A Valuation of SAREB, the Spanish “Bad Bank”, Upside Using the Real Options Methodology

Roux Martínez F¹, Ruiz López F², Eguren S³

Abstract This paper develops a model to analyze the upside potential of profitability of the SAREB (“Asset Management Company for Assets Arising from Bank Restructuring”), the Spanish “Bad Bank”. The model is based in the Real Options methodology, that is especially adequate due to the convergence of two elements, (i) depreciated assets with a high upside potential, and (ii) a highly volatile market as it has shown to be the real estate Spanish market. Our results suggest that the SAREB has a higher than expected profitability potential that would be dedicated to increase the return to its shareholders, mainly private banks. Consequently we also show that after the financial crisis are emerging two types of banks in Spain, in one hand the losers who are transferring their real estate assets at a deep discount, and in the other hand the winners, capturing the upside potential of those assets as shareholders of SAREB, and consequently consolidating their strength in the Spanish Real Estate Industry. It is worth to mention that Governments should make an effort in properly redistribute the wealth generated by the real Estate industry.

Keywords: Bad Bank, Real Options, Valuation, Financial Crisis, Real Estate.

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1 SAREB Overview and Background

1.1 Legal Structure

On 25 June 2012, Spain requested the Eurogroup financial assistance to recapitalize the Spanish banking industry. In accordance with this request, the Spanish Administration created the SAREB to segregate impaired financial assets “toxic assets” of those credit institutions receiving public funding.

The legal structure of the SAREB was defined in RDL 24/2012, now passed as law 9/2012. The SAREB will be incorporated for a maximum period of 15 years, and initially as a Public Limited Company (Spanish “Sociedad Anónima”).

The purpose of the SAREB is the holding, management, acquisition and disposal of assets to be transferred to it by credit institutions receiving public support. These institutions receive debt securities issued by the SAREB with a State guarantee as payment for the assets transferred. (European Central Bank, 2012)

In a second phase starting by 2013, the SAREB eventually will set up a number of funds and a management company, to create and finance portfolios of assets in response to specific investor demand.

1.2 Funding Required, Capital Structure and Cost of Capital.

SAREB shareholders are mixed, Public and Private, Public ownership may not exceed 50% (BOE, Ley 9/2012) to prevent SAREB debt to consolidate as public debt increasing the total amount of Spanish debt outstanding. In any case the State guaranteed debt of the SAREB should increase the overall risk of the Spanish debt.

The equity mix is expected to be in the range of 45% Public vs. 55% Private. Although when facing a banking crisis regulators are forced to improvise (Aghion P et al, 1999) this private majority, could generate a conflict of interest (ECB, 2012) because private shareholders are banks and financial institutions that also have significant interests in the Spanish real estate industry, as shown in Table 1.

The total amount of assets to be transferred initially in December 2012 to SAREB will include those of; BFA-Bankia (22,318 million €), Catalunya Bank (6,708 million €), Novagalicia and Banco Gallego (5,097 million €) and Banco de Valencia (1,964 million €), in total 37.110 million € (El País, 2012).

The transfer of additional assets of other banks, such as Caja España-Duero, Liberbank, and BMN, will start in 2013 and will require further capital by current or new shareholders, but as stipulated in Law 9/2012 the total amount of assets of SAREB will never exceed 90.000 million Euros.
Taking into account these numbers we can build an illustrative balance sheet of SAREB, as shown in Figure 1, it shows that when matching the total amount of assets transferred with the sources of funds, it can be seen at a glance that 91% of funds comes from state guaranteed debt and only 9% is equity.

This high proportion of debt will have a very low cost because is State Guaranteed, consequently leverages the stream of earnings to be paid to the equity, in fact borrowing at a fixed low rate is increases sharply the rate of return of the firm’s equity (Brealey Myers, 1996).

The estimation of the minimum expected return on equity (ROE) according to the FROB (Fund for Orderly Bank Restructuring) is at 14%. But more importantly any increase on profitability on the total volume of assets goes to the equity, mainly controlled by Private banks.

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**Table 1 SAREB ownership as at 28 December 2012**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Capital (million €)</th>
<th>Stake (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Stake¹</td>
<td>2,114</td>
<td>55%</td>
</tr>
<tr>
<td>Direct funds</td>
<td>524</td>
<td>14%</td>
</tr>
<tr>
<td>Subordinated Debt</td>
<td>1,590</td>
<td>42%</td>
</tr>
<tr>
<td>Public Stake</td>
<td>1,705</td>
<td>45%</td>
</tr>
<tr>
<td>Direct funds</td>
<td>432</td>
<td>11%</td>
</tr>
<tr>
<td>Subordinated Debt</td>
<td>1,273</td>
<td>33%</td>
</tr>
<tr>
<td>Total Equity</td>
<td>3,819</td>
<td>100%</td>
</tr>
</tbody>
</table>


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*Fig. 1 Illustrative Balance Sheet of SAREB by December 2012*
1.3 Transfer Price of Real Estate Assets to SAREB

The transfer prices have been determined by Banco de España, and were sharply adjusted, they are based on the exercise performed by Oliver Wyman, a consultancy firm, in 2012, as presented in table 2, and include additional discounts taking into account some costs of SAREB such as administration and financial costs.

Table 2 Type of asset and haircut applied in the transfer price to SAREB according to FROB

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Average haircut</th>
<th>Asset Type</th>
<th>Average haircut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans¹</td>
<td>45.6%</td>
<td>Foreclosed assets²</td>
<td>63.1%</td>
</tr>
</tbody>
</table>

¹Loans include; loans on finished housing, land, projects, and other Real Estate assets.
²Foreclosed assets include; new housing, developments in progress and land.

As a consequence of the haircuts applied, the final price of the assets ranges between 54% and 37% of their initial book value, depending if they are loans on assets or physical real estate assets.

2 The Real Options Approach

2.1 Advantages of the Methodology

An increasing number of academics and corporate practitioners defend that traditional discounted-cash -flow (DCF) approaches such as the standard net-present-value (NPV) rule, cannot properly capture management’s flexibility to adapt and revise decisions in response to unexpected market developments (Trigeorgis, 1996). DCF approaches build “expected scenarios” based on assumptions. But they are not able to capture the management’s flexibility to make decisions throughout the process changing the outcome of the project.

Real Options methodology is based on the financial options theory to value derivatives, but instead of using a financial asset (e.g. a share) as underlying, uses a real asset (e.g. a physical asset or a project), its advantage is that allows to value investment decisions taking into account the flexibility to adapt to the changing market conditions and make decisions throughout the life of a project.

An Option is conceived as a right but not an obligation to make a decision in a period of time. There are two kinds of options, “calls” and “puts”, a “call” option gives the right to buy an asset at a specified exercise price, and the “put” option gives the right to sell the asset at that exercise price. Both “calls” and “puts” can be “European”, if they must be exercised at a fixed date, or “American” if they can be exercised at any time before a final date.
2.2 Numerical Methodology Application to Value the SAREB

To value the SAREB we take into account its flexibility to adapt to market conditions, meaning that if Real Estate Market conditions improve it can gain the upside, and if they decline SAREB does not lose a lot because it can always sell all or part of its assets that are valued at a low price vs. the market. Consequently the assets of SAREB include an abandonment option, which is an American Put Option. To show the value of it, we build a base case and some sensitivities regarding (i) the standard deviation, and (iii) the abandonment price.

The valuation methodology applied is the simple discrete-time model presented by Cox, Ross and Rubinstein in their famous article published in the Journal of Financial Economics in 1979. As a starting point five variables must be defined:

1. The underlying assets; are the Real Estate assets transferred from the affected banks. We take the value of the assets transferred until December 2012 amounting 37,110 million €. We assume that the haircut that they have suffered is 55%, a figure between 46% and 63% as presented in previous points, consequently their initial book value was 82,470 million €. We also treat the total amount of assets as a whole and its evolution in percentage in order to show in a simple manner the evolution of its value. Meaning that the 82,470 million € are 100% of the value before the haircut, and that 37,110 million € are 45% of the book value. One important element of the Real Options vs. Financial Options, is that the owner of a financial option can not affect the value of the underlying asset (e.g. a share of Telefónica), but the manager of a real asset can raise its value (Copeland Antikarov, 2003). Consequently the proper management SAREB assets have a lot to do with the final value extracted from them.

2. The exercise price; the minimum price at which assets can be sold. Due to the haircut suffered by the assets transferred to SAREB it can be assumed that it is 37,110 million €.

3. Time to expiration of the option; fifteen years, equal to the life of SAREB. It is worth to mention that this long life increases the value of the option because the probability of price increase of the Real Estate underlying assets is also higher.

4. The standard deviation of the price of the underlying asset; is the standard deviation of the price of the Real Estate assets. This industry traditionally has shown higher volatility than the stock market, and it has grown sharply during the last years, as shown in Table 3. In the base case it is assumed a standard deviation of 40%, showing the higher than the IBEX 35 volatility of the industry.

5. The risk-free rate over the life of the option; we assume it is the rate of the Spanish Public Debt for an equivalent period of time of 15 years, of 6.5%.
Table 3 Annual Standard deviation of Real State Spanish quoted companies, average of them and IBEX 35 as a reference

<table>
<thead>
<tr>
<th>Company Name, average and Index</th>
<th>Standard Deviation σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reyal Urbis</td>
<td>96%</td>
</tr>
<tr>
<td>Colonial</td>
<td>69%</td>
</tr>
<tr>
<td>Sacyr y Vallermoso</td>
<td>59%</td>
</tr>
<tr>
<td>Realia</td>
<td>48%</td>
</tr>
<tr>
<td>Average</td>
<td>68%</td>
</tr>
<tr>
<td>IBEX 35</td>
<td>29%</td>
</tr>
</tbody>
</table>

Source: La Caixa, December 2012

Once the variables are identified, an event tree showing the paths that could be followed by the value of the underlying asset is built, as shown in Figure 2.

Fig. 2 Present Value event tree without abandonment option

After building the event tree, the real option to abandon is computed at each node of the tree and calculated the present value of it. As shown in figure 3, the flexibility has added value, enhancing the project upside in case of Real State Price increases, and limiting the downside to a level close to the initial assets value. When taking into account the option to abandon, the value of the assets obtained reaches 47,090 million €, 9,980 million over the initial asset valuation of 37,110 million €, representing a 12%.
Finally a sensitivity analysis is done and presented in Table 4, showing that even the most conservative case; an additional haircut of 25% in the value of assets, and a low $\sigma$ at 20%, well under the IBEX35 volatility, reaches a value of 38,018 million €, over the initial value of assets of 37,110 million €.

Table 4  Sensitivity analysis

<table>
<thead>
<tr>
<th>Standard Deviation ($\sigma$)</th>
<th>Initial Value 37,110 million €</th>
<th>Additional haircut (-25%)$^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>40,486 million €</td>
<td>38,018 million €</td>
</tr>
<tr>
<td>30% (close to IBEX35)</td>
<td>43,683 million €</td>
<td>40,141 million €</td>
</tr>
<tr>
<td>40%</td>
<td>47,090 million € (base case)</td>
<td>42,694 million €</td>
</tr>
<tr>
<td>50%</td>
<td>50,242 million €</td>
<td>45,214 million €</td>
</tr>
</tbody>
</table>

$^1$An additional haircut of 25% of the price would drive to an initial value of 27,833 million €

On top of this valuation it is important to notice, that due to the high proportion of State Guaranteed debt on SAREB funds (91%) the upside on profitability will go directly to pay the equity, mainly controlled by private banks.

In fact the European Central Bank on its opinion published on 14 December 2012 recommends to impose limitations on the payment of dividends to ensure the timely redemption of State guaranteed bonds, and that all cash held by the SAREB could be applied to the early repayment of the State bonds (BCE, 2012).
3 Conclusions

Since the SAREB bears a real option that generates significant upside potential, it should be taken into account. Our valuation of the upside is in the range of 10.000 million € (+12% on the value of Real Estate assets transferred).

The high volume of State Guaranteed debt at a fixed low rate on SAREB funds causes that all the upside goes to the shareholders that are mainly private banks.

This makes explicit that after the financial crisis are emerging two types of banks in Spain, in one hand the losers who are transferring their real estate assets at a deep discount, and in the other hand the winners, capturing the upside potential of those assets as shareholders of SAREB and consequently consolidating their strength in the Spanish Real Estate Industry.

It is worth to mention that in this environment Governments should make a real and proportionate effort to redistribute the wealth generated by the Real Estate industry.

4 References


