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The weakest links in the crisis of the Spanish Savings Banks

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Abstract

The bail-out of the Spanish financial system was the largest in the Eurozone. The Spanish savings banks were the main direct recipients of public support between 2010 and 2012 and most of the bail-out money was transferred to the savings banks after a series of mergers and acquisitions were completed among these entities. This article analyses the evolution of the savings banks in the years of economic growth preceding the crisis and their performance in the early aftermath of the 2007 crash using previously unexplored data from the annual financial statements of the 45 savings banks. We conclude it is possible to observe distinct behaviours among the savings banks during the boom years and we estimate the largest part of the bail-out money corresponds to losses registered by a small number of savings banks that were already severely impaired before the merger process got under way.

1 | INTRODUCTION

The last banking crisis in Spain marked the demise of the Spanish savings banks, long-standing financial institutions that made up more than half of the total financial assets of the Spanish financial system. In the years leading up to the crisis, the savings banks gradually outgrew commercial banks in asset size (when compared to the commercial banks' domestic assets), amount of credit extended to the economy, number of employees and offices. After the international financial crisis broke out in 2007, Spanish banks, including savings banks, appeared robust enough to withstand the downfall. However, the outcome differed widely from the initial estimates and in 2010 the Government at the time requested a rescue package from the European Union to salvage the banking system: around 60 billion euros were used for recapitalizing troubled banks. The Spanish bailout was the largest in the Eurozone and the process took 3 years to complete, from 2010 to 2013. Most of the bail-out funds were injected into the savings banks sector

between 2010 and 2012. Six years down the road, in February 2019, Congress approved a report on the crisis acknowledging several facts that question the official narrative adopted by many Spanish and international institutions and academics over this time span. One that is directly related to the scope of the analysis laid down in this article refers to the explicit recognition that the prevalence of bad practices in the banking sector before the crisis went well beyond the 'politicization' of the savings banks, often presented as one of the main causes behind the crisis (BOCG, 2019).

The literature on the Spanish savings banks generally analyses the sector at an aggregate level and commonly extrapolates aggregate trends to individual entities. A by-product of this is the predominant focus in the existent literature on common elements of the savings banks when trying to explain their positive performance in the decades before the crisis, their relative performance with respect to commercial banks or the causes behind the bankruptcies that led to the 2010 bailouts.¹ This approach fails to account for the differences among the behaviour

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of the 45 savings banks in the period up to the onset of the 2007 financial turmoil in the United States and the degree of vulnerability of each entity once the crisis broke out. Accounting for these factors contributes to a deeper understanding of the causes that led to the crash and hopefully, to a better understanding of how to manage the future banking crises.

This paper shows that, despite similarities in their organizational structures and while operating in the same macroeconomic context, the Spanish savings banks followed different strategies and growth patterns and, consequently, their situation differed at the time of the bailout. Although most of the bailout was transferred to the savings banks after a series of mergers and acquisitions among these entities, we estimate that the largest part of the bailout corresponds to losses registered by a small number of savings banks that were already severely impaired before the mergers began.

The Spanish banking crisis occurs in the context of the 2007 international financial crisis, a systemic event of considerable proportions that has frequently been interpreted through the lens of Hyman Minsky's analyses on the intrinsic instability of the financial system (Minsky, 1975, 1986, 1992a, 1992b). We use elements of this approach such as the analysis of robust and fragile financial structures, the Financial Instability Hypothesis and analysis of cash flows and liability structures to guide our research.

The structure of the article is as follows: in Section 2, we address the existing approaches in the literature on the crisis of the Spanish savings banks and set out the framework that guides our research. In Section 3, we describe the details regarding the public bailout of the savings banks and the mergers among savings banks that preceded it. In section four we analyse the evolution of the savings banks in the years of economic growth preceding the crisis and their performance in the early aftermath of the 2007 crash using previously unexplored data from the annual financial statements of the 45 savings banks and in section five we present various estimates of the default likelihood of individual banks and savings banks using the variables described in Section 4. One of our main aims has been to establish whether it was possible to observe distinct behaviours among the savings banks during the boom years, that is, before the bust of the homegrown real estate bubble. We conclude in section six.

2 | CONTEXT AND GENERAL FRAMEWORK

In the words of Gavin and Hausman (1996): 'Chains break at their weakest link, but that does not mean that

the specific flaws in the weakest link fully explain why the chain broke; one needs also to understand what caused the tension on the chain.' With respect to the Spanish banking crisis, a number of authors have identified the 'tension', but there has been scarce to no focus on the 'weakest links' and thus there is little account of the heterogeneous strategies followed by savings banks in the decade before the crisis. This is where our article makes its main contribution.

The so-called tension referred to before is analysed in studies such as Serra (2011), Poveda (2011), Royo (2013), Ruiz et al. (2016), or Ruiz and Cristian (2019) which focus on the financial system's increasing reliance on international financing, excessive credit expansion and heavy concentration in the real estate sector, weaknesses in the regulatory framework, conflicts of interests among property appraisal firms and credit originators and national regulators' weak response to the increasing risk exposure in the system. Another significant element outlined by Ferreiro et al. (2013, 2016) and Ferreiro and Gómez (2015) is the inadequate fiscal policy which these authors consider to have been procyclical, lacking in public expenditure and uncoordinated with the monetary policy implemented by the ECB. Additionally, Sanabria and Medialdea (2016) stress the importance of the boom and bust stages of the Spanish economy as part of a single phenomenon characterized by the interconnectedness between debt and asset price bubbles, amplified by the inflow of foreign capital before the crisis and the slow deleveraging process after the crisis.

The Spanish banking crisis occurs in the aftermath of the 2007–2009 international financial crisis, although Spanish banks were not exposed to the U.S. subprime markets. The banking crisis was related to the existence of a domestic real estate bubble, which began to deflate in 2007, after the shut-down in securitization markets, which many Spanish banks and savings banks relied on for funding (Carballo-Cruz, 2011; Ruiz et al., 2016).² The international financial crisis has often been interpreted in relation to various aspects of Hyman Minsky's writings on financial instability.³

In this article, we use a series of elements from Minsky's framework to guide our research on the banking crisis in Spain, as we analyse the savings banks' annual financial statements over a period of 10 years. We begin by looking at the boom (the period that preceded the 2007 turmoil) bailout as for Minsky, financial instability is determined by mechanisms within the system, which generate financial fragility 'endogenously' or 'naturally' during periods of growth (Minsky, 1986, 1992a, 1992b). We then focus on the bailout, which was carried out between 2007 and 2010. As Minsky put it: "over periods of prolonged prosperity, the economy transits from

financial relations that make for a stable system to financial relations that make for an unstable system” (Minsky, 1992a, 1992b). He also stresses the importance of the agents’ ability to repay their debts as a crucial aspect in determining the health of the economy. In his view, the stability of an economy depends on the nature of firms’ financing sources for investment and fixed assets.

We use Minsky’s perspective as a guide to analyse a specific sector, made up of firms that are financial institutions and that, as Section 4 will show, adopted different growth strategies, some of which can be associated with a higher degree of fragility: an increase in leverage and reliance on market based debt- more volatile and expensive than deposits- and an increasing share of profits associated to unsustainable sources (such as proceeds from selling assets acquired in the past that had increased in value over the years). We look to establish whether these trends can help to identify the weakest entities, those which registered the highest losses once the real estate bubble burst and needed to be bailed out. In Minsky’s analyses, there is the idea that the appropriate policies can curb the worst excesses of a free market economy, but an incoherent response will amplify the initial problems (Minsky 1986, 1992a, 1992b). Therefore, our analysis, by shedding light on the different behaviours of the savings banks, also has relevant policy implications.

3 | FROM MERGERS AMONG THE SAVINGS BANKS TO THE BAILOUT

The mergers, acquisitions and restructurings of the savings banks (hereafter, ‘the mergers’) began in 2010. The first phase of the mergers was called *Sistema Institucional de Protección* (The Institutional Protection System, also known by its Spanish acronym, SIP) and consisted of each entity maintaining its individual legal and organizational structure, while consolidating with the rest of the entities in the SIP when assessing the resulting group’s solvency, liquidity and risk exposure. It was argued at the time that the SIPs would generate positive feedbacks such as improved efficiency, increased productivity, greater profit-generating capacity and a boost to the savings’ banks solvency. The mergers were thus authorized due to the positive assessment of the future viability of the entities involved. If necessary, then the SIPs could receive assistance from the *Fondo de Reestructuración Ordenada Bancaria* (The Fund for Orderly Bank Restructuring, FROB) whose initial purpose was to facilitate the mergers of those savings banks considered viable (or unlikely to fail, paraphrasing the current institutional jargon on topics related to bank resolution). The loans extended by

TABLE 1 Stress test forecasts of the SPANISH financial system’s capital requirements (billion euros)

Date	Additional capital in adverse scenario	FROB loans to date
2010	1.8 (EBA)	10.4
(June) 2011	0 (EBA)	11.4
(December) 2011	26.1 (EBA)	18.9
2012	53.7 (Oliver Wyman Report)	25.3
2015	61.4 (BdE estimates for recapitalizations)	

Source: EBA and BdE.

the FROB carried an annual interest rate of 7,75% and could be converted to equity if they could not be reimbursed.

The idea at the time was that the Spanish banking sector would only have to confront a mild crisis. This optimistic diagnosis was underpinned in part by the stress tests performed in 2009 by the European Banking Authority (EBA) that estimated the Spanish banking system would require no more than 2 billion euros of public support in order to secure its solvency.⁴ Additional capital needs for four of the new entities resulting from the mergers were estimated to amount to a relatively reduced 1.8 billion euros.

A year later, in July 2011, new results of the EBA stress tests were made public and they indicated that the Spanish financial system was not in need of any additional capital. However, 5 months later the EBA increased its capital requirements estimates for Spanish entities to a little over 26 billion euros and in September 2012, the international consulting firm Oliver Wyman issued a report estimating 54 billion euros of additional capital needs. According to 2015 data released by the Spanish central bank (Table 1), the *Banco de España* (with the Spanish acronym BdE), the total public support for recapitalizations amounted to approximately 61.5 billion euros (Banco de España, 2015). In addition, 50.7 billion euros more were used to acquire impaired assets from the system.⁵ According to some authors, the inaccuracy in gauging the effects of the crisis was due to the underestimation of the negative impact of austerity policies on employment and economic growth (Blanchard & Leigh, 2013; Muñoz de Bustillo, 2014; Álvarez, Uxó, & Febrero, 2019).

In 2011, new regulation was passed that increased minimum capital requirements for savings banks to 10% Tier 1 capital relative to risk weighted assets.⁶ The minimum ratio for banks was 8%. The savings banks could only raise this extra capital by increasing their profits, which was highly unlikely in an adverse macroeconomic context.⁷ At the same time the Banco de España (2011)

TABLE 2 Distribution of the bailout by savings bank (SB)

Entity	Public aid received (bn EUR) ^a	Share in total public aid (%)
Caja Madrid	12.8	21
Catalunya Banc	12	19
Bancaja	7.4	12
Caixanova	5.3	9
CAM	5.2	8
Caixa Galicia	3.6	6
CCM	1.6	3
CajaSur	0.3	1
Total	48.2	79

^aPublic aid received prior to mergers.

Source: BdE and SAREB.

was arguing the main structural difficulties of the savings banks consisted in their complex organizational structure, which made it impossible to raise capital by issuing stock, and the weaknesses in their management. The extra capital charge could thus be interpreted as a way of pressuring the savings banks to turn into regular commercial banks. Which practically all of them did, with only the two smallest entities (Caixa Ontinyent and Caixa Pollença) maintaining their savings bank structure. In the summer of 2011, large entities that resulted from the mergers such as Bankia and CaixaBank became publicly traded firms. Poveda (2011) refers to the procyclical effects generated by the 2011 regulation and stresses the rush in the adoption of these norms that required more capital from the savings banks than EU norms envisaged and penalized them relative to banks. The regulation was programmed to take effect 2 weeks after its publication, an authentic legislative frenzy compared to the 2019 deadline for implementing most of the EU financial regulation.

Most of the bailout was channelled to the savings banks after the mergers were completed, which makes it more difficult to establish exactly which entities needed to be bailed-out in the first place. Table 2 sums up data from the BdE (2015) showing around 80% of the bailout were absorbed by six entities alone. Three of them received public support before the mergers—Caja de Ahorros del Mediterráneo (CAM), Caja Castilla la Mancha (CCM) and CajaSur. The amounts they received are considerably smaller compared to the amounts allocated to the entities that were recapitalized after the mergers took place. The entities that absorbed most of the bailout were Caja Madrid, Catalunya Banc and Bancaja.

4 | MAIN TRENDS IN THE SAVINGS BANKS SECTOR BETWEEN 2000–2009

The evolution of several indicators calculated using the savings banks' individual financial statements reveal distinct behaviours that we present in a concise manner in this section, by grouping the 45 savings banks into three categories.⁸

- Group A: seven entities that did not receive public aid.
- Group B: 30 entities that received a small amount of public aid (below 1 bn euros at the entity level).
- Group C: eight entities that absorbed most of the public aid (above 1 bn at the entity level).

In this section we focus on the savings banks' growth patterns and we analyse the impact of the crisis on their balance sheets in the 2 years before the mergers. All the data were collected from the savings banks' annual reports, as submitted by the entities to the relevant financial market supervisor (the National Committee for Securities Markets, in Spanish *Comisión Nacional del Mercado de Valores*, with the acronym CNMV).

All entities expanded their loan portfolios in the decade prior to 2007 and used different sources of funding. We look for possible signs of deterioration of the entities' solvency in this period and observe clear differences between the three groups and a general shift in the indicators of each group after 2007.

All three groups considerably increased their lending between 2000 and 2008. Group C increased its lending 3.8 times, followed closely by group B (3.5 times) and group A (3.4 times).

The evolution of the loan-to-deposit ratio gives the first picture of each group's funding strategies. If deposits are insufficient to support credit growth, then alternative funding sources are needed, which will likely imply higher costs (depositors' negotiating power with respect to the interest rates they receive are practically inexistent; financial institutions will generally pay a lower interest rate to their depositors than to bondholders or other banks in the interbank market). More market-based financing could also imply a higher degree of fragility depending on the maturity of the issued debt, the nature of the lenders, the possibility of rolling over the debt, etc.

Figure 1 shows that Group C had systematically decreased the proportion of deposits over loans since 2000. Group C starts off with a lower deposit-to-loan ratio than the rest of the groups and the ratio decreases even further from 82% in 2000 to 63% in 2007 and stays below 70% until 2009. The ratio in Group A decreased from 110% in 2000 to 84% in 2009 and in Group B it moved

between 106% and 102% through the analysed period, hitting a 92% low in 2007.

The drop in the deposit-to-loan ratio was compensated by issuing debt securities. We analyse the increase of the ratio of debt securities relative to deposits (hereafter, 'debt-to-deposit') and observe an increase in the three groups and different dynamics in each group (Figure 2).

The ratio increases more than threefold in Group C from 17% in 2000 to 60% in 2007, an indication of a considerable increase in overall funding costs. This also implies rising exposure to liquidity risk and the possibility of being severely damaged in case access to bond markets is lost. Funding costs can also increase if investors forecast a drop in the issuer's present or the future solvency. Investor perception is also prone to contagion from developments in other parts of the financial sector, which can lead to even solvent entities being affected if they rely heavily on the markets for financing.

The data for Groups A and B show the similar upward trend, but much lower levels of market-based indebtedness relative to deposits. The ratio for Group A rises from 6% to 27% and for Group B it rises from 6% to 14% between 2000 and 2007.

Figure 3 shows the evolution of the rate of return on assets (total profits relative to total assets or ROA) in the last decade the savings banks operated under their original structure. Group A registered a ROA of between 50 and 25 basis points above that of the other two groups in the 2000–2009 period. Starting 2006–2007 the rate of profits decreases for all groups, and Group C plummets to almost 0%.

The seemingly good results of Group C in 2007 are due to the high profits Caja Madrid registered that year. In 2007 this entity shored in record profits of almost 2.8 billion euros, a 176% increase with respect to the profits in 2006. This amount represented 54% of the total profits of Group C (in 2006 the share of Caja Madrid's profits was 30%). However, 87% of the 2007 profits were obtained by selling financial assets, including the exceptionally profitable sale of Endesa shares (a large electricity and gas company), with a capital gain of 2 billion euros. This one-off operation secured high profits in 2007, but by the end of 2008, profits had dropped 71%.

We can see in Figure 4 a large share of the profits of Group C consisted of profits arising from financial operations, most of which were capital gains from asset sales (especially in 2008 and 2009).⁹ Figure 4 shows the weight of financial operations in the profits of Group C increased

FIGURE 1 Deposit-to-loan ratio groups a, b and c *Source:* Annual financial statements (CNMV)

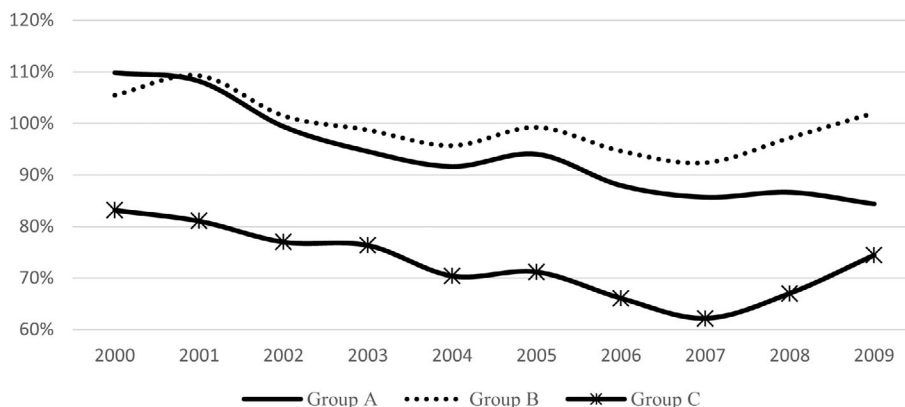
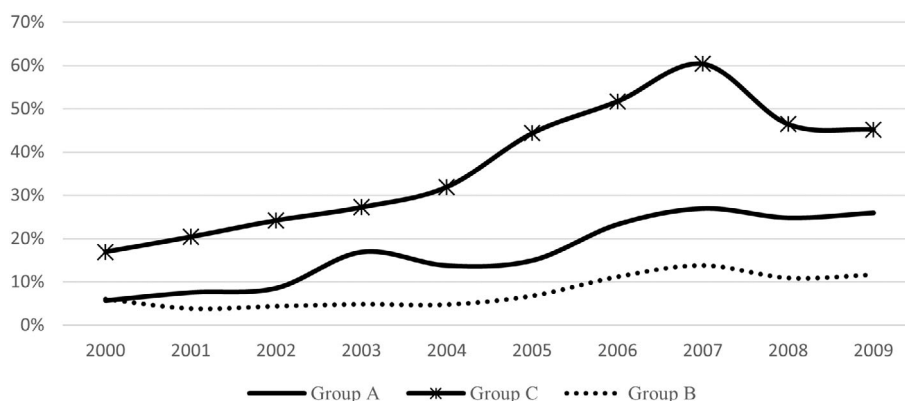


FIGURE 2 Debt-to-deposits all groups *Source:* Annual financial statements (CNMV)



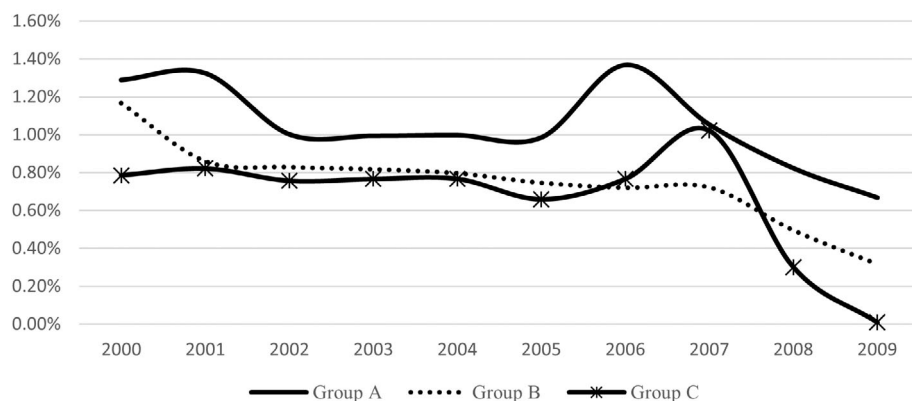


FIGURE 3 Evolution of the return on assets (ROA) Source: Annual financial statements (CNMV)

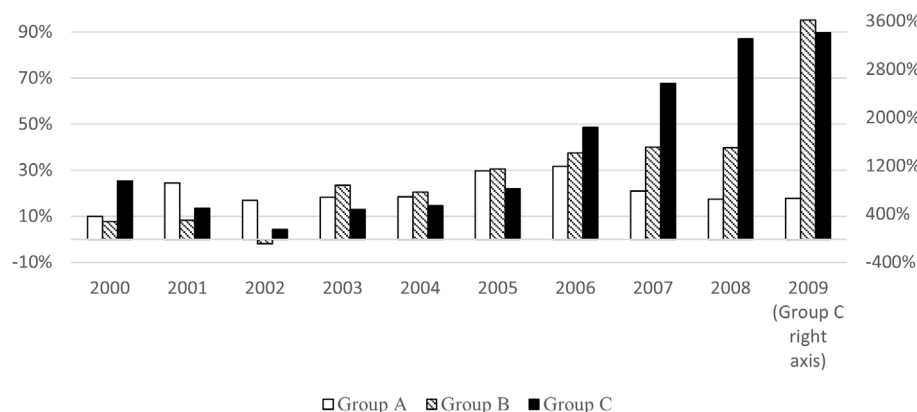


FIGURE 4 Share of financial operations in total profits Source: Annual financial statements (CNMV)

from an already significant percentage of 45% in 2005 to 68% in 2007 and 87% in 2008. In 2009, because of the high overall losses registered in their other lines of business, financial operations profits of Group C would have represented 3410% of total profits (shown on the right axis in Figure 4). This shows that in 2008 a group of savings banks with a network of 8094 branches extending loans all over the country made most of its profits from operations that can hardly be considered a sustainable source of income, as there is a limit to the assets an entity can sell and the extent to which this can result in windfall capital gains.

The share of financial operations in the profits of Group A is lower throughout the period: it represents 10% in 2000 and peaks at 32% in 2006. In 2008 and 2009, it decreases, as opposed to the evolution in the other groups. The share in Group B increases steadily, remaining above that of Group A and below Group C.

Before the crisis the savings banks had set up numerous subsidiaries and affiliate companies (hereafter 'affiliates') whose profits and losses consolidated with the profits and losses of the parent savings banks. Affiliates also commonly received credit facilities from the savings banks, which resulted in the savings banks acquiring a double risk exposure: on the one hand, the possible losses of the affiliates impacted in their annual results and, on

the other, the possible defaults of the affiliates on their loans could generate additional losses for the financial entities. In 2006 and 2007 both Group A and Group C reported the similar results with respect to their affiliates (Figure 5).

In 2007, the profits of the affiliates of Group A continued to rise, while the profits of Group C dropped 43%. In 2008, the affiliates of Group C registered losses and in 2009, the size of the losses increased threefold. Group B followed the same trend as Group C, but the size of affiliates' profits and losses is more reduced. Therefore, apart from recording the highest delinquency ratios and the highest percentage of profits stemming from financial operations, as shown in the two previous sections, Group C also registered the highest losses in their affiliate portfolios in the 2 years preceding the mergers.

Finally, the evolution of the leverage ratio (total assets to equity) also displays different trends in the three groups (Figure 6). Group C systematically registers the highest leverage ratio, especially since 2007 when plummeting profits led to more debt being issued to finance existing and new assets. Assets in Group C amounted to 17 times the level of total equity in 2005 and increased to 22 times the size of equity in 2009. Despite substantially increasing its leverage, this group registered the lowest returns, as shown in Figure 3.

FIGURE 5 Profits and losses of affiliate companies (million euros)

Source: Annual financial statements (CNMV)

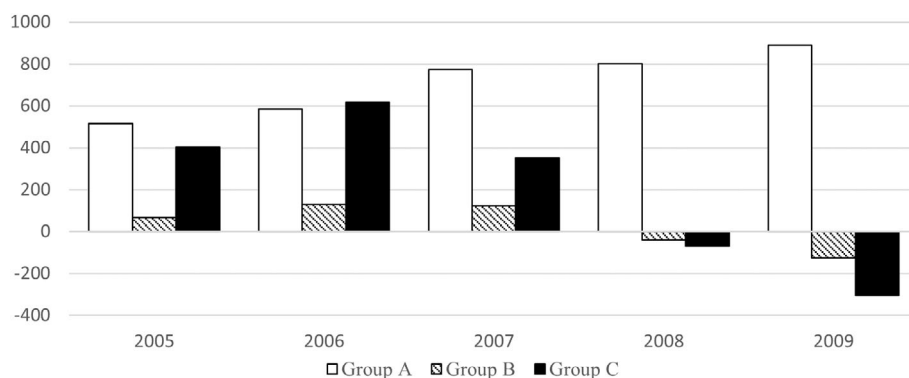
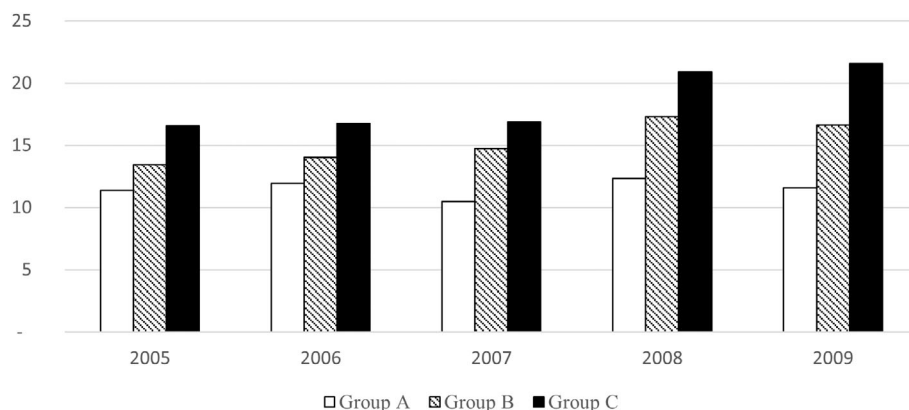


FIGURE 6 Leverage ratios (total assets to equity) Source: Annual financial statements (CNMV)



To sum up this section, it is interesting to point out that the entities that took on the most risks - both on the asset side (greater credit expansion and lower quality reflected by non-performing loans) and on the liability side (lower deposit-to-loan ratio, higher leverage) – did not obtain higher returns, nor did they have a stronger capital position and, furthermore, before they were rescued they had to resort to selling assets in order to cushion the impact of the crisis.

5 | MODELLING PRE-CRISIS BEHAVIOUR

So far, we have shown stylised facts of the different growth patterns of the savings banks and what we interpret as the varying degrees of their fragility in terms of higher exposure to wholesale markets, profitability, leverage, one-off financial operations supporting profits in the years before the mergers and considerable losses registered by their affiliate companies. The analysis carried out in the previous section is reflected parsimoniously in the empirical analysis contained in this section: we look to identify variables that can discriminate between ‘good’ or ‘bad’ banks and we find that several of the variables associated to a higher degree of fragility are good

predictors of whether an entity will require a bailout. Our choice of relevant variables is restricted by the relatively high degree of aggregation of the available data, however we are able to identify several features of financial fragility that were visible in the years immediately prior to the crisis. Therefore, we propose a simple modelling framework of binary choice models to gauge the default likelihood of commercial banks and savings banks based on 2008 and 2009 balance sheet information.¹⁰ These are the 2 years preceding the mergers and the data capture the first effects of the international crisis.

We use the following ratios as explanatory variables:

- The ratio of financial operations to consolidated profits.

We saw that during the first years of the crisis savings banks in difficulties tended to boost their profits by selling financial assets that yielded important capital gains, therefore income generation relied mainly on one-off operations and less on interest income or fees and commissions. We can think of these entities as being in the forefront of a Ponzi scenario dependent on unsustainable sources of profits (Minsky, 1992a, 1992b). We expect this coefficient to be positive as a higher ratio would increase the probability of default.

- The profitability of affiliate companies.

We expect the model to return a negative sign for this coefficient since an increase in the profitability of these companies should reduce the probability of an entity facing difficulties. As we have already explained, the importance of this ratio is twofold.

- The leverage ratio, measured as equity over assets.

We included this ratio to capture the difference between the entities that were more leveraged than those that maintained lower leverage ratios. Minsky (1991) theorizes that entities with more leveraged balance sheet structures will have a greater propensity to move from a speculative position to a Ponzi scheme. This idea agrees with the evolution of the leverage ratios shown in Figure 6. We expect this coefficient to have a negative sign.

The model distinguishes between the entities that did not need public money and entities that received financial aid.

The specification is as follows:

$$D_{y/n} = \hat{\alpha} + \hat{\beta}_1 F + \hat{\beta}_2 ACP + \hat{\beta}_3 LR + u_i.$$

Where $D_{y/n}$ is the endogenous binary variable, which is equal to 1 if the entity received public support and 0 if it did not; F is the ratio of financial operations to consolidated profits, ACP represents the profitability of affiliate companies and LR is the leverage ratio. In Table 3, we summarize the expected signs of the estimators and their impact on the likelihood of a bailout (LB). Thus, an increase in the ratio of profits from financial operations to total profits increases the likelihood of receiving a bailout. On the contrary, an increase in the profitability of affiliate companies reduces this likelihood, as does a higher share of equity over assets.

We attach the results of the estimation of the probit and logit models in Table 4 shows all coefficients are significant and have the expected signs.

In analysing the residuals, the conventional classification criterion is that below an error of ± 0.5 the model

TABLE 3 Expected sign and effect of the estimators

Estimator	Expected sign	Variable	Effect on LB
β_1	+	F	Increases
β_2	–	ACP	Decreases
β_3	–	LR	Decreases

TABLE 5 Chance of success by year

Year	Methodology	Success (1 – failure)
2008	Logit	91%
2008	Probit	91%
2009	Logit	93%
2009	Probit	93%

TABLE 4 Results

Method	Logit				Probit			
	2008		2009		2008		2009	
Dep. variable D	Coefficient	z-Stat.	Coeff.	z-Stat.	Coefficient	z-Stat.	Coefficient	z-Stat.
Regressors								
Constant	7.36***	3.09	9.83***	2.91	3.97***	3.45	5.34***	3.32
F	4.56**	2.09	1.92**	2.13	2.54**	2.13	1.03**	2.36
ACP	–17.44***	–2.97	–10.87**	–2.29	–9.50***	–3.22	–5.85***	–2.45
LR	–107.30***	–2.80	–160.77***	–2.94	–57.81***	–2.99	–87.47***	–3.31
$N = 45$								
McFadden R-squared	0.53		0.58		0.52		0.58	
LR statistic	33.77		37.21		33.44		36.96	
Prob(LR statistic)	0.00		0.00		0.00		0.00	
Log likelihood	–15.02		–13.30		–15.19		–13.42	
Restr. log likelihood	–31.91		–31.91		–31.91		–31.91	
Avg. log likelihood	–0.28		–0.25		–0.28		–0.25	

Abbreviations: ACP, profitability of affiliate companies; F, ratio of financial operations to consolidated profits; LR, leverage ratio.

**Significance at the 5% level.

***Significance at the 1% level.

does a good job at accounting for the behaviour of the entity, whereas if the error is greater than ± 0.5 , then the model captures less than 50% of the outcome and the entity is thus poorly classified in the default/non-default groups. Table 5 shows the percentage of entities that are classified correctly by the model (in terms of default or lack of it) for each of the years in the sample. As expected, we obtain similar results with both methodologies with a high percentage of correctly classified entities that increases over time due to the deterioration of the balance sheets.

6 | CONCLUSIONS

We conclude it is possible to identify different behaviours within the Spanish savings banks sector that account for the way these institutions were able to withstand the shock arising from the 2007 international financial crisis and the depressed economic environment that followed. The identification of the different behaviours comes as a result of analysing the savings banks' individual financial statements in the years of economic growth preceding the international crisis that acted as a catalyst for the Spanish crisis.

Certain savings banks were in a considerable state of fragility at the time of the 2007 crisis and their weaknesses accentuated in the following years. We identify different patterns of risk exposure among savings banks in the different groups, materialized in more reliance on market-based debt as opposed to deposits, lower profitability from recurring activities and systematically higher leverage ratios among the weakest entities. This finding is in line with some of Minsky's classical ideas and also with more recent work by Geanakoplos and Fostel (2008) and Geanakoplos (2010). In light of these findings, we conclude the mergers among the different savings banks contributed to a rise in systemic risk as mergers among weak medium-sized entities were favoured, leading to the creation of large financial entities severely impaired since their inception.

This episode in the history of banking crises is revealing and could be informative in the current macroeconomic context of low bank profitability and calls for more consolidation in the banking system from supervisory and regulatory institutions. Further research should be carried out into the behaviour of the Spanish savings banks, to explore the elements behind the failures and the successful strategies and inform future policy debates, including those regarding the adequacy of the mergers and acquisitions of banks in times of crisis.

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CONFLICT OF INTEREST

The authors have declared no conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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ENDNOTES

- ¹ One frequently invoked common element is these institutions' governing board structure, which included original founders, depositors and union representatives as well as members appointed by the Spanish regional governments. This organizational structure has often been considered a positive element, which accounted for the success of the savings banks in the decades between 1970 and 2010. Since the crisis, the contrary has been argued: that there was direct causality between the presence of board members appointed by the regional governments and bad management of the savings banks (often referred to as 'politicization').
- ² These securitisations were backed by mortgage loans extended to Spanish residents over the previous decade.
- ³ See, for example, Whalen (2007), Wray (2008, 2009), Nasica (2010), Dymski (2010), or Ruiz and Cristian (2019).
- ⁴ As their 2010 annual reports indicate, credit ratings were high for most savings banks. At the end of 2009 the second largest savings bank (Caja Madrid) had an A1 rating on its long term unsecured bonds. Other large savings banks, that later on needed to be bailed out, were in a similar position, with an A3 rating on their long term bonds (this was the case of Bancaja, Caja de Ahorros del Mediterráneo, Caixanova or Caixa Galicia). There were other savings banks with lower ratings, but still above the investment grade threshold (for example, Caixa Catalunya).
- ⁵ A 'bad bank' was created for this purpose in 2012, the SAREB, with the Government holding a 45% stake in its capital (the acronym stands for 'Sociedad de Gestión de Activos Procedentes de la Reestructuración Bancaria', in English: Company for the Management of Assets proceeding from Restructuring of the Banking System). The purpose of this entity was to purchase 'bad' (i.e. non-performing) loans from the banking system, and especially from savings banks.
- ⁶ *Real Decreto-Ley 2/2011 para el reforzamiento del sistema financiero* (Royal Decree 2/2011 for the Strengthening of the Financial System).
- ⁷ One of the particularities of the savings banks was that they did not issue stock, which meant increasing profits was the only way of increasing core capital.

- ⁸ Group A is comprised of: La Caixa, Bilbao Bizkaia Kutxa (BBK), Vital Kutxa, Kutxa, Caixa Pollença, Caixa Ontinyent, Unicaja. Group B contains: Caja Extremadura, Cajastur, Caja Cantabria, Caja de Ávila, Caja de Badajoz, Caja Círculo, Caja de Burgos, Caixa de Girona, CajaGranada, Caja de Guadalajara, Caja de Jaén, Caja España, Caja Rioja, Caixa Manlleu, Caixa Manresa, Caixa Laietana, Caja Murcia, Sa Nostra, CajaCanarias, Caja Navarra, Caixa Sabadell, Caja Duero, Caja Insular, Caja Segovia, Cajasol, Caixa Tarragona, Caixa Terrasa, Caixa Penedès, IberCaja, Caja Inmaculada de Aragón, CajaSur. Group C contains: Caja Madrid, Bancaja, Caja de Ahorros del Mediterráneo (CAM), Caixa Catalunya, CajaSur, Caja Castilla la Mancha (CCM), Caixa Galicia, Caixanova.
- ⁹ 'Financial operations' in the financial statements refers to capital gains from trading activities (buying and selling assets looking to make a profit from the short-term variation in market prices). This includes realized profit and losses (resulting from actual selling or buying) or profits and losses resulting from changes in the fair value of the assets in the trading book. According to the annual reports, the savings banks obtained most of the financial operations profits from selling large stakes they had acquired in the past in companies such as France Telecom, Metrovacesa, Endesa, Unión Fenosa, Abertis, etc. Many of these assets had been bought at a much lower price and had not been assigned to the trading book (which meant they did not have to be marked-to-market). The difference between their purchase price and their market price at the time of the sale generated very high capital gains.
- ¹⁰ The first authors to use this type of methodology were Beaver (1967) and Altman (1968), who were looking to estimate non-financial firms' default likelihoods based on balance sheet information and univariate analysis. Over the years, variations of these techniques were developed, among which Altman and Saunders (1998), Thomas, Edelman and Crook (2002), or Gurný and Gurný (2013) are examples of analyses using logit and probit models to study the financial industry.
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