

## COUNTERCYCLICAL PROVISIONS, A PARTIAL ANSWER TO DISASTER MYOPIA (\*\*)

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**Abstract**

This article contains the discussion made by Richard Herring after the presentation of the panel based on the book *The Countercyclical Provisions of the Banco de España (2000-2016)*, that took place in Madrid at the first Conference on Financial Stability. This Conference was organized by the Banco de España and the Centro de Estudios Monetarios y Financieros (CEMFI), on 24 and 25 May 2017. The article reviews several aspects of the provisions, in particular their consideration as a possible, although nuanced, answer to disaster myopia. In this regard, the accountants' view on the provisions, the innovative elements incorporated by them, the revision of loss concepts and their interaction along the way with capital and provisions, are also part of the issues reviewed in the article. The relevance of stress tests and their relation with the Spanish countercyclical provisions together with a final reflection on the macroprudential policies are two additional pieces of interest addressed.

**1 Introduction**

The Banco de España's introduction of countercyclical provisions was a remarkable accomplishment. It was one of the first genuine examples of thoughtful, macroprudential policy. More fundamentally, it pioneered the concept of truly forward-looking banking supervision, which is only now being adopted in many countries, largely in the form of supervised stress tests. And, of course, it has led to substantive accounting reforms more focused on the fair or true values of assets. The fact that this innovation was possible because the Banco de España could regulate accounting standards has caused me to reconsider my long-standing enthusiasm for the harmonization of accounting standards. If the Banco de España had been obliged to adopt an international standard 20 years ago, this experiment would never have taken place. That strikes me as a good argument for permitting countries some scope for experimentation. Although I continue to believe it is important to be able to compare financial results across borders, it might be wiser to place the emphasis on ways to translate national standards into some common standard rather than to impose the same standard on all countries.

What I particularly enjoyed about the book, *The Countercyclical Provision of the Banco de España, 2000-2016*, by Jesús Saurina and Carlos Trucharte – and the reason it should be of interest to readers who may lack a special interest in the Spanish experiment per se – is the detailed, comprehensive analysis of an important innovation in bank supervision. The literature contains several accounts of how financial innovations occur in the private sector, but the political economy of how innovations in bank reform take place is seldom studied. Much of the authors' analysis of the reform in Spain resonates with my view of how banking reforms have often evolved in the United States. The authors carefully distinguish the differing perspectives of bank regulators, securities regulators, the tax authorities and managers of financial institutions each of whom may have a different view of how banks should take provisions against current income and accumulate reserves. Bank regulators are sometimes caricatured as “never having seen an increase in reserves they didn't like”. In general bank regulators are primarily concerned with the maintenance of confidence in the banking system and so they tend to favor measures, such as increases in reserves or capital that provide additional protection against insolvency.

In contrast, securities regulators focus on investor protection and the maintenance of fair and efficient markets. Their primary concern is that financial disclosures provide a fair and accurate description of the bank's financial condition. They tend to look

skeptically on any accounting practice that distorts current earnings and provides managers with discretion to manipulate income to smooth reported earnings over time. In the US, we have often seen tensions between the US Securities Exchange Commission (SEC) and the bank regulators. For example, in 1987 and 1988, US banks set aside billions of dollars of reserves that were a belated acknowledgment of the decline in value of their claims on developing countries. This generally pleased the banking authorities, but caused the SEC to question whether earnings had been substantially overstated in prior quarters.

In addition to the securities and bank regulators, the tax authorities also constrain and influence how decisions are made and reported regarding provisions and reserves. In general, the tax authorities take a dim view of accounting practices that reduce taxable income, including provisions that exceed objectively verifiable losses. This reinforces the innate tendency for managers to resist setting aside provisions against losses that may not occur.

The perspectives of bank executives also influence reported financial statements. Accounting rules often provide managers with some discretion about how they are applied. Not only does this lead to differences in reporting across banks, but also to differences in reporting by an individual bank over time. For example, a new management team may tend to over-provision markedly to get all the bad news associated with the prior managers behind it so future performance will not be clouded by past problems. But, apart from this circumstance, managers generally appear to prefer to under-provision. This may reflect several factors. Perhaps, managers expect they will no longer be at the institution when negative events finally materialize. Or, perhaps, they believe the share price of their institution (and thus their compensation) depends on reporting stable and growing earnings. Whatever the reason, this behavior will not help moderate the cyclical pattern of bank lending. Under-provisioning during a boom will exaggerate profitability and lead to still more lending and the failure to have accumulated sufficient reserves during the boom period will intensify pressures for the bank to reduce lending to replenish its reserves and meet regulatory capital requirements.

## 2 The accountants

Although constrained by banking and securities regulators and the tax authorities, accountants bring their own particular biases to the determination of provisions and reserves. An anecdote attributable to Charles Goodhart illustrates my view of many accounting conventions. Goodhart told a story of a man who was adrift in a hot-air balloon and had lost his way. He saw someone walking in a field below him and shouted: "Hello there. Can you tell me where I am?". The man responded, "Yes, you're in a balloon, ten meters above me". The man in the balloon responded, "Ah, I know exactly what you do. You must be an accountant. You told me something that's true, but absolutely useless". Accountants are in the business of attesting to the accuracy of information and so they have an understandable preference for objectively verifiable measures. Unfortunately, such measures are often not relevant for decision-making.

Accountants were not enthusiastic about the adoption of through-the-cycle provisioning because they were uneasy about attesting to potential future losses that could not be verified. Moreover, they justifiably believed they had reformed provisioning practices markedly by abandoning policies that required banks to set provisions to accumulate, or when necessary, disguise a decline in hidden reserves. Several countries required that banks accumulate hidden reserves that were disclosed to (and, presumably, verified) by the regulators, but could not be disclosed to the public under penalty of criminal law.

Hidden reserves were intended to provide banks with a means to smooth income. The presumption was that if the public did not know about losses in income (and corresponding declines in reserves or retained earnings), confidence in banks would be maintained.<sup>1</sup>

### 3 The Spanish innovation

The Banco de España's innovation of computing provisions over the cycle helped pave the way for more forward looking accounting reforms that have been adopted on both sides of the Atlantic. In countries that follow International Financial Reporting Standards (IFRS), an Expected Credit Loss (ECL) model is being implemented and in countries that apply standards set by the Financial Accounting Standards Board, a Current Expected Credit Loss (CECL) model is being implemented.<sup>2</sup> Both approaches reflect the spirit of the Spanish countercyclical provisions requirement.

The Spanish provisions also have the merit of providing a partial remedy to the age-old problem of the pro-cyclical influence of supervisors. Observers have frequently criticized the pro-cyclical impact of bank regulation, but the influence of supervisors tends to be pro-cyclical as well. The influence of bank supervisors tends to diminish in an expanding economy when lending is growing rapidly and profits appear to be high. In most regulatory systems, bank supervisors have great difficulty in constraining a bank that is highly profitable and appears to have few realized losses even if supervisors believe the bank is increasingly vulnerable to future losses. Yet when a crisis arises, the influence of bank supervisors tends to soar. Often supervisors react to losses that have already occurred by pressing banks to increase their ability to absorb future losses. The Spanish innovation finesses this problem adroitly by providing a transparent, automatic rule that avoids the inherent problem of bargaining involved in the discretionary supervisory discipline envisioned in Pillar 2 of Basel II and Basel III. Moreover, the approach fits neatly with the turn-of-the-century paradigm about how capital regulation should work.<sup>3</sup> If we assume we know the distribution governing outcomes for a bank, an admittedly heroic assumption, we can highlight an important distinction between reserves and capital.

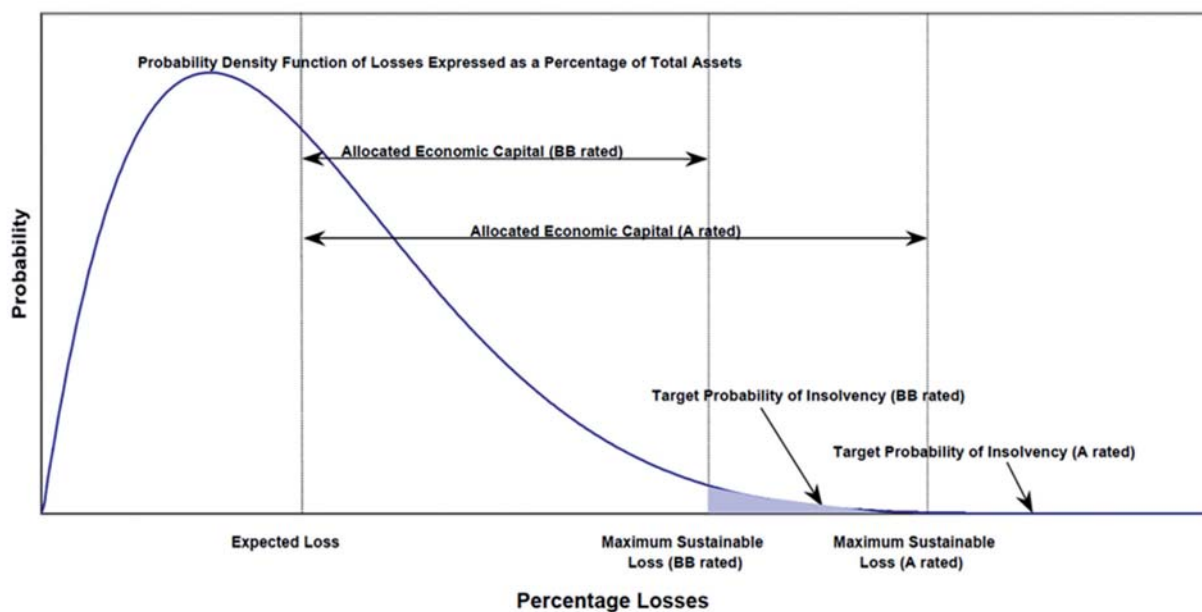
Chart 1 depicts the probability density function of losses for a bank over a year. The distribution is skewed to the right and has a relatively fat right tail consistent with the profile of a bank that bears considerable credit risk, which has limited upside, but substantial downside. The expected loss (the probability weighted loss associated with this density function) corresponds to the amount of reserves the bank should accumulate to absorb losses that are likely to occur on average over the year. Not surprisingly, Chart 1 shows a substantial probability the bank may lose much more than the *expected* loss it has reserved against. The role of capital is to serve as a buffer against this *unexpected* loss that exceeds the *expected* loss.

Risk results from uncertainty about the magnitude of this *unexpected* loss. The amount of economic capital the bank decides to allocate to absorb unexpected loss will largely determine

<sup>1</sup> For example, this accounting flexibility enabled Credit Suisse to absorb a loss of Sfr1bn at its Chiasso branch in 1977, by dissolving hidden reserves, without modifying its operating results for the year. In the wake of the Great Financial Crisis, it seems likely that confidence in banks and regulators has eroded to such an extent that that the public would be highly skeptical of this kind of accounting legerdemain.

<sup>2</sup> Both the ECL and CECL models may be viewed as a response to the concern expressed by the Group of 20 that credit loss provisioning was too little and too late during the Great Financial Crisis. In 2015, the Basel Committee on Banking Supervision (2015) issued supervisory guidance on credit risk and accounting for expected credit losses that sets out supervisory expectation for credit institutions that include incorporating a model of expected credit losses in establishing provisions.

<sup>3</sup> After the Great Financial Crisis, the paradigm shifted from reliance on the assumption of known probability distributions to an emphasis on a bank's ability to withstand a number of different stress scenarios.



SOURCE: Author's elaboration.

its credit rating.<sup>4</sup> Suppose the board of the bank depicted in Chart 1 aims to achieve an A rating on its long-term debt. To accomplish this objective, the board will need to allocate economic capital equal to the difference between the maximum sustainable loss associated with the probability of default on A-rated securities and the Expected Loss. This will reduce the probability the bank will incur a loss greater than its reserves and economic capital to 0.03%,<sup>5</sup> the probability of default on A-rated securities. In effect, the bank will need to allocate sufficient capital to cover 99.97% of the losses that may occur over one year in order to achieve the level of safety that the market demands from A-rated borrowers. (The blackened area under the curve in the far-right tail is drawn to equal 0.03% of the area under the curve). The left margin of this area determines the maximum sustainable loss consistent with a 0.03% probability of insolvency. If the board had opted for a less pristine target debt rating, say BB (which is associated with an historical probability of default of 1.32%), the amount of economic capital the bank would need to allocate would decline by about one third.

The board's choice, however, is constrained by regulation. The Basel II rule required banks that adopt the internal ratings-based approaches to maintain sufficient regulatory capital to ensure that the probability of a loss would exceed regulatory capital was less than 0.01%. At this level of confidence, a bank would be expected to suffer losses exceeding its level of regulatory capital once in a thousand years on average.<sup>6</sup> As noted above the correspondence between economic capital and regulatory capital is highly imperfect and so the correspondence between the board's choice of a target debt ratio and a bank's minimum capital requirement is inexact, but the question was framed in a similar way.<sup>7</sup>

<sup>4</sup> Economic capital should be distinguished from regulatory capital. For an especially clear discussion of these differences see Elizalde and Repullo (2007). Note that Elizalde and Repullo introduce a more sophisticated approach to determining the desired level of economic capital than the traditional model, which simplifies the problem by assuming that the board is simply choosing a target debt rating.

<sup>5</sup> See Gupton, Finger, and Bhatia (1997), p. 76, for this estimate of the long-term average probability of default during one year for A-rated debt.

<sup>6</sup> A number of documents issued by the Basel Committee describe this approach and its relationship to economic capital, but one of the most concise explanations is Basel Committee on Banking Supervision (2005).

<sup>7</sup> Of course, if the correspondence between economic capital and regulatory capital were exact and banks were required to have sufficient capital to buffer against 99.99% of losses, we would expect banks to achieve much higher credit ratings than we observe.

The Spanish concept of dynamic provisioning contributes to a more precise determination of capital adequacy to the extent it strengthens the alignment between expected losses and reserves. The economic capital paradigm draws a clear distinction between reserves and capital, but since the calibration of economic capital depends on both expected and unexpected losses, it is important to have an accurate estimate of expected losses to measure the amount of economic capital needed. If the estimate of expected losses is too low the bank will be undercapitalized even though it may meet the regulatory minimum. Excess provisions, on the other hand, should be counted as capital. The accounting and regulatory distinction between reserves and capital is not as clear cut as financial reports imply and so the Banco de España's effort to improve the accuracy of reserves is a welcome innovation.

#### 4 Challenges to the implementation

The concept of through-the-cycle provisioning is attractive but its implementation presents several difficult challenges in the context of the economic capital paradigm. We need to know how to interpret the distribution of losses. Conceptually, Chart 1 depicts the distribution of losses over a one-year period. But at what point in the cycle does the one-year period begin? The loss estimates provided by the credit rating agencies are very long-term averages over many cycles. Markets, however, are less likely to take a long-term perspective. Market perceptions of the probability of default aggregate all current information and are more likely to be point-in-time rather than through the cycle.

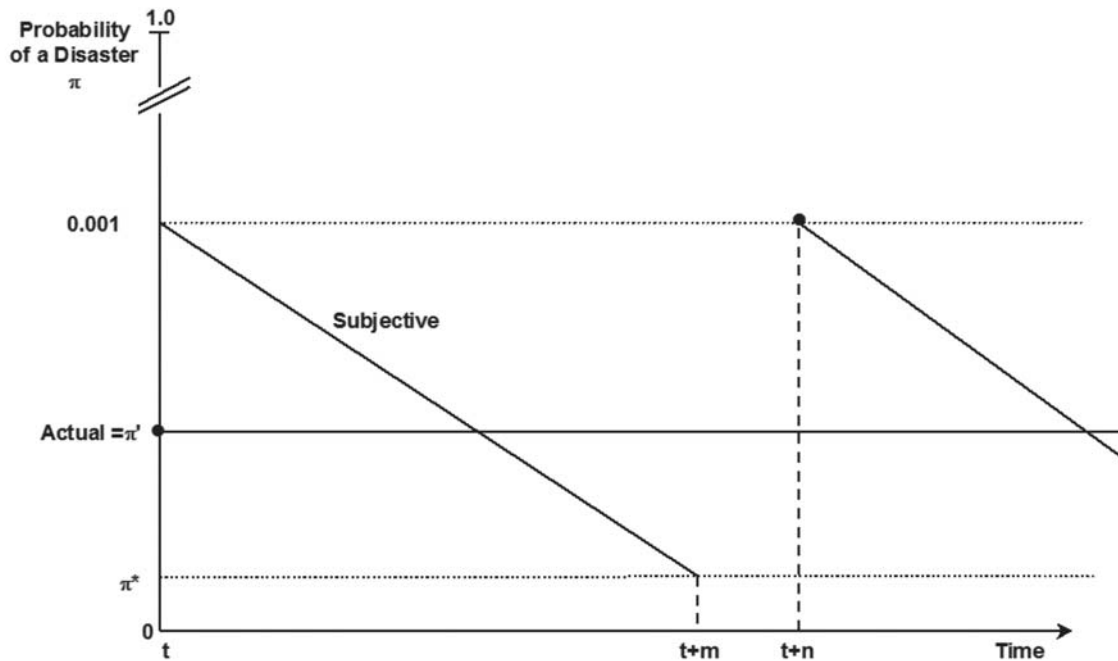
Although the concept of averaging losses over the cycle is appealing, it cannot be very precise since supervisors do not know the amplitude and duration of the current cycle, nor can they be certain about where the economy is in the cycle. This also raises the troubling question about how regulatory requirements regarding provisions can achieve credibility in markets.

Fundamentally, cycles are an *ex-post* concept. For example, we do not know where we are in a US business cycle until the National Bureau of Economic Research tells us. Often that is a considerably after a turning point. Consequently, we may be well into a recession (or possibly even into the early stages of a recovery) before a recession is officially declared. Yet, understanding the business cycle is highly relevant to getting the expected losses (and thus reserves) right. The solution embedded in Spanish approach is to make an estimate of through-the-cycle provisions based on the most recent cycle. This is plausible, but it should be recognized that it is an estimate based on one observation and thus will have a very large standard error of estimate.

As a practical matter, the requirement for through-the-cycle provisions mandated banks to set aside a substantial additional amount of provisions relative to prior practice. Some have conjectured this may have had a perverse effect because market participants were so confident in the conservatism of the approach, they became complacent and overly confident about the health of the banking system. This perspective highlights the important role accounting policies can play, but strikes me as highly implausible. I think it much more likely that through-the-cycle provisioning did mitigate losses, but could not be expected to anticipate the magnitude of the losses that ultimately occurred.

#### 5 The disaster myopia

The book's authors make an admirable attempt to address the problem of disaster myopia. The disaster myopia hypothesis is a way of reconciling two different observations about bank lending. First, "The worst of loans are made in the best of times". Second, "Loan officers never intend to make a bad loan". Both observations seem plausible, but they appear to be at variance. They can be reconciled under the assumption that lenders' subjective probabilities of default tend to decline over a sustained period in which outcomes have been favorable.



SOURCE: Author's elaboration.

This assumption is based on the work of Tversky and Kahneman examining how people make decisions under conditions of uncertainty. They have conducted numerous experiments with many different samples of decision-makers from which they infer heuristics about how people *actually* make decisions (rather than how people *should* make optimal decisions). These heuristics are especially important in situations where people lack detailed *a priori* understanding of what causes an event to occur or do not have a sufficient empirical record to enable them to draw valid statistical inferences. The disaster myopia hypothesis<sup>8</sup> relies on the *availability heuristic* [Tversky and Kahneman (1982)], a rule of thumb that implies people assign probabilities to events according to how readily they can imagine the event occurring. If an event occurs frequently, the heuristic provides relatively accurate estimates. But if the event occurs only after long, unpredictable intervals, the availability heuristic results in an availability bias. Chart 2 illustrates how the subjective probability of a disaster declines over time since the last occurrence of the disaster. For simplicity, the (unobservable) true probability of a disaster is assumed to be a constant. The downward sloping line reflects the assumption that  $\pi$ , the subjective probability of a disaster, will fall as the interval since the last occurrence of the disaster increases because decision-makers find it increasingly difficult to imagine the event occurring.<sup>9</sup>

If the interval since the last disaster becomes very long, the subjective probability of a disaster may fall so low that decision-makers treat it as if it were zero. This is an example of the *threshold heuristic*.

The threshold heuristic was introduced in a classic article by Herbert Simon (1978) to describe how people allocate attention, one of their scarcest resources. Simon's hypothesis was that

<sup>8</sup> The concept of disaster myopia in financial behavior was introduced by Guttentag and Herring (1984). It was applied to the exposure of international banks to funding shocks in Guttentag and Herring (1985) and to bank lending to less developed countries in Guttentag and Herring (1986). Herring (1998) applied the hypothesis to the interest risk exposures of US thrift institutions during the 1970s and to credit risk modeling in Herring (1999).

<sup>9</sup> Real estate busts provide an example of this kind of low frequency disaster that seems to occur over long, but unpredictable intervals. See Herring and Wachter (1999) for the application of disaster myopia hypothesis to real estate lending with illustrations from several different countries.



decision-makers allocate their attention to events that seem likely to occur and, to some extent, to events that would have a devastating impact, but *only if* the subjective probability that such an event might occur is above some threshold, denoted in Chart 2 as  $\pi^*$ . At point t+m in Chart 2, the subjective probability has fallen so low that it is treated as if it were zero.

Simon argued decision-makers cannot possibly take account of all the low probability, disastrous events that might occur. Any attempt to do so would result in complete paralysis while the decision-maker simply attempts to list the possibilities. Thus, even though they cannot rule out the possibility numerous disastrous events might occur – for example, a meteor collision, nuclear holocaust or global pandemic – decisions are made as if the probability such events would occur were zero. Reliance on the threshold heuristic is crucial for rational decision-making, but when the availability *bias* combines with the threshold heuristic, decision-makers may unwittingly take excessive exposures to disastrous shocks. The disaster myopia hypothesis implies that this may happen in financial markets during a long period of euphoria when negative outcomes are comparatively rare and the last period of collapse has receded from the memories of many decision-makers. At this point, risk premia virtually disappear and leverage expands, not because decision-makers are consciously taking more risk, but because they believe that risks have diminished and so they can accept greater exposures without increasing their risk of insolvency.

Of course, benign financial conditions do not last forever. Sooner or later, a shock will occur and institutions will find they have inadvertently taken excessive insolvency exposures. Note at this point, the availability heuristic continues to be important, but leads to an overestimate of the probability of a disaster because, when a shock occurs, it is all too easy for decision makers to imagine another disaster occurring. This contributes to the exacerbation of the crisis. This is denoted in Chart 2 as time t+n, when a severe shock occurs. The subjective probability of another shock will rise sharply above the true, unobservable probability of a disaster, which remains  $\pi'$ . The consequence is that risk premia will rise substantially so that many borrowers will be rationed out of the market and most will pay more for their funds. Leverage will decline. These sharp financial adjustments are likely to have very damaging impacts on the real sector, which will find it more expensive or, in some cases impossible, to finance investments and consumption. Chart 2 suggests that this boom/bust scenario may be repetitive. If the shock at t+n is followed by benign financial conditions, subjective probabilities of default will once again fall below the true probability. The longer the interval of relatively good outcomes, the more likely a feeling of euphoria will prevail and the subjective probability of a disaster may once again fall below the threshold and be treated as if it were zero.

Several institutional factors accentuate disaster myopic behavior. Managerial accounting systems implicitly favor activities subject to low-frequency losses. If the reporting period is a year and provisions do not reflect a long-run perspective, an institution will appear to be exceptionally profitable for many years before the disastrous event occurs. In competitive markets this is likely to lead others to believe a particular line of business is very safe and profitable, and they will initiate or expand similar lines of business. This is where the countercyclical provisioning policy of the Banco de España plays an important role in countering disaster myopia. In effect the policy assumes that over the cycle bad outcomes will occur and so banks must set aside provisions this period because their current views about risk are likely to prove too optimistic.

Although countercyclical provisioning does not deal specifically with managerial incentives, I suspect the Banco de España has also taken measures to counter other related accounting

practices that encourage disaster myopic behavior. A couple of decades ago, it was common practice for banks to recognize loan fees up-front as part of current income. This is potentially very deceptive because higher fees may be traded off against lower spreads in setting the terms of a loan. A sophisticated management information system would recognize this trade-off and focus on the present-value equivalent spread that states fee and spread income on an equivalent basis and provides a more accurate measure of the compensation the bank may earn from loans. But, when fees can be reported as current income, a bank may choose to do so to boost its reported earnings, perhaps under the assumption that loan growth will continue and fees will be a sustainable source of income. Of course, fees are part of the compensation for taking risk over the life of the loan, not just the current accounting period, and so this practice will favor growth over prudent risk management. The problem is exacerbated if loan officers are compensated based on current revenues they generate. This is likely to lead loan officers to prefer fee income over spread income because it will boost their compensation. The result will be a greater emphasis on loan originations and less attention to longer term outcomes.

Even if decisions are not distorted by a management information system that favors fees over spread income, high job mobility among lending officers and those who manage them may also contribute to disaster myopic behavior. If the individual's exposure to the risk of an unfavorable loan outcome is shorter than that of the institution, the decision-maker may focus on short-term returns without appropriate attention to longer-term risks. If individuals expect to be in another position or at another institution before bad outcomes, their personal exposure to the risk of an unfavorable outcome will not be aligned with that of the institution. Several policy initiatives since the Great Financial Crisis, such as requirements for deferred compensation and clawbacks, have attempted to deal with this problem, but their effectiveness remains uncertain.

As an economist I generally favor competitive markets, but I concede that in the case of low-frequency, disastrous shocks, competitive markets can exacerbate the problem of disaster myopia. Competitive markets work well in disciplining institutions when unfavorable outcomes occur frequently. For example, if an institution is inept at assessing risk in consumer lending, where bad outcomes happen frequently, it will incur losses and be driven out of the market. But if a shock occurs only at long, but unpredictable intervals, this market mechanism may undermine the pricing of risk. Entry of new competitors may accelerate the process of driving down risk premia to levels that are inconsistent with financial stability. Real estate lending provides an example of this kind of behavior. Real estate cycles tend to be very long, with intervals between peaks measured in decades. Unless appropriate measures are implemented to risk-adjust profits, returns may look deceptively attractive for an extended period. This is likely to attract new entrants and expansion of real estate lending by incumbents. It may also incentive innovations that will enable non-bank players to enter the market. And, since the unknown interval between real estate collapses can be quite long, they may appear to be very profitable for several years. Under such circumstances, prudent lenders face an unpleasant dilemma. They can continue to lend and accept compensation for risk that they believe to be inadequate or they can exit the market. In a competitive market, they do not have the choice of setting a lending rate markedly above that of competitors. The case for through-the-cycle provisioning in this context is compelling, but very difficult to implement, even if a regulator could control accounting policies at non-banks as well as banks.

Of course, perverse regulatory incentives may encourage disaster myopia by enabling institutions to largely ignore tail risks. The finance literature documents several features of

the safety net that can lead to this kind of moral hazard. In addition, another consequence of official behavior in a crisis has received less attention. During a financial crisis, it often emerges that institutions have similar loan exposures. This may happen for several reasons, but one merits attention under the heading of perverse incentives. Banks routinely compare their own exposures to those of competitors<sup>10</sup> at least in part because they understand that if they have an unusually large exposure to a particular kind of shock relative to their peers, if the shock occurs their problem will be viewed as idiosyncratic and is likely to receive much harsher treatment from the regulators than if the problem that materializes affects other major institutions. A banking system problem is much more likely to receive official assistance on favorable terms than an individual bank problem. To some extent, this undoubtedly leads to a tendency for banks to herd.

The tendency to herd may also be an unintended consequence of the emphasis on peer group analysis. Equity analysts, bond rating agencies and supervisory authorities tend to look at individual banks relative to their peers. If a bank's profile is different from that of its peers it faces the burden of explaining why. This analytic approach is useful if the peers are soundly managed, the underlying premise of the approach. But this does not always prove to be true. The focus of the supervisory authorities should be on the risk profile of the peer group, without the presumption that the herd is prudent, because that is what matters most for financial resilience.

More fundamentally, I suspect herding is a natural response to uncertainty about the risks banks face. When risks are uncertain, banks take reassurance if their decisions are in line with those of their peers. Keynes (1931) noted this tendency when he observed: "A 'sound' banker, alas, is not one who foresees danger and avoids it, but one who, when he is ruined, is ruined in a conventional way along with his fellows so that no one can really blame him". From a decision-maker's perspective, herding minimizes ex-post regret; if decision-makers prove to be wrong, they can draw comfort from the fact that their peers were making the same mistakes and avoid a considerable amount of blame.

I believe that disaster myopia remains a threat to financial stability over the long run, but the Banco de España deserves credit for being one of the first regulatory authorities to design and implement a policy to curb disaster myopia. Efforts to harmonize national regulatory policies and accounting standards have brought an end to the Spanish approach to through-the-cycle provisioning.

## 6 Stress tests

The new regulatory emphasis on stress tests, however, incorporates the fundamental contribution of the Banco de España's innovation. Stress tests are designed to be forward looking and to incentivize banks to incorporate possible losses under adverse scenarios into business models and capital planning. They can be tailored to emerging vulnerabilities and provide greater transparency about the kinds of shocks and magnitude of economic downturn banks should be prepared to withstand. Disclosure of stress test results enhances the public accountability of both banks and bank supervisors. When accompanied by qualitative standards regarding the governance of data and models, stress tests can substantially improve risks analysis.<sup>11</sup> Repullo and Saurina (2012) highlighted a problem with the Basel III countercyclical buffer that I think applies with equal force to the difference between the countercyclical impact of stress tests relative to the Banco de España's

<sup>10</sup> In the US this process takes place as soon as 10-Q reports and Call Reports are available.

<sup>11</sup> Of course, stress tests have their drawbacks. They generally cannot credibly accommodate feedback effects that may be very important in a systemic crisis and typically apply only to banks, so that the systemic risks in other kinds of financial intermediation cannot be monitored in the same framework.

pre-provisioning policy. Stress tests should substantially improve the ability of the banks to withstand a shock, however, once the shock occurs they cannot reduce the pressure on banks to reduce lending to remain in compliance with regulatory capital requirements. In contrast, the Banco de España's through-the-cycle provisioning policy provided a transparent and automatic release of reserves without the need for the exercise of supervisory discretion. This may be a significant advantage, but it raises an issue that concerns me about many macroprudential policies.

## 7 Macroprudential policies

If buffers against loss are reduced during a crisis, how will equity and bond markets react? Most macroprudential policies are intended to release reserves or regulatory capital in a downturn to buffer the impact on borrowers. While this is desirable from a macroeconomic perspective, I'm skeptical that markets will react favorably. If a bank is seen to be reducing its capacity to withstand a loss just as the prospect of losses is increasing, I would expect the market reaction to be negative. That is one lesson I drew from the Great Recession in which regulators lost all credibility, especially in the United States, because they failed to anticipate the serious decline in financial conditions and their measures of capital adequacy were completely uninformative. I think that regulatory permission for banks to reduce their capacity to absorb losses either lowering provisions or regulatory capital requirements would have been greeted with enormous skepticism. Indeed, the signal may have had a perverse impact if the market viewed the reduction in prudential standards as an act of desperation.

As the economic recovery began, several important banks in the US managed to return to profitability by reversing provisions that had been taken earlier when the outlook was less favorable. The market reaction to this boost in profitability was largely negative. These releases of reserves were regarded as non-recurring income and largely ignored. Would the outcome have been different if the US had employed a predetermined, transparent rule like the Banco de España's countercyclical provisioning policy? I was not able to find an answer in this otherwise remarkably comprehensive analysis of the countercyclical provisioning policy. How did markets react when reserves were released during the crisis and approached zero? So many confounding factors occurred during the crisis that it may not be possible to answer the question, but I'm left with a sense of unease about the extent to which a countercyclical provisioning policy can mitigate a downturn.

My conclusion, nonetheless, is that the rest of the world has learned a great deal from the Spanish regulatory innovation. I am grateful to the authors, Jesús Saurina and Carlos Trucharte, for have written a highly readable account of the experience with such great care and illuminating detail.

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