

CONJONCTURE

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Equity market corrections and the economy

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Results for 2017 from major Spanish banks have been encouraging. Since 2013, the Spanish banking system has accounted relatively stable revenues, mainly driven by net interest income and net fee and commission income. The active management of non-performing loans and the strengthening of foreign activities have contributed to the recovery of profitability. The Spanish banking system might continue to benefit from its previous efforts to restructure and consolidate. Still, significant disparities between individual banks subsist whereas solvency ratios remain under pressure.

Thomas Humblot



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Equity market corrections and the economy

William de Vijlder

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Though it has rebounded since, the S&P500 was down more than 10% down from its peak during the recent sell-off, so it fits the commonly used definition of a market correction. This development has triggered comments ranging from “a healthy correction” to marking the beginning of an era of structurally higher volatility. In such a case, it could even end up weighing on the economic outlook. Rather than trying to anticipate the future market evolution, this paper discusses how equity market corrections can influence the economy. To this end it presents theoretical arguments, empirical research, model-based simulations and stylised facts.

Equity markets and the economy: the theory

Declining markets raise concerns about a possible negative impact coming from wealth or confidence effects. Under the former, households reduce spending and increase savings so as to increase their level of wealth, which has dropped with the decline of the market. In the case of the latter, spending is reduced because consumers feel more uncertain and less confident about the future. In reality, both channels co-exist and can act as a drag on growth.

US: consumer sentiment and net worth

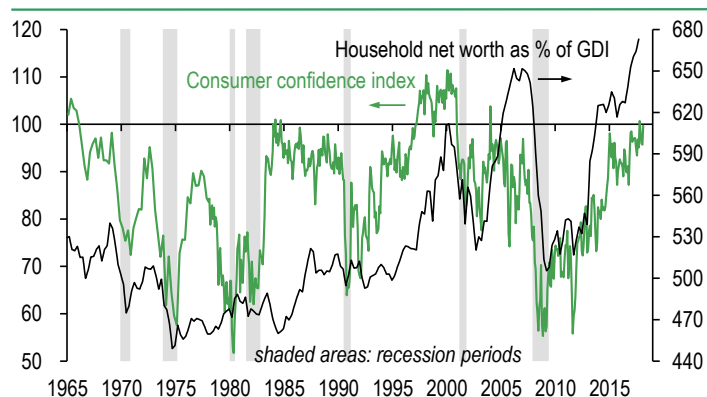


Chart 1 Sources: University of Michigan, Federal Reserve, NBER, BNP Paribas

In addition, a funding channel can also exist: the decline in net worth can make it more difficult to get access to bank credit. When looking at the evolution of US household wealth in recent years, it is not difficult to imagine that a market correction could weigh on consumer spending. Indeed, chart 1 shows a close correlation between consumer confidence and household wealth as a percentage of personal income. Moreover, the personal savings rate has declined (chart 2).

US: household savings and net worth

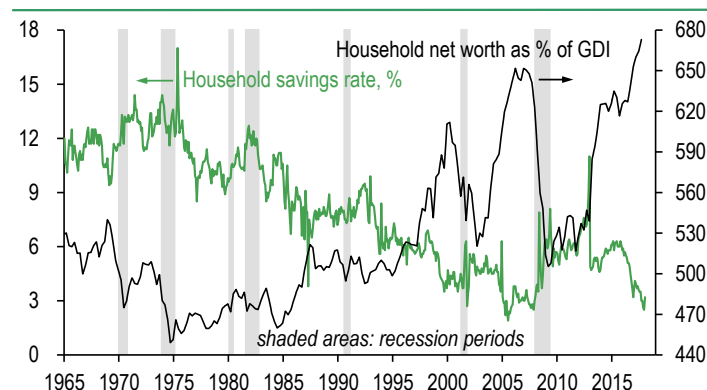


Chart 2 Sources: BEA, Federal Reserve, NBER, BNP Paribas

US: evolution of house prices and equity market

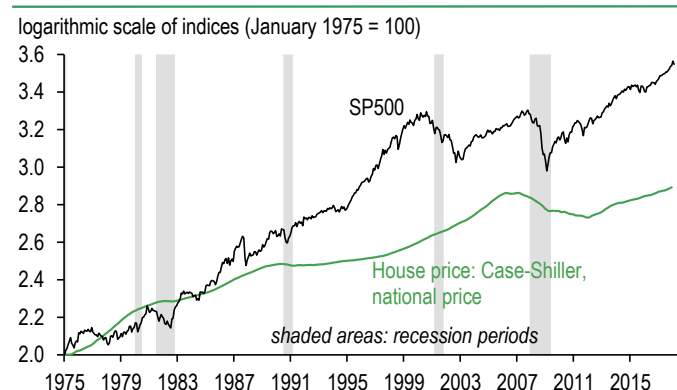


Chart 3 Sources: Thomson Reuters, Case-Shiller, BNP Paribas



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It is tempting to argue that the rise in asset prices (property and equities) (chart 3) has *caused* an increase in consumer confidence, but both occurrences might simply *reflect* a more positive assessment of the economic environment and outlook, an illustration of the usual problem of distinguishing correlation and causality.

Empirical research

There is extensive empirical research on the existence of wealth effects. Typically it consists of looking at the relationship between changes in wealth and changes in per capita consumption.

Carroll et al. (2010)¹ analyse housing and wealth effects in the US by using an estimation method that takes into account the smoothness or stickiness of consumption. This behaviour arises from consumption habits that take time to change, or it could also be that households do not pay sufficient attention to changes in the macroeconomic and market environment. The authors find that the marginal propensity to consume out of a one-dollar increase in housing wealth is about 2 cents in the short run and 9 cents in the long run. For financial wealth, the long-run effect is smaller with an estimate of about 6 cents. The difference in size is not large enough to allow stating with confidence that the effects are different.

Using a variety of regression models for the US for the period 1975-2012, Case et al. (2013)² show that on a consistent basis, changes in housing wealth have an effect on per capita household consumption that is two to three times greater than the effect of changes in stock market wealth. Elasticities in most model specifications are in the range of 0.07-0.10 for housing versus 0.03 for financial wealth. The effect of declines in house prices is larger than that of increases: 0.10³ versus 0.03. Likewise, the relationship between stock market wealth and consumption is larger when stock prices go down (elasticity of 0.10) than when they increase (elasticity of 0.03)⁴.

For the eurozone, research by the ECB for the period 1980-2007 finds different results: the effect of housing wealth is not significant whereas the effect of financial wealth is significant though smaller than in the US: *"financial wealth effects are relatively large and statistically significant and housing wealth effects are virtually nil and not significant. The marginal propensity to consume out of financial wealth typically ranges between 0.7 cents per euro (immediate response) and 1.9 cents per euro (long-run impact)."*⁵

¹ Christopher D. Carroll, Misuzu Otsuka and Jiri Slacalek (2010), *How large are housing and financial wealth effects? A new approach*, ECB working paper 1283

² Karl E. Case, John M. Quigley and Robert J. Shiller, *Wealth effects revisited: 1975-2012*, NBER working paper 18667, January 2013

³ This implies that a 10% decline in house prices would reduce per capita consumption by 1%.

⁴ So although on average, housing wealth changes have a bigger impact than changes in equity prices, only looking at declines in housing wealth and equity prices shows that consumption is as sensitive to housing wealth as to declines in financial wealth. When both occur simultaneously, equity declines have an even bigger impact.

⁵ Ricardo M. Sousa, *Wealth effects on consumption. Evidence from the euro area*, ECB working paper 1050, May 2009

Arrondel et al. (2015)⁶ estimate the marginal propensity to consume out of wealth (MPC) across the whole wealth distribution and take into account differences in the wealth composition at the household level. They use the French Wealth Survey of 2010 along with the Household Budget Survey (INSEE-EUROSTAT). This allows them to take into account the fact that wealth distribution is skewed to the right and asset allocation (housing versus financial wealth) varies across the wealth distribution. This means that depending on the type of wealth shock, the impact can be quite different. The consumption-to-income ratio is estimated to be a function of the wealth-income ratio and several control variables. Across the wealth distribution, they find a decreasing marginal propensity to consume out of financial and housing wealth: *"The marginal propensity to consume out of financial wealth decreases from 11.5 cents in the bottom of the wealth distribution to a nonsignificant effect in the top of the distribution. The marginal propensity to consume out of housing wealth decreases from 1.1 cent in the bottom of the wealth distribution to 0.7 cent in the top of the distribution."* Nevertheless, given the skewness of the wealth distribution, a one percent increase in wealth still has a bigger overall impact on consumption at the top end of the distribution. The authors also find that *"consumption for households facing heavy debt pressures is more sensitive to financial wealth except in the bottom of the net wealth distribution, where highly indebted households would rather reimburse their debt than consume an additional euro of financial wealth."* Finally, the authors also show that the relationship between wealth and consumption reflects a direct wealth effect but not so much a confidence effect.

Jawadia et al. (2017)⁷ examine the effects of wealth on consumption for the US, the UK and the eurozone⁸. Their analysis focuses on whether wealth effects are asymmetric or time-varying. For the former, it could be explained by consumers attaching a greater importance to declines in wealth than to increases, liquidity constraints, habit formation etc. For the latter, it could be related to household expectations about whether asset price declines are perceived to be permanent or temporary. For the three countries they find that housing wealth effects are not significant. The financial wealth effect is not significant in the eurozone. In the US and the UK, the financial wealth effect is time varying. Initially it is significant⁹ but when household wealth (in the US) and lagged consumption (in the UK) reach a certain threshold value, the financial wealth effect is no longer significant. This would mean that in the case of a considerable decline in housing wealth, the relationship between financial wealth and consumption is no longer significant in the US. A possible explanation is the increased cautiousness of households. In the UK, subdued lagged consumption would be the factor triggering the precautionary behaviour.

⁶ Luc Arrondel, Pierre Lamarche and Frédérique Savignac (2015), *Wealth effects on consumption across the wealth distribution: empirical evidence*, ECB working paper 1817

⁷ Fredj Jawadia, Richard Soparnotb,*, Ricardo M. Sousa (2017), *Assessing financial and housing wealth effects through the lens of a nonlinear framework*, Research in International Business and Finance, vol. 39, pp. 840-850

⁸ They use quarterly data for the US, the UK and the eurozone for respectively 1947:1 to 2008:4, 1963:1 to 2008:1 and 1980:1 to 2008:1.

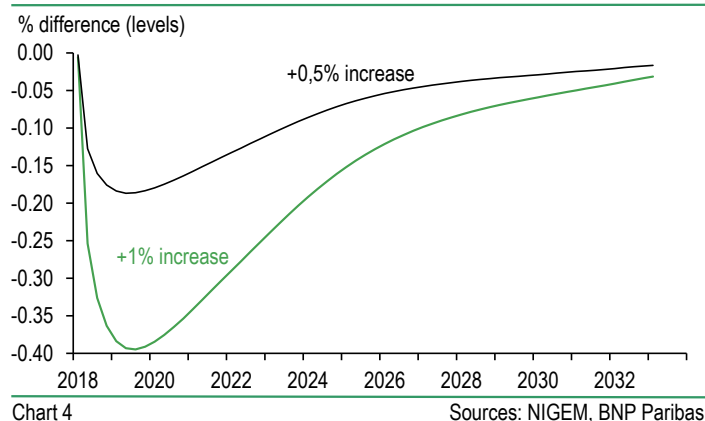
⁹ In the US, an increase in financial wealth of 1% implies an increase in consumption of 0.07%. In the UK the consumption increase is bigger: 0.18%.



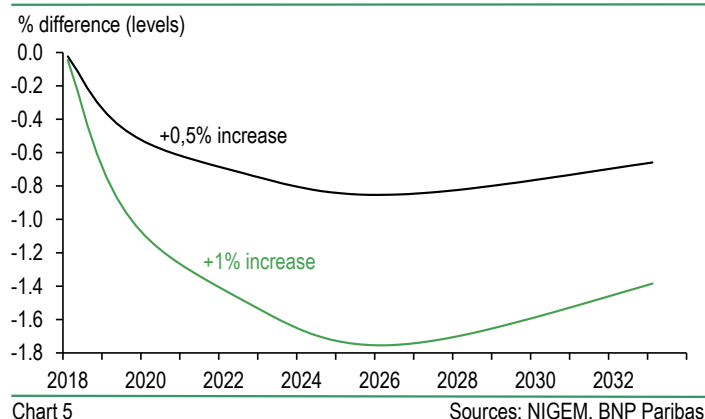
This brief overview of the recent empirical literature illustrates the complex interaction between wealth and consumption. Depending on the country or the study, housing wealth has a significant impact, or, on the contrary, financial wealth. Sometimes there is no significant relationship at all. These results complicate the assessment of the economic consequences of equity market declines.

Model-based simulations

US: impact of a permanent increase in the equity risk premium on the level of real GDP



US: impact of a long-term interest rate increase on the level of real GDP

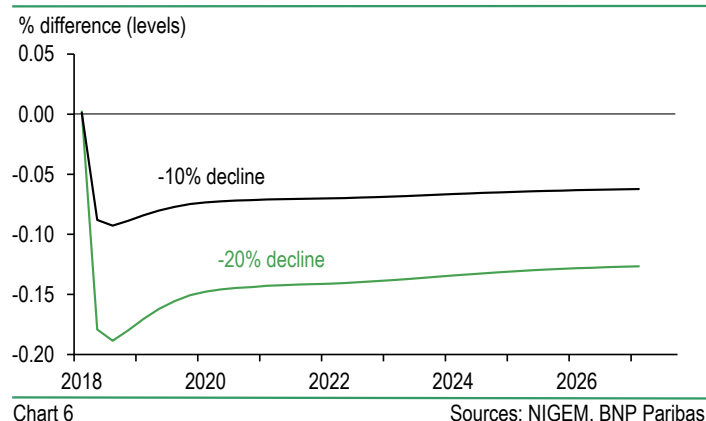


Econometric models can provide an interesting, complementary way of looking at the relationship between equity markets and growth. Using the NiGEM model¹⁰, we simulated the effect of a 50bp (100bp) shock in the US equity risk premium. As shown in chart 4, the peak impact on real GDP is a negative 0.4% (-0.2%). Interestingly, although a risk premium shock is equivalent to an interest rate shock in terms of its impact on the discount rate that is used for calculating the present value of future cash flows, the economic impact is quite different. The impact of the interest rate shock (chart 5) is slower to manifest itself but bigger

¹⁰ NiGEM is a multi-country macroeconomic model developed by the National Institute of Economic and Social Research in the UK.

than a risk premium shock. This must be related to the broader impact of higher interest rates on the financing cost of households, companies and the government. The model also allows simulation of the effect of an exogenous decline in the stock market. A drop of 20% (10%) reduces real GDP by 0.2% (0.1%)¹¹ (chart 6).

US: impact of an equity market decline on the level of real GDP



Historical experience: stylised facts

Finally, we can also look at the history of equity market drawdowns (chart 7) and what happens to economic variables during such periods. A drawdown is defined as the percentage difference of an equity index in a given month compared to its most recent historical peak. In a bear market, the drawdown will become bigger month after month, and when the market starts to recover, the drawdown will obviously decrease. This creates a V-shaped market pattern typical of recessions and recoveries. It implies that economic data can start improving although the drawdown is still huge: a rising market environment would reflect an improved economic outlook but could also contribute to a pick-up in confidence. The horizontal line in chart 7 at -10% shows the commonly used definition of a market correction. The grey bars show recessionary periods as defined by the NBER.

Making a judgemental distinction between minor (slightly more than 10%) and major drawdowns (significantly more than 10%) and linking the drawdowns with the economic environment (recession versus no recession) gives the following result:

Drawdowns distribution

	Recession	No recession
minor	1	3
major	5	1

Table 1 Sources : NBER, BNP Paribas

¹¹ This implies that an exogenous market decline of 20% has effects that are similar to those of an increase in the required equity risk premium of 50 bps.



During recessions, the equity market drawdown tends to be huge (1974, early 2000s, 2008) though there is no general rule (the drawdowns in the early '80s and in 1990 were more limited). The 1987 crash led to a big drawdown but did not cause a recession.

US: equity market evolution and drawdown

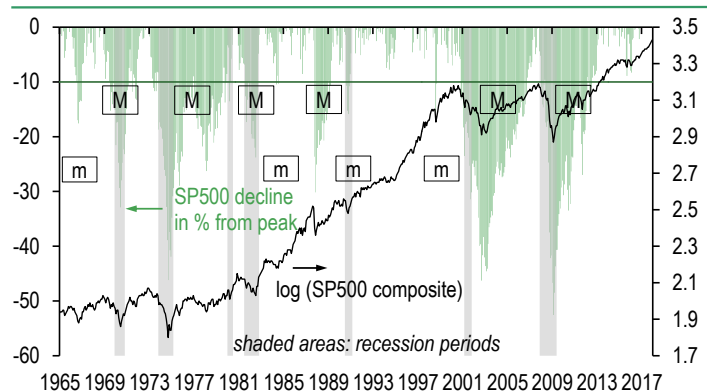


Chart 7 Sources: Thomson Reuters, NBER, BNP Paribas

US: equity drawdown and bond yield

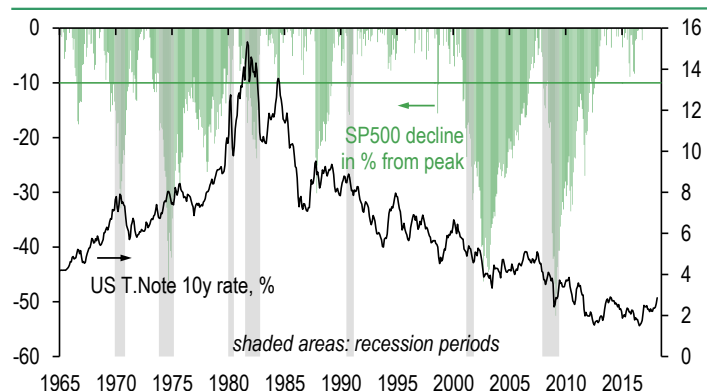


Chart 8 Sources: Thomson Reuters, Federal Reserve, NBER, BNP Paribas

What has been the relationship in the past between significant equity market drawdowns and economic variables? Given the current concern about the outlook for inflation and how it would influence the bond market, a useful starting point is to look at the behaviour of 10-year US treasury yields. Chart 8 shows that quite often drawdowns have been preceded by rising bond yields, which would suggest that higher rates eventually contributed to a decline in the equity market. This should of course not come as a surprise. On the other hand, the bond market crash of 1994 did not lead to a major decline in the equity market, whereas the drawdowns of the early 2000s and of 2008 occurred when yields were respectively declining and relatively stable. This would point towards concern about the growth outlook as a key driver rather than fears about higher rates. Indeed, to the extent that rising nominal yields reflect a pick-up in inflation, real yields may stay more or less the same, or, to put it differently, higher inflation may very well lead to higher nominal dividends and a higher nominal discount rate, implying that the present value of future dividends, i.e. share prices, would hardly change.

Chart 9 shows the relationship between the equity market and real GDP growth. The recession periods are quite obviously marked by negative year-on-year growth rates of real GDP. The 1987 crash was followed by high real growth, and the 1998 correction (LTCM crisis) did not dent growth either.

US: equity drawdown and real GDP growth

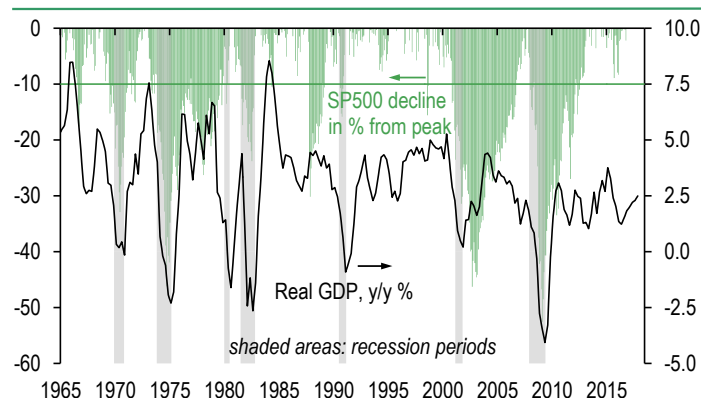


Chart 9 Sources: Thomson Reuters, BEA, NBER, BNP Paribas

Chart 10 shows the evolution of consumer confidence. Data are monthly, which could show a greater sensitivity to short-term stock market turmoil than to quarterly data as is the case in chart 9. Consumer confidence declines quite significantly during drawdowns that occur in the run-up to and during a recession. On the other hand, the impact on confidence of the 1987 crash was very short lived, and the same is true for the 1998 correction.

US: equity drawdown and consumer confidence

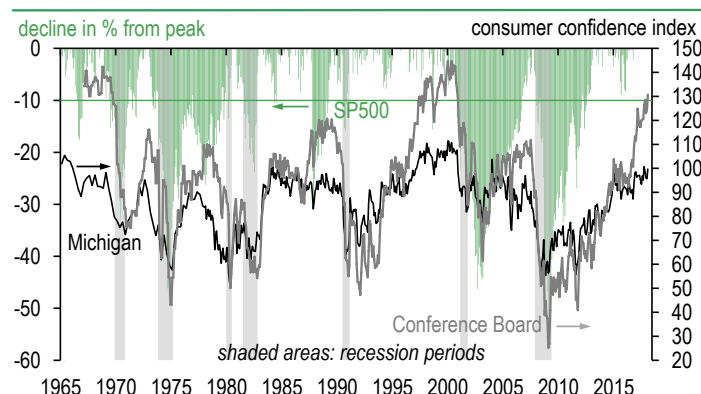


Chart 10 Sources: T.Reuters, Conf. Board, University of Michigan, NBER, BNPP

Consumer confidence is relevant because of its possible influence on the savings rate and consumer spending. The evolution of the former is shown in chart 11. During and in the immediate aftermath of recessionary periods, the savings rate tends to increase. The 1987 crash did not cause a lasting increase in the savings rate nor did the market events of 1998. The chart is also a reminder of the current very low savings rate.



US: equity drawdown and household savings rate

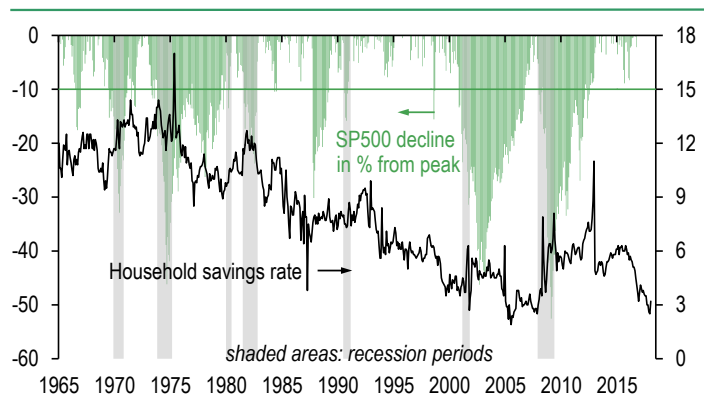


Chart 11

Sources: Thomson Reuters, BEA, NBER, BNP Paribas

US: equity drawdown and real personal consumption growth

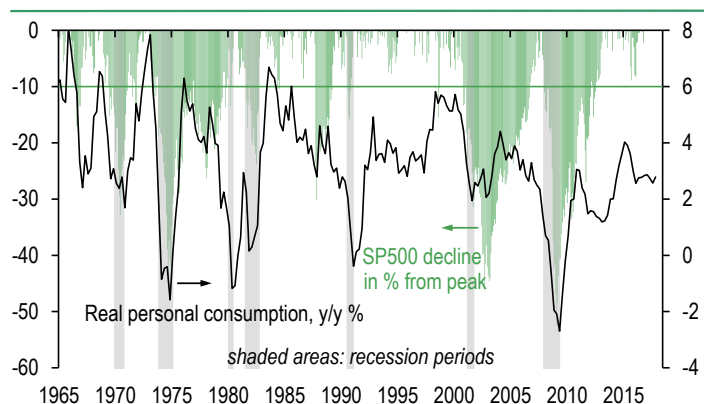


Chart 12

Sources: Thomson Reuters, BEA, NBER, BNP Paribas

Chart 12 shows the growth in consumer spending. The results confirm those of the previous charts: the significant impact of recessions and the absence of impact in 1987 and 1998.

In summary, the following conclusions can be drawn:

1. When drawdowns are differentiated between minor and more significant, the S&P500 has experienced 4 minor and 6 major drawdowns since 1965
2. Of the 6 major drawdowns, only one did *not* occur in a recessionary environment
3. Of the 4 minor drawdowns, only one occurred in a recessionary environment (1990)¹².

¹² The 1990 recession in the US was caused by a combination of factors. A significant tightening of monetary policy to fight an acceleration of inflation, weakening real growth in combination with negative growth surprises and higher oil prices triggered by Iraq's invasion of Kuwait. This and the threat of the upcoming Gulf war caused a big drop in consumer sentiment (source: Stephen K. McNees, The 1990-91 recession in historical perspective, New England Economic Review, January-February 1992).

4. Unlike major drawdowns, minor ones do not tend to be followed by big declines in growth (GDP, spending) and consumer confidence.

The role of the financing channel

The problem is of course that this is circular reasoning: the equity market is influenced by expectations about the economy, which in turn is influenced, in particular in the case of considerable declines, by the evolution of share prices. To put it differently, an equity market correction will be of a limited nature and, as a consequence, will only have a limited impact on the economy if investors think that the impact will be limited. It is as is expectations become self-fulfilling. What influences investor psychology? What causes a market decline to end up becoming anxiety-provoking?

Broadening the perspective, chart 13 shows the evolution of the high-yield spread¹³ during equity downturns.

US: equity drawdown and high yield spread vs treasuries

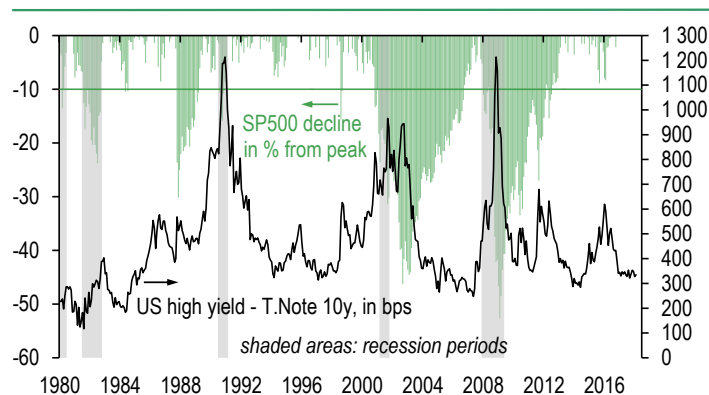


Chart 13

Sources: Thomson Reuters, Federal Reserve, NBER, BNP Paribas

Except in the early '80s, recessions have seen a huge widening of spreads, a reflection of increasing defaults and a jump in the required risk premium because of concern about default-related losses and reduced liquidity in the corporate bond market. The major equity market drawdown in the aftermath of the 1987 crash, which was not followed by a recession, saw a very muted increase in high-yield spreads. The minor drawdown in 1998 saw a considerable jump in the corporate spread, but this was short lived as the economy kept on growing.

As is the case for equities, when the corporate bond spread is analysed, there is a risk of circular thinking: it is influenced by expectations about the economy, which in turn is influenced by the evolution of the spread¹⁴. On the other hand, a number of stylised facts make the signals of this market perhaps easier to interpret:

¹³ The high-yield spread was calculated as the difference between the yield of a high-yield bond index and the 10-year US treasury yield.

¹⁴ To illustrate this point: empirical research on what drives corporate investment shows that the corporate bond spread plays a very significant role.



1. Recessions see huge increases in spreads (600 basis points and more)
2. Quite often the increase in spreads is very gradual
3. Widening spreads not followed by recessions are followed by rapidly narrowing spreads.

The last point is particularly important: a gradual, significant increase in the spread *not* followed by a swift narrowing would be a matter of concern and could flag corporate investors' anticipation of an increase in default risk, which means that growth would slow significantly. In addition to signalling a growth slowdown, the spread widening would also contribute to this development.

US: ISM, economic uncertainty and high yield spread

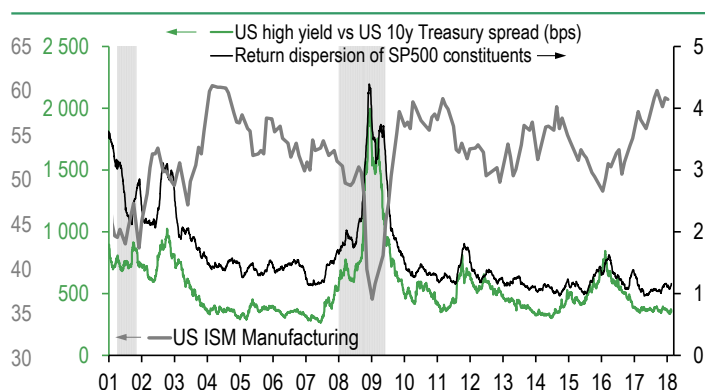


Chart 14 Sources: Thomson Reuters, ISM, Federal Reserve, BNP Paribas

In order to explore the role of investor psychology, chart 14 shows the evolution of the purchasing managers index (ISM) in the US, the volatility of the S&P500 index measured as the 60-day moving average of the cross-sectional standard deviation of the daily returns of the constituents of this index as well as the spread of high yield corporate bonds versus US treasuries. The volatility as defined above is a proxy for economic uncertainty: an increase in dispersion shows that investors pay more attention to the differences between listed companies with respect to their balance sheet, the evolution of earnings etc. As shown by the chart, the relationship between the cyclical indicator (ISM) and uncertainty (dispersion of individual stock returns) tends to fluctuate. Initially, the slowdown which started in 2004 was not accompanied by an increase in uncertainty whereas the growth acceleration of 2017 did not cause a decline in uncertainty. The chart also shows that the relationship between uncertainty and the corporate bond spread varies over time. Starting in 2004, there was a downward trend in the spread although the uncertainty measured remained stable. In 2017, there was a slight increase in uncertainty whereas the spread narrowed somewhat. It should be emphasized however that periods with a significant increase in the uncertainty measure also see a significant widening of the corporate bond spread.

Conclusion

Based on theoretical considerations, empirical research and model-based simulations, it seems safe to assume that major equity market downturns have a detrimental impact on the economy. This is far less, or even not, the case for minor corrections. The problem in assessing the impact of an ongoing market downturn is that its extent and hence its impact are conditioned by expectations about the economy, which introduces a circularity in the analysis. For this reason, it is recommended to also look at the evolution of the high-yield spread against US treasuries. Equity market declines are typically accompanied by a widening of the corporate bond spread and our simulations have shown that a bond yield shock has a bigger economic impact than a stock market decline¹⁵. As a consequence, a significant widening of the spread that is not soon followed by a narrowing would be even more a source of concern than the equity market drawdown per se.

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¹⁵ Because it was not possible to simulate the effect of a corporate bond spread shock, the results of a bond yield shock have been used as a reference point. This may somewhat overestimate the impact considering that a shock to the spread should weigh on corporate investment whereas a bond yield shock has a broader impact on the economy: it influences corporate investment but also consumer spending and housing investment.

Spain: banking system on the road to recovery

Thomas Humblot

Results for 2017 from major Spanish banks have been encouraging. Since 2013, the Spanish banking system has accounted relatively stable revenues, mainly driven by net interest income and net fee and commission income. The active management of non-performing loans and the strengthening of foreign activities have contributed to the recovery of profitability. The Spanish banking system might continue to benefit from its previous efforts to restructure and consolidate. Still, significant disparities between individual banks subsist whereas solvency ratios remain under pressure.

The Spanish banking system has seen a major wave of consolidation. The number of banks has more than halved between 2007 and 2016, as part of a massive plan for restructuring and cleaning up, overseen by the government and the European Stability Mechanism (ESM). This initiative came in response to the consequences of the real estate crisis in 2008-2009, which worsened in 2012-2013¹.

The efforts made by the Spanish banking system have allowed it to report relatively stable revenues since 2013, but also to restore profitability, which however remains at half of what it was in 2008. Solvency also shows an upward trend. Nonetheless, there are still significant disparities between individual banks. The acquisition by Santander of Banco Popular for a token EUR 1 in June 2017 suggests that some weaknesses persist. Analysing the aggregated profit and loss account of Spanish banks allows highlighting salient developments since 2008 and identifying possible future developments.

Revenues remain fairly stable

The Net Banking Income (NBI) of Spain's banking system has been relatively stable since 2013. Following the 2.6% fall in 2013, it accounted two successive years of rise in 2014 (+3.6%) and 2015 (+4.7%), so that the 5.7% fall in 2016² did no more than drag aggregate NBI back to its level in 2011 and 2012 (Chart 1).

¹ Banco de España (2017), *Informe sobre la crisis financiera y bancaria en España, 2008-2014*

² EBC, Data from Consolidated Banking Data 2 (CBD2): these data cover all banking groups and consolidated individual establishments together with subsidiaries and branches of foreign banks established in Spain. In all, the CBD2 data cover nearly the whole of the European Union banking system, with a total of 337 banking groups and 3,063 individual establishments at 30 June 2017. CBD2 provides an exhaustive picture of the Spanish banking system thanks to the inclusion of foreign activities, which for banks such as BBVA and Santander can represent a significant source of revenue. CBD2 figures are close to those published in the Bank of Spain's Financial Stability Report; they also facilitate comparisons between countries. The main drawback is that they are published with a lag, which limits the amount of data available for 2017.

Results for major Spanish banks to 31 December 2017 showed stronger growth than that seen for the Spanish banking system as a whole between Q3 2016 and Q3 2017.

Still, significant disparities persist in terms of revenue growth. The two international banking groups, Santander and BBVA, reported an increase in their NBI (+10.3% and +2.5%, respectively). Conversely, despite a positive scope effect due to the integration of Banco Mare Nostrum (BMN), Bankia reported a 3.2% fall in revenues for 2017 (-4.4%, *pro forma*).

The relative stability of Spanish banks' NBI has been due both to a stable net interest income and a stable net fee and commission income.

Net interest income, caught between increasing net interest margin and decreasing assets

Net interest income represents the main share of NBI for Spanish banks. It held steady, on average, at around EUR 63.7 bn between 2008 and 2016. Its relative stability since 2013 is all the more interesting for the fact that it has come against a background of reduced activity in Spain. Increasing net interest margin and growing internationalisation of major Spanish banks have, amongst other things, provided a new source of growth.

Net interest income still accounts for 69% of Spanish banks' NBI.

Since 2008, net interest income for the Spanish banking system has shown no clear trend and swung around its average. Growth of 4.3% in 2014 and 10.2% in 2015 was followed by a fall of 3.7% in 2016. Between Q3 2016 and Q3 2017, net interest income saw a return to growth, at 4.3%. Figures for 2017 from the major Spanish banks have generally shown increases in their net interest income, but here too there have been significant disparities. At Santander, net interest income was up by 10.3% in 2017, whilst at Bankia it was down 8.4% (including BMN). BBVA also reported growth in net interest income, albeit at less than half the pace of growth at Santander (+4.1%). Net interest income at Banco Sabadell (including TSB) was virtually unchanged, with a fall of less than one percentage point.



Aggregated profit and loss account of Spanish banks between 2008 and 2016

EUR bn	2008	2009	2010	2011	2012	2013	2014	2015	2016	Q3 2016/Q3 2017
Net banking income	90.3	105.6	98.8	95.4	96.4	93.9	97.3	101.9	96.1	1.9%
<i>o/w Net interest income</i>	55.9	68.5	64.1	61.9	66.3	59.6	62.2	68.5	66.0	4.3%
<i>o/w Net fee and commission income</i>	21.2	21.2	22.1	23.0	22.3	21.9	21.8	23.0	23.0	7.3%
<i>o/w Other operating income</i>	13.2	15.9	12.6	10.6	7.9	12.4	13.3	10.4	7.1	-31.3%
Total operating expenses	-42.0	-44.9	-47.0	-48.8	-48.3	-48.7	-46.8	-51.1	-51.0	0.7%
<i>o/w Staff expenses</i>	-24.4	-25.6	-26.6	-27.5	-26.8	-26.9	-25.3	-27.7	-27.9	0.6%
<i>o/w Other operating expenses</i>	-17.7	-19.2	-20.5	-21.3	-21.5	-21.8	-21.5	-23.3	-23.1	0.7%
Gross operating income	48.3	60.7	51.8	46.7	48.1	45.2	50.5	50.8	45.1	3.2%
<i>Cost of risk</i>	-27.7	-39.6	-31.8	-44.0	-103.0	-38.8	-33.1	-31.3	-27.7	<i>n.a.</i>
<i>Corporate income tax</i>	3.5	-0.9	-1.1	-2.1	1.7	5.2	-3.4	-2.5	-3.9	<i>n.a.</i>
<i>Other nonrecurring income and expenses</i>	0.4	0.0	0.0	0.0	0.4	1.9	0.0	0.0	0.0	<i>n.a.</i>
Net income	24.6	20.3	18.9	0.5	-52.8	13.6	13.9	17.0	13.5	6.0%

Table 1

Sources : BCE – CBD2, BNP Paribas

In 2016, net interest income represented 69% of NBI in the Spanish banking system, a figure that has risen steadily from the 62% reported for 2008. This is not unique to the smallest institutions. Actually, net interest income accounted for 71% of NBI at Santander and 70% for BBVA in 2017. By way of comparison, net interest income for the banking system of the eurozone as a whole represented 57% of NBI in 2016 (from 67% in 2008). Thus, Spain's banking system is one of the most dependent on such income within core eurozone countries. Moreover, this dependency is increasing in Spain, whilst in the rest of the eurozone it is declining. This specific feature of the Spanish banking system increases its sensitivity to economic conditions. It affects net interest income through two main channels: economic activity (volumes) and price effect.

Total assets contracted by 12% since its peak

Trends in net interest income are tied, amongst other things, to activity levels at banks, which in turn are partly linked to the quantity of assets held (the quantity effect). Yet, the reduction in the outstanding amount of total assets of the Spanish banking system is one of the features of its restructuring. Total assets thus moved from EUR 4,026 bn (or 381% of Spanish GDP), at the peak in Q2 2012, to EUR 3,547 bn (308% of Spanish GDP) in Q3 2017. This fall of 12% brought it back to its level of 2008.

Still, the recent contraction of the Spanish banking system's balance sheet has not affected its ranking by total assets within the eurozone. In Q3 2017, it remained the eurozone's third largest banking system after the French (EUR 7,219 bn) and the German (EUR 7,021 bn), but ahead of the Italian (EUR 2,635 bn) and the Dutch (EUR 2,546 bn) (Chart 1).

Eurozone banking systems by total assets

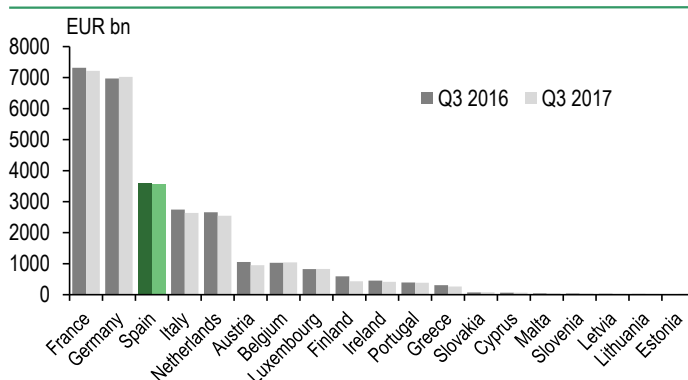


Chart 1

Sources: BCE-CBD2, BNP Paribas

The reduction in assets at Spanish banks, which began in early 2013, could continue, particularly through programmes of disposal of non-performing loans linked to real estate (provided that such assets are not replaced by others of better quality). In 2018, Santander will sell to Blackstone the majority of its shares in a portfolio acquired as part of the acquisition of Banco Popular and valued at EUR 30 bn. From a broader perspective, Spanish banks remain extensively exposed to the real estate sector³ which represented 54% of its outstanding amount of total loans to the non-financial private sector (NFPS) at Q3 2017 (from 59% in 2011).

³ Lending to households for house purchase and renovation, lending to the construction sector and the real estate activities sector


BNP PARIBAS

The bank
for a changing
world

The (big) Spanish banks are increasing their international diversification

On a consolidated basis, total assets of Spanish banks are influenced both by their activities in Spain and those abroad. Spanish banks saw a relative stability in foreign assets between Q2 2016 and Q2 2017 (-0.8%⁴), whilst their domestic assets were down 4.4% over the same period. These trends mainly relate to Spain's largest banks such as BBVA, Santander and, to a lesser extent, Banco Sabadell.

The slight fall in foreign assets in 2016/2017 was due mostly to the rise in the euro against the currencies of countries where Spanish banks are mainly active. Indeed, their largest foreign markets are the United Kingdom and the USA, which represent 29% and 15% respectively of the Spanish banking system's foreign assets. Assets in Brazil, Mexico and Chile account for 23% of foreign assets. These proportions have been relatively stable since 2015.

Over the past decade, the share of foreign assets in total assets of the Spanish banking system has risen steadily. It climbed to 45% in June 2017 from 24% in June 2009. In 2017, Santander considered ten countries as its domestic markets. The increase in the share of foreign assets in Spanish banks' total assets is not solely due to a contraction of domestic activity; it also reflects a strategy of international diversification. This has reduced the sensitivity of Spanish banks to fluctuations in the domestic economy.

Outstanding amount of bank loans to the Spanish non-financial private sector continue to fall

The contraction of total assets at Spanish banks, which started in 2012, relates primarily to domestic assets and the reduction in bank lending in Spain. Thus, the Spanish real estate crisis that began in 2008 has resulted in, amongst other things, a marked fall in the outstanding amount of bank loans to the non-financial private sector (NFPS), which mostly consist in house lending and loans to companies related to real estate activities (Chart 2).

The decline in outstanding amount of bank loans in Spain follows a period of very strong growth that began in the early 2000s. The sharp fall following a rapid rise is a typical pattern of a return to normalcy after a bubble⁵.

The 3.2% fall in the outstanding amount of bank loans in Spain between Q2 2016 and Q2 2017 is due mainly to non-financial companies (NFCs), more particularly those related to the real estate sector (down by 9.7%). The decline mostly concerns the largest companies as they represent about half of bank loans granted to the NFCs, with their outstanding amount falling by 12% over the same period. The outstanding amount

of bank loans granted to mid-sized companies also fell by 4.9%. Conversely, small and very small companies saw their outstanding amount of bank loans climb by 9.7% and 12.6% respectively between Q2 2016 and Q2 2017.

Bank lending to the non-financial private sector in Spain

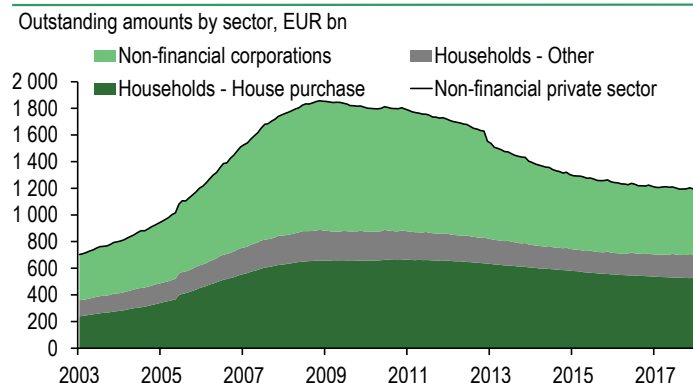


Chart 2

Sources: ECB-BSI, BNP Paribas

Spanish NFCs: debt issuance and bank lending

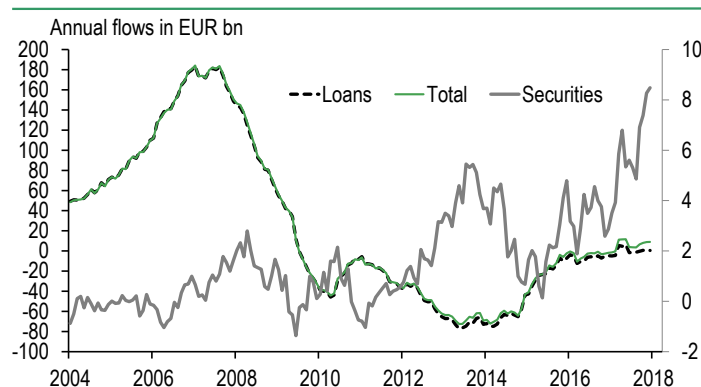


Chart 3

Sources: ECB-BSI, BNP Paribas

The biggest companies have probably made greater use of credit markets in order to benefit from low interest rates (Chart 3), although this is still, for the time being, a relatively minor shift.

The fall in bank credit and the rise in bond issuance have been accompanied by a slight decline in the financial intermediation rate (broadly defined) for Spanish non-financial companies, taking it from 99% in 2009 to 96% in 2017. This remains above the average for the Eurozone (around 89%). Thus, Spanish NFCs remain heavily dependent on bank lending.

In the meantime, the share of applications for bank loans granted as a percentage of total applications from NFCs has remained at a low level, at around 30% in 2017 compared to 45% in 2002. The stability of new business loans to Spain's NFPS between 2015 and 2017 helped reduce

⁴ Banco de España (2017), Financial Stability Report, November

⁵ As this was a real estate crisis, linked in particular to residential property, the speculative nature of the bubble needs to be seen in context.



total assets at domestic banks, but could have negative consequences for their future net interest income.

The net interest margin widens since 2013

The increase of net interest margin since 2013 helped the Spanish banking system compensate the contraction of its total assets, since the beginning of the same year. It rose from 1.73% to 2.20% between 2013 and 2017⁶ and thus contributed to stabilize the net interest income (Table 2).

Net interest margin for the main eurozone countries

Net interest margin (%)	2008*	2009*	2010*	2011	2012	2013	2014	2015	2016	2017
Germany	1,17	1,40	1,39	1,39	1,37	1,45	1,52	1,54	1,46	NA
Spain	1,58	2,00	1,98	1,92	1,83	1,73	1,95	2,12	2,05	2,2
France	0,75	1,19	1,23	1,22	1,07	1,05	1,03	1,02	1,00	0,99
Italy	2,09	1,99	1,82	1,79	1,72	1,52	1,51	1,41	1,34	NA
Portugal	1,94	1,56	1,57	1,69	1,47	1,27	1,47	1,48	1,51	NA

Table 2 Sources: SNL, Bankscope, BNP Paribas

*retropolated data

However, after a strong increase between September 2010 and August 2014, the net interest margin on new business loans to the NFPS gradually decreased from 2.73% at that time to 1.73% by December 2017 (Chart 4).

Net interest margin (new business) for a selection of eurozone countries

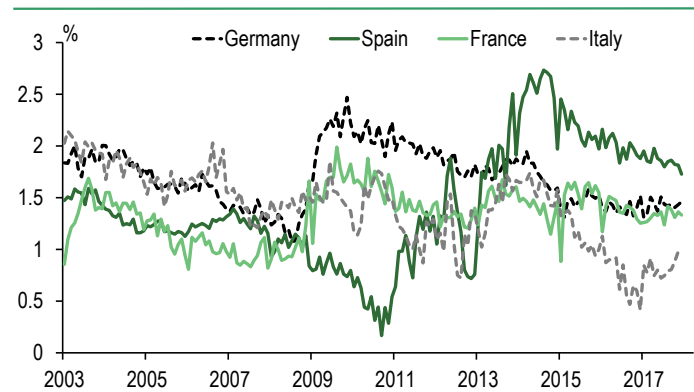


Chart 4 Sources: ECB-RAI, BNP Paribas

The predominance of variable interest rates is likely to limit the effects of interest rise from the ECB

The effects of a normalisation of monetary policy on the net interest margin is an essential issue for Spanish banks, given the dominant part that net interest income forms in their NBI. Schematically, an increase of money market interest rates is rather detrimental on the short run but

favourable on the long run. First, due to their shorter duration, the cost of bank resources will be more affected by an increase than the return on bank assets. Second, when the average return on assets rises sufficiently (through the renewing of the fixed-rate portfolio or the spreading of the increase to the variable-rate portfolio), the net interest margin widens again. From this point of view, banks that - as Spanish ones - benefit from a large share of their portfolio at variable rate are theoretically in a better position as they profit from a faster increase of their return on assets (and of their net interest margin). By way of comparison, in December 2017 the share of variable rate loans in Spain was very close to those seen in Italy and Portugal (77% and 80% respectively), but remained much higher than in France and in Germany (39% and 57% respectively). Finally, most internationalised banks might continue to benefit from wider net interest margins on their foreign activities (15.7% in Brazil, 2.8% in UK, for example).

Other revenue has been relatively stable, thanks to net fee and commission income

Since 2008, net fee and commission income has been even more stable than net interest income. Conversely, other net income streams have been more volatile, due in particular to trends in financial markets.

Net fee and commission income has been stable

Net fee and commission income has been very stable from 2008 to 2016 relative to other components of NBI. This said, it saw an increase of 8% between June 2016 and June 2017, thanks to an increase in revenue generated from payment services (up 36%). Growing digitalisation of banking services could help boost profitability, thanks to a reduction in the related costs, which will increase net fee and commission income and thus their NBI.

Other net income has been hit by a fall in market revenue

Other net income suffered substantial falls in 2015 and 2016 (21.9% and 31.0% respectively), which continued between Q3 2016 and Q3 2017 (-31.3%). These banking revenues have been more than halved, from EUR 15.9 bn in 2009 to EUR 7.1 bn in 2016. Santander, for example, reported a 28% drop in net gains on financial assets for its Spanish activities between 2016 and 2017. Meanwhile, net gains on financial assets for its foreign activities saw falls of 40% in Poland (including currency effects), 57% in the USA (including currency effects) and 25% in Portugal. Only Latin America generated growth in net gains on financial assets, at 27% (including currency effects).

The economic improvement in Spain and in some of the other countries where Spanish banks are active could increase the returns on their financial assets, and thus drive growth in other net income.

⁶ SNL: Aggregate Income Statement, net interest income/average earning assets



Domestic rationalisation, international expansion

Taken as a whole, the total operating expenses of Spanish banks have risen. This trend mainly reflects the increase in other operating expenses, as staff expenses have risen only modestly since 2008 and have been more or less flat since 2015. The relative stability of staff expenses on a consolidated basis masks consolidation effects for the Spanish banking system on the domestic level. These effects result from the fact that the numbers of branches and of employees fell sharply between 2008 and 2016. This produced a fall in staff expenses on a company-by-company basis, which is not reflected in the consolidated figures. It is necessary to distinguish between total operating expenses for activities in Spain and expenses for foreign activities in order to better understand the scale of capacity reductions.

Increase in total operating expenses hides reduction in staff expenses in Spain

Total operating expenses rose by 21.3% between 2008 and 2016. They have, however, stabilised since 2015, a trend that continued between Q3 2016 and Q3 2017. The increase in total operating expenses and the stability in NBI at Spanish banks have naturally resulted in a deterioration in their cost-to-income ratio.

The increase in total operating expenses is mainly due to foreign activities

The increase in total operating expenses is mainly due to Spanish banks' international activities. This increase has been due, amongst other things, to the organic growth of Spanish banks abroad, which has required additional investment (see in particular BBVA – *Quarterly Report Results*, 2010), but also to a strong resurgence in inflation over the more recent period in the countries where Spanish banks are active. Thus, total operating expenses at BBVA increased by 12.4% in 2017 (at constant exchange rates) in South America, by 6.6% (at constant exchange rates) in Turkey and by 5.3% (at constant exchange rates) in Mexico, whilst they fell by 5.6% in Spain⁷.

Looking at just the aggregated parent company activities of Spanish banks⁸, total operating expenses fell by 2% between 2012 and 2017. Thus, although total operating expenses were relatively stable between

Q3 2016 and Q3 2017 across the Spanish banking system as a whole, they fell for activities conducted in Spain.

Divergent trends on staff expenses in Spain and abroad

The contraction in total operating expenses in Spain has been driven primarily by a fall in staff expenses of 13% between 2012 and 2017. Conversely, staff expenses have risen for international activities. For example, at Santander staff expenses increased by 8.9% group-wide in 2017 (4.7 percentage points were due to the integration of the whole Banco Popular group) whilst they fell by 2.1% in Spain (excluding the integration of Banco Popular).

The reduction in staff expenses in Spain is likely to continue as the gains from synergy and rationalisation of capacities may take several years to feed through.

Other operating costs continue to rise

Other operating costs rose by 31% between 2008 and 2016. The increases in amortisation and depreciation of tangible and intangible assets, coupled with the increase in other operating expenses, are partially the result of the crisis and the fixed costs engendered by the restructuring of the banking system. These costs could therefore fall as the past efforts of the Spanish banking system continue to bear fruit.

The cost-to-income ratio deteriorates

The increase in total operating expenses set against stable revenues has driven down the cost-to-income ratio of Spanish banks. This measure remains significantly below the average for eurozone banks, but this comparative advantage has been shrinking since 2014 (Chart 5). Moreover, Spanish banks benefit structurally from their large base in retail activities, in comparison with other eurozone banks.

Comparison between Spanish banks cost-to-income ratio and the average in eurozone countries*

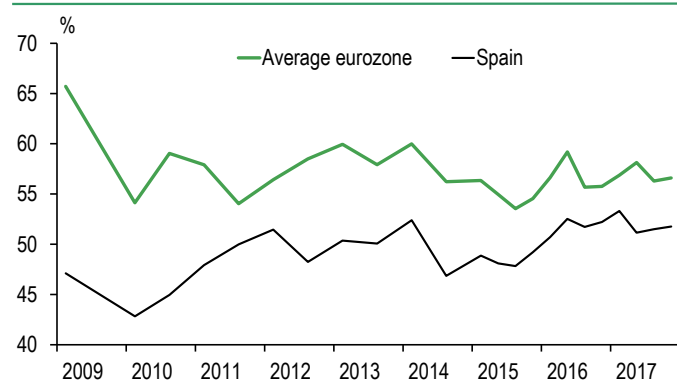


Chart 5

Sources: ECB-CBD2, BNP Paribas

*The Q4 2010 figure has been adjusted for Ireland. Without this adjustment, the cost-to-income ratio for the euro zone at this point would have been 75%.

Most recent evolutions highlight the decrease of cost-to-income ratios at Santander (-0.7pp in 2017, at 47.4%) and at BBVA (-1.4pp, at 49.3%).

⁷ BBVA (2018), 2017 Results

⁸ Banco de España (2018), Statistical bulletin, January. The scope included here covers private banks, savings banks, credit co-operative banks, the Instituto de Crédito Oficial and financial credit intermediaries. It should be noted that parent company figures may include some foreign activities where these take the form of branches rather than subsidiaries.



Conversely, the cost-to-income ratio at Bankia (excluding BMN) increased by 2.7pp in 2017, taking it to 51.2%.

A halving of the number of banks

The fall in staff expenses in Spain has been the result of intense restructuring and consolidation in response to the crisis of 2008. The number of private banks, savings banks and credit co-operative banks has more than halved in nine years. The numbers of branches and employees have both been reduced by more than 30%. The restructuring of the Spanish banking system and its consolidation have taken place under the aegis of the Spanish government and the ESM, most notably through three successive support programmes, which have sought, amongst other things, to strengthen the solvency of establishments in difficulty.

Consolidation has particularly affected the savings banks

The number of Spanish banks fell from 282 to 125 between December 2007 and December 2016 (Table 3).

Consolidation in the Spanish banking system 2007 to 2016

	31 Dec 07	31 Dec 16
Deposit-taking institutions	282	125
o/w private banks (bancos)	151	60
o/w savings banks (cajas de ahorros)	46	2
o/w credit co-operative banks (cooperativas de crédito)	85	63

Table 3 Sources: Banco de España, *Memoria de la supervisión bancaria en España* (2009, 2017), BNP Paribas

The wave of consolidation was due in large part to the difficulties encountered by the Spanish banking system in 2007 and 2008, and then those endured in 2012 and 2013 (see Banco de España, 2017), which had a particular impact on the savings banks (*cajas de ahorros*). The number of such entities fell from forty-six to just two over the course of nine years. The Spanish banking market had been characterised by a large number of small savings banks largely dedicated to financing households. These banks saw extremely rapid growth in the years running up to the crisis (loans from savings banks rose by 266% between 2000 and 2007, compared to 'just' 182% for other banks). Loans for house purchase were the main type of household borrowing and the crisis therefore hit savings banks particularly hard. They then consolidated to address the deterioration of their position.

The number of private banks also fell, from 151 at end-2007 to 60 by end-2016. The consolidation trend has been much less pronounced for credit co-operative banks than for other types of banks. This has been probably due to their low share of total lending in Spain (5% of the total,

compared to 49% for the savings banks and 46% for private banks at end-2007), their smaller size and their strong local roots.

The consolidation of the Spanish banking system has seen two parallel phenomena: larger banks have acquired their smaller competitors while mid-sized institutions have merged, to create larger groups. For example, BBVA, Spain's second biggest bank by Tier 1 capital, acquired UNNIM in March 2012 – which ranked around 30th in Spain at the time – which itself was the fruit of a merger between Caixa Sabadell, Caixa Terrasa and Caixa Manlleu in March 2010. Santander's acquisition of Banco Popular (which represented 11% of its total assets) in June 2017, thus combining Spain's biggest and sixth biggest banks at the time of the deal, has been an exception thus far.

Branches and employees numbers cut by one-third

The reduction in the number of banks has come alongside with a reduction in the number of branches. This fell by 37%, from 45,500 in 2007 to 28,807 in 2016⁹. This fall completely wiped out the consequences of the policies of opening new branches over the course of the previous decade, which had seen their numbers grow by 20%.

The number of employees has followed a track similar to the number of branches. Employee numbers have fallen by 32%, equivalent to a reduction of 88,524 direct jobs. Spanish banks alone account for one-third of the 264,411 jobs shed by the eurozone banking system since 2007. Thus, a significant share of capacity reductions in the eurozone – with branch numbers falling by 19% and employee numbers by 12% between 2007 and 2016 – is attributable to Spain. By way of comparison, the loss of branches and employees in Italy has been on a much smaller scale (12% and 13% respectively), as the consolidation process here has been less powerful and more recent. This probably explains why Italian banks faced persistent difficulties at a time when the Spanish banking system had already begun its recovery.

The rationalisation of capacity could continue, but at a slower pace, as it was the case in 2017 at BBVA, which cut branch numbers by 4.5% and employee numbers by 2.2%.

Consolidation in the Spanish banking system has received government's support

The Spanish government mobilised in 2009 to ensure an orderly restructuring of domestic banks. The consolidation of the Spanish banking system forms part of an overall plan for restructuring and cost-cutting which was one of the conditions for the support provided by the European Union and the Spanish government. Its implementation was partly orchestrated by the *Fondo de Reestructuración Ordenada Bancaria*

⁹ ECB, Banking Structural Financial Indicators, September 2017



(FROB). This public fund was created on 27 June 2009¹⁰ for the purpose of assisting the restructuring and recapitalisation of the Spanish banking system, something it has accomplished through three successive programmes between 2010 and 2013.

A public fund for the restructuring of banks

The financing of FROB was provided by a combination of public and private money. Initial equity was EUR 9 bn, of which EUR 2.25 bn was provided by the three deposit guarantee funds for the private banks, savings banks and credit co-operative banks¹¹. The remaining EUR 6.75 bn came from the government's general budget (*Presupuestos Generales del Estado*). The involvement of the Spanish government underlined its determination to see the banking system restructured, whilst also ensuring that its various stakeholders contributed to the process. The scale of the support provided clearly needs to be judged relative to the costs, most notably for the real economy, of an absence of action.

In 2012, the Spanish government injected a further EUR 6 bn¹² into FROB, after its capital had been reduced to zero by the end of 2011. The government's support was not limited to the initial injection of capital, as a government guarantee was put in place in the event that the fund's liabilities exceeded its assets. Thus, EUR 3 bn in government loans to the fund were converted into equity on 30 May 2017 in order to cover losses of EUR 1.693 bn. This required prior approval from the ESM. A similar procedure had already taken place on 9 December 2013, for a total of EUR 27.17 bn.

FROB is also able to seek financing from capital markets. To limit its risk taking, such external financing was initially limited to three times its capital. This limit was raised to ten times capital on 1 January 2010. Thus, FROB had the ability to provide nearly EUR 100 bn in support. Only half of this was actually needed to support the restructuring of the Spanish banking system. The successive injections of capital were a sign of the Spanish government's commitment to ensuring the stability of its banking and financial systems.

Three successive support programmes from December 2010 to May 2013

At 6 September 2016¹³, the total amount of capital injected by FROB into the Spanish banking system was EUR 53.553 bn, including EUR 22.424 bn for Bankia alone (Table 4). In addition, the Spanish deposit guarantee fund (FGDEC) contributed EUR 7.492 bn.

¹⁰ Publication in the *Boletín Oficial del Estado* of Royal Legislative Decree 9/2009

¹¹ The *Fondos de Garantía de Depósitos en Establecimientos Bancarios (FGDEB)*, *en Cajas de Ahorros (FGDCA)* y *en Cooperativas de Crédito (FGDCC)* were brought together in the *Fondo de Garantía de Depósitos de Entidades de Crédito (FGDEC)* on 15 October 2011 following publication of Royal Legislative Decree 16/2011

¹² Fourth additional provision of Royal Legislative Decree 2/2012

¹³ Banco de España (2016), Background note on public financial assistance in the restructuring of the Spanish banking sector (2009-2016); FROB (2017), Memoria de actividades; FROB (2014), Investors' presentation

FROB has provided support to the restructuring of Spanish banks through three successive plans:

- FROB 1 from March to December 2010, with subscription of convertible preference shares, convertible into ordinary shares at a predefined rate under specific conditions, for a total of EUR 9.674 bn;
- FROB 2 from September 2011 to May 2013, with the purchase of ordinary shares for a total of EUR 5.749 bn;
- FROB 3 from December 2012 to April 2013, with the subscription of ordinary shares and 'CoCos' (contingent convertible bonds). These subordinated bonds are automatically converted into ordinary shares under predetermined conditions, for a total value of EUR 39.078 bn.

In addition to its injections of equity and equity equivalents, FROB also established credit lines for banks and introduced asset protection schemes (*Esquemas de Protección de Activos*) for a total of EUR 2.5 bn. These enable FROB and the Spanish deposit guarantee fund to assume a predetermined share of losses that banks could suffer during their restructuring process. The aim of this mechanism was to ensure the successful completion of bank restructuring by avoiding a deterioration of banks' situations during the process.

Thus, FROB contributed to the consolidation of thirty-four entities, consisting mainly of savings banks, into just five. Since then, the Spanish government has begun to withdraw, selling its holdings, as under EU state aid rules such a mechanism may only be temporary in nature. Several of these mergers were included, from 2012, in the ESM's financial assistance programme for the restructuring of the Spanish banking system.

The ESM's actions in Spain

On 25 June 2012, Spain submitted a request for financial assistance for the recapitalisation of financial institutions run by the European Financial Stability Facility (EFSF), whose activities were transferred to the ESM on 8 October 2012. This support, to a maximum of EUR 100 bn, consisted of a loan to Spain for an eighteen-month period. Its sole purpose was to contribute to bank recapitalisation¹⁴, particularly so as to limit the repercussions of any contraction in total assets on the real economy. The granting of this support was conditional on the implementation of a suite of restructuring measures imposed on the banks and the Spanish government.

¹⁴ Spain is the only country to have had recourse to this facility. Ireland, Portugal, Greece and Cyprus have simply received loans under the macroeconomic adjustment programme. To date, purchases in the primary or secondary markets, along with precautionary credit lines and the direct recapitalisation of institutions, have not been used. The ESM has not financed any new support package since 1 July 2013.



Summary of FROB actions

	Final integration entity	FROB 1	FROB 2	FROB 3	Total recognized on balance sheet (at 31 December 2016, EUR m)
Catalunya Banc	BBVA	1,250	1,718	9,084	12,052
Caixa Catalunya, Caixa Tarragona, Caixa Manresa					
CEISS	Unicaja Banco	525		604	1,129
Caja España, Caja Duero					
Nova CaixaGalicia		1,162	2,465	5,425	9,052
Caixa Galicia, Caixanova					
*Banco Gallego (split from NCG and sold to Banco Sabadell)				245	245
BFA-Bankia		4,465		17,959	22,424
Caja Madrid, Bancaja, Caixa Laietana, Caja Insular de Canarias, Caja Rioja, Caja Ávila, Caja Segovia					
Banco Mare Nostrum		915		730	1,645
Caja Murcia, Caixa Penedés, Sa Nostra, Caja Granada					
Banca Cívica	CaixaBank	977			977
Caja Navarra, Cajasol-Caja Guadalajara, Caja Canarias, Caja Burgos					
Banco de Valencia	CaixaBank		998	4,500	5,498
Liberbank				124	124
Cajastur, Caja Cantabria, Caja Extremadura					
Caja3	Ibercaja			407	407
CAI, Caja Círculo de Burgos, Caja Badajoz					
Unnim (absorbed by FGDEC from March 2012)	BBVA	380	568		0
Caixa Sabadell, Caixa Terrasa, Caixa Manlleu					
Total support (EUR m)		9,674	5,749	39,078	53,553

Table 4

Sources: Banco de España, FROB, BNP Paribas

Entities receiving such support were required to restore the quality of their balance sheets, reduce their exposure to the real estate sector and improve their risk management processes. These actions were intended to restore their long-term stability and at the same time give them renewed access to capital markets, in order to limit the impact of balance sheet contraction on the real economy. The Spanish government, meanwhile, was required to reduce its budget deficit, which it achieved, halving the general government deficit from 10.5% of GDP in 2012 to 4.5% of GDP by 2016¹⁵. This nevertheless remained below the deficit reduction achieved in the euro zone as a whole (deficit of 3.6% of GDP in 2012 and 1.6% in 2016). All conditions attached to the loan were set out in a Memorandum of Understanding between the Council of Europe and the Spanish government, signed on 23 July 2012.

The correct implementation of the reforms required of Spain and its banking system were monitored by the ESM throughout the financial assistance process, which was successfully completed in December 2013.

Support ended up at half of its potential level

The maximum amount of financial assistance provided by the ESM (EUR 100 bn) was determined in advance on the basis of stress tests covering 90% of the capital shortfall of the Spanish banking system, which were initially estimated at EUR 54 bn. In the end, EUR 41.333 bn has been disbursed in the form of variable-rate bonds¹⁶ and zero-coupon bonds issued by the ESM and transferred to FROB. The banking system therefore covered part of its capital shortfall itself. Moreover, the support provided was not free.

¹⁵ OECD (2018), general government deficit (indicator)

¹⁶ 6-month Euribor -0.06%, 6-month Euribor -0.12% and 6-month Euribor -0.15%



The first disbursement, of EUR 39.468 bn, was made on 11 December 2012, with a final maturity of 11 December 2027 and a constant amortisation of five years. These funds were granted to Spain in order to contribute to the recapitalisation of four banks¹⁷ and inject EUR 2.5 bn into the newly-created *Sociedad de Gestión de Activos Procedentes de la Reestructuración Bancaria* (SAREB). This 'bad bank' was made responsible for liquidating distressed assets of banks that had received government assistance. The creation of such an entity on a EU-wide level was discussed by the European Banking Authority early in 2017. The mechanism envisaged does not allow for a sharing of losses between member states, and passes potential losses onto banks. In early 2018, the Italian government acknowledged that it had discussed the option of creating a bad bank on a national scale.

The second disbursement, of EUR 1.865 bn, was made on 5 February 2013, with a final maturity of 11 December 2025 and a constant amortisation of two years. This support served to recapitalise Banco Mare Nostrum, CEISS, Caja3 and Liberbank.

Spain successfully exited the support plan in December 2013, and by 23 February 2018 had already repaid EUR 11.612 bn thanks primarily to seven early repayments. In the final analysis, the aid provided to Spain by the ESM was significantly lower than the potential level, and repayments are being made faster than expected. These factors suggest that the measures taken in Spain worked as planned, and more swiftly than initially expected. Furthermore, economic improvements could help accelerate the repayment of the assistance received thus far.

Spanish banks' income holding up thanks to a reduction in non-performing loans

The gross operating income has been relatively stable since 2008, thanks to the stability of NBI. Management of non-performing loans, particularly in 2012, has meant that in subsequent years, net income for the Spanish banking system as a whole has held steady at around EUR 14 bn. Meanwhile, Return on Equity has improved and solvency ratios have increased, although these remain under pressure at some banks.

A marked reduction in cost of risk

The cost of risk includes net allowances to impairment, recoveries on loans and receivables previously written off and irrecoverable loans and receivables not covered by impairment provisions. Thus, an increase in

non-performing loans resulted in a peak at EUR 103 bn in 2012, which was around three times the average for 2008 to 2016 (excluding 2012).

Since 2012, the cost of risk in the Spanish banking system has seen continuous falls, thanks to a reduction in non-performing loans.

The non-performing loan ratio has fallen by 46% in three years

The non-performing loan ratio¹⁸ at Spanish banks was reduced from 8.8% in Q3 2014 to 4.8% in Q3 2017 (Chart 6). This has brought it back into line with the figure for the whole of the European Union banking system, which was reduced from 6.7% to 4.2% over the same period. Even at the height of the crisis in 2012, the non-performing loan ratio in Spain never reached the levels seen in Italy or Portugal.

Non-performing loan ratios for a selection of EU countries

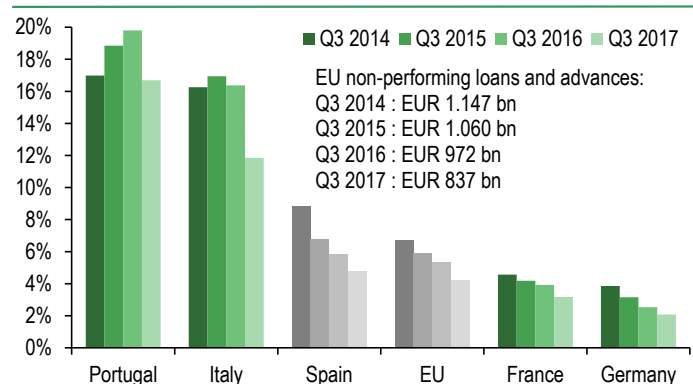


Chart 6

Sources : ABE-Risk Dashboard, BNP Paribas

Amongst Spanish banks, those with the greatest exposure to the real estate crisis of 2008 and its amplification in 2012 still have the highest non-performing loan ratios. This is particularly true of Bankia, the result of the merger of several savings banks, which had a ratio of 8.5% in December 2017 (from 14.7% in December 2013), compared to a figure of 4.1% at Santander (including Banco Popular). The non-performing loan ratio at BBVA (4.4% in December 2017, down 0.5pp y-o-y) remains close to that for the Spanish banking system as a whole.

The fall in the non-performing loan ratio in Spain between July 2016 and July 2017 came as a result of a reduction in the outstanding amount of non-performing loans. It has not been caused by dilution from a larger increase in the outstanding amount of loans. Total outstanding amount of non-performing loans cut from EUR 185 bn in December 2013 to EUR 100 bn in September 2017¹⁹ (Chart 7), thanks to better economic conditions in Spain and in other countries where Spanish banks are active.

¹⁸ Using the European Banking Authority (EBA) definition: Non-performing loans = Non-performing loans and advances/Total gross loans and advances (%)

¹⁹ Banco de España (2017), Financial Stability Report 11/2017

¹⁷ BFA-Bankia, Catalunya Banc, Nova CaixaGalicia and Banco de Valencia



In addition, the restructuring and consolidation of the Spanish banking system, and the sale to SAREB of EUR 51 bn in non-performing loans linked to real estate between December 2012 and February 2013, have clearly helped in the reduction in the outstanding amount of non-performing loans.

Outstanding amounts of non-performing loans by sector in Spain

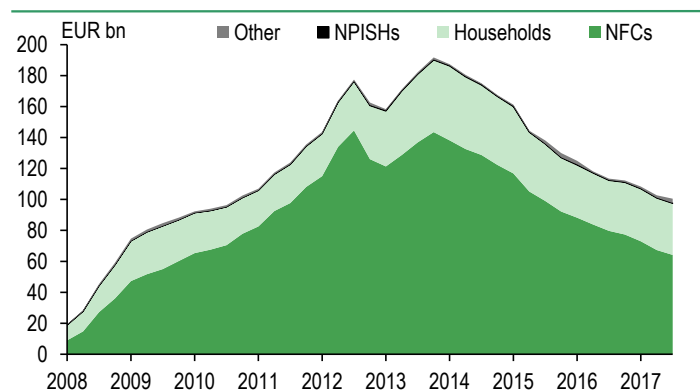


Chart 7 Sources: Banco de España, BNP Paribas

As in Italy, more than 70% of non-performing loans in Spain were loans to non-financial companies. However, a larger proportion of Spain's non-performing loans were related to the real estate sector than it was the case in Italy. In 2012, 60% of Spanish non-performing loans were due to NFCs linked to the real estate sector (and 13% were related to household loans for house purchase). This difference implies that non-performing loans in Spain were backed by real estate assets, and particularly residential real estate assets, to a greater degree than in Italy. Such assets represent probably better collateral than production equipment or industrial and commercial real estate.

From a historical viewpoint, the increase in non-performing loans to households for house purchase preceded that in non-performing loans to real estate NFCs in Spain. The reduction in households' creditworthiness therefore probably fed into a fall in the solvency of NFCs, which in turn increased their level of non-performing loans.

In June 2017, the non-performing loan ratio for Spanish NFCs linked to the real estate sector was still higher (at 23%, a fall of 4.6pp from June 2016) than the ratio for other loans to NFCs (9.4%, down 1pp from June 2016). The non-performing loan ratio for house purchase lending continues to fall slowly, but remained at 4.5% in June 2017.

Moreover, the recovery of Spanish housing market (+6.7% at Q3 2017²⁰, sixth consecutive increase) might contribute to the cleaning up of banks' balance sheet. Still, the momentum of such recovery is worth considering its sustainability even if it remains half of what it was at the eve of the real estate crisis (+13.1% at Q1 2007).

²⁰ Instituto Nacional de Estadística, Housing price index

In Spain, as in Italy, the non-performing loan ratios have been inversely correlated to the size of the company financed by banks. Thus, in June 2017, the outstanding amount of loans to micro-companies had a non-performing loan ratio of 23%, compared to 17.1% for small companies, 16% for mid-sized companies and 7.7% for large companies.

IFRS 9 could cost Spanish banks 0.3pp of CET1

The application, from 1 January 2018, of the new international financial reporting standards 9²¹ (IFRS 9) will affect the cost of risk for banks, including in Spain. This new accounting standard changes the method of provisions for non-performing loans and will require additional provisions to be made.

Provisioning under IFRS 9 is intended to be more forward-looking than the system under the previous IAS 39 regulation. Henceforth, impairment of financial instruments is no longer solely conditional on the occurrence of an event creating potential losses; in the event of a significant increase in credit risk of an issuer, additional provisions must be made in order to cover this risk. The move from a model of incurred losses to a model of expected losses is a major change, as it represents the substitution of an approach based on principles for an approach based on a rule.

The introduction of IFRS 9 could result in an average reduction of 0.3pp in the core equity ratio (CET1) at Spanish banks²², mainly due to the application of new provisioning models. This is a slightly smaller effect than that estimated by EBA for banks across the EU as a whole (-0.45pp for the CET1 ratio²³). Besides the different perimeters and/or the assessment method, a portion of this gap might be explained by the existence of a dynamic provisioning system in Spain (see infra).

The EBA stress testing programme that began in January 2018 will cover 70% of the eurozone banking system and will provide further insight into the effect of IFRS 9 on Spanish banks, as it will incorporate the new reporting standard. Results are expected to be published on 2 November 2018.

IFRS 9 and Spain's dynamic provisioning approach

In the context of the move from IAS 39 to IFRS 9, the Spanish banking system has had a notable feature since 2000, as it has used a system of dynamic provisioning. This statistically-based provisioning approach has obliged banks to create additional provisions during periods of growth, in order to protect against the risk of an economic downturn.

²¹ "Any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity." Commission Regulation (EC) No 1126/2008 of 3 November 2008, IAS 32 Financial instruments: presentation

²² Estimate based on estimates from Banco Santander S.A., Caixabank S.A., Bankinter S.A., Unicaja Banco S.A., Liberbank, Bankia S.A., Banco Bilbao Vizcaya Argentaria S.A. and Banco Sabadell S.A.

²³ EBA (2017), Report on results from the second EBA impact assessment of IFRS 9



The aim was also to limit overheating of lending during periods of economic expansion.

This dynamic provisioning approach was closer to IAS 39 than to IFRS 9, as it has been based on historical statistical information and was therefore less forward-looking. Each bank had the option of developing its own internal model, which was then approved by the Bank of Spain. Conversely, the Bank of Spain would provide the dynamic provisioning model.

In retrospect, this provisioning approach was not sufficient to avoid the real estate crisis in Spain. This could contribute to the fact that the International Accounting Standards Board (IASB), which is responsible for producing accounting standards, has favoured a forward-looking over a statistical approach based on historical data.

The ECB is planning to require banks to clean up their balance sheets more quickly

In addition to the introduction of IFRS 9, the ECB guidance to banks on non-performing loans, and particularly the draft addendum of October 2017, could change the way in which banks handle non-performing loans. The draft addendum to the guidance would require banks to cover 100% of new non-performing loans after seven years, using CET1 equity amongst other things. The intention of this mechanism is to encourage banks to clean up their balance sheets more rapidly, but it could also force them to account larger losses. The proposed addendum was subject to a public consultation which closed on 8 December 2017, the results of which should be published at the end of the first quarter of 2018.

Profitability at Spanish banks is stabilising, but solvency remains under pressure

The Return on Equity of Spanish banks has recovered since 2013. Solvency ratios improved until the third quarter of 2016 but were nevertheless still under pressure in 2017. In the event of a significant downturn in the Spanish economy, the weakness of solvency ratios at certain Spanish banks could see them being dragged below regulatory requirements.

Net income at Spanish banks has held steady since 2013 but remains below pre-crisis levels

In 2016, aggregate net income remained 45% below its 2008 level. The 6.0% increase in net income at Spanish banks from Q3 2016 to Q3 2017 could continue, given the results from the major banks for the whole of 2017, even though the picture was mixed: Santander reported 6.7% growth in net income (including Banco Popular), whilst there were increases of 1.3% at BBVA, 12.8% at Banco Sabadell (including TSB) and 1.5% at Bankia (including BMN).

Spanish banks' Return on Equity has recovered since 2013

Spanish banks' Return on Equity (RoE) has tended to recover from its low point in 2012 and is close to that of eurozone banking systems (Chart 8).

ROE trends in main eurozone banking systems

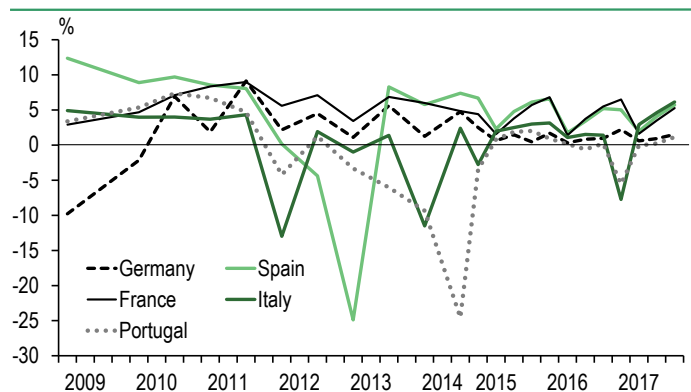


Chart 8

Sources: ECB - CBD2, BNP Paribas

The losses of EUR 44 billion reported in 2012 were mainly attributable to eight entities. These were notably linked to the introduction of additional provisioning requirements in Spain²⁴. The figures published by certain major groups for 2017 have tended to show a further increase in RoE²⁵ even though this remains at less than half the annual pre-crisis levels. More specifically, Santander reported RoE of 7.14% in 2017 (an increase of 0.15pp on 2016), whilst BBVA reported 6.4% (down 0.3pp on 2016). Even Bankia reports stable RoE between 2016 and 2017, at 6.7%.

After a period of growth, solvency ratios at Spanish banks slipped back in 2017

Between December 2008 and December 2016, the Tier 1 ratio rose from 8.1% to 13.0%. However, the increase in Spanish banks' solvency ratios is largely attributable to a reduction in their exposure to risky assets, which creates limits especially in a period of economic recovery.

Consolidation in the Spanish banking system and the cleaning up of balance sheets have put continued pressure on solvency ratios. Thus, the Common Equity Tier 1 (CET1) ratio weakened to 11.9% in June 2017, a level equivalent to that in December 2014 (Chart 9), having risen as high as 12.9% in September 2016. In Q3 2017, however, the solvency ratio recovered to a level similar to that seen in 2016 (12.6%).

In general, the biggest Spanish banking groups posted improvements in solvency ratios in 2017. Thus, even after the integration of Banco Popular, the fully loaded CET1 ratio at Santander rose by 0.29pp (to

²⁴ Banco de España (2013), Financial Stability Report, May

²⁵ Around 6% on the basis of estimates drawing on figures published thus far



CET1 solvency ratios in Spain

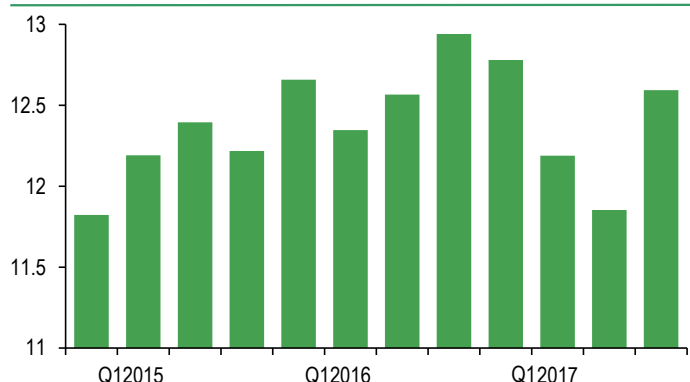


Chart 9

Sources: ECB-CBD2, BNP Paribas

10.84% in December 2017, from 10.55% in December 2016), thanks in particular to the successful share issue in July 2017. Banco Sabadell also saw an improvement in its fully loaded CET1 ratio, which gained 0.8pp from 12% in December 2016 to 12.8% in December 2017. At BBVA, the fully loaded CET1 ratio made a very slight gain in 2017, rising to 11.1%, from 10.9% in 2016. Bankia was almost an exception; following the integration of Banco Mare Nostrum, the increase of risk-weighted assets was greater than that in equity, taking its fully loaded CET1 ratio from 13.02% in December 2016 to 12.33% in December 2017. But for BMN, Bankia's solvency ratio would have continued to improve.

It is worth noting that the upturn in activity and thus profitability at Spanish banks will make it easier for them to accumulate equity, which could help support the rise in their solvency ratios.

Mixed performance in stress tests

There is still uncertainty as to the ability of certain Spanish banks to absorb the effects of a marked deterioration in the economy. In effect, the Bank of Spain decided in 2013 to conduct stress tests in order to evaluate the response of banks within its banking system to macroeconomic scenarios (central and adverse). The Forward-Looking Exercise on Spanish Banks (FLESB) applies a model defined by the supervisory entity to all Spanish banks, in order to monitor their solvency and liquidity in the event of various shocks.

The adverse scenario used in the 2017 stress tests was based on a 1.9% fall in Spanish GDP in 2017, followed by a 3.5% fall in 2018 and then a return to growth, of 1.4% in 2019. The central scenario covered cumulative Spanish GDP growth of 6.6% over these three years. Under the adverse scenario, the fully loaded CET1 ratio of the major internationalised banks under the direct supervision of the SSM was predicted to contract by 1pp to 9.8% by 2019, compared to an increase of 2.1pp under the central scenario. The tests predicted that other banks, under the direct supervision of the Bank of Spain, would see

their CET1 ratio drop by 2.6pp under the adverse scenario, but remain stable at 16.9% under the central scenario. Those banks, that are under the direct supervision of the Single Supervisory Mechanism but with little international diversification, would be the most exposed to a deterioration of economic conditions in Spain. Their CET1 ratio would narrow by 4pp in the event of a significant economic downturn, and more importantly this would take it to 7.3%, below the regulatory requirements for this category of bank.

Conclusion

The Spanish banking system has seen deep-seated restructuring since the real estate crisis of 2008-2009. The number of banks in Spain has more than halved between 2008 and 2016. The banking capacities, measured by the numbers of branches and employees have both been reduced by more than 30%. Conversely, Spain's biggest banks have stepped up the expansion of their international activities. These factors and the increase of the net interest margin have contributed to maintaining revenue and income since 2013, despite the reduction in the size of the balance sheet since the beginning of the same year. In 2017 the latter thus returned to its 2008 level.

The Return on Equity has recovered over the past years but it remains lower by half compared to its 2008 level. Solvency ratios have increased on a long-term view. However, the latter decrease from end-2016 to mid-2017 underlines persistent fragilities. Since 2013, the profitability of domestic activities appears notably lower than those of foreign activities. Most internationalized banking groups have therefore continued to benefit from their foreign activities. Banks' exposure to the real estate sector remains important (54% of the outstanding amount of loans to the NFPS at Q3 2017). In this respect, the recovery in the real estate market could support the cleaning up of banks' balance sheet. The sustainability of such recovery is based on an increase of interest rates that is neither too slow (to prevent overheating), nor too fast (risk of relapse). Broadly, the gradual normalisation of monetary could support interest income. It could also bring an additional challenge for asset quality if it deteriorates too rapidly the creditworthiness of the most vulnerable borrowers which, in turn, could moderate the cleaning up of banks' balance sheet. In the absence of materialisation of such risks, the Spanish banking system efforts to restructure and consolidate should continue to bear fruit in the context of an economic growth that we deemed to be solid²⁶.

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²⁶Cerisier F., 2018, *Spain – Political fragility, economic momentum*, Eco Perspectives



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