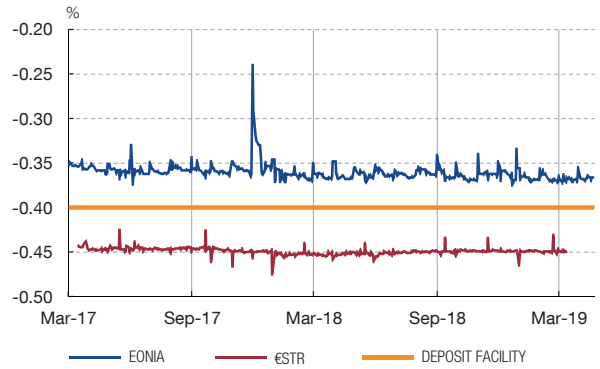


B OUTSTANDING AMOUNT PROVIDED THROUGH EUROSYSTEM TENDERS

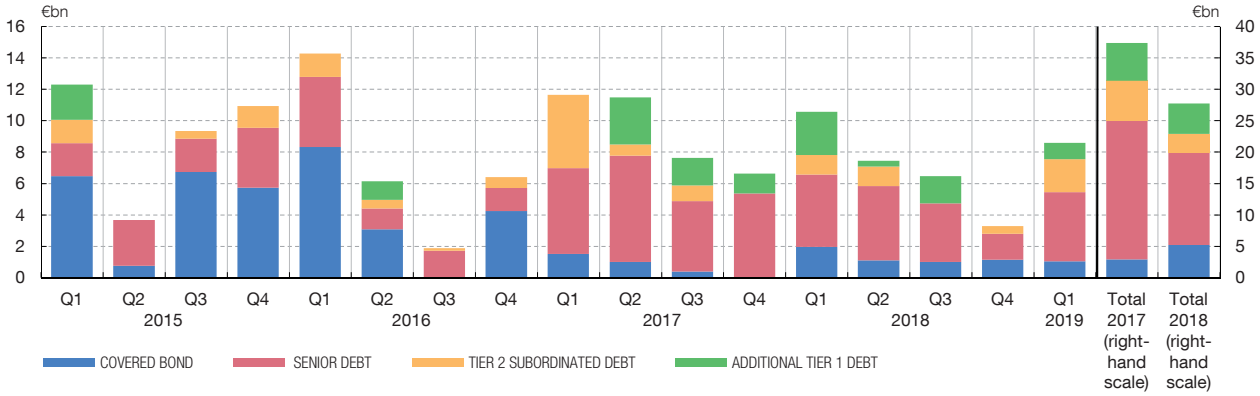
C TURNOVER IN EU MONEY MARKETS



D EU MONEY MARKET RATES



E MAIN ISSUES OF SPANISH INSTITUTIONS IN MEDIUM- AND LONG-TERM WHOLESALE MARKETS (a)



SOURCES: Bloomberg, Dealogic, Eikon, Thomson Reuters and Banco de España.

a Includes covered bonds, senior debt, subordinated debt eligible as tier 2 capital and debt eligible as additional tier 1 capital. Retained issues are not included.

banks, is similar to the deposit facility rate, which acts as a floor given the liquidity surplus (see Chart 2.11.D and Box 2.1 on the new benchmark indices in Europe).

Activity in secured markets (repos), which represents the bulk of the total trading volume in European money markets, has increased in the last two years. Institutions

Benchmark rates are essential for determining the price of numerous financial instruments and financial contracts. Of these benchmarks, EONIA is particularly significant in derivatives contracts and the overnight indexed swap (OIS)[1] market as well as for the transmission of monetary policy.

EONIA is calculated as a weighted average rate of all overnight unsecured lending transactions in the interbank market reported voluntarily by 28 panel banks. The decrease in activity on its underlying markets and the reduction in the number of banks participating in the panels have affected adversely the integrity and robustness of this index. In fact, it does not meet the requirements of the new European Benchmarks Regulation[2] (BMR) and, consequently, needs to be reformed by 1 January 2020, the deadline set for indices used as benchmarks to comply with this Regulation.

EMMI,[3] the administrator of EONIA, initially sought to align this index with the BMR requirements. However, in 2017 it announced that it would not continue the reform of EONIA and undertook to provide this critical benchmark[4] until the end of the BMR transition period. It stated that it could not guarantee that EONIA would comply with the BMR, in which case, it would not be able to use it as a benchmark as from 2020. Accordingly, a proposal was made to EMMI to modify the methodology used to calculate EONIA to facilitate the transition to the new risk-free rate.

Central banks are developing risk-free overnight rates which may complement private-sector indices, given their key role for monetary policy transmission. Against this background, the ECB is the administrator of an index called €STR, which it has developed.

€STR is a representative benchmark of the euro area reflecting the borrowing costs for euro area banks of raising funds in the wholesale market on overnight deposits on an arm's length basis. The rate will be published daily based on individual deposit transactions in the European money market which 50 agents must report to the ECB within the arrangements of the money market statistical reporting (MMSR) regulation.[5] The underlying market is that of banks' deposits from financial institutions and not only those from other banks. €STR and EONIA are based on unsecured overnight transactions, but there are important economic differences between them since EONIA includes the rate at which banks lend funds to each other on the interbank market whereas €STR includes the rate banks pay for deposits from other counterparties which are not necessarily banks. These differences explain the spread existing between the two rates. €STR rates are between 7 bp and 9 bp lower than EONIA rates, as can be seen in Chart 2.11.D.

In September 2018 the working group on euro risk-free rates[6] recommended that €STR be used as the new euro area risk-free rate to replace EONIA. Nevertheless, EONIA will continue to exist and may be used in contracts in force during a limited period of time to facilitate a smooth transition to €STR. On 14 March 2019 the ECB announced that it will begin to publish €STR on 2 October 2019, three months before the deadline for replacing EONIA, to reflect the previous day's operations.

With the €STR identified as the recommended benchmark, it is important that banks work to ensure an orderly transition from EONIA to €STR and to resolve the risks and problems which may arise with the contracts and instruments currently using EONIA as a benchmark (legacy assets). Accordingly, the working group recommended that EMMI, as its administrator, modify the current methodology for calculating EONIA to facilitate the transition to the new risk-free rate to give market participants sufficient time to transition to €STR.[7] Thus, for a limited period of time until end-2021, EONIA will be calculated by applying a fixed spread to €STR,[8] to be published by the ECB instead of being based on the data provided by a panel of credit institutions.

The ECB also stated on 14 March that it supports private-sector efforts for a successful transition from EONIA and will provide the calculation of the spread between EONIA and €STR on a specific date before publication of €STR begins. Thus, the EMMI is projected to begin publishing EONIA under the recalibrated methodology based on €STR on 2 October at the same time as the ECB publishes €STR. Parallel publication is expected to last until end-2021 and thereafter only €STR will be published.

Finally, the working group also recommended that market participants gradually replace EONIA by €STR and that €STR be used in all new products and contracts signed as from January 2020.

1 It is estimated that the outstanding volume of unsecured money market instruments using EONIA as a reference rate stood at around €450 trillion at end-2017. Use of the OIS market is estimated to exceed €5.2 trillion.
2 Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks. The Regulation, implemented due to cases of benchmark manipulation, seeks to improve the method for calculating benchmarks. It does so by requiring that the calculation be based on real transactions and that governance and controls in the provision of benchmarks be strengthened, thus avoiding conflicts of interest.
3 The European Money Market Institute (EMMI) is a private institution responsible for administering EONIA. It is a non-for-profit association under Belgian law founded in 1999. Its members are national banking associations in EU Member States.
4 EONIA was designated as a critical benchmark in June 2017. EURIBOR and LIBOR are also critical benchmarks which were designated in August 2016 and December 2017, respectively.
5 Regulation (EU) No 1333/2014 of the European Central Bank of 26 November 2014 concerning statistics on the money markets (ECB/2014/48). The main purpose of collecting such statistics is to provide the ECB with comprehensive, detailed and harmonised statistical information on the money markets in the euro area which provide information on the transmission mechanism of monetary policy decisions.
6 It is an industry-led group established in 2018 by the ECB, the Belgian Financial Services and Markets Authority (FSMA), the European Securities and Markets Authority (ESMA) and the European Commission and comprises 21 large European banks, including BBVA and Santander, and five industry associations.
7 EMMI was also requested to engage with the relevant authorities to ensure that EONIA, revised in accordance with the new methodology, complies with the BMR.
8 On 14 March 2019 the working group made a recommendation to EMMI for a specific formula to calculate this spread between €STR and EONIA which should be based on public data.

are using these markets to manage their collateral needs, rather than to cover their cash flow or liquidity needs, as occurred in the past. Institutions have a greater need for high-quality liquid assets (HQLA), in particular, sovereign bonds, against a background of uncertainty as to their availability, owing to a combination of factors. In this context, sovereign bonds with investment-grade rating are the type of asset most used in the repo market, most of them cleared by central counterparties (CCPs).

With regard to longer-term funding, Spanish banks reduced their aggregate issuance activity in 2018 compared with the previous year. By type of debt instrument issued, there was a decrease in the amount of issues of senior and subordinated debt, both that eligible as additional Tier 1 capital and that eligible as Tier 2 capital. In contrast, the amount of covered bonds issued in 2018 was higher than in the previous year (see Chart 2.11.E), although it should be noted that 2017 had seen a significant decrease compared with the amounts issued in 2015 and 2016, when issues by Spanish banks were concentrated in these secured debt instruments.

However, the need to continue issuing bonds in the near future will be boosted, owing to the paradigm change in the resolution of banks, which has led to the establishment of minimum requirements for own funds and other eligible liabilities. The Single Resolution Board (SRB) has set binding targets for significant European institutions in relation to the minimum requirement for own funds and eligible liabilities (MREL). To meet the MREL targets, institutions need to issue different debt instruments with different degrees of subordination and associated costs that are higher than those of senior debt or secured instruments such as covered bonds. The subordinated debt instruments that are eligible as MREL are complex products that should not be distributed among retail investors, but should be reserved for wholesale investors with the ability to analyse the risk involved and profitability offered by the product. It should be borne in mind that, in the event of the bank's resolution, these instruments may ultimately absorb losses totally or partially, with the subsequent impact on the financial position of the holder. In such circumstances, the presence of retailers may become a hindrance to the resolvability of banks. The issuance of eligible liabilities for MREL purposes is far more of a challenge for small and medium-sized banks, with less issuing experience and a retail-oriented funding model.

The seniority of the claim relating to different debt instruments and the yield which banks must offer to attract this type of funding on the markets are inversely related. Specifically, an analysis of the issues of four debt instruments (covered bonds, senior debt, subordinated debt eligible as Tier 2 capital and subordinated debt eligible as additional Tier 1 capital, listed by seniority) by banks in the five main European countries (Spain, France, Germany, Italy and the United Kingdom) in the last three years (from 2016 to 2018) shows that the cost of covered bond and senior debt issues differs substantially from that of subordinated debt issues (see Chart 2.12.A).[8] Regarding subordinated debt, the cost of debt eligible as additional Tier 1 capital is appreciably higher than that of subordinated debt eligible as Tier 2 capital.

Recent years have seen a decrease in the cost of subordinated debt and a slight increase in that of European covered bonds and senior debt. A comparison of issuance costs in the main European countries in the last three years (see Chart 2.12.B) reveals

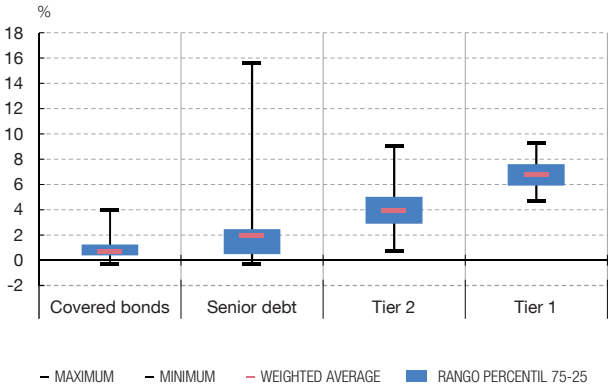
8 The dispersion in the cost of senior debt is higher, since it is by far the most frequently issued type of debt, and therefore includes banks with widely varying types of business, size and financial position. In part, this dispersion may respond to the fact that non-preferred senior debt cannot be separated from other debt.

COST IN EUROPE OF DEBT INSTRUMENT ISSUANCE

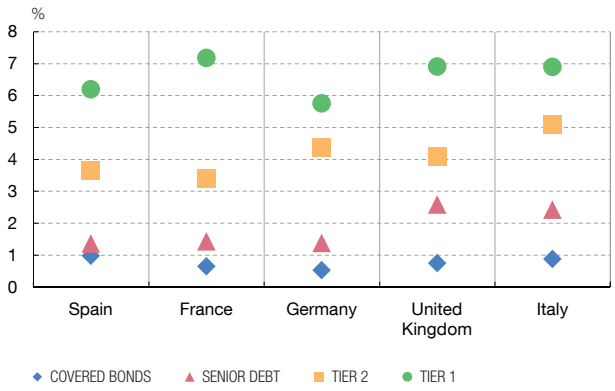
CHART 2.12

There is a clear relationship between the cost of issues and the seniority of the claim relating to debt instruments: the closer the debt is to the institution's capital, the greater its cost. Further, the closer the debt instrument is in its characteristics to a capital instrument, the greater the reduction in the costs associated with a higher CET1 ratio of the issuer.

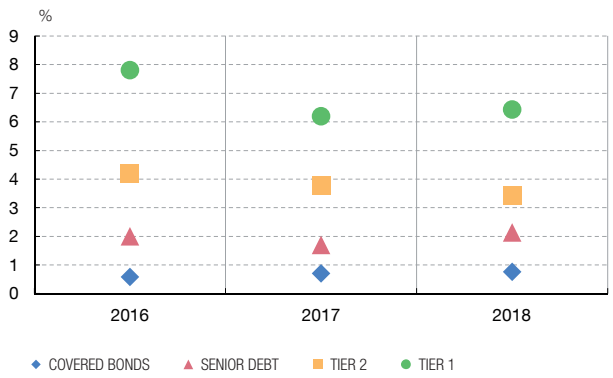
A COST OF DEBT INSTRUMENTS ISSUANCE 2016-2018 (a)



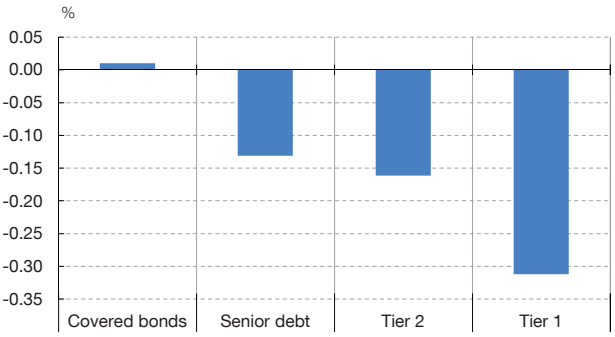
B AVERAGE COST OF DEBT INSTRUMENTS ISSUANCE: 2016-2018, BY COUNTRY



C AVERAGE COST OF DEBT INSTRUMENTS ISSUANCE PER YEAR



D CET1 EFFECT ON THE COST OF DEBT INSTRUMENTS (b)



SOURCES: Dealogic and SNL.

a The chart shows the maximum cost, the minimum cost, the range between the 75th percentile and the 25th percentile, and the weighted (by the amount of the issues) average of the cost for Spanish, Italian, French, German and British banks from 2016 to 2018 of issues of covered bonds, senior debt, subordinated debt eligible as tier 2 capital and debt eligible as additional tier 1 capital. The minimum cost of issues of covered bonds and senior debt is below zero since in some cases the coupon on the issue is index-linked (e.g. to the three-month EURIBOR), plus a spread, and the value of the index at the time of issuance is less than the spread applied.

b For each type of instrument, the chart shows the coefficient relating to the CET1 ratio in a multivariate regression with the issuance cost as a dependent variable, and other characteristics of the issue (maturity, volume), of the issuer (total assets, solvency, nationality), and market conditions (index of the European banking sector, interest rate on government debt of the country of residence of the issuer with the maturity closest to that of the issue) as explanatory variables. For example, the coefficient of -0.3 for Tier 1 indicates that a 1 pp increase in the CET1 ratio of an issuing bank is associated, all things being equal, with a -0.3 pp reduction in the issuance costs of this instrument. The estimation is made on issues by banks from Germany, Spain, France, Italy and the United Kingdom for the 2016-2018 period.

no major differences between countries and, in general, the average yields offered for each type of instrument fall within similar bands. However, some decline in the trend can be observed in the yields offered for subordinated debt and a slightly rising trend for European covered bonds and senior debt (see Chart 2.12.C). Consequently, the differential in the cost of subordinated debt and that of senior debt and covered bonds has narrowed in the last three years (by around 1.5 pp for subordinated debt eligible as additional Tier 1 capital and by 1 pp for debt eligible as Tier 2 capital).

The higher the level of the CET1 ratio, the lower the cost of issuance, with this effect increasing the closer the debt instrument is to a capital instrument. An empirical analysis conducted using the data on the issuance of debt instruments by European banks

in 2016-2018,[9] to attempt to identify the determinants of the cost of the different debt instruments, revealed that the level of the CET1 ratio (the highest-quality capital) has a statistically significant negative effect on the cost of issuing senior and subordinated debt, both that eligible as Tier 1 and Tier 2 capital. Conversely, the CET1 ratio of the issuer does not significantly affect covered bonds, a relatively more homogeneous product secured by the mortgage portfolio (see Chart 2.12.D).[10] Lastly, the analysis of subordinated debt issues shows that the size of banks is also significant, and that those with a higher level of assets have lower issuance costs.

The aforementioned inverse relationship between the CET1 ratio and issuance costs is highly significant for Spanish banks. This is because they will have to issue a significant amount of subordinated debt instruments in the coming years (additional Tier 1, non-preferred senior debt) to meet the MREL requirements imposed on them. The higher their CET1 ratio, the lower the expected cost of the new issues.

No vulnerabilities or significant changes have been identified as regards retail funding, whose volume and composition remained relatively stable, with 0.7% year-on-year growth in deposits at consolidated level.

2.1.2 PROFITABILITY AND SOLVENCY

Profitability

In 2018 the Spanish banking sector recorded consolidated profit attributable to the parent of €19,438 million, 24.8% higher than in 2017. This increase in consolidated profit represented growth of 11 bp in the return on assets (ROA), from 0.44% in 2017 to 0.55% in 2018 (see Annex 2). The return on equity (ROE) rose from 6% at December 2017 to 7.2% at December 2018, which, in principle, improves the resilience of Spanish banks against future shocks. The recovery of profitability contributes to bringing the ROE closer to the levels of cost of equity (COE) estimated for the banking sector, although it is still below the average COE values seen after the economic crisis of 2008.

At consolidated level, both net interest income and net fees and commissions increased compared with the previous year, while gains on financial assets and liabilities decreased. Net interest income increased slightly (1%, see Annex 2) year-on-year in the past year, since interest expenses decreased by more than interest revenue (-3.8% and -0.7%, respectively). The year-on-year increase in net fees and commissions was higher (3.6%), although its lower amount in relation to net interest income results in a growth lower than that of net interest income relative to average total assets (ATA) (see Chart 2.13.A). As has been the case over the last few years, gains on financial assets and liabilities fell once again (by more than 25%). Thus, gross income declined slightly, by 0.7%, in 2018.

In the current low interest rate environment, banks have focused somewhat more on the provision of banking services, with the result that fees and commissions increased.

9 Multivariate regressions were conducted, with the cost of the issue as a dependent variable, and other characteristics relating to the issue (maturity and volume), the issuer (total assets, solvency and nationality), and market conditions (European banking sector index and interest rate on government debt of the country of residence of the issuer with the maturity closest to that of the issue), as explanatory variables. The robustness of the results were analysed by adding other issuer characteristics such as the credit rating, which is more favourable in the case of higher solvency levels and larger issuers. With these specifications, the lower issuance cost associated with a higher level of the CET1 ratio is maintained, either as a direct effect or as a result of an upgraded credit rating.

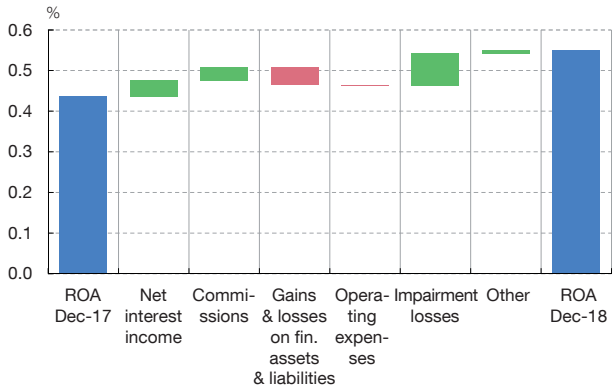
10 These results are based on all issues by banks in the main European countries, most of which were carried out by large banks. These results are not verifiable in the case of smaller banks, given the very limited number of issues.

CONSOLIDATED PROFITABILITY
Deposit institutions

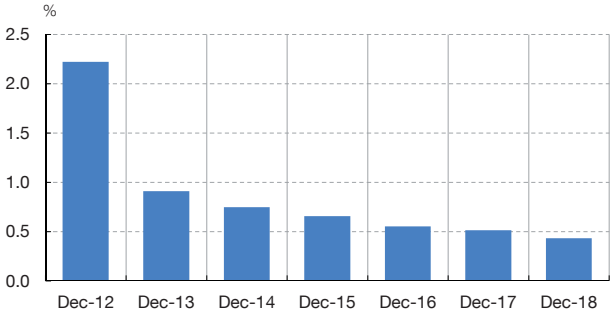
CHART 2.13

Both net interest income and net commissions rose on the previous year, while gains and losses on financial assets and liabilities fell. The main determinant of the improvement in income for the Spanish banking sector is the reduction in impairment losses, which fell by over 16% in 2018.

A BREAKDOWN OF THE CHANGE IN CONSOLIDATED PROFIT ATTRIBUTED TO THE PARENT INSTITUTION IN DECEMBER 2018 WITH RESPECT TO DECEMBER 2017 AS A % OF ATA (a)



B FINANCIAL ASSET IMPAIRMENT LOSSES AS A % of ATA



SOURCE: Banco de España.

a The red (green) colour of the bars indicates a negative (positive) contribution of the corresponding item to the change in consolidated profit in December 2018 with respect to December 2017.

This trend in recent years (downward in net interest income and upward in net fees and commissions) also arose in the activity of credit institutions in Spain, although net interest income has already remained stable in the past year (see Chart 2.14.A). Net fees and commissions continued to grow in 2018, almost 4% year-on-year, resulting in an almost 0.4 pp increase in its weight in gross income (see Chart 2.14.B).

In any event, the main determinant of the improvement in profit for the Spanish banking sector in 2018 was the decrease in impairment losses. In keeping with the pattern of recent years, impairment losses declined in 2018 (see Chart 2.13.B). The decline was substantial, over 16%, and amounted to close to €3 billion. In a setting of stagnant margins, it is the main driver of the improvement in profit for Spanish institutions in 2018. Additionally, the positive change in the contribution of extraordinary operations also boosted profitability.

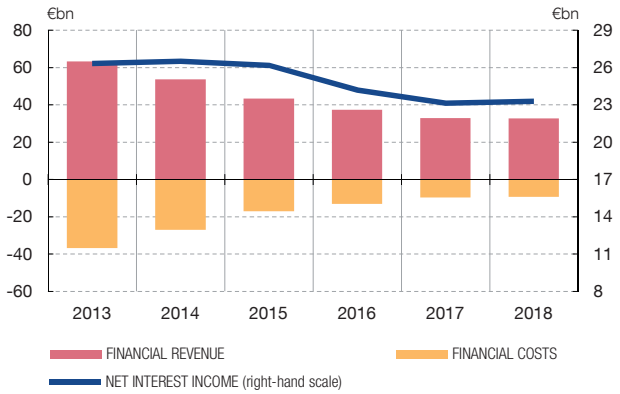
The cost-to-income ratio of Spanish banks has improved since 2016 owing to the increase in gross income and the containment of expenses, whose structure has been relatively stable for Spanish banks since 2015. The slight decline in the level of operating expenses in 2016 and the unfavourable changes in gross income led to a worsening of the aggregate cost-to-income ratio, which rose from 52.7% in 2015 to 55.7% in 2016. From that year, the containment of expenses and the improvement in gross income have allowed the ratio level to recover up to 53.3% in 2018 (see Chart 2.15.A). A breakdown of administrative expenses linked to the activity of Spanish banks in 2015 and 2018 shows some stability, with predominance of staff costs (53%), followed by IT and communications (11.6%), outsourced services and technical reports (8.6%) and depreciation (8.2%). The last three items increase their weight in comparison with the structure in 2015, when they accounted for 10.1%, 7.7% and 7.2%, respectively of total expense (see Chart 2.15.B). This change reflects the digitalisation process and the increased technological component in the activity of these institutions.

NET INTEREST INCOME AND NET COMMISSIONS
Business in Spain, ID

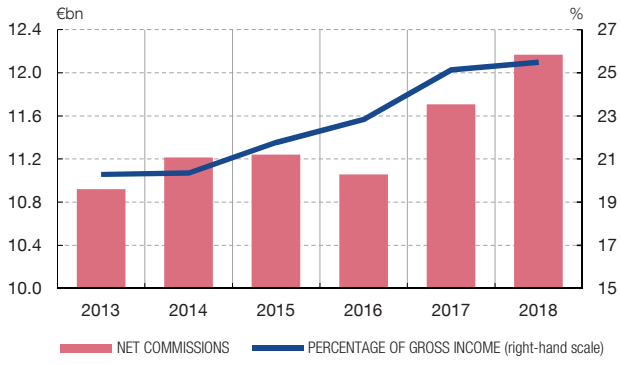
CHART 2.14

While net interest income on activity in Spain fell in recent years, it held stable in 2018. Net commission continued growing, and was up almost 4% last year.

A FINANCIAL REVENUE AND COSTS, AND NET INTEREST INCOME



B NET COMMISSIONS AMOUNTS AND PERCENTAGE OF GROSS INCOME (a)



SOURCE: Banco de España.

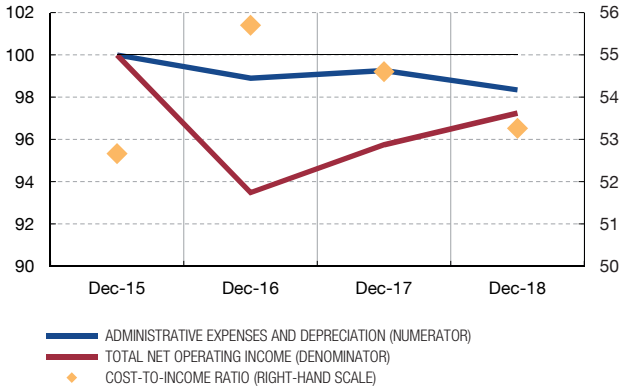
a Gross income is the sum of net financial income (net interest income plus the return from capital instruments) and net commissions, gains and losses on financial assets and liabilities and other operating income (net).

COST-TO-INCOME RATIO AND OPERATING EXPENSES

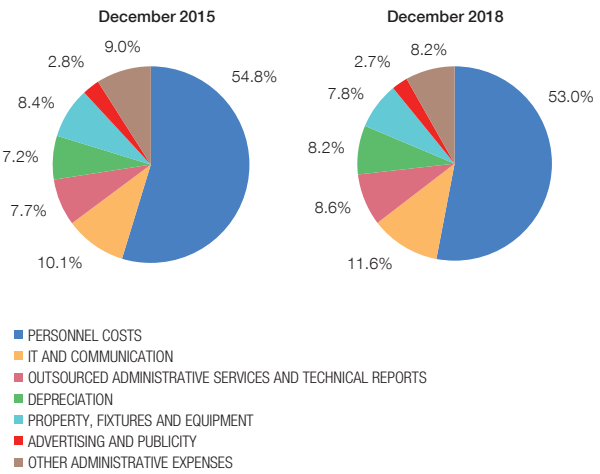
CHART 2.15

The consolidated cost-to-income ratio has trended favourably since 2016, owing both to higher net operating income and to the reduction in administrative expenses and depreciation charges. At the individual level, administrative expenses as at December 2018 where concentrated chiefly in personnel costs, IT and communication, outsourced administrative services and technical reports, and depreciation, with the cost structure relatively stable compared with 2015.

A COST-TO-INCOME RATIO



B BREAKDOWN OF ADMINISTRATIVE EXPENSES AND DEPRECIATION



SOURCE: Banco de España.

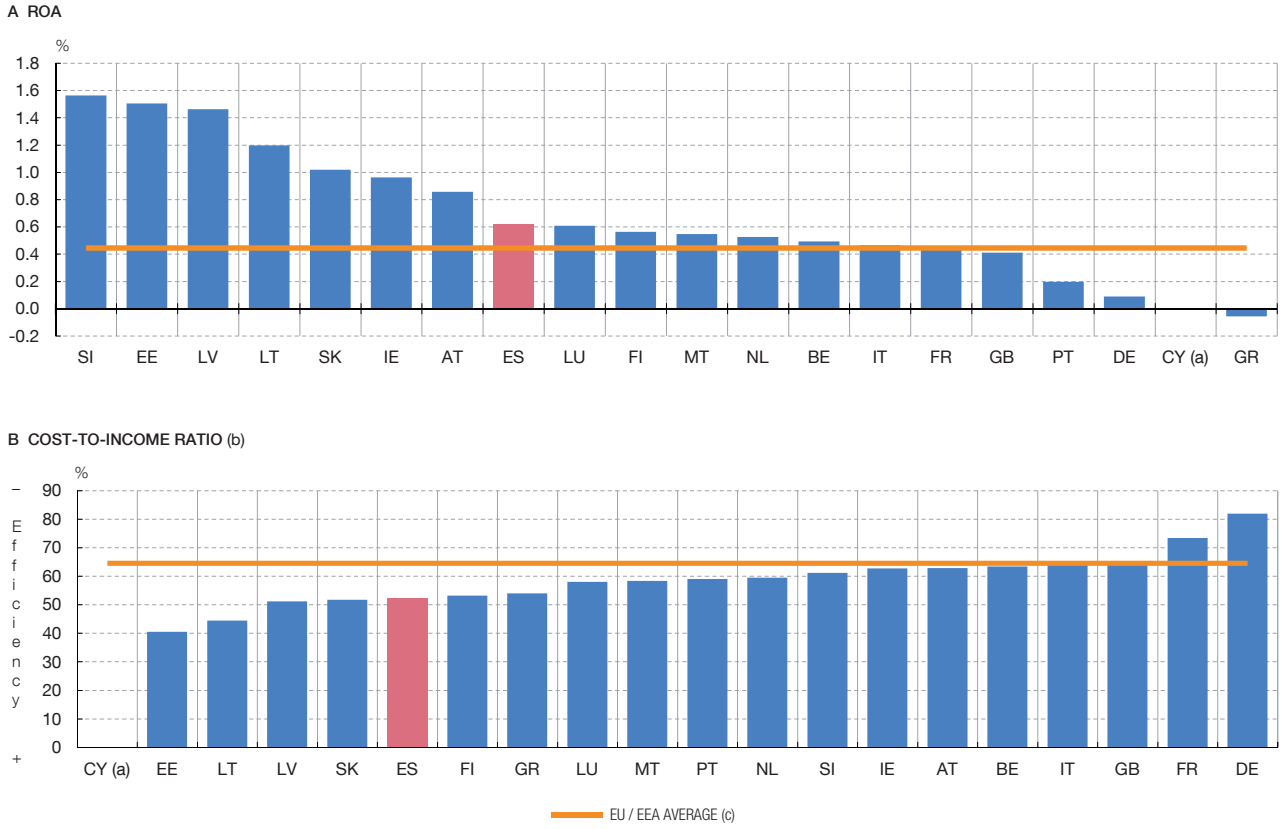
In terms of profitability and efficiency, Spanish institutions stand above the European average. Based on European Banking Authority (EBA) data as at December 2018,[11] the Spanish banking sector is one of the highest ranking in profitability in comparison with the main European countries (see Chart 2.16.A). Similarly, the cost-to-income ratio, i.e. the ratio of operating expenses to gross income, of Spanish institutions is one of the lowest (best) in Europe (see Chart 2.16.B).

11 See http://www.eba.europa.eu/risk-analysis-and-data/risk-dashboard

PROFITABILITY AND EFFICIENCY. EUROPEAN COMPARISON.
SSM COUNTRIES AND UNITED KINGDOM. December 2018

CHART 2.16

In terms of return on assets, Spanish institutions stand above the European average and that of the main European countries. Along these lines, the Spanish banking sector's cost-to-income ratio is among the lowest (best) in Europe.



SOURCE: EBA.

a Data not published by the EBA.
b The cost-to-income ratio is defined as the ratio of operating expenses to gross income.
c EBA data include Iceland.

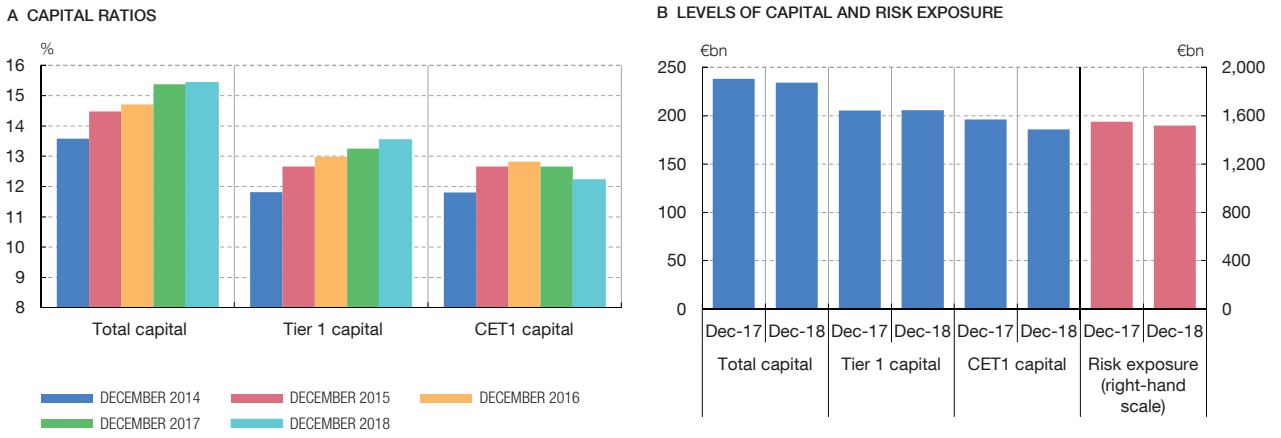
Solvency

The ratio which measures the highest quality capital, Common Equity Tier 1 (CET1) capital, stood at 12.2% in December 2018, decreasing by 43 bp in the past year, largely owing to lower transitional adjustments (see Chart 2.17.A). CET1 capital decreased by around 5% in the past year, largely owing to the fall in transitional adjustments[12] which in previous years reduced the deductions of certain CET1 items (goodwill, deferred tax assets, etc.) and which have been applied gradually up to the full implementation of Basel III. Therefore, Spanish banks did not offset with increases in capital or reserves the erosion of CET1 capital which the process of adjustment to the new regulations entails. Additionally, risk weighted assets (RWAs) also decreased in the past year, although to a lesser extent than CET1 capital (by 2%) (see Chart 2.17.B).

As set forth in the previous FSR, in recent years the CET1 solvency ratio has increased only moderately. In particular, the CET1 capital ratio only increased by 42 bp in the period

12 Transitional adjustments generally defer over time the deductions from own funds set out in Directive 2013/36/EU of 26 June 2013 (CRD IV) and in Regulation (EU) 575/2013 of 26 June 2013 (CRR), which implement Basel III in Europe such that the reduction of CET1 is spread over more years. Broadly speaking, the transitional adjustment was 80% in 2014, 60% in 2015, 40% in 2016, 20% in 2017, and disappears in 2018.

The CET1 ratio declined by 43 bp to 12.2% in December 2018, while the Tier 1 capital and total capital ratios increased last year. Risk-weighted assets declined by 2% last year.



SOURCE: Banco de España.

2014-2018, despite the decrease in the denominator and the recovery of bank profits during the period, coinciding with the Spanish economy's more favourable performance.

By contrast, the regulatory change prompted an increase in the Tier 1 capital and total capital ratios in the past year (to 13.5% and 15.4%, respectively), and the CET1 Fully Loaded capital ratio also increased by 0.1 pp, to 11.8%. The Tier 1 capital ratio increased by 30 bp in the past year, largely reflecting the reduction of transitional adjustments discussed above (since deductions are now applied directly to CET1 and not to additional Tier 1 capital, as was the case while transitional adjustments were in force). The total capital ratio rose slightly (by 6 bp) in the same period. The CET1 Fully Loaded capital ratio,[13] which is calculated at each date by applying the full implementation of the solvency regulation without applying transitional adjustments, improved by 0.1 pp as compared with the value in 2017.

The distribution of the change in 2018 of the CET1 ratio shows some concentration in negative values, indicating that the decrease in the solvency ratio relates to a set of institutions representing a high volume of RWAs in the sector. Chart 2.18.A shows the distribution, by volume of RWAs, of the change in the CET1 ratio between December 2017 and December 2018. It can be seen that most of the curve corresponds with negative values of the rate of change. Chart 2.18.B shows how most banks record increases in the CET1 level, whereas the number of banks increasing or decreasing their RWAs is relatively balanced. This analysis indicates that, in some cases, the increase is greater in RWAs than in CET1, resulting in a reduction of the ratio, and that, in general, small firms increase their ratio, but they are not sufficiently significant to increase the CET1 ratio at aggregate level.

At aggregate level, equity instruments and reserves are the main components of CET1 capital as at December 2018, while transitional adjustments represent a very small

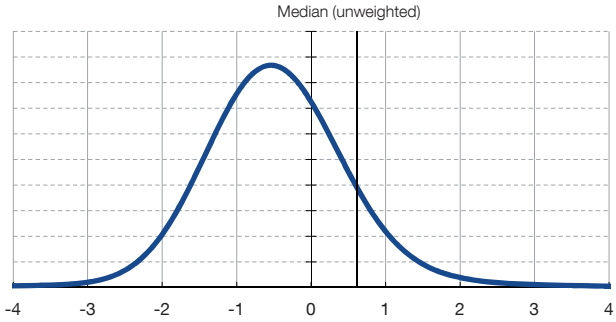
13 The CET1 Fully Loaded (FL) capital ratio between 2017 and 2018 was affected by the entry into force of the new IFRS 9 accounting regulations, applicable to the ratio in 2018 but not in 2017, when the standard was not even partially in force. In any event, in order to fully compare FL ratios it would be necessary to discount from the 2017 ratio the impact of the entry into force of IFRS 9.

CHANGE IN THE CET1 CAPITAL RATIO

CHART 2.18

In terms of risk-weighted assets, there were more reductions than increases in the CET1 ratio from December 2017 to December 2018. In terms of banks, more increased their CET1 ratio in 2018 than reduced it.

A DISTRIBUTION OF THE CHANGE IN THE CET1 RATIO (a)



B RATE OF CHANGE IN THE CET1 RATIO AND IN RWAs IN 2018 (b)

SOURCE: Banco de España.

a The chart shows the density function (or the frequency distribution) of the change in the CET1 ratio from December 2017 to December 2018 for Spanish deposit institutions, weighted by the risk-weighted assets of each bank in 2017. This density function is proxied by a kernel estimator, which enables a nonparametric estimate of the density function, providing a continuous and smoothed graphical representation of this function. The vertical line represents the median (unweighted) of the rate of change of the CET1 ratio from December 2017 to December 2018.

b The points above the bisecting line show growths (declines) in the volume of CET1 in 2018 higher (lower) than the growth (decline) in the volume of RWAs; accordingly, they would correspond to increases in the CET1 ratio in 2018. The opposite occurs for the points below the bisecting line.

proportion owing to the degree of implementation of Basel III. Chart 2.19.A details the composition of the CET1 ratio in terms of risk-weighted assets. Equity instruments and reserves represent 9 pp and 6 pp, respectively, of the CET1 ratio. Minority interests represent 1 pp of the ratio and transitional adjustments have reduced their weight to below 0.5 pp of the ratio. As for deductions from CET1, the most significant from a quantitative viewpoint are those arising from goodwill and other intangible assets (3.2 pp of the ratio), followed by those derived from deferred tax assets (1.2 pp of the ratio).

The performance of CET1 capital in the past four years differs from that of dividends (approximately €25 billion in total volume) distributed by Spanish banks in that period (1.8 pp relative to the volume of RWAs at December 2018). Chart 2.19.B shows how the distribution of dividends in the period 2015-2018 has remained within a range of between 0.6 pp and 0.3 pp relative to RWAs in 2018. With a pay-out ratio of around 50% of net profit for the sector as a whole, the organic generation of capital does not appear to be sufficient for banks to be able to respond swiftly to an increase in the demand for credit or to address the need to absorb losses should any of the risks mentioned in this FSR materialise, without significant further erosion of their CET1 ratio.

In comparative terms, the CET1 ratio of Spanish banks at December 2018 was ranked last among the main European countries, while in terms of the leverage ratio their position is more favourable. Chart 2.20 shows the European comparison of two solvency measures, the CET1 ratio (Chart 2.20.A) and the leverage ratio (Chart 2.20.B) based on data published by the European Banking Authority in December 2018.[14] As for the highest-quality capital ratio, Spain stands last in the European context. For its part, the leverage ratio of Spanish banks stood at 5.4%, higher than the European average (5.3%) and the main European countries.

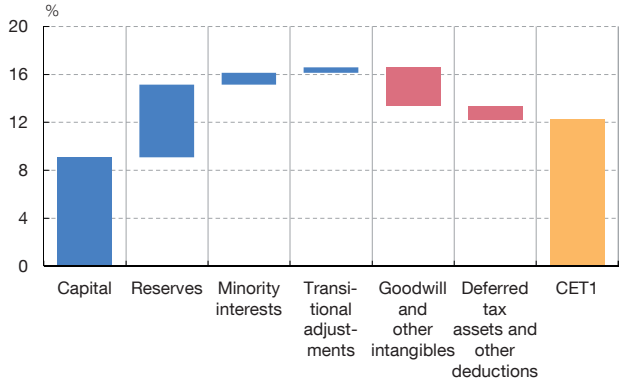
14 See http://www.eba.europa.eu/risk-analysis-and-data/risk-dashboard

COMPOSITION OF THE CET1 RATIO AND DIVIDENDS AS A PERCENTAGE OF RWAs

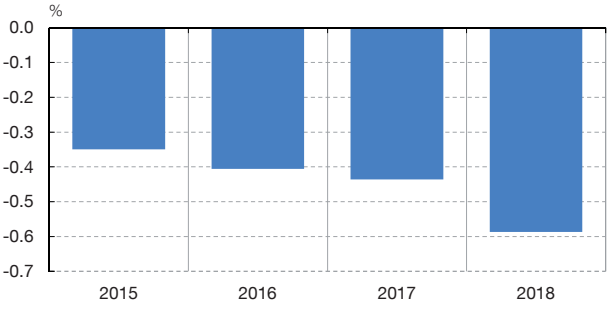
CHART 2.19

Capital instruments and reserves are the main components of CET1 and jointly represent over 90% of its eligible elements. In recent years, dividends have accounted for a percentage of between 0.2% and 0.6% of risk-weighted assets.

A COMPOSITION OF THE CET1 RATIO RELATIVE TO RISK-WEIGHTED ASSETS



B DIVIDENDS AS A % OF RISK-WEIGHTED ASSETS IN 2018



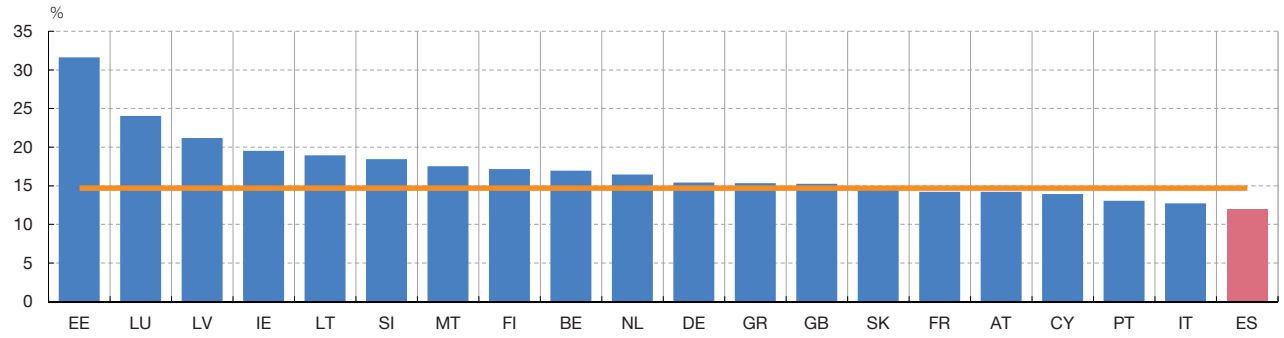
SOURCE: Banco de España.

SOLVENCY. EUROPEAN COMPARISON. SSM COUNTRIES AND UNITED KINGDOM. December 2018

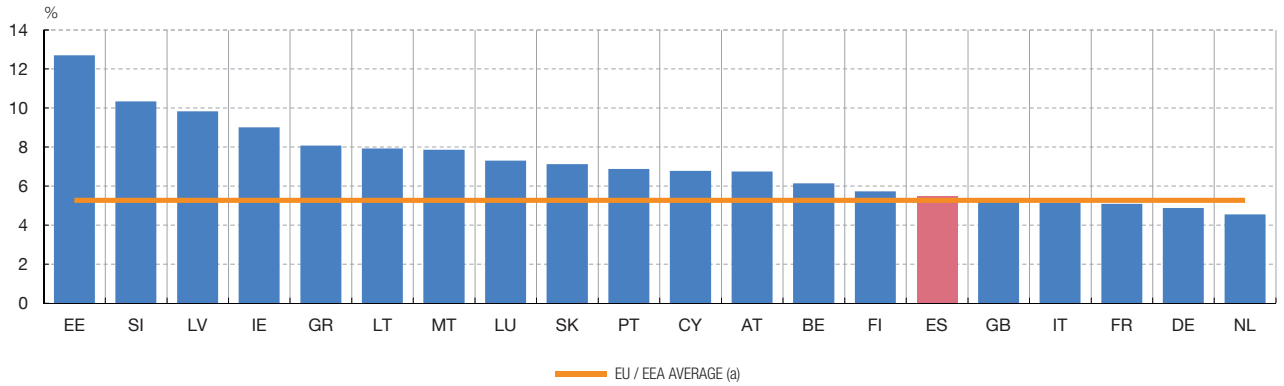
CHART 2.20

In terms of the CET1 ratio, Spanish banks stand last among the main European countries; but in terms of the leverage ratio their position is more favourable and their ratio exceeds the European average.

A CET 1 RATIO



B LEVERAGE RATIO



SOURCE: EBA.

a EBA data include Iceland.

2.1.3 ANALYSIS OF SENSITIVITY OF SOLVENCY TO MACROECONOMIC CONDITIONS

The Banco de España has been conducting regularly since 2013 tests of the Spanish banking system's resilience using an analysis framework known as FLESB (Forward Looking Exercise on Spanish Banks). The results of the latest FLESB exercise for the 2018-2020 horizon, in which the same macroeconomic scenarios were applied as those designed for the European stress tests exercise for 2018 coordinated by the EBA,[15] were published in the November 2018 FSR. Based on this exercise, a sensitivity analysis is conducted which aims to study the impact on the Spanish banking sector's solvency of shocks to certain macroeconomic variables in comparison with baseline scenario values. The shocks considered relate to extreme adverse values in the individual series of the macroeconomic variables.

Sensitivity scenarios

The baseline scenario for the FLESB and EBA exercises included the most likely changes in the economic environment for Spain over the three years of the exercise from 2018 to 2020, based on the projections available in early 2018. Shocks to different macroeconomic variables were applied to this scenario which are either related to the macrofinancial risks identified in this FSR or have been identified as significant for assessing solvency in previous FLESB exercises. The sensitivity analysis is conducted to study the impact which each of these variables could have on bank solvency in the event that an extreme adverse shock to it were to materialise in accordance with its historical distribution. Measurement of a greater impact does not necessarily imply that the shock will be more likely to materialise. In particular, four sets of shocks were studied: i) less global buoyancy with an impact on international trade; ii) increased uncertainty in Spain with downward adjustments in household consumption and in business investment, iii) downward adjustments in equity market prices, and iv) in house prices. For each of these stressed cases, shocks are applied to the relevant variables[16] that relate to historical bouts of high and very high stress (5th and 1st percentiles, respectively, of their distributions) and the endogenous response to the rest of Spanish macroeconomic variables is calculated on the basis of the Banco de España's macroeconometric models. Thus, a complete macro scenario is obtained consistent with the shock introduced. Since four sets of shocks and two levels of severity are considered, there are eight different simulation scenarios.

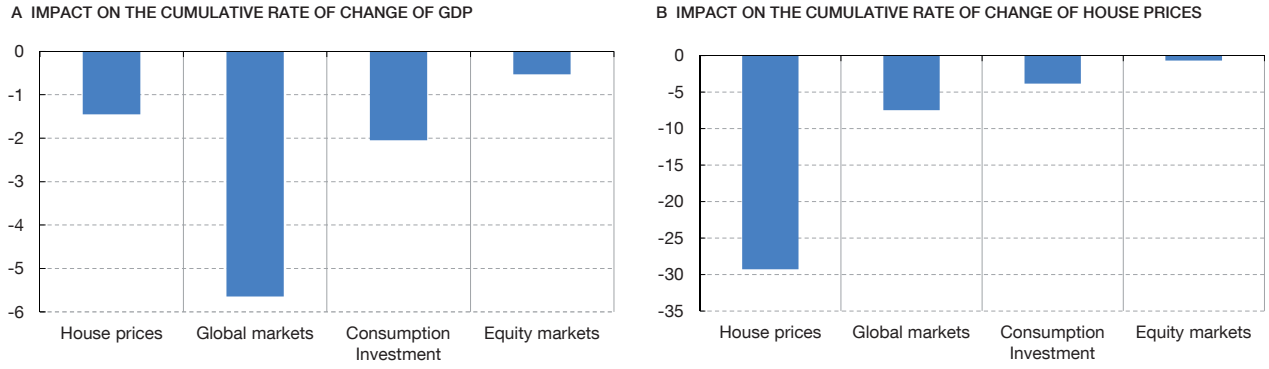
The effect of these shocks to GDP and to house prices in Spain is significant. Chart 2.21 shows the cumulative impact over the three years of the exercise of the change in GDP and house prices under simulated scenarios relative to the baseline scenario. Only the episodes of higher stress for each of the variables are shown (1st percentile). In the baseline scenario, GDP grows steadily at an annual rate of more than 2%, reaching cumulative growth of up to 6.7%. Chart 2.21.A shows that the impact on cumulative growth of GDP over the three years of the exercise ranges from 0.5 pp under the scenario of shock to equity prices, to 5.7 pp under the scenario of shock to international trade. House prices maintain annual growth of around 5% under the baseline scenario, with cumulative growth of 15.5%. The impact on cumulative growth ranges between only 0.7 pp under the scenario of shock to equities and 29.3 pp under the scenario where an exogenous shock is directly applied to the house price path (see Chart 2.21.B).

15 The scenarios for the EBA exercise are publicly available via the following link: https://eba.europa.eu/documents/10180/2106649/Adverse+macroeconomic+scenario+for+the+EBA+2018+Stress+Test.pdf

16 Specifically, in the scenarios of stressed global markets a shock to world trade affecting Spanish exports is introduced, causing a direct impact on GDP and an indirect one through the model's endogenous response. The scenarios of activity apply simultaneous shocks to consumption and investment, while in the scenarios stressing the stock exchange and the real estate market shocks are applied to price growth.

FLESB SENSITIVITY ANALYSIS SCENARIOS (a) CHART 2.21

The shock to global markets, impacting Spanish exports, is what exerts a maximum effect on GDP, followed by the shock to consumption and domestic investment. The scenario with a direct shock to the growth of house prices has a significantly greater impact on this variable than the indirect impacts associated with the other scenarios.



SOURCE: Banco de España.

a Both for cumulative GDP growth and house prices, what is shown as the impact of the sensitivity scenarios on the level reached in the baseline scenario within the exercise's horizon (2018-2020). For example, the impact of -1.45 pp associated with the house price shock in panel A indicates that the cumulative growth of GDP for 2018-2020 under this scenario is 1.45 pp lower than under the baseline scenario. The baseline scenario coincides with that designed for the stress test coordinated by the EBA at the European level, and the sensitivity scenarios include solely those associated with the 1st percentile of the distribution of the four sets of shocks under study.

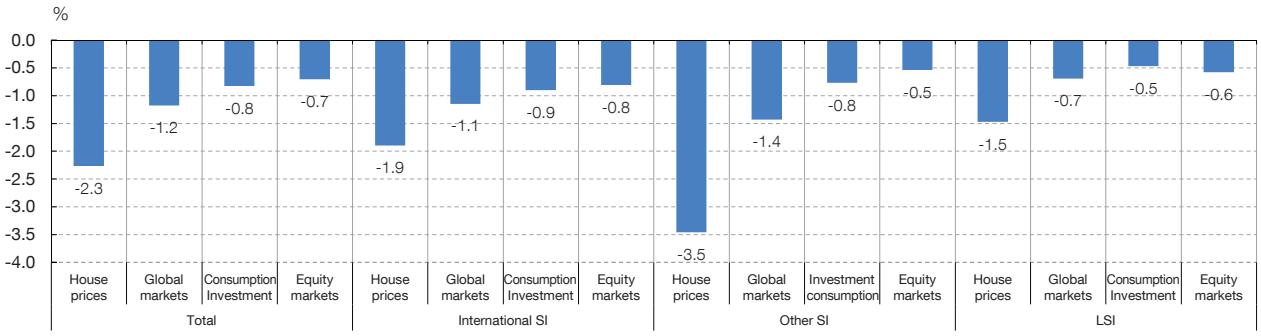
To conduct this analysis the FLESB framework methodology was used in order to transfer the changes in the national macroeconomic scenario to the results of the banking business in Spain and to the level of solvency of the banking groups. To estimate the results on solvency, the data from 57 banks relating to December 2017 are used as a starting point (12 under the SSM's direct supervision and 45 less significant institutions).[17] Chart 2.22 includes the results, by type of institution, in terms of the difference between the average CET1 Fully Loaded capital ratio at the end of the horizon for the baseline scenario and for each of the adverse scenarios. The scenario associated with a greater impact on the CET1 ratio relates to the extreme shock to house prices. This is largely due to the loss in value experienced by real estate collateral, which entails a higher increase in the loss in the event of non-performance, and a greater loss associated with the settlement of foreclosed assets. These losses are much lower in the case of scenarios with a greater impact on activity.

The average CET1 ratio at the end of the analysis time horizon for all the institutions would be 2.3 pp lower under the highest-impact adverse scenario (extreme shock to house prices) than under the baseline scenario. Under this highest-impact scenario (1st percentile), the CET1 ratio would post an aggregate decrease relative to the baseline scenario of 1.9 pp in the case of SIs with significant international activity, of 3.5 pp for other SIs and of 1.5 pp in the case of LSIs. The difference in impact between SIs and LSIs arises from the different portfolios and business characteristics of the two types of institutions. In turn, SIs with international activity are more resilient, since profits obtained by foreign subsidiaries absorb a portion of the losses arising from the downturn in national economic activity incorporated into the analysis. The lower impact relates to the scenario of shock

17 The capital of institutions with international activity could also deteriorate owing to the impact of a change in the macroeconomic scenario on their subsidiaries' activities. Based on the results of the November 2018 FLESB exercise, the impact attributable to the activity of subsidiaries on the CET1 ratio under a full adverse scenario would be 0.8 pp in aggregate terms. This measure may be used as a ceiling, since the set of shocks under the sensitivity scenarios is more restricted than under the full adverse scenario. This possible further erosion is more significant for scenarios involving a downturn in global markets, which are more likely to have international ramifications.

RESULTS OF FLESB SENSITIVITY ANALYSIS (a) CHART 2.22

The average CET1 ratio shows a maximum sensitivity to the introduction of an adverse extreme shock to house prices, both for the total and for each of the relevant sub-groups. The shocks to activity, and especially that associated with the downturn on global markets, also have a significant impact on solvency. The group of institutions most sensitive to the deterioration in macroeconomic conditions is that of significant institutions without major international activity.



SOURCE: Banco de España.

a The results are presented in terms of the difference in the CET1 capital ratio (FL) at the end of the analysis horizon in each of the adverse scenarios compared with the level attained under the baseline scenario (coinciding with that designed for the stress test coordinated at the European level by the EBA). Solely the scenarios associated with the 1st percentile of the distribution of these four sets of shocks are included. The results are shown both for the total and for each type of institution: International SI (significant institutions under the SSM supervision with significant international activity), Other SI (other significant institutions under SSM supervision) and LSI (less significant institutions under direct national supervision).

to equity prices,[18] owing to its moderate effect on losses from credit portfolios and foreclosed properties.

The analysis discloses a significant impact of the hypothetical downturn in the Spanish economy on changes in the solvency of institutions, although the system has an appropriate degree of aggregate solvency under all the scenarios considered. As mentioned previously, it should be borne in mind that each of the sensitivity scenarios represents the individual materialisation of each of the risks. However, some of these risks are interrelated and, therefore, may materialise together. This would lead to a greater impact on the solvency of institutions, as occurred, for example in the FLESB exercise published in the November 2018 FSR, which used a full macro scenario.[19] Also, the most critical adverse scenarios evaluated in this exercise are concentrated in shocks to national economic activity and house prices. These are only part of the broader set of macrofinancial risks that are significant for the Spanish financial system and which are analysed in Chapter 1.

The correct interpretation of results requires taking into account that sensitivity to macroeconomic factors of the financial system may change over time and the importance of each factor should be assessed within the risk identification framework of this FSR as a whole. Changes in bank balance sheets, with developments such as the decline in real estate exposures or the change in international positions over the course of 2018, imply that sensitivities to macroeconomic factors may change over time, requiring ongoing monitoring of these effects. The most significant risks identified in the introduction and Chapter 1 of this FSR are the risks to activity, particularly owing to the downturn

18 A prudent adjustment is common to the scenario of shock to equities and the rest of the adverse scenarios, in connection with historical distributions, of different gross income items (e.g. gains or losses on financial transactions, which explain a substantial fraction of the impact of this scenario), with only a very moderate effect on macroeconomic variables and credit losses.

19 In the full macro scenario shocks are introduced not only to individual variables, but to a broad set of variables, producing more adverse final GDP paths than those considered in this exercise. This does not mean that in the full scenario shocks are calibrated on the 1st percentile of the individual distribution of each variable, which would produce a fairly implausible combined effect based on historical experience.

in global trade, more than risk factors relating to house prices, for which there is currently no evidence of overvaluation.

2.2 Non-banking financial sector and systemic interconnections

In most developed economies the financial system is comprised of a complex network of institutions with different corporate structures and regulatory regimes which in certain cases carry out similar activities. In performing their main functions, the institutions in the financial system establish relationships with each other and also with non-financial corporations, households and the public sector. Banks tend to play a central role in the financial system, but other agents also perform key activities and, in some cases, offer funding to the rest of economic agents in a manner similar to banks.

2.2.1 STRUCTURE OF THE NON-BANKING FINANCIAL SECTOR

Non-bank financing is an alternative to bank financing which encourages competition and increases the sources of funds but it may also entail certain risks. Alternative sources of financing allow economic agents greater flexibility when obtaining funds for investment or consumption and may contribute to greater diversification of the risks taken by the financial system. However, the global increase in the size of the non-banking sector in recent years and its involvement in activities inherent to the banking sector (liquidity or maturity transformation, credit risk transfer or leverage) may also become a source of risk, directly or as a result of its interconnections with the banking sector.

In recent years interconnections within the financial system have become increasingly prominent on the agendas of national and international regulatory and supervisory bodies. This is because of their importance in the latest financial crisis, where it became obvious that at times of stress, these interconnections may mean that shocks, which initially seem institution or sector-specific, are passed on to other sectors. The analyses conducted in recent years have focused on studying non-bank financial institutions which extend financing to financial and non-financial sectors of the economy.

The information in the Spanish Financial Accounts allows the volume of financial assets of the various banking and non-banking segments of the financial system to be measured. On Financial Accounts data (non-consolidated and of institutions domiciled in Spain) a broad range of agents that make up the financial sector can be identified and which, based on the nature of their activities may be key, to some degree, to the functioning of the system. The use of Financial Accounts data (non-consolidated and of institutions domiciled in Spain) makes it possible to identify a broad range of agents that make up the financial sector and that, depending on the nature of their activities, differ in their degree of centrality in the functioning of the system. For the purposes of the analysis in this section, the financial system is split into four categories: i) deposit-taking institutions (or banks), ii) other financial entities (specialised lending institutions, investment funds, other financial intermediaries and other sectors),[20] iii) insurance companies, and iv) pension funds.

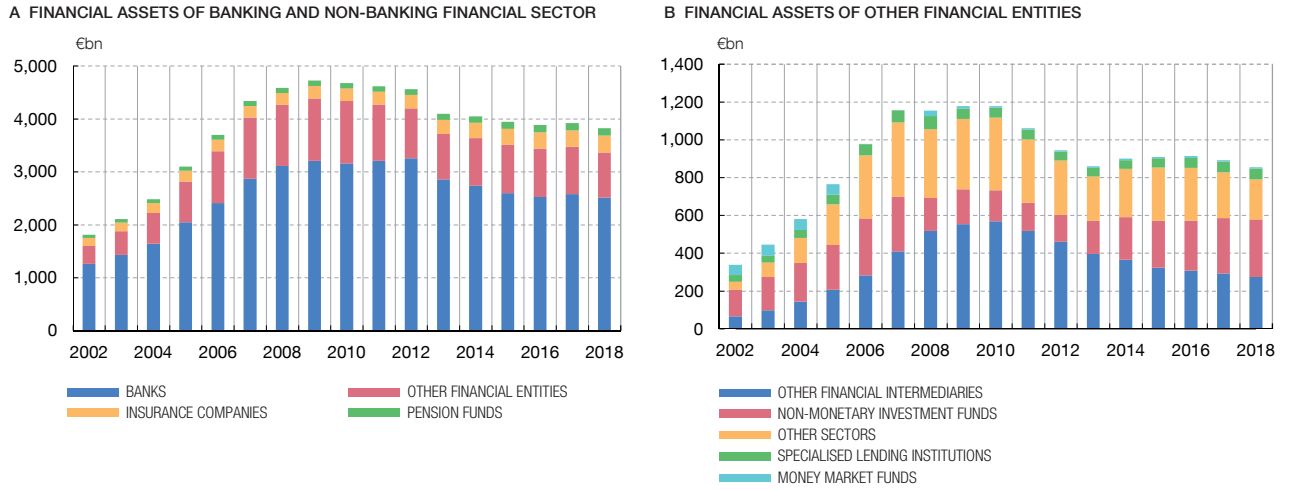
The banking sector remains the main component of the financial system, despite the decline in its financial assets following the latest crisis. Chart 2.23.A shows that, despite the reduction in its financial assets since 2012, banks remain the largest sector in the financial system with a volume of approximately €2.5 trillion.[21] The banking sector currently

20 The other sectors include financial auxiliaries (such as securities brokers, appraisal firms, mutual guarantee companies and clearing and settlement institutions and the headquarters of financial groups) and captive financial institutions and money lenders (such as holding companies or issuers of preferred shares).

21 Financial assets generally include cash and various financial instruments held under assets on the balance sheet, excluding tangible fixed assets. The full definition is given in paragraph 11 of IAS 32 and Rule 19, paragraph 4 of Banco de España Circular 4/2017.

TOTAL FINANCIAL ASSETS OF THE SECTORS COMPRISING THE FINANCIAL SYSTEM CHART 2.23

The Spanish financial system continues to be a strongly banked one, despite the reduction in bank assets in the post-crisis years. The institutions whose volume has most increased in recent years are non-monetary investment funds.



SOURCE: Banco de España.

represents around 66% of the total financial system (after reaching 71% in 2012), insurance companies represent 8%, pension funds 4% and other financial entities have a combined share of 22%. All the segments increased their size in the pre-crisis period, especially banks and other financial entities. As from 2009, only the insurance companies and pension funds increased their size, whereas the banking sector and other financial entities began to shrink. The weight of the three non-banking sectors in the financial system rose in recent years owing to the decrease of the banking sector (from 2012 to 2018 the weight of other financial entities increased by approximately 1 pp and that of insurance companies and pension funds by 2 pp).

Within the other financial entities sector, other financial intermediaries led the growth of this segment before the crisis and then significantly decreased their volume of financial assets afterwards; the relative share of non-monetary investment funds and specialised lending institutions (SLIs) has increased since 2012. Based on the Financial Accounts classifications, Chart 2.23.B shows the changes in the financial assets of i) SLIs, ii) money market funds, iii) non-monetary investment funds, iv) other financial intermediaries,[22] and v) other institutions. The size of other financial intermediaries increased considerably in the period 2002-2012 and decreased subsequently, in 2018 it was close to its size in 2005. Non-monetary investment funds together with SLIs (which grew 21%) are the only institutions which have increased their size in recent years. These institutions grew by 114% from 2012 to 2018, although they represent a small percentage of the total financial system (8% in 2018).

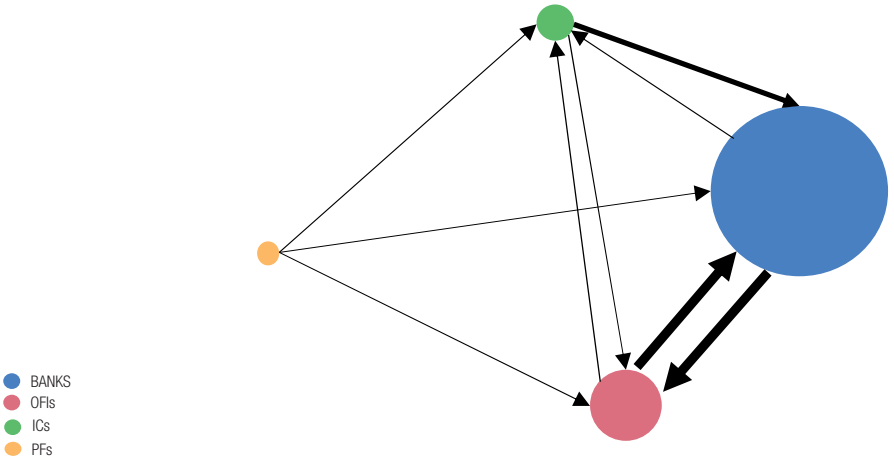
2.2.2 INTERCONNECTIONS AND POTENTIAL CONTAGION BETWEEN FINANCIAL INTERMEDIARIES

The interconnections within the financial system may help to absorb risks, but may also act as contagion channels, and need to be quantified. The relationships between financial entities may be direct (for example, through loans or holdings of instruments, owned by certain institutions, which were issued by other institutions) or indirect (through investments in assets or similar non-financial sectors). Furthermore, certain insurance companies, pension funds or other financial entities may be part of banking groups, which creates additional channels for the pass-through of shocks from one sector to another,

22 The other financial intermediaries category includes broker-dealers, securitisation special purpose entities (structured financial vehicles), venture capital firms, bank asset funds, central counterparties and asset management companies (including Sareb), in addition to other entities.

INTERCONNECTIONS BETWEEN BANKS, INSURANCE COMPANIES, PENSION FUNDS AND OFIs (a) CHART 2.24
September 2018

The banking sector plays a central role and is mainly connected to other financial institutions.



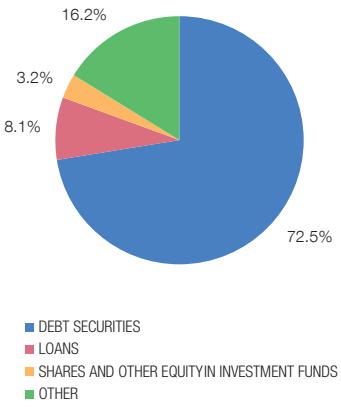
SOURCE: Banco de España.

a The chart shows the interconnections between the different sectors of the financial system. The size of the circles is proportionate to the size of the sector and the thickness of the arrows proportionate to the scale of interconnections (the volume of direct exposures that each sector has vis-à-vis the others). The abbreviations OFIs, ICs and PFs refer to Other Financial Institutions, Insurance Companies and Pension Funds.

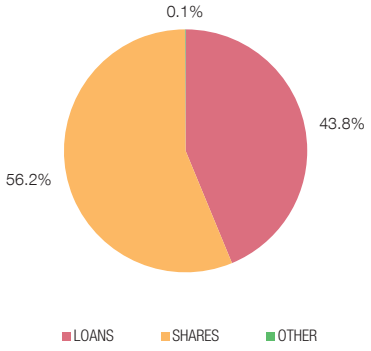
BANKS' EXPOSURES TO OTHER SECTORS CHART 2.25
September 2018

Banks exposures to OFIs mainly comprise debt securities, while shares and loans make up their exposures to insurance companies.

A BANKS' EXPOSURES TO OFIs



B BANKS' EXPOSURES TO INSURANCE COMPANIES



SOURCE: Banco de España.

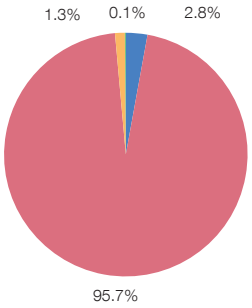
because the group may bail out its ailing members. The links between the various segments of Spain's financial system were analysed using a subgroup of the other financial entities, in line with data on interconnections included in the exercise of the Financial Stability Board (FSB). This subgroup is denoted other financial institutions (OFIs).[23]

23 The interconnections analysed in the FSB exercise focus on the direct intra-sectoral relationships and are measured as the volume of assets and liabilities held by each type of institution vis-à-vis other types of institutions. All the direct interconnections data are based on information available in the Financial Accounts. The sector called "Other Financial Institutions" (OFIs) should not be confused with the "Other Financial Intermediaries" sector in the Financial Accounts which represents only a part of the OFIs. The OFIs subgroup includes (monetary and non-monetary) investment funds, specialised lending institutions and the category of other financial intermediaries, according to its breakdown in the Financial Accounts (which is described in the previous section).

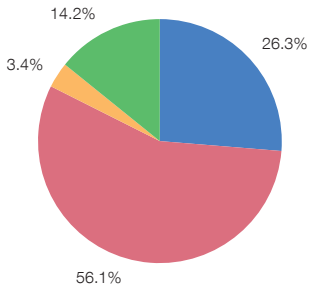
BANKS' LIABILITIES TO OTHER SECTORS AND OFIs' INTERCONNECTIONS WITH OTHER SECTORS CHART 2.26

The deposits held by the other sectors at banks are the main form of banks' liability positions vis-à-vis the non-bank financial sector. OFIs' exposures and liabilities to banks account for close to 15% of their assets.

A BANKS' LIABILITIES TO OIF (a)

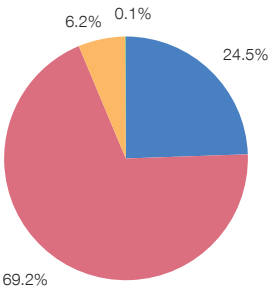


B BANKS' LIABILITITES TO INSURANCE COMPANIES (a)



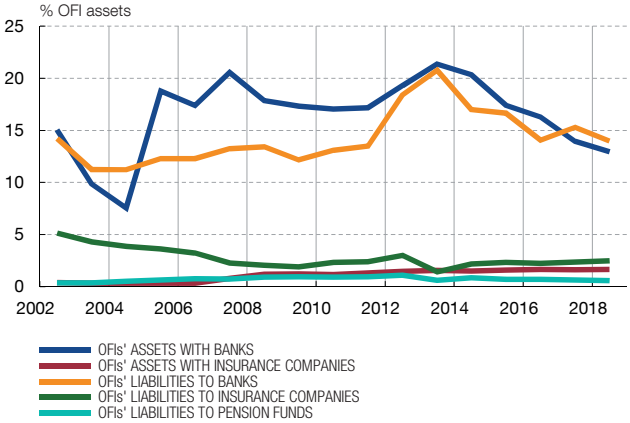
DEBT SECURITIES DEPOSITS SHARES OTHER

C BANKS' LIABILITIES TO PENSION FUNDS (a)



DEBT SECURITIES
DEPOSITS
SHARES
OTHER

D OFIs' INTERCONNECTIONS WITH BANKS, INSURANCE COMPANIES AND PENSION FUNDS



SOURCE: Banco de España.

a Data referring to September 2018.

The most important interconnections arise between the banking sector and the OFIs. Chart 2.24 shows the central role played by the banking sector in Spain within the financial system overall. In turn, it can be seen that the most interconnected segment to banks is that of OFIs, with both asset and liabilities-side positions on the balance sheet contributing to this interconnection. None of the sectors has direct exposure to pensions funds since these institutions do not issue liability instruments that other sectors may acquire, rather they are financed by the contributions of pension fund members.

Banks' exposure to OFIs and to insurance companies through their assets is concentrated in fixed-income securities and shareholdings, respectively, whereas the connections through their liabilities arise mostly from deposits for all types of non-bank financial institutions. Chart 2.25 shows how most of banks' exposures to OFIs are through debt securities (72%), followed by loans (8%) and shares and other equity in investment funds (3%). Other instruments (the difference between the total and the three above-mentioned categories) represent 16% of the total. Exposures to insurance companies are concentrated in shares (56%) and loans (44%). Panels A to C of Chart 2.26 show how deposits held by the other sectors at banks represent most of banks' total exposure on the liabilities side (56.1% to insurance companies and 95.7% to OFIs) and debt securities also have

a notable weight of approximately 25% in the case of liabilities vis-à-vis insurance companies and pension funds.

OFIs' connections to banks, insurance companies and pension funds are smaller in volume than banks' connections but they represent a higher percentage of OFIs' total assets. Chart 2.26.D shows that OFIs' exposures in terms of assets and liabilities vis-à-vis banks represent around 15% of OFIs' assets in 2018. However, their connections with the other sectors have a smaller weight of less than 2.5% of their assets. Over time, OFIs' exposures to banks peaked at more than 21% of their total assets in 2013 and from then onwards they began to decrease until 2018.

In short, banks are the most significant institutions in terms of size within Spain's financial system and the interconnections between the banking sector and the other financial sectors are relatively small, especially when they are measured in terms of the banking sector's size. However, in order to have a complete image of the interconnections between the banking sector and the non-banking financial sectors, it will also be necessary to analyse the activity of agents domiciled abroad which perform cross-border transactions with Spain's domestic sector. Additionally, although the banks' exposure to other sectors seems contained, it is necessary to perform a regular monitoring of changes in these links and complement it with an analysis of the indirect interconnections and the vulnerabilities that they may trigger in relation to financial stability. This section will report regularly on the aforementioned analysis. Lastly, it will be important to perform an in-depth analysis of the behaviour of the financial system's various components vis-à-vis possible shocks in order to identify possible risk propagation channels which require special attention.

2.3 Changes in operational risks

The costs associated with operational risk have increased significantly in recent years. Operational risk is defined by the Basel Committee on Banking Supervision (BCBS) as the risk of loss at institutions resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk. The increase in these costs was widespread across jurisdictions and is related to the increase in litigation, unfavourable court decisions and sanctions imposed on deposit-taking institutions following the crisis (legal risk), as well as to technological change taking place in the sector (technological risk) which gives rise to specific needs associated with replacing infrastructures and digitalisation.

2.3.1 LEGAL RISKS AND COSTS

The legal costs of bank misconduct have increased significantly since the start of the financial crisis both for European and US banks. Chart 2.27.A shows the estimated volume of costs associated with conduct risks in the period 2011-2015 for the main European and US international banking groups. As can be seen, these costs were higher in the United States than in Europe but were heavy in both cases and represented a significant percentage of net profit for the banking groups in both geographical areas. These developments were also highlighted by the ESRB, which identified a rising trend in conduct costs at global and European level from 2009 to 2015.[24] The information available for the period 2016-2018 reveals that misconduct costs continue to be a significant component of operational costs[25]

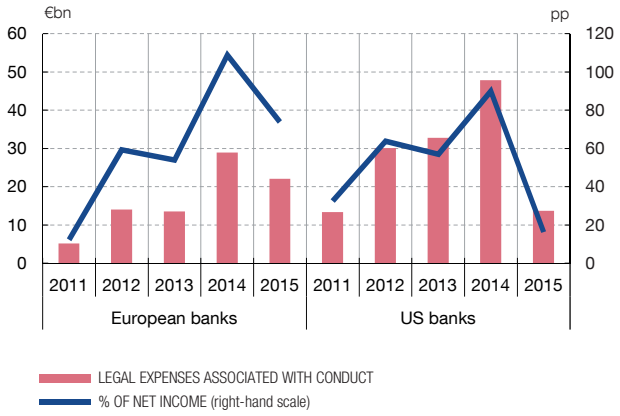
24 ESRB "Report on misconduct Risk in the banking sector 2015" available at https://www.esrb.europa.eu/pub/pdf/other/150625_report_misconduct_risk.en.pdf

25 Comparing CCP Research Foundation conduct cost estimates for large international banking groups in the periods 2012-2016 and 2011-2015, costs in 2016 were comparable to those in 2015 but lower than the highs of 2014. The responses of European banks to the Risk Assessment Questionnaire included in the EBA's "Risk Assessment of the European Banking System" (RAEBS) shows a significant portion of European banks expect legal costs to grow in 2016-2017. See, for example, Section 6.2 of the EBA report at https://eba.europa.eu/documents/10180/2518651/Risk_Assessment_Report_December_2018.pdf

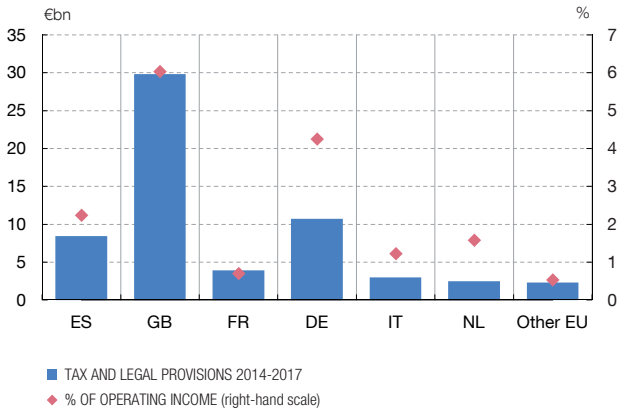
MISCONDUCT COSTS AND PROVISIONS FOR LEGAL EXPENSES CHART 2.27

The costs associated with misconduct by the major US and European banking groups have been heavy in recent periods. In addition, in the period from 2014 to 2017, European banks set aside notable provisions for legal expenses and tax lawsuits, with cross-country heterogeneity evident.

A MISCONDUCT COSTS (a)



B PROVISIONS FOR LEGAL EXPENSES AND TAX LAWSUITS (b)



SOURCES: CCP Research Foundation, SNL Financial and EBA.

a The panel combines data on expenses associated with misconduct estimated by CCP Research Foundation for large European banking groups (Lloyds, Barclays, RBS, Deutsche Bank, HSBC, BNP Paribas, Santander, Commerzbank, Societe Generale, Standard Chartered, ING) and for large US banking groups (Bank of America, JP Morgan, Morgan Stanley, Citigroup, Wells Fargo, Goldman Sachs) with net profit data obtained from SNL Financial.
b Annual data for the period 2014-2017 based on information from the EBA's transparency exercises. The data for each country relate to a group of significant institutions which may vary each year.

and several significant cases of money laundering[26] were detected in Europe in 2018.

The information from the EBA's transparency exercise shows that provisions for legal issues and tax litigation consume a significant portion of European banks' net operating income, with heterogeneity across countries. The data used by the EBA [27] extend the sample of banks and European countries considered to cover more than the main banking groups. This measurement of costs is different to that presented in the previous paragraph since it includes provisions for legal costs. These provisions reflect banks' anticipation of future expenses which may differ from the expenses finally incurred. Provisions for legal expenses averaged 2.4% of net operating income for the period 2014-2017, however, this percentage ranged from 6% in the United Kingdom to 0.6% in France (Chart 2.27.B).

The forward-looking analysis in the EBA's 2018 stress test includes operational risk as a significant risk factor, with misconduct costs representing more than half of the risk impact under the adverse scenario. The high legal expenses observed recently for the European banking sector do not necessarily indicate that they will remain at these levels in the future and it is necessary to conduct forward-looking exercises to obtain reasonable projections and gauge plausible adverse scenarios. The EBA's approach in its 2018 stress test combines banks' internal projections with conservative floors based on historical experience. Aggregate operational risk losses under the adverse scenario are €82 billion (with a negative impact on the CET1 ratio of 100 bp) for the period 2018-2020.

26 The EBA's 2018 RAEBS points out five significant cases of money laundering and violation of anti-corruption laws in 2017-2018 which affect banks in central and northern Europe and amount to €3.5 billion in terms of expenses and higher capital requirements.
27 The data of the EBA's transparency exercise are available at: https://eba.europa.eu/risk-analysisand-data/eu-wide-transparency-exercise/2018/results

Of this amount, conduct risk losses total €54 billion under the adverse scenario (65% of the total impact of operational risk).[28] The results of this exercise for individual banks also show considerable heterogeneity.

In its review of operational risk, the BCBS changed its formula for calculating operational risk capital requirements. Specifically, the possibility of using internal models was eliminated and a standardised model was adopted whereby each bank's experience of operational risk losses can be considered in proportion to its turnover. Generally, the higher the operational risk losses of each bank over a relatively long period of years, the higher its capital requirements.

In the specific case of the Spanish banking sector, there are indications that the operational cost associated with legal risks is a material risk factor. Spanish banks are facing a potential increase in legal action due to outstanding litigation, such as that relating to the use of the mortgage loan benchmark index (IRPH, by its Spanish abbreviation) in mortgage loans. In fact, various lawsuits about the legality of using the mortgage loan benchmark index as a reference rate for setting the variable interest rate on mortgage loans has led to a question being referred for a preliminary ruling to the CJEU. The CJEU's response, expected for the second half of 2019, may prompt an increase in legal action concerning this matter and affect the expected legal cost of this action for banks. The potential impact on Spanish banks would be quite diverse, given their varied use of this type of contract. Experience in previous lawsuits, particularly those on mortgage floor clauses, indicates that these legal processes may be of significant complexity and considerable duration, as well as having a material impact of banks' profits. Specifically, it is estimated than more than €2.2 billion were refunded to customers until January 2019 as a result of floor clause-related litigation, the greatest impact was on banks' earnings due to the provisioning of €1.9 billion in 2016.[29]

2.3.2 VULNERABILITIES AND INFRASTRUCTURE RISKS

Financial institutions' operations are underpinned by infrastructure networks whose configuration has material economic effects on the institutions that use them, impacting, for example, operational risks and the availability of information. The main infrastructures are payment systems, settlement systems and central counterparties (CCPs). As a result of the regulatory changes following the 2008 crisis, most of the volume of derivatives and equity instruments trading was transferred from OTC markets to the CCPs. Box 2.2 analyses in detail how CCPs operate.

Brexit poses some risks for how CCPs operate but mitigating measures have been adopted both in Europe and in Spain. One of the main CCPs is located in the United Kingdom and, consequently, Brexit could represent a significant risk for European banks which operate with it. However, the European Commission recently decided to broaden qualified CCP status so they may operate with European financial institutions.[30]

28 The aggregate results on operational risk are included in Section 4.1.4 of the EBA's 2018 EU-wide Stress Test Results at: https://eba.europa.eu/documents/10180/2419200/2018-EU-wide-stress-test-Results.pdf

29 Litigation relating to mortgage floor clauses is described in Box 2.2 of the May 2017 Financial Stability Report. The fall in the EURIBOR from 2008 activated these contract clauses which limited the pass-through of the lower level of the EURIBOR to the effective rate applicable to mortgages. As a consequence of the activation of these clauses, lawsuits were brought which followed a protracted process and passed through various appeal courts until they reached the Supreme Court. Under the Supreme Court judgment 241/2013 of 9 May 2013, floor clauses were found to be null and void non-retroactively. Subsequently, in its judgment of 21 December 2016, the CJEU ruled that the non-retroactivity of the clause in judgment 241/2013 is not in accordance with EU law and extended the effects of its judgment to all mortgages with floor clauses and thus amplified its quantitative impact.

30 In December 2018 the European Commission issued an implementing decision determining, for a limited period of time, that the regulatory framework applicable to CCPs in the United Kingdom is equivalent to that existing for CCPs within the European Union in accordance with Regulation (EU) No 648/2012.

Central clearing counterparties[1] (CCPs) are financial entities that interpose themselves, in their own name, in financial instrument trades; they become a seller to each buyer and a buyer to each seller. Once a transaction is registered in the CCP, it simultaneously gives rise to a purchase operation and a sale operation, with both having the CCP as a counterparty. The CCP therefore assumes all the rights and obligations derived from both transactions, exposing itself to the counterparty risk both with the purchaser and with the original seller. Market risk, however, is zero.

The CCP shields itself from counterparty risk through a set of lines of defence. These include strict controls to gain access to clearing member status (and to be able to operate as such with the CCP), and a series of financial resources available to cover the losses caused by potential default by a member. These resources are, in the main, provided by the members in the form of guarantees backing positions (initial and variation margins) and of contributions to a fund for defaults (through which the CCP mutualises the losses among all the members). The CCP set aside a buffer of its own capital (known as "skin in the game"), whose volume is relatively insignificant compared with the members' contributions.

Set against bilateral clearing, centralised clearing offers a series of potential benefits, both for participants and for the system as a whole. The main benefit is the enhanced capacity to reduce the aggregate exposure of members (and, therefore, the market and counterparty risk to which they are exposed) by means of the netting of the positions of the opposite sign that are registered in their name (as the CCP is counterparty to all the transactions).

If a member defaults, netting also allows the position that is to be closed or transferred to be smaller, thereby lessening its potential impact on prices and market volatility. It also reduces the cost of providing collateral and capital allocation (if the member were a bank).

Centralised clearing also simplifies processes and adds transparency, by replacing the complex network of market relationships with bilateral clearing in a system that turns on a single entity (see Diagram A). This makes it easier for members to evaluate their positions and it strengthens prudent risk management, given that members are mainly exposed to an entity that is highly supervised and regulated.

From the standpoint of the authorities, centralised clearing simplifies the evaluation of market participants' exposure and, therefore, provides for swift decision-making in the face of a bout of tension. The CCP has specific processes for managing defaults, and these can contribute to reducing contagion risk and domino effects should, for example, a large member fail.

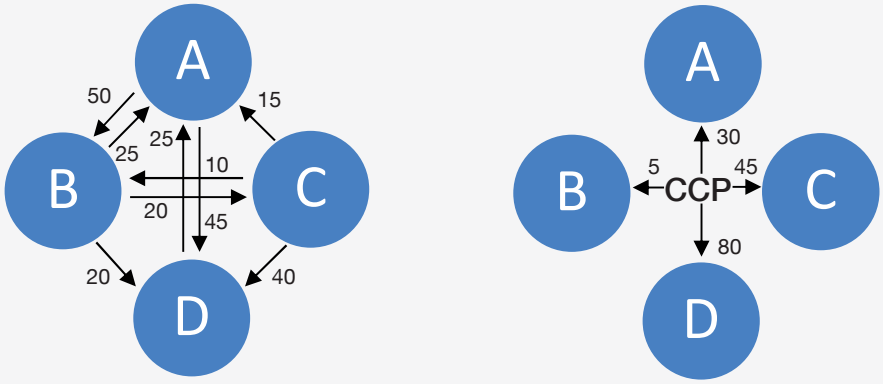
These advantages became manifest during the global financial crisis, in which centrally cleared markets proved relatively stable.[2] As a result, the G 20 leaders undertook in 2009 to require, among other measures, the centralised clearing of standardised OTC derivatives. This agreement has entailed a significant increase in centralised clearing activity. In 2018, for example, 76% of interest-rate derivatives (under the swaps and FRAs categories) were centrally cleared, compared with 17% in 2007 (see Chart A).[3]

1 This box is based on the article "Central Clearing Counterparties: benefits, costs and risks", Nuñez S. and E. Valdeolivas, forthcoming in the Financial Stability Review, Banco de España (May 2019).

2 At the time of its collapse, the US bank Lehman Brothers had an outstanding position of $9 trillion, corresponding to 66,390 transactions, in LCH.Clearnet Ltd (United Kingdom). This CCP concentrated approximately 50% of the total interest rate swaps market, and it had 20 members (all banks) in the swaps segment. The collapse was resolved through the auctioning of its positions and the use of the collateral provided by Lehman Brothers, without any other member posting losses [see Monnet, C. (2010). Let's make it clear: How Central Counterparties save(d) the day, Federal Reserve Bank of Philadelphia, Business Review Q1 2010; and Gregory, J. (2014). Central Counterparties: mandatory central clearing and initial margin requirements for OTC derivatives. John Wiley & Sons, June 2014].

3 Total interest rate derivatives account for approximately 81% of total traded OTC derivatives.

Diagram A
BILATERAL AND CENTRALISED CLEARING (a)



SOURCE: Banco de España.

a The left panel shows a bilateral clearing network, with each arrow pointing from borrower to lender. The right panel shows a CCP network that groups for each member all its bilateral positions in the left panel into a single net position with the CCP. For instance, member A holds lending (borrowing) bilateral positions for a total of 65 (95), resulting in a net position of (30).

This high volume of activity, combined with the fact that CCPs concentrate that risk in a single entity (which can potentially be redistributed through the fund for defaults, for example), explains their systemic nature. This systematicity can, in turn, be reinforced by the following characteristics observed in centralised clearing: the concentration of activity at the level of the CCP and of members; and the high interconnections, owing to the presence of common members. The failure of a CCP may, therefore, expose the system to high losses if the risks are not appropriately managed.

Chart B shows the market share of the main CCPs in the swaps segment, on the basis of currencies and geographical areas.

Operations are essentially concentrated in LCH.Clearnet Ltd, with the exception of activity in Latin America (CME Clearing (US)) and in yen (JSCC (JP)). This tendency is also observed in the CDSs segment, where ICE Clear US is predominant.

From the members' standpoint, 75% of activity is concentrated in around 20 entities (most of them banks). Chart C shows, for the swaps segment, the percentage of the aggregate initial margin (a proxy of activity) deposited by the five biggest members of the three CCPs most active in this segment. This percentage ranges from 24% to 69%. Chart E shows the high presence of banks in relation to the other clearing members.

The risk entailed for a CCP of being highly exposed to certain members is mitigated by the internationally recommended requirement. This stipulates that the guarantee fund should be of a size equivalent, at least, to the losses that might be generated by the member with the highest exposure in extreme but plausible market conditions.[4]

4 In the globally systemic CCPs, the size of the fund should be big enough to cover the losses of the two biggest members.

Chart A
OTC DERIVATIVES CLEARED THROUGH CCPs
Percentage of notional amount outstanding (a)

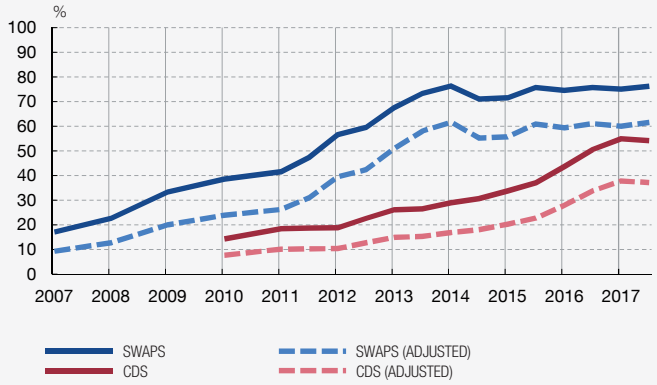


Chart B
VOLUMES CLEARED BY CCPs IN THE SWAP SEGMENT, BY CURRENCY AND GEOGRAPHICAL AREA. Percentage of market share (2018) (b)

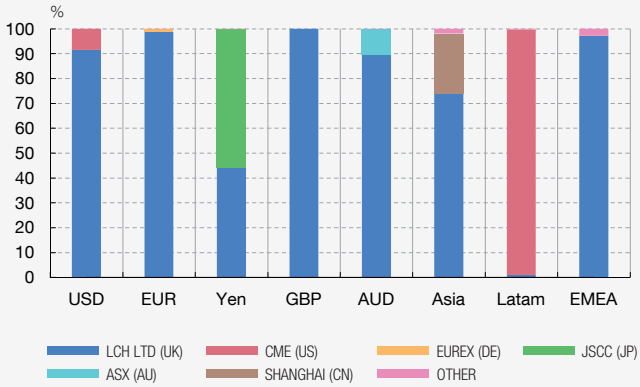


Chart C
INITIAL NET INTEREST INCOME DEPOSITED BY THE FIVE LARGEST MEMBERS. SWAP SEGMENT. 2018 Q3 (b)

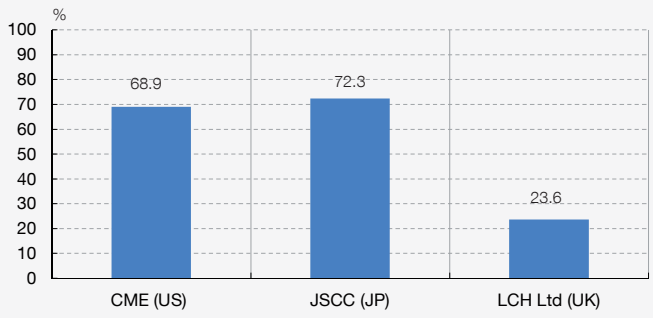
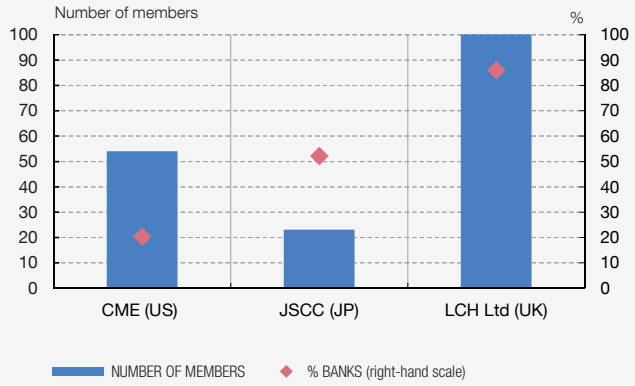


Chart D
BANKS AS CLEARING MEMBERS. SWAP SEGMENT. 2018 Q3 (b)



SOURCES: BIS (Semiannual Derivative Statistics), Clarus FT, CPMI-IOSCO (Quantitative disclosure 2018 Q3), ISDA.

a Swap data also include FRAs. The data for 2016-2018 were extracted from the BIS. Data prior to 2016 were estimated by indexing the rate of change of the percentages reported by ISDA to the data reported by the BIS. The series were adjusted by the possible double counting of BIS data.
b Swap data also include FRAs.

CCPs are, by their nature, entities that are highly interconnected to the rest of the financial system. True, CCPs can link up with one another through interoperability agreements; but these are scarce in practice. That said, there is a notably high presence of common members and services providers, some of which globally systemic banks (G-SIBs). In particular, the 26 main CCPs (domiciled in 15 jurisdictions) are, generally, exposed to at least 10 G-SIBs.

Centralised clearing has the potential to strengthen financial stability. However, it poses elements of systemic risk that must be addressed. Given this concern, regulators have expended considerable effort in reinforcing the soundness and resilience of CCPs. Recently, the focus has been on developing robust recovery and resolution arrangements to mitigate the impact that the potential failure of a CCP would have on financial stability.

The European Commission's initiative on CCPs is in addition to Royal Decree-Law 5/2019 of 1 March 2019, approved by the Spanish government to ensure the continuity of financial contracts in case of a disorderly Brexit. Royal Decree-Law 5/2019 approves the Spanish Government's contingency plans in the event of a no-deal Brexit scenario, including a requirement that British financial institutions operating in Spain adapt to national regulations as well as a transitional arrangement to facilitate this adaptation without disrupting operations. The mitigation of this risk has been strengthened with the European Council's recent agreement to delay Brexit until 31 October.

The Eurosystem's Vision 2020 strategy includes the consolidation of the two largest European financial market infrastructures, TARGET2 (T2) and TARGET2-Securities (T2S), which is planned for November 2021. The Eurosystem owns both infrastructures and is responsible for their management and operations.

T2 is a centralised platform of real time gross settlement (RTGS) for large-value payments. Central and commercial banks can send euro-denominated payment orders to T2 for processing and settlement in central bank money (cash held by banks in accounts at central banks). The system settles payment orders of interbank trading, Eurosystem monetary policy operations and operations of banks participating in the system. Furthermore, the cash balances arising from operations in most euro area clearing and settlement systems are settled in T2.

From a legal standpoint, T2 is structured as a set of national payment systems, each one corresponding to a euro area central bank. Furthermore, certain central banks in the EU whose currency is not the euro participate in T2. The Spanish component, TARGET2-Banco de España (T2-BE) is the main payments system in Spain in terms of amounts processed. Most Spanish banks participate directly or indirectly in T2-BE.

T2S is a pan-European platform which facilitates the centralised settlement of securities operations denominated in euro and in other currencies of central bank money. It brings securities and cash accounts together in the same platform, offering an integrated, neutral and borderless settlement service with highly advanced functionalities. The cash from securities operations is settled in dedicated cash accounts held by institutions in T2S. Functionalities exist which allow institutions to manage liquidity efficiently across T2S and T2. The service offered by the T2S platform is aimed at central securities depositories (CSDs) and based on a framework agreement entered into by the Eurosystem and the CSDs. The latter maintain the business and contractual relationship with their participants.

The T2 and T2S consolidation project comprises the technical and functional integration of the two infrastructures in a common platform which will save maintenance costs, modernise T2 services and improve connectivity and security components through a single point of access for all Eurosystem infrastructures. The messages used for communication will follow the ISO 20022 standard. Consolidation will provide a centralised tool enabling participants to manage, administer and monitor liquidity in all TARGET services: the new RTGS service, T2S and the Target Instant Payment Settlement Service (TIPS). The new RTGS system allows settlement of interbank payments and those from linked settlement systems not only in euro (as currently occurs in T2) but also in other currencies, if the corresponding issuing central bank so decides.

Owing to the breadth of the changes involved in the consolidation, it is impossible for the new system arising from consolidation to coexist alongside the current system. Consequently the migration will be through a "Big Bang" approach for all participants. Each T2 participant is responsible for ensuring that it is ready, for drawing up an adaptation plan and earmarking the necessary funds to the project.

Since 2018 the Spanish banking system has been preparing its adaptation to this operational change, which could have a significant operational impact if the adaptation plans are not adequate. Spanish banks formalised their internal adaptation plans at end-2018 in order to conduct testing and perform the accreditation process by the deadlines. Those institutions which do not achieve accreditation in time will have to assume the risk of being unable to access central bank money and will forego their status as direct participants in the system, at least temporarily. If the Spanish market in general, or certain institutions with large settlement volumes in T2, are unable to connect to the platform on the date envisaged, the negative impact on the ability of these institutions and the financial system, as a whole, to function as normal would be high, since the cash involved in Spain's large volume financial transactions is settled in the T2-BE system.

3 MACROPRUDENTIAL POLICY

This chapter presents the systemic vulnerability and risk analysis regularly performed by the Banco de España as a basis for its macroprudential policy decisions. It also describes the recent changes made to the regulatory and institutional framework linked to the creation in Spain of the new macroprudential authority (AMCESFI). Particular attention is paid to the design and tasks of the AMCESFI (see Box 3.1), which was created in March 2019 by virtue of Royal Decree 102/2019. This important institutional development followed on the heels of Royal Decree Law 22/2018 which provides the sectoral authorities with new macroprudential tools applicable in their respective regulatory and supervisory areas.[1]

3.1 Analysis of systemic vulnerabilities

The map of systemic vulnerability indicators aggregates data from a broad set of indicators according to their ability to predict systemic banking crises. The map summarises information from over one hundred indicators of potential risk to the financial system and effective conditions in the real economy and the banking sector in Spain.[2] These indicators have been selected and aggregated according to their past ability to predict systemic banking crises in Spain. Thus, for instance, in the macroeconomic imbalances category, the most heavily weighted indicator is the current account balance, ahead of other variables such as net external debt or government debt. The weighting differences reflect the fact that, historically, systemic banking crises in Spain have been preceded by periods with current account deficits. The economic rationale for this is that credit booms are generally characterised by a low domestic saving rate (since consumption is high) and a high rate of investment (in many cases in housing). This domestic financial imbalance can only be funded by the rest of the world through net capital inflows into the external financial account. A current account deficit is the balancing item for this financial account surplus.

The map of systemic vulnerabilities has remained stable since the last FSR was published (see Chart 3.1).[3] The heat map categories – credit, liquidity, concentration, financial markets and macroeconomic imbalances – have remained stable over the last six months. Specifically, the liquidity indicators reflect an absence of alerts, both as regards banks' balance sheets and market liquidity. This situation is expected to continue, especially following the ECB's recent announcement that it intends to launch new medium-term funding facilities. The concentration indicators continue to reflect a medium alert level, since the high weight of large loans is offset by the lower exposure to the construction and real estate development sectors. The financial market turmoil at end-2018 drove up some interest rate spread indicators and market volatility; as yet, however, these events have had limited impact on the Spanish financial system.

1 Royal Decree Law 22/2018 endows the Banco de España with macroprudential tools in addition to those already at its disposal as a result of European legislation.

2 The definitions of the main categories correspond to those established by the European Systemic Risk Board in its Recommendation ESRB/2013/1 on intermediate objectives and instruments of macroprudential policy.

3 For a correct interpretation of the chart it must be considered that the intensity of the alerts in each category represents a weighted average of the indicators included. Intensity increases as the tone draws closer to red, while green depicts a normal situation. See J. Mencía and J. Saurina (2016), "Macroprudential policy: objectives, instruments and indicators", Banco de España Occasional Paper 1601, for details of the specific indicators included in each category and the weighting calculations.

The financial crisis revealed that the microprudential (case-by-case) regulatory and supervisory approach alone was not sufficient to identify and, in the last instance, prevent or mitigate the impact of the materialisation of systemic risk on financial stability. It became clear, therefore, at both the international and the European level, that each jurisdiction should have an institutional and normative framework for macroprudential policy to safeguard, in a coordinated and effective manner, not only the stability of the financial system as a whole but also that of each of its component sectors (among which, the banking sector).

Competence in individual countries in the fields of financial stability, regulation and prudential supervision is often distributed between several authorities, each of which is responsible for a part or sector of the financial system. In Spain, macroprudential responsibility for the credit institution sector lies with the Banco de España,[1] while the National Securities Market Commission (CNMV) is responsible for investment firms and the Directorate General of Insurance and Pension Funds (DGSyFP), which is part of the Ministry of the Economy and Enterprise, for bodies within its supervisory remit.

As a result of the significant growth in interconnections between financial institutions and markets, and their increasing complexity, institutional cooperation mechanisms that facilitate the exchange of information and analysis are essential, allowing macroprudential policy measures to be used to comprehensively address possible sources of systemic risk. Financial globalisation has also meant that the supranational dimension of financial stability is becoming increasingly important.

In consequence, at the end of 2010, the European System Risk Board (ESRB)[2] was created as part of the European System of Financial Supervision. The ESRB's mission is to "contribute to the prevention or mitigation of systemic risks to financial stability", to ensure "a sustainable contribution of the financial sector to economic growth". The central banks and financial supervision authorities of all the EU countries are members of the ESRB (in the case of Spain, the Banco de España, CNMV and DGSyFP).

In one of its first measures, in 2011 the ESRB issued a Recommendation[3] urging all EU Member States to designate an authority responsible for macroprudential policy, with functions to identify, oversee and assess risks to financial stability and with the power to foment measures to address these risks. In the same vein, the International Monetary Fund (IMF), through its Financial Sector Assessment Program (FSAP), has actively expressed its backing for the creation of macroprudential authorities for the whole of the financial system.[4]

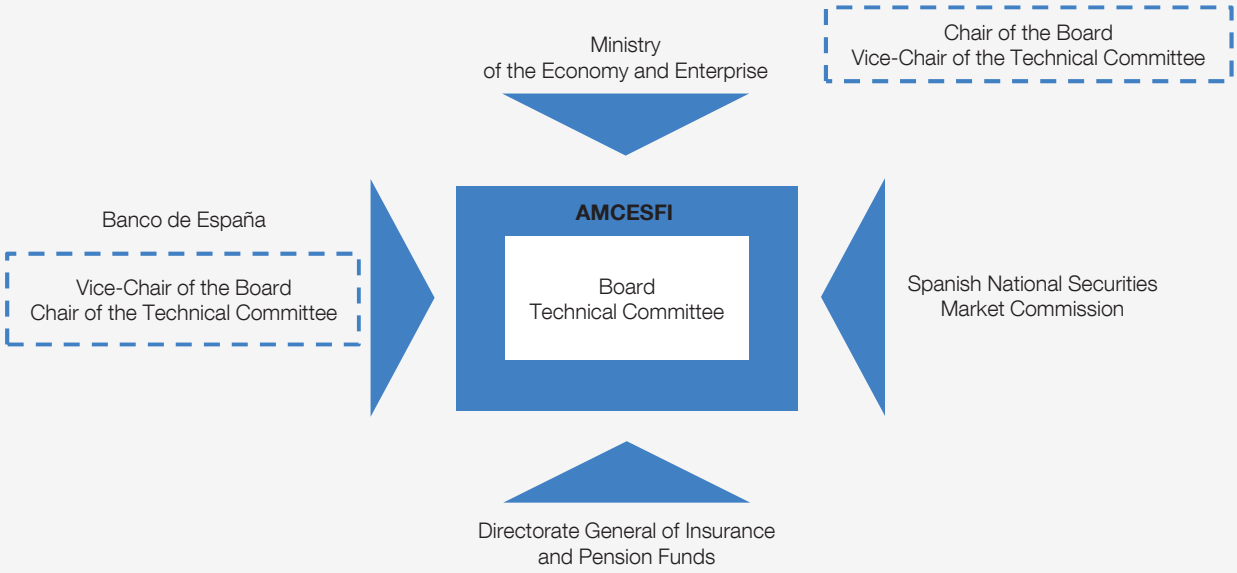
Against this backdrop, in recent years many European countries have established a national macroprudential authority.[5] In some cases, a broad mandate and new instruments have been given to an existing authority (notably the national central bank, as in the United Kingdom and Ireland). Various other countries have chosen to create a collegiate authority (a "systemic risk committee"), which under various forms of governance includes the central bank, banking, securities and insurance regulators and supervisors, and the ministry with competence for financial system legislation (as in Germany and France). The apparent need to strengthen macroprudential policies warrants the inclusion of government ministries in these authorities, as it has been found that a significant number of countries have taken into account political economy considerations when designing their financial stability governance structures.[6] Accordingly, the ultimate configuration of a macroprudential authority responds to individual countries' idiosyncratic specificities.[7]

In the case of Spain, the process of creation of a macroprudential authority was influenced by the existence, since 2006, of the Financial Stability Committee (CESFI).[8] The CESFI was created by means of a voluntary cooperation agreement between the Ministry of Economy, the Banco de España and the CNMV, to address matters of common interest in the field of financial stability and crisis prevention and management. But the CESFI lacked the legal status to grant it a formal mandate or properly defined functions or tasks.

In view of the international backdrop, at the end of 2018 the CESFI served as a discussion platform for the project to create the national macroprudential authority, as per the ESRB Recommendation, and for a draft legislative proposal to endow the sectoral supervisory authorities with macroprudential instruments in addition to those provided for in European legislation.

1 In addition, the European Central Bank also has competences in matters of macroprudential policy over all the euro area countries' credit institutions, by virtue of the tasks conferred on it when the Single Supervisory Mechanism was established in 2014.
2 Regulation (EU) No 1092/2010 of 24 November 2010 on European Union macro-prudential oversight of the financial system and establishing a European Systemic Risk Board.
3 ESRB Recommendation of 22 December 2011 on the macro-prudential mandate of national authorities (ESRB/2011/3).
4 See, for the case of Spain, the IMF document "Spain: Financial Sector Assessment Program-Technical Note-Systemic Risk Oversight Framework and Macroprudential Policy" of 13 November 2017.
5 See the ESRB document "List of national macroprudential authorities and national designated authorities in EU Member States". Italy is currently the only EU Member State that has not yet created a national macroprudential authority.
6 "New Financial Stability Governance Structures and Central Banks" by R.M. Edge and J.N. Liang, Hutchins Center Working Paper #50 (February 2019).
7 For a summary of the institutional reforms worldwide, see "Financial supervisory architecture: what has changed after the crisis?" by D. Calvo, J.C. Crisanto, S. Hohl and O. Pascual Gutiérrez, Financial Stability Institute, FSI Insights on policy implementation No 8 (April 2018).
8 See D. Vegara's article "Funciones y objetivos del Comité de Estabilidad Financiera (CESFI)", Financial Stability Review No 11, Banco de España, November 2006.

Diagram A
INSTITUTIONAL MEMBERSHIP OF THE SPANISH MACROPRUDENTIAL AUTHORITY (AMCESFI)



SOURCE: Banco de España.

Following a public hearing at the end of 2018, in early March 2019 the Spanish Council of Ministers approved Royal Decree 102/2019 creating the new macroprudential authority (AMCESFI).[9] It is organised as a collegiate body attached to the Ministry of the Economy and Enterprise and is made up of representatives from the Ministry, the Banco de España, the CNMV and the DGSyFP (see Diagram A).

The purpose of the AMCESFI is to "contribute to the stability of the financial system overall, by identifying, preventing and mitigating circumstances or actions that may produce systemic risk". To that end, it will regularly monitor and analyse systemic risk factors. Its powers will include issuing warnings and recommendations on any matter that may affect financial stability, and also opinions on proposed macroprudential measures notified in advance to the AMCESFI by the sectoral supervisory authorities (the Banco de España, CNMV and DGSyFP).

The AMCESFI Board has seven members, four of whom represent the independent supervisory bodies. The Board Chair is the Minister for the Economy and Enterprise and the Vice-Chair the Governor of the Banco de España. Below the Board there is a Financial Stability Technical Committee with nine members, six of whom are from the independent supervisory bodies. The Committee Chair is the Deputy Governor of the Banco de España and the Vice-Chair the General Secretary for the Treasury and International Financing. The Committee is tasked with preparing the matters to be submitted to the Board, with the Banco de España acting as secretary.

For purposes of transparency and accountability, the AMCESFI should publish the opinions, warnings and recommendations it issues (unless their dissemination is inadvisable as it poses a potential threat to financial stability) and should present an annual report to the Economy and Enterprise Parliamentary Committee of the Congress of Deputies.

In parallel, the Spanish government approved Royal Decree Law 22/2018 on macroprudential tools,[10] which extended the range of instruments available to the sectoral authorities to be applied to institutions within their regulatory remit. In particular, the Banco de España was authorised to establish for reasons of systemic risk: (i) a countercyclical capital buffer applicable to sector-specific exposures; (ii) limits on credit institutions' concentration on a certain economic sector; and (iii) conditions on lending and other operations by credit institutions. These last macroprudential tools based on borrowers' ability to pay (borrower-based instruments) have been introduced in other European countries' national legislation and are being actively employed to prevent cyclical easing of credit standards by banks, aiming to actively manage the credit risk incurred in their business.

9 Royal Decree 102/2019 of 1 March 2019 creating the AMCESFI, establishing its legal regime and implementing certain aspects on macroprudential tools.

10 Royal Decree Law 22/2018 of 14 December 2018 establishing macroprudential tools, which was validated by the Congress of Deputies on 22 January 2019.

In the case of the banking sector, these instruments are in addition to those already available since 2016 through the European Capital Requirements Regulation and Directive (CRR/CRD IV), implementing in the European Union the macroprudential instruments included in the Basel III global regulatory framework: (i) the countercyclical capital buffer (CCyB); and (ii) capital buffers set for global and other systemically important institutions, as well as (iii) the systemic risk buffer (although this instrument is not included in the Basel III framework). In addition, the Banco de España has been designated the competent authority to apply Article 458 of Regulation (EU) No 575/2013 of 26 June 2013,definitively enshrining competence that to date was only temporary.

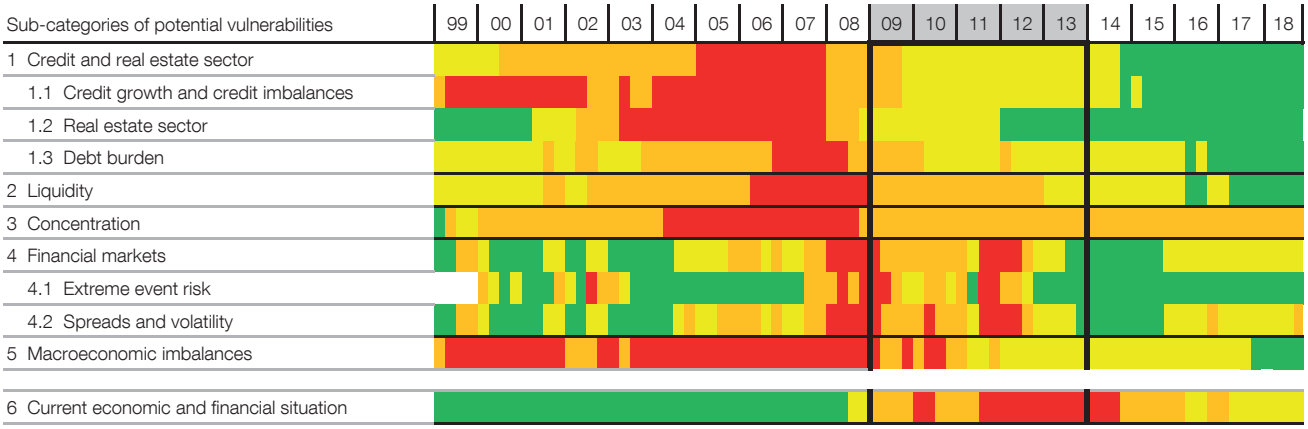
Similarly, both the CNMV and the DGSyFP may set limits and conditions on the activities of institutions within their supervisory remit, which will facilitate coordinated action. Moreover, the CNMV has been strengthened, being granted the power to temporarily increase the percentage investment in liquid assets required of investment fund and venture capital management companies. In turn, the DGSyFP will be able to set conditions on operations involving transfer of risks and insurance portfolios. These instruments, which in some cases represent an international innovation, will foreseeably be added to in coming years, in keeping with global advances in macroprudential policies beyond banking.

With the creation of the AMCESFI and implementation of a raft of macroprudential instruments in addition to those already available under European legislation, Spain has secured an institutional and regulatory framework comparable to that of other EU Member States and is now, therefore, better placed to address potential future systemic financial crises in a more effective and more coordinated manner.

Although the risks to the stability of the Spanish financial system have risen in the past six months, there are no signs of systemic risk. As explained in detail in the preceding chapters, the macroeconomic risks to financial stability identified in previous FSRs appear to have intensified. The risk of pricing corrections in some financial assets and of a surge in risk premia has increased as a result of the slowdown in global economic activity, associated in part with the prevailing geopolitical and economic policy uncertainty. In addition, the situation in the emerging market economies has also deteriorated in view of China's economic performance. Likewise, over the relevant horizon for the FSR, for the deposit-taking institutions, whose income statements will come under greater

HEAT MAP BY SUB-CATEGORY (a) CHART 3.1

The macroeconomic vulnerabilities of the Spanish economy have slowly decreased, and the map of systemic vulnerabilities, whose objective is to provide early warning of systemic banking crises, remains stable, denoting a normal situation. Only the interest-rate spreads and volatility segment has increased as a result of the recent turmoil in financial markets.



SOURCE: Banco de España.

a The colour scheme identifies four levels of risk: i) green denotes a normal, risk-free situation, ii) yellow indicates low risk, iii) orange is medium risk and, iv) red is high risk. The shaded band denotes tha last crisis. Some indicators as at December 2018 are based on provisional information.

pressure on account of macroeconomic developments and growing legal risk. However, the systemic risk indicators related to the Spanish financial cycle remain low, albeit rising. Moreover, although the potential materialisation of macroeconomic risks would have a significant effect on deposit-taking institutions' capital, the Spanish banking sector's average solvency level is adequate, as shown in section 2.1.3 above.

3.2 Macroprudential policy instruments and measures

The Banco de España has held the countercyclical capital buffer (CCyB) rate applicable in the first two quarters of 2019 at 0%. These quarterly decisions[4] are based on technical analysis of quantitative indicators, combined with any relevant qualitative information provided by expert judgment ("guided discretion"). The main quantitative indicator that guides CCyB decisions at the international level is the credit-to-GDP gap. This indicator was proposed by the Basel Committee on Banking Supervision (BCBS) and current European and Spanish legislation envisage its use as a guideline to set the CCyB.[5] This gap remains at very negative levels; specifically, on data at September 2018, it stood at -48.3 pp, holding steady at levels close to the record lows recorded after the last crisis.

The credit-to-GDP or Basel gap presents various technical limitations in the case of Spain. The Basel gap presents various limitations as a credit cycle indicator in economies such as the Spanish one where credit-to-GDP ratio patterns have changed over time and credit cycles have lasted for fewer than twenty years. Specifically, a significant negative bias has been detected in the size of the credit-to-GDP gap in the years immediately following crises and this hinders its ability to issue early warnings of incipient changes in the credit cycle.

Alternative models to the Basel gap considered by the Banco de España also show negative imbalances, although on a significantly smaller scale. Given the technical limitations of the Basel gap, it is important to analyse the credit-to-GDP gap under alternative specifications. Accordingly, the Banco de España has developed quantitative models that estimate the level of equilibrium of the credit-to-GDP ratio, drawing on the relationship that economic theory establishes with other fundamental macrofinancial variables.[6] In addition, the credit-to-GDP gap has been recalculated using a different technical specification from that approved by the BCBS, to adjust it to the observed average duration of credit cycles in Spain (see Box 3.2). Both approximations give gaps that are also negative, but considerably closer to equilibrium than according to the Basel gap. These results back the decision to hold the CCyB at 0% for the time being, but they also point to the need to closely monitor developments and future projections of these models.

Other quantitative indicators also point to a lack of cyclical systemic risk alerts, although recent changes in some of these indicators suggest that they could generate alerts before the credit-to-GDP gap does. The framework for activating the CCyB also considers a number of complementary quantitative indicators to be used as a guideline to set the countercyclical capital buffer. In particular, indicators on house price imbalances, the current account balance, credit intensity and debt servicing are considered

4 See https://www.bde.es/bde/en/areas/estabilidad/politica-macropr/Fijacion_del_po_abd79f06544b261.html for the list of the Banco de España's quarterly CCyB decisions.

5 Directive 2013/36/EU (CRD IV), Law 10/2014, Royal Decree 84/2015, Banco de España Circular 2/2016 and Recommendation ESRB/2014/1.

6 See Box 3.1 of the November 2018 Financial Stability Report.

The credit-to-GDP gap calculated according to the Basel Committee on Banking Supervision (BCBS) guidelines – the "Basel gap"[1] – is the reference indicator for the quarterly calculation of the countercyclical capital buffer (CCyB). The methodology proposed uses the Hodrick-Prescott statistical filter[2], seeking to estimate a long-term trend component of the credit-to-GDP ratio, in order to calculate the deviations from the observed ratio. These deviations represent the size of the gap. To apply this method, the value of a parameter that is directly related to the average duration of the financial cycle, and which therefore determines the memory of the trend component, must first be calibrated. Specifically, the Basel gap methodology proposes that a very high value (400,000) be used for this parameter, which implies assuming an average credit cycle duration of approximately 30 years. This is a very long duration compared with that observed both in Spain and in other countries. In the case of Spain, after analysing historical series since 1880, an average duration of 17 years has been estimated;[3] drawing only on more recent data, since 1960, the average duration would be 19 years.

Accordingly, assuming a 30-year duration results in an estimated long-term trend with excessive inertia. This means that the most recent changes in the ratio have very little impact on the estimation of the trend and, therefore, that the gaps generated are very different from the observed levels, especially when the ratio presents significant or relatively rapid and sustained changes. The main consequence is that the estimated gap is too wide, resulting in the present high negative values estimated for Spain. This observed bias could hinder the gap's ability to act as a leading indicator of signs of credit cycle imbalance in coming years.

It is, therefore, important to study mechanisms that allow the BCBS methodology to be adapted to include average financial cycle duration assumptions that are more in keeping with the empirical evidence available for Spain. Specifically, alternative adaptations of the Hodrick-Prescott filter have been explored, reducing the value of this parameter and limiting the number of past observations used to estimate the trend.[4] The study shows that, in effect, assuming an average credit cycle duration of 15 years corrects the major deviations estimated by the Basel gap before and after each crisis and considerably enhances the indicator's capacity to predict systemic events.

1 Guidance for national authorities operating the countercyclical capital buffer, BCBS, December 2010.
2 First proposed in R.J. Hodrick and E.C. Prescott (1997), Postwar U.S. Business Cycles: An Empirical Investigation, Journal of Money, Credit and Banking, Vol. 29, pp 1-16.
3 M. Bedayo, A. Estrada and J. Saurina (2019), Bank capital, lending booms, and busts. Evidence from Spain in the last 150 years, Banco de España Working Paper 1847.
4 J.E. Galán (2019), Measuring credit-to-GDP gaps. The Hodrick-Prescott filter revisited. Banco de España Occasional Paper 1906.

Chart A
CREDIT-TO-GDP GAPS ADAPTED TO CREDIT CYCLES LASTING BEWEEN 15 AND 20 YEARS (a)

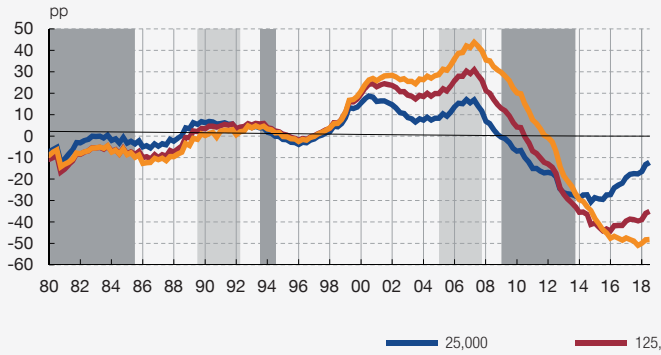
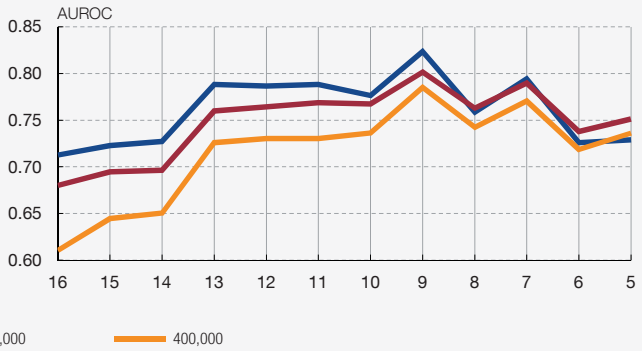


Chart B
PREDICTIVE CAPACITY OF CREDIT-TO-GDP GAPS ADAPTED TO CREDIT CYCLES LASTING BETWEEN 15 AND 20 YEARS (b)



SOURCE: Banco de España.

a The lines represent estimates of the gaps assuming a credit cycle of 15, 20 and 30 years, approximately corresponding to smoothing parameter values of 25,000, 125,000 and 400,000. The latter was adopted by the Basel methodology. The dark grey shaded area represents the three systemic periods identified in Spain from 1970, namely two periods of systemic banking crises (1978 Q1 to 1985 Q3 and 2009 Q1 to 2013 Q4) and one idiosyncratic event (1993 Q3 to 1994 Q3). The light grey shaded area represents the periods between five and sixteen quarters prior to the occurrence of the systemic events, during which it is advisable to identify signs of cyclical risk in order to adopt measures sufficiently in advance.
b Predictive capacity is compared by means of the AUROC (Area Under the Receiver Operating Characteristics Curve). This criterion represents the relationship between the rate of false positives and the rate of true positives for all the possible binary classification thresholds of a model. An AUROC value equal to 1 would indicate a perfect prediction model. By contrast, a value of 0,5 would indicate that the model is unable to predict better outcomes than those arising from a random assignment. The "y" axis represents the AUROC value. The "x" axis represents the periods between five and sixteen quarters prior to the occurrence of the systemic events, during which it is advisable to identify signals of cyclical risk in order to adopt measures sufficiently in advance. The lines represent the AUROC for gaps assuming a credit cycle of 15, 20 and 30 years, approximately corresponding to smoothing parameter values of 25,000, 125,000 and 400,000. The latter was adopted by the Basel methodology.

Chart A depicts the estimated credit-to-GDP gap using smoothing parameters that assume shorter credit cycle durations. Specifically, parameters equal to 25,000 and 125,000 are used, which assume credit cycle durations of approximately 15 and 20 years, respectively. In general it is observed that the lower the parameter, the narrower the gap and the speedier its response to changes in the trend of the ratio. It is also observed that, compared with the estimates made using the Basel gap methodology, the two others using lower parameters correctly identify the systemic event that occurred in Spain in the 1990s. Turning to the present, the estimates made using a smoothing parameter equal to 25,000, consistent with a credit cycle duration of approximately 15 years, point to a clear change in trend in the gap over the last two years. Although these estimates still have negative values, they are less negative in absolute terms and this would seem to be more consistent with the current stage of both the credit and the economic cycle.

In addition, calculating the credit-to-GDP gap using lower parameters enhances the indicator's predictive power. This effect can be seen in Chart B, which compares the capacity of the different indicators to serve as a leading indicator of credit cycle imbalance. The chart shows that the gap calculated using the parameter equal to 25,000 has the best predictive capacity. It also shows that the difference compared with the Basel gap, which uses a parameter equal to 400,000, is especially significant between two and four years before a crisis. This means that the build-up of cyclical systemic risk can be flagged better and earlier. Accordingly, despite the constraints imposed by the statistical methods, by improving the way in which they are calculated it is possible to transform them into useful measures for detecting cyclical systemic risk. In particular, considering calibrations consistent with an average credit cycle duration of 15 years enhances the indicator's predictive power and produces estimates more in keeping with the present upswing in the financial cycle in Spain.

(see Chart 3.2).[7] On the data to September 2018, these indicators show no clear signs of cyclical systemic risk. However, recent changes in some of these indicators suggest that they could generate alerts before the credit-to-GDP gap does. The indicators on house price imbalances, in particular, continue to display a clearly correcting pattern since the end of the crisis (see Chart 3.2.A).[8] In this respect, new house price data will be needed to confirm that the recent slowdown is continuing and that house prices are not overvalued. Similarly, the current account balance is declining, although there is still a current account surplus (see Chart 3.2.B). The other two indicators show that the imbalances built up before the last crisis are still correcting themselves. In particular, the credit intensity indicator, which captures the annual change in credit relative to GDP, shows net reductions (albeit very moderate and close to zero) in the balance of credit to the non-financial private sector (see Chart 3.2.C). Lastly, the debt service indicator for the non-financial private sector has declined continuously since the start of the last crisis (see Chart 3.2.D). This fall has been partially driven by the fact that interest rates are at record lows, in a setting in which a very high proportion of credit to the private sector is variable rate. Nevertheless, the latest figures available show that the likelihood of interest rate rises in the near term is very low.[9]

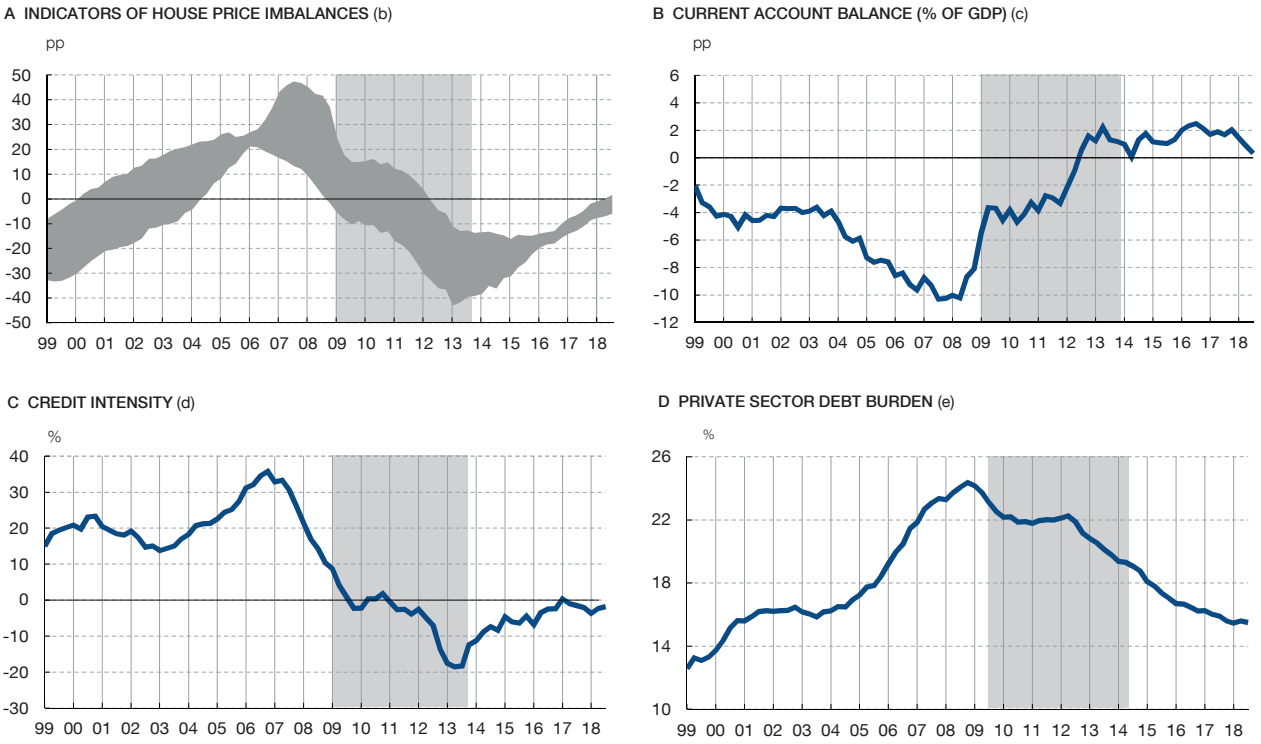
7 For a technical analysis of the indicator selection, see C. Castro, A. Estrada and J. Martínez (2016), *The Countercyclical Capital Buffer in Spain: An Analysis of Key Guiding Indicators*, Banco de España Working Paper 1601.

8 The five indicators comprising the house prices category are: i) the price gap in real terms constructed as the difference between the prices observed and their long-term trend; ii) the house price to household disposable income gap, calculated as the difference between this ratio and its long-term trend; iii) an econometric model that compares real house prices with estimates obtained from long-term trends of household disposable income and mortgage rates; iv) the house price to rental price gap, constructed as the difference between the values of the ratio and their long-term trend; and v) an econometric model that compares real house prices with estimated long-term equilibrium relationships, considering variables relating to household disposable income, mortgage rates and tax effects. In all cases the long-term trends are obtained using a one-sided Hodrick-Prescott filter with a smoothing parameter equal to 400,000.

9 See Box 4 of the Quarterly Report on the Spanish Economy, 1/2019.

COMPLEMENTARY INDICATORS FOR CCyB DECISIONS (a) CHART 3.2

The complementary indicators for calibration of the CCyB do not show signs of cyclical systemic risk, although some of them have approached alert levels. The complementary indicators have been selected on the basis of their ability to predict systemic banking crises. The degree of house price imbalances depends on determining factors such as household income, interest rates and rents. The current account balance reflects the extent to which domestic saving is sufficient to finance the desired investment. The change in credit relative to GDP attempts to capture the importance of the flow of credit for financing the activity. Lastly, the debt service approximates the interest burden and loan principal payments by households and non-financial firms relative to GDP.



SOURCE: Banco de España.

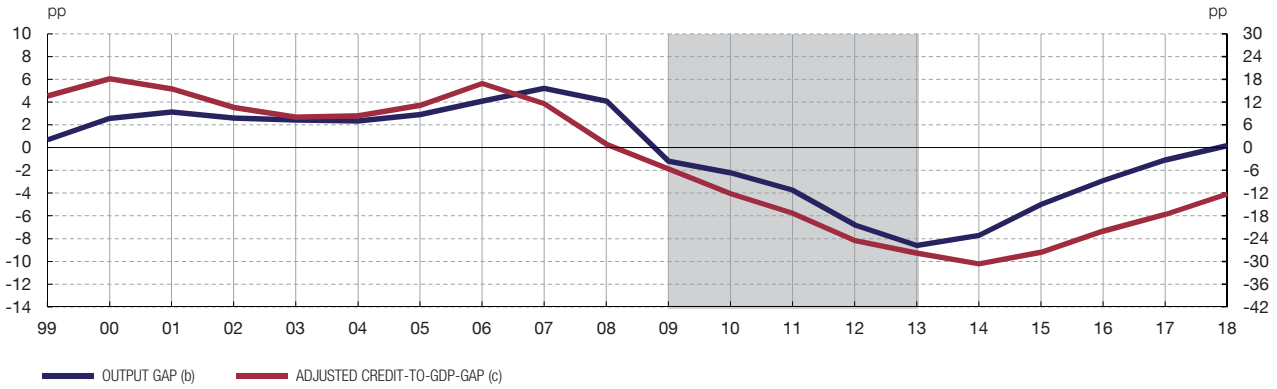
a The shaded area shows the last period of systemic banking crisis (2009 Q1-2013 Q4).
b The shaded area represents the range between the minimum and maximum values of the set of five indicators of imbalances in the real estate sector.
c The current account balance series is expressed as a percentage of GDP and seasonally adjusted.
d The credit intensity indicator is calculated as the annual change in credit to the non-financial private sector divided by cumulative GDP of the last four quarters.
e Ratio of debt service in the non-financial private sector calculated as specified in Drehmann M. and M. Juselius (2012) "Do debt service costs affect macroeconomic and financial stability?", BIS Quarterly Review, September.

Other jurisdictions are activating the CCyB based on different considerations. In particular, some countries' macroprudential authorities consider that, irrespective of the financial cycle, one of the aims of the CCyB is to build up buffers in economic upturns that can be used in downturns to cushion the impact. From this standpoint, the CCyB should be activated when the economy is expanding (with a positive output gap), irrespective of whether or not there is excessive credit growth. In Spain, as Chart 3.3 shows, the output gap or business cycle turned positive in 2018. The chart also compares how the business cycle and the financial cycle (proxied by the adjusted credit-to-GDP gap calculated using the best performing adjusted specification in Box 3.2) have evolved. This comparison suggests that before the global financial crisis the financial cycle was ahead of the business cycle, and that it is now behind it, thus transforming the output gap into a leading indicator of the financial cycle. In addition, in other jurisdictions, certain idiosyncratic factors, such as excessive economic volatility, has also been used to warrant activating the countercyclical capital buffer. In any event, the Banco de España will closely monitor the development and projections of all the above-mentioned quantitative indicators.

The effective CCyB required of Spanish banks is also determined by the buffer rates set by authorities in other countries. When calculating a bank's specific CCyB requirement,

OUTPUT GAP AND CREDIT-TO-GDP GAP (a) CHART 3.3

Following the crisis both the output gap and the adjusted credit-to-GDP gap reflected a positive trend. For output, the gap turned positive at end- 2018, whilst the credit-to-GDP ratio gap continues to narrow.



SOURCE: Banco de España.

a The shaded area shows the last period of systemic banking crisis (2009 Q1-2013 Q4).
b The output gap is the percentage difference between the observed GDP and potential GDP. Values calculated at constant 2010 prices. See Cuadrado, P. and Moral-Benito, E (2016). Potential growth of the Spanish economy. Banco de España Occasional Paper 1603.
c The credit-to-GDP gap is calculated as the difference, in percentage points, between the observed ratio and the long-term trend calculated using a onesided Hodrick-Prescott filter with a smoothing parameter equal to 25,000. This value is more in line with the financial cycles historically observed in Spain (see Box 3.1).

account must be taken of its credit exposures in other countries where a positive CCyB rate has been set. Specifically, Spanish banks with international activity in jurisdictions where these instruments have been activated must comply with a positive buffer rate, by application of a weighted average of the CCyB rates in the countries in which they have a presence. To date, twelve European countries[10] are applying – or have announced that they will shortly apply – a positive CCyB rate. The United Kingdom's buffer rate is that which most affects several Spanish banks, although it amounts to less than 0.2% of their RWAs at the consolidated level.

The latest review of the list of systemically important institutions showed no changes.[11] Every year since 2015 the Banco de España has identified "Global Systemically Important Institutions" (G-SIIs) and domestic or national systemically important institutions, known as "Other Systemically Important Institutions" (O-SIIs), setting their regulatory capital buffers. Unlike the CCyBs, these buffers aim to address the cross-sectional dimension of systemic risk. Thus, in November 2018, the designations remained unchanged, with one G-SII for 2020 and five O-SIIs for 2019, indicating the associated buffer rates for each for 2019.

In December 2018 the phase-in period of capital buffers for systemic institutions ended. Capital buffers for G-SIIs and O-SIIs were introduced in 2016 under a 3-year phase-in period which ended on 1 January 2019. Accordingly, since that date, Spanish systemically important institutions must comply with the fully phased-in buffer rate set by the Banco de España[12] (see Table 3.1).

In the European Union over a hundred institutions have been designated as O-SIIs[13] for 2019. European regulations provide for a certain degree of flexibility in the capital

10 Bulgaria, Denmark, Slovakia, France, Ireland, Iceland, Lithuania, Luxembourg, Norway, United Kingdom, Czech Republic and Sweden.
11 See the press release, "Banco de España updates the list of systemically important institutions and sets their capital buffers", dated 21 November 2018.
12 For more details, see Box 3.1 of the May 2017 Financial Stability Report.
13 Eleven of which are also G-SIIs. O-SIIs need not necessarily be credit institutions, as they may also include investment firms (as for example in Cyprus and the United Kingdom).

CAPITAL BUFFERS FOR SYSTEMICALLY IMPORTANT INSTITUTIONS (a) TABLE 3.1

The period available to systemically important institutions for building capital buffers has ended without any changes to the fully phased-in requirements.

Bank	Designation	Capital buffer required in 2018	Capital buffer required in 2019
Santander	G-SIIs and O-SIIs	0.75%	1.0%
BBVA	O-SIIs	0.5625%	0.75%
CaixaBank	O-SIIs	0.1875%	0.25%
Sabadell	O-SIIs	0.1875%	0.25%
Bankia	O-SIIs	0.1875%	0.25%

SOURCE: Banco de España.

a Capital buffers are expressed as a percentage of total RWAs at consolidated level.

buffers required of these O-SIIs by the national authorities, which may be set between 0% and 2% of RWAs. However, for banking union countries, buffers for O-SIIs must comply with the minimum levels set by the ECB in the framework of the Single Supervisory Mechanism (SSM), in an endeavour to ensure uniform treatment by jurisdictions and hence a level playing field.

O-SII buffers have been introduced and calibrated very differently within the European Union. The calibration of buffers for O-SIIs reflects the different structures of the national banking sectors and the relative size of their main banks. Also, several countries have established phase-in schedules for O-SII buffers, postponing the final requirement beyond 2018 (in some cases until 2021). As indicated above, in 2019 the Spanish systemically important institutions must comply with fully phased-in buffer rates that range from 0.25% to 1% of RWAs. These levels are, for a variety of reasons, lower than those required of many of their European peers (see Chart 3.4). It is important to note that comparisons between countries are hampered by the fact that some O-SIIs are subject to the systemic risk buffer,[14] either as well as or in lieu of the O-SII buffer, and by the fact that RWA densities differ. In particular, the calibration of the systemic (structural) risk buffer is more discretional than that of the O-SII buffer, allowing calibrations above the maximum regulatory level (2%) permitted for the O-SII buffer. With a view to further convergence in the use of the O-SII buffer in the framework of the SSM, this year the ECB is expected to review its methodological framework for minimum calibrations for this instrument[15].

Macroprudential policy measures adopted by the Banco de España are consulted on with the ECB. In the context of the SSM, national euro area authorities must give advance notice to the ECB of proposed measures relating to certain macroprudential instruments regulated in European legislation. Under the SSM Regulation, the ECB may object and, where appropriate, if it is considered warranted, may tighten certain macroprudential policy measures set by the national authorities. Following assessment of the proposed measures, the ECB did not exercise its right to tighten the measures proposed and adopted by the Banco de España.

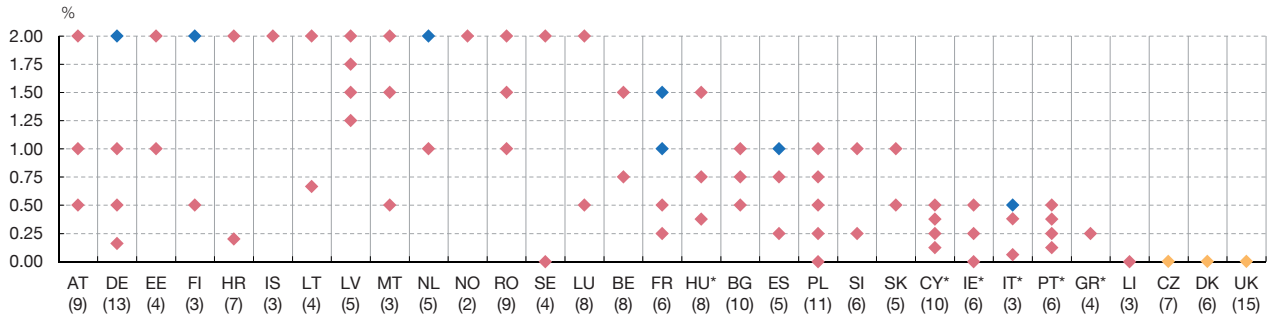
The Banco de España monitors macroprudential measures adopted by other EU Member States and, in particular, assesses those that may be liable to voluntary reciprocity in Spain. Under European legislation, the scope of certain macroprudential

14 As a general rule, the regulations stipulate that systemically important institutions must meet only the higher of the three macroprudential buffers applicable: (i) the G SII buffer; (ii) the O SII buffer; or (iii) the systemic risk buffer.

15 See the ECB Governing Council statement on macroprudential policies of 15 December 2016.

CAPITAL BUFFERS REQUIRED FOR SYSTEMICALLY IMPORTANT INSTITUTIONS IN 2019 (a) CHART 3.4

Capital buffers for O-SIIs in 2019 differ notably among countries.



SOURCES: ESRB, EBA, national authorities and own calculations.

a Each mark represents a calibration used for at least one O-SII in each country. The blue marks show the level of the O-SII buffer at institutions that are also G-SIIs. The yellow marks indicate the countries which have not implemented the O-SII buffer, having opted instead for the systemic risk buffer. For each country, the number of O-SIIs identified for 2019 is indicated. The asterisks indicate the countries in which the regulatory period for the implementation of buffers at O-SIIs had not concluded as at 1 January 2019.

measures implemented by national authorities may be extended to address systemic risks identified at the level of a Member State, based on Article 458 of Regulation (EU) No 575/2013. For this purpose, the ESRB must issue a recommendation urging national authorities to assess the material impact of such measures on their own banks. At end-2018 the ESRB issued a recommendation[16] on a measure introduced in France consisting of tightening (up to 5% of eligible capital) the limit on large exposures of systemically important institutions with non-financial corporations based in France and considered highly indebted on the basis of the predefined criteria. The Banco de España assessed that measure and, in accordance with the ESRB's guidance on materiality, decided not to proceed with reciprocity and, therefore, not to change the limit on large exposures of Spanish systemically important institutions with non-financial corporations based in France and considered highly indebted.[17]

3.3 Warnings and recommendations

In view of the analysis presented in this and previous chapters, no macroprudential warnings or recommendations seem necessary. However, strict monitoring of both consumer credit and the real estate market is necessary, with particular attention being paid to credit standards in these sectors. Moreover, it is important that institutions correctly estimate the legal risk that a potential increase in legal action brought by customers may entail. In addition, banks must continue to strengthen their capital and improve their profitability, diversifying their income and rationalising (cutting) their costs.

The potential impact of the risks to the financial system is heavily influenced by the Spanish economy's structural vulnerabilities. These include, in particular, the high level of government debt and the persistent high net external debt position. Regarding private debt, the gradual deleveraging process that began after the last crisis will hopefully continue. In addition, in-depth analysis of the heterogeneity observed in these variables, especially the potential impact of the greater vulnerability identified among lower income households, must be continued.

16 Recommendation ESRB/2018/8 of 5 December 2018, amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures.

17 For more details, see the macroprudential policy measures section of the Banco de España's website: https://www.bde.es/bde/en/areas/estabilidad/politica-macropr/

4 ANNEX

CONSOLIDATED BALANCE SHEET OF DEPOSIT INSTITUTIONS

ANNEX 1

Assets	Dec-18	Change Dec-18/Dec-17	Relative weight Dec-17	Relative weight Dec-18
	€m	%	%	%
Cash and balances with central banks	258,070	4.1	7.0	7.3
Loans and advances to credit institutions	191,591	9.2	5.0	5.4
General government	97,036	-12.0	3.1	2.7
Other private sectors	2,072,769	2.9	57.0	58.4
Debt securities	495,939	0.1	14.0	14.0
Other equity instruments	33,351	-31.1	1.4	0.9
Investments	25,094	-1.3	0.7	0.7
Derivatives	133,924	-4.7	4.0	3.8
Tangible assets	49,401	2.5	1.4	1.4
Other	192,939	-15.2	6.4	5.4
TOTAL ASSETS	**3,550,114**	**0.5**	**100.0**	**100.0**
Memorandum items				
Financing to private sector	2,158,672	2.7	59.5	60.8
Financing to general government	480,375	-1.2	13.8	13.5
Total NPLs	99,249	-14.4	3.3	2.8
Total NPL ratio	3.2	-61 (b)		

Liabilities and equity	Dec-18	Change Dec-18/Dec-17	Relative weight Dec-17	Relative weight Dec-18
	€m	%	%	%
Balances from central banks	234,649	1.5	6.5	6.6
Deposits from credit institutions	274,609	-4.6	8.1	7.7
General government	104,694	11.7	2.7	2.9
Other private sectors	1,979,557	1.1	55.4	55.8
Marketable debt securities	408,247	6.6	10.8	11.5
Derivatives	127,280	-6.4	3.8	3.6
Provisions for pensions, tax and other	30,761	-8.7	1.0	0.9
Other	128,573	-13.0	4.2	3.6
TOTAL LIABILITIES	**3,288,370**	**0.5**	**92.6**	**92.6**
Memorandum items				
Eurosystem net lending (a)	167,588	-1.7	4.8	4.7
Own funds	269,416	1.5	7.5	7.6
Minority interests	22,019	-13.4	0.7	0.6
Valuation adjustments relating to total equity	-29,691	3.1	-0.8	-0.8
TOTAL EQUITY	**261,744**	**-0.2**	**7.4**	**7.4**
TOTAL LIABILITIES AND EQUITY	**3,550,114**	**0.5**	**100.0**	**100.0**

SOURCE: Banco de España.

a Difference between funds received in liquidity-providing operations and funds delivered in absorbing operations. December 2018 data.
b Difference calculated in basis points.

CONSOLIDATED INCOME STATEMENT OF DEPOSIT INSTITUTIONS

ANNEX 2

	Dec-18		Dec-17	Dec-18
	€m	% Change Dec-18/Dec-17	% ATA	% ATA
Financial revenue	109,249	-0.7	3.08	3.09
Financial costs	37,840	-3.8	1.10	1.07
Net interest income	71,409	1.0	1.98	2.02
Return from capital instruments	1,025	-20.8	0.04	0.03
Net financial income	72,434	0.7	2.01	2.05
Share of profit or loss of entities accounted for using the equity method	3,670	-2.1	0.10	0.10
Net commissions	26,517	3.6	0.72	0.75
Gains and losses on financial assets and liabilities	4,699	-25.5	0.18	0.13
Other operating income (net)	-2,982	—	-0.07	-0.08
Gross income	104,338	-0.7	2.94	2.95
Operating expenses	53,218	-1.0	1.50	1.50
Net operating income	51,120	-0.5	1.44	1.44
Asset impairment losses	15,280	-16.3	0.51	0.43
Provisioning expense (net)	3,721	-28.3	0.15	0.11
Income from disposals (net)	-787	—	-0.07	-0.02
Profit before tax (including discontinued operations)	31,333	23.1	0.71	0.89
Net income	22,128	19.2	0.52	0.63
Memorandum item				
Income attributable to the controlling entity	19,438	24.8	0.44	0.55

SOURCE: Banco de España.

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