THE EFFECT OF GOVERNMENT OWNERSHIP ON BANK PROFITABILITY AND RISK: THE SPANISH EXPERIMENT

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ABSTRACT

This paper analyzes the effects on Spanish savings banks' performance and risk when they shed their mutual structure to become government-owned banks. Such a situation arose in 1985 when Spain's central government allowed regional parliaments to modify savings bank ownership regulations. Regional regulations increased government participation at the expense of depositors' ownership. This regulatory change constitutes a natural experiment to study the consequences of government ownership on bank behavior. The results of our study suggest that enhanced government ownership leads to an increase in risk. This is particularly marked amongst those savings banks that most increased the weight of local and regional governments on their governance bodies. However, no variation in savings bank performance has occurred. The net result, therefore, is an increase in performance-adjusted risk.

JEL Classification: G21, G32

Keywords: savings banks, government ownership, regulation, performance, risk

1. INTRODUCTION

This study analyzes the effects on performance and risk-taking that are brought about by increased local and regional government ownership of Spanish savings banks. In Spain, this situation dates back to 1985 and the coming into force of the so-called LORCA law (*Ley de regulación de normas básicas sobre órganos rectores de las cajas de ahorros*), which laid down the legal framework for savings banks' governance bodies and established the percentage representation of depositors, employees and public administrations alike in savings bank ownership. Regional regulations subsequently modified savings banks' governance, increasing the presence of local and regional governments, basically to the detriment of depositors' representatives. This legislative change constitutes a *de facto* experiment whereby the consequences on performance and risk-taking when savings banks lose their mutual structure to become government-owned banks can be analyzed.

Unlike stock-owned banks, whose governance bodies are made up of a representation of stockholders, the composition of savings banks' governance bodies is established by law and as such is an exogenous variable. One of the potential backlashes of such exogeneity might be to prevent governance bodies from adapting to the optimum requirements of a competitive market, and systematic differences may exist between the levels of efficiency and risk of differently organized thrift institutions (Demsetz and Lehn, 1985). This paper hopes to contribute to the extensive literature that analyzes the effect of organizational form on bank efficiency and risk-taking by considering a novel facet in the field, the shift from a mutual structure to becoming a government-owned bank.

Most of the literature has focused on comparing the efficiency and risk-taking of stock-owned and mutual banks, as these are the two prevailing organizational forms in the United States[1]. Despite the ubiquity of government-owned banks in a raft of countries, as highlighted by La Porta et al (2002), fewer studies have analyzed the impact of state ownership on financial institutions. This is a gap in the scope of research made even more surprising by the fact that savings banks' governance is a key issue in a number of European countries, where debate rages on the question of whether such state-run institutions should be converted into stock-owned banks. Whilst in Belgium, Denmark, Great Britain, Holland, Ireland, Italy and Sweden savings banks have become stock-owned companies, in other countries such as Germany, Austria, Greece, Portugal, Switzerland and Spain there are savings banks that are partially owned by the state or by local and regional governments. Within this latter group of countries there is open debate nowadays on savings banks' ownership. Opinions range from extremes advocating conversion into stock-owned thrift institutions to more moderate proposals that defend current structure whilst calling for some modification of the percentage representation of each collective in savings bank governance. International organizations have added their weight to the debate. The International Monetary Fund (IMF), for example, in its

[1] For a comparative analysis of the efficiency of mutal banks and stock-owned banks, see among others, Altumbas et al., 2001; Blair and Placone, 1988, Cebenoyan et al. 1993; Daniels and Sfiridis, 2001; Mester, 1991,1993; O'Hara, 1981; Valnek, 1999; Verbrugge and Golstein, 1981 and Verbrugge and Jahera, 1981. For an analysis of the differences in risk between mutual al and stock-owned banks see, among others, Hadaway and Hadaway, 1984; Masulis, 1987; Cordell et al., 1993; Esty ,1997a, 1997b; Karels and McClatchey, 1999; Lamm-Tennant and Starks, 1993; O'Hara, 1981; Scharand and Unal, 1998 and Verbrugge and Goldstein, 1981).

1999 report, and the organization for Economic Cooperation and Development (OECD) in its report on Spain for the year 2000, both include among its recommendations a consideration of a possible shift in Spanish savings banks' organizational form towards the stock-owned thrift institution.

The relatively few papers that analyze the impact of state ownership on banks' efficiency have yet to come up with conclusive results[2]. La Porta et al. (2002) analyze data from government–owned banks in 92 countries, concluding that the presence of the state "politicizes" the resource allocation process within financial institutions, since it allows governments to finance investments that may well be politically desirable but are nevertheless inefficient from an economic stance. Sapienza (1999) also concludes that Italian state-owned banks pursue political objectives in their lending policy. Barth et al. (2001) use data on government ownership from Bankscope to report that enhanced government ownership of banks is generally associated with less efficient and less well-developed financial systems. Verbrugge et al. (1999) analyze 65 bank privatizations in 25 countries and document a limited improvement in bank profitability, operating efficiency, and non-interest revenue after privatization. As for Spanish savings banks, Melle and Maroto (1999) not only highlight a positive relationship between public administrations' representation on boards of directors and the percentage of loans savings banks give the public sector but also point out that this enhanced lending to the public sector induces a negative effect on savings banks' performance. However, such findings are supported by neither Grifell-Tatjé and Novell (1997) nor Lozano (1998), who claim that government-owned savings banks and stock-owned banks in Spain have similar levels of productive efficiency.

In contrast to studies suggesting the greater efficiency of stock-owned banks, Altunbas et al. (2001) conclude that government-owned German savings banks are more efficient than their respective private counterparts. As for Belgium, Tulkens (1993) also concludes that public banks' branches are relatively more efficient than those of private banks.

The dearth of studies on the impact of government ownership on banking efficiency is even more exacerbated as far as its influence on financial intermediaries' risk taking incentives are concerned, as we know of no studies in this field. This paper therefore hopes to fill a knowledge gap by describing not only the impact of government ownership on savings banks' incentives to take risks but also by analyzing performance change when government ownership replaces a mutual structure. To this end, we use a different approach to the one used in previous studies in that we analyze savings banks' performance change and risk-taking after their governance bodies have been modified by regulations increasing government ownership.

The paper is structured as follows: section 2 presents the characteristics of Spanish savings banks' ownership and the legislative changes introduced since 1985. Section 3 discusses our hypotheses as to the effects of more government ownership on savings bank performance and risk. Section 4 and 5 present the methodology and discuss the empirical results. Finally, section 6 presents the paper's conclusions.

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[2] However, there exist in the industrial sector abundant evidence showing that public firms are less efficient than their private counterparts. Boardman and Vining (1989) provide a summary table with the empirical evidence on the relative efficiency of public and private firms.

2. THE REGULATION AND GOVERNANCE OF SPANISH SAVINGS BANKS

There are three types of banks in Spain's banking sector: commercial stock-owned banks, savings banks and credit cooperatives. All three types of banks compete under equal conditions in the loan, deposit and financial service markets and their accounting practices, external reporting and credit-risk management standards are also the same to all practical intents and purposes.

In terms of economic importance, commercial and savings banks hold the lion's share of the Spanish market. Thus, Spanish stock banks accounted for 61.46% of the banking system's total balance sheet during the 1984-2000 period, with savings banks chalking up 35.24% and cooperatives holding a mere 3.30%. Table 1 gives percentages of total assets, deposits and loans for each type of bank as part of Spain's banking system, and also gives the number of offices and employees that they have.

Savings banks were initially created in 1835 in Spain as non-profit making organizations. They had a clearly defined social commitment and instead of paying dividends, benefits were allocated to social and cultural activities. Furthermore, they were involved in a different business to commercial stock-owned banks. Differences extended to both geography and client-type, as savings banks basically ran their business each within their particular region, catering for families and small and medium-sized businesses. On the contrary, stock banks were oriented to the national market and industrial firms were more important clients. Two further hallmarks of savings banks were the higher percentage of loans granted to the public sector and the higher percentage of mortgage loans to total private loans. These differences are rooted in state legislation, which banned savings banks from operating beyond their geographic boundaries and obliged them to direct part of their activities towards families. These limitations were withdrawn, however, in 1977, and since 1989 stock banks and savings banks have been subject to the same operative regulations. Nevertheless, despite there no longer being legal differences relating to how each type of bank may operate, time has only moderated their hallmarks, as each continues to operate in the markets where it had its largest market share.

At present, the only regulatory difference between stock and savings banks in Spain relates to ownership. The greatest idiosyncrasy of the Spanish savings bank is its peculiar ownership structure, which falls neither into the category of stock-based institutions, nor that of mutuals. Their basic governance mechanisms are the General Assembly and the Board of Directors, made up of representatives from four groups whose percentage representation is established by law.

Table 1

Importance of each type of bank ownership in Spain

Table 1 reports total assets, deposits and loans for each type of bank as a percentage of the whole Spanish system for the 1984-2000 period. The number of branches and employees is also shown.

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean
Savings Banks																		
% total assets	30.14	32.11	34.28	34.82	37.29	38.66	38.42	36.51	35.43	32.50	33.37	33.62	34.72	35.02	36.48	37.26	38.41	35.24
% total deposits	35.36	39.12	42.86	43.49	45.25	45.74	45.30	45.48	46.98	18.31	19.75	49.47	51.70	51.71	50.73	51.31	51.22	42.57
% total loans	26.33	26.55	28.28	30.40	32.58	34.07	34.41	33.13	35.51	37.78	38.09	38.65	39.02	40.06	41.50	42.17	43.26	35.40
N. branches	10,440	10,797	11,061	11,754	12,252	13,168	13,720	14,031	14,291	14,485	14,880	15,214	16,094	16,636	17,582	18,119	19,268	14,341
N. employees	69,438	71,042	72,707	74,530	78,023	83,026	84,609	83,359	82,900	82,710	83,758	84,336	87,370	90,153	93,812	97,276	101,718	83,574
Stocks Banks																		
% total assets	66.73	64.48	62.21	61.74	59.43	58.28	58.48	60.26	61.60	64.62	63.60	63.14	61.85	61.47	59.89	59.12	57.92	61.46
% total deposits	60.38	56.07	52.15	51.31	49.62	49.29	49.78	49.49	47.89	46.35	44.62	44.64	41.82	41.33	43.28	42.43	42.46	47.82
% total loans	70.27	69.93	68.18	66.10	64.40	62.97	62.54	63.76	61.10	58.82	58.14	57.22	56.60	55.29	53.74	52.90	51.80	60.81
N. branches	16,412	16,606	16,518	16,498	16,691	16,677	16,917	17,824	18,058	17,636	17,557	17,842	17,674	17,530	17,450	17,140	15,811	17,108
N. employees	164,330	161,621	157,805	155,334	154,696	155,658	157,010	161,987	159,281	152,845	151,174	148,946	142,827	139,198	135,164	127,889	122,374	126,361
Credit Cooperatives																		
% total assets	3.13	3.41	3.51	3.44	3.28	3.06	3.10	3.23	2.98	2.88	3.03	3.24	3.42	3.52	3.64	3.62	3.67	3.30
% total deposit	4.26	4.81	4.99	5.20	5.13	4.97	4.91	5.04	5.13	5.34	5.63	5.89	6.48	6.96	5.99	6.26	6.32	5.49
% total loans	3.40	3.52	3.54	3.50	3.02	2.96	3.05	3.11	3.40	3.40	3.78	4.13	4.37	4.65	4.76	4.92	4.94	3.79
N. branches	3,315	3,350	3,382	3,248	3,029	2,890	2,919	3,018	3,080	3,072	3,107	3,195	3,311	3,468	3,607	3,697	3,888	2,883
N. employees	10,896	10,823	10,225	10,153	9,674	9,592	9,968	10,643	11,016	11,225	11,195	11,626	12,024	12,804	13,286	13,855	14,495	10,794

In 1985, the 31/1985 national law, or LORCA law, unified what until then had been a gamut of differing statute-regulated governance systems established in different Spanish savings banks by establishing the following percentage governance representation: 1) 40% local and regional governments, 2) 44% depositors, 3) 11% founders and 4) 5% employees. Since in some cases the founding members also happened to be local and regional governments, the final percentage of public administrations in savings banks' General Assemblies and on Boards of Directors can be as high as 51%. In this way, the LORCA law unified the disparity in Spanish savings bank governance, which had previously been established differently depending on each savings bank's statutes[3]. With a structure whereby ownership lies with depositors, employees and governments, savings banks may be described as hybrids of mutual, cooperative and a government-owned banks.

Table 2

Participation of depositors, employees and regional and local governments in the ownership of savings banks

This Table presents the participation percentage that employees, depositors and regional and local governments have in the General Assembly and Board of Directors of the savings banks as established in 1985 by Law 3/81 and in each of the regional laws passed later. The last column shows the total government ownership after adding the ownership governments have directly by law to the one they have being savings bank's founders.

		EMPLOYEES	DEPOSITORS	LOCAL AND REGIONAL GOVERNMENTS	FOUNDERS	OTHER INSTITUTIONS	TOTAL LOCAL AND REGIONAL GOVERNMENTS
NATIONAL LAW 31/1985		5	44	40	11		
REGION	**YEAR REGIONAL LAW PUBLICATION**						
ANDALUCIA	1986	5	44	40	11		57.78
ARAGÓN	1991	7	41	42	10		42
ASTURIAS	1988	5	20	40	35		75
BALEARES	1989	5	39	34	16	6	45
CANARIAS	1990	5	26	44	10	15	59.95
CANTABRIA	1990	5	22	38	10	25	66
CATALUÑA	1985	5-10	30-40	15-25	25-35		30.93
CASTILLA LA MANCHA	1997	7	22	40	10	21	70.05
CASTILLA LEÓN	1990	5-10	35-40	25-35	5-10	5-30	42.08
EXTREMADURA	1994	5	44	40	11		41.1
GALICIA	1985	5-15	30-40	15-25	25-35		31.9
MADRID	1992	8	28	32	20	12	55
MURCIA	1988	7	30	33	30		63
NAVARRA	1987	5	44	40	11		58.3
PAÍS VASCO	1991	5	41	32	22		53.3
LA RIOJA	1988	5	31	31	33		64.4
VALENCIA	1990	11	28	28	5	28	57.7

[3]Although dispersion would demand an individual analysis of each savings bank, it is nevertheless possible to indicate that savings banks' structure before 1985 was basically mutual since depositors had ownership percentages of over 50% in most savings banks, and in some cases these reached 83%.

However, the LORCA law also empowered Regional Parliaments to modify these representation percentages. These post-LORCA regulations, which are summarized in Table 2, have tended to increase the presence of local and regional governments on the governance bodies of savings banks at the expense of depositors. They also returned minor levels of representation to a range of "other institutions" whose pre-LORCA representation has been annulled by the new law[4]. According to regional regulations, the group with the greatest representation is public administrations. Whereas depositors' representation stands at an average of 33%, local and regional government participation ranges between a minimum 30.93% and a maximum 75%, depending on whether the public administrations are also founders or members of other institutions. The final column in Table 2 presents the total percentage that public administrations have on average in savings banks' ownership, including additional percentages assigned to local or regional bodies by dint of them doubling as savings bank founders. The new percentages established for depositors by regional laws imply an average fall of 11% with respect to the percentage LORCA established for depositors, whilst the maximum percentage public administrations can reach rises from 51% to 75%. The employees' percentage has remained generally stable at 5% and has increased only in four regions to percentages ranging between 10% and 15%.

In short, regional regulations have triggered a decrease in the mutual character of Spanish savings banks, coupled with an increase in state ownership. This process of partial conversion of mutual banks into state banks is atypical and different from the conversion processes analyzed so far in the literature, namely, the conversion in the USA of mutual banks into stock-owned banks[5] and the privatization process of public firms in a number of countries around the world[6].

The latest change in ownership regulations of Spanish savings banks was in 2002, when a "Financing Law" came into force that capped public administration participation in savings banks' governing bodies at 50%. This meant modifying the structure of the General Assemblies of savings banks in 12 of the 17 self-governing regions of Spain.

3. CHANGES IN SAVINGS BANKS' OWNERSHIP AND BANKS' PERFORMANCE AND RISK

Firm's property rights theory suggests that state and mutual enterprises should perform less efficiently and less profitably than private enterprises (Boardman and Vining, 1989). The reason suggested is straightforward: a lack of capital market discipline weakens owners' control over management, leaving it freer to pursue its own interests and giving it fewer incentives to be efficient.

However, the increase in political control brought on by the inception of regional laws fail to affect the non-existent discipline exerted by the capital market on savings banks'

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[4] These "other organizations" to whom regional government regulations again give a minority presence on governance bodies of savings banks vary from one region to the next depending on the different charitable and cultural associations and organizations in each region.

[5] See, among others, Hadaway and Hadaway (1984), Masulis (1987), Cordell et al. (1993), Esty (1997a, 1997b) and Schrand and Unal (1998).

[6] Megginson and Netter (2001) carry out a survey of empirical studies on privatization.

managers, merely substituting depositors' control for political control. Therefore, in order to predict the effects of the change, not only must the percentage representation of each group – public administrations, employees and depositors – be analyzed but also the incentives of each of them to monitor and supervise managers' decisions. The partial guarantee of deposits and the dispersion of the depositor group have been used as arguments to justify high management discretionality in mutual banks, as the depositors lack the incentives to monitor bank managers (O`Hara, 1981; Rasmunsen, 1988; Dewatripont and Tirole, 1993a, 1993b). Coverage of deposit insurance in Spain is limited to 20,000 euros per depositor. However, history would suggest that the partial guarantee of the deposit insurance is "de facto" an implicitly total guarantee, as historically the banking systems has always guaranteed 100% of the deposits of insolvent banks. The supervisory authority's reaction is based upon the belief that when a bank is "*too big to fail*" the social backlash caused by there not being total coverage is enormous.

As has been pointed out, there is little incentive for depositors to monitor bank managers. Nor do the structure and characteristics of depositor groups encourage such control and follow-up. Firstly, the representation system is random and disregards the amount deposited by each depositor. Nor can a market system be instigated whereby voting rights can be negotiated freely, as delegating votes is not allowed. Under such circumstances, depositors are unlikely to give the necessary consideration to decisions on issues relevant to their interests. On the one hand, a depositor who is really interested in playing a role in the bank's management may be deprived of the opportunity by the random nature of the electoral process. On the other hand, those who are elected may lack the incentive to invest resources in obtaining information about the bank because third parties cannot be prevented from benefiting form the efforts that they make. In short, the considerable dispersion of a large number of depositors, the random nature of the election of representatives process, and the high percentage participation of local and regional governments all suggest that depositors have little influence on decision taking in savings banks and that much is left to the discretion of bank managers.

However, enhanced state ownership of savings banks at the expense of depositors entails lowering the weight of management objectives and increasing political ones. Both La Porta et al. (2002) and Sapienza (1999) show that one of the spin-offs of politicizing decision-taking in government-owned banks is the pursuit of politically attractive but financially unprofitable projects. Most financial economist see political influence over depositary institutions' credit allocation as the major reason for the financial crisis of many countries in Latin America and Southeast Asia (Kaufman, 1999). It seems to be the case that politization in decision-taking has a negative effect on performance, which adds to the capital market's lack of discipline which already characterized the mutual structure.

Unlike the consequences on bank performance, there are arguments that suggest both a positive and a negative effect on banks' risk-taking after the introduction of greater political control.

On the one hand, the fact that public administrations are major clients of savings banks may increase the ex-ante bank risk-taking incentives by allowing them to substitute losses from failed risky investment with subsidies (Barth et al. 2001). Furthermore, the subsidies option also encourages the politization of decision taking and the tendency to undertake politically desirable but financially risky projects. In this case, the final result would be an increase in savings banks' risk-taking.

On the other hand, political interest in maintaining savings banks as an instrument by which to fulfill political objectives, as shown by La Porta et al. (2002) and Sapienza (1999), may lead to risk limitation with the joint aims of guaranteeing the continuity of the institution and avoiding a crisis in the savings bank. In other words, politicians may have incentives to limit savings bank risk up to a level that guarantees their solvency so that they do not lose an instrument that may be difficult to substitute. The threat of losing a political instrument would thereby have the effect of discouraging risk, just as the loss of high charter value does for stock-owned banks in regulated environments, as Keeley (1990) was first to point out.

Since political participation in savings banks' decision-taking could favor both higher and lower risk levels, the effect regulatory changes that increase state participation may have on savings banks' risk level is an empirical question. Analysis of post-legislation savings bank risk variation will highlight which of the two hypotheses prevails.

Even though regional government regulations basically consisted of increasing the presence of public administrations in savings banks to the detriment of depositors, they also led to a rise from 5% to 15% employee ownership in four regions of Spain, which means that savings banks share some of the hallmarks of cooperatives. Jensen and Meckling (1979) point out that employee participation in company ownership may lead to penchants for investment projects that recoup investment in a period that is equal to or less than the time the employee will remain in the organization, just as it may also provoke rejection of profitable projects that provide cash flows beyond the term of employment. Moreover, there are other incentives to take decisions that will have negative impacts on savings banks' profits, such as setting extremely lucrative salaries and other perks. As far as risk is concerned, employees will clearly be inclined towards low-risk investments that will not endanger job stability or salary levels. As is also the case with managers, employees have much of their wealth tied up with the organization they work for, and are therefore more loath to take risks than other stakeholders who can diversify their risk to a greater extent. The logic of these arguments leads to the prediction that greater employee ownership of savings banks should bring about a reduction in both profits and risk.

4. EMPIRICAL ANALYSIS

In order to test the effect that different participation of public administrations, employees and depositors has on savings banks' operative behavior, we compare bank performance and risk before and after the introduction of the above-mentioned regional regulations.

Information on the composition of savings banks' governance bodies was obtained from their annual reports and, failing this, was requested from the thrift institution itself by mail. Savings banks that had been involved in mergers were excluded from the analysis so that other co-existing factors could be isolated[7] . This yielded relevant information on 30 savings banks for between 1984 and 1999, 24 of whose boards of directors underwent some change as a result of the new law.

[7] Mergers in Spanish savings banks were rife during the period of analysis. In 1984 there were 77 savings banks in Spain, whereas at the end of 1999 numbers had dropped to 50. This merger process was especially intense at the beginning of the 1990s. In 1990, 17 savings banks dissolved and two were absorbed, creating 7 new entities and in 1991, 9 entities dissolved and one was absorbed to create two new savings banks.

Since savings banks have no market value, it is impossible to use market value-based performance and risk measures. We therefore use two different measures of return on assets to measure performance. Earnings are measured after (ROA1) and before (ROA2) depreciation and provisions for loan losses reserves. The use of these two measures is intended to isolate the impact of possible profit smoothing that can be caused by managerial discretionality regarding the allowances for depreciation and loan losses provisions[8].

Following Esty (1997a), Williams (1999) and Cebenoyan et al. (1995,1999) we use the time series profit variability, defined as the standard deviation of the two measures of return on assets (RISK1 and RISK2), respectively, as a measure of risk. To analyze the change in the ROA-adjusted risk we use the coefficient of variation, where the standard deviation of the return on assets is divided by the average return on assets over the same period (CV=RISK/ROA).

Change in savings banks' performance and risk-taking is analyzed by comparing the ROA, RISK and CV during the four-year periods before and after the introduction of the regional regulations that modified the composition of the savings banks' governance bodies in the respective region. The year when the regional law was enforced is omitted in the analysis to better separate the possible effect of the law on savings bank performance and risk. Our analysis covers the period 1984-1999, since in our sample of savings banks the first change in ownership following regional regulations occurred in 1988 and the last in 1995.

Differences observed over the pre- and post-regulation periods may be due to economic factors that affect the sector which are unrelated to modifications to savings banks' governance. In order to overcome this problem, the ROA, the standard deviation of ROA and the coefficient of variation for each savings bank in the four preceding and ensuing years are adjusted by dividing each variable by the respective median of the six savings banks that did not change their ownership or governance bodies between 1984 y 1999[9]. The three performance, risk and risk-adjusted measures are the following:

$$AROA_{it} = \frac{ROA_{it}}{NCROA_t} \qquad [1]$$

$$ARISK_{it} = \frac{RISK_{it}}{NCRISK_t} \qquad [2]$$

$$ACV_{it} = \frac{CV_{it}}{NCCV_t} \qquad [3]$$

where $AROA_{it}$, $ARISK_{it}$ and ACV_{it} are, respectively, the adjusted return on assets, the adjusted risk and the adjusted coefficient of variation of savings bank i in period t. $NCROA_t$, $NCRISK_t$ and $NCCV_t$, are, respectively, the median of the return on assets, risk and coefficient of variation of the six savings banks that did not experience any variation in their

[8] Beatty et al. (1995) and Scholes et al. (1990), among others, have offered evidence of income smoothing in commercial banks.

[9] The six savings banks that did not change their board of directors belong to three different self-governing regions: Andalucía, Castilla La Mancha and Navarra.

governance bodies through out 1984 and 1999[10]. All these variables are estimated for the pre-regulatory change period and for the post-regulatory change period.

A descriptive analysis of each performance and risk measure, together with the percentages of public administrations (GOVERN), depositors (DEP) and employees (EMP) owning savings banks during the period of four years before and four years after the change in the ownership, is shown in Table 3.

Table 3
Descriptive statistics
This table presents the descriptive statistical tests of the percentages of governments (GOVERN), employees (EMP) and depositors (DEP) in savings banks' ownership as well as the adjusted return on assets (AROA), the adjusted standard deviation of the return of assets (ARISK) and the adjusted coefficient of variation (ACV) of Spanish savings banks during the period of four years before and four years after the passing of the regional regulation.

VARIABLES	*BEFORE REGIONAL LEGISLATION*					*AFTER REGIONAL LEGISLATION*				
	Mean	*Median*	*Standard deviation*	*Maximun*	*Mínimum*	*Mean*	*Median*	*Standard deviation*	*Máximum*	*Mínimum*
GOVERN	25.875	28.000	22.357	68.00	0.00	42.667	41.500	16.523	75.00	20.00
EMP	6.208	5.000	4.393	25.00	3.00	8.500	8.000	3.612	18.00	5.00
DEP	56.791	54.500	16.699	83.00	22.00	37.292	40.000	6.670	45.00	20.00
LN(AT)	12.080	12.164	1.285	15.05	8.46	12.665	12.719	1.306	15.80	9.13
AROA1	0.858	0.863	0.141	1.20	0.59	0.874	0.854	0.132	1.21	0.61
AROA2	0.781	0.784	0.308	1.36	0.25	0.884	0.809	0.298	1.55	0.41
ARISK1	1.076	0.944	0.604	2.25	0.20	0.794	0.561	0.718	2.88	0.06
ARISK2	1.165	0.996	0.719	2.61	0.09	1.082	0.878	0.775	3.53	0.12
ACV1	1.347	1.133	0.696	2.71	0.32	1.206	1.080	0.745	3.30	0.17
ACV2	1.640	1.637	0.928	3.14	0.15	0.994	0.664	1.063	3.94	0.08
# observations	24					24				

5. RESULTS

5.1. Mean differences

Change in savings banks' risk levels after the increase of government ownership is initially measured through the mean differences between the period of four years before and four years after regional regulation enforcement. Three statistical tests were used to analyze the statistical significance of the change. Together with the parametric mean difference test, we used two other non-parametric tests: the Wilcoxon signed rank test and the sign test. The non-parametric tests do not require any assumptions about the distribution of the variables analyzed and are more adequate in the case of reduced sample sizes[11]. The Wilcoxon signed

[10] Besides the estimations in this paper, we also analyzed a different period – three years before and after the passing of the regional regulation. The risk adjustment of the six savings banks that did not change their governance bodies was undertaken by differences instead of by quotient. The results were basically the same and for this reason are not reported in the paper.

[11] The Shapiro-Wilk normality test has shown that all the variables meet the normality condition. The statistical test t of means is therefore justified.

rank test analyzes whether the sum of ranks of the positive differences differs significantly from the sum of ranks of the negative differences. The sign test, which compares the number of differences that are positive with the number of differences that are negative, is a less powerful test than Wilcoxon's since it does not take into account the magnitude of the differences.

The differences in AROA, ARISK, ACV and the ownership percentages of each collective between the preceding and the ensuing period are shown in Table 4.

Table 4

Mean differences

This table shows the mean difference between the period of four years before and after the modification of savings banks' ownership introduced by the regional regulation together with the values of the parametric statistical test of mean difference and the non-parametric Wilcoxon and sign tests. GOVERN is the percentage of government ownership, EMP is the percentage of employees' ownership and DEP is the percentage of depositors' ownership. AROA1 and AROA2 are the adjusted return on assets before and after, respectively, depreciation and provisions for loan losses reserves. ARISK1 and ARISK2 are the adjusted standard deviation of two previous measures of return on assets. Finally, ACV1 and ACV2 are the adjusted coefficient of variation, defined from the two measures of performance and risk previously indicated.

	Mean difference		*Test t*	*Wilcoxon test*			*Sign test*	
VARIABLES	*Post value previous-value*	*Shapiro-Wilk test*		*Sum positive ranks*	*Sum negative ranks*	*Value Z*	*Positive differences*	*Negative differences*
GOVERN	16.792	0.923***	6.74***	1.50	274.50	-4.159***	1	22***
EMP	2.292	0.852***	1.76*	31.00	140.00	-2.376**	3	15***
IMPOSIT	-19.500	0.947***	-6.39***	8.00	292.00	-4.059***	22***	2
LN(AT)	0.575	0.964***	9.35***	0.00	300.00	-4.286***	0	24***
AROA1	0.0156	0.944***	0.917	190.00	110.00	-1.143	16	8
AROA2	0.1029	0.944***	1.411	197.00	103.00	-1.343	15	9
ARISK1	-0.014	0.959***	-0.09	143.00	157.00	-0.200	12	12
ARISK2	-0.370	0.972***	-1.89*	91.00	209.00	-1.69*	8	16
ACV1	-0.142	0.977***	-0.71	190.00	110.00	-1.143	15	9
ACV2	-0.646	0.955***	-3.02***	242.00	58.00	-2.629***	17*	7

* Significantly different from zero at the 10% level

** Significantly different from zero at the 5% level

*** Significantly different from zero at the 1% level

All three tests indicate that changes in the composition of the savings banks' governance bodies are statistically significant. There is a 16.8% average increase in local and regional governments' and a 2.3% increase in employees' participation at the expense of a 19.5% drop in depositors' representation by 19.5%. Analysis of the change in savings banks' size, measured through the natural logarithm of total assets, points to it increasing over both periods of time.

The results of the three tests are similar when we analyze performance and risk changes. The return on assets of the savings banks that increased government ownership did not undergo any statistically significant variation between the period preceding and following the change in ownership. However, the reduction in the standard deviation of the return on assets before depreciation and provisions for loan loss reserves (ARISK2) is statistically significant.

This risk reduction is also statistically significant after adjusting for performance, as shown by the change in the coefficient of variation (ACV2).

5.2. Regression Analysis

As Healy et al. (1992) point out, changes in savings banks' performance and risk between the periods preceding and following ownership change may also be due to continuity in the savings bank's trend rather than to the effect of the change in the percentage representation of each of the collectives involved in the savings banks' governance bodies. The benchmark for post-change performance and post-change risk thus depend on their relation with those of the previous period. If there were no relation between preceding and ensuing values, the appropriate benchmark for performance and risk in the latter period would be zero and the analysis of mean difference previously carried out would offer an adequate measure of the change in both variables. Alternatively, the appropriate benchmark would be the performance (risk) in the preceding period if the savings bank that before the modification in the regional legislation has levels of performance (risk) higher or lower than those of the savings banks that do not vary the composition of their board of directors is likely to realize the same result after the regulatory change in the ownership. In order to correct this problem, the abnormal variation of ROA, RISK and CV is obtained from the intercepts of three regressions in which the adjusted values in the post-change period are used as dependent variables, and the adjusted values of ROA, RISK and CV in the preceding period as independent variables. The OLS-estimated regressions were the following:

$$AROA_{i,\,post} = \alpha_0 + \alpha_1 AROA_{i,\,pre} + \alpha_2 \mathrm{CSIZE}_i + \sum \alpha_t Y_{it} + \varepsilon_i \quad [4]$$

$$ARISK_{i,\,post} = \beta_0 + \beta_1 ARISK_{i,\,pre} + \beta_2 \mathrm{CSIZE}_i + \sum \beta_t Y_{it} + \omega_i \quad [5]$$

$$ACV_{i,\,post} = \delta_0 + \delta_1 ACV_{i,\,pre} + \delta_2 \mathrm{CSIZE}_i + \sum \delta_t Y_{it} + \xi_i \quad [6]$$

where $AROA_{i,post,}$ $ARISK_{i,post}$, $ACV_{i,post}$ are, the return on assets, risk and the coefficient of variation of savings bank i during the four-year period after the year when the regional legislation related to savings bank *i* was introduced, divided by the median of each equivalent variable for the six savings banks that do not modify their ownership. $AROA_{i,pre,}$ $ARISK_{i,pre}$, $ACV_{i,pre}$ are, the return on assets, risk and the coefficient of variation of savings bank *i* for the four-year period prior to the introduction of regional legislation adjusted by the median of the 6 savings banks.

The value of coefficients $\alpha_{1,}$ β_1 y γ_1 would capture any correlation between the levels of performance, risk and performance-adjusted risk of the preceding and ensuing periods, so that (α_1 $AROA_{pre,i,}$ β_1 $ARISK_{pre,i}$ and γ_1 $ACV_{pre,i}$) measure the effect of pre-regulation changes, respectively, in performance, risk and performance-adjusted risk during the post-regulation period. The intercept of each regression (α_0, β_0, γ_0) would be, respectively, our measure of abnormal savings banks' performance, risk and performance-adjusted risk originated by ownership change.

Pre- and post-regulation changes in size, ($CSIZE_i$), - as measured by the natural logarithm of total assets - are also controlled for in these regressions. Mean difference analysis had revealed an increase in savings banks' size after regional legislation had been enacted, thus

expanding financial intermediaries' opportunities for diversification and potentially reducing risk levels. Thus, changes in savings bank size must be controlled for before any risk differences can be attributed to ownership change. Finally, since regional legislations were enforced in different years for each region, a set of time dummies is introduced for each year in which regional regulations were passed (Y_{88}, Y_{89}, Y_{90}, Y_{91}, Y_{92}, Y_{93}, Y_{95}). Thus, Y_{it} takes the value 1 if savings bank ownership modifications occurred in the year t and takes the value zero otherwise. These variables are intended to control possible time effects derived from the fact that changes in regional regulations occurred in different years. The dummy for 1988 is omitted from the estimations.

The results of these regressions for the 24 savings banks that modified the composition of their governance bodies are shown in Table 5.

Table 5

Regressions of change in risk

This table shows the OLS estimations of the equations [4], [5] and [6]. The dependent variables are the adjusted return on assets (AROA1post,i; AROA2post,i), the adjusted standard deviation of the return on assets (ARISKpost,i: ARISKpost,i) and the adjusted coefficient of variation (ACV1post,i; ACVpost,i) in the period of four years after the change in the regional legislation. Each of the variables is adjusted by quotient by the respective measure in the six savings banks that do not change their governance structure. As independent variables we introduce in each of the regressions the same dependent variable but measured in the period of four years previous to the change in the board of directors. As control variables we introduce the change in the natural logarithm of total assets that each of the savings bank experiences between the previous period and the posterior period (CSIZE) and a set of dummy variables corresponding to each of the years when a change in the regional legislation has occurred, which take the value 1 if the modification of the savings banks' ownership has taken place in the year t and take the value 0 otherwise. In the estimations the dummy corresponding to the year 1998 is omitted. The values of the t-student test are shown in brackets.

	$AROA1_{post,i}$	$AROA2_{post,i}$	$ARISK1_{post,i}$	$ARISK2_{post,i}$	$ACV1_{post,i}$	$ACV2_{post,i}$
	(1)	(2)	(3)	(4)	(5)	(6)
INTERCEPT	0.295	1.111***	2.715***	2.478*	2,77**	1,56
	(1.22)	(3.28)	(3.39)	(2.04)	(2,52)	(1,18)
$AROA1_{pre,i}$	0.838***					
	(5.02)					
$AROA2_{pre,i}$		0.399**				
		(2.72)				
$ARISK1_{pre,i}$			0.064			
			(0.31)			
$ARISK2_{pre,i}$				0.167		
				(0.65)		
$ACV1_{pre,i}$					-0,09	
					(-0,39)	
$ACV2_{pre,i}$						0,45**
						(2,40)
$CSIZE_i$	-0.014	-0.112	-2.919**	-4.23***	-2,86**	-4,08**
	(-0.007)	(-0.26)	(-2.61)	(-3.07)	(-2,02)	(-2,50)
D89	-0.130	-0.509*	0.876	0.441	1,34	0,59
	(-1.26)	(-1.86)	(1.05)	(0.50)	(1,48)	(0,59)
D90	-0.155*	-0.748***	0.364	0.116	0,42	0,70
	(-1.84)	(-3.37)	(0.60)	(0.15)	(0,55)	(0,84)

D91	-0.150*	-0.540**	-0.362	0.494	-0,20	1,07
	(-1.91)	(2.73)	(-0.66)	(0.64)	(-0,28)	(1,42)
D92	-0.093	-0.206	0.247	0.835	0,68	0,92
	(-1.08)	(-0.97)	(0.44)	(1.08)	(0,99)	(1,22)
D93	-0.284**	-0.993***	-0.771	1.653*	-0,56	4,24***
	(-2.74)	(3.60)	(-0.99)	(1.82)	(-0,63)	(4,22)
D95	-0.147	-0.523*	-0.368	0.108	-0,13	0,88
	(-1.37)	(-1.90)	(-0.51)	(0.10)	(-0,15)	(0,82)
# observations	24	24	24	24	24	24
Adjusted R^2	69.94	58.75	39.12	26.78	28,96%	56,49%
F	7.69***	5.09***	2.85**	2.05*	2,17*	4,73***

* Significantly different from zero at the 10% level
** Significantly different from zero at the 5% level
*** Significantly different from zero at the 1% level

The intercepts of regressions (3) and (4) shown in Table 5 indicate an increase in the standard deviation of both measures of return on assets after controlling for size change and the correlation between pre-and post-regulation change. This increase in volatility goes hand in hand with an increase in the return on assets before depreciation and provisions for loan losses reserves (column 2) but not with the return on assets after depreciation and provisions for loan losses reserves (column 1). The increase in risk but not in performance after depreciation and provisions for loan losses reserves causes the coefficient of variation to also experience a statistically significant increase when performance is measured after depreciation and provisions for loan losses reserves (column 5). Size change has a negative coefficient in the regressions of the standard deviation of return on assets and the coefficient of variation. This latter result is consistent with the diminishing effect of risk that has traditionally been associated with size when size increases the diversification opportunities for thrifts. Thus, the reduction in savings banks' risk that the mean difference analysis highlighted might be motivated more by the increase in size, than by the change in the savings banks' ownership, since an increase rather than a reduction in savings banks' risk is observed together with an increase in government ownership when we correct for size and for the correlation between pre-and post legal change in the regression analysis.

Two additional explanatory variables – each savings bank's change in government ownership ($CGOVERN_i$) and change in employees' ownership ($CEMP_i$) triggered by regional changes in the law – are also included in the equations for a more in-depth analysis of the impact of ownership change on performance and risk. The squares of these two variables ($CGOVERNQ_i$ and $CEMPQ_i$) are also applied, so as to capture potential non-linear effects, while the change in depositor ownership is omitted to avoid correlation problems. The new estimated models therefore stand as follows:

$$AROA_{i,\,post} = \phi_0 + \phi_1 AROA_{i,\,pre} + \phi_2 \mathrm{CSIZE}_i + \phi_3 \mathrm{CGOVERN}_i + \phi_4 \mathrm{CGOVERNQ}_i + \phi_5 \mathrm{CEMP}_i + \phi_6 \mathrm{CEMPQ}_i + \sum \phi_t Y_{it} + \tau_i \quad [7]$$

$$ARISK_{i,\,post} = \varphi_0 + \varphi_1 ARISK_{i,\,pre} + \varphi_2 \mathrm{CSIZE}_i + \varphi_3 \mathrm{CGOVERN}_i + \varphi_4 \mathrm{CGOVERNQ}_i + \varphi_5 \mathrm{CEMP}_i + \varphi_6 \mathrm{CEMPQ}_i + \sum \varphi_t Y_{it} + \psi_i \quad [8]$$

$$ACV_{i,\,post} = \gamma_0 + \gamma_1 ACVA_{i,\,pre} + \gamma_2 \mathrm{CSIZE}_i + \gamma_3 \mathrm{CGOVERN}_i + \gamma_4 \mathrm{CGOVERNQ}_i + \gamma_5 \mathrm{CEMP}_i + \gamma_6 \mathrm{CEMPQ}_i + \sum \gamma_t Y_{it} + \upsilon_i \quad [9]$$

Results of the estimations for each of the performance and risk measures are shown in Table 6.

Table 6

Change in board of directors and risk

This table shows the OLS estimations of the equations [7], [8] and [9]. The dependent variables are the adjusted return on assets (AROA1post,i; AROA2post,i), the adjusted standard deviation of the return on assets (ARISKpost,i: ARISKpost,i) and the adjusted coefficient of variation (ACV1post,i; ACVpost,i) in the period of four years after the change in the regional legislation. Each of the variables is adjusted by quotient by the respective measure in the six savings banks that do not change their governance structure. As independent variables we introduce in each of the regressions the same dependent variable but measured in the period of four years previous to the change in the ownership. CGOVERN and CEMP are, respectively, the variation in the government ownership and the employees' ownership. These two variables are also introduced square (CGOVERNQ and CEMPQ). As control variables we introduced the change in the natural logarithm of total assets that experiences each of the savings banks between the previous period and the posterior period (CTA) and a set of dummy variables corresponding to each of the years when a change in the regional legislation has occurred, which take the value 1 if the modification of the composition of the board of directors of the savings bank i has taken place in the year t and take the value 0 otherwise. In the estimations the dummy corresponding to the year 1998 is omitted. The values of the t-student test are shown in brackets.

	$AROA1_{post,i}$	$AROA2_{post,i}$	$ARISK1_{post,i}$	$ARISK2_{post,i}$	$ACV1_{post,i}$	$ACV2_{post,i}$
	(1)	(2)	(3)	(4)	(5)	(6)
α_0	0.585	0.683	1.321	2.205	0,77	2,18
	(1.59)	(1.15)	(1.26)	(1.43)	(0,51)	(1,10)
$AROA1_{pre,i}$	0.750***					
	(3.87)					
$AROA2_{pre,i}$		0.553***				
		(3.79)				
$ARISK1_{pre,i}$			-0.143			
			(-0.99)			
$ARISK2_{pre,i}$				-0.033		
				(-0.16)		
$ACV1_{pre,i}$					-0,22	
					(-1,30)	
$ACV2_{pre,i}$						0,20
						(1,11)
$CGOVERN_i$	-0.003	-0.012*	-0.017	-0.027	-0,01	-0,03
	(-1.05)	(-2.06)	(-1.60)	(-1.75)	(-0,68)	(-1,73)
$CGOVERNQ_i$	0.00003	0.0001	0.0008***	0.0009***	0,001***	0,001**
	(0.51)	(1.41)	(4.40)	(3.41)	(3,21)	(2,79)
$CEMP_i$	-0.014	0.003	0.139	-0.042	0,20	-0,07
	(-0.74)	(0.07)	(1.72)	(-0.36)	(1,79)	(-0,46)
$CEMPQ_i$	0.0007	-0.0008	-0.004	0.802	-0,008	0,004
	(0.70)	(-0.38)	(-1,12)	(0.38)	(-1,31)	(0,53)
$CSIZE_i$	-0.014	0.002	-1.56*	-2.71**	-1,38	-2,85*
	(-0.07)	(0.007)	(-2.01)	(-2.42)	(-1,24)	(-1,93)
D89	-0.35	-0.464	-0.427	-2.062	0,24	-2,66
	(-1.24)	(-0.78)	(-0.38)	(-1.28)	(0,15)	(-1,27)
D90	-0.355	0.468	0.747	-0.585	1,23	-0,74
	(-1.33)	(-0.79)	(0.67)	(-0.37)	(0,78)	(-0,35)
D91	-0.320	-0.193	-0.032	-0.029	0,44	0,05
	(-1.34)	(0.37)	(-0.03)	(-0.02)	(0,32)	(0,03)
D92	-0.28	0.141	0.144	-0.127	0,89	-0,51

	(-1.1)	(0.26)	(0.14)	(-0.09)	(0,63)	(-0,27)
D93	-0.492*	-0.773	0.179	1.366	0,83	3,37
	(-1.91)	(-1.35)	(0.16)	(0.89)	(0,55)	(1,67)
D95	0.287	-0.098	-1.636	-1.774	-1,34	-1,66
	(-1.09)	(-0.17)	(-1.59)	(-1.14)	(-0,90)	(-0,85)
Turning point of $CGOVERN_i$			9.78%	14.14%	5.84%	16.28%
# observations	24	24	24	24	24	24
Ajusted R^2	67.33	67.93	75.43	59.39	63,49%	68,73%
F	4.95***	5.06***	6.89***	3.80**	4,33**	5,21***

* Significantly different from zero at the 10% level
** Significantly different from zero at the 5% level
*** Significantly different from zero at the 1% level

The negative coefficient of CGOVERN in regression (2) highlights that savings banks that most increased their government ownership were those that least increased their return on assets before depreciation and provisions for loan losses reserves. Again, we do not observe any relation between ownership change and the return on assets after depreciation and provisions for loan losses reserves in regression (1). In contrast, the positive sign of CGOVERNQ in regressions (3) and (4) indicates that the rise in the standard deviation of both measures of return on assets was greater for those savings banks that most increased government ownership after the introduction of regional regulation. Far from this positive relation between change in government ownership and change in the standard deviation of return on assets being observed for every type of change in government ownership, it is only observed, in fact, for changes in ownership of above 9.78% or 14.14%, depending on the measure of the return on assets used.

Furthermore, the positive relation between risk and government ownership holds when we adjust risk by performance in columns (5) and (6). For changes in government ownership higher than 5.84% and 16.28%, in the case of ACV1 and ACV2 respectively, there is a positive relation between the change in the risk adjusted by performance and the variation in government ownership of savings banks. This positive relationship is not consistent with the argument that politicians tend to limit savings banks' risk to a level that guarantees their solvency if faced with the threat of losing a useful instrument to reach political goals. On the contrary, the relation found between variation in risk and variation in government ownership suggests a positive influence of political presence on savings banks' risk levels, irrespective of whether it is performance adjusted or not. This result is consistent with the fact that the objective of reaching political goals in decision-taking may not coincide with the objective of economic efficiency and may in fact increase the thrifts' risk. Similarly, the result is also consistent with the options public administrations enjoy of transferring funds to savings banks through the commercial relationship they maintain with them, and of compensating losses provoked by politically-motivated decisions with fund transfers.

Unlike the results for the shift towards government ownership, we do not observe a significant relation between the change in employees' ownership and the level of post-legislative performance and risk.

6. CONCLUSIONS

Although there are both mutual and government-owned banking institutions, possible differences in performance and risk between them have yet to be analyzed. This paper provides some evidence on this issue by analyzing Spanish savings banks' change in performance and risk after regional regulations increased political control of decision-taking at the expense of reducing depositors' ownership.

Although mean difference analysis initially seems to indicate that there has been some reduction in savings banks' risk in the four years after the change in ownership with respect to the four years before that change, regression analysis reveals that an increase in savings banks' risk level occurs when the correlation between pre- and post-legislative change and the change in the thrifts' size are controlled. The analysis of mean differences fails to observe significant variations of savings banks' performance after the ownership whereas the regression analysis reveals an increase in the return on assets before depreciation and provisions for loan losses reserves; this increase is in any case smaller, the larger the increase in government ownership.

The smaller performance increase compared to risk increase observed in Spanish savings banks subject to increased government ownership leads to an increase in performance-adjusted risk, i.e. in the coefficient of variation. Furthermore, we observe that the coefficient of variation rises in line with enhanced government ownership for increases in political presence higher than 5.84% and 16.28%, depending on whether performance is measured after or before depreciation and provisions for loan losses reserves. In short, results obtained suggest a positive influence of public administrations on savings banks' risk level but not on their performance. These findings are consistent with results of studies carried out in other countries indicating that the pursuit of political objectives in decision-taking may facilitate more risky investments, and that the option of fund transfer that is a spin-off of the commercial relationship between savings banks and regional governments may also facilitate this type of heightened risk.

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