

Spain
Special Report**Spanish Financial Institutions'
Domestic Loan Book Stress Tests**

FROB Funds Are More Than Sufficient

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Related Research

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- *Major Spanish Banks: Semi-Annual Review and Outlook (March 2010)*
- *Fund for Orderly Bank Restructuring - Spain (July 2009)*

Overview and Summary

Fitch Ratings has carried out three different stress tests focusing on the Spanish banking system's end-December 2009 domestic loan portfolio (57% of total assets). According to Fitch's estimates, under all scenarios, the total funds available under the Fund for Orderly Bank Restructuring (FROB) of EUR99bn are more than sufficient to achieve a 6% common equity to assets ratio for the overall Spanish banking system, helped by the existence of loan impairment and other reserves of EUR68bn at end-2009. The three scenarios include a "base case" scenario for which Fitch estimates that there is a reasonable probability that this could materialise, an "Irish stress" scenario, based on the market value decline in Ireland in the recent real estate crisis, and a "Japanese stress" or "highly-stressed" scenario based on the decline in residential land prices in Japan between 1991 and 2005.

The stress tests indicate a variety of outcomes to increase capital to a 6% equity to assets ratio and range from a possible EUR23bn draw down from the FROB in the base case scenario, a possible EUR49bn in the Irish scenario and a possible EUR88bn in the Japanese scenario. In practice, and based on the mergers of Spanish cajas that are in advanced stage, the FROB is being used to bring forward expected losses from loan portfolios while the restructuring of branches and staff levels is being passed through the profit and loss statement over the years.

The aim of these tests is to assess the amount of funds needed to either maintain the common equity to total assets ratio at end-2009 levels or to increase this ratio to 6%, once expected losses (EL) net of reserves and taxes are deducted from equity. Fitch views this latter level to be more appropriate to face a challenging operating environment and should provide greater comfort for the market as a whole. The reason for focusing on the domestic loan portfolio is that Fitch sees greater risks in these assets. It has not stressed exposure to Greek institutions or companies for which the Spanish banks only have a small a EUR1.3bn exposure. Also, the stress tests include loan portfolios of Spain's largest banks, but Fitch does not anticipate that these banks will have any need for FROB funds.

While the stress test analysis has calculated scenarios for the whole Spanish banking system, it has also looked at the bank and savings banks (caja) sectors separately. The tests conclude that while the bank sector would withstand the stressed scenarios reasonably well, the cajas would require a higher level of FROB funds as they have been particularly affected by exposure to the collapsed Spanish property sector, for which impaired loans are higher, foreclosed assets are greater and their equity base is lower than in banks. However, Fitch does not expect all cajas to be affected to the same degree.

Fitch rates 26 cajas with ratings ranging from the 'AA-' Foreign-Currency Long-Term IDR of Caja de Ahorros y Pensiones de Barcelona (La Caixa) to the 'BB+' (Rating Watch Positive) ratings assigned to Caja de Ahorros de Castilla La Mancha and Caja de Ahorros y Monte de Piedad de Cordoba (CajaSur) which were subjected to Bank of Spain intervention in March 2009 and April 2010 respectively. Both the latter institutions are at their Support Rating Floors.

All three scenarios are based on conservative non-performing loan (NPL) and loss given default (LGD) assumptions; NPL calculations include foreclosed and acquired real estate assets; and the scenarios assume no pre-impairment operating profit.

The International Monetary Fund (IMF) has estimated that the FROB may need to disburse EUR22bn under its adverse scenario.

The FROB was set up by the Spanish government in June 2009 and is funded with EUR9bn of capital. An additional EUR90bn in the form of government-guaranteed debt can be raised. To date, the FROB has issued EUR3bn of debt so that total funds available currently stand at EUR12bn. The call on FROB resources, already approved, totalled EUR10.2bn at end-June 2010, used to support seven different mergers involving 25 cajas. There are several mergers which have been announced which will not require FROB funds. For the bailout of CajaSur, FROB funds of EUR800bn have been injected, bringing the total FROB funding required to around EUR11bn to date. Under Fitch's Base-case, the FROB would have to raise an additional EUR12bn to reach a common equity/assets ratio of 6%, helping achieve greater confidence from investors and the market participants and appears to be a manageable amount.

Fitch expects muted growth for the Spanish economy over the next few years. Under Basel 3, more stringent liquidity and capital requirements will be required. Given these and the overcapacity of the caja sector, which had grown in number of branches by 20% during the years of property sector boom, this restructuring does not come as a surprise. While processes appear to be speeding up, mergers have been slow as the cajas' ownership structures are unclear and there are opposing political interests within their governing bodies. Of the 45 existing Spanish cajas, 37 are involved in 12 different processes, seven of which are outright mergers, while the remainder are integrating under an Institutional Protection Scheme mechanism (cross-guarantee or SIP).

Results and Assumptions on Fitch's Stress Tests

Table 1: Fitch's Stress Test Results

	Base-Case	Irish-Case	Japanese-Case
Total system			
Ratio of common equity/ total assets at end-2009 (%)	5.8	5.8	5.8
Average stressed NPL ratio (with foreclosed/acquired assets) (%)	13.7	16.7	16.7
Average stressed LGD (%)	36.6	42.0	60.6
Stressed loss (EL) on loans and foreclosed/acquired assets (EURm)	91,993	128,611	185,315
Total available asset impairment reserves at end-2009 (EURm)	67,740	67,740	67,740
Stressed EL after reserves (EURm)	24,253	60,871	117,575
Adjusted common equity/total assets (% , EL net of taxes)	5.3	4.5	3.3
FROB needed to maintain common equity at end-2009 level (EURm)	16,977	42,609	82,302
FROB needed for a common equity/ total assets ratio of 6% (EURm)	23,005	48,638	88,331
Banks			
Ratio of common equity/ total assets at end-2009 (%)	6.3	6.3	6.3
Average stressed NPL ratio (with foreclosed/acquired assets) (%)	11.7	14.1	14.1
Average stressed LGD (%)	39.2	45.5	63.3
Stressed loss (EL) on loans and foreclosed/acquired assets (EURm)	36,547	51,100	71,046
Total available asset impairment reserves at end-2009 (EURm)	26,403	26,403	26,403
Stressed EL after reserves (EURm)	10,144	24,697	44,643
Adjusted common equity/total assets (% , EL net of taxes)	5.9	5.3	4.5
FROB needed to maintain common equity at end-2009 level (EURm)	7,100	17,287	31,250
FROB needed for a common equity/ total assets ratio of 6% (EURm)	1,807	11,994	25,956
Cajas			
Ratio of common equity/ total assets at end-2009 (%)	4.9	4.9	4.9
Average stressed NPL ratio (with foreclosed/acquired assets) (%)	16.3	20.0	20.0
Average stressed LGD (%)	31.0	42.0	55.3
Stressed loss (EL) on loans and foreclosed/acquired assets (EURm)	44,489	61,952	97,357
Total available asset impairment reserves at end-2009 (EURm)	35,106	35,106	35,106
Stressed EL after reserves (EURm)	9,383	26,846	62,251
Adjusted common equity/total assets (% , EL net of taxes)	4.4	3.5	1.6
FROB needed to maintain common equity at end-2009 level (EURm)	6,568	18,792	43,576
FROB needed for a common equity/ total assets ratio of 6% (EURm)	20,450	32,674	57,458

Source: Fitch and Bank of Spain

Table 2: Main Assumptions Applied to Fitch’s Stress-Testing Analyses

	Base-Case	Irish-Case	Japanese-Case
NPL multiplier	1.5 x	2.0 x	2.0 x
NPL multiplier for real estate/construction companies	2.0 x	2.0 x	2.0 x
Decline in house prices (%)	30.0	50.0	65.0
Decline in commercial/ land prices (%)	50.0	50.0	65.0
Fire sale discount (%)	10.0	10.0	10.0
Average residential loan/value (LTV) ratio (%)	70.0	70.0	70.0
Average commercial loan-to-value ratio (%)	60.0	60.0	60.0
Stressed LGD - unsecured lending (%)	70.0	80.0	90.0

Source: Data adapted by Fitch from Bank of Spain, NAMA, Real Estate Economic Institute of Japan

Description of Fitch’s Stress Tests

Fitch obtained end-2009 data on lending, foreclosed and other acquired real estate assets, loan impairment and other reserves and equity for the entire banking system and its constituents from the Bank of Spain Statistical Bulletin and its Financial Stability Report of March 2010. The agency then carried out three different stress test scenarios that comprised a base case scenario which is a reasonable estimate of what could take place, another which replicates the collapse of the Irish property sector since 2008 and, lastly, one that contemplates the decline in residential land prices in Japan between 1991 and 2005.

The aim of the stress tests was to estimate expected losses from the loan portfolio and from foreclosed and other acquired real estate assets in order to estimate the net impact on equity after deducting the EUR68bn in loan impairments and other reserves and the potential for FROB draw downs. In its tests, Fitch assumed no pre-impairment operating profit in the Spanish banking system. The reason for this is that the FROB, in practice, is being used to cover expected losses on the domestic loan portfolio that have been brought forward, net of taxes. The key results are summarized by type of stress test in Table 1, and indicate the level of FROB funds needed either to maintain the common equity/total assets ratio at end-2009 levels or to raise this ratio to 6%.

At end-2009, the system’s gross domestic loan portfolio totalled EUR1,837bn, accounting for around 57% of total assets. Of this amount, around 59% was made up of mortgages. The remainder of the balance sheet largely related to foreign lending and to the fixed-income and equity securities portfolios. The latter have increased since end-2007, in line with liquidity management needs. When stressing domestic assets, Fitch has only focused on credit losses that could derive from the system’s domestic lending exposure and foreclosed and acquired real estate assets, as these assets are more sensitive to the current sluggish economic cycle in Spain and to the collapsed domestic property sector.

As per the June Quarterly review of the Bank for International Settlements, the exposure of Spanish banks to Greece was minimal at EUR1.3bn, while exposure to Portugal and to Italy totalled EUR86bn and EUR47bn, respectively, which is much smaller than the domestic construction and real estate exposure that totalled EUR445bn at end-2009. The agency has also carried out separate stress tests for banks and cajas to better understand the sensitivity of their individual portfolios to asset quality deterioration under extreme scenarios.

In arriving at its estimates, Fitch has defined probability of default (PD) and LGD assumptions as described below. Fitch is not able to estimate the amount of substandard or restructured domestic loans as at end-2009, as this information is not readily available. The amount of these loans could potentially become problematic, increasing the initial PD above the reported figure; however, Fitch assumes that these loans are included in the stressed NPL figure. The average LGD is defined as the product of the stressed LGD applied in each economic sector, asset class and scenario. Reserves for loans and foreclosed and acquired assets have

been assumed to remain constant in 2010 and, at EUR68bn, represent the primary buffer available to absorb stressed credit losses.

The assumptions and estimates have only been used for the stress tests and, thus, should not be externally considered as Fitch's view on how PDs and LGDs evolve. By undertaking these stresses, Fitch's aim is to measure the capacity of the entire banking system to cope with the property sector fall and its loss-absorbing capacity.

Assumptions and Estimates

In running its stress tests, Fitch has focused on two variables for the systems, the PD and the LGD. While the first one can be considered as an input variable, the second one is the result of undertaking certain assumptions on the potential recovery on the defaulted loan. The goal of calculating the variables mentioned above is to arrive at an EL figure for the portfolios. Before the EL is netted against the equity, two further steps are performed: (1) loan impairment and other reserves are deducted from EL; and (2) the 30% corporate tax rate is deducted from the resulting figure. The effect on equity is then estimated net of taxes.

Probability of Default

Under the base case, Fitch assumes that NPLs at end-2009 would rise by 50% for the entire portfolio except for those loans directly and indirectly related to the construction and real estate sector, which are assumed to increase by 100%. Total NPLs would then account for 8.8% of gross domestic lending. Fitch has also increased end-2009 foreclosed assets and other acquired real estate assets of EUR60bn by 50% to reach EUR90m. Considering these as impaired loans, the NPL ratio would rise to 13.7%. These percentages are similar to those projected by the IMF in its Global Financial Stability Report published in April 2010 (7.4% of total loans and 12.9%, if repossessed properties were included).

Under the Irish and Japanese scenarios a different stressed PD has been applied. This is a simple multiplication (two times the NPL ratio reported by the system) for each of the different loan categories at end-2009. Under both scenarios, Fitch has assumed that foreclosed assets have been multiplied by two to EUR119bn, considering a greater-than-expected adverse economic environment. As a result of this exercise, the average NPL ratio doubled to 10.2% and, when including foreclosed and other acquired property, the ratio is 16.7%, as seen in Table 1.

LGD for Unsecured Lending

LGD is the other important assumption used by Fitch in its stress tests. To arrive at average LGD figures, Fitch first distinguished between secured and unsecured lending. While in the first case, the recovery and LGD depend on the value of the collateral and any potential decline in market value, for unsecured loans or loans, where the only form of security is a personal guarantee, the final loss is much more difficult to predict. For this reason, Fitch applied the same recovery rates used by its structured finance group, which can be seen in the following table.

Table 3: Unsecured Recovery Table

Rating Stress (%)	AAA	AA	A	BBB	BB	B	CCC
Unsecured recovery	5	10	15	20	25	30	30
Cure Rate	5	10	15	20	30	35	40
Cured recovery ^a	10	20	30	35	45	55	60

^a: Rounded to the nearest 5%

Source: Fitch

The above table has been taken from Fitch's "Rating Criteria for European Granular Corporate Balance-Sheet Securitizations (SME CLOs)" report, published on 23 July 2009 and available on www.fitchratings.com.

Fitch has considered the base case as an 'A' scenario, the Irish case as 'AA' and the Japanese case as 'AAA'. The LGD has been derived by using the cured recovery rate included in Table 3. For example, in the Japanese case, the LGD has been calculated as $(1-10\%) = 90\%$. The flat 90% LGD has been applied to all unsecured lending in the portfolio. For the base and Irish case, the calculated LGDs are 70% and 80% respectively.

LGD for Secured Lending

The loss for secured lending takes into account the value of the collateral that guarantees the loan. In order to calculate this, three variables are considered: the loan to value (LTV) ratio; the market value decline (MVD) of the collateral; and the firesale discount needed in order to sell the collateral.

LTV: Within the mortgage portfolio of the system, Fitch has distinguished between residential and commercial properties, which arguably have different LTV ratios. In its stress tests, Fitch has assumed an average residential and commercial LTV of 70% and 60% respectively for all the three stress scenarios. These values have been derived from data on mortgage portfolios (of 45 cajas) received by the Fitch's covered bonds group on a quarterly basis. The 70% and 60% represent the maximum values of the range of weighted average LTV for each caja for their residential and commercial portfolio respectively as at end-2009. Fitch has decided to use the maximum value of the range and not the average to be more conservative.

MVD for the base case scenario: In this scenario, Fitch distinguishes between residential and commercial properties. In the first case, Fitch has assumed a residential MVD of 30%, in line with the forecasts made by Fitch's structured finance group (for more information, please refer to Fitch's press release "*Fitch Expects Spanish House Price Correction to Continue*" published on 15 June 2010 and available at www.fitchratings.com). For commercial property, a MVD of 50% has been assumed, given the lack of readily available data.

MVD for the Irish scenario: The collapse of the Irish property market led to a crisis in the Irish banking system between 2008 and 2010, as the large systemically important banks were highly exposed to commercial real estate. The sharp rise in non-performing assets in these banks posed a systemic risk for the banking system. In order to improve the liquidity of bank assets, remove the riskiest assets from banks' balance sheets and free management to concentrate on continuing business, the Irish government created National Asset Management Agency (NAMA), a special-purpose investment vehicle, to acquire certain assets from banks, mainly land- and development-related loans.

The Fitch stress test uses data published by NAMA as part of its business plan in October 2009. NAMA estimated a 50% average property price decline in Ireland from the peak in the early 2007 to a low in mid-2009. This value has been assumed by Fitch in the Irish stress test for both residential and commercial properties.

MVD for the Japanese scenario: Japan's land prices for residential property peaked at 5.37% of GDP in 1991, reflecting a property bubble which has since declined to 1.87% of GDP (end-2005). This represented a 65.18% drop in land prices over a 14-year period. This fall was even more pronounced for corporate land at 85.55%. Nevertheless, Fitch felt that the former was more representative for Spain, as the vast majority of the exposure in Spain is related to residential real estate development. The source of this data is the Japanese Real Estate Institute.

Fitch has applied Japan's decline in residential land prices since 1991 on the mortgage book, using a rounded value of 65% for both residential and commercial properties.

Firesale discount: In particularly illiquid or depressed real estate markets, a further discount over the value of the property is needed in order to sell property. Usually this discount reflects the haircut suffered in the liquidation of property, as

the buyers find themselves in a stronger position to negotiate a price. The haircut applied depends on many characteristics, such as the urgency of the liquidation, the type of collateral and the size of the property. Given the difficulties in collecting detailed data on all the properties backing the mortgage portfolio for the entire system, Fitch has applied the same discount used by its covered bonds group in liquidating Spanish cover pools. This percentage only depends on the urgency of the selling and does not take into account the composition of the mortgage book (for more information, please refer to the agency's "*Assessment of Liquidity Risks in Covered Bonds*" report, published on 2 March 2010 and available on www.fitchratings.com). Fitch has consequently applied a flat 10% firesale discount to all scenarios.

Corporate tax rate: Fitch has used the corporate tax rate currently applied in Spain, which is 30%.

Conclusions

The FROB funds of EUR99bn are more than sufficient to cover losses in any of the stress scenarios described in this report, even in the Japanese stress scenario. Moreover, if the agency were to include pre-impairment profit as a buffer, the need for FROB funds would decline substantially.

It is important to bear in mind that the stress tests have been carried out on the entire system and that there are differences between institutions, so that while the system as a whole may not need extensive FROB funding, individual institutions may proportionately call on FROB funds depending on their level of equity and their exposure to the construction and real estate sectors.

Given that banks have greater exposure to the unsecured lending, the stressed-LGD levels assigned to these assets have been more punitive on banks than on cajas. Despite this, and the higher level of asset impairment reserves in cajas, the banks have fared better than the cajas under all stress scenarios. This is largely a result of the lower level of capital in the cajas (average common equity/assets ratio of 4.9% at end-2009) as well as their higher exposure to the construction and real estate sectors, including a larger pool of foreclosed assets. There would be more pressure on the caja sector's equity base if FROB funds were not available. However, even within the caja sector, the exposures and level of capital can vary among institutions.

These stress scenarios represent an exercise aimed at identifying whether the FROB funds are sufficient to cover expected losses. The results of these stress tests should not be considered as Fitch's PD and LGD expectations, but rather as an indication that the system as a whole is capable of absorbing a highly stressed scenario without using the entire FROB funds available.

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