

# Antes del diluvio: The Spanish banking system in the first decade of the euro\*

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March 14, 2014

## Abstract

The Spanish banking crisis is one of the most salient chapters of the Eurozone crisis and follows an extraordinary period of risk accumulation in the Spanish banking system. This paper provides a bird's eye view of the evolution of the Spanish banking system during the first years of the euro, roughly between 1997 and 2007, which were the years of the real estate bubble. It documents the accumulation of real estate risk in the portfolios of both banks and cajas, the private, but politically controlled, savings and loans which are the epicenter of the Spanish banking crisis. Spanish banks and cajas changed their funding patterns, increased their reliance on wholesale funding and made heavy use of securitization vehicles to finance the real estate boom. I argue that governance design flaws in the cajas sector help explain both the run-up and the bust, that the imbalances building in the Spanish economy were well understood by many of the main actors in the drama and that overconfidence in the ex-ante measures put in place by the Bank of Spain to guarantee the solvency of the banking system led to a misplaced sense of complacency.

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\*I thank Markus Brunnermeier, Ed Glaeser, Jesús Fernández-Villaverde, Ray Horton, Rafael Repullo and Glen Weyl for their comments on an earlier draft of this paper. This paper was prepared for the Conference in honor of Jose A. Scheinkman and springs from innumerable conversations I had with him about these issues over the last few years. As usual his comments, questions and views proved pertinent and prescient. He has been a mentor, a coauthor and above all a friend for over twenty years and it is with deep gratitude that I dedicate this piece to him.

# 1 Introduction and summary

The Spanish banking crisis is one of the most salient chapters of the larger Eurozone crisis. It is, of course, associated with the boom and bust in the real estate sector, like many other banking crises including the concurrent Irish crisis. As of this writing, the Spanish banking crisis is still ongoing, though its most acute phase seems to be over.<sup>1</sup> The changes in the Spanish financial system that the crisis has brought are enormous: The *cajas* sector, the notorious private savings and loans at the epicenter of the crisis, which at the peak comprised 50% of the Spanish credit market, is essentially no more. Just as the subprime crisis in the US wiped out the US investment banking industry by forcing its conversion into banks, the bust in the Spanish real estate sector wiped out the *cajas*, also by making them into banks. This paper provides a bird's eye view of the evolution of the Spanish banking system, comprised both of banks and the aforementioned *cajas*, in the years leading up to the crisis. The crisis itself and its handling by the Spanish authorities are only briefly discussed.

Figure 1 summarizes some striking macroeconomic trends during this period. Panel A shows the evolution of three variables: Housing prices in nominal terms, the (negative of the) net international investment position (NIIP) of Spain and the loans to the private sector by Spanish credit institutions. All three variables are normalized by their values in the first quarter of 2000. The sample goes from 2000Q1 to 2013Q1; the vertical line denotes the peak of the real estate cycle. The initial years of the euro were associated with three events: strong current account deficits that resulted in large liabilities against the rest of the world, unprecedented growth in the loan portfolios of Spanish banks and *cajas*, and surging real estate prices (Panel D of Figure 2 shows real estate prices both in nominal as well as real terms.) The euro is at the heart of these trends but why is a deeper question this paper does not attempt to address.

This paper is concerned with the behavior of Spanish credit institutions during the first decade of the euro. There are three types of credit institutions in Spain. First there are the commercial banks, which range from the large international bank (BBVA and Santander) to the purely national banks (Sabadell and Popular). The second class are the “*cajas*,” which were private savings and loans which, as we shall see, had a peculiar governance structure that made them easy prey for the powerful regional political classes of Spain. Finally there are credit unions, which are so tiny compared to the commercial banks and *cajas* that I ignore them in what follows. Spanish commercial banks operate under very similar regulations and

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<sup>1</sup>For a useful, up-to-date, view of state injections on Spanish distressed institutions one can visit the webpage of the FROB at <http://www.frob.es>

norms as those in many other jurisdictions. All the main Spanish banks are publicly traded; certainly BBVA and Santander, the two behemoths of the Spanish financial system, are widely followed by the analysts. The *cajas* in contrast were not publicly traded and, though not unique to Spain, were the peculiarity of the Spanish financial system. They were, it is worth emphasizing, private institutions but were effectively controlled by the regional and municipal government sector though supervised by the Bank of Spain. They were also the most dynamic part of the credit market during the two decades preceding the crisis, expanding aggressively to account for roughly 50% of loans and deposits on the eve of the crisis.

To gauge the enormity of the banking crisis Panel B of Figure 1 shows the non-performing loan (NPL) ratio of Spanish credit institutions, that is, the percentage of delinquent loans. The Bank of Spain data, publicly available in its superb website, allows for the construction of this series dating back to the 1960s. The plot shows the monthly NPL ratio starting in 1972, the year the supervision of the *cajas* was transferred to the Bank of Spain, ending in may of 2013. The plot summarizes well Spanish banking history over the last forty years or so. The three Spanish banking crises are easy to spot. The first one, from the mid 1970s to the early 1980s, followed a period of liberalization and deregulation of the Spanish banking system, and was shaped by economic crisis induced by the oil shocks during that period. The second was associated with the severe recession of the first half of the 1990s. As in the case of the current one, the banking crisis then followed another real estate boom. That crisis produced what was then the largest banking failure in Spanish banking, that of Banesto. The lessons of that crisis echo in the third one, which is the one currently raging. As can be seen the NPL ratio has raced through the previous peak and it has now become the most serious crisis in the last forty years. It is a crisis like no other.

But what is perhaps most striking is the very low level of loan delinquency during the roughly first decade of the euro. It was during that first decade, between say 1998 and 2007, that all the bad real estate developer and construction loans as well as mortgages were granted. The bubble masked the serious credit quality problems developing in the banking system for many years. But more importantly it masked the serious design flaws in the governance structure of the *cajas* sector, which had become fifty percent of the Spanish financial system. This point has been made recently by Fernández-Villaverde, Garicano and Santos (2013): Bubbles make for difficult inferences of the underlying governance structures of the economy subject to a speculative cycle and thus make it difficult to correct whatever imbalances are developing. The *cajas* are a case in point. The governance issues were well understood by

many, but it was difficult to muster the evidence needed for reform when they were posting impressive profits; meanwhile their balance sheets were increasingly biased towards real estate risk and wholesale funding.

What was in need of reform? What were the governance problems in the cajas sector? The cajas had a peculiar status. They were private entities with ill defined property rights that made them subject to political capture. The 1985 law that regulated the governance of the cajas enshrined the principle of local political representation and both municipal and regional governments made their presence felt in the governing bodies of the cajas. Local governments, which are granted ample powers under the 1978 Spanish Constitution, were quick to regulate them to further increase their control over them. Liberalization of the Spanish credit market and the loose monetary conditions that accompanied the introduction of the euro allowed them to grow and feed, and be fed by, the real estate bubble. They were attractive targets for political capture precisely because they were seen as the instrument to fund the many real estate projects that create the short-run prosperity that helps local governments officials be reelected. It is not surprising thus that many of the cajas were run at some point or another by prominent local politicians or even national ones and that most of them had to be restructured by the Bank of Spain at some point or another during the crisis.

Interestingly, banks traced the cajas quite closely. The cajas had traditionally more exposure to real estate than banks, but banks also increased significantly the fraction of the loans going to real estate developers, construction companies and mortgages during the first decade of the euro. In addition the banks didn't slow down their lending or stopped the securitisation machine before the cajas. How come then the banks fared better than the cajas? There are many possible reasons for this. One is that the banks were cream skimming the cajas, picking on the best risks and leaving the worst ones for the cajas.<sup>2</sup> Bad governance may also have led to poorer management of the cajas and this may have led to worse lending decisions. The combination of larger quantities and lower quality may have been enough to undo the sector. Finally, the cajas may have directed their lending towards politically motivated projects, subject as they were to pressures by the local political elites to which the banks were immune.

Bad governance is always a problem in any industry but banks have additional safeguards against mismanagement in the form of bank supervisors. Thus the Bank of Spain is thus another key element in this story. The Spanish central bank had the reputation of a tough

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<sup>2</sup>For a model of cream skimming in financial markets see Bolton, Santos and Scheinkman (2013).

supervisor, both because of its handling of previous banking crisis as well as its supervisory innovations. It took an approach towards supervision that emphasized economic realities, rather than accounting rules, in an effort to exercise as much control as possible over the risks in the banking sector. Two examples attest to the unusual approach of the Bank of Spain towards supervision. The first is the famous system of dynamic provisioning which aims to build buffers over the cycle to smooth the flow of credit. This was met with much opposition from accountants who prefer to recognize losses when they happen. But experience, as well as economics, dictates otherwise and the Bank of Spain stuck to the sound idea of forcing the banks to provision at the peak of the cycle, when they can indeed afford to do so and typically issue what is in expectation bad loans, and not at the trough, when they cannot and only fund the safest credit.

The second supervisory tool had to do with the treatment of off-balance sheets liabilities. Spain became the largest securitisation market in the Eurozone and the second largest in Europe after the UK. Spanish securitisation issues had the standard credit enhancements granted by the sponsors: whereas in other jurisdictions, such as the US, securitisation was seen as a way to deconsolidate assets and save on regulatory capital, the Bank of Spain forced consolidation of the securitised assets whenever some of the risk was retained by the sponsor, forcing capital charges against those assets. This meant that in Spain the shadow banking system was in plain sight. In this the Spanish experience is of some interest to students of banking as it can inform current debates about supervision, as well as the efficacy of some of the tools being proposed to prevent banking crises.

Spain had a better supervisory framework than many other jurisdictions but in retrospect they proved insufficient to prevent this enormous crisis. One lesson is perhaps that there is no substitute for judicious discretion: The problems were evident as they were happening and required action. Instead these tools may have led to an excessively complacent view of the ability of the Spanish banking system to absorb the shock when it came, as many expected it would. We will see that many inside the Bank of Spain saw and criticized this complacent attitude to no avail.

It is important to emphasize that the imbalances building in the Spanish economy were rather apparent and that policy makers and even the public were not blind to them. Indeed a side aim of this paper is to change the view that some observers have that the bubble and the imbalances went unnoticed in Spain. Nothing could be further from the truth. The real estate bubble had been a topic of conversation in Spain since the early 2000s. Some

academics, such as José García Montalvo were, early on, vocal about the imbalances building in the Spanish real estate sector and his warnings became more urgent as the bubble worsened. Jaime Terceiro, both an academic of distinction and head of Caja Madrid until the mid 1990s, diagnosed correctly the governance issues plaguing the cajas and repeatedly pointed out the dangers associated with those governance flaws. Moreover people who were going to have serious policy responsibilities had written extensively about the systemic dangers associated with the ongoing real estate boom. These include, for example, Miguel Sebastián who became head of the economic office of the prime minister (a Council of Economic Advisors of sorts) in 2004 and Miguel Ángel Fernández Ordóñez, who was to become governor of the Bank of Spain in 2006. The list goes on and their writings inform much of this paper. The point is that Spanish authorities were not caught sleeping at the wheel; rather they saw the wall coming and decided not to steer the car away from it. This is important because it furthers our understanding that speculative cycles, which are widely recognized but rarely acted upon.

However, the source of exogenous variation that explains all these events is outside the scope of this paper. This is a period that saw real estate and public debt bubbles across many countries, including the US, Ireland, Spain and Greece, which suggests a common underlying factor across all of them. Overly loose monetary policies by the main central banks or the savings glut of export led economies are typically blamed for these global conditions. One possibility is that credit flows into some countries and not in others because their size allows them to absorb substantial amounts of this global credit glut. If these flows are intermediated by financial sectors with weak governance structures and plagued with agency problems, they may lead to poor capital allocation decisions and perhaps to speculative cycles supported precisely by these large flows of credit. In globally integrated capital markets, banking systems with weak governance attract capital precisely because the bubbles they induce prevent inferences about the weak governance that generates the bubble in the first place, yielding satisfactory returns in the eyes of uninformed foreign investors who, in any case, feel protected by the fact they hold their stakes in the form of debt.<sup>3</sup> The cajas sector may have played that role in the Spanish situation: It was simply a weak link in world with too much credit in search of high credit quality paper.

There are other questions that this paper does not address. As mentioned, this paper does not go further than 2009 and thus offers only brief comments about the crisis and how it

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<sup>3</sup>Current work with Jesús Fernández-Villaverde and Luis Garicano is precisely aimed at fleshing out this idea more precisely.

was handled by the authorities. In addition it does not present cross sectional evidence beyond the distinction between cajas and banks. Current work by this author is directed towards a more comprehensive history of the Spanish banking system in the euro years, including the crisis. Finally, there are many aspect of the run up that deserve more focused research. There is, as we will see, a lively debate among Spanish researchers about what factors explain the real estate bubble and the dust is far from settled. All accounts of the Spanish banking crisis have a tentative aspect at this stage.

The paper proceeds as follows. Section 2 offers a brief survey of the real estate bubble in Spain, a necessary ingredient to understand the Spanish banking crisis. Section 3 describes the main actors in the Spanish banking crisis: The commercial banks, the cajas, and the Bank of Spain. Section 4 analyzes the evolution of the balance sheet of the Spanish banking system during the years preceding the crisis. Section 5 covers the early stages of the crisis and Section 6 concludes.

## 2 The real estate bubble

Spain grew at an average rate of 3.5% during the years 1999 to 2007, well above the euro area (about 2%) and the US (2.6%). Unemployment came from the dizzying heights of almost 16% in 1999 to slightly above 8% in 2007, the lowest unemployment rate in Spain since the late 1970s. This was accomplished in an environment where inflation was relatively low and stable, though higher than that of most trading partners, and public finances were being stabilized. Spain's gross debt to GDP ratio, a standard measure of fiscal probity, reached 36% in 2007. It is important to emphasize that all these positive trends preceded the introduction of the euro and had already been in place since the mid 1990s, when the economy was recovering from the recession in the first half of that decade and economic policy was dictated by the need to fulfill the requirements of euro membership.

It is in this benign environment that the real estate bubble began.<sup>4</sup> In the decade between 1997Q1 and the peak of the real estate bubble in 2008Q1 prices grew more than 200%, from 691 €/m<sup>2</sup> to 2101 €/m<sup>2</sup>.<sup>5</sup> In the same period the CPI index went up by 40%, according to

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<sup>4</sup>In fact the real estate boom that roughly covers the decade between 1999 and 2008 is the second boom in twenty years in Spain. The last one went from 1987 to 1991 and saw nominal prices grow 20% for three consecutive years. See García Montalvo (2012, page 84).

<sup>5</sup>There are three sources of data for housing prices in Spain. The first is data based on appraisals computed for the purposes of requesting a mortgage. It is collected by the Ministerio de Fomento ("Department of Public Works"). A second source of data is collected by the Spanish official statistics institute (INE) which uses prices

the Spanish Statistics Institute (INE). Panel D of Figure 2 shows the housing prices in both nominal as well as real terms for the period 1997 to 2012. This plot underestimates the price appreciation in cities like Madrid or Barcelona which saw much stronger booms.

## 2.1 Demographics and the real estate bubble

Every bubble has an “honest origin,” whether a technological innovation, a financial innovation that allows the extension of credit or risk sharing to a sector hitherto excluded from financial markets or some unexpected demand shock that justifies the price increases. The Spanish housing bubble was no exception. Demography is the first place to look when it comes to housing.<sup>6</sup> The baby boom happened in Spain, and in Ireland, about a decade and half later than in other core countries in the Eurozone.<sup>7</sup> Panel A of Figure 2 shows the proportion of the population between 15 and 64 years of age in four countries in the Eurozone. France and Germany had peaks on this metric in the mid 1980s whereas Ireland and Spain had them in the mid 2000s. Clearly this has two opposing effects: There is an increase in the demand for housing and in the availability of labor supply for the construction sector to produce the new houses needed. Importantly, Spaniards access housing through ownership rather than rentals; thus, so the rather loose argument goes, demographic shocks can induce an increase in real estate prices. Spain had indeed one of the highest ownership rates amongst large economies in the eve of the euro and it increased even more after the euro was launched. (See Panel B of Figure 2.)

In addition, Spain had very high levels of youth unemployment during the crisis in the first half of the 1990s so the potential for household formation was certainly enormous.<sup>8</sup> New

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collected in the public transactions registry. Both series have different problems. The appraisal data can be manipulated by the mortgage finance industry to produced desired outcomes. Values, for example, can be inflated to increase the probability of granting a mortgage. The second series has the problem that parties to real estate transactions have tax incentives to misreport transaction prices. Finally there is a a third source of data, which is the ask prices by homeowners offering their houses in real estate websites. For a lucid exposition of these issues and the consequences for our understanding of the correction in prices in the real estate market see García Montalvo and Raya Vilchez (2012).

<sup>6</sup>It is far from obvious that demographic shocks, which have long anticipated effects, can produce the type of patterns observed in the Spanish real estate boom; frictions as well as behavioral biases are needed to prevent these shocks to be fully incorporated into asset prices. Of course the classic reference here is Mankiw and Weil (1989). For a broder discussion of the issues surrounding demographics and asset prices see DellaVigna and Pollet (2007). For a central banker perspective on demographic factors inducing real estate bubbles that includes some interesting international cross sectional evidence see Nishimura (2013).

<sup>7</sup>The comparison between Ireland and Spain is a constant in accounts of the crisis. See Ahearne, Delgado, and von Weisacker (2008).

<sup>8</sup>Vinuesa (2008) and Garcia Montalvo (2007) offer some treatment of the problem of household formation and as well as household disappearance in Spain. Unfortunately it is difficult, with the existing data sources,



households are mostly driven by youngsters leaving their parents homes and there is some evidence that the age at which these youngsters were purchasing their first home was dropping throughout the first half of the 2000s.<sup>9</sup> Other factors, such as household splits due to divorces, account for a very small percentage of new households.

Spain also experienced strong immigration flows during the first decade of the euro. Of course the boom had a lot to do with immigration in the first place. As González and Ortega (2009) note, Spain topped international rankings in terms of immigration, both in absolute and relative terms: Between 2001 and 2006 the share of Spain's population that was foreign born more than doubled, from 4.8% to 10.8%. As before, immigration increases demand as well as supply of housing. To disentangle the many effects that confound the demand effects of the immigration flows on housing, González and Ortega (2009) use cross sectional variation in immigration across the Spanish provinces and historical location patterns by country of origin; they estimate that immigration increased housing prices by about 50% and was responsible for 37% of the total construction of new housing units between 1998 and 2008.

## 2.2 Regulation and taxation

Regulatory developments, or the lack thereof, as well as taxation also are typically mentioned as factors, though it is difficult to attribute the real estate boom to any single legal development. In particular, the supply of land is a constant topic of policy debate in Spain and has been blamed for the increase in housing prices.

Laws regulating the supply of land have always been rigid in Spain,<sup>10</sup> the efforts of successive governments notwithstanding, and thus it is difficult to claim that this factor was the main driver of the boom. But this was a constant theme in policy discussions as early as 1996 and 1997 and as a result of these debates a new law was passed in 1998 to facilitate the supply of developable land and thus slow the increase in housing prices already taking place. Land prices obviously incorporate the expectations of housing appreciation which were increasingly delinked from economic fundamentals.<sup>11</sup> It is indeed the case that land supply

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to estimate with any precision the potential for household formation.

<sup>9</sup>García Montalvo (2007, Cuadro 5) offers some evidence that the median age of new homeowners decreased steadily between 2000 and 2005, from 35 years of age to 32.

<sup>10</sup>Solé-Ollé and Viladecans-Marsal (2013, Box 1) offer a succinct English summary of land regulation in Spain. Successive efforts by the central government to regulate land ownership have been met with stern sentences from the Constitutional Court, which has reaffirmed the regional and municipal prerogatives in what concerns regulation of land ownership and rights.

<sup>11</sup>See García Montalvo (1999, page 9 and Cuadro 7). Land ownership and rights were regulated by Law 6/1998, which was rather controversial at the time and was met, successfully, with constitutional challenges.

was certainly limited in the early stages of the real estate bubble. As García Montalvo (2000) showed using 1998 data “urban land” was only 1.5% of total available land, lower than other European countries.<sup>12</sup>

The debate on whether restricted land supply was an important factor in the real estate bubble is still ongoing. For instance, García Montalvo (2010) argues against it, claiming that land availability does not have any explanatory power on housing prices. In addition, he dismisses demographic factors as an explanation for the real estate bubble. Instead, Garriga (2010) builds a structural model and calibrates it to the Spanish economy circa 1995; in his calibration fundamentals (demographics, interest rates and land supply) can account for more than 80% of the real increase in housing prices. What is clear though is that the efforts to increase land supply did not make a significant dent on real estate prices and it could be argued that they increased the misallocation of resources by making more land available for unwise real estate development projects.

One last issue concerns the fiscal treatment of ownership versus rental. As already mentioned the rental market in Spain is essentially non-existent and, once again, successive efforts to develop it have systematically failed. Many argue that the uncertainty surrounding the enforceability of rental contracts deters a more vigorous development of the rental market.<sup>13</sup> In addition ownership has a very favorable tax treatment that makes renting unattractive. Traditionally, Spain has offered the standard mortgage interest rate deduction, though with caps, and between 1985 and 1989, this deduction was extended to second homes. This was key in a country where the ultimate dream is the weekend apartment near the coast. An interesting legal development that seems to add to the thesis that the timing of taxation changes bears some blame for the real estate boom is that the income tax code allowed for a deduction for rentals between 1992 and 1998, but this deduction was eliminated in 1999. In addition there are several plans (Planes de Vivienda) offering direct subsidies to families

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This law though did not take the political issues surrounding the legal underpinnings of land ownership from the table and in 2002 Prime Minister Aznar offered the opposition party a grand bargain over this matter, one that would have to include municipal and regional parties. The stated purpose was to stop the strong housing inflation already taking place (see Carmen Parra and Anabel Díez “Aznar ofrece un gran pacto para frenar el precio del suelo al que el PSOE pone condiciones,” *El País*, November 21st, 2002.) Nothing came of it. A new law was passed in 2007 by the socialist party after its return to power in 2004.

<sup>12</sup>See García Montalvo (2010, page 85.)

<sup>13</sup>In fact one of the earliest legal measures in the crisis was the Law 19/2009 which was aimed at removing some of the perceived elements blocking the development of the rental market; an additional reform was the Law 37/2011 which was designed to expedite court procedures, in particular in all matters related to housing. See Mora Sanguinetti (2012) for a thorough econometric study of the impact of judicial efficiency on homeownership and Mora Sanguinetti (2011) for a brief discussion of issues surrounding the rental market in Spain.

seeking homeownership.<sup>14</sup>

## 2.3 Monetary channels

Monetary channels may have played an important role as well in the Spanish real estate bubble. Indeed, the positive economic trends that Spain was experiencing occurred while nominal interest rates, and spreads with respect to German bonds in the case of the European periphery, were dropping globally. The fall in inflation rates was not enough to compensate for the strong correction in nominal rates and as a result real interest rates also dropped. This drop was particularly pronounced in the case of Spain. The ex post 3-month real interest rate was 5.31% between 1990 and 1998, whereas it was -.04% between 1999 and 2005. In the same periods the rates were 3.17% and 1.64%, respectively, in Germany and 2.21% and .72% in the USA. Evidence on the UK 10 year indexed bonds confirms this drop in real interest rates. Yields were 3.76% and 2.08% in the two periods considered.<sup>15</sup>

As many have argued, one possibility is that monetary policy was too loose and that the drop in interest rates produced a real estate appreciation that led to speculative dynamics. The argument is that had the ECB applied the appropriate Taylor rule *for Spain* the real estate bubble would not have happened. It is indeed the case that if one applies a simple Taylor rule with standard weights to Spain and compare it with the actual rate, the Taylor residuals were negative.<sup>16</sup> There is indeed a strong negative correlation between the average Taylor residuals in the first years of the euro and real house price changes in the same period. In particular, Spain, Ireland and Greece were countries with particularly strong negative average residuals and equally strong real housing price increases.<sup>17</sup>

In addition the drop in nominal interest was bound to have a strong effect in Spain for two reasons. First, the fact that Spaniards access housing through ownership meant that any fluctuation in housing prices was destined to have widespread wealth effects.<sup>18</sup> Second,

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<sup>14</sup>For an early study on the effects of taxation on Spanish real estate prices, see López García (2004). Incidentally, the motivating real estate bubble in López García (2004) was the one that took place in the late 1980s, not the one in the first decade of the euro. Ortega, Rubio and Thomas (2011) study the effects of different policies aimed at eliminating tax biases in the real estate market in the context of a DSGE model calibrated to moments of the Spanish economy.

<sup>15</sup>See Blanco and Restoy (2007, Table 1).

<sup>16</sup>See Dokko, Doye, Kiley, Kim, Sherlund, Sim, and Van den Heuvel (2009) who explicitly compute the Taylor residuals in a cross section of European countries, which includes Spain. See, in particular, Figure A1.

<sup>17</sup>See IMF (2009, Figure 3.13, page 108.) For a more skeptical view of this channel see Ayuso, Blanco and Restoy (2006) who argue that the change in ex-post real rates is likely to overestimate the drop in ex-ante rates in the case of Spain.

<sup>18</sup>Estimating the increase in wealth due to the real estate cycle is of course a daunting task. Uriel and

more than 80% of mortgages in Spain are adjustable rate mortgages and thus monetary policy is transmitted directly to household balance sheets.<sup>19</sup> These wealth effects may have fueled in turn the housing price dynamics in Spain. Finally, strong competition between cajas for a significant share of the mortgage market, and the corresponding servicing fees, may have reduced mortgage rates further.

When evaluating these plausible explanations for the Spanish real estate boom, the reader should keep in mind that whatever the driving force behind the real estate bubble in Spain, supply responded dramatically. As Scheinkman (2013, page 9) emphasizes, it is the signature of bubbles that they come accompanied by strong supply responses. It is difficult to assess what was the gap between supply and the actual and potential demand for housing but estimates of excess supply run in the several hundreds of thousands. Panel C of Figure 2 shows the total number of housing starts in Spain in the two decades from 1991 to 2011. Notice the enormous increase in housing starts during the years of the real estate boom. As mentioned Spain saw some remarkable population growth during that period so obviously the demand for housing grew with it. García Montalvo (2007) estimates the potential housing demand using very aggressive estimates on household formation in Spain during the period 2000-2005 in order to bias the estimate of the demand upwards within reasonable bounds. In no year did housing demand exceed the number of housing starts and the gap seems to increase as the boom progresses. These numbers have to be interpreted with great caution as they hide great heterogeneity in both demand and supply. But it is the ultimate signature of a bubble that even in the presence of enormous supply effects prices keep advancing to new heights. The strong supply response is not surprising. Spain has some very fine civil engineering and construction companies. These companies in addition gained enormous experience under the phenomenal cycle of public investments that had taken place in Spain since the 1980s, in a effort to bring up the quality of public facilities, highways, airports and build a state-of-the-art high-speed train network. Perhaps the combination of sophisticated construction and civil engineering companies and the inflow of low skill workers is an important element in the construction boom. It is thus difficult to argue that behind these price dynamics extrapolative expectations are not at play and that real estate developers were building, and hoarding, to sell at inflated prices at a future date.

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Pérez (2012, page 15) estimate that the value of the housing stock, which incorporates both quantity and price changes, has gone from €1tr in 1990 to €5tr in 2010, though the peak was reached in 2008 when they estimate the value of the housing stock at €5.3tr.

<sup>19</sup>Garriga (2010, page 8).

Credit of course plays a critical role in this story as in any real estate boom. We turn next to the funding side of the real estate boom.

### **3 The Spanish financial sector on the eve of the crisis**

There are many actors in the Spanish banking crisis. First there are the households and corporations, both resident and non resident, driving the demand for real estate. Second are the real estate developers and construction companies supplying the apartments and commercial property in unprecedented volumes. Third are the local and central government authorities in charge of the legal environment in which supply and demand meet as well as on the demand side through, for example, the many infrastructure projects undertaken during this period. Finally, there is the banking system that is funding it all. A thorough account of the Spanish real estate bubble requires a proper understanding of the objectives and incentives of each of these actors as well as the restrictions under which they operated. Here we focus solely in the role played by the Spanish banking sector. We first offer an overview and brief history of the Spanish commercial banks. We then turn to the *cajas* sector. The Bank of Spain occupies the last section.

#### **3.1 The Spanish commercial banks**

On the eve of the euro the Spanish credit market was dominated by two types of institutions: banks and the savings and loans, the notorious *cajas*. There are other credit institutions but they are too small to matter and they are ignored in what follows (Table 1 shows the classification of the Spanish financial system used by the Bank of Spain for reporting purposes.) This structure of the Spanish credit market was the result of a profound liberalization that spanned well over a decade, from the early 1970s to the late 1980s.<sup>20</sup> Prior to that the Spanish banking system was highly regulated: Interest rates had to fluctuate within fixed floors and ceilings and banks had limited flexibility on how to allocate loans, because they were required to favor investments in sectors officially targeted for development; in addition branch expansion was restricted. Liberalization of the credit market, as is usually the case, immediately resulted in a banking crisis, as poorly managed banks were forced to compete for funding while shifting their portfolios towards riskier loans. The oil shocks aggravated an already serious situation by

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<sup>20</sup>See Salas and Saurina (2003, Table 1) for a list of relevant deregulation measures during this period as well as an empirical assessment of their impact on the market power of Spanish banks.

affecting corporate loan portfolios and soon the crisis engulfed a large percentage of the entire banking system. Of the 110 banks operating in Spain in 1977, 51 had solvency issues between 1978 and 1983; only in that last year the 20 banks of the Rumasa conglomerate were taken over by the authorities. These 51 entities comprised 25% of the assets of the entire sector and 20% of its deposits.<sup>21</sup>

Unfortunately the crisis caught the Bank of Spain with limited supervisory and restructuring tools. When the crisis started Spain did not have either a deposit insurance mechanism or a formal receivership procedure. The Spanish authorities thus had to improvise to create the tools needed to handle an unprecedented systemic crisis, something that would be repeated in the most recent crisis. In 1977, The Spanish FDIC (called the *Fondo de Garantía de Depósitos en Establecimientos Bancarios* or FGDEB) was created.<sup>22</sup> It was originally just a deposit insurance corporation without any resolution authority. This proved insufficient given the magnitude of the crisis and in 1980 the FGDEB was given resolution powers. It was only then that the slow process of resolving of the Spanish banking crisis can be said to have begun.<sup>23</sup> Simultaneously a similar deposit guarantee and resolution authority institution was created for the cajas, though they were largely free from the problems plaguing the Spanish banks.

This crisis, as banking crises always do, produced a more concentrated banking system. By 1986, shortly after Spain's entry in the European institutions and once the worst of the banking crisis was over, the Spanish credit market was dominated by seven large banks (Banesto, Central, Popular, Hispano, Santander, Bilbao and Vizcaya) on the one hand and the cajas sector, which were not then what they were to become. There was also a string of state owned banks, of which the largest was Banco Exterior. Finally, and under the encouragement of the Bank of Spain, there was a small presence of foreign banks.

Entry in the European institutions, which took place in 1986, gave a renewed impetus to the liberalization of the Spanish economy.<sup>24</sup> The Second Banking Coordination Directive

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<sup>21</sup>See Ontiveros and Valero (2013) for an informative account of this crisis. This crisis is the one featured as one of the "Big Five" in Carmen Reinhart and Kenneth Rogoff's research on financial crises. See for example Reinhart and Rogoff (2009, Table 10.8).

<sup>22</sup>RD 3048/1977 of November 11th. RD stands for Royal Decree, a norm approved by the cabinet that goes immediately into effect but that ultimately has to be voted by parliament.

<sup>23</sup>Fainé (2005) provides a lucid account of the origins of the FGDEB in the context of the banking crisis of those years. In particular Cuadro 1 provides a comprehensive list of banks taken over by the FGDEB.

<sup>24</sup>Rajan and Zingales (2003, pp. 182-190) argue that once Spain entered the European institutions increased competition in products markets made Spanish firms more reliant on outside finance. The prospect of cross-border capital flow following monetary integration made it difficult for governments to intervene in credit markets. These two effects created the constituency for financial liberalization and the break up of the bank cartel.

in 1988 established the creation of a Single Market for Financial Services on January 1st, 1993. Spanish bankers, as well as authorities, were wary that the single market was to produce the takeover of the main banks by foreign entities so a second merger wave ensued. Banco de Bilbao and Banco de Vizcaya merged first, in 1988, to form BBV. The “A” of BBVA came afterwards, when BBV merged with Argentaria which was the entity created in 1991 to consolidate the state owned banks.<sup>25</sup> Banco Central and Hispano merged in 1991 to create the largest credit entity at the time, BCH. The recession that started in 1992 brought yet another virulent banking crisis, in this case affecting Banesto, which at the time was one of the largest banks in Spain. Banesto was put into receivership by the Bank of Spain in 1993 and sold to Santander in 1994. This sale is at the origin of Santander’s growth which continued in 1999 when it merged with BCH. The resulting entity was called Banco Santander Central Hispano (BSCH) until 2007 when the name was changed to Banco Santander.

Santander and BBVA continued their growth through a strategy of international expansion. BSCH went on to acquire Abbey National in 2004, and in 2007 a joint takeover of ABN AMRO landed Santander the Brazilian subsidiary of the dutch bank, Banco Real, which was Santander’s ultimate objective. The key international acquisition of BBVA occurred in 2000 when it took a majority stake in Bancomer to become a dominant player in the Mexican banking system (BBVA Bancomer).

## **3.2 The cajas**

### **3.2.1 Definition and historical context**

The other half of of the Spanish deposit institutions are the cajas de ahorro (savings and loans), the epicenter of the current financial crisis in Spain. The cajas are private, deposit taking institutions identical to banks except for the fact that their profits revert to a foundation which goes on to fund socially minded projects with these profits. These projects range from cultural activities to social assistance programs and research related activities. Roughly thus, a caja is a commercial bank plus a foundation. There are two differences between the commercial banks and the cajas. First they had very different governance structures, and second, property rights were ill defined.

The cajas have a long and venerable history, covering roughly four distinct periods.

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<sup>25</sup>Before adopting the name Argentaria, the consolidated state owned bank was known as Corporación Bancaria de España. It merged Banco Exterior, Caja Postal de Ahorros, Banco Hipotecario de España, Banco de Crédito Local, Banco de Crédito Agrícola, and Banco de Alicante.

The first runs from their foundation, in the first half of the 19th century to the advent of the Spanish Second Republic (1931). During that period the *cajas* provided basic financial services to the poor and underprivileged. They remained small, local and devoted to charitable activities. They remained lightly regulated and from the very beginning they were encouraged by the state as a means of providing much needed stability in the financial sector. They were conservative financial institutions in that they were funded solely with deposits and lent only to the best available credit in their local area. The Second Republic and the Franco years introduced a period of progressive involvement by the state. Essentially the temptation to use the significant pool of savings in the *cajas* to fund public sector deficits was too large to resist and gradually the *cajas* were forced to have a substantial fraction of their assets in public debt or state owned enterprises, measures that partially applied to banks as well.

The third phase starts precisely when the operational equality between banks and *cajas*, on both sides of the balance sheet, was enshrined in law, with the passage of the RD 2290/1977. It is perhaps not coincidental that the law came precisely when Spanish banks were entering the aforementioned crisis and the *cajas*, which had much healthier balance sheets, were seen as a readily available substitute for the ailing banks. Starting in 1977 the *cajas*, sheltered as they were from the causes of the banking crisis, were well positioned to compete with the debilitated banks in the Spanish credit market. In addition the 1977 reform, and in the spirit of the political times in Spain, democratized the *cajas*. In particular the “General Assembly,” was to be the controlling body of the *caja* and was to be formed by representatives of depositors, founders and local corporations. Still the governance structure was soon deemed to be inconsistent with the political development of Spain, which was devolving into a very decentralized country dominated by powerful regions. As a result the governance of the *cajas* was further reformed in 1985 with passage of the a new law aimed at providing the *cajas* with robust governance structures and ushering the fourth and last stage in the *cajas* history.<sup>26</sup> Because the governance of the *cajas* was a key ingredient in Spain’s financial crisis we turn to this issue next.

### **3.2.2 Governance of the *cajas***

To summarize, as the Spanish banks were entering its biggest crisis the *cajas* were made operationally into banks. Tighter regulations and conservative management had left the *cajas* with healthier balance sheets and made them a viable alternative to the debilitated banking

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<sup>26</sup>This was the Ley 31/1985 of August 2nd or LORCA (*Ley de Órganos Rectores de las Cajas de Ahorros* or Law of governing bodies of the *cajas*); see also Ley 26/2003 of July 17th.



system. The regulatory changes brought about by the 1977 and 1985 reforms, discussed shortly, opened the door for the expansion of the *cajas*. However the governance of the *cajas* had serious design flaws, which proved fatal once the credit bubble started. The *cajas* were not publicly traded institutions but the 1985 law endowed them with governance institutions that mimicked those of publicly traded institutions. Unfortunately, form is no substitute for substance. The main governance flaws in the governance of the *cajas* were threefold.<sup>27</sup>

First, and as already mentioned, the *cajas* were private entities, roughly banks owned by foundations. They operated and grew exclusively with retained earnings, well above the original capital supplied by their founders, who only had a minority interest in the *cajas*. Property rights were ill defined, something that would play a critical role in the early stages of the crisis. In particular, the *cajas* lacked shares, and thus shareholders. In addition they lacked clear recapitalization mechanisms. Yes, something like a share existed (the “*cuota participativa*”), but it carried economic but not political rights, rendering them unattractive as investment vehicles given the serious governance concerns surrounding the *cajas*.<sup>28</sup>

There was a subtle consequence associated with this lack of clear definition of property rights: Since the *cajas* had no shares, they could not be acquired by banks, but the *cajas* could acquire banks. Thus the takeover mechanism as a disciplining device was absent, which rendered the internal governance of the *cajas* all the more important. This key point was unappreciated at the time. The banks had suffered a process of international diversification both on the asset side of the balance sheet (as was the case for Santander and BBVA) as well as the liability side. The euro had removed the exchange rate risk that had always impeded the flow of capital into Spain and many foreigners rushed in to invest in the now large Spanish commercial banks, bringing greater oversight and better governance practices. Nothing of the sort could happen to the *cajas*. Moreover, the fact that the *cajas* could own banks meant that they could “export” the bad governance to the banks they acquired. Indeed the only bank to fail in this crisis, Banco de Valencia, was controlled by a *caja*, Bancaja, which was merged with Caja Madrid during the early stages of the crisis to form Bankia, the large behemoth

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<sup>27</sup>See the prescient article by Terceiro (1995) who also provides a useful comparison with the regulation of similar institutions in other countries. Mr. Terceiro also published his views in the press; see, for example, “Problemas de la configuración jurídica de las *cajas* de ahorros,” *Expansión*, 2 and 3rd of October, 1995. Foreign observers of the Spanish financial system were not unaware of these governance problems; see, for instance, Mai (2004).

<sup>28</sup>The *cuota participativa* was regulated during this period by the Real Decreto Ley 302/2004 of February 20th, which in turn developed the relevant articles in the Ley 44/2002, which implemented a series of reforms in the financial sector.

that ended nationalized in 2012.<sup>29</sup> Finally, the fact that they were not publicly traded meant that there were no pricing signals that would facilitate information aggregation and discovery; market participants had to rely on opaque primary markets for bank debt to learn the views of the market at large on the solvency of those institutions. It is important to note that the *cajas* filed regularly with the Spanish SEC and were subject to standard auditing processes.

Second, these reforms, and the 1985 law in particular, ensured that the *cajas* were going to be controlled by the local political elites. Indeed, the 1985 law established that the *cajas* were to be governed by four institutions. First was the “general assembly,” a shareholder meeting of sorts, which was to be the ultimate decision body of the *caja*. The law enshrined the percentage of the vote that the different stakeholders would have in this general assembly: Depositors and workers would have 44% and 5% of the vote, respectively; the original founders of the *cajas* 11% and a whopping 40% would go to the local political representatives of the municipalities where the *cajas* were operational. The “board” was to be elected by the general assembly, each group represented in proportion to their voting power in this body. The board had two main responsibilities: Oversight of the financial operations of the *cajas*, including disbursement of the profits for social projects, and appointment of the *caja*’s “general director” or CEO. Finally a “control board” was to be named, again in the same proportions as the board, to provide oversight of the board and review financial statements; this last one was the key body in communication with the Bank of Spain.

It is important to understand that while other constituents were represented, the *cajas* were ultimately controlled by politicians. Depositors were represented in the general assembly but were easily captured by the local politicians. But this was in any case an anomaly for after all what firm is controlled by its customers in a market economy<sup>30</sup>? The political control led to politically motivated investments. For instance the *Caja del Mediterráneo* was effectively controlled by the local government of Valencia, the region of origin of this *caja*, as well as by the main municipalities of Valencia. Not surprisingly it invested in every ruinous project sponsored by the local government for prestige reason such as the *Ciudad de las Artes y las Ciencias*, *la Ciudad de la Luz* or the disastrous amusement park *Terra Mítica*.<sup>31</sup>

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<sup>29</sup>Banco de Valencia was an old bank, founded in 1900, and at the peak of the real estate bubble was the sixth bank in Spain. It had about €23bn of total assets at the time of its nationalization, which occurred in November 2011.

<sup>30</sup>This point has been forcefully made by Terceiro (2012, p. 20) who managed *Caja Madrid* for an extended period of time

<sup>31</sup>See Rosa Biot, *El País* (06-25-2012), “Lo peor de lo peor era la CAM.”

In addition, and almost simultaneously, governments of Spain's powerful regions<sup>32</sup> rushed in to regulate "their" cajas to align them with their local political objectives.<sup>33</sup> The central government, wary that these developments may deprive it of control in the all important credit market, challenged these regional efforts before the Constitutional Court, the highest court in the land, only to see its case rebuffed in two landmark cases (48 and 49/1988). After this the field was open for a complete takeover of the cajas sector by the local political elites. As noted by Fonseca Díaz and Rodríguez González (2005, p. 397) these regional laws increased the representation of the local political elites in the general assembly at the expense of depositors.

Some specific examples may illustrate the extent to which the cajas were controlled by local political elites.<sup>34</sup> For instance, Caixa Catalunya was run by Narcis Serra a prominent member of the Catalanian Socialist Party (PSC) and who had a long and distinguished career as mayor of Barcelona in the early years of Spain's new democracy as well as congressman; he was also national minister of defense and deputy prime minister of the national government under prime minister Felipe González (of the socialist party, PSOE). He stepped down as congressman in 2004 and was named head of Caixa Catalunya in 2005, where he remained throughout the worst years of the real estate bubble; he stepped down in 2010, leaving an insolvent caja behind. In Caja Madrid, the core of what was to become Bankia, Miguel Blesa, a lawyer by training, entered the board of this old caja in 1996 to become its head in lieu of Jaime Terceiro a distinguished economist who had run the entity efficiently. According to press reports, Mr. Blesa's main qualification to run Caja Madrid was his close friendship with Prime Minister Aznar, of the conservative party (PP), which has controlled the region and city of Madrid for more than two decades.<sup>35</sup> To gain effective control of the caja the conservative

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<sup>32</sup>Spain's 1978 Constitution transformed the Spanish state from a centralized one to a very decentralized one with 17 regions (Catalonia, Madrid, Galicia, Andalusia, the Basque Country, Valencia, ...) which were to develop their own financial legislative framework. The Constitution provides the minimum common framework but the regions have substantial freedom in developing and adjusting laws to their own local objectives.

<sup>33</sup>Two regions rushed in to regulate the cajas at the same time that the central administration was developing the framework contained in the LORCA, Galicia and Catalonia. In particular Galicia passed the Ley 7/1985 of July 17th and Catalonia the Ley de Parlamento de Catalunya 15/1985 of July 1st, both imposing a local legislative framework on their cajas. The Galician cajas ended being merged at the beginning of the crisis but to no avail: The merged institution was nationalized in 2012. Of the two main cajas in Catalonia, one La Caixa went on to become the third largest financial institution in Spain when forced to become a bank (Caixabank). The other one, Caixa Catalunya failed and is at the time of this writing still nationalized.

<sup>34</sup>Fonseca Díaz (2005, Table 1) shows that more than 40% of the general assembly in the cases of Caja Castilla-La Mancha (CCM), Caja del Mediterráneo (CAM), Bancaja, Caja Madrid and Caixa Catalunya were political appointees. All of these entities were intervened by the Bank of Spain at different points during the crisis.

<sup>35</sup>See for example Miguel Angel Noceda, "Quién es Miguel Blesa?" El País, June 17th, 1996 or Íñigo de Barrón "El amigo de Aznar que tocó el cielo financiero," El País, 03-16-2013.

party entered into a complex arrangement with the main trade union represented in the board (Comisiones Obreras or CC.OO.), to gain the votes needed to displace Mr. Terceiro and place Mr. Blesa at the helm of this centenary institution. The arrangement bound Mr. Blesa in several directions, in particular in what refers to Caja Madrid's investment policy; for instance, the agreement mentioned the need to reactive relations with real estate developers. More importantly the agreement explicitly blocked any attempt to endow Caja Madrid with better property rights and recapitalization mechanisms, which was to prove fatal when the crisis came.<sup>36</sup>

Perhaps no case better exemplifies the incestuous relation between local politics and the governance of the cajas than the case of the region of Valencia. The prosperous region of Valencia was one of the epicenters of the real estate bubble and the Spanish banking crisis. The region of Valencia was home to three important financial institutions, Caja del Mediterráneo (CAM), Bancaja, and Banco de Valencia, which was a century old bank controlled by Bancaja since the mid 90s. In 1997 the regional government took the fateful step of changing the law regulating the cajas to increase the ceiling of political appointees that could serve in the governing bodies of the cajas.<sup>37</sup> The law opened the possibility for the first time for the direct appointment by the local government of 28% of the board; this together with the municipal appointments, another 28%, made sure that the presence of political appointees in the board well exceeded the 40% mandated in the 1985 law (LORCA). In addition the law transferred supervisory responsibilities over the cajas to the Instituto Valenciano de Finanzas, a body with no experience whatsoever in banking supervision. This reform was supported both by the governing party at the time in the region (the conservative party, or PP) and the opposition party (the socialist party or PSOE), which had engaged in similar maneuverings in the region of Andalusia.<sup>38</sup> The 1997 law was sponsored by the then economics minister of Valencia, José Luis Olivas, who in 2004, stepped down as president of the region to head both Bancaja and Banco de Valencia until their nationalization during the crisis. Mr. Olivas, a member of

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<sup>36</sup>This agreement was widely reported in the press though, incredibly, it was never submitted to the board of Caja Madrid for its consideration. See Terceiro (2012) and the news as reported in El País "CCOO y PP rubrican su acuerdo para que Blesa presida Cajamadrid," (09-7-1996) and "El pacto entre el PP y CCOO para el control de Caja Madrid nunca fue aportado al Consejo," (09-21-2003).

<sup>37</sup>Law 4/97 of June 16th. Until then the cajas from this region were governed by a 1990 regional law (Law 1/1990 of February 22nd) which assigned 35% of the representation to the municipalities but none to the regional government; this is what the 1997 law changed, increasing the representation of the regional government at the expense of the municipalities. The 1997 law was subsequently reformed in Law 10/2003 of April 3rd, bringing down the representation of the regional government and the municipalities to 25% each. All these legal changes didn't alter the fundamental fact that the cajas were effectively controlled by the local political machines.

<sup>38</sup>See Josep Torrent, "Presidente de la Ruina," El País, November 27th, 2011.

the conservative party (PP), which has controlled the rich region of Valencia for many years was a lawyer by training and had no experience whatsoever in banking when he took over these important institutions. These three financial entities were eventually taken over and nationalized when the crisis hit.

With a few exceptions these governance problems led to a scarcity of managerial talent in the cajas sector. Cuñat and Garicano (2009 and 2010) have shown that on average the human capital of managers in the cajas sector was low, particularly in the cajas where real estate lending and now non-performing loans were highest. Specifically, they found that a caja run by someone with post-graduate education, with previous banking experience, and with no previous political appointments, is likely to have significantly less real estate lending as a share of total lending, a larger share loans to individuals, a lower rate of non-performing loans, and a lower probability of rating downgrades. The effects are quite large: those cajas led by chairmen with graduate studies extended 7% more of their portfolio as loans to individuals and 5-7% less to real estate loans. Consistently with this, as of July 2009, they had significantly lower non performing loans, around 1% less. Given that the average in their sample was around 5%, this is a 20% drop just from this variable. Similarly, the role of banking experience was also very significant: cajas led by those without banking experience had a 1% increase in non performing loans; this also partly reflects a larger portfolio allocation to real estate, of around 6% more. These two effects are cumulative, that is compared to one who has graduate education and relevant experience, a chairman without both increases current non performing loans in his caja by 2 percent points. This is a large effect, of around 40% of non-performing loans.

One last ingredient was added to this explosive cocktail. In 1988 the cajas, which until then had been restricted to operations in the regions where they were headquartered, were allowed to expand throughout the entire country.<sup>39</sup> Figure 3 shows the fraction of deposits (Panel A) issued by banks and cajas and loans granted to the private sector as a fraction of the total (Panel B). The cajas sector were able to gain significant market share at the expense of traditional commercial banks.<sup>40</sup>

In summary then the cajas which were operationally banks since 1977, had internal governance structures which were subject to capture by the local political elites while at the

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<sup>39</sup>Originally, the cajas were restricted to operations in the province, which are administrative subunits of the regions, where they were headquartered. In 1979 (Orden 20/12/1979) they were allowed to expand freely in the regions where they were headquartered. In 1988 (Real Decreto Ley 1582/1988 of December 29th) the cajas were finally allowed to capture deposits throughout the entire country.

<sup>40</sup>Spanish banks refer to the activities in Spain; thus, for BBVA and Santander, what gets computed in the statistics of the Bank of Spain are the Spanish operations of these large international banks.

same time being insulated by market disciplining mechanisms like takeover threats by banks. Though many saw the potential for trouble, the Constitutional Court by 1988 severely limited the ability of the central government to regulate the *cajas*. Relaxation of the geographic limitations of the *cajas* meant that these governance flaws could infect the larger Spanish economy which was entering a period of considerable dynamism after entry into the European institutions. There was an additional change in the early 70s relating to the *cajas*: in 1972 its supervisory body, the Instituto de Crédito de las Cajas de Ahorros, was dissolved and its responsibilities transferred to the Bank of Spain.

### 3.3 The Bank of Spain

#### 3.3.1 The reputation of the Bank of Spain as a tough supervisor

The modern Bank of Spain came into being in 1962,<sup>41</sup> though by then it had a long and distinguished history. In what concerns banking supervision though the history of the Bank of Spain is quite recent. As already mentioned the banking crisis that started in the mid 70s caught authorities without the necessary resolution framework to handle bank failures. In addition the supervisory abilities of the Bank of Spain were rather limited when the crisis hit. The modern supervisory capabilities of the Bank of Spain are the result of that crisis.<sup>42</sup> Since then the Bank of Spain had built the reputation of a tough supervisor on three pillars.

First, the Spanish central bank acted decisively during the banking crisis of the early 1990s. In particular its handling of the Banesto crisis in 1993, the largest banking failure in Spanish banking history until then, was widely seen as effective and not onerous to the tax payer.<sup>43</sup> Second, while the aforementioned banking crisis was turning virulent, Spanish financial markets were undergoing a profound process of both liberalization as well as consolidation. Under the imposing shadow of Mariano Rubio, deputy governor between 1977 and 1984 and then governor between 1984 and 1992, the credit market was utterly transformed. His tenure coincided with a profound liberalization of the Spanish credit market, increased competition

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<sup>41</sup>Ley de Bases de Ordenación Bancaria of July 14th 1962.

<sup>42</sup>This is not to say that there are no antecedents to bank supervision inside the Bank of Spain; for an absorbing account of this early history see Moreno Fernández (2008). For the legal foundations of the central banks supervision responsibilities at the beginning of the bubble years, see the Memoria de la Supervisión Bancaria en España en 2001 (Recuadro II.1, page 61), Banco de España, which is the annual report on banking supervision; chapter II provides a very clear survey of banking supervision in Spain; see also Anexo I. The 2011 annual report in its Anexo I also includes a more up to date picture as well as a useful organizational chart of the Bank of Spain.

<sup>43</sup>For an account of the Banesto crisis one can consult Ontiveros and Valero (2013) and the references therein.

and the entry of foreign banks into the traditionally closed Spanish market. In addition and during his years the supervisory powers of the Bank of Spain were strengthened.

Finally<sup>44</sup> the Bank of Spain has proved willing to try what were at the time innovative macroprudential tools that alleviated some of the consequences of the banking crisis. These tools, informed by sound economic reasoning, were met by resistance both by banks and cajas as well as observers at large, but, to its credit, the Bank of Spain stood up to the resistance. Two of these tools are discussed next.

The first tool, the dynamic provisioning system, was unique to the Bank of Spain. The origins of this institution date back to the banking crisis of the early 1990s, which had resulted in a severe contraction of credit. The Bank of Spain was concerned about the strong procyclicality of credit, which in an economy strongly dependent on bank capital was seen as deepening the business cycle. In addition, it was perceived that banking competition was producing aggressive loan pricing; as a result it was felt that the level of provisions in the Spanish banking sector was too low (which was indeed the case when compared to other OECD banking systems).<sup>45</sup> In order to protect bank capital over the cycle and produce a more stable flow of credit the Bank of Spain started to consider a new approach to provisioning. This new approach recognized that loan losses had to be provisioned at the peak of the business cycle, when the reckless loan is granted, not at the bottom when bank lending is most conservative and loans granted only to the safest credit. This how the Bank of Spain's notorious dynamic provisioning system came about. It is important to understand that the dynamic provisioning system did not come as an effort to prevent excessive credit creation during speculative cycles, which means that its effectiveness should not be judged along this dimension.<sup>46</sup> Dynamic provisioning is an ingredient, not the most important, in the story of the Spanish banking crisis but for reasons that are typically not fully appreciated and to which we shall return.

Dynamic provisioning forces banks to hold provisions for losses according to the following formula:

$$G_t = \sum_{i=1}^6 \alpha_i \Delta C_{i,t} + \sum_{i=1}^6 \left( \beta_i - \frac{S_{i,t}}{C_{i,t}} \right) C_{i,t}. \quad (1)$$

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<sup>44</sup>In addition, the Bank of Spain has been instrumental in raising the level of economic research in Spain, both through his fellowship programs to fund Ph. D. studies in the United States as well as its own research facilities.

<sup>45</sup>See Saurina (2009, page 13.)

<sup>46</sup>Saurina (2009) mentions though that moral suasion had stopped being effective when it came to convincing the banks to moderate the pace of lending, which suggests that putting sand in the loan origination machine may not have been far from the intentions of the Bank of Spain.

In (1)  $G_t$  stands for generic provisions and  $C_{i,t}$  for credit at time  $t$  in category  $i$ .  $S_{i,t}$  stands for specific provisions.  $\alpha_i$  is a parameter that determines how sensitive generic provisions are to credit growth in category  $i$ . Finally,  $\beta_i$  is the average of specific provision over the business cycle. There were six categories of loans which are reported in Table II, together with the associated parameters.

There was a second insurance mechanism set up by the Bank of Spain that also proved prescient, the treatment of off-balance sheet liabilities and the capital charges that were applied to them. The issue was whether securitization and asset transfers to special purpose vehicles could lead to deconsolidation of the associated risks from the balance sheets of the sponsoring credit entities, whether banks and cajas. The issues are arcane from an accounting point of view but inform the Bank of Spain's reputation as a tough supervisor. In 2004, the Bank of Spain, which is the body responsible for the accounting standards of credit institutions, issued the necessary norms to implement the adoption of the International Financial Reporting Standards (IFRS) at the European Union level. The Bank of Spain interpreted IFRS criteria when it came to deconsolidation in a very restrictive manner, in a way that made off-balance sheet transactions rather unattractive. In particular, and judiciously, the Bank of Spain opted for an interpretation of IFRS's ambiguities in the accounting treatment of off-balance sheet transactions based on economic considerations rather than the letter of the law. In addition and to deal conservatively with the complexity of many of these arrangements, the Bank of Spain ordered that consolidation was required when it was difficult to assess whether a substantial risk transfer had occurred. In practice any credit enhancement that the sponsoring entity would grant the off-balance sheet vehicle or any retention of subordinated liabilities would result in consolidation.<sup>47</sup> It is important to emphasize that all these actions did not prevent securitization from happening and indeed Spain became the largest securitization market in Europe after the UK, but for risk diversification rather than regulatory capital arbitrage.<sup>48</sup>

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<sup>47</sup>The relevant document here is the Bank of Spain's Circular 4/2004 of December 22nd, which is available in English at the Bank of Spain website. For a brief summary of the issues on this document the interested reader can consult the Memoria de la Supervisión Bancaria 2004, pages 114-118. See also Circular 3/2010 of June 29th, which modifies Circular 4/2004. Thiemann (2011) provides a useful discussion of the issues as well as an insightful comparison across the different countries in the EU. For discussion specific to the Spanish case see Ybañez and García-Fuertes (2005). Obviously, the issue did not make into the general press

<sup>48</sup>For empirical evidence on the rejection of credit risk transfer and regulatory capital arbitrage as a motive for securitization in Spain see Cardone-Riportella, Samaniego-Medina and Trujillo-Ponce (2009).



### 3.3.2 The Bank of Spain and the real estate bubble

What was the attitude of the Bank of Spain to the imbalances building in the Spanish economy, particularly in its real estate sector? Did the Bank of Spain try to control the expansion of the *cajas*?

When considering these questions one must turn to the two governors at the head of the Bank of Spain during these critical years, Jaime Caruana and Miguel Ángel Fernández Ordóñez. The Bank of Spain is, by all accounts, a hierarchical organization so the personalities of both the governor and the deputy governor play a critical role in the central bank's approach towards supervision. There were three issues that the Bank of Spain had to contend with. First was its role in the debate over whether Spain was experiencing a real estate bubble. Central bankers typically argue that they lack the instruments to identify and stop speculative cycles, which was certainly the case here as monetary policy and interest rates were set in Frankfurt not Madrid. The Bank of Spain could put more sand in the credit machine via dynamic provisioning, which can be seen as a macroprudential tool aimed at controlling the flow of credit to particular areas. Second, the serious flaws in the governance structure of the *cajas* meant that the Bank of Spain had to be particularly vigilant. Because the *cajas* were controlled by powerful local political elites a particularly strong supervisory role was required. The Bank of Spain was going to be the key institution when the correction came, something widely expected in Spain since relatively early in the speculative cycle. Contingent planning and a clear path towards the likely restructuring of the Spanish credit market was amongst the Bank of Spain's responsibilities in anticipation of the crash.

Jaime Caruana, a telecommunications engineer by training,<sup>49</sup> arrived as governor in 2000 and served until 2006 when his term expired and he was replaced by Miguel Ángel Fernández Ordóñez, who served until 2012.<sup>50</sup> At the time of his selection, Mr. Caruana was the head of banking supervision inside the Bank of Spain. Before that he ran the Treasury Department under finance minister Rodrigo Rato, and in that capacity sat on the board of the Bank of Spain.

It was during Mr. Caruana's years that the real estate bubble got going in earnest. Contrary to the views expressed by some commentators, the real estate bubble was a constant

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<sup>49</sup>Mr. Caruana is also a Técnico Comercial del Estado and Economista del Estado, which are civil service positions to which one only arrives after grueling public examinations. These civil servants become typically the economists that support the efforts of the different ministries, particularly the economics ministry and the public finance ministry.

<sup>50</sup>Governors can only be appointed for one term of six years.

feature in policy discussions and in the press, so much so that during the general election of 2004 it was the dominant theme of the economic policy debate. Interestingly two debates with diametrically opposing policy implications were taking place simultaneously. First, there was a popular debate centered around the issue of housing affordability. Politicians reacted to this concern by proposing measures directed towards the increase in the supply of housing but also advancing proposals that reinforced the speculation in the housing market.<sup>51</sup> A second debate was centered around the systemic implications of a potential housing crash.<sup>52</sup> Here observers and commentators proposed a transition to a more balanced growth model, one that emphasized productivity gains rather than overreliance on the construction sector.

The Bank of Spain featured prominently in these debates. In 2003 produced two different studies arguing that real estate values were above their long run values, somewhere between 8% and 20%, and that a correction was to be expected.<sup>53</sup> These studies were widely covered in the press.<sup>54</sup> The issue was politically charged and the impact of these studies was such that both Spain's main economic authorities as well as leading bankers disagreed publicly with the findings of the research staff of the central bank.<sup>55</sup> In addition the European Commission in its Fall 2003 report emphasized the possibility that the Spanish real estate market was overheated.

Mr. Caruana had what can only be described as an ambivalent attitude towards the

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<sup>51</sup>See for example "Rato acepta que existen responsabilidades políticas en el encarecimiento de los pisos," *El País*, October 3rd, 2010, where Mr. Rato, at the time economics minister and deputy prime minister, was said to be proposing measures such as financial help for young couples, but also some to facilitate the increase in supply.

<sup>52</sup>See for instance Miguel Sebastián, a future main economic advisor to Prime Minister Rodríguez Zapatero and industry minister, "El ladrillo y la burbuja," *El País* June 22nd, 2003, and Miguel Ángel Fernández Ordóñez, the future governor of the Bank of Spain, "El Pinchazo de la burbuja de la construcción," *Cinco Días*, September 27th, 2003. In addition the research department of BBVA, the large Spanish bank, produced several pieces analyzing the real estate boom early in the cycle. See, for example, Balmaseda, San Martín and Sebastián (2002).

<sup>53</sup>Martínez and Maza (2003) and Ayuso and Restoy (2003). These two pieces were summarized in Ayuso, Martínez, Maza and Restoy (2003).

<sup>54</sup>See for example C. Galindo, "El Banco de España avisa del riesgo de una ajuste brusco en la vivienda," *El País* October 3rd, 2003.

<sup>55</sup>"Rato anuncia la moderación de los precios de la vivienda y niega la existencia de burbuja inmobiliaria," *El Mundo*, November 4th 2003, "Montoro niega la existencia de la burbuja inmobiliaria," *El Mundo* October 2nd 2003, and "Botín niega que haya burbuja inmobiliaria y afirma que el informe del Banco de España se malinterpretó," *Cinco Días*, October 22nd, 2003. The opposition leader at the time, the future prime minister José Luis Rodríguez Zapatero, claimed that the bubble was a reality and that its burst would be disastrous for the Spanish economy; see Anabel Díez "Zapatero culpa al gobierno de desoír sus avisos sobre el posible estallido de la vivienda," *El País*, October 4th 2003. *El País* (August 4th, 2003), the leading Spanish newspaper, published a piece entitled "Existe la burbuja inmobiliaria?" where they reported the views on the issue from a broad spectrum of leading economic agents. García Montalvo (2008, Apéndice) offers an impressive collection of statements by part of authorities and business leaders on the topic of the real estate bubble.

housing market. He explicitly denied the existence of a real estate bubble<sup>56</sup> but argued, quite contradictorily, for both strong fundamentals combined with mean reverting speculative components as explanatory forces for the strong price appreciation taking place in the Spanish housing market at the time.<sup>57</sup> Clearly he was complacent about the ability of the financial sector to absorb the inevitable correction in housing.<sup>58</sup> Mr. Caruana's complacent attitude led, in an unprecedented gesture, the rank and file of the examiner body of the Bank of Spain to submit in 2006 a letter to the then deputy prime minister and economics minister, Pedro Solbes, alerting that the risks in the Spanish financial sector were much higher than what one could infer from Governor Caruana's speeches.<sup>59</sup> The central bank examiners were brutal in their assessment of Mr. Caruana's tenure pointing out that the relentless growth in credit was unsustainable and that the Bank of Spain had failed to enforce good risk management practices when instruments were available to do so. The letter, presciently, pointed out that the Spanish credit institutions were becoming overly dependent on wholesale short term funding in euro markets; as a result they were increasingly exposed to sudden changes in funding conditions. The letter, sadly, describes with an uncanny accuracy the crisis that was break in the Spanish credit market only three years later.

Mr. Caruana's six year tenure ended shortly after and Miguel Ángel Fernández Ordóñez was named new governor in 2006. He was to be the key character handling the biggest financial crisis in Spain's recent times. Mr. Fernández Ordóñez already had a long and distinguished career of public service. He had served under two administrations of the socialist party as a state secretary, a position right below the cabinet, first as a state secretary the economy and commerce under prime minister Felipe González and later as a state secretary for public finance under prime minister Rodríguez Zapatero. He also served as head of the Competition Court (an antitrust agency) where he encouraged a variety of liberalizing measures. Still, the appointment was seen as overly political by the conservative party, which was out of power after the 2004 elections. Traditionally the appointment of the governor of the Bank of Spain was reached by consensus between the two main political parties. This time was not to be,

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<sup>56</sup>Raquel Pascual "Caruana niega que haya burbuja inmobiliaria y confía en un ajuste natural de los precios," *Cinco Días*, June 19th 2003

<sup>57</sup>For a window into Mr. Caruana's thinking at the time, see his speech on the occasion of the presentation of the Bank of Spain's 2002 Annual Report, page 17 in particular.

<sup>58</sup>For instance in Caruana (2005, page 15) he stated that Spanish credit institutions had solvency ratios as well as provisions that minimized the possibility of credit flow impairment in the presence of a correction in housing.

<sup>59</sup>The letter was kept confidential until its existence was first reported by the daily *El Mundo*; see Carlos Segovia (2011) "Los inspectores del Banco de España avisaron al Gobierno de la crisis en 2006," *El Mundo* February 21st, 2006. It can be found at <http://estaticos.elmundo.es/documentos/2011/02/21/inspectores.pdf>

something that would later have severe consequences for the handling of the banking crisis.<sup>60</sup>

## 4 The accumulation of risks in the Spanish banks and cajas

### 4.1 The evolution of balance sheets up to 2010

Table 3 shows the aggregated balance sheet of the credit institutions as of November of 2010, once the first leg of the crisis had subsided and before the storms that were to occur in 2011 and 2012. The “size” of the Spanish credit institutions was around €3.3 tr. The bulk of this balance sheet was comprised of loans to domestic residents other than the general government, which shows up under the rubric “Other resident sector.” This entry comprises both loans to households, €810bn, and firms, €991.4bn. It is this portfolio where the real estate credit risk is concentrated, as we shall see shortly. A word though is warranted about the securities in the credit institutions balance sheet. Roughly €420bn of securities, both fixed income and equity, of domestic risk is held in this portfolio. Of this €163.8bn is held in government securities<sup>61</sup> which represents a noticeable increase relative to the holdings at the beginning of the crisis when they stood at about €100bn in 2008. To this we have to add the loans to the public sector in the loan portfolio to estimate the exposure of the Spanish credit institutions to this sector, which, as shown in Table 2, stood at €77bn. The total exposure of the Spanish credit institutions to the public sector via loans and securities holding stood at about €240bn. The public and the bank balance sheets were beginning to get inextricably linked already in 2010.

#### 4.1.1 Assets

There are strong patterns in the data that show the changing risks in the asset and liability side of this balance sheet. Panel A of Figure 4 shows an unheralded change in the evolution of finance in Spain – the explosion of household finance. Loans to households went from being 30% of total domestic private credit, defined as the sum of commercial and household loans, to almost 50% by 2006, roughly equal to the percentage that commercial loans represent of the overall loan portfolio.<sup>62</sup> Household loans are mostly mortgages and loans related to housing renovations. Indeed, as Panel B shows, mortgages went from 17% of the loan portfolio to a

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<sup>60</sup>See Miguel Ángel Noceda “Solbes elige a Fernández Ordóñez para futuro gobernador del Banco de España,” *El País*, March 8th, 2006.

<sup>61</sup>This data can be located in Table 4.4, (Credit Institutions, Assets, Securities) and correspond to November 2010. The reference number for the quarterly series in the *Boletín Estadístico* is BE04005.

<sup>62</sup>These two numbers do not add up to 1 because there is a negligible percentage of unclassified loans.

peak of 37.5% in 2006Q1 before the crisis hit.<sup>63</sup> Panel B also shows the nominal magnitude of the mortgage portfolio in the Spanish banking systems which, as of 2013Q1, was about €625bn, an impressive 60% of GDP; in 2000Q1 barely one year after the euro was launched and as the real estate bubble got going the mortgage portfolio was only 25%.

In general the balance sheets of credit institutions became heavily biased towards real estate. Figure 5 Panel A shows the percentage of commercial loans tied to the real estate sector, defined as the sum of loans to construction companies and real estate developers. At the peak of the cycle almost 50% of the loans of credit institutions were going to one of these two categories. This percentage was considerably higher for the *cajas*, reaching an impressive 60.8% at the peak of the bubble in 2007Q2. Banks, which also increased lending to construction companies and real estate developers reached a 41% that same quarter, almost 20 percentage points below the *cajas*.

Finally, Panel B of Figure 5 summarizes the real estate risk in the loan portfolios, defined as the percentage of the loan portfolio that is either a mortgage, a loan to a real estate developer or a loan to the construction sector. At the beginning of our sample (1992Q4), credit institutions had an exposure to the real estate sector that accounted for 32.7% of the loan portfolio whereas at the peak of the bubble this number exceeded 62.0%. Concentration was worse for the *cajas*: In the eve of the crisis 70% of their loan portfolio was either a mortgage, a loan to a real estate developer or to a construction company, compared to 55% for the banks.

These numbers probably underestimate the severity of the concentration problem in the loan portfolio of Spanish credit institutions for three reasons. First, the above definition excludes some categories, such as loans to hotels, that are very closely related to real estate. Second, many of the banks and *cajas* had significant equity stakes in both construction companies and real estate developers. For instance, Bankia had very significant stakes in large developers and construction companies such as *Metrovacesa* and *Realia*. Finally, some loans may have been misclassified in order to arbitrage the provisions that were required or simply convey the impression of lower real estate concentration. The stress tests conducted by Oliver Wyman on the Spanish banking system in the summer of 2012 offers one of the few windows on this problem. For instance, Oliver Wyman (2012, page 25) states that about 3% of the

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<sup>63</sup>After the crisis starts and particularly in 2012 and 2013 the data is much more difficult to interpret because one needs to take into account transfers of real estate developer portfolio to the bad bank set up by the Spanish government at the end of 2013. These transfers result in a dramatic drop in the volume of real estate developer loans in the banks and *cajas* portfolios and a corresponding increase in the percentage of mortgages in the overall loan portfolio at the very end of the available sample.

loans to SMEs should be reclassified as loans to real estate developers. As the report notes, it is probably the case that this number is a lower bound on the misclassification problem since by the summer of 2012 the financial institutions had gone through several asset quality review exercises and had been forced to recognize the real estate nature of many loans.

Throughout it is important to remember that these aggregate numbers mask an enormous cross sectional variation in exposure to real estate risk, in particular exposure to real estate developer risk, as well as misclassification practices. Everything in a banking crisis is the tail of the distribution and much is driven by the worse credit institutions. In addition there is important variation within portfolios. For example, some institutions may have a larger fraction of their mortgage portfolio tied to first homes as opposed to second homes. The distinction is important because risks and delinquency rates can differ dramatically across these two categories.

In summary, there was a substantial increase in portfolio concentration associated with the real estate bubble. Both banks and cajas increased their exposure to real estate considerably during this period but the cajas were considerably more exposed than the banks. Much still needs to be done to understand the striking differential performance of cajas versus banks: Quantities are not enough. For example, it would be interesting to know whether the banks cream skimmed the cajas of the best risks available. This is a sensible hypothesis as it is likely that the human capital and risk management control of the cajas were inferior to that of the banks, as I argued in the previous section. If this is the case the cajas would not only have *more* real estate risk in their books, it would also be *riskier*.

#### 4.1.2 Liabilities

How was it all funded? The right side of the balance sheet in Table 2 shows the structure of liabilities of the financial sector. As with many other banking systems deposits account for a significant fraction of the funding of Spanish banks and cajas as of 2010Q3. Still the balance sheet masks significant changes in the nature of the funding during the decade that goes from the introduction of the euro to the eve of the crisis.

Figure 6 Panel A offers a first glimpse of these changes. It shows bank debt issued by credit institutions. Panel B figure shows the percentage of the balance sheet that is funded by total deposits for both cajas and banks. These figures have to be interpreted with caution for two main reasons. First, there have been many institutional changes during this period, including accounting practices, that make comparison of magnitudes across such a long sample

problematic. Second, as Table 2 shows, total deposit includes items that differ in their fragility; for instance deposits from the rest of the world may be more jittery in a crisis than domestic deposits. In addition deposits includes a broad category of liabilities mixing, say, standard household deposits with liabilities linked to securitisation vehicles. This data, though, is imperfect and as shown below seriously underestimate the reliance on wholesale funding by part of Spanish credit institutions. Still it is useful because it allows for a comparison between the banks and the cajas.

Both plots suggest a similar story, namely that banks and cajas dramatically increased their reliance on wholesale funding to finance the real estate bubble. Bank debt accounted for a small fraction of the balance sheet until the late 90s but grew to 15% at the peak of the real estate cycle. Panel B shows that deposits were funding a lower percentage of the balance sheet for both cajas and banks and that there was a considerable drop in the first decade of the euro. In addition, the cajas took advantage of their operational equality with banks to converge to similar levels of deposit funding by the mid 1980s.

As mentioned, Panel B underestimates the reliance on wholesale funding by the Spanish banking system. The reason is that the category “Deposits” includes a range of funding sources, including many securitisation vehicles are hidden under this “Deposits.” To obtain a more disaggregated view of deposit funding we turn to slightly different data source. In doing so we loose the ability to distinguish between cajas and banks as the central bank itself does not report items in the liability side of the balance sheet by the nature of the credit entity.<sup>64</sup>

There are three broad entries in the definition of deposits, once one excludes the deposits of Monetary Financial Institutions themselves (MFIs, including the Bank of Spain) and the public sector.<sup>65</sup> First there are deposits issued to households and non-financial corporations

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<sup>64</sup>There are two main sources for data on deposits available in the Bank of Spain website. Chapter 4 of the Statistics Bulletin, which is the data source used to construct the previous plots and tables, provides what is referred to as supervisory returns, data provided by the credit institutions to the Bank of Spain for supervision purposes. Chapter 8 provides what is referred to as EMU returns data, which are statements harmonised at the euro area level and that can also be found at the ECB website. There are many differences between these two data sets. For our purposes it is enough to note that one can gain a deeper insight into the nature of wholesale funding by looking at EMU returns data and in particular data on deposits, which is where a lot of the securitisation vehicles are reported. The costs is that one loses the ability to distinguish between cajas and banks and instead one is forced to consider the credit institutions as a whole. In addition Chapter 8 is concerned with Other Monetary and Financial Institutions (OMFI), which includes both credit institutions and Money Market Mutual Funds (MMMFs). MMMFs account for a small percentage of the aggregate balance sheet of OMFIs so one can, when the data is not disaggregated by type of entity, proceed in drawing inferences about credit institutions without much fear of biases. See also the notes to Figure 7. In addition one could use alternative sources of data such as the one available at the website of the CNMV, the Spanish SEC, as well as the annual reports of both banks and cajas. For a first step in this direction see Arce (2012).

<sup>65</sup>Here I follow closely Martínez Pagés (2012), who provides an informative description of deposit construction

resident in Spain. Second, there are the deposits of other euro-area residents, including Spanish entities not classified under either households or non-financial corporations. Third, there are the liabilities against the rest of the world (non-euro-area residents) classified as deposits. Under the rubric of deposits of other euro residents are the asset securitization vehicles that the Spanish banks and cajas set up and that in 2005 they were forced by the Bank of Spain to consolidate, as discussed in the previous section. Deposits of pension and investment funds are also included under this heading.

Figure 7 Panel A plots the measure of total deposits as well as the deposits of Spanish households and non-financial corporations. As of June 2013 the deposits of residents and non-residents, excluding deposits by the public sector as well as those of Monetary Financial Institutions, amounted to €1.5tr. Of these, €950bn corresponded to households and non financial corporations and €271bn were deposits related to securitization vehicles resident in Spain;<sup>66</sup> deposits against the rest of the world were €45bn. As can be seen in Panel A total deposits grew considerably over the first decade of the euro and experienced a sudden stop about 2009, when, as we will see, the securitization machine experienced a significant slow down. Deposits of Spanish households and non financial corporations grew as well but at a more moderate pace. The increasing gap corresponds precisely to liabilities associated with securitisation vehicles over which the financial institutions retained some exposure.<sup>67</sup> The two vertical lines in Panel A show the relevant dates for the accounting change discussed in the previous section. Notice that there is a considerable jump in the series in June 2005. This is when securitized assets over which sponsoring entities retained risks were reconsolidated in the balance sheet, thereby producing an increase in deposits as a balancing item.<sup>68</sup>

Panel B of Figure 7 shows the percentage of the portfolio of loans and credits to Spanish households and non-financial corporations that are funded by deposits of those same households and non financial corporations. As can be seen, loans were funded by a decreasing fraction of deposits, reaching a minimum of 45% in October of 2007 near the peak of the real estate bubble. After that, there is a slow upward trend that breaks 2011 when there is in turn a drop in the deposits of households and non financial corporations. The strong uptick at the very end of the sample is related to several policy initiatives taken to tackle the Spanish banking crisis

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for EMU returns.

<sup>66</sup>There are securitization vehicles in other euro member states but is a small fraction of those based in Spain.

<sup>67</sup>The curious reader may be wondering why there is no plot showing the evolution of this entry. The reason is that Table 8.26, series 6, which is were these deposits related to securitization vehicles are reported, only starts in June 2010.

<sup>68</sup>Deposits in May of 2005 were €850bn and jumped to €928bn in June of that year.



in the second half of the 2012; specifically during the first half of 2013 there were significant transfers of real estate loans to the “bad bank” setup by the Spanish authorities to assist with the restructuring of the Spanish banking sector.

In sum, Spanish entities clearly increased their reliance on wholesale funding. A thorough examination of the deposits of financial institutions reveals that a decreasing fraction of the loan portfolio was funded by household or non-financial corporation deposits. Next we focus on a particular source of wholesale funding, the one that is linked to securitisation vehicles.

## 4.2 The Spanish securitisation machine

Securitisation was an important source of funding for the Spanish banking sector, to the extent that Spain was the second largest European securitisation market after the UK throughout this period. Figure 8 shows the flows as well as outstanding securitization balances by part of Spanish credit entities and the volume corresponding to banks and cajas.<sup>69</sup> As the data in the previous section suggests, securitisation is a big part of the story of the Spanish real estate bubble and the evolution of banking in Spain.

There are two distinct phases in the securitisation cycle: From 2000 to 2006 the cajas account for a much larger fraction of the securitisation deals than banks. By the year 2006 the cajas were the sponsors of €134bn of outstanding balances compared to €82.3bn for the banks. Between 2006 and 2010 the banks accelerated the securitisation deals. By 2010, Spanish banks accounted for €146bn of the balances whereas the cajas accounted for €278bn. The numbers for the banks are slightly underestimated as they exclude some securitisation deals issued by the large bank holding companies that are classified under a different entry. There is a second important difference that refers to the the nature of the securitisation deals.

Two types of securitisations were performed by Spanish institutions.<sup>70</sup> The first is the traditional one: mortgages held in the balance sheet of the originator were transferred to an external vehicle, called *Fondo de Titulización Hipotecaria* or FTH, which funded the purchase of the loans through the issuance of securities with different cash-flow rights. The bulk of these

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<sup>69</sup>Data for this plot is from the annual banking supervision reports from the Bank of Spain. These numbers differ considerably from numbers in private reports. For instance, the ESF Securitisation Data Report corresponding to the summer of 2009Q2, using data from Bloomberg, puts the outstanding balance for Spanish collateral was €250.6bn whereas the number at the end of 2008 in the aforementioned Bank of Spain report was €444.9bn. Probably the difference is due to the nature of the securitization deals made by the cajas. Finally, the numbers reported in Figure 8 correspond to the securitisation deals made by Spanish banks not the entire consolidated sector.

<sup>70</sup>Once again I follow Martínez Pagés (2012, page 4) lucid and concise description closely here.

securitisations were linked to mortgages.<sup>71</sup> The second is slightly more peculiar to Spain. Here what is being securitised is effectively a liability, a single-certificate privately-placed covered bond (known in Spain as *cédulas hipotecarias singulares*). Banks and *cajas* did a lot of the first type but the second was overwhelmingly dominated by the *cajas*.<sup>72</sup> The probable reason for this stark pattern in securitisation is that the single-certificate privately-placed covered bonds of the *cajas* were rather concentrated geographically initially. It was advantageous thus to pool the covered bonds of many *cajas* to gain some diversification as well as to reduce placement costs.<sup>73</sup>

An important caveat is that the evidence seems to suggest that there was a critical component of real estate risk that remained in the balance sheet of credit institutions and is the one linked to real estate developer loans. Unfortunately, the supervision reports of the Bank of Spain offer an incomplete series regarding securitisation of this risk. For the years 2002 to 2008, which are the ones for which this entry is itemized in the reports, the outstanding balance peaked at €992m in 2005 and then fell consistently. In 2008Q4 the outstanding balance of real estate developer loans was €318bn, or 30% of Spain's GDP. Of those €172bn corresponded to the *cajas* and €132bn to the banks. A significant fraction of these real estate developer loans soon turned delinquent once the crisis came, much faster than any other item in the asset side of the balance sheet. This forced banks and *cajas* to provision for these losses. Thus it seems thus that outside investors new of the speculative nature of those loans and shied away from them, thereby leaving all the risk within the Spanish banking system.

In addition to real estate risk the Spanish credit institutions soon started to securitise all sorts of risks. A market that grew rapidly was the securitisation of loans to small and medium-sized enterprises (SMEs). In 2008, outstanding balances reached €33.8bn, opening capital markets to this important segment of corporate Spain, which is skewed to smaller firms.

Securitisation deals offer a glimpse of the role of foreigners in the Spanish real estate bubble: They gulped Spanish securitisation issues. Figure 1 showed a strong correlation between the growth in the loan portfolio and the net international investment position of Spain. Figure 9 shows total securitisation volumes as well as issues in the hands of foreigners. As before the

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<sup>71</sup>Originally only real estate risk could be securitised. Two legal developments are key in the Spanish securitisation market. The Law 19/1992 of July 7th regulated the securitisation of real estate risks and the Royal Decree 926/1998 of May 14th effectively extends the possibility of securitising other forms of collateral.

<sup>72</sup>For instance, in 2009, of the outstanding balance of €368.8bn of "asset securitisations" banks accounted for €229.1bn and *cajas* for €115.2bn. Of the €168bn of "liability securitisations" banks account for only €8.5bn whereas *cajas* account for €156.2bn.

<sup>73</sup>See Bank of Spain, *Memoria de Supervisión Bancaria 2003*, page 28.

series available in the supervision reports is incomplete but there is enough detail to quantify the significant fraction of the real estate risk that was flowing to foreigners. According to these reports, foreigners acquired a significant share of the paper issued by the Spanish securitisation machine. Of the €356.8bn outstanding in 2007, €217.6bn, or 60% of the total, were in the hands of foreigners. After that the role of foreigners declined because the appetite for more real estate risk in foreign portfolios was waning and Spanish credit entities were beginning to retain a large stake of their own securitisation issues for rediscounting operations. The sudden stop that Spanish banks were to experience was not far.

## 5 The crisis comes

When the funding crisis came, it did so from unexpected quarters, the US subprime market. Though Spanish real estate prices peaked in 2008Q1, it was the dramatic events in the US that grabbed all the attention. In the Eurozone Ireland took the fateful decision to offer its famous guarantee on all bank debt, which was to determine so much of the path of the Eurozone banking crisis. In Spain, things didn't remain quiet. The spreads with the German bund rose well above the 100bps in 2008 and early 2009, when they reached a local peak of 155 basis points in March, compared to 40bps a year earlier. The spreads started drifting downwards and by the second half of 2009 they were again below 100bps, where they remained for a year, until the breakup of the Greek debt crisis. Quietly, in the fall of 2008 and in the context of some measures adopted at the Eurozone level, the Spanish government of Prime Minister Rodríguez Zapatero tried to ease the refinancing pressure some of the cajas were experiencing with a new bank debt guarantee program with a maximum insurable principal of €100bn. The program was to last for a year.<sup>74</sup> The names of the entities that took advantage of those programs read now like a who's who of problematic cajas: Caja Madrid, Bancaja and CAM, to name a few. The program was renewed in 2009 and again in December of 2011, as one the first measures of the newly elected cabinet. In 2009 the FROB, a special purpose vehicle with capital from the public sector, was created to assist with the likely restructuring needs of the banking sector. It could, by law, lever up its initial capital 10 to 1 for a total balance sheet of €100bn. Slowly, Spain was setting up the institutions needed to tackle its banking crisis, in eerie similarity to the banking crisis of 1977-1983.

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<sup>74</sup>See RDL 6/2008 of October 13th. Three days before a law was passed to create an government funded entity to acquire high credit quality assets issued by both credit institutions as well as securitisation vehicles (see RDL 6/2008 of October 10th).

The global nature of the credit crisis was unfortunate because it confounded the local causes of the adjustment already taking place in the Spanish economy in 2008 with the international factors. There certainly was widespread understanding of, and concern over, the dependence of Spanish credit institutions on foreign funding. But the fragility on the side of the Spanish economy was seen as springing from nervous global investors worried more about global credit conditions than about the solvency of Spanish credit institutions. The references to the strong solvency ratios of credit institutions in official documents are a constant throughout this period. Certainly the dramatic phase of the banking crisis in 2011 and 2012 was clearly unanticipated. In addition, the public saw these events as being driven by external shocks that demanded external solutions, which made Spanish responses all the more challenging once, for instance, fiscal deficits started growing dramatically.

In March of 2009 the first *caja*, Caja Castilla La Mancha or CCM, was taken over by the Bank of Spain and immediately sold to another *caja* (Cajastur) with a generous asset protection scheme. This was the first significant intervention since the Banesto debacle in 1993. CCM was a relatively small entity, about €20bn of balance sheet. It had been run since 1999 by a former congressman and prominent local politician from the region of Castilla La Mancha; an economist by training he had no experience in banking when he became head of CCM. CCM was involved in many ill advised projects such as the Ciudad Real airport, a useless facility which became the poster child of the excesses of the real estate and infrastructure bubble. Its failure was no surprise.<sup>75</sup> The initial injection by the Spanish equivalent of the FDIC (the FROB did not yet exist) wiped out a significant fraction of its funds. The total cost of the operation, between equity injections and the aforementioned asset protection scheme, was about €3.7bn.<sup>76</sup>

As Prime Minister Rodríguez Zapatero as well as other officials repeated incessantly, the costs of the entire operation was a trifle for an economy the size of Spain but it was how the process was handled what sent troubling signals about the entire sector. Initially the Bank of Spain approached other *cajas* to gauge whether there was any interest in taking over CCM. La Caixa, the largest of the Catalanian *cajas* and one the best run in the entire sector, declined. Unicaja, and Andalusian *caja*, decided to look into acquiring it and hired accounting firm PWC to review the books; when the due diligence uncovered a €3bn hole in the 2008 numbers

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<sup>75</sup>For an account of this case see Íñigo de Barrón, “Caja Castilla-La Mancha, el aviso de una crisis que nadie quiso oír,” *El País* June 24th, 2012.

<sup>76</sup>This guarantee required an act of government (RDL 4/2009 of March 29th.), which had to meet during a weekend to approve the entire package.

the entire operation collapsed, casting doubts about the numbers of the rest of the system and on the Bank of Spain's grip on the entire cajas sector. It was the collapse of this merger that forced the Bank of Spain to intervene. This was a pattern that was to be repeated throughout the crisis: every time a caja was to be taken over by the supervisor the non-performing loan (NPL) ratio would jump upwards and solvency issues were exposed. The opacity with which the sale to Cajastur took place baffled observers and only added to the suspicion that there were larger problems in the sector. Successive interventions (Cajasur, CAM, Bankia...) only increased the concerns of increasingly worried analysts and European authorities.

Still the situation stabilized somewhat by the end of 2009 and 2010, which allowed the cabinet and the Bank of Spain to pursue a double strategy of mergers and aggressive loan loss provisioning in order to recapitalize the Spanish cajas and banks through retained earnings; all this with the occasional injection of capital, or hybrid forms of capital, by part of the FROB. Soon of the 45 cajas or so that arrived to the crisis, the merger wave had produced 17. However this accelerated process of consolidation only muddled things further. When more transparency was needed in order to facilitate the refinancing of good assets, mergers produced complex balance sheets that confounded good with bad assets. Unfunded stress tests didn't help either. Certainly one of the lessons of this crisis is that stress tests should be conducted only when there is a clearly funded recapitalization mechanism, with a generous public backstop, for the entities shown to have solvency challenges in adverse scenarios; otherwise outsiders suspect that reported losses are fixed around what can be absorbed given the mechanism in place rather than their real level. This was never the case with the European Banking Authority (EBA) tests, which further undermined the credibility of Spanish banking authorities.

In addition the new bank debt guarantee program made sure that slowly sovereign and banking balance sheets would become inextricably linked. Since the worst cajas made the heaviest use of the debt guarantee program they significantly increased the exposure of the Spanish taxpayer to the losses associated with the real estate boom, jeopardizing the credit quality of the sovereign. These debt guarantee programs not only transfer risk in the balance sheet of financial entities to the public balance sheet but also bias the actions of policy makers as the crisis deepens, increasing the risk that they may "gamble for resurrection," given the deep sovereign liabilities incurred through those guarantees.

The merger strategy, the aggressive loss provisioning strategy pursued by the government and the Bank of Spain combined with the lack of strong equity injections implicitly assumed the solvency of the entire system and of the cajas in particular, which is precisely what outside

observers doubted. Moreover the policy applied to the entire system, banks and cajas, regardless of the state of the portfolio of individual entities; this forced the good entities to provision when they didn't need to and the bad ones when they couldn't; this only increased incentives for evergreening, particularly in the most problematic side of the portfolio, the real estate developer loan book. Scant consideration was given to the implications of this approach for credit generation; or to the fact that the slow pace of the restructuring process was allowing for an increasing tangle between public and private banking balance sheets, through the provision of implicit and explicit guarantees as well as through the larger sovereign debt portfolios the banks were building.

The merger strategy had another consequence that was to prove fatal. It created systemic entities where there were none. Such was the case with Bankia, the bank that resulted from the merger in December of 2010 of Caja Madrid, Bancaja and five other smaller cajas. Bankia had a balance sheet when founded of €328bn, or 30% of Spain's GDP. Caja Madrid and Bancaja had serious solvency issues but Spanish authorities nonetheless encouraged the merger and then, incredibly, an IPO in 2011. Since there was no international institutional interest in the shares of this ill fated bank, the majority of the shares were placed amongst uninformed retail investors, through the extensive branch network of the cajas that formed Bankia, and reluctant Spanish institutional investors. The Spanish SEC, the CNMV (Comisión Nacional de Mercado de Valores) gave the green light. Understandably many foreign observers saw this as a massive gambling for resurrection by part not just of a private entity but of the entire strategy pursued until then by the Spanish authorities. Before that, the previous CEO stepped down and a nasty political and very public squabble took place between the president of the region of Madrid and the mayor of Madrid, two of the most prominent figures in the conservative party, for control of the entity. Eventually party elder, Rodrigo Rato, former IMF Managing director, was named to head this behemoth. The political control of the cajas was there to the last.

In May 2012, less than two years after the IPO, Bankia requested a €19bn bailout on top of the €4bn it had already received from the FROB. The total bailout package for just this single entity thus amounted to 2% of Spain's GDP. When Mr. Rato and his team were forced to step down, the new team proceeded to restate the 2011 numbers: from a profit of €305m to a €3bn loss.

The Spanish banking crisis was entering its most acute phase, one that ends, to some extent, when Spain entered into a Memorandum of Understanding (MOU) with its Eurozone

partners. Spain was to receive a €100bn credit line and conduct a serious stress test under the stern supervision of the ECB, the European Commission and the IMF. The MOU required Spain to entirely reform its supervision and resolution toolbox; in addition it effectively terminated the *cajas*. The handling of the Spanish banking crisis had been transferred to a third, international, party. By then the lethal mix of politics and the *cajas* did not leave much room for any other alternative.

The reader should be warned that the crisis is still ongoing. As I write this, European authorities are preparing the massive Asset Quality Review (AQR) of the European banks' balance sheets that is supposed to precede the banking union. This crisis may very well have more chapters.

## 6 Conclusions

The purpose of this paper is to provide a bird's eye account of the run up to the Spanish banking crisis. It places the governance issues in the *cajas* sector at the center of the narrative. It argues that the credit bubble interacted with poor governance to produce a real estate bubble and the insolvency of a significant fraction of the Spanish banking system once the bubble burst. On the asset side of the balance sheet there was a significant concentration of real estate risk whereas on the liability side there was increasing fragility. The fragility stemmed both from the maturity of these liabilities as well as to the nature of the holders of these liabilities. Though the Bank of Spain had proved prescient in implementing some novel macroprudential tools, they proved insufficient and there was little willingness to act more aggressively to prevent the excessive accumulation of real estate risk in the asset side of the balance sheet.

There is plenty of evidence to suggest that to some extent the risks were well understood: The real estate bubble was a constant source of political commentary, prominent policy makers spoke publicly about the dangers of the bubble, and the research department of the Bank of Spain produced reports documenting the possible overvaluation in the housing sector as early as 2003. Though of course one is not privy to the internal debates inside the central bank regarding the imbalances building in the banking sector, and in the *cajas* in particular, it is clear that that as the examiners' letter to the economics minister attests, those debates were indeed taking place and there was much disagreement about the proper course of action. Clearly the nature of the imbalances accumulating in the Spanish economy were understood

but the implications of those imbalances, in particular in light of euro membership, were not fully internalized.

The banking crisis when it came was to be a very different experience than the previous two banking crises for three reasons. First because a significant fraction of bank liabilities needed foreign capital to be refinanced; they were indeed liabilities denominated in Spain's national currency, the euro, but held by parties which when the crisis hit were to distinguish between Spanish assets and otherwise identical assets issued by entities in other countries of the eurozone. Second because the Bank of Spain could not be the lender of last resort and the management of the Spanish banking crisis was dependent on the actions of the European Central Bank who was to step into that role tentatively at best. Banking crisis management needs a mysterious combination of decisive actions when it comes to the discovery of the losses in the banking sector, ample liquidity and strategic clarity. This is already difficult when all these three tasks are concentrated in a single entity that combines supervisory responsibilities with the ability to provide liquidity. It is a herculean task when supervision and liquidity provision are hosted in separate entities, the Bank of Spain and the ECB (and to a large extent the strategic direction of banking crisis management resided with the Eurogroup). This time was indeed different and though the lessons of the past are always valuable, the crisis required new modes of thinking from the Spanish authorities.

Many issues remain to be investigated more thoroughly. In particular this paper does not attempt a more detailed comparative study of the cajas. Not all the cajas were rotten and one of them, La Caixa, not only survived but has managed to become the third largest Spanish bank, Caixabank. Why did some of the cajas fare better than others?

The options of the Bank of Spain during the years of the real estate boom need to be studied as well. The Spanish central bank had had the vision to set up unique institutions, such as dynamic provisioning, and took a very conservative approach to off balance sheet liabilities, rendering them unattractive as means of engaging in regulatory arbitrage. Though things could have been worse without them, their efficacy has to be reevaluated in light of the Spanish experience. What should have been done to prevent the imbalances building in the cajas' balance sheets?

Then there is the real estate bubble itself. A thorough account of it is yet to be written. This paper argues that the bubble was recognized in real time by many observers and policy makers. Why didn't they act in a timely fashion? The enormity of the imbalances was not a mystery, but the only response was to conduct a very restrictive fiscal policy aimed at



countervailing the excessive leverage of the private sector. It resulted in very low levels of debt to GDP ratios and gave authorities to false sense of comfort that there was always time to confront the Spanish banking crisis with public funds if needed. The diabolic loop, the tangling of public and private balance sheets that has dominated so much of the Eurozone crisis seems to have been very far removed from the minds of Spain's leading officials.

Finally, a full understanding of the Spanish banking crisis requires a larger view that encompasses the Eurozone at large. The reason is that every step, every crisis within the crisis, offered clues about the future direction European authorities might take in the next one. The role of the European Central Bank is of critical importance. The balancing act between performing its duties as lender of last resort and providing adequate incentives for governments to continue the process of fiscal consolidation added an additional layer of complexity to the banking crises of Spain, Ireland and other countries. The construction of the banking union in the Eurozone, and the pace at which is going to occur, is informed by the lessons that were drawn from the way national authorities handled their banking crises.

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Table 1: **Financial institutions: Classification of financial institutions according to the Bank of Spain**

MFI <sup>a</sup>	
Bank of Spain	
OMFI <sup>b</sup>	
	Credit Institutions
	Banks
	Saving banks (cajas)
	Credit co-operative banks
	Specialized credit institutions
	Other credit institutions
	Money market funds
	Electronic money institutions
Non-MFIs	
	Insurance Corp. and pension funds
	Financial Auxiliaries (brokers)
	Other financial intermediaries

<sup>a</sup>Monetary Financial Institutions

<sup>b</sup>Other Monetary Financial Institutions

<i>i</i>	Type of risk	$\alpha(\%)$	$\beta(\%)$
1	Cash and public sector securities and loans	0	0
2	Mortgages with LTV less than 80% and loans to corporates with rating $\geq$ A	.6	.11
3	Mortgages with LTV more than 80% and other collateralized loans	1.5	.44
4	Exposure to corporates with rating $<$ A or non rated	1.8	.65
5	Consumer durable financing	2	1.1
6	Credit cards and overdrafts	2.5	1.64

**Table 2.** Dynamic provisioning: Weights for the different asset buckets.

<b>LOANS</b>		<b>DEPOSITS</b>		
	Credit system	230.5	Credit system	276.6
	General government	77.4	General Government	90.5
	Other resident sector	1,843.4	Other resident sector	1,444.4
	<i>Commercial</i>	<i>991.4</i>		
	<i>Households</i>	<i>810.0</i>		
	<i>Other</i>	<i>42</i>		
	Rest of the world	221.8	Rest of the world	471.1
<b>SECURITIES</b>		<b>OTHER LIAB.</b>		
	<b>Other than shares</b>		Other than shares	435.0
	Domestic	319.3	Capital & Reserves	285.1
	Rest of the world	69.4	Social Security	3.4
	<b>Shares</b>		Accruals & sundry accounts	251.2
	Domestic	99.2		
	Rest of the world	76.9		
<b>CASH</b>		7.2		
<b>OTHER</b>		312.1		
<b>TOTAL</b>		<b>3,257.3</b>	<b>TOTAL</b>	<b>3,257.3</b>

**Table 3.** Aggregate balance sheet of credit institutions (banks, cajas (S&Ls) and credit cooperatives) as of November 2010 in billions of euros. Numbers are rounded. Commercial, Household and Other correspond to 2010Q3 as reported in Table 4.13. Source: Bank of Spain, Tables 4.1 and 4.2



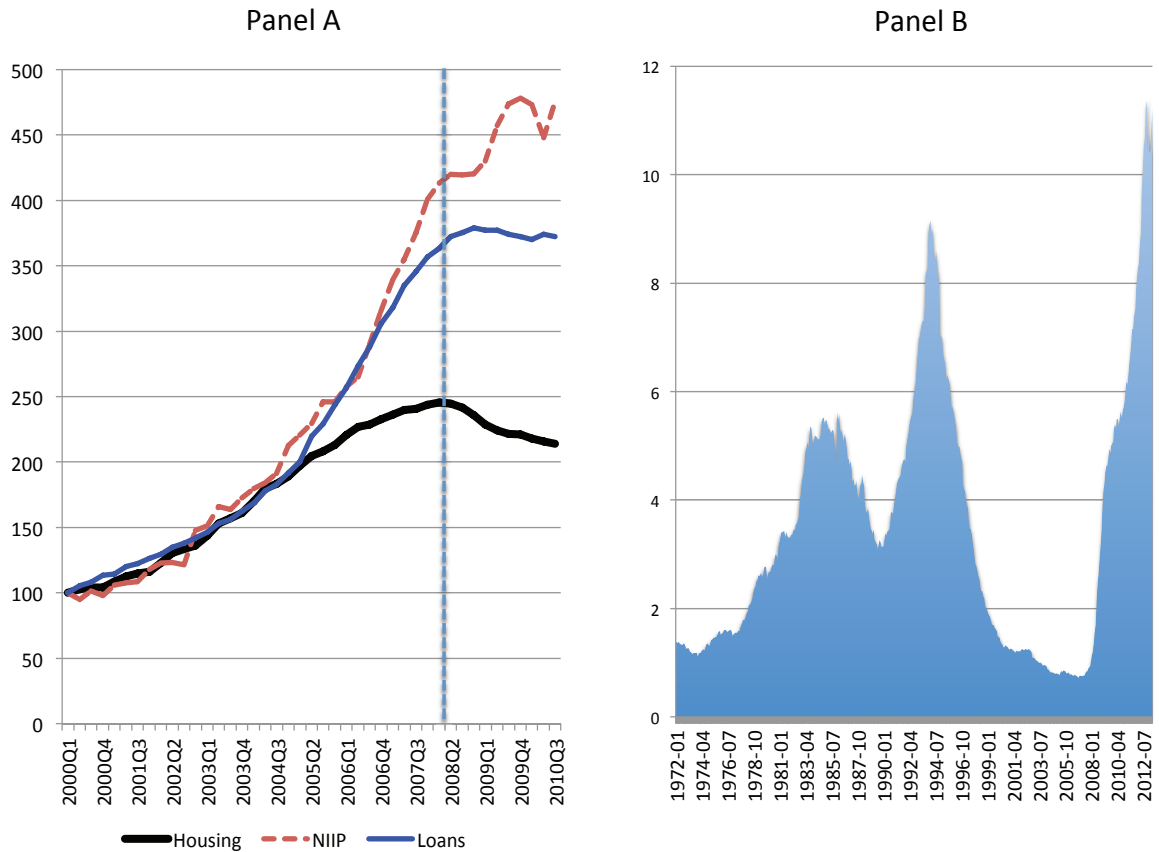


Figure 1: Panel A: Housing prices (SI010604), absolute value of the Net International Investment Position (NIIP; BE172101) and loan portfolio of credit institutions (BE040301), all normalized by their corresponding values in 2000Q1 and multiplied by 100. The vertical line sits at 2008Q1, the peak of the housing price series. The housing prices are €/m<sup>2</sup> and correspond to assessment prices, not actual transactions data. The Net International Investment Position was about -€204bn in 2000Q1 (-33% of GDP at the time); it was -€849bn in 2008Q1 (-78% of GDP). The loan portfolio of credit institutions was €494bn in 2000Q1 (80.7% of annualized GDP) and in 2008Q1 was €1794.4bn or 164.8% of GDP. Quarterly: 2000Q1-2013Q1. Panel B: NPL ratio of loan portfolio of credit institutions (BE040312 divided by BE040301 and multiplied by 100). Monthly: 1972:01-2013:05. Data source: Bank of Spain

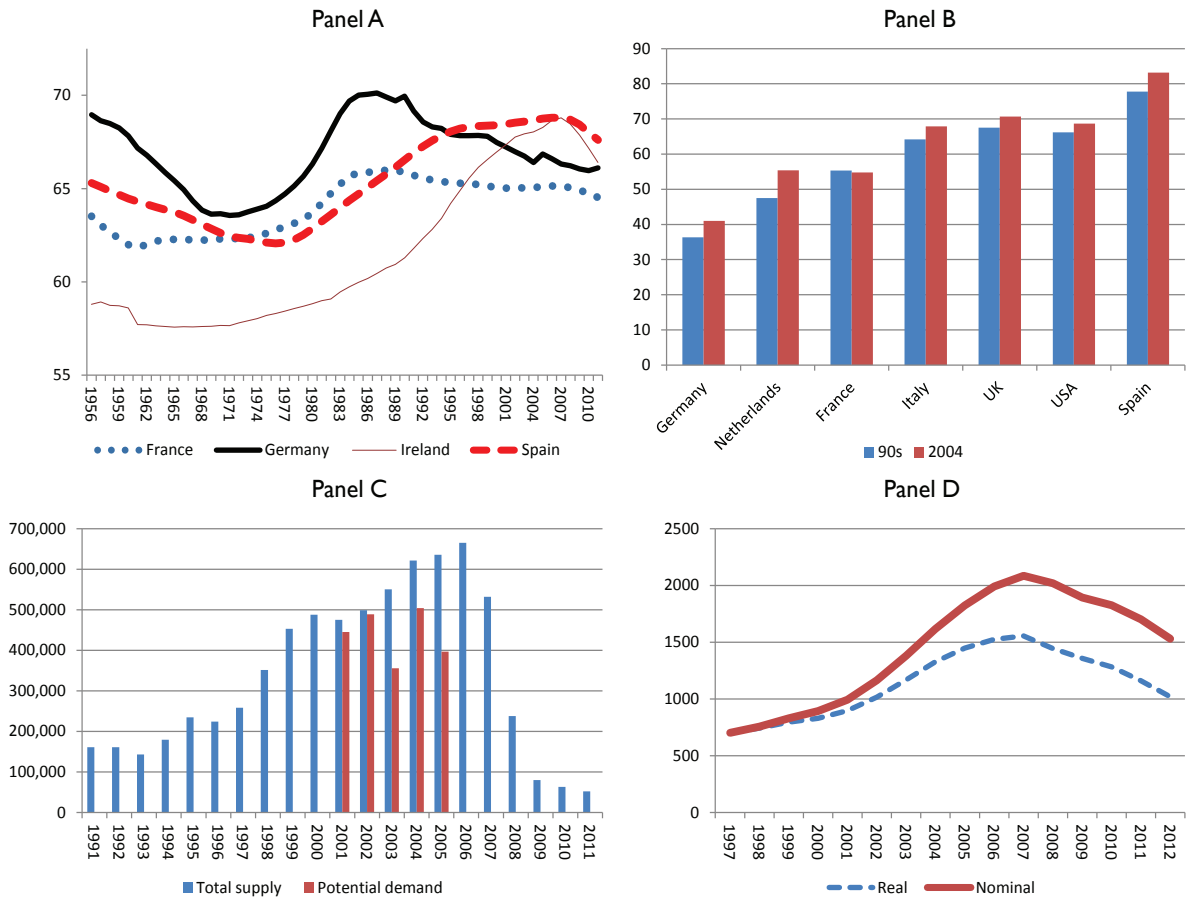


Figure 2: Panel A: Percentage of the population between 15 and 64 years of age. Annual: 1956-2011. Source: OECD. Panel B: Aggregate homeownership rates in selected OECD countries. Source: Andrews and Caldera (2011), Table 1. Panel C: Number of new housing starts (blue) for the years 1991-2011 and potential demand as estimated by Garcí Montalvo (2007, Cuadro 2) for the years 2000 to 2005. Source for housing starts: Ministerio de Fomento. Panel D: Housing prices (€/m<sup>2</sup>) in nominal and in dollars of 1997. Annual: 1997-2012. Source: Bank of Spain and IMF

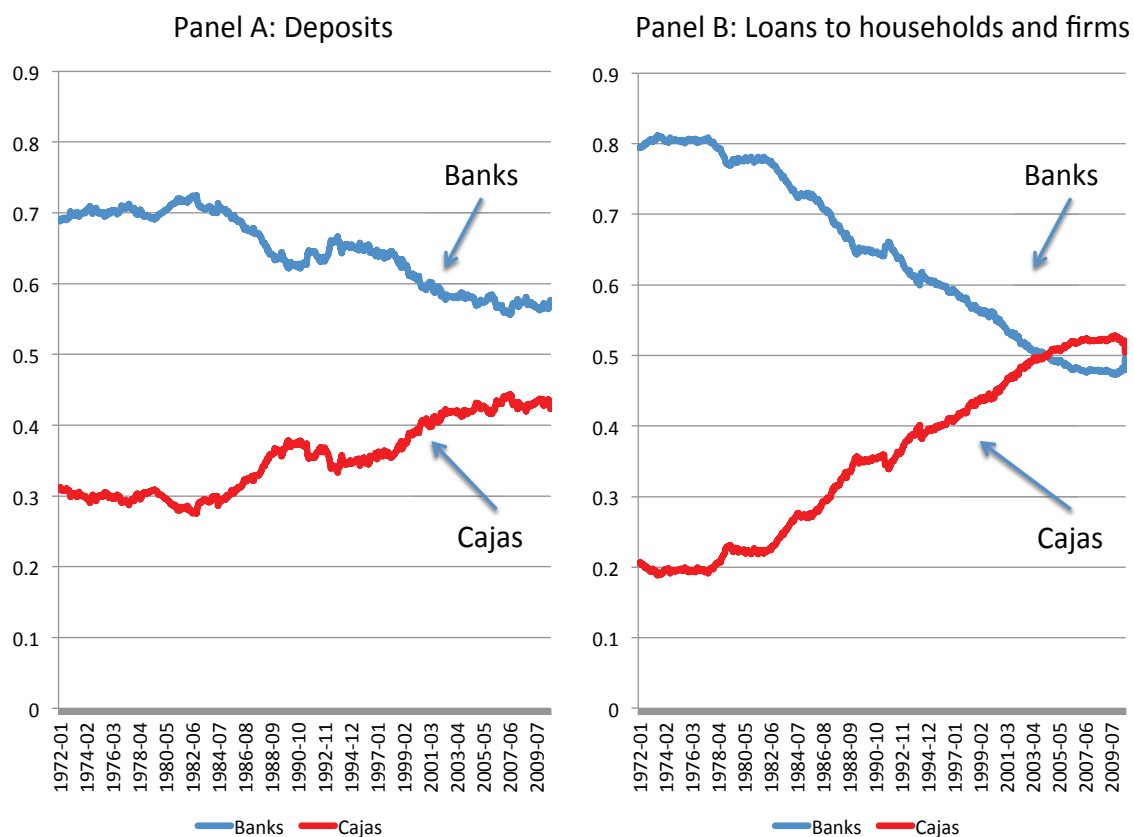


Figure 3: Banks vs. cajas: Panel A: Deposits of banks (BE045202) and cajas (BE046202) as a fraction of total deposits issued by both (BE045202 plus BE046202) . Panel B: Loans to the private sector (households and firms) by banks (BE045104) and cajas (BE046104) as a fraction of total loans granted by both (BE045104 plus BE046104 ). Monthly. January 1972 to September 2010. Data source: Bank of Spain.

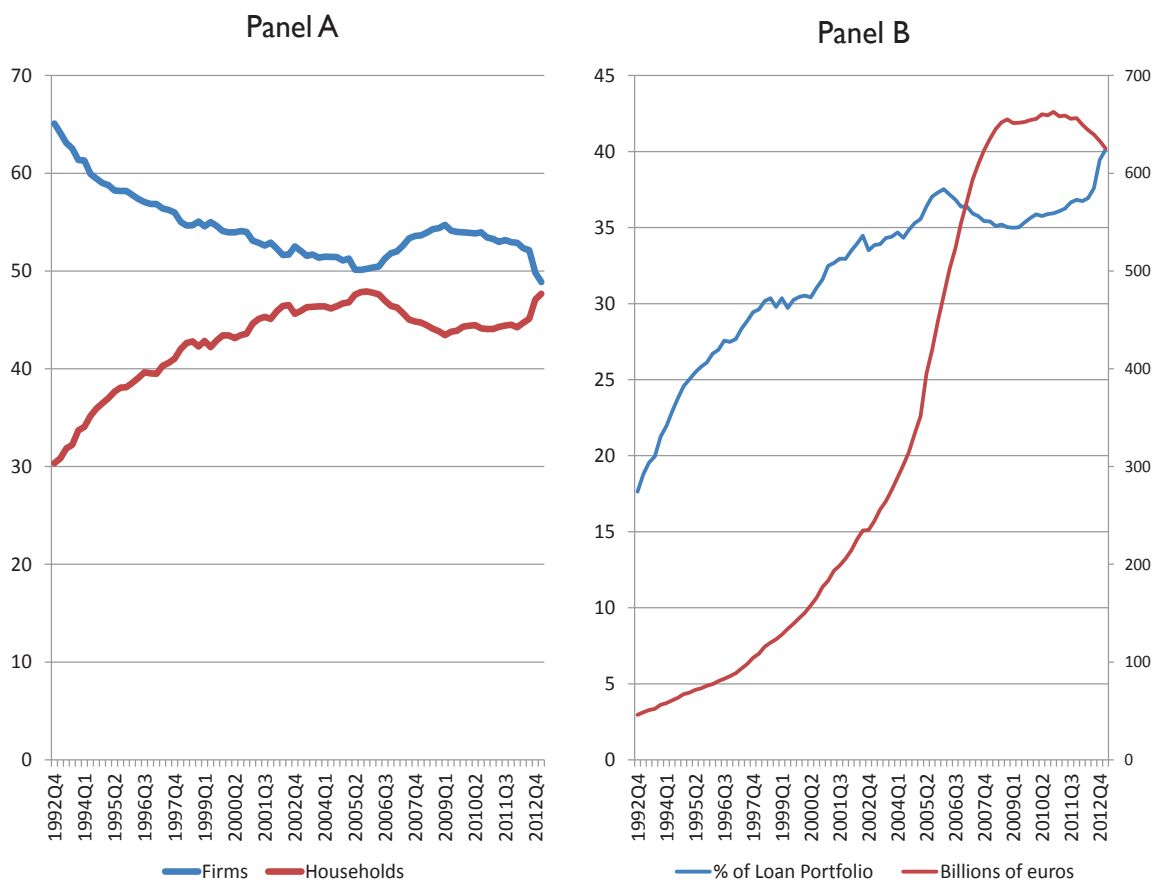


Figure 4: Credit institutions. Panel A: Commercial loans (BE041302) and consumer (BE041303) as a percentage of total credit to the private domestic sector (BE041301). Panel B: Mortgages and loans for housing renovation (BE041304) as a percentage of total credit to the private domestic sector (BE041301) and nominal quantities in billions of euros. Quarterly: 1992Q4-2013Q1. Data source: Bank of Spain.

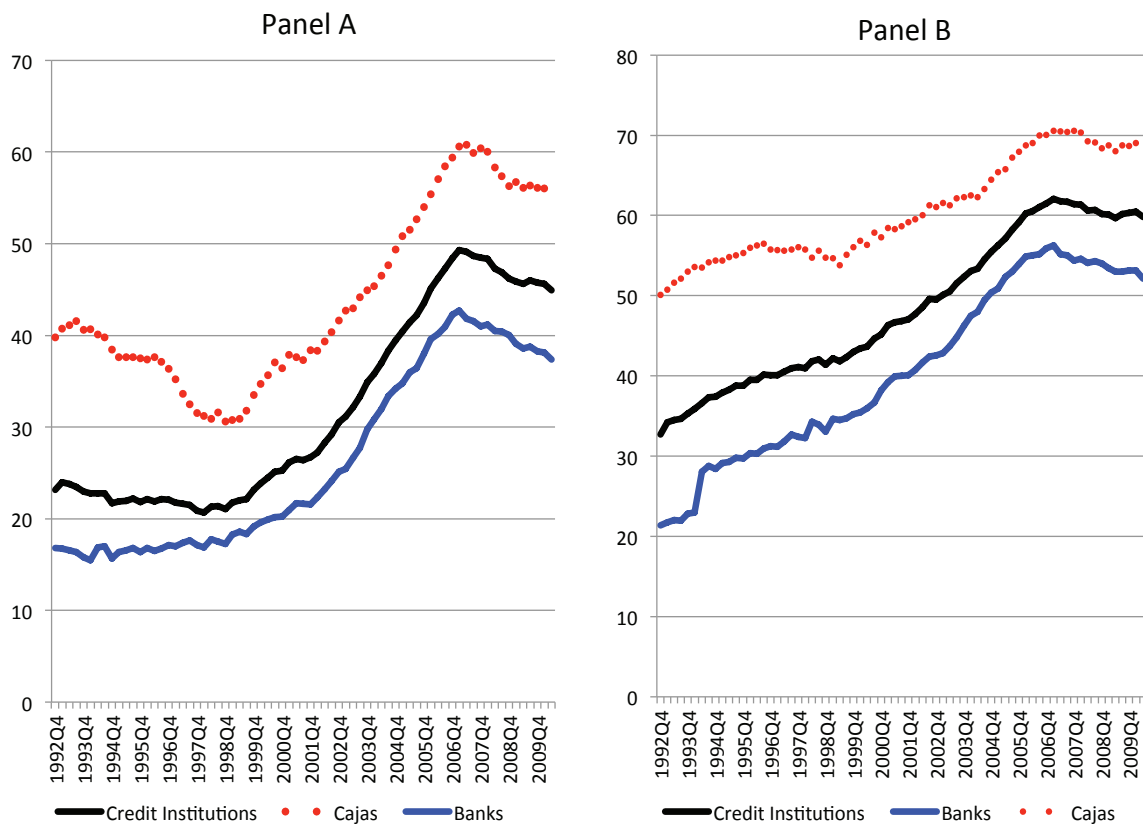


Figure 5: Panel A: Loans to construction companies (Credit Institutions: BE041804; Banks: BE041904; Cajas: BE042004 ) and real estate developers (Credit Institutions: BE041810; Banks: BE041810; Cajas: BE042010 ) as a percentage of loans to firms (Credit Institutions: BE041801; Banks: BE041901; Cajas: BE042001 ). Panel B: Real estate risk in the portfolios: Mortgages and loans for housing renovation (Credit institutions: BE041304; Banks: BE041404; Cajas: BE041504), loans to construction companies and real estate developers as a percentage of loans to households and firms (Credit Institutions: BE041301; Banks: BE041401; Cajas: BE041501). Quarterly. 1992Q4-2010Q2. Data source: Bank of Spain.

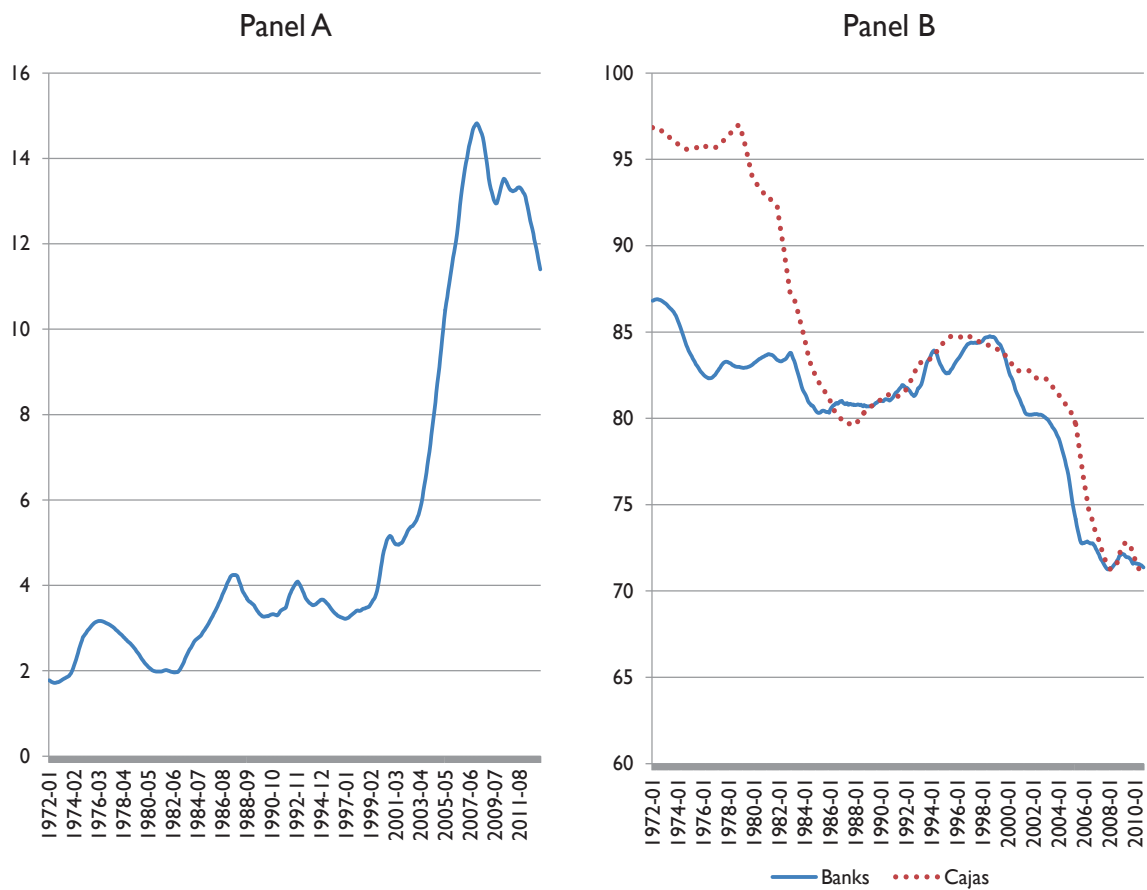


Figure 6: Panel A: Bank debt issued by credit institutions (BE4.2.7) as a percentage of total assets (BE4.2.1). Monthly: 1972-01 to 2013-05. Smoothed with an MA-12. Panel B: Banks and cajas: Deposits (BE045202 and BE046202, respectively) as a percentage of total assets (BE045201 and BE046201, respectively). Monthly: 1972-01 to 2010-09. Smoothed with an MA-12. Data source: Bank of Spain.

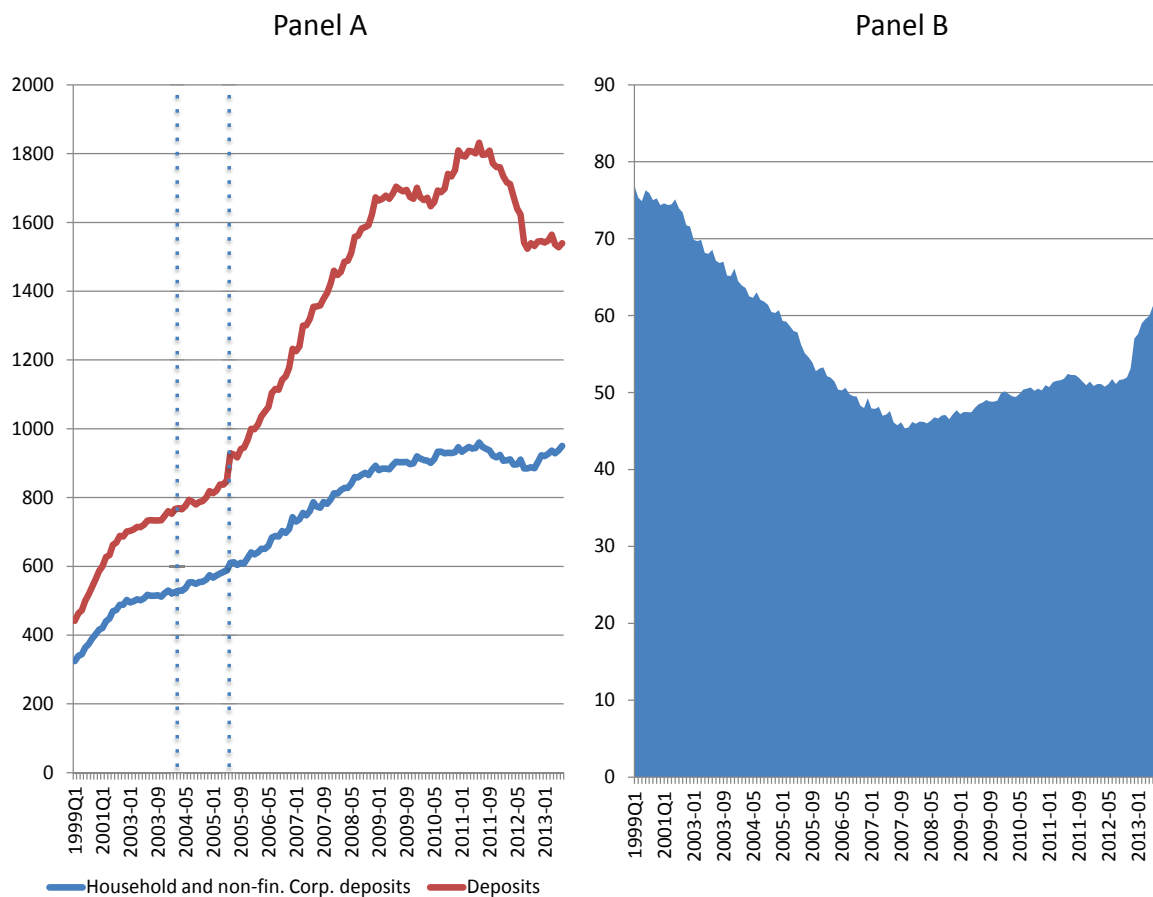


Figure 7: Panel A: Total deposits of Other Monetary Financial Institutions (OMFI) and deposits of households and non-financial corporations residents in Spain (BE082901). Total deposits reproduces the measure of deposits in Table 1 in Martínez Pagés (2012) as follows. The starting point is the OMFI's Deposits of Other Resident Sectors (BE082801) in Spain and other euro member nations, from which we subtract the deposits of the public sector (BE082803) and add the deposits of other resident sectors from the rest of the world (BE081309). The construction of the series is affected by the accounting changes discussed in Section 3, namely the fact that from June 2005 derecognition of loans transferred to securitization vehicles after December 31st, 2003 in which the sponsoring entity retained any risk was not allowed; higher deposits with these securitization vehicles were added on the liability side as a balancing item (see Martínez Pagés, Chart 1). The two vertical lines correspond to December 2003 and June 2005. Nominal; in billions of €. Panel B: Deposits of households and non-financial corporations residents in Spain (BE082901) as a percentage of the loans granted to other resident sectors resident in Spain, which are the same households and non financial corporations, by credit institutions (BE084308). Data is quarterly from 1991Q1 to 2002Q4 and monthly from 2003-01 to 2013-06. Data source: Bank of Spain.

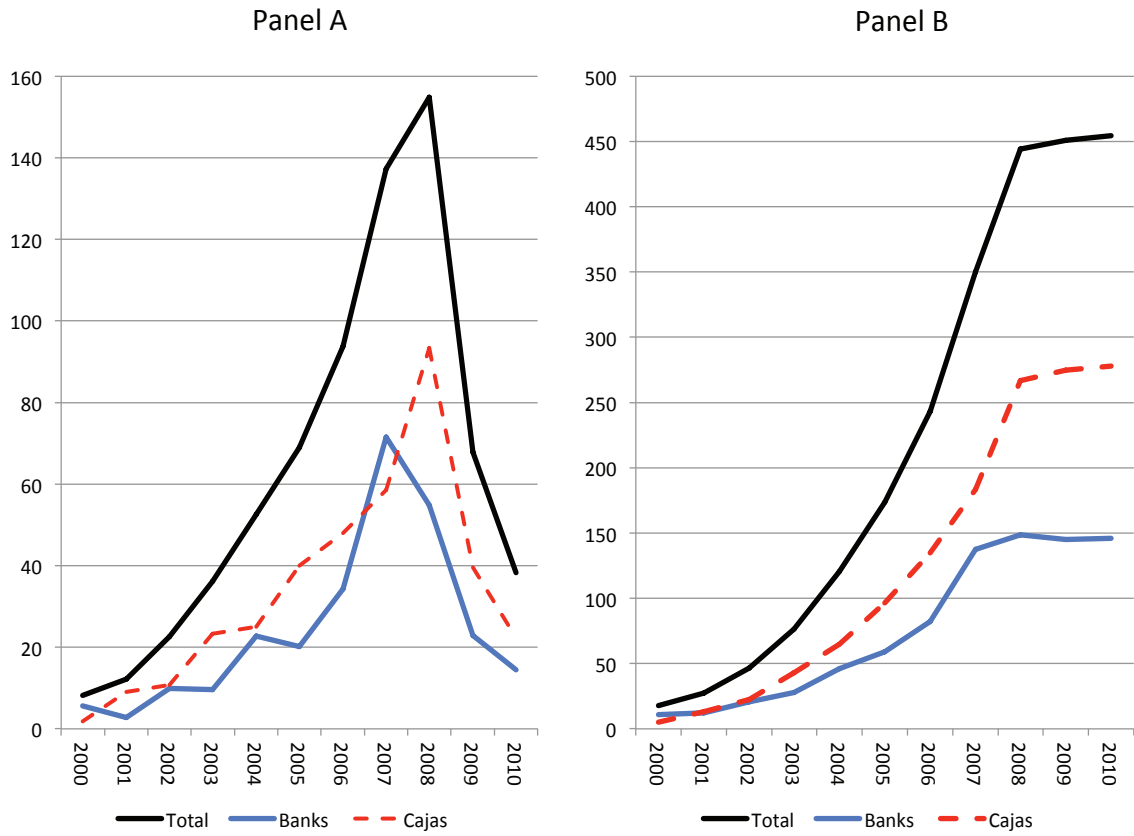


Figure 8: Total securitization volume and securitization sponsored by Spanish credit institutions, banks and cajas. Panel A: Flows. Panel B: Stocks. There are some, small, discrepancies across the different reports; for instance for the 2003 cajas' securitization volume the 2004 and 2006 reports give slightly different numbers. In particular the numbers corresponding to 2008 are drawn from the 2009 report, whereas those corresponding to 2009 and 2010 are drawn from the 2010 report. Securitisations correspond to both asset as well as liability securitisations. Nominal in billions of €. Annual: 2000-2010. Data Source: Memoria de Supervisión Bancaria (2003-2010), Bank of Spain.



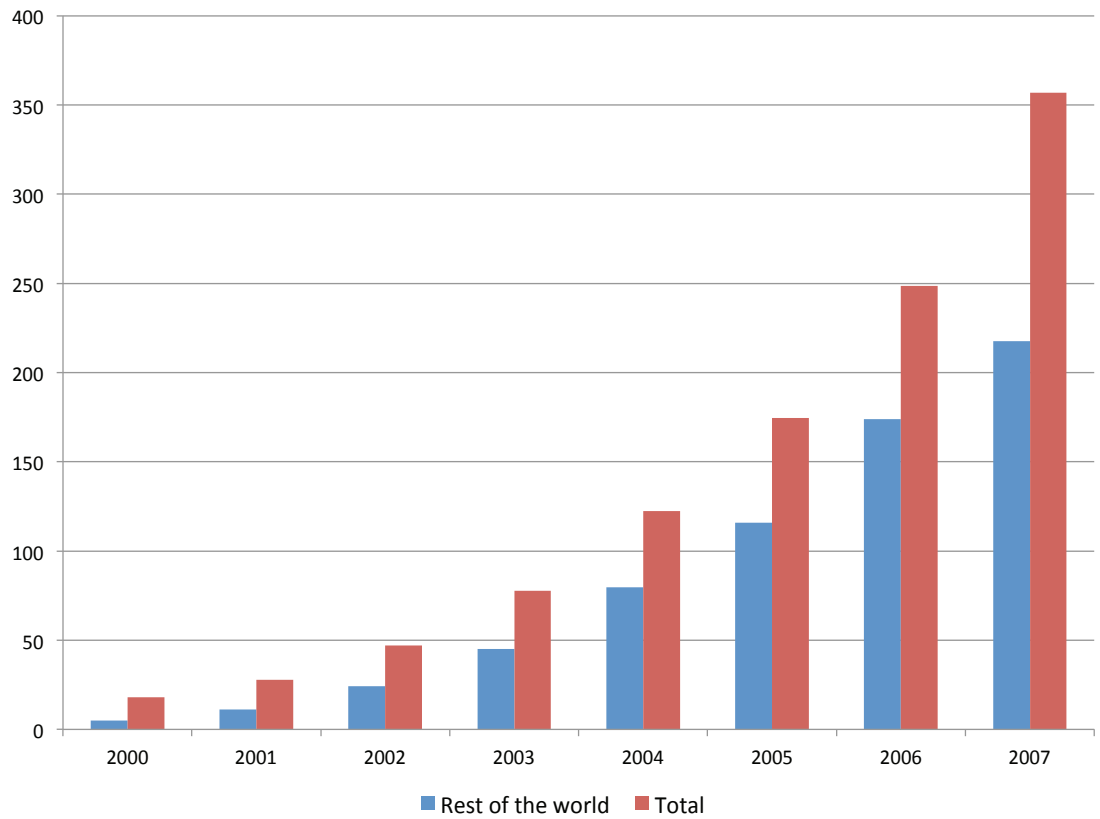


Figure 9: Spanish securitisation issues in the hands of the rest of the world and total outstanding. The total outstanding differs from the one reported in the previous plot due to the fact that these figures come from a different source. See, for example, footnote b of Cuadro 1.A.10 in page 57 of Memoria de Supervisión Bancaria en España 2004. Nominal in billions of €. Annual: 2000-2010. Data Source: Memoria de Supervisión Bancaria (2003-2007), Bank of Spain.