LOAN LOSS PROVISIONS IN SPAIN. A WORKING MACROPRUDENTIAL TOOL

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Dynamic provisions are a macroprudential tool to enhance bank soundness and to help mitigate part of the procyclicality of the banking system. They enable an earlier detection and coverage of credit losses in banks' loan portfolios, thereby allowing the build-up of a buffer in lending booms to be used in recessions. The countercyclical nature of dynamic provisions enhances the resilience of each individual bank as well as that of the whole banking system. The objective of this article is to explain the current mechanism for loan loss provisions in Spain. We provide evidence on how loan loss provisions and its accumulated fund have evolved since the onset of dynamic provisions in Spain in mid-2000. The period considered encompasses both a strong credit expansion until 2007, with a very low level of problem loans, and, since then, a sharp deceleration in lending together with a significant rise in problem loans. We also deal with several issues usually brought up when discussing Spanish dynamic provisions, including implementation issues.

1 Introduction

There is a widespread experience among many banking supervisors across the world that banks' lending mistakes are more prevalent during upturns. Borrowers and lenders are overconfident about investment projects. Banks' over-optimism implies lower lending standards. During recessions, banks suddenly turn very conservative and tighten lending standards, with the possibility of a credit crunch ensuing. This classical lending cycle may have a significant impact on the real economy.

The current financial crisis has reminded us that financial markets have imperfections.[1] From time to time, significant mis-pricings of risks (i.e. credit risk, liquidity risk) may appear which are not quickly arbitraged away. The main theoretical arguments to rationalise fluctuations in credit policies are based on information imperfections (disaster myopia, herd behaviour, agency problems…).[2] A monetary policy too lax for too long a period may also increase risk-taking incentives by banks (search for yield).[3] To some extent, the value of collateral may also play a role in credit cycles. Furthermore, too much competition among financial intermediaries can worsen financial stability.[4]

There is empirical evidence of looser credit standards during expansions. Jiménez and Saurina (2006) show that there is a direct, although lagged, relationship between credit growth and credit risk, so that a rapid increase in loan portfolios is positively associated with an increase in non-performing loan ratios later on. Moreover, loans granted during boom periods have a higher default rate than those granted during slow credit growth periods. Finally, in boom periods collateral requirements are relaxed while the opposite happens during recessions.[5]

Therefore, banking supervisors' experiences (and concerns) are well rooted on both theoretical and empirical grounds. The risk in bank portfolios builds up during the expansion periods. In recessions, the *ex ante* credit risk increase materialises *ex post* in credit losses. It is important that banks recognise the increase in credit risk/credit losses in their loan portfolios at the time that risk is building up. In doing that, bank managers and shareholders will be

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1. See, for instance, the *Turner Review* for a more detailed catalogue of recent imperfections. **2.** Jiménez and Saurina (2006) contains a more detailed discussion of the literature. Rajan (1994) analyses the impact of some market imperfections on the fluctuations of the lending cycle. **3.** See BIS (2009) for a more extended discussion. **4.** An erosion of the franchise value of the bank as a result of more competition may increase the incentives of the bank to increase risk-taking and leverage [Keeley (1990), Salas and Saurina (2003)]. **5.** For the impact of credit standards in the US, see Lown and Morgan (2004).

much aware of the financial position of the bank and may have more incentives to control the risks.

Loan loss provisions, an accounting item to cover credit losses, is the natural tool to be used. A proper recognition of credit risk and credit losses along the lending cycle will enhance the soundness of each bank as well as that of the banking system, helping to curb procyclicality in lending. There is nothing more procyclical than a badly managed bank [Caruana (2005)]. Therefore, loan loss provisions that account for the credit risk increase in the upturn can help to cope with the potential damage that lending cycles can inflict on the real economy, the growth potential and the level of employment and welfare of any society. Such provisions, which are sometimes referred to as dynamic, statistical or countercyclical loan loss provisions[6], merit attention from regulators and supervisors as a tool to enhance financial stability. Spain has had such a system of loan loss provisions since the beginning of this decade.

Supervisors will have recognised the economic underpinnings of loan loss provisions in the former paragraphs. However, we also argue that the loan loss provisioning system developed in Spain is meaningful from a purely accounting perspective. In fact, both perspectives complement and reinforce each other.

The current provisioning framework in Spain refers to the collective assessment for impairment. That is to say, it is necessary to assess the potential losses incurred in those homogenous portfolios where losses have not yet been identified in specific loans, but where statistical experience shows that there is a certain proportion of incurred losses (i.e. in a credit card portfolio past experience shows that an X percentage will be lost, although it is not yet clear on which specific borrowers' cards). In other words, the provisioning framework recognises that credit risk is incurred during expansions when loan portfolios are mainly being built up, so that loan losses are already lurking on the balance sheets of banks, although they have not yet been identified in a specific loan.

Moreover, regulation requires institutions to develop internal methodologies to estimate impairments in the loan portfolio (whether specific transactions or collective assessment). For banks which do not have their own model, the Banco de España provides a model based on the historical credit loss information obtained from its Credit Register (CIR). This is a comprehensive database that covers information on any loan granted in Spain by any bank operating in Spain above 6,000 euros.[7] The Banco de España model applies to cover incurred losses only for credit activity in Spain. We do not have information available to set the parameters to be applied to loans granted by Spanish banks abroad. Therefore, the model uses historical loss data information for homogenous groups of loans, so that it can be used for the collective assessment for impairment.

Banks are required to disclose the amount of the dynamic provision, apart from the specific provision. Thus, users of accounting statements can "undo" its impact on the profit and loss (P&L) statement. Therefore, loan loss provisions in Spain and, in particular, the statistical or dynamic provisions are fully transparent to investors and financial markets. The ultimate aim, from an accounting point of view, is that financial statements properly inform users about the true financial situation of the bank, i.e. they recognise the credit risk/losses when they appear,

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6. We use the three words interchangeably to refer to provisions in this article. **7.** This means that virtually any loan granted to any firm as well as any mortgage is in the CIR. For consumer loans the coverage is not full, but a significant amount of those loans should be reported. The CIR contains information, among other items, on whether the loan is in default or not and on how long its status has been such.

in order to avoid biases in profits, dividends, and bonuses as well as to deliver the proper incentives to bank managers and investors.

From a macroprudential point of view, dynamic provisions can help to deal with part of the procyclicality identified in the banking system. By allowing earlier detection and coverage of credit losses in loan portfolios, they enable banks to build up a buffer in good times that can be used in bad times. Their countercyclical nature enhances the resilience of both individual banks and the banking system as a whole. Admittedly, there is no guarantee that, on their own, they will suffice to cope with all the credit losses of a downturn (i.e. countercyclical loan loss provisions are not a *silver bullet* for dealing with a classical lending cycle); but insofar as dynamic provisions are applicable, they have proved useful, in particular in Spain and during the current financial crisis. In this regard, they could be an important prudential tool for other banking systems.

The Banco de España, which is also the Spanish banking supervisory authority, implemented the new provisioning system, incorporating the statistical provision, in July 2000 to cope with a sharp increase in credit risk on Spanish banks' balance sheets following a period of significant credit growth during the late nineties.[8] Moral suasion had proved to be ineffective in inducing banks to become more conservative in their lending policies. Moreover, heightened competition among banks had resulted in some inadequate loan pricing (i.e. risk premiums were perceived to be too low for certain operations). In addition, there had been a significant reduction in non-performing loans in the second half of the nineties, which meant that specific provisions were very low. Indeed, in 1999 Spain had the lowest ratio of loan loss provisions to total loans among OECD countries. It also had the highest correlation between that provisioning ratio and the GDP growth rate (–0.97) for the period 1991-99. Thus, loan loss provisions were highly cyclical in Spain: very low during periods of expansion and very high during recessions, while credit risk was increasing substantially during the new expansion period.

In view of the foregoing and on top of the specific and general provisions already existing in the country, an additional provision (statistical provision) was created in July 2000. Two approaches were allowed. First, banks could use their own internal models in order to determine that provision. There was however one important requirement for banks opting for this alternative: they were obliged to make use of their own-loss experience databases (at least an entire economic cycle was needed) to compute the amount of provisions, and the computing provisioning procedure had to be integrated into a proper system of credit risk measurement and management. The Banco de España would verify and validate the entire process and, finally, would approve it or not. Alternatively, for those banks without an approved internal model, there was a standard approach based on a set of coefficients established by the regulator.

The International Financial Reporting Standards (IFRS) coming into force in 2005 across European Union countries, including Spain, brought about the reform of the Spanish loan loss provisioning system. Since the beginning of 2005, according to Circular del Banco de España (CBE) 4/2004[9], the Spanish provisioning system is made up of two elements: on the one hand, the specific provision, which covers incurred losses individually identified in specific loans; and, on the other hand, the so-called general provision, to cover the incurred losses, although not yet individually identified, in homogeneous loan portfolios classified as normal and calculated using statistical procedures. The Banco de España proposed a parametric method, based on statistical procedures and very detailed information from its Credit Register, to calculate the

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8. The Banco de España has the legal authority to set accounting rules for individual banks in Spain. **9.** See, in particular, Annex IX.

coverage of losses incurred in a specific loan but not yet individually identified. This parametric model provided by the regulator was used by all the banks, even though there was an option for banks to develop their own internal calculation models.

The objective of this article is to explain the current mechanism for loan loss provisions in Spain (section 2). In section 3 we provide evidence on how loan loss provisions (the flow) and its accumulated fund (the stock) have evolved since the onset of dynamic provisions. The period considered (from 2000 to mid-2009) encompasses both a strong credit expansion until 2007, with a very low level of problem loans, and, since then, a sharp deceleration in lending together with a significant rise in problem loans. In section 4 we touch upon several issues usually brought up when talking about Spanish dynamic provisions, including implementation issues.[10] Finally, section 5 concludes the paper.

2 How do dynamic provisions work? The theoretical mechanism

In this section we explain how the current loan loss provisioning system works. As said before, previously to 2005, when IFRS came into force in Spain, the provisioning system was slightly different (there were three types of provisions instead of the current two and there were also some differences in the value of the parameters provided by the Banco de España's model). Nevertheless, and despite these differences, the rationale behind both provisioning systems, as well as the amount of provisions produced by them, was very similar.[11]

Current general loan loss provisions are based on four components. The first is called component alpha (α), and is obtained as the product of a certain parameter α times the change in the amount of the loans granted. This component reflects the inherent losses of the loans granted in the period. The second, component beta (β), is the product of the parameter β times the total amount of outstanding loans in the period. This second component is compared with a third component, the specific net provisions made in the period. These last two components take into account the effect of the business cycle on inherent losses and, therefore, form the basis of the macroprudential dimension of the provision.

Elaborating on this last sentence, component β reflects the average specific provision over a business cycle. Its comparison with the actual specific provision is indicative of the strength/weakness of the lending cycle. During expansion periods non-performing loans and specific provisions are very low; thus, the difference between the second and the third components is positive and that amount is charged to the profit and loss account (P&L), increasing the general loan loss provision fund and accumulating provisions. On the contrary, during recessions non-performing loans and specific provisions surge; hence, the difference between the second and third components becomes negative. If credit declines, the first component is also negative. The final negative amount is drawn down from the general fund, provided it has a positive balance, and written down in the profit and loss account (i.e. back to the P&L).

The three components cited above are used to calculate the theoretical general provision, which means that the initial provision figure calculated on the above terms is not necessarily the final provision to be made, since the limit to the general provision (fourth component) must be taken into consideration. This implies that there is a maximum amount for the fund of general loan loss provisions fixed at 125% of the product of parameter α and the total volume of

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10. Saurina (2009) deals in more detail with implementation issues. **11.** For a detailed description of the former system, see Fernández de Lis, Martínez and Saurina (2000). For an explanation of the changes brought about by IFRS implementation, see Banco de España *Financial Stability Report,* May 2005, Box III.1. The *Financial Stability Report* also contains an assessment of the statistical provision impact.

credit exposures.[12] Therefore, the fund of general provisions should be below 125% of the inherent loss of the loan portfolio. The objective of this cap is to avoid an excess of provisioning, which might occur in a long expansionary phase as specific provisions remain below the beta component, whereas the alpha component positively contributes to the accumulation of provisions in the fund. The cap is intended to avoid a fund that keeps growing indefinitely producing unnecessarily high coverage ratios (ratios of provisions to non-performing loans).

Analytically, one period's total loan loss provisions are the sum of the specific provisions (dot.espe) plus the general one (dot.gen). The formula describing how general provisions (the flow) are computed is as follows:

$$\text{dot.gen}_t = \alpha \Delta C_t + \left(\beta - \frac{\text{dot.espe}_t}{C_t} \right) C_t$$

where C_t is the stock of loans at the end of period t and ΔC_t its variation from end of period t-1 to end of period t (positive in a lending expansion, negative in a credit crunch). α and β are the previously defined parameters and set by the Banco de España.

Intuitively, parameter α is the estimated average of credit losses or, in other words, the collective assessment for impairment in a cyclically neutral year for each homogeneous group of risk. β parameter is the historical average of the specific provisions for each homogeneous loan portfolio. α and β parameters are the same for all banks, although the overall impact will differ depending on the structure of each bank's loan portfolio. During periods of strong credit growth and low levels of specific provisions, the beta is larger than the specific provisions so that general provisions recognise the increase in incurred losses not yet individually identified on specific loans. During recessions these losses quickly translate into specific losses and so the beta is below the specific provisions. The difference can be drawn from the general fund, contributing to support the profit and loss account.

This formula is in fact a simplification. There are six risk buckets, or homogeneous groups of risk, to take into account the different nature of the distinct segments of the credit market, each of them with a different α and β parameter. These groups (in ascending order of risk) are the following: i) *Negligible risk:* includes cash and public-sector exposures (both loans and securities) as well as interbank exposures; ii) *Low risk:* made up of mortgages with a loan-to-value (LTV) ratio below 80% and exposures to corporations with an A or higher rating; iii) *Medium-low risk:* composed of mortgages with a LTV ratio above 80% and other collateralised loans not previously mentioned; iv) *Medium risk:* made up of other loans, including unrated or below-A rated corporate exposures and exposures to small and medium-sized firms; v) *Medium-high risk:* consumer durables financing; and finally, vi) *High risk:* credit card exposures and overdrafts.[13]

As said before, the six homogeneous risk groups have different alpha and beta parameters. The values for α are the following (moving from lower to higher risk levels): 0%, 0.6%, 1.5%, 1.8%, 2%, and 2.5%; and these are for β: 0%, 0.11%, 0.44%, 0.65%, 1.1%, and 1.64%. The final formula to be applied by each bank is therefore:

$$\text{dot.gen}_t = \sum_{i=1}^{6} \alpha_i \Delta C_{it} + \sum_{i=1}^{6} \left(\beta_i - \frac{\text{dot.espe}_{it}}{C_{it}} \right) C_{it} = \sum_{i=1}^{6} \alpha_i \Delta C_{it} + \left(\sum_{i=1}^{6} \beta_i C_{it} - \text{dot.espe}_t \right)$$

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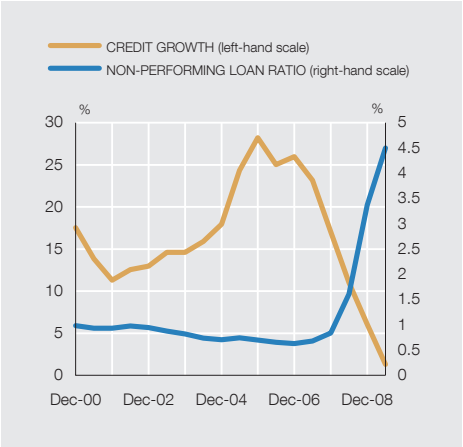
12. Although currently there is no minimum level, regulators recommend a 10% floor for the general provisions, so that banks in the midst of a recession still cover incurred losses not yet individually identified in a specific loan. The de facto lack of a lower limit means that a bank can exhaust its general provisions. **13.** Annex IX of Circular del Banco de España 4/2004 contains the rules that apply to those credit exposures subject to loan loss provisions in Spain.

CREDIT GROWTH AND NON-PERFORMING LOAN RATIO
Deposit institutions. ID

CHART 1



SOURCE: Banco de España.

The former parameters imply, for instance, that for a new traditional mortgage (LTV up to 80%), the bank has to set aside 0.71% (0.6% alpha plus 0.11% beta) of its amount as a general provision; assuming a 15% LGD, this means that the effective coverage rises to a non-performing loan ratio of close to 4.75%, which compares with a 3.85% NPL ratio for mortgages at the peak of the last recession in 1993, while the LGD at that time was around 0%.

Regarding the tax treatment, general provisions are tax-deductible expenses up to 1% of the increase in gross loans, as long as they are not mortgages. Non-deductible amounts (i.e. those above that threshold) are accounted for as deferred tax assets, because they will become specific provisions in the future, and therefore deductible, when the impairment is assigned to an individual loan. Tax deductibility makes dynamic provisions more popular among banks. Nevertheless, the Spanish experience shows that they can still be implemented even if they are not fully tax-deductible.

It is worth noting that a rules-based system of loan loss provisions like that explained in this paper enhances transparency and comparability across banks.

Based on the simulation of a lending cycle with a recession in the middle period, Saurina (2009) shows that at the peak of the recession provisions (including dynamic provisions) would be 40% lower than traditional provisions, while during good periods, both before and after the recession, the amount of provisions would be higher. It goes without saying that a different set of alpha and beta parameters would produce a different provisioning profile. The next section analyses the impact of dynamic provisions in Spain using real data from banks.

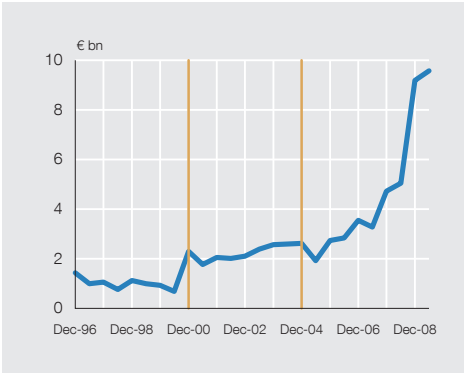
3 How much was built up and how much has been used? The mechanism in motion

A system of dynamic provisions has to be implemented in an expansionary phase of the economy. Conceptually, because this is when credit risk builds up and, practically, because banks need to build up a buffer to be used when the recession arrives, i.e. when credit losses materialise *ex post* in specific loans. Moreover, this is precisely what determines its macroprudential dimension and utility.

As explained in the introduction, in the period before the statistical provision was introduced, credit had been growing at a high and increasing path, as the economy had definitely left behind the recession of the early nineties. The subsequent economic expansion allowed banks

AMOUNT OF TOTAL NET LOAN LOSS PROVISIONS (FLOW)
Deposit institutions. ID

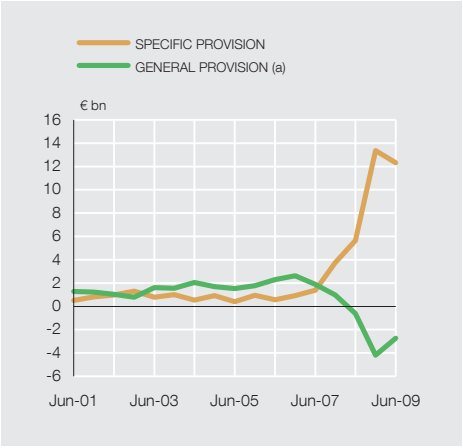
CHART 2



SOURCE: Banco de España.

BREAKDOWN OF LOAN LOSS PROVISIONS (FLOW) INTO SPECIFIC AND GENERAL
Deposit institutions. ID

CHART 3



SOURCE: Banco de España.

a. Before June 2005 it is computed as the sum of the general and the statistical provisions.

to have low levels of non-performing loans and, thus, to experience a declining path in the level of the ratio of specific loan loss provisions to total loans.

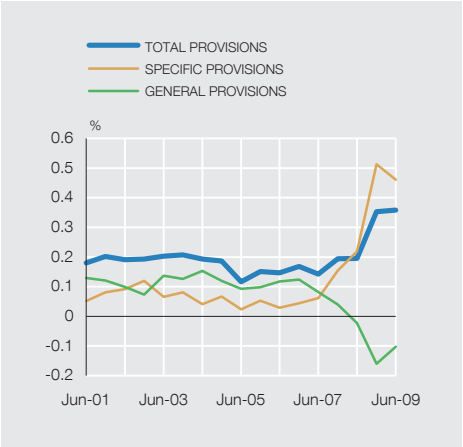
The credit expansion and the benign economic conditions extended over a period of more than ten years. By the second half of 2007, economic growth and lending started a significant slowdown, with a sharp rise in the non-performing loan (NPL) ratio in 2008 as the Spanish economy headed for its deepest recession in more than 60 years (see Chart 1). Using data from July 2000 to June 2009, the article shows the mechanism and functioning of dynamic provisions, in particular the build-up of the countercyclical provision and its use in the downturn.[14]

Before going any further, several considerations must be made with regard to the data and Charts provided. First, individual data are used. It should be noted that, in principle, dynamic

14. At the time of writing the paper, Spain is still in recession and the general loan loss fund has not yet been exhausted.

LOAN LOSS PROVISIONS (FLOW) AS A PERCENTAGE OF TOTAL LOANS
Deposit institutions. ID

CHART 4



SOURCE: Banco de España.

provisions mostly apply to domestic exposures. Second, before 2005 (when IFRS came into force across all European Union countries), for comparability issues, dynamic (general) provisions were calculated as the sum of the general plus the statistical provision. Third, when referring to provisions as such, we mean the flow of provisions, otherwise mention will be made of the consideration of provision funds (the stock of provisions). Finally, all the data refers to Spanish deposit institutions, i.e. commercial banks, savings banks and credit cooperatives.

Chart 2 shows the flow of net loan loss provisions (specific plus general)[15] for Spanish deposit institutions. As can be seen, before the introduction of the statistical provision in mid-2000, the total loan loss provision showed a slightly decreasing trend. Once the statistical provision was implemented, the trend in provisions was clearly reversed. The changes introduced in 2005 did not change the previous trend, until non-performing loans started to increase significantly.

Until the second half of 2007, the credit cycle shown in this paper was mainly characterised by strong credit growth and very low level of non-performing loans and specific provisions. With the change in the business cycle, specific provisions started to increase to the detriment of the general provisions (Chart 3). Furthermore, dynamic provisions became negative in early 2008, as the beta component when compared with the current specific provisions became negative and larger in absolute value terms than the alpha component which, at the same time, was decreasing as a consequence of the significant slowdown in credit growth.

Taking a further step, Chart 4 shows the provisions in relative terms (i.e. as the percentage of total credit to the private sector). Specific provisions (over total loans granted) represented a very small share of credit exposures (around 0.1%) during the expansion years, while general provisions were twice that figure during the same period. However, in 2008, due to the change in general economic conditions, a deep and rather sharp change took place in the lending cycle and specific provisions increased very rapidly while general provisions moved into negative territory, with the final result of a less pronounced increase in total provisions.

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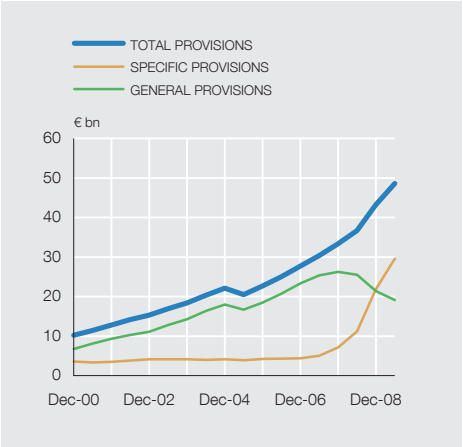
15. The term "net" acquires its full dimension in 2008 when the contribution of the general provision to the total amount of provisions becomes negative as a result of the prevailing adverse economic conditions. Since then, total provisions have been computed as the difference between positive increasing specific provisions and negative general provisions. The countercyclical dimension of the general provision thus manifests itself by offsetting the total amount of provisions to be charged against the profit and loss account.

BREAKDOWN OF PROVISION FUNDS (STOCK) INTO SPECIFIC AND GENERAL CHART 5
Deposit institutions. ID



SOURCE: Banco de España.

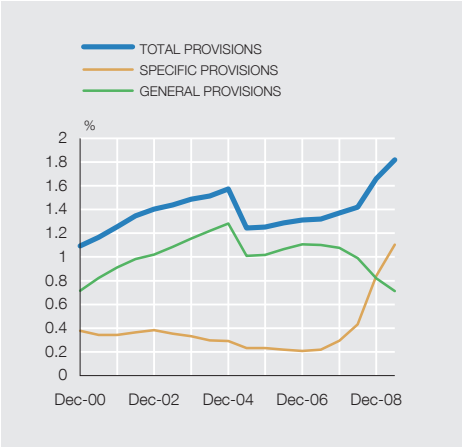
Chart 4 illustrates the countercyclical nature of dynamic provisions. If Spain had had only specific provisions, in around two years these would have jumped from around 0.05% of total credit to more than 0.5% (a tenfold increase). However, our current total provisions have evolved from a minimum of around 0.15% of total loans two years ago to a level around 0.35% in June 2009. Loan loss provisions are, therefore, still increasing during the current recession and have an impact on the P&L of banks, but a much smaller one thanks to the countercyclical mechanism which contributes to the resilience of the whole banking sector. This is the macroprudential dimension of dynamic provisions.

The loan loss provision fund (stock) has evolved accordingly (Chart 5). The countercyclical nature of dynamic provisions can also be seen in the changes in the general fund which starts to be depleted as the slowdown gains momentum. The buffer of provisions accumulated in the expansion phase is ready to be used in the downturn. It was not the idea of the regulator to build up a *permanent* buffer of provisions. On the contrary, the idea was to cover the latent risk built up in the upturn and to use the provisions accumulated in good times when those risks materialise *ex post* in losses on specific loans. As already mentioned, there is no minimum for the general fund, although the supervisor recommends that it should not fall below 10% of the latent risk. Therefore, the general fund built up in the upturn can be almost fully depleted as specific provisions keep growing as a result of the increase in non-performing loans.

It is also interesting to see the stock of provisions in relative terms. The specific provision fund relative to problem loans is around 50% for almost the whole period analysed, while the most relevant changes are for the general fund, as expected. During the upturn, the coverage of doubtful loans with general loan loss provisions reached a maximum of around 250%, which reflects the very low level of problem loans in good times as well as the fact that the latent credit risk in banks' balance sheets had not yet materialised in individual loans. As those losses materialised, the coverage of the general fund relative to problem loans started, as expected, to decline sharply, because the former increased significantly forcing the latter to start to be depleted. Following the same path, the coverage of the stock of total provisions also declined. Nevertheless, the total provision fund currently still offers a very reasonable level of coverage taking into account the average loss given default expected for the aggregated Spanish bank portfolios.

PROVISION FUNDS (STOCK) OVER TOTAL LOANS
Deposit institutions. ID

CHART 6



SOURCE: Banco de España.

In terms of total loans, Chart 6 shows that a countercyclical loan loss provisioning system smoothes the total loan loss provision coverage. As it can be seen, the specific provision fund relative to total loans has increased more than fivefold over the last two years whereas the total loan loss provision fund in relation to total loans has only increased by 30% as a result of the application of the general provisions set up for this purpose. Again, this shows the macroprudential aspect of dynamic provisions, while they still increase during recessions in relative terms (i.e. the total stock of provisions is currently rising).

Box 1 provides a broader spectrum of data for the reader both to have an idea of the weight and impact of dynamic provisions within the banking sector, and to obtain a general perspective of what can be achieved with a countercyclical loan loss provisioning system like the Spanish one. Of course, a different calibration and/or a different lending cycle will result in different numbers.

Another interesting issue about dynamic provisions is their impact on the profit and loss account. Chart 7 shows that the impact of the flow of general provisions on net operating income is material, accounting in average terms for around 15% of it during the period before the general provision fund started to be used (before 2008). This explains why banks are usually not much in favor of them in an expansionary phase. It can also be seen that when dynamic provisions are used (i.e. when the general fund is being drawn down), the impact on net operating income is also very significant, helping banks to protect their capital during recessions.

As mentioned before, the dynamic provision has a cap, to avoid over-provisioning in the expansion phase. When designing the system, it was the clear intention of the regulator not to let the general provisions grow indefinitely in the good times. A prudential supervisor is naturally inclined to set this limit as high as possible (i.e. the more provisions the bank has, the higher its protection against credit risk, ceteris paribus). However, there is also a need to strike a balance in respect of level playing field issues (i.e. foreign banks not subject to dynamic provisions competing with Spanish ones) and to avoid excessive coverage of future specific losses. Chart 8 shows the changes in the number of banks for which the cap is binding. Clearly, the limit was operating during the period of strongest credit growth and minimum level of non-performing loans for many banks. When the economy slowed down, banks started to use their general funds.

FACT SHEET[1]

BOX 1

Total loan loss provisions at a consolidated level at the end of 2007 were 1.33% of total consolidated assets (excluding branches from EU countries, not subject to dynamic provisions). This figure compares with a ratio of 5.78% between bank capital and those total assets. Therefore, the total loan loss provision buffer meant an additional 27.1% of core capital or 26.6% addition to the *tier* 1 figure. It should be taken into account that Spanish banks did not have conduits or SIVs, thus the amount of off-balance sheet assets was much more limited than in other banking systems, which reinforces the importance of the buffer coming from loan loss provisions.

Not all consolidated assets are subject to credit risk and, therefore, do not require a loan loss provision. If we focus on the assets which require general loan loss provisions, at the end of 2007 Spanish banks at a consolidated level had 1.20% of general provisions for total credit granted. General provisions were 73.2% of total loan loss provisions at that time.

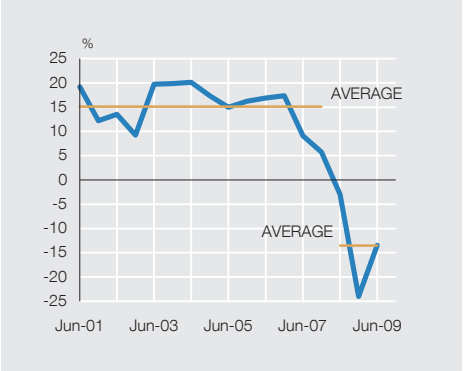
More specifically, if we focus on those exposures subject to positive general or dynamic provisioning requirements (i.e. excluding exposures to the public sector as well as interbank exposures for which both α and β parameters are 0%), the ratio of general provisions to credit subject to positive dynamic provisioning requirements was 1.44% at the end of 2007 at a consolidated level.

Arguably, the relevant benchmark to assess the impact of Spanish dynamic provisions is not consolidated data but rather individual data centred on the Spanish lending market. The ratio of general provisions to total credit subject to the general provision at the end of 2007 for individual balance sheets was 1.22%. If we exclude those exposures with a 0% weighting, the coverage ratio climbs to 1.59%. For non-consolidated data in Spain, the general provisions were 78.9% of total provisions at the end of 2007.

1. Most of the data in the Box refers to end-2007 data, before the general fund started to be depleted (see Chart 5). We want to show how much of a buffer was accumulated by Spanish banks using dynamic provisions. Similar figures can be found in the Banco de España's *Financial Stability Report,* May 2009, at the end of Chapter 3.

GENERAL LOAN LOSS PROVISIONS (FLOW) OVER NET OPERATING INCOME
Deposit institutions. ID

CHART 7



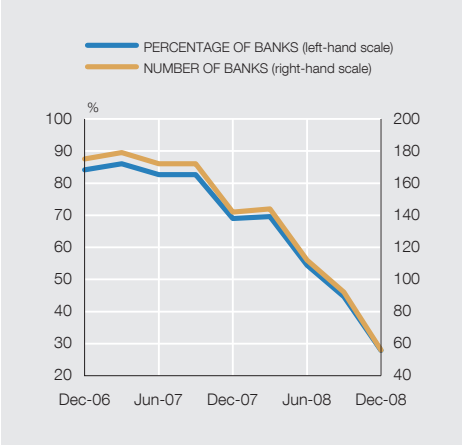
SOURCE: Banco de España.

Nonetheless, there may be significant heterogeneity across banks regarding dynamic provisions. In fact, some banks have already used a significant portion of their general provisions while others have only started to deplete them. Chart 9 shows the distribution of the coverage of loan portfolio by general provisions. It can be seen that there is significant dispersion around the mean. Since dynamic or general loan loss provisions are driven by a fixed formula, how they evolve over time will depend both on the increase in non-performing loans and, thus, in specific provisions, and on the decline in credit growth. As a result, those banks that have pursued riskier credit policies while expanding their business will face larger specific provisions and will deplete their general provisions much faster than more conservative banks.

All in all, we have shown in practice, with real bank data, how countercyclical loan loss provisions are accumulated during the upturn and how they start being used in the downturn, along with their effects on total provisions. Whether or not they will suffice for each Spanish bank to

DEPOSIT INSTITUTIONS THAT REACH THE LIMIT OF THE STATISTICAL/GENERAL FUNDS
Deposit institutions. ID

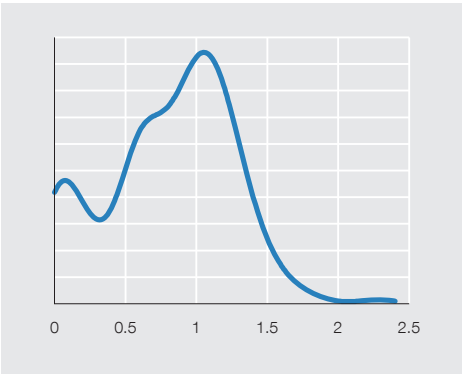
CHART 8



SOURCE: Banco de España.

KERNEL (DISTRIBUTION) OF THE GENERAL FUND OVER TOTAL CREDIT. JUNE 2009
Deposit institutions. ID

CHART 9



SOURCE: Banco de España.

withstand the current financial crisis remains unknown. Probably, for some banks the answer is no, and they will need to make additional provisions further impacting their P&L account or, at an extreme, denting their capital buffers. However, for many others, there is no doubt that the provisioning buffer has helped them withstand the shock and cope with the current crisis from a much better starting point.

4 Other related issues[16]

4.1 ACCOUNTING ISSUES

Some analysts complain that Spanish dynamic provisions allow banks to engage in earnings management ("build up cookie jars," in the accounting jargon). This is not true. Loan loss provisions are fully transparent. Banks must publish the amount of their general provisions so that investors and analysts can isolate the impact of dynamic provisions. Moreover, as has already been explained, the system is rules-based, and there is a cap on the amount of the dynamic

16. A significant part of this sections draws on Saurina (2009).

fund being built up. It is therefore very difficult for bank management to use these provisions to deceive investors.[17]

As already mentioned, dynamic provisions are a way to properly cover incurred losses not yet individually identified on specific loans at a time when these losses are being built up on balance sheets. Thus, they are a means of delivering accurate information to investors about the firm's financial position in terms of both income generation and risk-taking. A P&L account that shows only the increase in generated income, but says nothing about the risks and losses incurred to obtain that income, gives managers the wrong incentives: namely, to keep increasing credit growth at a time when over-optimism, strong competition, and underpricing of credit risk dominate the financial landscape.

Accountants' objective of providing the most accurate information to investors about a firm's financial condition can be perfectly achieved within a system of provisions that recognises credit losses as they are incurred over the lending cycle. Exploring the collective assessment for impairment, as well as the transition from incurred losses not yet individually identified to specific losses on individual loans, may be a way to accommodate dynamic provisions in the accounting framework.[18]

The Turner Review discusses provisioning issues based on current accounting rules and their possible enhancement by the creation of a non-distributable Economic Cycle Reserve that would set aside profits in good years in anticipation of likely future losses. It also considers whether this reserve should appear in the balance sheet or in the P&L account, arguing in favour of the latter.[19] The G-20 Leaders' Statement at the London Summit in April 2009 calls for accounting standard-setters to work urgently with supervisors and regulators to improve standards on valuation and provisioning. At the time we are writing this paper, the final outcome of possible accounting changes for provisions is still unclear.

Loan loss provisions do not apply to the trading book, which is a significant part of the total balance sheet for many large, internationally active banks. However, it is possible to conceive a similar device (valuation reserves) to deal with procyclicality and valuation uncertainties of trading book exposures.[20]

4.2 LIMITS OF DYNAMIC PROVISIONS AS A MACROPRUDENTIAL TOOL

There is widespread agreement among banking regulators and supervisors for the need to enhance a macroprudential approach, which means going beyond the microprudential, institution-by-institution approach applied by some supervisors. The idea is to combat the fallacy of composition: if each individual bank is sound, the whole banking system must be sound. The current financial crisis has shown that correlations across assets and banks' balance sheets can sharply increase and pose systemic risk. Therefore, the microprudential approach to supervision needs to be complemented with a macroprudential approach.

What a macropudential approach exactly means and, in particular, which tools are available is still an issue open to debate and to be determined.[21] In any case, it seems that a countercycli-

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17. The existing evidence seems to point in the opposite direction. Pérez, Salas and Saurina (2008) show that, since the implementation of the statistical provision in Spain, earnings management has, if anything, declined significantly. **18.** Dugan (2009) asks for a recognition of loan loss provisions earlier in the cycle. **19.** Restoy and Roldán (2009) also provide an interesting discussion about the possibility of distinguishing between regular profits and distributable profits. **20.** For a more detailed explanation of the concept of valuation reserves, see Viñals (2008). **21.** See Bernanke (2009) for a recent definition. Borio (2003) contains a very useful framework for macroprudential analysis.

cal loan loss provision may be part of the toolbox for macroprudential supervision.[22] However, it is also important to know what are the limits of the instruments at hand.

The lending cycle plays a key role in the stability of individual institutions and of the whole banking system as explained in section 1. Loan loss provisions, in particular those that are made earlier in the cycle, like the Spanish dynamic provisions, are a tool to reflect the incurred losses not yet individually identified. Given the fact that these provisions have an impact on the P&L account, they should also contribute to impacting the incentives of bank managers to take risks (among other policy and management instruments). More importantly, the buffer banks build up in the upturn proves very useful when losses arrive in the recession. Therefore, dynamic provisions increase the resilience of each individual bank and that of the whole system.

However, it is not possible to ask dynamic provisions to play the role of other instruments. That is to say, the Spanish experience shows that a tool like dynamic provisions has not been able to tame the lending cycle. Counterfactuals are not possible in economics, thus we do not know what credit growth in Spain would have been without this provisioning system. It is clear from Chart 1 that credit growth was strong in Spain during the period when dynamic provisions were being built up by banks. It could be argued that the parameters of the Spanish system were too low, but looking at the coverage ratios (Chart 6), considering the fact that they were calibrated using data from the worst recession in more than 30 years, and given the impact of general provisions on net operating income (around 15% as shown in Chart 7), it is difficult, even ex post, to argue for requiring more stringent parameters. On the contrary, the lending cycle is too complicated to be dealt with using only loan loss provision policies. These are basically a tool to enhance the solvency of banks through the proper coverage of inherent losses. The management of the lending cycle should be done using other instruments (i.e. the mix of monetary and fiscal policies).

There is a growing debate about the relationship between monetary policy and financial stability. Part of the connection comes from the impact that monetary conditions (i.e. the level of interest rates) may have on banks' risk-taking policies. Empirical evidence is starting to show that the current level of interest rates may not be the only variable explaining loan defaults. It seems that the level of interest rates when the loan was granted is also important.[23] Therefore, a period of low interest rates may fuel banks' risk-taking. If current rates rise sharply and suddenly, the latent credit risk in banks' portfolios can manifest itself with more intensity. Usually, a long period of low interest rates increases the probability of a lending boom. Therefore, regard has been had to the importance of paying attention to financial stability issues when crafting monetary policy (BIS (2009)). This may be a lesson from the current crisis although, admittedly, a contemptuous one.

If monetary policy leans more against the wind (i.e. taking into account developments in asset prices and credit cycles), lending cycles may be better tamed, complementing any measure that could be taken from the regulatory or supervisory side (i.e. control over lending standards, countercyclical provisions and capital). All these elements seem to fit into the macroprudential framework, although much more work remains to be done to make it operational.

4.3 DATA REQUIREMENTS TO IMPLEMENT DYNAMIC LOAN LOSS PROVISIONS

Spanish provisions are based on detailed information about credit losses from the Credit Register. The better the information, the more accurate a system of provisions is. But the lack of a credit register does not obviate dynamic provisions. Supervisors with no credit register can rely

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22. A capital buffer could also be in the toolbox. See Repullo, Saurina and Trucharte (2009) for an empirical evaluation of different alternatives to decreasing the procyclicality of Basel II capital requirements. **23.** See, for instance, Jiménez et al (2008).

on private credit bureaus. Additionally, if there is no central source of information about credit losses, supervisors can use banks' own information. Even in the worst case, when banks have not stored information on losses, it should still be possible to collect data on the overall loan loss provisions figures over the business cycle. With this information, a dynamic provisioning scheme can be simulated and adjusted to produce reasonable results with regard to its impact on the P&L account and on the amount of provisions to be raised. Even where supervisors have full information, this reality check is important.

The Spanish system is simple and can be easily replicated in jurisdictions with much less information. Of course, a dynamic provisioning system should be created during a period of credit growth. There is no point in trying to develop such a system during a recession, when specific provisions are at their highest.

Finally, it is clear that the calibration issue is a thorny one. As mentioned, in Spain the provisioning system was calibrated using Credit Register past information, in particular, that arising from the 1993 recession which, at that time, had been the worst in more than 30 years. However, there is no guarantee, given the depth of the current crisis, that the amounts provisioned will be enough to cover all possible loan losses that banks may face. Calibration will always be an issue, because our ability to precisely forecast the next economic/business cycle well in advance is practically negligible. Nevertheless, the calibration problem is exactly the same for capital requirements and, probably, for any quantitative requirement set by a prudential regulator. That said, leaving aside all possible calibration caveats, dynamic provisions have contributed to the stability of the Spanish financial system.

5 *Conclusions*

Dynamic provisions are a macroprudential tool to enhance bank soundness and to help mitigate part of the procyclicality of the banking system. They enable an earlier detection and coverage of credit losses in banks' loan portfolios, thereby allowing the build-up of a buffer in lending booms to be used in recessions. Therefore, they may work as an early warning system for financial statement users as they signal the build-up of credit risk and credit losses. The countercyclical nature of dynamic provisions enhances the resilience of each individual bank as well as that of the whole banking system. Moreover, the system is a transparent, rules-based one, with compulsory disclosures providing information that is comparable across banks. So far, the system has proven very useful for Spanish banks in the current crisis.

However, dynamic provisions are no panacea. There is no guarantee that they will be enough to cope with all the credit losses of the next downturn. Nor are they an alternative monetary policy tool. The Spanish experience shows that, probably, they are not very useful for taming the lending cycle, even if they could increase the cost of lending, since there has been strong credit growth in Spain during the period of their application. Dynamic provisions are an instrument mainly to cover for the credit risk built up in the loan books of banks' balance sheets. Bearing this in mind, policymakers should focus primarily on an appropriate mix of monetary and fiscal policies, and not on statistical provisions, to take control of the lending cycle.

Dynamic provisions can be an important prudential instrument for emerging countries, where there is greater macroeconomic volatility and the banking system plays a dominant role in financial intermediation. A countercyclical buffer should help strengthen the solvency of each bank and increase the stability of the system as a whole. A key lesson from the Spanish experience is that such buffers must be built up in good times, when banks have high profits and low levels of non-performing loans. Dynamic provisions also should be fully transparent, to

avoid earnings management. Each country could parameterise its own provisioning system to fit its credit loss experience or desired degree of countercyclicality. This is feasible, even with limited information.

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