

Spanish Boom and Bust: Some lessons for macroprudential policy¹

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Abstract

In this paper we review the experience of the last Spanish boom and bust to draw lessons on macroprudential policy and its interaction with monetary, fiscal and banking supervisory policies. The lessons are particularly interesting taking into account that Spain is a (relatively small) country in a larger monetary union that has recently put in place a single banking supervisor and where, in the near future, fiscal policy is going to be constrained given the level of public debt reached. The challenge is, therefore, to develop a set of tools and a mix of policies to deal with business and financial cycle divergences.

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1. Introduction

Before the crisis that hit financial markets and banking systems in August 2007 bringing about the Great Recession in advanced economies, there was a broad consensus that monetary and fiscal policies should be used to manage the business cycle. In particular, at that time it was thought that monetary policy should play an active role while fiscal policy should be more passive, relying on powerful automatic stabilizers. In fact, if the main frictions in the economy are nominal, a monetary policy targeting a low level of inflation is enough to maximize social welfare. However, if real rigidities also play a relevant role, stabilizing inflation could amplify the cyclical fluctuations, thus justifying also a focus on output gap (Blanchard and Gali, 2007). In any case, monetary and fiscal policies were the only instruments for carrying out macroeconomic tasks.

Banking regulation and supervision were kept at the domain of microprudential policies, aiming at delivering a safe and sound banking system basically by ensuring the solvency of each individual bank in it. At the same time, the stance in banking regulation and supervision had progressively focused more and more on a proper level of capital against risk, as Basel II discussions, started in 1999, were trying to improve 1988 Basel I agreement deemed not enough risk-sensitive.

The crisis and its high cost in terms of output, employment and taxpayers money to rescue banks, has deeply challenged the old policy paradigm. At the macroeconomic level, the great success in terms of low inflation of goods and services achieved the last two decades before the crisis,² has been challenged in terms, first, of the imbalances that were developed at the same time (both internal and external) and, second, of the huge decline in output that many developed economies have witnessed the last few years when those imbalances begun the correction process (see Figure 1). At a policy level, the strategy of mopping up (use monetary policy after a shock hits the economy) is now judged inferior to a leaning against the wind strategy were monetary (and fiscal) policies could have been used to prick asset bubbles in some markets or, at least, to tame earlier increased imbalances (see, for example, Borio, 2014).

Moreover, a significant challenge is also for banking regulation and supervision strategy prior to the crisis. It is thought now that the microeconomic dimension (i.e. focus the analysis bank by bank, ensuring each one is safe and sound in itself) is not enough. In fact, from a theoretical perspective it has been shown that, in the presence of financial rigidities, the maximization of social welfare

² Part of the success in taming inflation was the result of the incorporation of emerging countries to international supply and trade circuits.

requires financial stability to be an additional target for the economic authorities, like inflation and output stabilization (IMF, 2013). Thus, there is a growing consensus that banking regulation and supervision need to embrace also a macroprudential dimension, focusing on the safe and soundness of the banking sector against systemic risk, that is, the risk of impairment of the normal working of a financial/banking sector that has an impact on the real economy. As financial conditions could amplify the fluctuations of the business cycle and the macroeconomic imbalances, it is argued that a macroprudential approach for banking supervision could have spotted problems earlier and contributed to reduce systemic risk materialization (Delarosière, 2009).

The new approach to banking regulation and supervision that is being adopted enlarges the traditional microprudential toolbox with other instruments that, albeit micro in essence, have a macroprudential aim. Basel III agreement includes a countercyclical capital buffer, aiming at reducing the time dimension of systemic risk, as well as a global systemically important banks (GSIB) capital surcharge, to reduce the cross-section dimension of systemic risk. The CRD IV/CRR in the European Union develop even further those macroprudential instruments enlarging the toolbox by including a systemic risk buffer and a potential surcharge for domestic systemically important banks. Other reforms, such as the structural separation of deposit and trading activities, or the progress in resolution mechanisms for large and complex banks, also try to reduce the interconnections in the financial system to reduce fragility. In parallel, capital requirements at the microprudential level have been reinforced increasing its minimum required level as well as its quality. In Europe, a macroprudential supervisor was created in 2011 (the European Systemic Risk Board), with the power to issue warnings and recommendations to states, national and supranational supervisors. Following one of its recommendations, macroprudential national authorities have been created in almost all European countries.

The interest (and hope) on macroprudential policies and tools goes beyond banking regulation. A growing chorus of support is being developed for using macroprudential policies as an additional tool for macroeconomic policy. In this view, monetary policy should be used to target inflation, that is, price stability, (and output stabilization, like fiscal policy) while macroprudential tools could be targeted to the new goal: financial stability. In this view, there is not much interaction between monetary policy (and fiscal policy) and financial stability policies. They are two separated domains and should remain as such. Macroprudential tools should be able to tame systemic risk originated by large banks as well as that related to credit and financial cycle developments. Should

a country face a too rapid credit growth, countercyclical and/or systemic risk buffers together with, probably, time changing liquidity requirements, should be enough to control it. Sometimes, the ambition set for this macroprudential arm of policy is not modest as their supporters claim that it could have a substantial impact on the management of the business cycle, by affecting the lending cycle, and/or some real markets (i.e. impact on housing market via changes in loan-to-value -LTV- and loan-to-income -LTI- ratios). In a sense, a new paradigm is emerging attributing a much larger role to macroprudential policies in order to deliver financial stability or even less output volatility. A practical materialization of this paradigm is to observe that some central banks are organized along two “business lines”: monetary policy and financial stability/macroprudential policy, apart from banking supervision that may be inside or outside the central bank.

Against this extreme view of (and hope on) macroprudential policies and instruments, there are more modest and nuanced views where monetary policy, fiscal policy and macroprudential policies are all of them interconnected. For instance, in a lending cycle the level of interest rates may have an impact in its speed as well as, and more importantly, in the level of credit risk that the banking sector and other financial agents are willing to take, which, of course, may be the seeds of the next financial and real crisis. There is a growing amount of literature supporting this so-called risk-taking channel of monetary policy.³ Similarly, the tax treatment of equity and debt may have an impact on the level of leverage households and firms may want to assume. Targeted taxes to the housing market may contribute to put sand in the wheels of too exuberant developments in the land, commercial real estate and/or housing markets, contributing to tame lending to such sectors and, therefore, the risks of financial instability. Moreover, the explicit and implicit guarantees provided to bank deposits and senior debt may also have had an important impact on the speed of the lending cycle (i.e. the housing boom could have been very different if construction and real estate developer firms had to fund their expansion by using directly uninsured debt). This view is especially adequate for countries that, like Spain, are (relatively small) members of a monetary union (i.e. limited ability to use monetary policy) and now with an also limited capacity of actively using fiscal policy to accommodate shocks.

The holistic view of the former paragraph is not yet supported by a fully fledged analytical framework. Moreover, the interrelationships among the three policy stances make the analysis complex and difficult to communicate, although probably closer to the reality. In this respect, the aim of this paper is

³ See, for example, Jiménez et al., 2012, 2014 and references therein.

relatively modest. It tries to spur the debate of the usage of macroprudential tools, sketch the limits of what they can do and analyze the circumstances in which help from other policies is required. We focus our analysis on Spain, as it has been one of the countries where the financial crisis has been more costly even although some macroprudential tools were deployed well before financial imbalances developed in full. Besides, Spain is a member of the European monetary union, what could have relevant implications. Thus, section 2 looks at the lending boom and bust in Spain from a broad perspective, focusing on monetary, banking supervision, fiscal and macroprudential policies. Section 3 broadens the paper focusing at euro area countries and the challenges/opportunities for macroprudential policies that the lack of synchronization of the business and financial cycles under a common monetary policy may pose. In section 4 we summarize the major lessons that we extract from the Spanish experience and, finally, the paper concludes with section 5.

2. Boom and bust in Spain

As shown in Figure 1, the Spanish economy registered a remarkable output growth during fourteen consecutive years before the Great Recession. Spain even managed to escape from the dot.com bust which affected other developed economies. However, this was at the cost of growing external and domestic imbalances by the private sector that, when the bust came, made the adjustment deeper and the recovery wavering.

In the years that preceded the monetary union inception, Spain had devaluated the old peseta by more than 30%, so the exchange rate at the end of 1998 was relatively competitive. At the same time, important efforts were made to fulfil the Maastrich convergence conditions, especially by reducing public deficit and inflation. The perspective of joining the monetary union resulted in a deep and quick reduction in interest rates before 1999 (600 basis points in 4 years). Putting all together, it is obvious that the expansionary demand shock hitting the Spanish economy was of an unprecedented size. Besides, the level of indebtedness of the private sector was moderate (total credit to the non financial private sector represented around 100% of GDP) and, a few years later, abundant liquidity around the world allowed important capital flows entering in the Spanish economy looking for safe assets, partially via covered bonds (so-called *cédulas hipotecarias*) and RMBS.

At that time, not only financing was cheap and abundant, intensive immigration flows were observed (4.5 million people entered in the country in the same period, out of a total population of 45 million), adding labour to the

capital influx and, probably, reinforcing each other dynamics. According to Arce et al., 2013, these conditions could only result in an overdevelopment of the residential construction sector, not only in nominal terms but also in real terms. In fact, between 1999 and 2007 the weight of banking credit to the construction and real estate sector increased by 30 percentage points, the proportion of employment in those sectors increased from 5% to 13% and housing prices in real terms rose by 168% on a cumulative basis.⁴

Activity and employment in the construction sector started to diminish by the end of 2007, but it was at the turn of 2008 when the decline in activity spread to the rest of the economy and was substantially accelerated as a consequence of the international financial crisis. Initially, an expansionary fiscal policy was adopted and the financial sector was supported with liquidity measures. Later on, with the emergence of the Euro area sovereign crisis, fiscal policy turned restrictive, and the financial sector was restructured including important capital injections mostly on behalf of tax-payers. Besides, the accommodative monetary policy was counteracted by the segmentation of the financial markets in the Euro area. This, jointly with the deleveraging process of both households and firms, in a context of a protracted banking crisis and inflation well below the target, resulted in the important cumulative reduction in GDP already mentioned, as well as in a significant employment destruction.

Analyzing how the macroeconomic policies reacted in such a situation could be of interest. We will not enter in microeconomic policies, as they are out of the scope of this paper. However, one of the most relevant lessons is that counteracting such an enormous expansionary shock requires all policies pushing in the same direction.

2.1. Monetary policy

In the year 1999 the monetary policy in Spain was subject to a crucial structural change as a result of the monetary union. In being a member of that club, Spain gained in macroeconomic discipline, credibility and stability, but an important instrument of economic policy, the interest rate, was lost.

⁴ It is important to notice that the monetary union meant a process of interest rate convergence among country members with risk premium per country disappearing. This had an asymmetric impact across countries and assets. In particular, for Spain it meant a reduction in interest rates that had a positive impact on the prices of long term assets (as the discount factor decreased) such as houses. The initial pressure on prices may have not been met by the supply of assets given real constraints (i.e. available land, construction permits, the own building process,...) so that prices jumped additionally, setting in motion a process that would end up in an overvaluation of houses and oversupply but only years later.

A simple way of analysing the monetary policy stance consists on calculating the deviations of the central bank policy rate from that implied by a Taylor rule.⁵ The Taylor rule is a rule of thumb for interest rate determination by the monetary authorities. It implies that interest rates will be above (below) the equilibrium rate when inflation is higher (lower) than the target and/or the output gap is positive (negative). A monetary union is characterized by a common interest rate for all the countries, so the inflation and output gap relevant would be those of the average conditions of the area as a whole.⁶ Thus, if there are divergences in the cyclical conditions or the inflation rate of the countries, monetary policy could be inadequate for them.

That seems to be the case of the Spanish economy. As can be seen in Figure 2 (panel A), before the Great Recession the ECB official rate was in line with that suggested by the Taylor rule for the euro zone as a whole. However, between 1999 and 2007 that common interest rate was permanently below that suggested by the Taylor rule for the Spanish economy (see Figure 2, panel B). As an average it was 350 basis points lower, reaching a maximum deviation by 2003 at 500 basis points⁷. This implies that real interest rates were negative most of that period. After the financial crisis the situation changed dramatically, as the intervention interest rate is now above that implied by the Taylor rule. In fact, the persistent indication by the Taylor rule of negative interest rates suggests the need for unconventional monetary policy actions. This is more imperative when it is taken into account that the relevant interest rates for demand decisions in Spain show an important spread with respect to the euro area average, resulting from a fragmentation brought about by the sovereign crisis that difficult the transmission of monetary policy in the euro area.

Besides, the interest rate does not fully reflect the very easy liquidity conditions that the Spanish economy enjoyed after the monetary union in 1999. As can be seen in Figure 3 (panel A), between 1999 and 2007 capital inflows represented around 20% of GDP, while in the years previous to the monetary union they were around 7%. They accelerated sharply since 2004 with the deepening of securitization, which went from close to negligible in the early 2000s to over 50 billion Euros of securities issued every year (over 5% of GDP).⁸ In fact, most of this affluence of liquidity was in the form of debt instruments, which jumped

⁵ In deriving the Taylor rule we have followed the procedure proposed by Hofmann and Bogdanova, 2012, with minor innovations. See Annex 1 for details.

⁶ This means that the inflation and output gaps of the member countries should be weighted according to the private consumption/GDP of each economy. Benigno and López-Salido, 2006, show that if the incidence of nominal rigidities is different across countries, optimal weights do not need to be those of GDP.

⁷ See Jordà et al (2014) for a similar line of reasoning.

⁸ See, for example, Jiménez, et al., 2011.

from 2.5% of GDP before the monetary union to 12% between 1999 and 2008. Behind that behaviour could be the structural change associated with being a member of an area macroeconomically more stable, but also to a combination of search for yield and for scarce safe assets that the Spanish economy produced by developing the real estate sector and securitizing mortgage loans. As a result of this substantial influx of capital from abroad, the stock of foreign debt to GDP increased from a 57.4% of GDP in 1998 to 148.5% in 2007 (see Figure 3, panel B).

After the financial crisis the situation changed radically, disappearing these flows, especially those based on debt instruments as a result of the reassessment of its soundness as well as their market prices.⁹ The Target system avoided a sudden stop.

This long period of very moderate interest rates, abundant liquidity and financial innovation derived in a quick process of increasing indebtedness and risk-taking by banks in the non-financial private sector, which, as a percentage over GDP, increased from 103% at the beginning of 1999 to 214% at the end of 2007. It affected all the sectors, but especially the construction and real estate development activities. In fact, the bank credit to these industries rocketed from 10% of GDP in 1999 to 43% in 2007 (see Figure 4), averaging nominal growth rates per year during that decade of 29%.¹⁰

All in all, a lax monetary policy stance, given the specific circumstances of the Spanish economy at the time, abundant liquidity in international markets, search for yield and the development of securitization allowed channelling funds from international investors into the Spanish banking market so that a lending cycle was inflated at a much higher speed than local deposits evolved. Viewed in retrospect, the surge in credit since 1999 (euro zone creation) and the beginning of the crisis (around 2008) was overwhelming (see Figure 5). However, the participation of each individual bank in this credit expansion was different, as it were the lending standards applied by each of them.

⁹ Incidentally, asset managers are assessed (and paid) according to returns based on mark to market criteria. Therefore, even despite the low effective default rates in covered bonds (no default at all) and in Spanish RMBS, secondary market prices dropped substantially bringing about a rush for the exit of international bondholders, as soon as subprime crisis erupted and well in advance of the sovereign euro zone crisis. The decline in secondary prices was so pronounced that Spanish issuers (e.g. banks) bought back some of these bonds booking a significant profit given the known and proven quality of the underlying assets (mortgages with a relatively low non-performing loans ratio).

¹⁰ A part of the increase of non-financial firms' indebtedness is the result of their international expansion. Some large Spanish firms have been borrowing at home (from Spanish banks mainly) to acquire assets abroad. While the funding is registered in Spain, the assets are abroad, providing a steady and diversified stream of income to those firms.

2.2. Lending standards and bank supervision stance

In our view, microprudential supervision is a key building block of financial stability. And a crucial component of financial supervision is the monitoring of lending standards.¹¹ However, this is not an easy job. It requires experience and a forward looking approach. Usually, in good times non-performing loans (NPLs) are very low and, what is even more challenging for supervisors, very similar across banks. And this can be the case for most of the expansion period. Then, when the crisis arrives, a sudden and significant increase in NPLs happens as well as a significant differentiation across banks. Suddenly, different lending standards are revealed ex-post, when it is too late to correct them. That is why the analysis not of the current levels of defaulted loans but of the screening criteria that will lead into future defaults is key to monitor the solvency of each bank in good times. This work is crucial for the safety and soundness of each bank. Since the triggers of contagion are still not well known, this should be at the heart of financial stability. Note that the work needs to be prospective, based on how the quality and the practices of current credit risk screening and monitoring may be increasing the probability of future losses. The work cannot consist on just ticking boxes on whether the banks are currently showing or not credit losses.

Lending standards that need to be monitored encompass, among other issues, the reliability of future cash flows of borrowers to repay the loan in full, the future value of collateral if the bank needs to be reposes it, as well as the probability of that happening, the need to avoid excess reliance on collateral future repricing, and the incentives of bank managers (i.e. whether remuneration policy is based on short term asset growth or on medium term asset quality).

Figure 6 shows clearly how much NPLs can change along time and across banks. NPL ratios of credit to the private sector were at the peak of the lending boom in Spain below 1%, with not much difference across banks (December 2006). By the second date, December 2009, once the worst recession in more than 60 years had hit the Spanish economy, NPL ratios had increased 8 times on average and had started to show clear differences across banks (i.e. more than 10 percentage points difference). Since the business cycle is very similar in a relatively small country like Spain, we can associate the change in the average

¹¹ Our approach departs from Benabou (2009) collective delusions or groupthink and from Foote et al (2012) wrong believes of borrowers and investors motives for the housing crisis. We do not exclude them, but we do believe that there were also other mechanisms at work with a significant impact in the final outcome. Our reasoning here is more in line with Schularick and Taylor (2012) as we analyze a large credit boom gone wrong and bringing about a systemic banking crisis.

level of NPLs to the macroeconomic developments. Thus, the differences across banks must be, on average, the result of different lending standards in the boom phase. Therefore, managerial incentives, objectives and experience are key to understand the soundness of a bank and, therefore, they need to be carefully scrutinized by supervisors well ahead of the crisis in order to protect bank depositors. Finally, Figure 6 shows at date December 2013 the effect of a second recession in the Spanish economy as well as the burst of a housing bubble that has been fuelled by lending growth funded partially abroad. Again, there are substantial differences across banks suffering the same macroeconomic shock. Lending standards are responsible for NPL ratio differences of 15, 20 or even more percentage points. This enormous dispersion among entities is even more remarkable when it is taken into account that the process of restructuring of the financial sector implied an important concentration of entities and that an asset management company was created by the end of 2012 to clean the worst real estate and mortgages loans from the balance of the restructured banks.

Aggregate results in Figure 6 could be thought the result of different segment specialization by banks. That is, the differences could be just the result of some banks specializing on real estate funding (usually with a much higher NPLs ratios during crisis) and others in mortgages (with usually lower NPLs ratios). Figures 7 and 8 confirm that real estate exposures are much riskier than mortgages in Spain (average NPL ratio in end-2013 of 38% versus close to 6% in mortgages). However, more importantly, the cross sectional pattern shown in Figure 6 is replicated in both real estate and mortgage portfolios.

Again, during boom times defaults are almost negligible and with almost no difference across banks. As the crisis starts to hit, the differentiation across banks appears and, thus, the different lending policies decided by each bank materialize in different credit risk ex post. The wide dispersion across banks in each period and the significant change along the lending/business cycle of average NPL ratios shows why the monitoring of lending standards is a key starting point to obtain a safe and sound banking sector and to protect financial stability. Figures 6-8 show also why is so difficult and why it needs to be forward looking.

Another very relevant area for microprudential supervision is the concentration of risks. Not only individual lending standards should be sound, it is also necessary to diversify risks to avoid being seriously damaged by idiosyncratic shocks. Figure 9 shows how concentration in lending to construction and real estate increased in Spain during the boom years. Before the crisis there were clear quantitative rules with respect to individual concentration of risks (i.e. single name limits), while in the industry dimension the approach was more

qualitative. This industry dimension should be reinforced. In any case, effective banking supervision should require a sound risk diversification (BCBS 2012). And it should be understood in a wide sense, taking into account the vertical and horizontal interconnections among sectors of activity and, in the case of households, the industry they work for.

An example of how a strict microprudential regulation on individual risk concentration combined with a not so strict regulation on sectoral concentration of risks can be detrimental, is also provided by Spain in the construction and real estate sectors. Between 1999 and 2007 the total number of houses started increased by 87%. However, as the number of companies in these activities increased by 105%, the average size of these firms diminished by 9%.¹² Even although the main reasons for this reduction in size was not the microprudential regulation on risk concentration, the outcome for supervisors was a lower probability of breaking the thresholds established on individual risk concentration. From an aggregate perspective, this behaviour had also consequences. Figure 10 presents the growth rates of the bank credit to the construction and real estate activities in nominal terms (blue line), deflated by the housing price (red line) and by the number of companies (orange line). During the expansionary period the average growth rate of credit in nominal terms was 23%, which diminishes to 13% when it is deflated and to 4% when it is divided by the number of firms. As in that period real GDP growth averaged a rate of 3.7%, it could be thought that both figures were coherent. Notice also how the reduction in the credit to the sector during the crisis also diminishes substantially (in absolute value) when the number of firms is taken into account. This implies that most of the adjustment in this sector has taken place through the disappearance of the firms, what explains the high non-performing loans rates in construction and real estate mentioned above.

Collateral policy is also a key determinant of lending standards. Although collateral in a loan could be used as a tool to reveal the riskiness of the borrower, it is not a substitute of lack of payment in a loan. Loans granted based on collateral rising valuations, independent of the means of the borrower to repay principal and interest is a recipe for disaster usually. Japanese lending boom in late eighties based on the always rising real estate property values, or US mortgages lending based on never stop rising house prices are two clear examples. Collateral is at most a second best for collecting the amounts due from borrowers.

¹² Some construction firms may have created as many subsidiaries as plots they were developing, so that, if needed, they could take advantage of limited responsibility.

Moreover, collateral valuation policies can also contribute to the deterioration of lending standards. Usually, before granting a mortgage the bank assesses the value of the property securing that mortgage. In Spain, appraisal companies are in charge of those valuations. The appraisal companies can be in-house (i.e. own by the bank) or external, providing appraisal services to banks. There are potential advantages and drawbacks of both models. An in-house appraisal company that depends tightly from the risk control department can be a useful instrument to produce LTV (loan to value) ratios that eliminate part of the froth of the housing bubble by being more long term oriented (i.e. forward looking) or more conservative. However, the in-house appraisal company can be forced, if corporate governance in the credit function is not properly organized, to support lending expansion by producing higher valuations of the collateral so that LTV ratios does not bridge bank internal or regulatory thresholds. Relying on external appraisal companies, in principle, should insulate valuations from bank commercial pressures, in particular if the reputation of the appraisal company is key for its long term survival. However, if the external appraisal company does not value reputation too much (because it understands its business as a pure cyclical one) or the company is highly dependent on only one bank, the pressures to overvalue assets may be as high as those suffered by an in-house company that is not insulated from commercial pressures.¹³

Finally, banking supervision needs to pay attention to the incentives bank managers have. It is difficult to understand a lending boom such the one experienced in Spain without taking into account the incentives that top managers had in terms of transforming local or regional banks into much larger multiregional or national ones. Empire building, top management's remuneration proportional to the size of the bank or the old expense theory arguments may help to explain the surge in lending in Spain. Of course, those objectives percolate the whole organization and are translated into each branch manager' objectives of increasing the volume of deposits and the market share, almost at any price or regardless of other medium term objectives. Of course, the absence of a Board of Directors that properly represents the interests of shareholders or, as in the savings banks, the absence of shareholders, may compound the flaws in incentives. It is not easy to imagine how different the lending boom could have been if instead of lending growth targets, each bank branch manager had had objectives (and remuneration) based on sound lending supported by proper screening of the risk of the borrowers, their capacity to repay in the medium term the monthly instalments of their mortgages, a reasonable balance between retail deposits and loans granted and the

¹³ For a critical assessment of the role played by appraisal companies in the Spanish housing/financial crisis see Akin et al (2014).

possibility of clawbacks in their variable pay (covering several future years and depending on the amount of NPL that emerged in that future from the loans granted at each bank office). Given that counterfactuals are not possible in economics, bank supervisors' focus on the incentives of bank managers, at all the levels of the organization, are crucial to monitor and to cool down lending booms.

All in all, bank supervisors need to pay attention to a protracted lending cycle, in particular if funded by foreign investors fuelled by a search for yield. The behaviour of each bank may be quite different in terms of lending standards, concentration of credit portfolios and collateral valuation policies. The differences, unfortunately, are only clearly revealed ex post when the crisis has already hit the bank. More precisely, microprudential supervisors cannot rely on already existing defaults at the boom period to judge the soundness of each bank. Collateral policies usually play a key role in the development of the credit booms. In fact, collateral policies can play a deterrent effect in lending expansions, protecting the long term asset quality of a bank, despite short term losses in market share, or they can play a catalyst role amplifying the lenience of lending standards by overvaluing assets securing the loans granted by banks. Lending standards, understood in a broader sense (screening and monitoring policies, concentration risks, collateral valuations, remuneration policies and their incentives...), are a key microprudential tool to guarantee financial stability. To comply with Core Principles (BCBS 2012) regarding credit risk is a good starting point to avoid trouble further down in the lending cycle.¹⁴

2.3. Fiscal policy

How can fiscal policy contribute to preserve the financial stability, if it has to? In this subsection we try to analyze some of the links between both macroeconomic policies using the Spanish experience.

From a long term perspective, fiscal policy can support financial stability by strengthening the incentives to capital financing. And not only in the case of financial firms, but also for non-financial companies and households. Currently, the fiscal system applies a more favourable treatment to interest payments than dividends, thus implying a departure from Modigliani-Miller hypothesis, which raises the relative price of capital with respect to debt so that fostering the incentives of both households and firms to increase indebtedness and leverage.

¹⁴ Of course, higher capital ratios also help to contain the negative consequences of too lax lending standards.

In the case of the financial institutions, BCBS, 2010, presents evidence showing that higher capital ratios (i.e. lower leverage) reduce the probability of having a banking crisis, and, in case of having it, its costs in terms of GDP foregone. This result has been confirmed in the Spanish case using very long time series (Estrada and Argimón, 2014). In the case of non financial companies, the fiscal treatment of interest payments in the corporation tax has implied that most of the globalization process of the Spanish firms undertaken in the last decades was financed by debt issued in Spain, although the financing source was abroad (see footnote 13). Recently, a reform in the corporation tax has limited the possibility of deducting interest payments from the tax base. In the case of households, until 2013 they could also deduct part of the interest payments in their mortgages in the income tax, thus favouring low down-payments when buying a house.¹⁵ According to empirical evidence, low down-payments favour house price increases for a given interest rate (Bover, 1992) and increase the probability of default (Mayer et al., 2009).

Not only private debt, public debt is also crucial for financial stability, as banks usually maintain this asset in its portfolios. Therefore, a sound financial sector requires that fiscal authorities assure the sustainability of public debt. Sustainability is a forward looking concept that involves not only the current level of public debt, but also the future path of the public deficit. Thus, most of developed countries include in their laws explicit rules for the public deficit as a percentage over GDP and over maximum public expenditure growth. Besides, as the public pensions have characteristics of pay-as-you-go systems, internal automatic rules are being introduced in the regulation to face the aging problem. Spain is not an exception in this respect. In order to meet the Maastrich criteria on public debt (below 60% of GDP, see Figure 11), the main target of fiscal policy for joining the EMU was to reduce public debt, not only by constraining public deficits, but also by privatising public companies. By 2007 public debt had diminished to 36%, 30 percentage points below the average of the Euro area, helped also by the reduction in interest rates. Afterwards, it increased substantially, thus inducing a reform in the budgetary rules, introducing in 2011 the principles of the structural public balance equilibrium in the Constitution, and in the pension system (2011 and 2013).

From a medium term perspective, fiscal policy can be used countercyclically to dampen the fluctuations of the business cycle beyond the automatic stabilizers built into the fiscal system. During recessionary periods activity diminishes,

¹⁵ They could also deduct part of the principal, thus introducing a bias in favor of housing property instead of renting. Well developed and deep rental markets reduce the probability of housing bubbles (Arce and López-Salido, 2011).

unemployment increases and, as a consequence, NPLs increase, damaging the profits of banks and consuming capital. Therefore, leaving apart direct support measures to the financial sector itself, fiscal policy can contribute to the stability of the financial system in these periods by sustaining activity and avoiding self-reinforcing negative spirals. In the expansionary periods it can also contribute to the financial stability by moderating the increase in activity.¹⁶

A look at the aggregate numbers of the Spanish public sector in the last fifteen years is revealing in this respect. As can be seen in Figure 12, at the euro inception public deficit was well below the limit established by the Stability and Growth Pact (3%) and it continued diminishing until reaching surpluses for three years in a row (2005-2007). The primary structural balance was in surplus all that period, and, in fact, it significantly increased from 2004 to 2007, signalling a restrictive orientation in fiscal policy. When the crisis erupted, both headline and structural public balances recorded a substantial deficit, thus reflecting an initial expansionary orientation of fiscal policy, which turned to contractive afterwards as financial turbulences reached the country. However, these outcomes in terms of the balances before the Great Recession were hiding increases in public expenditures well above potential growth (see Figure 13). Obviously, this can only be explained by public revenues, which were increasing even by more than expenditures. Part of that important increase of fiscal revenues was the result of automatic stabilizers, but other relevant part was the result of the overdevelopment of the housing sector. This revealed that not only fiscal rules on the balances need to be considered, but also on the public expenditure growth.¹⁷ After the recession, revenues severely contracted, while expenditures initially increased. In the next years, revenues increased and expenditures diminished due to the discretionary measures adopted to control the public deficit.

But the capacity of the fiscal policy to influence the behaviour of some specific economic areas and, in particular, the housing sector, could be more interesting from the financial stability time perspective. The housing sector has played a capital role in the development of the recent banking crisis in Spain. However, Spain is not an outlier. There is overwhelming evidence showing the key role this sector plays in explaining financial instability both in different periods and

¹⁶ There is evidence showing that the steepest the expansion the deepest the posterior contraction (Bordo and Haubrich, 2012), so another way to put a floor to the recession is limiting the previous expansion.

¹⁷ That kind of behavior revealed the insufficiency of fiscal rules based on balances and was the motivation for introducing a public expenditure rule in the recent reform of the fiscal governance of the European Union.

See http://ec.europa.eu/economy_finance/economic_governance/sgp/index_en.htm

across countries. In fact, the housing price is one of the indicators selected jointly with credit to estimate the financial cycle¹⁸ and it is almost always included in the group of leading indicators of banking crisis. Claessens et al., 2011, find that recessions are longer and its costs in terms of forgone GDP higher when there is a housing price burst.

Real estate activities are intensive in tax collection and taxes can influence the behaviour of the participants in these markets. In the Spanish case, capital gains are part of the fiscal base of the income tax, the corporation tax and a specific tax of municipalities; new house transactions are taxed by the VAT and second-house transactions by a specific regional levy; municipalities also collect taxes on land appreciation and obtain non-tax revenues by selling public land. Besides, the ownership of a house is also taxed by a local tax and imputed rents on secondary houses are also part of the fiscal base of the income tax. On the contrary, as we said before, until 2013 when a house was bought using a mortgage, part of the interest payments and the amortization of the principal were deductible in the income tax. These revenues constitute an important share of tax collection and were partly responsible of the unexpected increase in tax revenues during the expansionary period.¹⁹

These taxes and fiscal benefits can be used to moderate housing demand, households leverage and housing price increase. Probably, the taxes most efficient in this respect are those related to the transmission of the real estate, as they impact directly and without delay on the housing market participants. The taxes whose fiscal base is the housing property will take more time to have an effect.

The evidence of the impact of housing taxation in housing prices in Spain is relatively scarce as very few changes in taxation were recorded in the expansionary period. During the recession some modifications have been introduced but mainly with the objective of increasing fiscal revenues. Some simulations by early 2000's pointed to reductions of housing prices between 16%-20% if deductions in the income tax were eliminated (López-García, 2004). In fact, in the year 2006 this deduction in the income tax was cut; however, the reduction was moderate and, to some extent, financial sector innovation counteracted the measure, as long as the enlargement of mortgages maturity made non-binding the annual ceilings on the deduction. At the beginning of 2009 it was announced that by 2011 this measure for new buyers could be only

¹⁸ See, for example, Claessens et al., 2011, or Borio et al., 2013.

¹⁹ According to Castro et al., 2008, the fiscal revenues associated to the real estate overdevelopment explain two out of the four percentage points that fiscal revenues over GDP increased at that time. Obviously, when the burst came all these revenues evaporated.

applied by households with revenues below €24.000; in 2013 it was completely eliminated after being recovered in 2012. A look at the evolution of housing prices and transactions seems to show relevant effects of these changes in the income tax (see Figure 14). As can be seen, right after the 2009 announcement housing transactions (normalized by per capita income) changed their downward trend, showing increases during 2010. This increase in demand implied a slower reduction of housing prices (again normalized by per capita income). These trends were fully reversed when the measure became effective. At the end of 2012 something similar happened, although to a lower extent.

However, these effects could be just the result of the once for all nature of that measure. More insights could be obtained from the regional transaction tax for second hand houses. Before the financial crisis, all the regions had the same tax (7%),²⁰ but the fiscal consolidation process determined that some regions increased this rate in different years. In the year 2011 5 regions increased that tax by 1 or 2 percentage points; in the year 2013 8 regions increased it by 1, 2 or even 3 percentage points. Figure 15 suggests that the effects can be relevant. It presents the average change in house prices and transactions in the year after the tax was increased (minus the previous average change to control for the particular circumstances of each region) differentiating the regions where taxes were increased from the rest. In both years house prices declined by more in the regions that implemented rate increases and transactions increased by less.

The results presented here on housing taxation are only suggestive on the power fiscal policy can have on financial stability in the short term. Taxes over land and house transactions together with fiscal treatment of mortgages and debt in general may have a significant impact on lending booms fuelled by house price increases or excess indebtedness.²¹

2.4. Macprudential tools

Spain implemented dynamic provisions in mid-2000, short after it joined the monetary union. Dynamic provisions are now counted as a macroprudential tool. At the time they were implemented the idea was strikingly simple: banks should build up a buffer in good times to be used in bad times to protect its solvency. Jiménez and Saurina (2006) provide an empirical rationale for such a countercyclical provision. During lending booms banks relax their lending standards (including collateral requirements) so that loans granted in good

²⁰ Except those of the special (foral) fiscal regime (6%).

²¹ From a different angle, Piketty and Zucman (2014) point out wealth-income ratios in Spain at the peak of the housing bubble of 800%, even larger than those observed in Japan in the late 1980`s.

times are riskier. Competition is strong during booms so that risk pricing may be biased downwards. Bank managers' incentives do the rest. This evidence matches supervisory experience in the sense that lending mistakes happen in good times, when over optimism about loan prospects is abundant together with disaster myopia and fading memories of the last recession gaining weight among lender officials at banks. Therefore, it makes a lot of sense to introduce a surcharge in provisions to cope with credit risk mispricing and to build up a buffer to protect the bank when the recession appears and lurking credit risk manifests itself in a jump in NPLs.

Dynamic provisions evolved somehow along time, in order to adjust to IFRS (International Financial Reporting Standards) being imposed in 2005 as well as to the crisis impact. A detailed description of dynamic provisions working can be found in Saurina (2009a) while a first impact study is in Saurina (2009b). A more thorough and complete review of the performance of dynamic provisions along a full lending/business cycle can be found in Trucharte and Saurina (2013).

Dynamic provisions are governed by a simple formula with two components. The first component is proportional to the increase in the credit portfolio; with different buckets proportional to risk (i.e. the parameter for mortgages is lower than the one for consumption loans, which are riskier). The second component, the pure countercyclical one, compares the current level of specific provisions with an average of the cycle. In good times credit grows rapidly, NPLs are very low so that specific provisions are very small and, thus, the two components are positive which means that dynamic provisions are being accumulated. In bad times credit slows or turns negative, NPLs surge and so do specific provisions. The two components of the formula become negative so that dynamic provisions are drawn and booked in the profit and loss account of the bank in order to cope with credit losses and to protect the solvency of the bank.

Figure 16 reveals the three major characteristics of dynamic provisions. First, the base for the provision is not only a pro-cyclical variable (credit), but it is more volatile than the business cycle (notice that range of the right axis is six times higher than that of the left axis). Second, although the rates for the different buckets of risks are constant along the cycle, the average rate is also procyclical. This is a consequence of buckets of higher risks gaining relevance in the expansionary periods and losing it in the downturns. This implies that these provisions increase by more than credit and much more than GDP in the expansionary phases and decline by more than credit and GDP in recessions. In analogy with the fiscal theory jargon, these two characteristics imply a sort of "progressivity" to this provision. Third, the tool is fully automatic: no decision

by the authorities is needed to accumulate or release the fund. The accumulation is activated when exposures increase and the release when loan impairments grow, as mentioned before. These two variables are positively and negatively correlated, respectively, with the business cycle. This is very similar to the working of the automatic stabilizers in fiscal policy.

As a result, general provisions have shown a pro-cyclical behavior, which has counteracted to an important extent the highly countercyclical pattern characterizing specific provisions. Thus, according to Figure 17, between 2000 and 2005 banks increased generic provisions by more than credit, compensating the progressive decline in specific provisions associated to the reduced ratio of non-performing loans observed during that period. In particular, the ratio of total provisions over total credit increased by 0.4 percentage points compared to a reduction in specific provisions of 0.3 percentage points. In 2005 the implementation of the IFRS in Spain implied a reduction in the ceiling for generic provisions that determined a one for all reduction in that fund, remaining quite stable afterwards. By 2008, after non-performing loans started to increase rapidly, the flow of generic provisions became negative, precisely when accounting rules determined a quicker accumulation of specific provisions. As the fund of generic provisions was positive, it was possible to use it (around 0.5 percentage points) in order to compensate part of the increase in the specific ones (1.4 percentage points). Afterwards, the transitory improvement of the economic situation during 2011 was rapidly reflected in a new change in the trend of generic provisions, which increased additionally as a result of a one-off increase in the generic provision associated to real state exposures. The second dip of the economy during 2012-2013 and the corresponding increase in specific provisions were also cushioned by the use of cumulated generic provisions, although it was not enough to prevent a substantial decline in credit.

In fact, the available empirical evidence in Jimenez et al., 2013, supports the view of countercyclical provisions as a useful tool for macroprudential policy. It has affected the behavior of banks, generated countercyclical capital buffers and mitigated the credit cycle. In particular, after the introduction of the countercyclical provisions in 2000, banks reduced committed lending and tightened the general conditions for loans with the firms they used to work. Besides, that reduction was higher for those banks that had to provision the most. However, in these good times, firms were able, after three or four quarters, to redirect loan demands to those banks less affected by provisions, thus resulting in maintenance of the overall level of borrowing. This last result also reveals the limits that macroprudential tools have due to leakage. In 2005,

when countercyclical provision regulation was firstly modified, credit growth was also high. The empirical analysis results show a similar effect on credit to firms that after its introduction in 2000, but more muted, probably reflecting the relatively minor modification in the parameters.

On the contrary, by the end of 2008 a new modification in the regulation was introduced, diminishing the lower bound for the generic fund. This modification was introduced when the flow of credit was declining significantly, precisely to dampen that reduction. The evidence shows that the possibility of releasing more provisions in bad times helped in easing the credit conditions for firms and by most in the case of banks where the fund of provisions was closer to the floor. However, only well funded banks were able to ease the credit conditions to other firms they did not use to work with.

Thus, Spain was a pioneer among the developed countries in the introduction of countercyclical macroprudential tools, despite the lack of interest from international regulators/supervisors at that time. In relative terms, dynamic provisions covered 1.1% of credit portfolios (1.5% for those with positive risk weights) and of almost 1% of total assets at the peak of the lending cycle. Currently, the general provisions are almost depleted, as it should be expected from a countercyclical tool. In terms of risk weighted assets, dynamic provisions reached 1.5% of credit risk weighted assets at the peak of the cycle, which is 60% from the maximum countercyclical capital buffer set at 2.5% in Basel III. Dynamic provisions took around 20% of the net operating income of each bank each quarter. This is not an small amount and contributes to explain the fierce opposition of Spanish banks to dynamic provisions in good times. Later on, they recognized their usefulness. Dynamic provisions were calibrated using information of past lending cycles. In fact, they were calculated using the NPL and provision data of the 1993 recession, the worst in 30 years when it was calibrated. Unfortunately, the shock that hit Spanish banks since 2008 was of a magnitude far much larger. GDP decline in 1993 was a bit more than 1% while in 2009 we had a 3.6% decline, followed by a double dip of another 3.3% in 2012 and 2013 altogether. It is clear that dynamic provisions helped banks to survive the crisis along other instruments and measures but, at the same time, they were not enough for some banks given the size of the shock, brought about by the size of the lending boom.

All in all, in line with the holistic approach we spouse in this paper, a macroprudential tool like dynamic provisions should have been accompanied probably by other countercyclical tools, such as higher capital requirements in good times, LTV and LTI mandatory thresholds, closer scrutiny of lending standards, including concentration risk, collateral valuation policies, and

remuneration incentives, as well as, given the size of the lending wave, by fiscal and, in particular, monetary policy measures that leaned against the huge wind it was blowing in the Spanish economy. This is probably the most important (and painful) lesson from the banking and economic crisis we have endured the last seven years or so.²²

3. Real and financial cycles in the euro area

Both academics and policy makers confer an especially relevant role to macroprudential policies in non-optimal monetary areas like the Euro area. The reason is that monetary policy cannot be used to stabilize the economy of a particular member when it is shocked by an asymmetric disturbance (Jeanne and Korinek, 2014), or when the reaction to a common disturbance is different due to the structural characteristics of that member state. It could be argued that fiscal policy should play that role of macroeconomic stabilization. However, in the near future, the fiscal space is going to be very reduced in most of the Euro area countries.²³

Angeloni, 2014, also recognizes that role for the macroprudential policy, but only to smooth out local credit cycles and having in mind that the final purpose should be enhancing the resilience of the financial sector. However, this author also sees the risk that it could “(re-)introduce a domestic dimension to credit and, indirectly, to monetary policy.” In fact, the interaction between monetary policy and macroprudential policy is a question of enormous interest. Most of macroprudential tools can have an impact on inflation and activity. For example, an increase in the capital requirements of the banks could increase the financing cost of the economy; higher leverage ratios could reduce the financial resources to lend; a reduction in the loan-to-value threshold could mean a cut in the value of collateral.²⁴ Macroprudential tools influence the transmission channels of monetary policy, both the traditional (substitution, income and wealth effects) and the balance sheet channel. Thus, it could happen that

²² Clearly, this paragraph may apply to other countries (e.g. US, UK, Ireland,...) that experienced also a sizable banking crisis, although with probably different nuances in each of them.

²³ According to the European Commission, only four out of the eighteen Euro area members will close 2014 with a public debt ratio below 60%, the threshold established by the fiscal governance in the excessive deficit procedure.

²⁴ A way to address these interactions could be through a cost-benefit analysis where the higher capital ratio reduces the output losses as it helps to containing banking crisis while, on the other hand, it increases the cost of lending and, thus, the output of the economy. The huge cost of this last banking crisis in Spain and elsewhere probably will tilt the balance in favor of higher capital ratios for many years to come.

macroprudential policies reinforce the monetary policy decisions, but also that they counteract each other. Therefore, it is crucial the coordination among policies and member states.

The evidence on the comovements of the business cycles in the Euro area is quite wide. Before the financial crisis, Giannone et al., 2010, showed how after the monetary union the country specific properties of the business cycles did not change significantly and the dispersion, which declined considerably before 1999, remained quite stable afterwards. However, these conclusions were challenged by the financial crisis.

Figure 18 panel A reproduces the evolution of the unemployment rate dispersion²⁵ analyzed in Estrada et al., 2013, jointly with that of the output gaps. As can be seen, before the financial crisis both indicators pointed to a process of real convergence and higher cyclical synchronization among Euro-12 countries. This process of convergence was delayed to 2005-2008 for the output gap, but it had continuity during all the periods for the unemployment rate. After the financial crisis, dispersion increased substantially for both indicators. In fact, the dispersion levels reached recently are much higher than those observed at the inception of the monetary union. Usually recessions increase the dispersion in these variables, but the current one is much higher than that observed for the same countries in 1993-1995, or compared to the current crisis in other developed economies.

Panel B of the same figure shows the histogram of the pair-wise correlations among the output gaps of the Euro-12 countries before and after the financial crisis. Before 2008, more than 60% of the correlations were positive and relatively high (over 0.6). Besides, there were no negative correlations; the distribution was clearly skewed to the right. After the crisis some countries have begun to diverge from others (20% of the correlations are negative) and the distribution has reduced its right skewness.

Thus, from the point of view of the business cycle it seems that it is necessary to widen the tool kit of macroeconomic policies available for the national authorities to modulate the business cycle in a monetary union that, necessarily, applies the same monetary policy among all its members and at a time where fiscal room of maneuver is very small. An alternative better option would be the Euro area giving additional steps in order to mimic as much as possible to a fully fledged monetary union. Some steps are been given in this direction by,

²⁵ Calculated as the annual cross-country standard deviation of the corresponding variable. Using the first differences of the unemployment rate to proxy the cycle barely modifies this chart.

for example, implementing the Banking Union. However, the fiscal dimension and, finally, the political one should not be forgiven. Meanwhile, macroprudential policy could fulfill that necessity, although oriented to financial stability.

Financial and business cycles are not the same. Claessens et al, 2011, show that financial cycles are longer and sharper than business cycles. However, the synchronization degree between both cycles is quite high when the financial cycle is estimated using credit and housing prices. In the Euro area in particular, Haavio, 2012, finds that financial cycles measured with house prices tend to precede business cycles and measured with credit to GDP to lag them. Less analysis has been made with respect to the synchronization of financial cycles across the Euro area member states. Here we present some exploratory results using the same tools than with the business cycles. We consider three variables to capture the financial cycle: the credit to the nonfinancial private sector to GDP gap calculated as recommended by the BIS²⁶ to activate the countercyclical buffers, real credit growth and the housing price divided on per capita GDP, to approximate the affordability indexes at the aggregate level.²⁷

As can be seen in Figure 19, the results are somewhat different from those of the business cycle. Starting with the panel A, the dispersion of the credit to GDP gap is higher than that of credit growth and much more than that of the affordability index. Besides, the dispersion in both indicators of credit conditions is higher than that of the business cycle. Therefore, although the Euro area countries had to satisfy certain convergence criteria, being among them financial variables like the interest rates, the financial conditions in terms of volumes were far from being homogeneous at the monetary union inception. On the contrary, in the case of an affordability index the initial divergences were more similar to those of the business cycle.

In fact, the evolution of the credit indicators and house prices has been quite different since the monetary union creation. Although in the first years of the Euro, all the indicators pointed to a σ -convergence of the financial cycles in the area, by 2003 credit growth started to diverge, and by 2005 the credit to GDP gap. In both cases, the divergence started well before that of the business cycle, that in fact, by that time suggested a higher synchronization degree. At the years 2006 and 2009 the divergence of both credit indicators reached a maximum above the level observed in 1999. The financial crisis determined a process of rapid convergence, implying that both indicators are now below

²⁶ See, for example, Drehmann and Tsatsaronis, 2014.

²⁷ Symmetrically to the credit to GDP gap, we analyze here the deviation of this ratio from a trend obtained with a one-sided HP filter with smoothing parameter 400000.

their levels in 1999. On its side, the affordability index pattern of convergence/divergence has been more similar to that of the business cycle, although the rebound during the crisis has not exceeded the level observed at the monetary union inception.

Panel B of Figure 19 shows that in the expansionary years of the monetary union the co-movements in the credit growth among countries were positive, but the right skewness of the distribution was lower than that of the business cycle. After 2008 the distribution of the co-movements of credit growth has also flattened, appearing again quite high negative correlations. Thus, although the dispersion in credit growth has diminished after the financial crisis, it has been the result of very different paths in the different countries. The same chart using the credit to GDP gap provides a totally different outcome, a polarized distribution of highly negative and highly positive correlations before the recession and highly positive afterwards. These results can be interpreted as if the financial divergences before the crisis produced the illusion of a real convergence process that disappeared when they become unsustainable and the real adjustment took place (Praet, 2014).

Thus, it seems of crucial relevance to stabilize the financial cycle and to avoid financial divergences to arise in the euro area, also with the aim of not distorting the process of real business cycle convergence. Therefore, country specific macroprudential policies will have an important role to play in the euro area.

4. Policy lessons

The huge lending boom and bust that the Spanish economy underwent since it joined the euro is, probably, a unique experience. It is relevant for both policy makers and academics interested in learning more about macroprudential policies and the real working of some of its instruments (countercyclical capital or provision buffers). It also provides insights on how macroprudential tools interact with other very related policies: monetary, fiscal and microprudential supervision, in what we call a holistic view. The case of Spain is of particular importance because, as members of a large monetary union, monetary policy decisions are based on the average needs of a large number of countries.²⁸

²⁸ Some of the lessons may not be too different from the ones taken from other countries that have also endured a large banking crisis (US, UK,...) but still, the monetary union membership confers to the Spanish experience an additional value added.

In our view, this holistic approach to policy making at both macro and micro level allows to extract the following lessons:

- a. Lending standards are key for ensuring safety and soundness of banks as well as for reducing systemic risk. Banking regulation and supervision seems to have put more and more faith on the level of capital against the risk assumed by the bank. In a sense, Basel I, II and III have contributed to the view that capital ratios are a sufficient statistic of the soundness of a bank.²⁹ Of course, capital is very important to withstand shocks but it is a somehow static view of a bank solvency position. Credit risk is still the most important risk a bank faces. Problems in the banking sector in US, UK, Ireland or Spain during this crisis show it. Therefore, loan screening and granting policies by banks are crucial in order to avoid future problems. Banks' managers mistakes have been responsible for the magnitude of the banking crisis.³⁰ And differences among them are very important. This makes the monitoring of lending policies the key building stone of supervisory overhaul of bank soundness. Irrespective of the causes and levels of macroeconomic shocks, individual lending policies need to be monitored closely. We insist on this issue since it attracts, strange though it may sound, not much interest even after the banking crisis we have had. In a sense, Basel Core Principles are a non-weighted list of important issues. Maybe credit risk is too diluted among them.

- b. Macroprudential policy may not be equally important across countries and periods. It seems particularly more suited for (non-optimal) monetary areas than for countries that are fully in charge of monetary, fiscal and regulatory policies fully. Europe offers now a fertile ground to test this hypothesis with countries inside a large monetary zone with diverging business and financial cycle positions, while other countries outside the Eurozone, either inside the European Union (UK, Sweden) or outside it (Norway, Switzerland) may be experimenting pressures in some markets (e.g. housing) under a better economic shape. Similarly, periods where monetary policy is focused on avoiding significant output losses and where fiscal room of manoeuvre is almost inexistent, macroprudential tools may be the only instruments left to reduce systemic risk in both dimensions, along time and across banks.

²⁹ By the way, such contribution also comes from critics of Basel agreements that wish to see much higher capital ratios as a sufficient recipe to regulate banks and nothing else is needed.

³⁰ The theoretical underpinnings of those mistakes have been largely analyzed in the literature focused on disaster myopia, herd behavior, expense theory or even institutional hypothesis. A good cautionary tale can be found in Crockett (2000).

- c. There seems to be a limit for what macroprudential tools can achieve alone. At some point there may be an intrinsic need to top up them with a monetary policy tool. Macroprudential tools are deeply enshrined with microprudential tools that have an impact on banks, that is, using macroprudential tools, usually means increasing or decreasing capital (maybe also liquidity) requirements. Changes in those requirements are usually protracted in order to avoid big shifts in banking policies that could have unintended real consequences. The usage of such macroprudential tools may be enough to control systemic risk, in case the lending cycle is not yet at full swing. However, if concurrent circumstances do not help to control the lending cycle, macroprudential tools may be not enough. A paradigmatic example can be Spain where credit to the private sector was growing by 2005 at 25% year on year with real estate exposures increasing at 45% year on year and with huge foreign funds inflows via securitizations of assets (e.g. Spanish RMBS and covered bonds being bought by foreign investors). A dynamic provision taking out 20% of net operating income of Spanish banks and challenged by accountants and some security regulators seems a good but easy-to-dwarf instrument to cope with the huge lending expansion. It could be that dynamic provisions, topped up by selective increases in capital requirements and/or quantitative limits to real estate exposures, may have had a more significant impact, but given the strength of the credit growth, probably interest rates and targeted increases in taxation were the only instruments powerful enough to cool down the excessive developments in the housing and credit segments. Viewed this way, the interest rate may have been a very powerful macroprudential instrument, rough but able to reach all the cracks (Stein, 2012).³¹
- d. Macroprudential tools are in line with a responsible and prudent way of conducting private and public affairs: build up buffers in good times to be used in bad times. A very simple but powerful idea which, of course, is not new and is very close to automatic stabilizers in fiscal policy. This extended experience in the design of fiscal tools (i.e., the selection tax basis that, like firms' profits, are pro-cyclical but much more volatile than the business cycle, or tax rates that, like the income tax, are progressive) should be taken on board now that the development of macroprudential tools is in their first steps, even though the average duration of a financial cycle is larger than that of the business cycle.

³¹ Conversely, it could be argued that the rise in interest rates previous to the crisis was too abrupt and did not factor in the impact that such a significant increase in rates could have on asset prices, collateral values and wealth.

e. Macroprudential tools aims are different from microprudential ones. Therefore, they probably should not be in charge of bank supervisors directly. However, given the fact that they use microprudential tools (capital and liquidity ratios) that may have a macroprudential usage too, the degree of coordination should be as high as possible, in particular given the importance of monitoring the lending standards of each bank. The countercyclical capital buffer is a perfect example. During good times the buffer increases, helping to tame the lending cycle and/or building a nest that can be used in bad times. Basel III proposal is relatively automatic in terms of the build up as a function of the distance of the current level of credit to GDP to its trend. To be effective, the countercyclical capital buffer needs to be released in bad times, so that bank capital requirements are softened and banks do not feel the need to comply with them by trimming lending. Bank micro supervisors may be against releasing bank capital in bad times. If the microprudential view dominates, banks will reduce lending, unless convinced or forced to raise capital at a not very convenient time. Second round effects of that kind of decisions may be a deepening of the recession that could erode the capital raised initially, leading to a self-defeating policy. From a macroprudential point of view, it is crucial to increase capital in good times so that banks have margin to reduce it in bad times without hurting too much the economy. The evidence we have for the Spanish case is absolutely compelling on that policy and the benefits it brings.³² Similar to automatic fiscal stabilizers, countercyclical macroprudential tools should be automatic in both the build up and the release, if we want them to perform a macro service. This does not imply eliminating the possibility of adopting discretionary decisions, but in exceptional circumstances and conditioned to a predefined plan for its release. Probably the best way to achieve separation and coordination of micro and macroprudential policies is by allocating the latter to a central bank, which is used to measure and manage the business cycle as well as systemic risk. If the central bank is also responsible for micro banking supervision (as, for instance, it is the ECB since November 2014 once the SSM has been set fully in motion, or is the case of the Bank of England now), the potential conflicts of interest are at least internalized. In any case, it is still important that inside a central bank with bank supervision, both areas, macro and microprudential supervision are separated so that one cannot stifle the other and both views are heard inside the central bank.

³² See, Jiménez et al (2013).

- f. A significant amount of modesty is needed when designing and putting in place macroprudential tools. The holistic approach, precisely, hints that macroprudential tools are just a part of the toolbox of the policy maker and, probably, not the most powerful ones. The task requires a permanent monitoring effort, as long as most of the measures adopted will be subject to regulatory arbitrage, leakage, etc

5. Conclusions

This is a paper that tries to extract some lessons from the financial cycle observed in the Spanish economy after the monetary union inception. Macroprudential policies interact with monetary and fiscal policies and regulatory/supervisory policies. Macroprudential tools can be useful but if the size of the financial imbalances that are growing is too high, they need the help of the other three policies. Otherwise, leaving untamed a financial cycle can have huge long lasting negative consequences for the real economy, output and employment levels.

We do not find support for strict separation of monetary policy and macroprudential policy. On the contrary, the experience in Spain shows the need to have a permanent dialogue between both policies. If monetary policy is not available or not in line with what is needed in a particular country, then fiscal policy and banking supervision stance become also key policy instruments.

Fiscal tools are quite wide. Therefore, it seems that there is ample room to choose one or several instruments that can be targeted for special markets where tensions are being built. One example is using housing or land taxes to throw sand in the wheels of very rapid increases in prices. If the concern is the amount of leverage in the economy, a more structural approach may be needed (i.e. think carefully about the tax incentives of debt versus equity).

Finally, the close scrutiny of banks by supervisors should be useful for taking preemptive actions at a time where the lending boom is still not fully unleashed. Lending standards, collateral valuation, concentration risk policies, both at the name, industry and geographical level, as well as the close monitoring bank managers' incentives are key building blocks of a sound banking sector, at the level of each bank as well as at the system level.

If all the four policies work in the same direction, there is a significant possibility of controlling both the business and the financial cycle. If they work

in opposite directions or policy makers, for whatever reasons, do not want to activate them, the results could be damaging for the real economy. The recent crisis in Spain and abroad shows this crudely.

It would be a huge waste not to learn from this crisis that macroprudential tools can be useful in future. But it would be also a huge waste not to learn that at some point they are not enough. Monetary, fiscal and microprudential supervisory policies need to be activated to dampen excessive growth or to get out of a deep recession.

References

Angeloni, I. (2014): "European Macroprudential Policy from Gestation to Infancy," *Financial Stability Review*, Banque de France, N° 18, April, pp. 71-84.

Akin, O., J. García Montalvo; J. García Villar; J.L. Peydró; J.M. Raya (2014): "The real estate and credit bubble: evidence from Spain," *Journal of the Spanish economic association*, Vol. 5, pp. 223-243.

Arce, O. And J.D. López-Salido (2011): "Housing Bubbles," *American Economic Journal: Macroeconomics*, Vol. 3, N° 1, January, pp. 212-241.

Arce, O., J.M. Campa and A. Gavilán (2013): "Macroeconomic Adjustment under Loose Financing Conditions in the Construction Sector," *European Economic Review*, Vol. 59, April, pp. 19-34.

Basel Committee on Banking Supervision (2010): "An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements," *Consultative Document*, August.

Basel Committee on Banking Supervision (2012): "Core Principles for Effective Banking Supervision," September.

Bénabou, R. (2009): "Groupthink: Collective Delusions in Organizations and Markets," *National Bureau of EOR*, Working Paper N° 14764, March.

Benigno, P. and J.D. Lopez-Salido (2006): "Inflation Persistence and Optimal Monetary Policy in the Euro Area," *Journal of Money, Credit and Banking*, Vol. 38, N° 3, April, pp. 587-614.

Blanchard, O. and J. Gali (2007): "Real Wage Rigidities and the New Keynesian Model," *Journal of Money, Credit and Banking*, Vol. 39, N° 1, pp. 36-65.

Bordo, M.D. and J.G. Haubrich (2012): "Deep Recessions, Fast Recoveries, and Financial Crises: Evidence from the American Record," *NBER Working Paper*, N° 18194, June.

Borio C., P. Disyayat and M. Juselius (2013): "Rethinking Potential Output: Embedding Information about the Financial Cycle," *BIS Working Papers*, N° 404, February.

Borio, C. (2014): "Monetary Policy and Financial Stability: What Role in Prevention and Recovery?," *BIS Working Papers*, N° 440, January.

Bover, O. (1992): "An Empirical Model of House Prices in Spain (1976-1991)," *Documento de Trabajo*, N° 9217, Banco de España.

Castro F., A. Estrada, P. Hernández de Cos and F. Martí (2008): "Una Aproximación al Componente Transitorio del Saldo Público en España," *Boletín Económico del Banco de España*, June, pp. 71-81.

Claessens, S., M.A. Kose and M.E. Terrones (2011): "How Do Business and Financial Cycles Interact?," *IMF Working Paper*, N° 11/88.

Crockett, A., 2000, "Marrying the Micro- and Macro-prudential Dimensions of Financial Stability," Eleventh International Conference of Banking Supervisors, held in Basel, 20-21 September 2000.

Delarosière, J. de (2009): "Report of the High-level Group on Financial Supervision in the EU". Brussels, February.

Drehmann, M. and K. Tsatsaronis (2014): "The Credit-to-GDP Gap and Countercyclical Capital Buffers: Questions and Answers," *BIS Quarterly Review*, March, pp. 55-73.

Estrada, A. and I. Argimón (2014): "Impact Analysis on the Structural Measures Improving the Resilience of EU Credit Institutions," mimeo.

Estrada, A., J. Galí and D. López-Salido (2013): "Patterns of Convergence and Divergence in the Euro Area," *IMF Economic Review*, Vol. 61, iss. 4, pp. 601-630.

Foote, Ch. L., K. S. Gerardi and P.S. Willen (2012): "Why Did so Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis", *FRB Boston and NBER*, April.

Giannone, D., M. Lenza and L. Reichlin (2010): "Business Cycles in the Euro Area," in *Europe and the Euro*, ed. by Alberto Alesina and Francesco Giavazzi (Chicago, IL: University of Chicago Press), pp. 141-169.

Haavio, M. (2012): "Financial Cycles and Business Cycles: Some Stylized Facts," *BoF Online*, N° 1-2012.

Hofman, B. and B. Bogdanova (2012): "Taylor Rules and Monetary Policy: a global "Great Deviation?," *BIS Quarterly Review*, September, pp. 37-49.

International Monetary Fund (2013): "The Interaction of Monetary Policy and Macroprudential Policies."

Jeanne, O. and A. Korinek (2014): "Macroprudential Policy beyond Banking Regulation," *Financial Stability Review*, Banque de France, N° 18, April, pp. 163-170.

Jiménez, G. and J. Saurina (2006): "Credit cycles, credit risk, and prudential regulation," *International Journal of Central Banking*, N° 2, Vol. 2, pp. 65-98.

Jiménez, G., A. Mian, J.L. Peydró and J. Saurina (2011): "Local versus aggregate lending channels: the effects of securitization on corporate credit supply," *Banco de España Working Papers*, N° 1124.

Jiménez, G., S. Ongena, J.L. Peydró, and J. Saurina (2012): "Credit Supply and Monetary Policy: Identifying the Bank Balance-Sheet Channel with Loan Applications," *American Economic Review*, N° 5, Vol. 102, August, pp. 2301-2326.

Jiménez, G., S. Ongena, J.L. Peydró, and J. Saurina (2013): "Macroprudential policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments," *Barcelona GSE Working Papers Series*, N° 628.

Jiménez, G., S. Ongena, J.L. Peydró, and J. Saurina (2014): "Hazardous Times for Monetary Policy: what do Twenty-three Million Bank Loans Say about the Effects of Monetary Policy on Credit Risk-Taking?," *Econometrica*, N° 82, Vol. 2, March, pp. 463-505.

Jordà, O., M. Schularick and A. M. Taylor (2014): "Betting the house", HKIMR Working Paper N° 31/2014.

López-García, M.A. (2004): "Housing, Prices and Tax Policy in Spain," *Spanish Economic Review*, N° 6, pp. 29-52.

Mayer, C., K. Pence and S. Sherlund (2009): "The Rise in Mortgage Defaults," *Journal of Economic Perspectives*, N° 23, Vol. 1, pp. 27-50.

Praet, P. (2014): "The Financial Cycle and Real Convergence in the Euro Area," speech at the Annual Hyman P. Minsky Conference on the State of the US and World Economies, Washington D.C., April.

Piketty, T. and G. Zucman (2014): "Capital is Back: Wealth-Income Ratios in Rich Countries 1700-2010," *The Quarterly Journal of Economics*, May, pp. 1255-1310.

Rajan R. (2005): "Has financial development made the world riskier?," Proceedings of the Jackson Hole Conference.

Saurina, J. (2009a): "Dynamic provisioning. The experience of Spain," *Crisis Response. Public Policy for the Private Sector*, Note N° 7, July, The World Bank.

Saurina, J. (2009b): "Loan Loss Provisions in Spain. A Working Macroprudential Tool," *Revista de Estabilidad Financiera*, Banco de España, N° 17, pp. 11-26.

Schularick, M. and A. Taylor (2012): "Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008", *American Economic Review*, N° 102 (2), pp. 1029 - 1061.

Shin, H.S. (2012); "Global banking glut and loan risk premium," *IMF Economic Review*, N° 60, pp. 155-192.

Stein, J. (2012): "Monetary Policy as Financial-Stability Regulation," *Quarterly Journal of Economics*, N° 127 Vol. 1, pp. 57-95.

Svensson, L.E.O (2014): "Why leaning against the wind is the wrong monetary policy for Sweden," working paper.

Trucharte, C. and J. Saurina (2013): "Spanish dynamic provisions: main numerical features," *Banco de España Financial Stability Journal*, November, pp. 11-47.

Annex 1. Derivation of Taylor rule

The Taylor rule has been obtained using a relatively standard procedure (Hofmann y Bogdanova, 2012). The concrete expression is the following:

$$i = c + r^* + \pi^* + 1.5 (\pi - \pi^*) + 0.5 (y - y^*)$$

where i is the relevant interest rate for the monetary policy, r^* the long term real interest rate, π the inflation, π^* target inflation, y the GDP and y^* its potential level. c is the constant that makes the residuals of this relation zero in the average of the sample period.

Thus, this expression shows how the monetary policy intervention interest rate increases when positive deviations of inflation from its target arise. This coefficient should be higher than 1, to guarantee that real interest rates increase that inducing a downward adjustment in demand. Interest rates also increase when the output gap is positive, to drive demand to potential output.

In the empirical approximation two inflation indicators are considered: headline and underlying. Underlying inflation excludes the prices of energy products and non-elaborated food, which allegedly react more to specific supply shocks than to demand pressure. That way we adopt a neutral view on how monetary policy should react to sectoral supply shocks that could imply second round effects on other costs in the future. The inflation target corresponds to that announced by the corresponding central bank; when such a target did not exist, an average of inflation in the sample period is used.

We consider three estimates of potential growth: i) the H-P filter with smoothing parameter 10; ii) H-P filter with smoothing parameter 100 ; and the estimate of the IMF, which relies on a structural model.³³ The first statistical filter implies shorter and less persistent cycles compared to the second one. The IMF procedure is more robust from an economic perspective, as it considers the informational content of other variables to estimate potential growth.

Finally, the long term interest rate is proxied with the growth rate of potential output. As, theoretically, potential growth should be equal to the relevant user cost of capital, a constant is allowed in the Taylor rule to capture the depreciation rate and the risk premium investors have to pay. In this empirical application, that constant shows a structural break in all the countries analyzed in the new millennium.

³³ These estimates can be found in: <http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>.

Figure 1. Real GDP evolution in selected countries

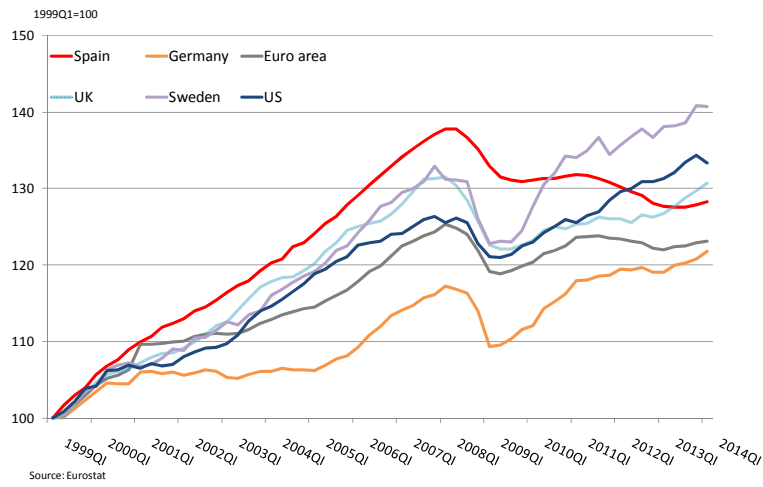
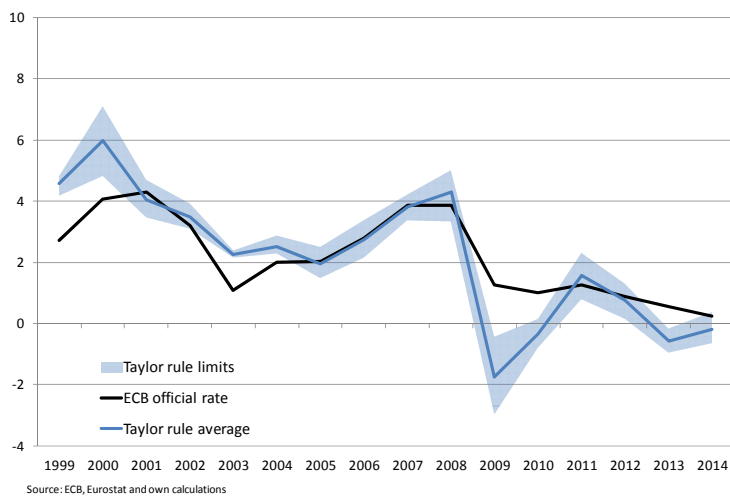


Figure 2. The Taylor rule

A. Euro Area



B. Spain

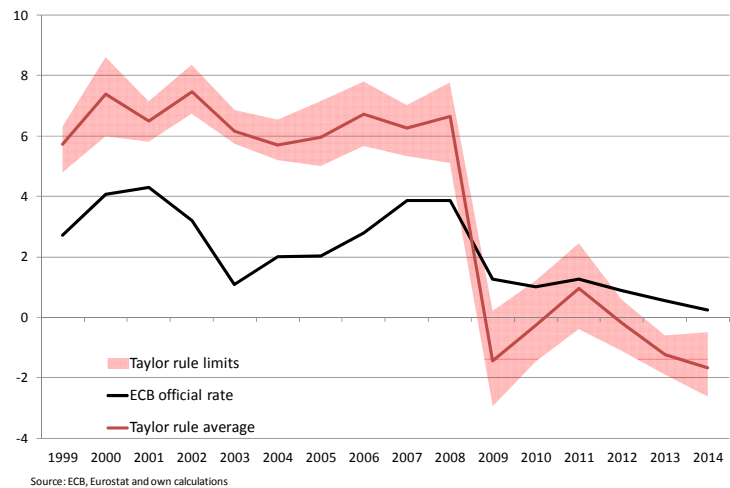
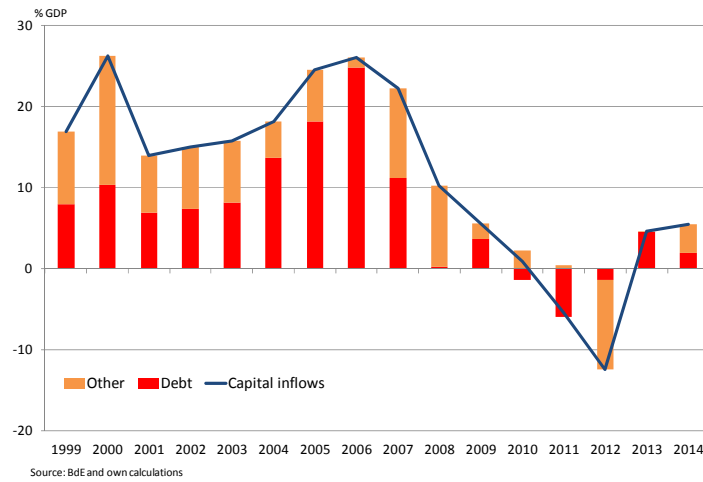


Figure 3. External accounts of the Spanish economy

A. Capital inflows



B. External debt

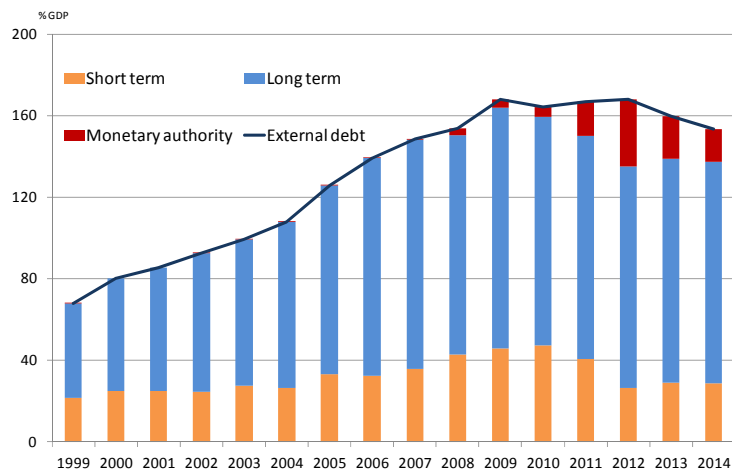


Figure 4. Non-financial private credit by sectors as a percentage over GDP

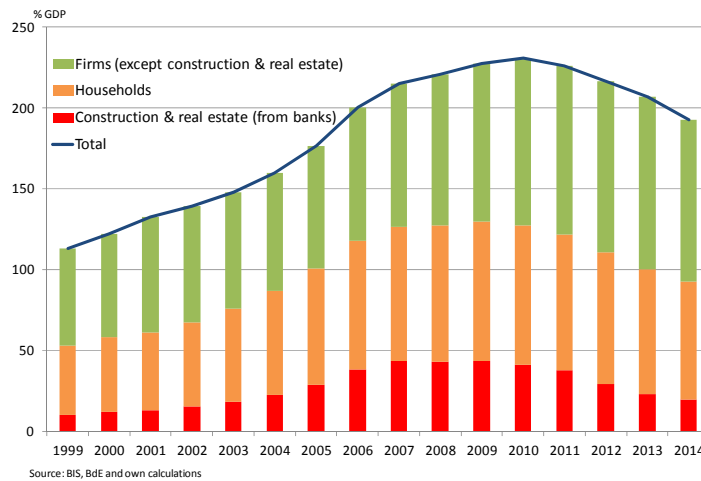


Figure 5. A surge in credit

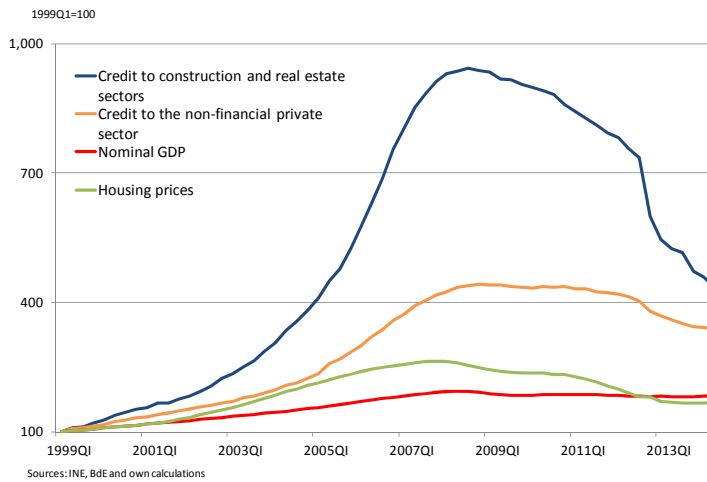


Figure 6. Non-performing loans ratio in the non financial private sector by credit institution in selected periods

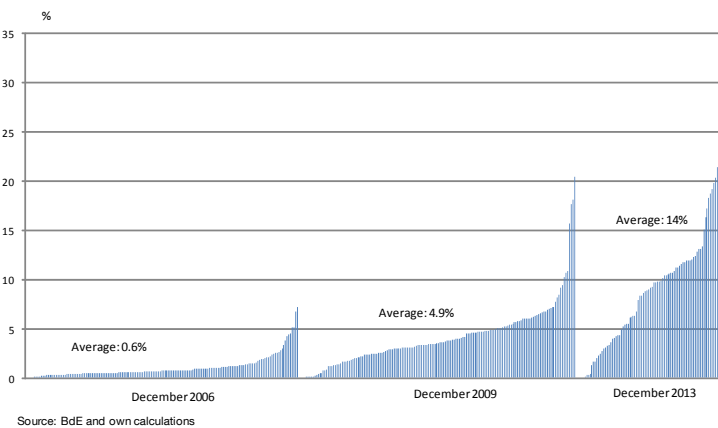


Figure 7. Non-performing loans ratio in construction and real estate by credit institution in selected periods

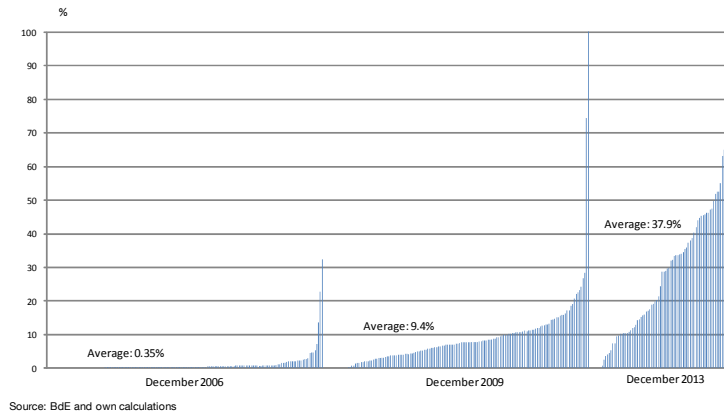


Figure 8. Non-performing loans ratio in households mortgages and real estate by credit institution in selected periods

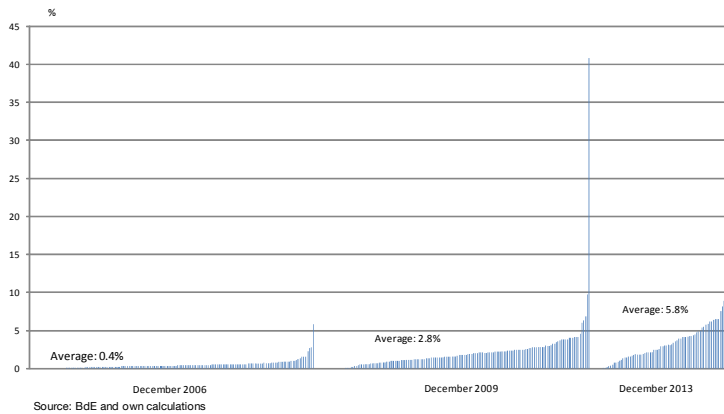


Figure 9. Construction and real estate exposures as a percentage of loans to the non-financial private sector

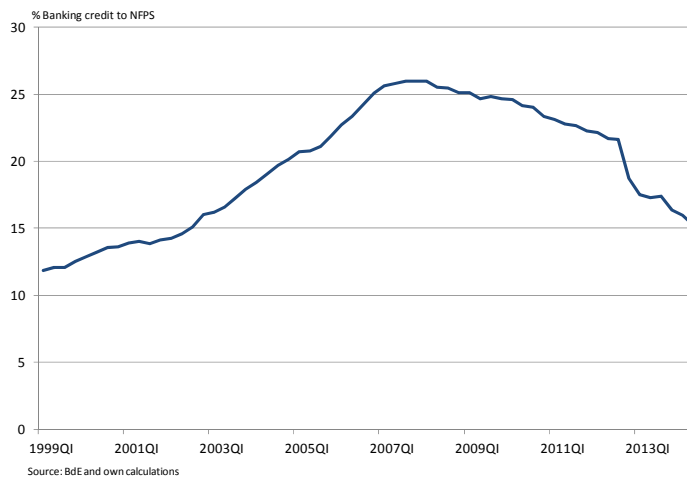


Figure 10. Credit growth in the construction and real estate activities

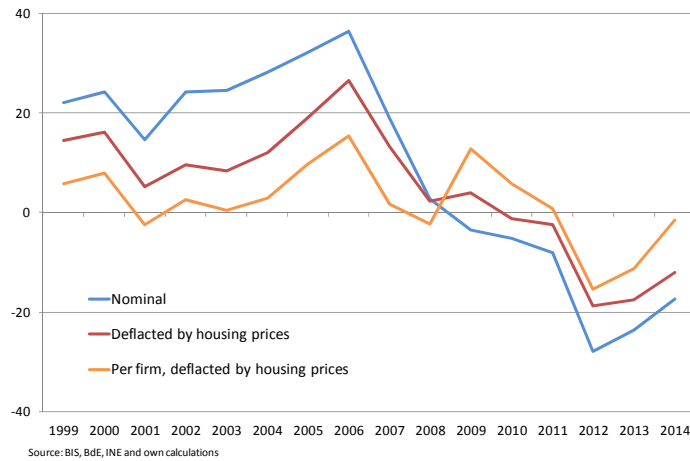


Figure 11. Public debt over GDP

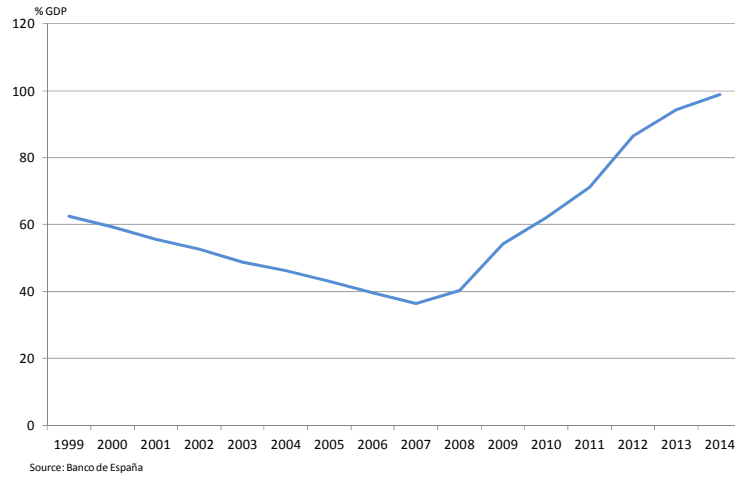


Figure 12. Balances of the public sector over GDP

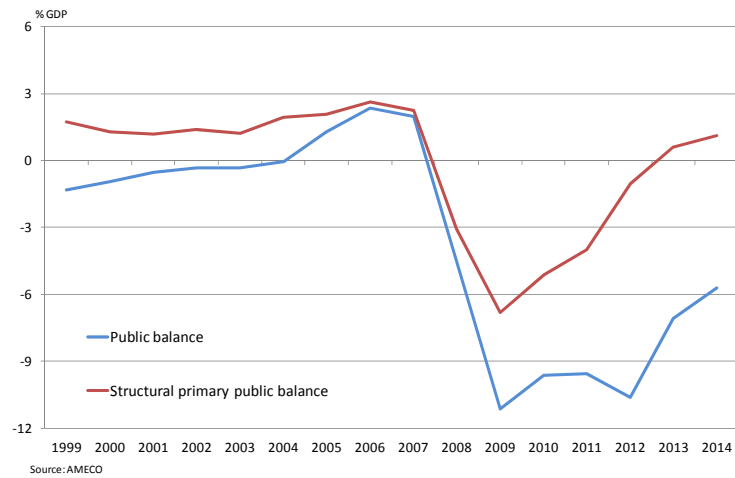


Figure 13. Public revenues and expenditures growth rates

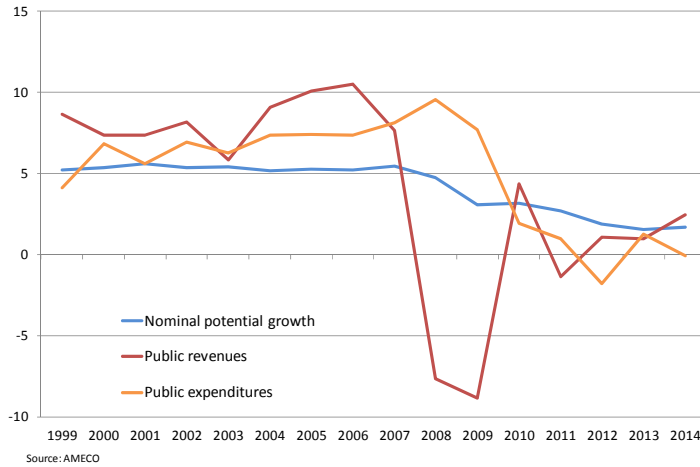


Figure 14. House prices and transactions and income tax deduction

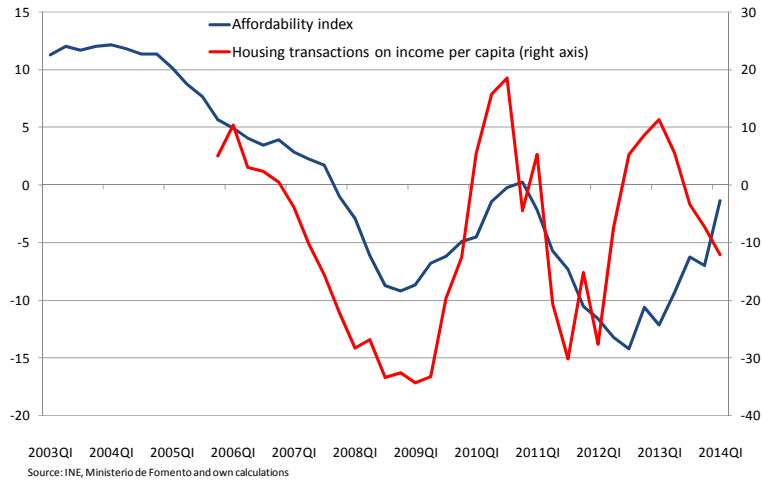


Figure 15. House prices and transactions by regions after transaction tax changes

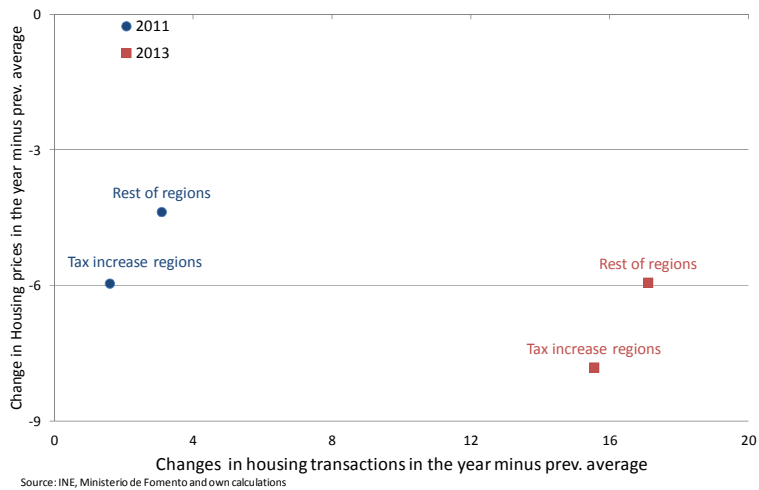


Figure 16. Business and credit cycles and non-performing loans ratio

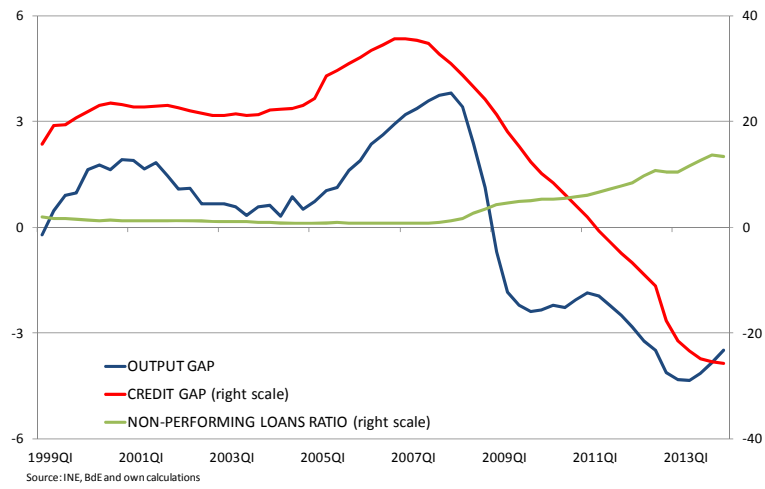


Figure 17. Provisions of the Spanish credit institutions as a percentage over total credit

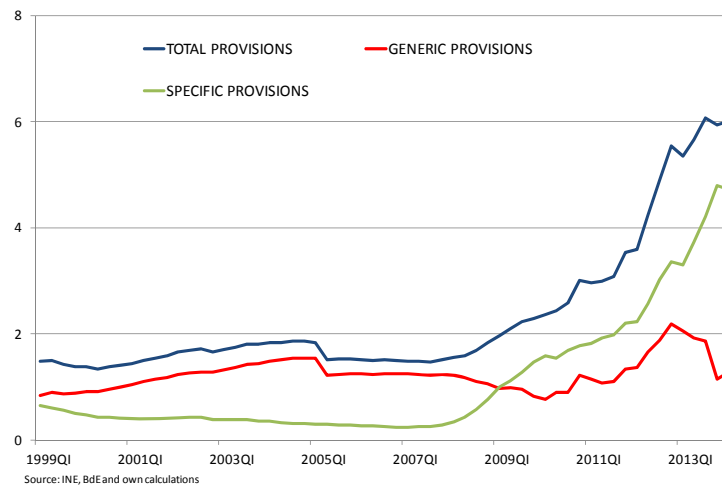
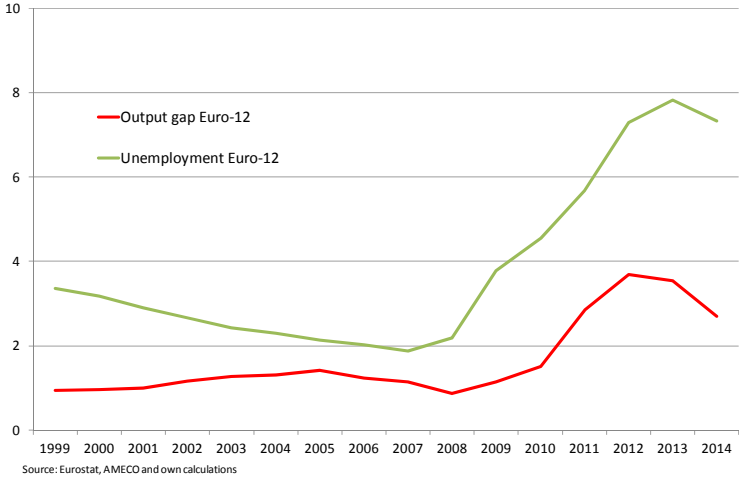


Figure 18. Business cycle comovements in the Euro area

A. Real dispersion



B. Cross-country correlations in the output gaps

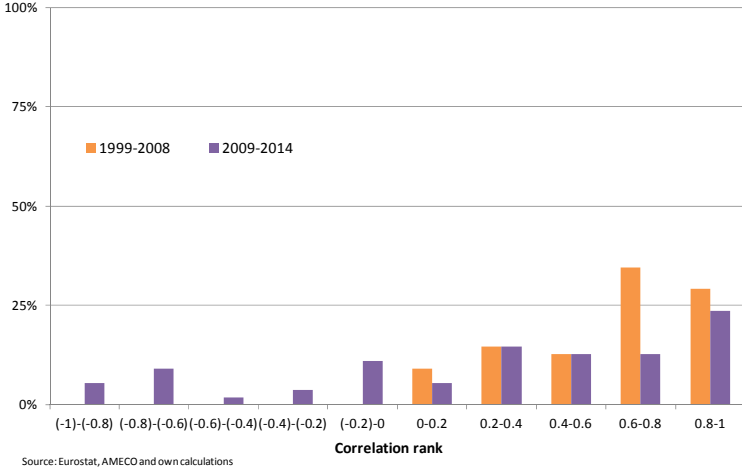
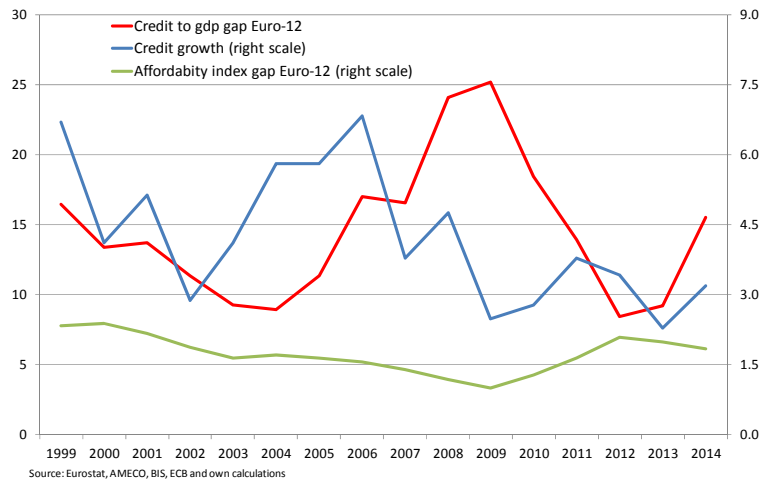


Figure 19. Financial cycle comovements in the Euro area

A. Financial dispersion



B. Cross-country correlations in the credit growth

