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ASSET PRICE BUBBLES: IMPLICATIONS FOR MONETARY, REGULATORY AND INTERNATIONAL POLICIES, GIVEN AT FEDERAL RESERVE BANK OF CHICAGO

One of the central topics of debate among economists has traditionally been the reasons for economic cycles, the factors that may amplify or smooth them, whether the authorities should aim to iron them out and, if so, how this can be done. More recently, the role of the financial sector in the dynamics of economic cycles has emerged as a key question in this debate.

I would like to focus today on some problems posed to regulators and policy-makers by asset price bubbles and the credit cycle, and to share with you some thoughts on a regulatory device we have recently introduced in Spain to deal with some of these problems: the so-called forward-looking provisioning, also referred to as the dynamic or statistical provision.

The pro-cyclical behaviour of the banking sector, which is now generally accepted in the literature, is receiving increasing attention by academics, policymakers and market participants. There is a growing feeling that the financial sector contributes to the swings in real activity and may even intensify and accelerate them. Feedback effects between credit growth and rises in asset prices are increasingly evident, although not yet well understood. Transmission channels from the financial sector to the real sector are becoming more and more flexible, rapid and complex. This is particularly clear for industrial countries, whose financial markets are more sophisticated, but it is also affecting emerging markets, as a logical consequence of their rapid integration into global financial markets.

I will focus on these issues in the first part of my speech, in particular on whether the recent behaviour of financial markets is exacerbating the volatility and cyclicality of the real economy. Insofar as this is the case, the next question we regulators should ask ourselves is whether this might be a result of the increasing weight of the financial sector in the economy or spontaneous financial market developments, such as new risk management techniques by market participants and/or a by-product of prudential regulations which might unintendedly amplify financial cycles.

This debate has gained momentum recently in the context of the discussions for a new Basel Capital Accord. One of the issues identified in the discussions was precisely to what extent there are factors in the old or new regulations favouring excessive pro-cyclicality. But we should not overemphasise this point. It is true that a certain degree of cyclicality in risk management techniques and regulations is not only unavoidable but also sensible. We regulators ask banks to be more risk-sensitive and risk-sensitive usually means pro-cyclical behaviour.

The second part of my address will deal with the forward-looking provisioning system recently adopted in Spain. The merit of this regulation is that it introduces incentives for better risk management by banks, while at the same time attenuating the cyclicality of the financial sector and, thereby, swings in the real economy.

In my concluding remarks I will try to summarise the main lessons we have learned in discussing, designing and implementing the new system, with an emphasis on the broader economic view rather than on the purely supervisory one. Let me bring forward my main conclusion: there are regulatory mechanisms, like dynamic provisioning, that provide incentives for sound risk management and are anti-cyclical by nature and can therefore moderate cyclical swings.

Recent experience in a number of countries shows that **credit expansion and asset price increases -and bubbles- are mutually reinforcing processes** (see **Graph 1** **(50 KB)**). Asset prices may start to rise in an economy because new investment opportunities appear or simply because of overly lax financial conditions. When asset prices rise so does the value of collateral, which makes financing easier, increasing the demand for assets. That in turn pushes asset prices upward. In the downturn, as the value of collateral drops, financing possibilities decline, as does thus credit growth, a process often reinforced by financial institutions pursuing much more cautious credit policies as they are incurring losses or making smaller profits in this phase of the cycle. Tighter credit policies reinforce recessionary forces and provoke additional reductions in asset prices.

This sequence affects different categories of assets (commercial property, residential property, equity), whose impact on the real economy and transmission channels differ. Commercial property seems particularly linked to the business cycle, while residential property has a larger impact on consumption. Equity prices are intertwined with business profits and investment but are also related to spending through wealth effects, depending on the role equity plays in the determination of financial wealth.

This interaction between credit cycles and asset price bubbles poses a number of challenges for the authorities and regulators, both in the monetary policy and financial stability domains. In the upswing, inflationary pressures related to excessive credit growth are compounded by financial imbalances resulting from unwarranted optimism on the part of corporations and households and excessive risk-taking on the part of financial institutions. In the downturn, recessionary and deflationary forces are aggravated by credit contraction as a result of excessive risk aversion by lenders.

The possible explanatory factors of this potential amplification of the cycle in the financial sector are many-faceted and complex. First, heightened competition in the banking sector and in financial markets leads in an upturn to riskier strategies that are only corrected when the rise in bad debts becomes evident in the downturn. Second, there seems to be a tendency for economic agents to overreact to changes in their environment, leading to over-optimism in times of plenty and over-pessimism in bad times. Third, herding usually reinforces existing trends and causes overshooting. Fourth, the use of common assessment and risk management tools by market participants, and finally an excessive and shortsighted focus on "shareholder value" may also amplify swings. Prudential regulations may also occasionally have proven conducive to an excessive emphasis on the short term when assessing risks.

What can the authorities do to counter these tendencies? Debate among academics, policymakers and market participants has been intense in recent years, and is far from settled. This is an area particularly open to discussion, where new ideas and new evidence are forthcoming. Indeed, the way monetary stability and financial stability interact with each other seems a particularly complex topic, and the impact of specific measures on both fields is uncertain.

As far as **monetary policy** is concerned, the debate on whether it should react to asset prices has been one of the most interesting of recent years. Insofar as asset prices contain useful information that helps predict future price -and output- developments, they should clearly be included in the set of indicators the central bank uses for decision-making. This is not, however, as easy as it may sound. First, because empirical evidence on the usefulness of asset prices in predicting future price and output developments is not conclusive. And second, because the integration of asset prices in macroeconomic models poses a series of practical difficulties.

Going one step further, a related question is whether monetary policy should react directly to asset prices, over and above the impact of the latter on inflationary prospects. The argument would be that deflating an asset price bubble at an early stage contributes "per se" to long-term financial and monetary stability. Against this view, I tend to share the position of those

arguing that asset price bubbles are very difficult to identify in practice and, even assuming that they were correctly recognised, there is a lot of uncertainty as to how asset markets would react to policy changes. Furthermore, this strategy may prove difficult to communicate to the public.

As concerns **financial policy**, the regulators' task of ensuring the long-term soundness of the financial system entails creating the right incentives for market participants not reacting in excess in a given cyclical position and avoiding excessive misalignments. To this end it is essential, first, to encourage better knowledge of the risks assumed, a long-term orientation to analyses and, consequently, more prudent management within financial institutions. Second, a greater heterogeneity among financial market players to avoid mimetic behaviour seems desirable, although this is something the markets would normally develop by themselves. Third, greater transparency and disclosure by the authorities and private institutions would help market participants to focus on fundamentals. Fourth, a better understanding and evaluation of liquidity patterns in financial markets is called for, on the part of both market participants and supervisors. Finally, the regulatory authorities should obviously not introduce rules promoting short-term strategies.

Let me focus now on the **relationship between bank credit, loan losses and provisions for loan losses.** There is ample international evidence on the cyclical pattern of credit, which is very strongly correlated to GDP growth, as shown in **Graph 2 (51 KB)** for the case of Spain (with an elasticity higher than one, meaning that when real product grows, credit tends to grow more, and when real product falls, credit likewise tends to fall even more). Demand and supply effects are difficult to disentangle in credit cyclical dynamics. On the one hand, more economic activity tends to cause more credit demand. At the same time, credit rationing tends to diminish when the economy is booming and tightens when the economy is in recession. Both demand and supply seem to account therefore for credit cyclical swings.

Competition is a key factor in explaining credit supply dynamics. Strong competitive pressures may exacerbate the trend towards looser credit conditions in the upturn, because the fight for a market share coincides with the observation of low non-performing loans, leading towards an over-optimistic perception of low risk.

The probability of losses exists from the moment the loan is granted, but it will only become apparent ex-post, with the emergence of default problems. Most credit risk mistakes are actually made during the expansionary phase, when optimism is prevailing, although only in the downturn will they become evident.

Empirical estimates show that there is a strong correlation between credit growth and bad loans, with an average lag of around three years (see upper part of **Graph 3 (77 KB)**). This means that a credit expansion process is likely to lead to some credit quality problems in roughly that time horizon. The average duration of the economic cycle (from boom to bust) is similar. This implies that if banks only look at contemporary bad loans to determine their credit risk policies, they will restrain credit and increase risk premia in the downturn. The higher cost of funding for bank-dependent borrowers will feed back to activity, reinforcing recessionary forces.

I turn now to provisions. In Spain, until year 2000, loan loss provisions were strongly pro-cyclical (as in many other countries), because they were largely linked to the volume of contemporaneous problem assets. This static provisions are backward-looking, they are based on past events. Only are accounted for loan by loan when borrowers fail to repay or in some cases when the situation of the borrower deteriorates significantly.

As a consequence, the ratio of provisions to total loans fell therefore during periods of economic growth and tended to rise considerably during downturns (see lower part of **Graph 3 (77 KB)**). As a result of this, the latent risk of loan portfolios was not properly recognised in the profit and loss account under the old system. In periods of economic expansion the fall in doubtful loans went hand in hand with the decrease in provisions, which in turn allowed bank managers to improve bottom-line profits.

However, one can argue that there is something wrong in the level of profits shown if the latent credit risk in the loan portfolio is not properly taken into account. Intrinsically every loan has an expected (or potential) loss that should be recognised as a cost by means of an early provision. Otherwise, the picture of the true profitability and solvency of the bank over time could be distorted. More dangerously, the overvaluation of profits might lead to an increase in dividends that could undermine the solvency of the bank. Therefore, the acknowledgement of latent losses is a prudent valuation principle (similar to the mathematical reserves set aside by insurance companies) that contributes to correcting the cyclical bias that currently exists in the profit and loss account. The management of credit risk in the banking sector has perhaps something to learn from insurance practices.

Theoretical papers on bank **credit risk management** also go in the same direction, stressing the importance of proper pricing (I. e. the interest rate charged should cover expected losses as well as the cost of holding capital for unexpected losses). Estimating expected losses when the bank assesses the borrower is the first step for sound risk management.

Proper risk management is obviously a primary task of bank managers and shareholders. But we, as bank supervisors, should evaluate the effectiveness of a bank's policies and practices for assessment of loan quality and provisioning practices. The ability of a bank's loan review system to identify, classify, monitor and address loans with credit quality problems in a timely manner should be assessed by the supervisor on a regular basis as part of its risk-based approach. A misclassification of assets (and the corresponding under-provisioning) is always present in banks heading for profitability and solvency difficulties.

Sound credit risk management practices at the banks' level, including acknowledgement of expected losses in due time, collide to a certain extent with the current accounting framework. The problem stems from the fact that this framework does not support the notion of provisions on the basis of expected losses, with the result that the recognition of losses is frequently delayed. Some of the answers given by accounting-rules setters to this problem (i.e. full fair value accounting) may have other important drawbacks. I will touch upon this later.

Let me briefly **summarise the content of our dynamic provision**. In December 1999, the Bank of Spain introduced a new solvency provision, the so-called statistical or dynamic provision, focusing on the statistical risk embedded in the unimpaired portfolio. It started to apply in July 2000.

The main idea behind this provision is to try to capture, together with the other provisions of the Spanish system, expected losses. From the very moment that a loan is granted, and before any impairment on this specific loan appears, there is a positive default probability (no matter how low it might be) following a statistical distribution with an expected loss. The expected loss is known in a statistical sense but not yet identified in a specific loan operation or borrower. As the risk appears at the beginning of the operation, so does the statistical provision requirement. With this system, provisions run in parallel to revenues and are therefore distributed through the cycle allowing for a better mapping between income and costs in the profit and loss account.

The statistical provision that we have established works in practice as an addition to the "old" existing provisions: when "old" provisions are well below expected losses, the "new" dynamic provision is added. In good years the net "specific" provisions are very low (or even negative, if there are substantial recoveries), so the new provision accumulates. But in bad years the "specific" provisions increase sharply, eventually exceeding the gross burden of the statistical provision. The net result is that with this system provisions are distributed over the cycle, providing a better recognition of expected losses.

More specifically, the amount of the statistical provision is the difference between the measure of latent risk (I. e. expected losses) and the specific provision (that covering impaired assets). In good times the specific provision is low and the statistical provision is positive. However, in a slowdown, as the impaired assets rise, the specific provision requirements increase and the statistical provision becomes negative. This means that the statistical fund (accumulated in previous years) starts being used, its proceeds (the difference between the latent risk and the specific provision) being credited to the profit and loss account. Therefore, thanks to the mechanism of the statistical provision, the burden of credit risk on the profits of banking institutions is better spread over the cycle and more in accordance with the evolution of expected losses.

The new scheme offers banks two options. First, to use their own internal measurements of the statistical credit risk and second, to use a standard method. The Bank of Spain expects that in the future an increasing number of institutions will be able to show robust computations, in the framework of an integrated credit risk management system. However, probably in the next year or two, most banks will use the standard method.

In the standard system the supervisor sets the parameters. The portfolio is distributed in six blocks, according to the relative riskiness of the different assets, or off-balance sheet items with credit risk. A vector of coefficients (ranging from 0 to 1.5%) is applied to the exposures contained in the six blocks. The resulting figure is the estimated expected loss for the bank portfolio.

The computation produces an aggregate annual gross burden (i.e. the expected loss) that, in relative terms, should equal the average annual net insolvency burden borne by the Spanish banking system in the last fourteen years. This time span covers more than a full economic cycle.

You might note that the internal approach to calculate the expected losses or the latent risk squares perfectly with Basel II developments.

The new provision has started with a vector of coefficients that will result in a burden lower than this average. This takes account of the improvements in risk management since the last cyclical peak (93/94), and facilitates acceptability of the scheme among institutions. Probably the scheme will be adjusted in the coming years, on the basis of the experience gained with its application.

A limit of three times the annual gross burden has been put on the accumulated statistical provision, to avoid an unnecessary or excessive accumulation of funds in the event of a prolonged cyclical bonanza.

At present, the impairment of assets and other credit risk is at an historical low in Spain; and it will remain so in the foreseeable future, due to good economic conditions. The new provision should thus accumulate a significant amount of funds, with a reasonable, acceptable impact on the bottom line of the profit and loss account. Those funds should allow extra solvency losses to be covered when the tide turns.

Technically, the new provision is considered a value adjustment. In the published accounts it will be deducted from the book value of the credit items that produce it. It is not considered a reserve to be integrated in the regulatory own funds. The annual accounts shall report the various solvency provisions (or value adjustments), and their method of computation.

The statistical provision is not a tax-deductible expense although banks can use an asset account of anticipated taxes (I. e. the impact on the profit and loss is neutral but still negative in terms of cash flows).

Finally, given the considerable internationalisation of our banking system in recent years, it is important to keep in mind that the statistical provision is required on an individual level of all the members of a consolidated banking group. It is not possible to counter a positive statistical provision requirement in one bank with a negative one in another bank of the same group. This individual bank approach reinforces the statistical provision requirement and squares well with the fact that expected losses arise at an individual bank portfolio level.

By now, you are probably wondering about the real impact of the statistical provision in the Spanish banking system. As far as the profit and loss account is concerned, the statistical provision for depository institutions represents around 12% of 2001 total operating margin. At the end of 2000 the statistical fund reached 15% of its maximum amount (remember there is a cap of three times the latent risk) and at the end of 2001 it stands at 27%. At current rates, the statistical fund will reach its peak at the end of 2004.

As far as the cyclical behaviour of banks, it is too soon to say, but we tend to think that the anti-cyclical nature of the statistical provision is influencing bank behaviour.

I must confess that gaining acceptance among banking institutions for our new provisioning scheme was not easy. Banks were reluctant to see their bottom line profits indented, arguing that the Spanish provisioning system was already demanding (tight asset classification rules

plus on-site monitoring and enforcement by Bank of Spain inspectors, not to mention high solvency ratios by international standards).

Apart from banks' initial, and understandable, criticism, some other voices have been raised, although not very loudly, against dynamic provisioning. Some of them can be readily refuted. Others merit careful discussion because the alternatives they propose may affect financial stability.

The most obvious criticism is that a system of dynamic provisioning smoothes bank profits. It is true that the statistical provision tends to smooth profits over the course of the cycle. But it is no less true that the current ex post provisioning system (i.e. setting aside a specific provision when the impaired asset appears) artificially increases the volatility of banks' profits. And what is more important, this increased volatility in the latter case has less to do with economic fundamentals (i.e. expected losses) than with accounting rules. If expected losses appear from the beginning of the operation, banks should start to provision them at the very outset. This means an increase in provisions and a decline in bank profits during expansionary periods, just when credit risk expands the most. When the downturn arrived and expected losses turn into real losses, the impact of provisions on profits would be lower since a significant amount of the expected loss had been previously acknowledged.

To the extent that the extra volatility of bank profits is the result of an insufficient recognition of expected losses, dynamic provisioning only restores part of the distortion created.

From a prudential point of view, it is clear that dynamic provisioning limits dangerous capital erosions in times of plenty, requiring banks to provision expected losses and avoid paying out dividends (remember the insurance case). Some observers mention that there is no need for ex ante provisioning since future margin income is enough to cover expected losses. For supervisors, however, to rely on future margin income might be an overly adventurous stance.

Let me expand more on this. First of all, experience has painfully shown us that the pricing of a loan is not always properly adjusted to the risk involved in the operation (even taking into account fees and future customer relationships). I have already talked about strong competition for market share or over-optimism. Secondly, even if the risk is properly priced, the proceeds from a high margin could have been paid out to shareholders by the time the impairment appears. Moreover, dynamic provisioning allows for a timely recognition of both the income and costs stemming from bank loan portfolios.

An alternative to the current accounting framework is being promoted at some international fora. I am talking about full fair value accounting (FFVA), I would like underline the word "full" . It is quite clear to me that FFVA has, for the time being, insurmountable drawbacks for commercial banks both of theoretical and practical nature. I would place a big question mark over FFVA feasibility.

Dynamic provisioning is a reasonable approach to the fair value of a loan without the numerous drawbacks of FFVA. The statistical provision does not increase volatility of profits and facilitates prudent risk management.

To conclude, let me emphasise that this provisioning regulation in Spain was introduced for prudential reasons. It has three main advantages: First, it provides banks with incentives for better risk management (I. e. risk appraisal, pricing, internal models, etc.). Second, it reconciles good risk management with sound and prudent accounting practices. And finally, it is anti-cyclical in nature (therefore mitigating the tendency to reinforce cycles). Overall, these three advantages can be summarised as one: they reinforce the soundness of each single banking institution and of the whole system.

My answer to the first question posed at the beginning of this speech is that, although risk management techniques may induce risk-sensitive behaviour, and risk-sensitive usually means pro-cyclical, that is not necessarily the case when some good regulatory practices, such as dynamic provisioning, are adopted, contributing to taming economic and financial cycles.

Let me finish by adding a word of caution. Regulatory devices *per se* do not suffice to attain a safe and sound banking system. A proper risk management culture deeply ingrained in banks' practices is also a necessary condition to reach that goal. Consequently, banks and regulators should work hand in hand to improve financial stability.