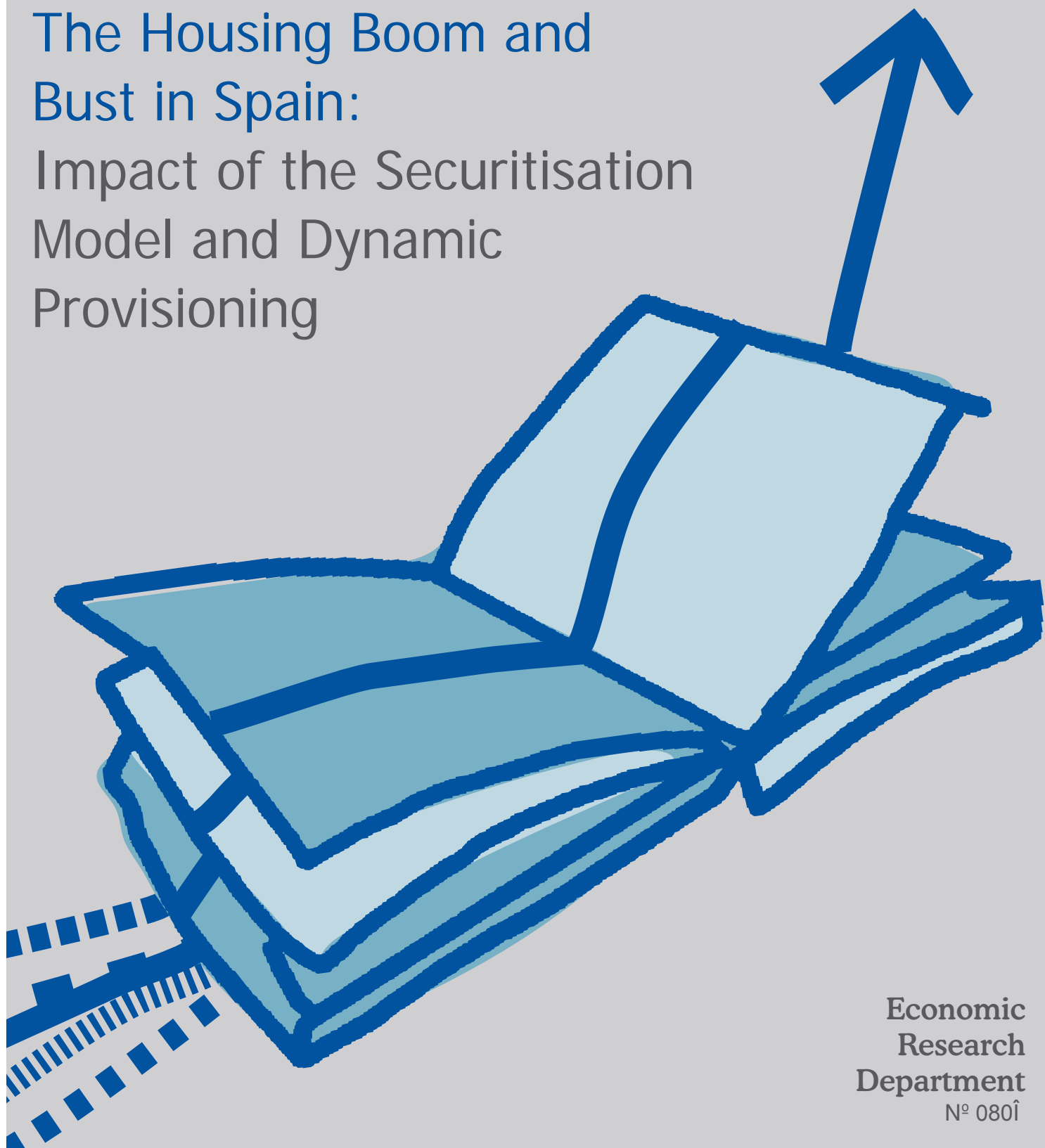


WORKING Papers

The Housing Boom and
Bust in Spain:
Impact of the Securitisation
Model and Dynamic
Provisioning



The Housing Boom and Bust in Spain: Impact of the Securitisation Model and Dynamic Provisioning

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Abstract

In this paper we explore some lessons from the Spanish housing boom and the incipient bust from the point of view of the usefulness of the regulatory approach, with particular regard to dynamic provisions and the regulatory treatment of securitisation. First, we describe the main features of the recent housing cycle. Second, we summarize the Spanish securitisation model. Third, we deal with dynamic provisions and in the last section, we present some conclusions.

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1. Introduction

The subprime crisis initiated in the US has affected in particular those countries where the previous housing boom was most pronounced, Spain among them. In these countries the housing bubble was accompanied by a series of common traits: a credit expansion, a reduction in the saving rate and a current account deficit.

The Spanish case is interesting for several reasons: (i) the existence of a dynamic provisioning system aimed at smoothing the pro-cyclical pattern of provisions; (ii) a model of securitisation in which originators retained the exposure and were obliged to put aside capital requirements and (iii) the participation in the euro area, which implies that, as compared to previous episodes, monetary policy is no longer an adjustment tool.

In this article we explore some lessons from the Spanish housing boom and the incipient bust from the point of view of the usefulness of the regulatory approach, with particular regard to dynamic provisions and the regulatory treatment of securitisation. First, we describe the main features of the recent housing cycle. Second, we summarize the Spanish securitisation model. Third, we deal with dynamic provisions and in the last section, we present some conclusions.

1. The recent housing market cycle in Spain

From the mid 1990s to 2007 Spain enjoyed an extraordinary housing boom, which multiplied housing prices by a factor of three. The rate of increase of house prices peaked in 2004 above 15% in annual terms and experienced a slowdown thereafter, to an only slightly positive rate in mid- 2007, when the US subprime crisis accelerated the then ongoing correction. Recent estimates show that price changes have already been in the negative territory in mid-2008, although it is widely assumed that official figures underestimate the true extent of the housing correction.

There were a number of common factors to other countries, such as the US, UK, Ireland, Australia, and others, but also some relevant and more specific factors that explain this boom for Spain: (i) Membership of the euro area implied a sharp reduction in real interest rates of around 4 percentage points, which fostered borrowing, as well as a change of regime in terms of nominal stability, all of which allowed for a substantial lengthening of maturities for mortgage borrowing (from 10 to 28 years between 1990 and 2007); (ii) demographic factors also played a role, due to the access to the market of the baby boom generation (which in Spain was delayed as compared to other EU countries) and an explosion of immigration (estimates show an entry of 4 million immigrants in the last 10 years which corresponds to 10% of the total population); the purchase of secondary homes by other EU countries' citizens, especially in the Mediterranean

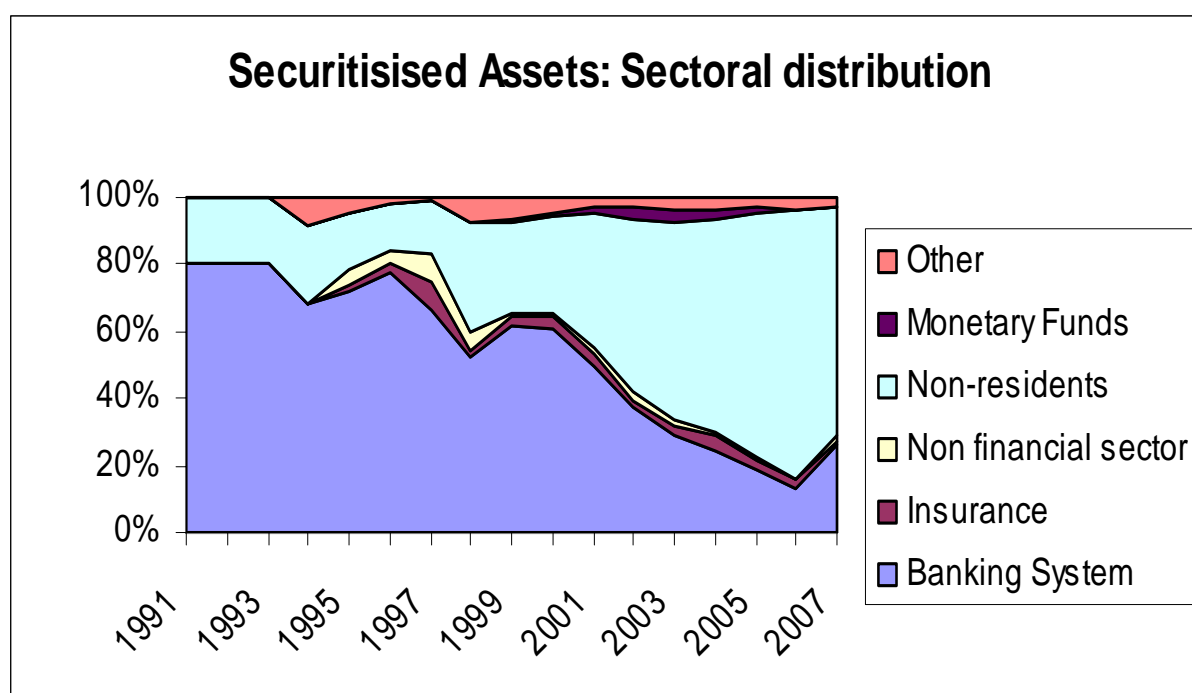
coast (net foreign investment in housing ranged between 0,5% and 1% of Spanish GDP for each year between 1999 and 2007).

This housing boom was reflected in a credit boom, with rates of growth that peaked above 25% in 2006, of which 15 points was related to housing, construction and property development. Credit growth decreased sharply since 2007 and is expected to reach 5% in 2008, below nominal growth of GDP.

Some interesting characteristics of this housing boom in Spain are (i) the coincidence of the remarkable rise in prices with a huge increase in supply. Dwellings built yearly between 2000 and 2007 averaged 600,000. This number exceeded for some years, new construction in the other 4 big EU countries combined i.e. Germany, France, UK and Italy; (ii) the predominance of Adjustable Rate Mortgages (ARM), which account for around 98% of the stock of mortgages; and (iii) the relatively small incidence of home equity withdrawals, which experienced however a small increase since 2003.

Although the rate of growth of house prices was decreasing since 2004, the impact of the subprime crisis accelerated significantly the ongoing correction. There were 3 channels of contagion from the US to the rest of the world: (i) direct exposure to subprime losses, which in Spain were negligible, due to the very limited need of Spanish banking institutions to look for investment opportunities abroad; (ii) funding liquidity dry-up, both in the European interbank market and in the wholesale markets for MBS and other mortgage-related paper, which in Spain had a huge impact, given the high dependency of Spanish institutions on external funding (see chart 1); (iii) the expectations channel, which accelerated price corrections.

Chart 1



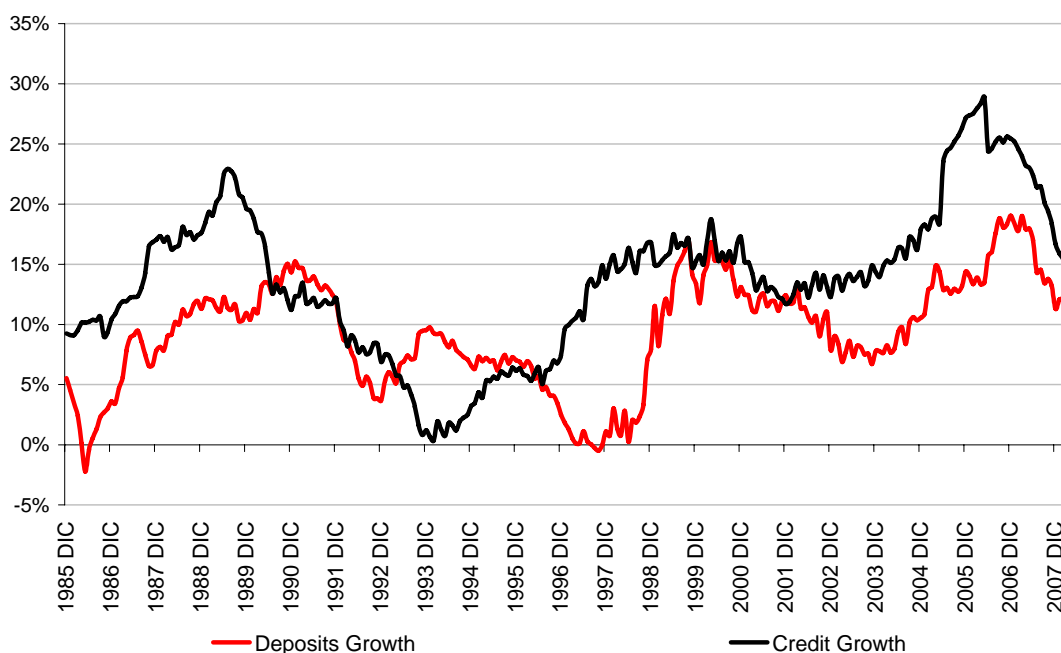
Although the bust of the housing bubble is only incipient, it is interesting to assess to what extent the two most characteristic features of the Spanish regulatory approach to the credit and housing booms (dynamic provisions and the treatment of Off-Balance Sheet Entities) would imply a significant difference in the adjustment to the downturn phase.

2. Securitisation in Spain

As opposed to other systems, where securitisation was a mechanism to transfer risk, in Spain it was related to funding purposes. As can be seen in chart 2, for a very long period (but particularly since the inception of the Euro area in 1998) the growth of credit systematically exceeded that of deposits, by more than 5 percentage points during most of the period.

Chart 2

Growth in deposits and credit by Spanish financial institutions



The regulation of securitised assets was rather conservative in Spain (although increasingly flexible). The main reason probably was the focus of the supervisor on consolidated accounts since the banking crisis of the late 70s and early 80s. Covered Bonds (CBs) were regulated for the first time in 1981, and for many years were the only securitisation mechanism available, which implied that traditional securitisation remained in banks' balance sheets. In 1992 Mortgage Securitisation Funds were created, with the possibility of issuing Mortgage Backed Securities, part of which could be

held off-balance sheet. In 1998 Asset Securitisation Funds were allowed to issue paper backed by other assets, not only mortgages. In the early years of this decade there was an incipient trend to issue Off-Balance Sheet Securitised paper, but only until 2004. The new accounting regulation adopted then, in anticipation of International Financial Reporting Standards (IFRS), established that financial institutions that retain a significant exposure - defined in rather strict terms - to these ABS would be treated from a consolidated viewpoint by the supervisor. This approach reduced drastically the incentives for Off-Balance Sheet securitisation. The new mortgage law adopted in December 2007 allowed for more flexibility in the securitisation process, but at the same time increased the requirements for over-collateralisation.

As a result of this approach, there were no incentives to disintermediate in order to reduce capital requirements and any other kind of regulatory arbitrage. In fact, off-Balance Sheet securitisation in strict terms only accounts for about 6-7% of total securitisation in Spain. Securitisation took the form of plain vanilla instruments. Management remained in the hands of originators (which provide credit enhancements and typically keep the lower quality tranches) and the Bank of Spain focused on consolidated accounts. Most of the securities issued were purchased by non-residents, in particular other euro-area institutions. It is important to note that this approach to a certain extent anticipated the impact of the new IFRS and Basel-II, whose combined effect will reinforce consolidated supervision.

2. Dynamic provisioning

The rationale behind mechanisms such as dynamic provisioning³ is basically to reduce the inherent procyclicality of the banking system. The amplification of the economic cycle by the financial sector has long been analyzed in the economic literature. The “financial instability hypothesis” developed by Kindleberger (1978) and Minsky (1982) argue that the financial system is inherently unstable due to its tendency for “excessive” accumulation of debt in times of plenty, which is corrected during recessions through deflation and economic crisis, resulting in an amplification of business cycle fluctuations. A second strand of the literature concentrates on the so-called disaster myopia, which occurs when it is impossible to assign a probability to a future shock (Guttentag and Herring, 1984)⁴. A third one is herd behaviour according to which credit mistakes are judged more leniently if they are common to the whole industry (Rajan, 1994). Fourth, the classical principal-agency problem between bank shareholders and managers can also feed excessive volatility

³ Dynamic provisioning is understood here as any mechanism designed to smooth the contemporary negative relationship between provisions and GDP/ credit growth.

⁴ For more details on these different schools of thought see Fernandez de Lis, Martinez Pages and Saurina. (2000) and Jimenez and Saurina (2005).

into loan growth rates if managers' objectives are more related to credit growth -- in order to increase the social presence of the bank (and its managers) or the power of managers in a continuously enlarging organisation -- instead of profitability targets. Finally, Berger and Udell (2003) have developed a complementary hypothesis, called "the institutional memory", according to which as time passes since the last loan bust, loan officers become less and less skilled in order to avoid granting loans to high risk borrowers, due to the retirement of experienced loan officers and a genuine loss of memory.

There is less consensus, however, as to how the authorities should react to the procyclicality of the financial system and, thereby, the relation between its functioning and economic collapse. Some think that booms and busts cannot be prevented (in other words, the financial system is inherently procyclical because risk is pro-cyclical, and regulators cannot – or indeed should not – do much to avoid it). Others argue that regulation and supervision can improve the situation by limiting this cyclical bias (or at least avoid creating additional incentives for a pro-cyclical behaviour stemming from regulation itself). A few even give a role to monetary policy.

In the case of Spain, a few additional reasons explain why regulators are especially sensitive to the risks of pro-cyclicality. First, the Spanish economy has generally been quite volatile compared to European standards. This is specially the case for bank lending, which has been subject to large swings following the economic cycle. Second, the EMU convergence process in the mid-90s and the euro adoption since 1998 led to an unprecedented credit expansion due to the reduction in real interest rates and the gains in terms of nominal stability, against which the Bank of Spain had no instruments to react, due to the loss of monetary and exchange rate policies. The fact that the Bank of Spain has traditionally been in charge of both monetary and supervisory policies explains that the approach to credit growth and bad loans (and their links to economic cycles) has been integral, implying that the loss of monetary policy (and the perception that the ECB stance in the early years of EMU was too loose for the Spanish economy's needs) was counteracted by the adoption of a more anti-cyclical regulatory approach.

All in all, the strong procyclicality of credit in Spain and its negative consequences in several instances explains the Bank of Spain decision to introduce dynamic provisioning. At that time, there was the concern that banks' loan portfolios continued to expand with very low loan loss provisions. In other words, provisions would not keep pace with potential credit losses, which were latent in new lending, since the statistical probability of losses attached to any credit portfolio is incurred at the time the loan is granted although it may (or may not) materialize later. Probably, the closest example is mathematical reserves put aside by insurance companies.

The statistical provision was approved in December 1999, but came into effect in July 2000. It was added to the two previously existing provisions (generic and specific). Banks assets were classified according to risk categories, either in a standard method (whose parameters ranked from 0% for public sector debt to 1.5% for credit card lending or current account overdrafts) or through internal methods, subject to supervisory evaluation. The statistic provision was charged quarterly, based on the difference between a calculation of latent exposure (depending on the credit stock) and the specific provisions. This implied that statistical provisions for a given period could be positive or negative, depending on credit growth (with a positive coefficient) and contemporary bad loans (with a negative coefficient). When statistical provisions accumulate they generate a Fund, with an upper limit (300% of the coefficient multiplied by the exposure).

The expected effect of the statistical provision was to smooth provisions along the cycle. Under the old system provisions were strongly procyclical, implying that provisioning efforts were higher at the recessions (for example in 1992-93, at the time of the ERM crisis⁵). The anticyclical behaviour of the statistical provision was expected to counterbalance this effect and result in a more evenly distributed provisioning effort along the cycle.

At the time of its introduction, most of the Spanish financial industry criticized the statistical provision on the grounds that it implied a competitive disadvantage vis-à-vis similar institutions in the single European market.

After the introduction of the statistical provision, the upper phase of the economic cycle turned out to be much stronger and longer than anticipated. This led to a rapid increase in statistical provisions, whereas specific provisions stabilised at very low levels in an environment of historically low non-performing loans. Around 2004 there was a perception that the accumulation of statistical provisions was probably excessive and that the upper limit of the statistical Fund (which was initially based on very rough estimates, partly due to the lack of previous experience with this instrument) was too high.

At the same time, the Bank of Spain was being increasingly criticized by standard-setters of international accounting rules for applying a mechanism that favoured profit smoothing. Their reasoning was that dynamic provisioning runs counter the “fair value” principles of International Accounting Standards. To correct this excessive accumulation and to counter the criticisms of accountants, a new accounting regulation was

⁵ After the Danish referendum that rejected the Maastricht Treaty, and in a context of deep exchange rate misalignments and divergent current account positions, the British Pound and the Italian Lira exited the ERM thus discontinuing the link with the Deutsche Mark, and the Spanish Peseta was devalued 3 times between the summer of 1992 and the summer of 1993 (and a fourth time in 1995).

adopted in 2004, which merged the statistic and the generic provisions⁶. The new system maintained most features of the old one:

- The new generic provisions depended on both the stock of loans and the new loan production, with parameters alpha and beta, respectively, that increased with the riskiness of the assets⁷;
- In the calculation of the new generic provision there is compensation with the specific provisions.
- New limits were established for the generic provision, between 33% and 125% of the alpha (see footnote 7).

Since the upper limit was lower than the previous one, most institutions were already at the new upper limit at the time of the application of this new regulation in mid 2005, which resulted in a partial liberation of the accumulated Fund. The excess Fund, however, was not distributed to shareholders but went to banks' own resources (reserves). For comparison of the amount of the dynamic provisions, it is therefore necessary to adjust for this accounting change.

It is interesting to analyse how did dynamic provisioning work compared to expectations. As can be seen in chart 3, the ratio of provisions to credit decreased slightly from 1999 to 2001, increased from 2001 to 2004 and showed a declining trend thereafter, with a pattern similar to that of (inverted) GDP, but much smoother. This would indicate that the Spanish dynamic provisioning system does not eliminate procyclicality but reduces it to a considerable extent. The incipient increase of the provisions to credit ratio since September 2007 seems to confirm this pattern.

In any event, it is important to keep in mind that the upward cycle was exceptional in length. The first downturn is starting now with a rapid increase in bad loans –albeit from an extremely low level - and a sharp reduction in credit growth. These trends – very closely related to the bust of the housing bubble – imply that specific provisions are increasing, which - together with a lower credit growth – would, in principle, reduce generic provisions and, thereby, the accumulated fund.

The fact that most institutions are at the upper 125% limit implies that there is ample room for a reduction in case of need. But these limits are inherently asymmetric, in the sense that institutions are in principle free to provision above them. They may be inclined to follow this strategy for

⁶ It is important to note that this was feasible because the Bank of Spain is at the same time the banking supervisor and the accounting authority for banks, a situation quite extraordinary in the international context.

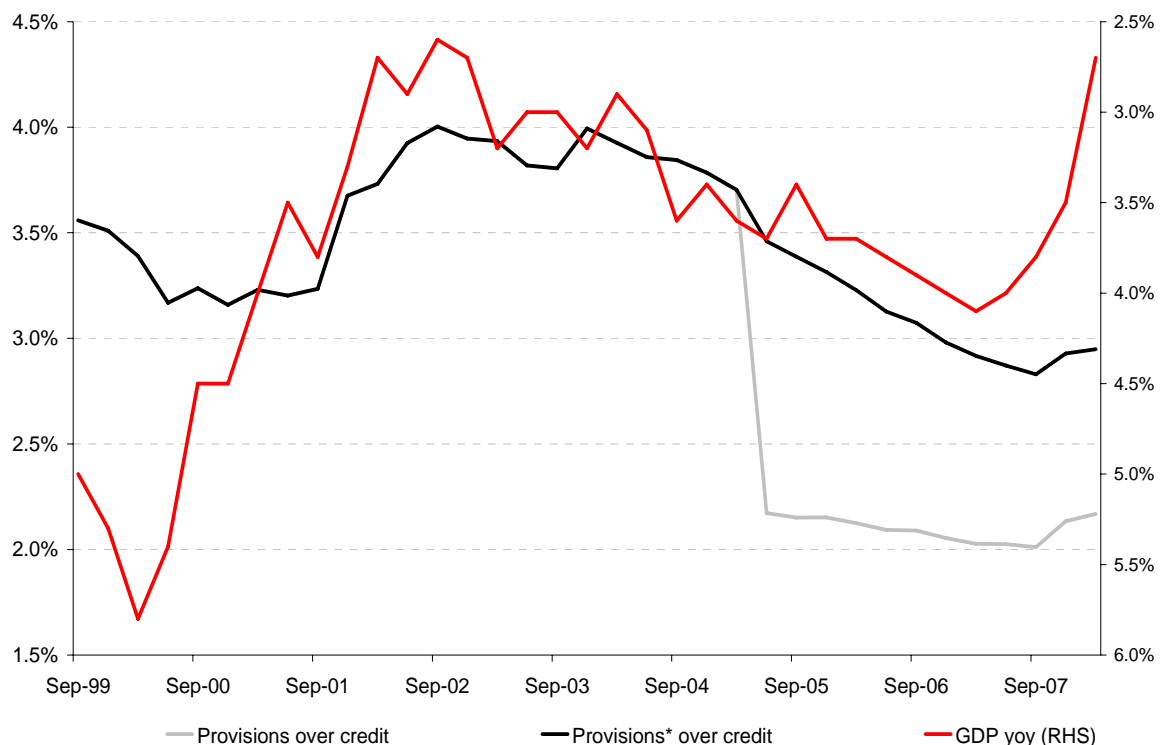
⁷ Generic provisions are set according to the formula:

$$\text{Generic provisions} = (\text{New loan production} \times \alpha) + (\text{stock of loans} \times \beta) - \text{specific provisions}$$

reasons of caution, although what is more appropriate for a given institution is not necessarily good from a systemic point of view. The rationale of the system suggests that if the downturn is severe enough, institutions should allow its automatic anticyclical features to operate.

Chart 3

Growth in provisioning and GDP



Provisions* are corrected for the impact of the new accounting regulation in 2004.

GDP growth has an inverted scale

3. Conclusions

Spain experienced in the late 1990s until 2007 a housing boom with similar features known to other economies, but with a series of idiosyncratic characteristics. Since it coincided with a massive increase in housing supply, this boom was even more impressive. There are fundamentals that explain to a certain extent the boom (EMU, demographics, demand from other EU countries), but even considering these factors an element of bubble seems to be present.

The correction of the Spanish boom was already ongoing when the subprime crisis hit international financial markets in mid-2007. Apart from the impact on expectations, which probably accelerated the housing prices correction, the main affect of the international crisis was to drastically cut the access to wholesale funding markets, which had been the main source of financing for credit expansion in previous years. This led to a sharp correction in bank lending.

One year after the onset of the crisis, it is difficult to assess its full impact and duration in international financial markets. The same is applicable to the Spanish real estate market and banking system. At this stage, it is interesting to assess the impact of two distinctive features of Spanish financial regulations that were addressed precisely to avoid excess credit pro-cyclicality and perverse incentives to disintermediation that may result in an increase in systemic risks: dynamic provisioning and the treatment of Off-Balance Sheet Entities (OBSEs), respectively.

The treatment of OBSEs already did its work, to a large extent. The inclusion of these instruments in the consolidated supervision of banking groups avoided that risks were transferred to unknown segments of the financial system or to households and non-financial companies. There was no spurious disintermediation as a result of perverse incentives. The other side of the coin is that the banking system concentrated most of the risks and the impact of the housing correction, but this is natural in a banking-dominated financial system with a universal banking model, like the Spanish one. According to available data, the Spanish banking system is strong compared to other systems in the EU in terms of efficiency, profitability and solvency, which is reassuring.

As to the Spanish dynamic provisioning system, it reduced but did not eliminate the procyclicality of provisions. The way the statistical Fund was defined and the extraordinary length of the business cycle implied that most institutions reached the maximum level relatively early. This mechanism allowed Spanish banks to maintain a doubtful assets coverage ratio 3 times higher than the EU average in December 2007, which implies that when the crisis hit, the objective of counting with a buffer in terms in provisions had been reached. But it is difficult to assess whether the accumulated Fund will be sufficient.

The rationale of the system would lead to a use (depletion) of the accumulated Fund in the downturn. But will the entities use it? In principle they are allowed to provision above the minimum (although without fiscal advantages), and may be inclined to do so for the sake of caution, with a view of the very rapid increase in bad loans they are witnessing in 2008. But from a systemic point of view it might be more appropriate to allow the system to operate as initially envisaged, using the Fund in the downturn. This will contribute to smooth the credit contraction process and reduce

the severity of the adjustment in the housing sector and in the overall economy.

For emerging market economies (EMEs), that are usually subject to more pronounced cyclical swings, the Spanish provisioning mechanism might be an interesting device to smooth provisioning efforts along the cycle and attenuate the financial accelerator problem. As for the treatment of OBSEs, the general lesson, also applicable to EMEs, seems to be that regulation should avoid artificial incentives to disintermediation due to differences in the degree of regulatory pressure on certain segments of the financial system.

REFERENCES

Berger, A. and G. Udell (2003). *The institutional memory hypothesis and the procyclicality of bank lending behavior*, BIS Working Paper, no 125, January, Basel.

Fernández de Lis, Santiago, Jorge Martínez Pagés and Jesus Saurina (2000) 'Credit Growth, Problem Loans and Credit Risk Provisioning in Spain', Banco de España. Bank of Spain Working Paper 0018.

Guttentag, J. and R. Herring (1984). "Credit Rationing and Financial Disorder", *The Journal of Finance*, 39, pp. 1359-82.

Jiménez, Gabriel and Jesús Saurina (2005), Credit Cycles, Credit Risk and Prudential Regulation, Bank of Spain Working Paper 0531.

Mann, Fiona and Ian Michael (2002) Dynamic Provisioning: Issues and Application, *Financial Stability Review*, December.

Rajan, R. (1994). "Why Bank Credit Policies Fluctuate: A Theory and Some Evidence", *Quarterly Journal of Economics*, 109, pp. 399-441.

Williamson, O. (1963). "Managerial Discretion and Business Behavior", *American Economic Review*, 53, December, pp. 1032-57.

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