

Spain

Financial Economic Watch

Madrid, 26 July 2010

Economic Analysis

Stress test: A sound exercise

The release of European stress test results may act as a driver for removing uncertainty surrounding the Spanish financial system, as the implementation of the exercise looks rigorous and the outcome seems credible and very informative.

- First, the overall macroeconomic scenario is robust and detailed enough to be credible. It is clearly **more severe for Spain**, notably for the Real Estate Sector.
- Second, in estimating pre-impairment income, the most discretionary part of the stress-test methodology, significant divergences across countries emerge. In the Spanish case, the decline in this item is substantially above the European average. This underlines a **more rigorous assessment in the analysis of pre-impairment income**.
- **Third, the Spanish stress tests have been more transparent than in other European countries.** There are two main points that underline this issue: i) Almost 100% of the financial system is covered compared with a 65% average in Europe, ii) the Bank of Spain has provided more information than other European peers (i.e. a template covering a more detail information of the credit portfolio).

Aggregate results for the Spanish Banking system are not surprising and reveal strong resilience of the system as a whole:

- Given the broad sample examined, it is hardly surprising that the stress test has revealed that five savings banking groups have a capital deficiency in Spain: Diada, Banca Civica, Espiga, Cajasur and UNNIM.
- **All in all, the capital needs revealed for the Spanish saving banks accounting for €2bn, on top of the € 14,6 bn already granted by the FROB and DGS, are affordable.** Furthermore, a five-month recapitalization deadline has been suggested by the Bank of Spain. This is slightly tighter than that in the US test.
- **The aggregate results suggest a rather strong resilience for the Spanish Banking system as a whole and may appear reassuring for banks in the exercise.** In fact, financial institutions amounting for over 50% of total assets have a comfortable position in terms of solvency with Tier 1 ratios above 8% in the more stressed scenario.

In sum, a rigorous and detailed stress-test exercise has been conducted for the Spanish financial system. This should help clarify the real situation of the sector. In fact, the difference between the CEBS test results and those from our own 'stress test' is quite small.

Spanish stress tests are more conservative

The stress test should serve to recover confidence in the Spanish financial system

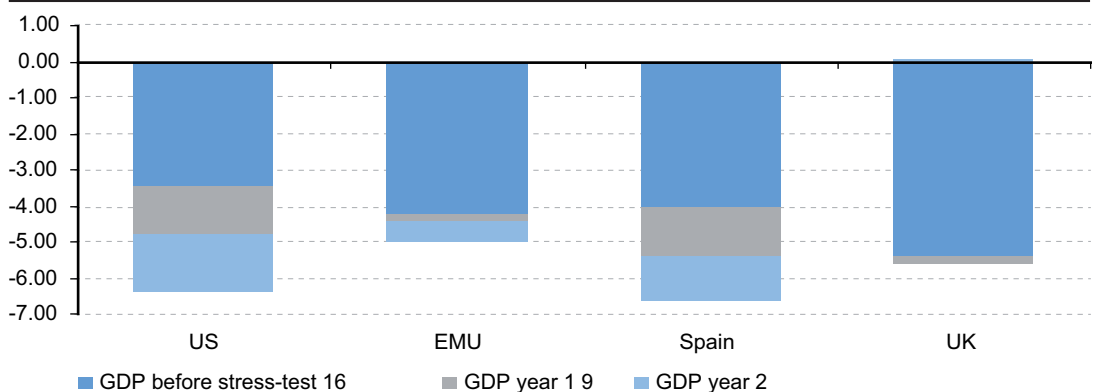
The release of European stress test results may act as a driver for recovering confidence in Spain. The increase in transparency contributes to a better understanding of the health of the financial institutions on a bank-by-bank basis. This is particularly true in the case of the Spanish exercise which covers almost 100% of the financial system compared with a 65% average in Europe. This should help to restart the discrimination among entities and to ease tensions in the whole funding market. Moreover, more transparency should lead to greater benefits for the Spanish financial system.

The methodology has been agreed at European level by CEBS, assuring the independence of the scenarios made public, and allowing differentiation across countries. This approach is adequate in terms of gathering confidence with asymmetric gains for countries that have been under strong scrutiny by the markets, such as Spain.

Robust macroeconomic scenarios for Spain

In our opinion, macroeconomic scenarios are robust and detailed enough to be credible. Indeed, the macro scenario is severe in line with that of the US exercise as shown in Chart 1. The accumulated fall of the European GDP before the stress test is greater than in the US, which is mostly evident in the UK. However, the cyclical momentum is clearly different between both stress test exercises: at present, the global economy is facing a recovery, which prevent the additional fall in the EU GDP from being more aggressive. Taking this difference into account, the assumptions for Spain are more severe. In Spain, the overall fall in GDP is slightly above the total fall considered in the US. Moreover, the exercise for Europe includes an additional specific shock to the yield-curve, based on the sovereign debt crisis, which results in a more adverse scenario.

Chart 1
Cummulative GDP fall comparison (%)

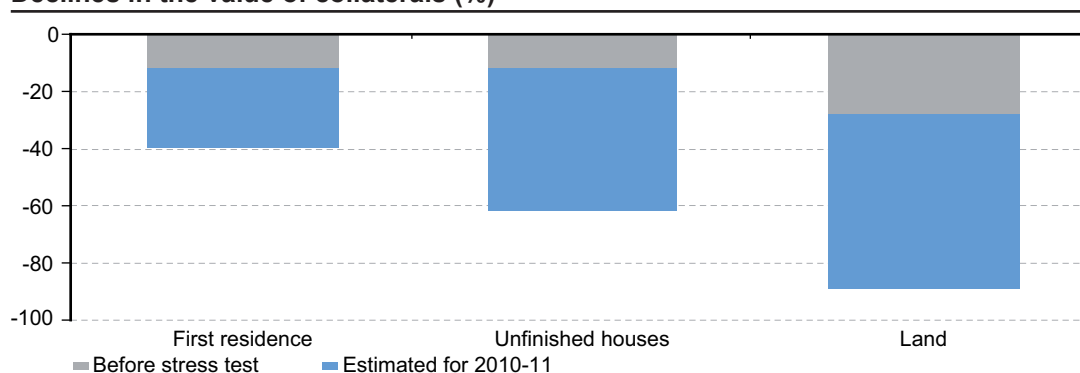


Source: CEBS, National sources, Eurostat & BBVA Research

The economic assumptions are specially stressed for Spain, notably for the Real Estate sector. In the adverse scenario an additional drop in housing prices of 8.8% and 15.2% is assumed for 2010 and 2011. This would imply an adjustment of around 40% in real terms from the peak in less than 3 and half years. This is an extremely strong adjustment as in a recent survey that includes 44 housing bubble episodes ,the average adjustment in house prices was 21% and lasted more than 4 and a half years. Moreover, among the largest adjustments (those below a 20% real drop), the time from peak to bottom is over 6 years. Therefore, the stress test assumptions for Spain would imply a much larger adjustment than the average housing bubble and in much less time. Moreover, other countries are not subject to adjustment this extent in the Real Estate Sector. In fact, Spain seems to be the only country with a housing bubble. On the contrary, previous research, including that of IMF, points to pending housing price adjustment in Spain of the same magnitude as in other European countries. As a matter of fact, in April 2008, the World Economic Outlook pointed to a housing price gap -- the unexplained increased in housing prices- in Spain between 15 and 20%, in line with Sweden, Belgium, Denmark and Norway, and substantially below those in Ireland (with a price gap above 30%), Netherlands, United Kingdom and France.

Chart 2

Declines in the value of collaterals (%)



Source: : BBVA Research and Bank of Spain

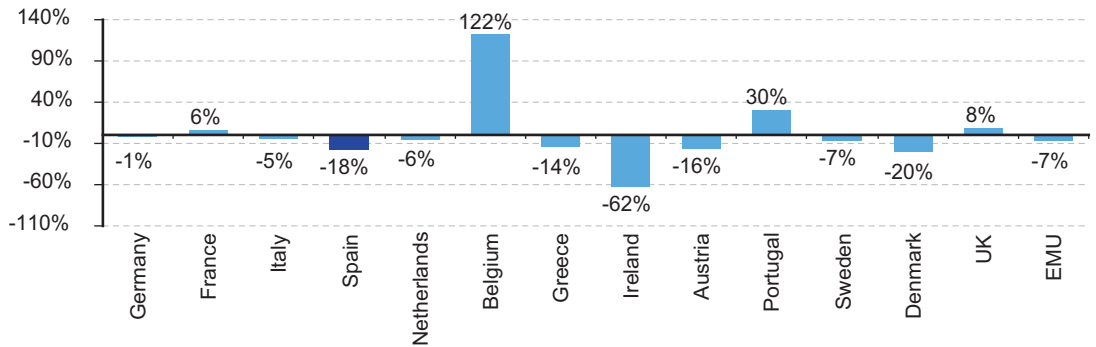
Comparison with other European countries: a more rigorous approach

Estimations of pre-impairment income are without any doubt, the critical issue in this exercise. There is lot of room for discretion in its assessment, thereby leading to significant differences across countries. The aggregate evolution of this variable contributes by 4.5 percentage points to TIER 1 in the most adverse scenario, exactly the value of total impairments, thereby revealing to what extent the right assessment of pre-impairment income is crucial in this exercise. However, some doubts remain about the translation of macroeconomic scenarios provided by CEBS into pre-impairment income across countries.

As shown in Chart 3, there are strong divergences across countries in the variation of pre-impairment income between the estimated period of 2010-11 and the data observed in 2009. For the Spanish financial system, the aggregate change in the pre-impairment income is a reduction of 18%, a severe assumption in line with our own estimations, whereas it increases 6% in France or remains quite stable in Germany. A more rigorous approach in Spain can explain these differences. This piece of evidence should serve to dispel market concerns over capital needs in the Spanish financial institutions.

Chart 3

Pre-Impairment Income. Average annual change between 2010-2011 and 2009

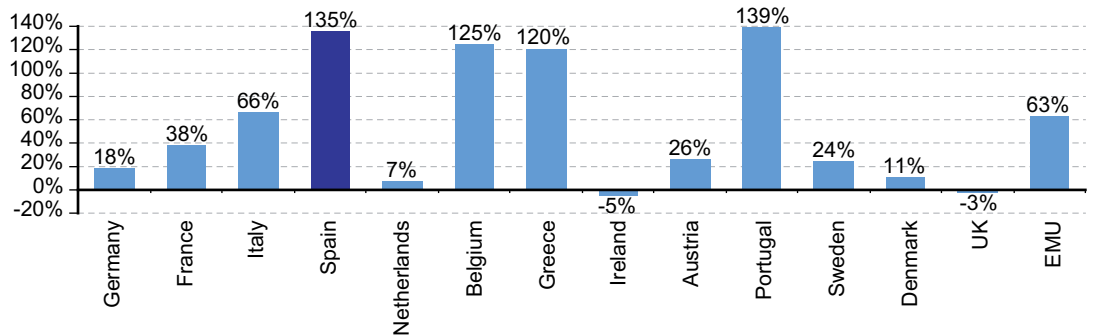


Source: BBVA Research and CEBS

Regarding impairments, divergences across countries also emerge, as shown in Chart 4. In terms of assets, Spain is the country with more potential losses revealed in the financial system. However, this is not a sign of weakness. On the contrary, it is the result of two features of the Spanish stress test which enhance the rigorous methodology implemented. First, there is a broader coverage than in other countries, reaching almost 100% of the financial system. Second, an increase of 135% in impairments and losses for 2010-11 vs. losses in 2009, a period of significant strain for the Spanish economy, reflects a more severe stance than in other relevant countries. As shown in Chart 4, the increase in Germany, France or the EMU as a whole is substantially lower (18%, 38% and 63%, respectively). Finally, Chart 5 depicts that losses under the stress test in other countries are clearly below those for the Spanish economy.

Chart 4

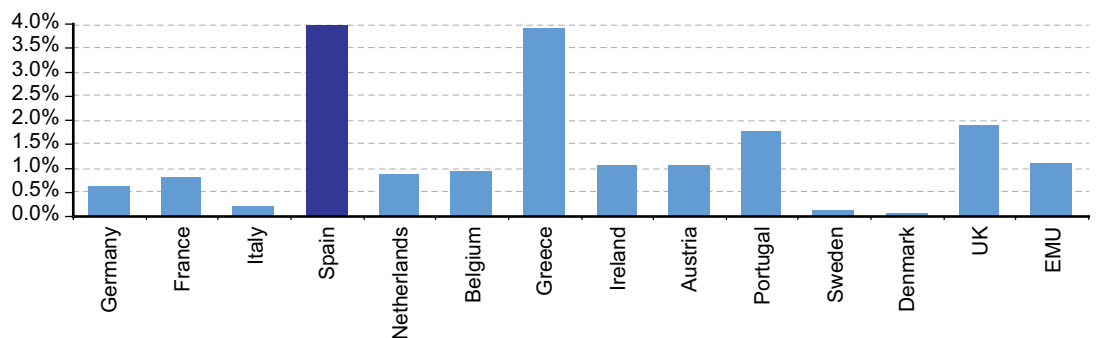
Impairment losses Average annual change between 2010-2011 and 2009



Source: BBVA Research and CEBS

Chart 5

Net impairment losses. In percentage of financial assets

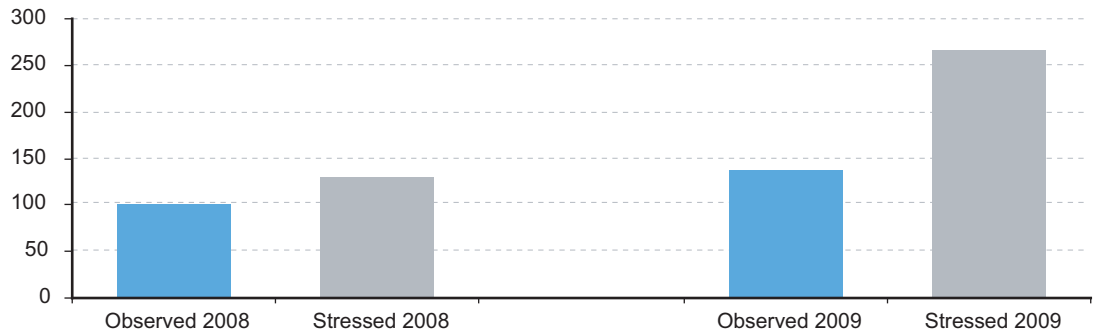


Source: BBVA Research and CEBS

An evidence of the harshness of this stress test scenario for Spain is shown by conducting a backtesting exercise. In this case, we apply the stress test methodology taking 2007 as a starting point and obtaining the stressed probabilities of default (PDs) for the period 2008-2009. In this way, these stressed PDs for 2008 and 2009 could be compared to the ones actually observed in those years. As shown in the Chart 6 (elaborated by Bank of Spain), the stressed PD for 2009 would double the observed PD in that year, revealing that the scenario of the stress test exercise is too severe.

Chart 6

Comparison between observed PD's and stress PD's (based on 2008-2009 figures)

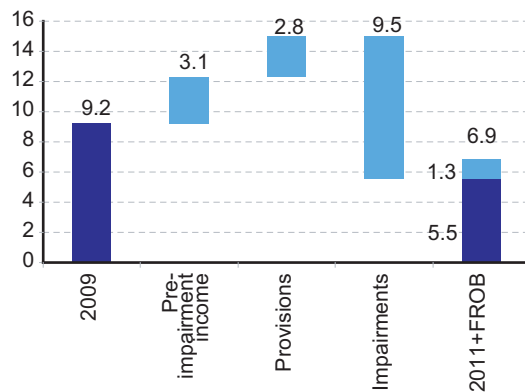


PD (2008 observed = 100)
Source: Bank of Spain

Taking into account all calculations for pre-impairment income and impairments, the contribution of different components to aggregate TIER 1 in the adverse scenario, including a sovereign shock, is quite different between the European aggregate and the Spanish financial system, mainly for the savings banks. In the European financial system, pre-impairment income and impairments have exactly the same magnitude with the opposite impact. This is not the case in the Spanish financial system. In particular, for Spanish saving banks, pre-impairment income and provisions contribute by 5.9 percentage points to TIER 1 in 2011, whereas impairments account for 9.5, as shown in Chart 9.

Chart 7

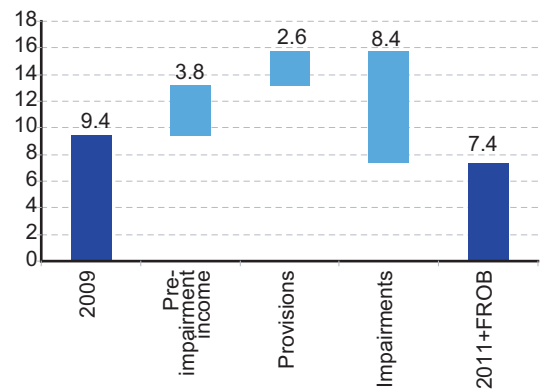
Spain: saving banks. Contribution of different components to aggregate TIER 1 in the adverse scenario, including a sovereign shock (%)



Source: Bank of Spain

Chart 8

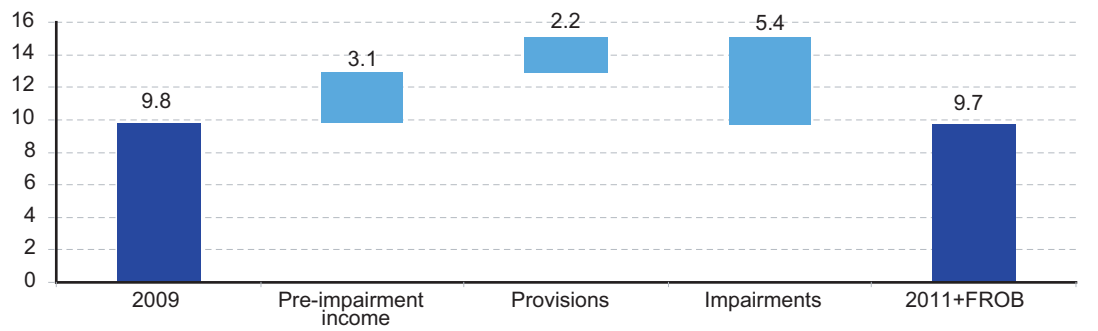
Spain: domestic banks. Contribution of different components to aggregate TIER 1 in the adverse scenario, including a sovereign shock (%)



Source: Bank of Spain

Chart 9

Spain: Internationally active banks. Contribution of different components to aggregate TIER 1 in the adverse scenario, including a sovereign shock (%)



Source: Bank of Spain

In relative terms a more credible exercise in Spain

As for Spain, we highlight capital needs are manageable and losses and margins reasonable, reinforcing the solvency of the Spanish financial system

We would like to underline capital needs are manageable: The capital needs for the Spanish system including the already injected funds by the FROB and the DGF Support amounted EUR16.193mn (which represents 1,5% of GDP). We believe that capital needs are easily manageable. In fact, we would like to stress that Banca Civica, one of the institutions that needs capital, disclosed on Friday that JC Flowers signed an intention letter to subscribe a mandatory convertible that should cover the capital shortfall.

The stress test has highlighted that five savings banks don't reach the 6% minimum Tier 1 required in the stress test: **Diada**, the merger created between Caixa Catalunya, Tarragona and Manresa need further EUR1,032m on top of the EUR1,250m already committed by the FROB. **Banca Civica**, the entity created by Caja Navarra, Caja Burgos, and Caja General de Canarias, would need according to the stress test EUR406m. **Espiga**, the merger between Caja España and Caja Duero need further EUR127mn on top of the EUR525mn already committed by the FROB. **Cajasur** should need further EUR208mn on top of the EUR800mn already committed by the FROB. **UNNIM**, the merger created between Caixa Sabadell, Terrasa & Manlleu should need further EUR270mn on top of the EUR380mn already committed. The five groups need therefore a total of EUR2,043m, a very manageable amount. This is on top of the ca. EUR11bn already committed by the FROB and the EUR3.8bn committed by the Deposit Guaranty Fund (DGF).

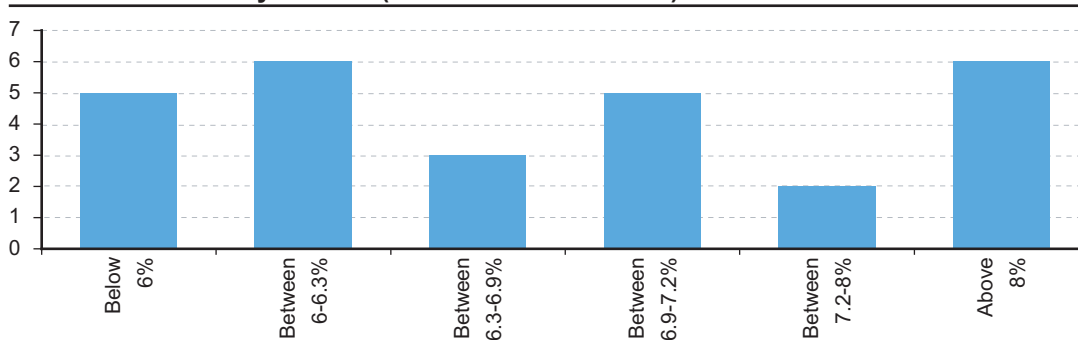
In our opinion the aggregate results suggest a rather strong resilience for the Spanish Banking system as a whole and may appear reassuring for the Banks in the exercise, although it should be emphasized that this positive outcome is partly due to the government previous support with injection of FROB money. Caja Madrid for example without the EUR4.5bn injection from the FROB it would not have been able to pass the stress test. Similar for Caixa Galicia/Caixanova and Mare Nostrum the entity created by the merger between Caja Murcia/Penedes/Sa Nostra and Caja General de Ahorros de Granada.

Over 50% of the system assets have tier 1 above 8%

We have done a distribution analysis of the Spanish sample (see chart 9), to evaluate the final tier 1 ratios. We believe that there are three main conclusions to draw from this analysis:

- There are 22% of the institutions in the sample that don't pass the stress tests. However these institutions represent only 6.5% of the total assets of the system.
- There are 52% of the institutions in the sample that have Tier 1 ratios between 6-7%, representing 15.5% of total assets. We believe that these institutions might see limited room of manoeuvre in case any of the revenue sources deteriorate more than in the stress tests assumptions.
- There are 30% of the institutions in the sample, which have a quite comfortable position in terms of solvency even in an stress scenario. We would like to stress that these institutions represent over 50% of the total assets of the Spanish financial system.

Chart 10

Tier 1 distribution by entities (number of institutions)

Source: Bank of Spain

Estimated losses & Pre-provisioning profit analysis

The figure released by Bank of Spain regarding losses for the system was somewhat lower than what the market was expecting. Therefore, we have analysed estimated losses and pre-provisioning profit to explain the reason why final figure has been lower than initially expected.

Margins, a factor to discriminate between entities in a context of significant deterioration

Once the potential losses have been calculated, the other 'important' part of the stress test is how financial entities are going to offset the impact of the impairment losses. Apart from the current stock of provisions, the regulator has taken into account, obviously, the capacity to generate earnings in next two years, additionally potential capital gains have been considered by Bank of Spain.

In general terms, Bank of Spain has worked with the business plans prepared periodically by each entity to estimate the Net Operating Income for the next two years and has published an accumulated number. The assumption regarding net operating income generation capacity in the adverse scenario in years 2010 and 2011 is -40% on average vs the figure recorded in 2009. For the Savings Banks, the Net Operating Income over total assets would be 37% lower than the average recorded over the last 20 years.

Regarding banks, our current estimates are in line with the results under the adverse scenario in the stress tests, we conclude that our current estimates are only 6% (on average) above the adverse scenario in the CEBS stress tests. As long as we did not have a 'worst case' in our assumptions we think that CEBS 'stress test' could be a bit more stressed, although we definitely recognise numbers reflect a negative case.

Table 1

Banks pre-impairment income analysis

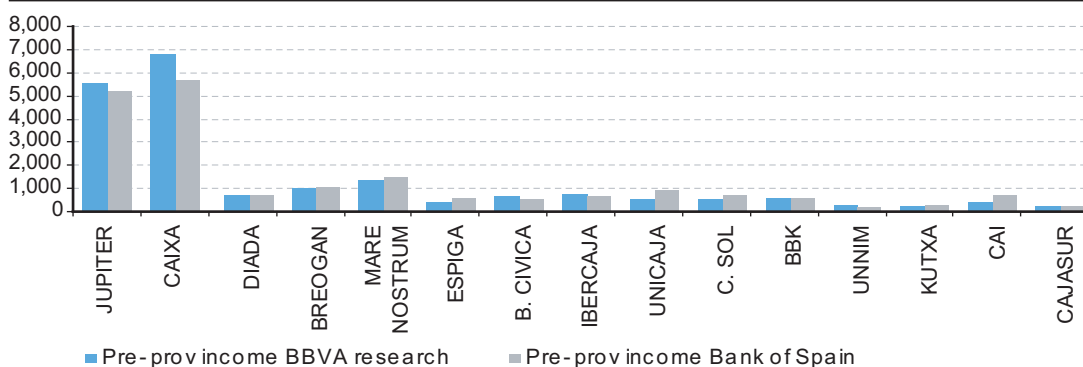
Adverse scenario in margins according to CEBS (EUR mn)	SAN	POP	SAB	BKT	PAS
Net Interest Income	47,914	5,105	3,031	1,297	1,076
Total Revenues	83,875	7,198	4,609	2,405	1,631
Total Costs	35,961	2,564	2,244	1,299	715
Net operating income (BBVA models, central case)	47,914	4,634	2,365	1,106	916
Net operating income without capital gains (CEBS 'adverse scenario') 2010-2011	45,737	4,498	2,085	1,018	614
Difference between BBVA central case and CEBS 'adverse scenario' w/o capital gains	5%	3%	13%	9%	49%

Source: CEBS, BBVA Research

Regarding savings banks, earnings estimates have been an important input in the stress test as these represent the ‘cushion’ that entities have available to absorb impairments and credit losses. We can see from the table and the graph that the regulator has been, again, in the case of savings banks very conservative on this front too. We acknowledge that the deviation from the regulator forecast and ours is in most cases negligible and in few cases, the published pre-provision income is in few cases even lower than our estimates.

Chart 11

Savings banks pre-impairment income



Source: CEBS, BBVA Research

We have calculated our own ‘stress test’, there is a small difference vs CEBS’

We have stressed BBVA assumptions in order to know how far Spanish banks are to a real ‘stress test’, without considering capital gains. To do that, we have adjusted NII another 10% in next two years (which means a total adjustment for domestic banks in NII of more 30% on average vs 2009).

Table 2

Impairment losses in the more adverse scenario

Adverse scenario in margins according to BBVA ‘stress test’ (EUR mn)

	SAN	POP	SAB	BKT	PAS
Net operating income 2009	22,960	2,762	1,325	613	711
Net Interest Income	43,122	4,595	2,728	1,167	968
Total Revenues	79,084	6,688	4,306	2,275	1,523
Total Costs	35,961	2,564	2,244	1,299	715
Net operating income 2010 - 2011 (BBVA models, stress test)	43,123	4,124	2,062	976	808
Net operating income without capital gains (CEBS) 2010-2011	45,737	4,498	2,085	1,018	614
Difference in net operating income (BBVA vs CEBS w/o cap. gains)	6%	9%	1%	4%	-24%

Source: CEBS, BBVA Research

We can conclude that on average, the CEBS’ stress test is very close to ours. So, at the end, although we think that the stress test could be a bit worse, the assumptions (without considering capital gains) could be enough for a negative scenario and would not imply changes in the capital needs calculated later on.

In all, although we think that the stress tests in terms of margins could have been in certain cases a bit more aggressive (in particular for commercial banks), it appears to be sufficiently stringent to confirm the value of the results.

Estimated losses analysis for banks and savings banks looks reasonable

When analysing the results of the stress tests for banks and savings banks we value as positive the outcome of the stress test implemented on the Spanish financial in terms of transparency, but above all in terms of writedowns and expected losses giving therefore credibility to the whole process, in our view.

If we compare the writedowns indicated by the regulator vs. the ones we calculated when we did our own stress test, we can see that these are in line with our estimates and in most cases even higher. In our exercise we have been very conservatives in our assumptions and we can conclude therefore that writedowns and impairments calculated by Bank of Spain and applied to savings banks have been fairly aggressive

Table 3

Cummulative imparment losses vs BBVA research estimates

	Cummulative impairment losses		
	Bank of Spain	BBVA Research	Difference (%)
Bankinter	2.5	1.6	54.4%
Santander	50.5	42.7	18.3%
Breogan	4.7	4.4	6.8%
Popular	11.3	10.8	4.6%
Diada	4.9	4.9	0.0%
Jupiter	17.8	18.0	-1.1%
Sabadell	6.6	6.7	-1.4%
Pastor	2.9	3.0	-4.3%

Breogan: (Caixa Galicia & Caixanova), Diada: (Caixa Catalunya, Manresa, Tarragona), Júpiter: (Caja Madrid, Bancaja, Caja Avila, Segovia, Rioja, Laietana & Insular de Canarias)

Source: CEBS stress tests, Bank of Spain, BBVA Research

Interestingly when we look at losses at individual credit portfolio we reached similar conclusion regarding losses on real-estate development and construction sector. While the regulator has not disclosed PD and LGD data for the various portfolios we used a PD of 40% and a LGD of 60% for this segment.

Tier 1 at 6% might be the main reason behind the divergence with market expectations

As we have hihglighted before, we believe that although hypothesis could be more stressed, we think that pre-provisioning income and imparment losses assumptions are conservative enough. Therefore, we believe that the hurdle rate in terms of capital is the main reasoning behind the difference between market expectations and the final outcome of the stress stests.

The CEBS has decided to use 6% Tier 1 ratio as the hurdle rate for recapitalisation. There are two questions to be answered in this regard:

Why not using core capital? Bank of Spain highlighted that despite markets usually refer to core capital, there is NO COMMON definition for core capital at a European level (which should be address by Basel III, by the way). Thus, agreeing in the definition should have delayed massively the release of results; therefore the CEBS has used Tier 1 and not core capital as the benchmark for capital.

The next question should be why using 6% as a hurdle rate? Although there has been some market commentators that have highlighted that the hurdle rate at 6% looks low, both Mr Vargas and Mr Roldan have stressed that the hurdle rate is 50% above the minimum regulatory level (which is 4%), which in their view is enough.

The main advantage that stress tests have, in our view, is that we can make our own assumptions to estimate the capital needs that the sector has in case the hurdle rate should increase to 7%. We estimate that the Spanish system should need c. EUR5.5bn more of capital and new institutions should be recapitalised. The total capital needs should be EUR21.6bn including the FROB (representing 2.1% of GDP), which in our view would still be quite manageable for the FROB and should not raise any question regarding the strenghts of the system.

Summary of the stress tests

Table 4

Summary of stress tests results for Spanish financial institutions

Entities	Committed Amount FROB (EUR mn)	Current Tier 1 (%)	Tier 1	Change in bp	Shortfall/ excess capital (6%)	Tier 1 (%)	Current RWA	RWA after stress	ch. %	Impairment losses	Pre-prov income + capital gains	
			after the adverse escenario			adverse ex- scenario FROB						Provisions
Jupiter	4,465	8.6%	6.3%	230	642	4.2%	223,066	213,929	-4%	17,583	7,148	5,543
Caixa	0	10.3%	7.7%	260	2,771	7.7%	162,979	162,979	0%	13,448	4,456	6,825
CAM	1,493	9.3%	7.8%	150	1,510	6.0%	86,534	83,865	-3%	8,162	4,163	1,253
Diada	1,250	6.6%	3.9%	270	-1,032	1.4%	52,861	49,108	-7%	4,877	2,467	730
Breogan	1,162	8.6%	7.2%	140	563	4.7%	58,516	46,890	-20%	4,741	2,042	1,032
Mare nostrum	916	9.0%	7.0%	200	449	5.0%	45,858	44,854	-2%	3,998	1,866	1,385
Espiga	525	8.6%	5.6%	300	-127	3.8%	28,881	28,852	0%	2,089	1,459	431
B. Civica	0	9.6%	4.7%	490	-406	4.7%	30,055	30,090	0%	2,549	1,071	645
Ibercaja	0	9.4%	6.7%	270	177	6.7%	25,291	25,291	0%	1,585	968	770
Unicaja	0	11.8%	9.0%	280	657	9.0%	21,909	21,909	0%	1,273	1,220	553
Cajasol	0	10.3%	6.0%	430	0	6.0%	21,237	21,237	0%	1,701	860	530
BBK	0	14.6%	14.1%	50	1,555	14.1%	19,202	19,202	0%	1,840	558	575
Unnim	380	7.2%	4.5%	270	-270	2.4%	19,703	18,349	-7%	1,657	760	290
Kutxa	0	13.0%	10.6%	240	741	10.6%	16,100	16,100	0%	764	548	256
CAI	0	9.4%	6.1%	330	15	6.1%	14,994	14,994	0%	1,137	582	414
Cajasur	800	1.8%	4.3%	-250	-208	-2.3%	12,094	12,141	0%	685	821	256
Total savings banks	14,358	9.2%	6.9%	230	7,306	5.6%	848,880	811,812	-4%	106,925	31,214	24,197
Santander	0	10.0%	10.0%	0	23,414	10.0%	579,621	585,346	1%	50,288	20,779	43,599
Popular	0	9.1%	7.0%	210	926	7.0%	92,571	92,571	0%	11,386	3,187	5,548
B Sabadell	0	9.0%	7.2%	180	695	7.2%	57,958	57,958	0%	6,572	2,126	2,685
Bankinter	0	7.5%	6.8%	70	245	6.8%	30,659	30,665	0%	2,477	879	1,313
Banco Pastor	0	10.5%	6.0%	450	0	6.0%	18,713	18,713	0%	2,927	1,028	814
Total Int. active banks	0	9.8%	9.7%	10	33,250	9.7%	849,592	898,649	6%	75,368	30,926	64,069
Other listed bank	0	9.4%	7.4%	200	3,055	7.4%	218,170	218,189	0%	25,180	7,779	11,217
Total system	14,358	9.5%	8.3%	120	44,359	7.6%	1,916,642	1,928,650	1%	207,473	69,919	99,483

Source: CEBS, BBVA Research

Table 5

Savings banks groups

New entity	Constituents
Jupiter	Caja Madrid, Bancaja, Caja Avila, Segovia, Rioja, Laietana & Insular de Canarias
Caixa	La Caixa and Caixa Girona
Cam	CAM, Cajastur (Caja Castilla la Mancha), Extremadura & Cantabria
Diada	Catalunya, Tarragona & Manresa
Breogan	Caixa Galicia & Caixanova
Mare nostrum	Caja Murcia, Pededes, SaNostra and Granada
Espiga	Caja Duero & Caja España
B. Civica	Banca Cívica: Navarra, General Canarias & Burgos
Ibercaja	Ibercaja
Unicaja	Unicaja
Cajasol	CajaSol & Guadalajara
Bbk	BBK
Unnim	Sabadell, Terrassa & Manlleu
Kutxa	Kutxa
CAI	CAI, Caja Badajoz & Caja Círculo
Cajasur	CajaSur

Source: CEBS, BBVA Research