Safe and Sound Banking: A Role for Countercyclical Regulatory Requirements?

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I. Introduction

The financial crisis that began in the summer of 2007 and that has been termed the most serious crisis since the Great Depression has spawned not only a hunt for culprits and scapegoats, but also a search for regulatory solutions. A number of papers have already covered the diagnosis of the causes of the crises and traced the propagation mechanisms (see Brunnermeier, 2009; Caprio, Demirguc-Kunt, and Kane, 2008; Caprio, 2009; Greenlaw, Hatzius and Shin, 2008; and Gorton, 2009). Now the search is afoot in regulatory agencies in numerous countries, in fora such as the Basel Committee on Bank Supervision and the Financial Stability Board (formerly the Financial Stability Forum), and in academic circles, for ways to rebuild a regulatory framework in which the public will have confidence and which will promise to mitigate crises.

One idea that is gaining support among various groups is how to make Basel II or any regulatory regime less procyclical (see Brunnermeier, Crockett, Goodhart, Persaud, and Shin, 2009 and Griffith-Jones and Ocampo, 2009). As witnessed in the run-up to the current crisis, prolonged periods of economic expansion can lead to increases in lending and leverage on the part of the banks (and others), with supervisors either swept along in the euphoria or swept aside by the political influence of bankers determined to expand rapidly in a supposedly safe and profitable environment. Basel II offers several ways in which procyclicality can become institutionalized. Those banks that would base their capital ratios on model estimates can do so, with the Basel Committee's blessing, with only 5 years of data, which at times might only include boom years and thus underestimate the probability of default. Alternatively, banks relying on ratings to set risk weights in the determination of minimum capital holdings may find that the ratings

organizations are similarly influenced by the macro environment. Accordingly, the search for a more countercyclical regulatory framework seems worthwhile, and the fact that the aforementioned authors and important international groups are espousing this effort lends credence to the idea.

This paper reviews the pros and cons of countercyclical requirements and looks at the very limited experience with them. Section 2 addresses the rationale for attempting to cope with procyclicality and examines different ways to make credit less procyclical. Countercyclical provisioning is one way potentially to address this problem, and Section 3 therefore will then look at the efforts of the authorities in Spain and Colombia, two countries in which countercyclical provisioning has been tried, to see what the track record has been. As explained there, these experiments have been too recent and limited to permit any sensible econometric evaluation. Section 4 will address some concerns and implementation issues with countercyclical capital or provisioning requirements. First, although banks that add to their capital or provisions during boom times might be safer than banks with lesser holdings, other things equal, it is not clear from theory or empirical evidence that requirements for such changes will be effective in curbing risk taking. Second, countercyclical provisioning or capital requirements also must deal with the so-called boundary problem, namely that tightening requirements on some entities or in some geographical areas will send the more costly or prohibited activity across institutional or geographic boundaries, leaving the world still exposed to risk. This type of regulatory arbitrage has characterized finance throughout its history. Regulatory avoidance can have positive effects, as when creditworthy borrowers gain access to finance, as well as negative consequences, as seen in the current crisis by the disguising or shifting of risk

exposures through the creation of Structured Investment Vehicles (SIVs) by banks expressly to evade limits imposed by capital requirements. Third, it is quite possible that countercyclical provisioning or capital requirements will be applied in insufficient doses, as appears to have been the case thus far where implemented. The history of financial regulation suggests that such a development should not be unexpected, as for example seen with deposit insurance premia – where many countries underprice the risk, and where risk-based premia – an idea many economists would endorse -- differed by so little in practice as to render them ineffective in restraining risk. After all, the U.S. had risk-based premia (and prompt, corrective action, no less), and yet still suffered a record crisis. Section 5 concludes and offers advice to developing country authorities, who may be tempted to follow industrial countries down a path they seem determined to take. Countercyclical provisioning or capital requirements may well be oversold in their ability to rein in booms and alleviate busts, and authorities should look more to addressing underlying information and incentive problems in the sector.

II. Coping with Procyclicality: Why and How

> 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 and orthodox way with his fellows, so that no one can really blame him. J.M. Keynes, 1932, p. 176.

a. Rationale

Procyclicality in banking, meaning the tendency of banks to ease lending standards excessively in a boom and restrain them unreasonably in a contraction, is not new, as the quote from Keynes attests. Banking tends to be procyclical for a variety of reasons, not least of which is that in the presence of information asymmetries, bankers are willing to

make more loans when borrower net worth and collateral values are high and unemployment rates among borrowers are low. To the extent that they value net worth and collateral at current prices, credit will become more readily available when asset prices are high.

However, there are a variety of reasons why societies, in their own long-term interest, might want banks to restrain procyclical tendencies in the expansionary phase of a credit boom. For example one can easily imagine that many who are having their houses foreclosed regret that they borrowed so much, or in other words that banks were so generous in making credit available to them, a sentiment shared by the many affected by the crisis. Both banks and borrowers might suffer from disaster myopia (Guttentag and Herring, 1986), which is basically a form of framing identified by Tversky and Kahneman (1981). When prices rise (whether the price in question is South Sea Company stock, oil, currencies, housing, etc.) or economies or businesses prosper for a sufficient time, many use simple extrapolation as their forecasting tool, forgetting the phenomenon of regression to the mean. Indeed, the title for Reinhart and Rogoff's 2009 book on crises employs the saying most frequently uttered in booms -- 'This Time is Different' – an expression of the belief that an upward trend will continue, rather than revert back to the mean.[1] Bankers often note that when a long time has passed since mean reversion, those in risk-taking positions, such as loan officers, not having lived through lean periods, nor apparently having studied them, do not plan for this eventuality. Lack of experience is difficult to

[1] The stories of why change is supposedly new and lasting – why land in Japan could suddenly become more scarce, why developing countries could take on tremendous amounts of debt, why housing prices cannot fall, etc. – vary but have in common the neglect of less recent history (e.g., when land was less valuable, debtors defaulted, or housing prices fell).

separate from a tendency to go with the herd. Keynes' quote at the start of this section captured a key reason behind herding behavior in banking.

The most recent crisis revealed a less innocent cause, which in effect is herding at the level of remuneration, namely the payment of significant amounts of compensation based on generating large volumes of business – from mortgage origination, to the creation of securities, the production of optimistic ratings, etc. -- without recourse in the event that outcomes are less favorable. So rather than an episode of collective amnesia or a failure to comprehend history, this explanation (Rajan, 2006) argues that many – from mortgage brokers to heads of banks and rating agencies -- were handsomely compensated to look only on the upside because they would not accountable for the losses on the downside, which was one of the key reasons behind Rajan's early warning of problems in the financial sector.

The prevalence of asset bubbles, especially in recent years, is another reason for the search for a more countercyclical regulatory framework. While not a new phenomenon, it has been noted that as early as the South Sea Bubble of 1719-20, some savvy insiders have 'ridden' the bubble, thereby exacerbating asset prices swings and the pain that they entail (Temin and Voth, 2004), suggesting to some the need for some regulatory counter-measures.

Banks and other financial intermediaries – especially the largest -- have also become more interconnected than in generations past through a variety of markets in which they are counterparties or have the same exposure. Although interconnectedness has long been a feature of banking, formerly banks held substantial amounts of liquidity and more capital, whereas now they depend more heavily on markets -- including other

intermediaries -- to provide that liquidity. This dependence heightens their fragility, commensurate with their greater leverage during booms, and makes countercyclical regulation more desirable. And the gains in the speed of communication and the transmission of information over the years, while a benefit in most respects, gives banks little time to adjust to liquidity demands.

Although shareholders, creditors, auditors, credit rating agencies, and supervisors all have a role in disciplining bank management, crises generally expose the weaknesses in corporate governance and the limits of each of these groups in overcoming the agency problem; in the boom preceding the current crisis, the outsized compensation paid for originating business, with little thought of the future consequences, was a major governance failure. Shareholders' lack of attention to the downside is understandable, given that they at least benefit when risk taking pays off. Creditors' lack of discipline perhaps is the most puzzling, as they risk losses when banks fail yet do not benefit from upside gains when risky bets pay off. Although it is possible that they were merely anticipating a bailout by the government – uninsured creditors to U.S. banks thus far largely have been protected from losses -- the more plausible explanation is that they were swept up in the general euphoria. As creditors across the board drove down risk premia on most forms of debt, from spreads on emerging market debt to riskier corporate paper, bank creditors appeared to have been infected with the same optimism (perhaps fueled by high credit ratings) and failed to charge risky banks a sufficient default premium.

Procyclical lending – easing credit standards in boom times – also leads to greater losses and forced asset sales during the 'bust' phase. The term applied to the latter behavior, 'fire sale,' suggests the clear downside, in that asset prices will tend to overshoot

their long-term value in the downturn, just as they did during the boom. Reducing procyclicality therefore has the potential to reduce asset price volatility, making it easier for individuals and firms to plan.

Procyclicality evidently was not reduced by discretionary supervision. Supervisory failures around the world in the current crisis – and not just in the countries in which intermediaries were originating dodgy assets but equally in those in which intermediaries were purchasing them -- likely were due to the political influence of the regulatees, ideology , and/or incompetence. Disentangling these factors is no easy task. However, any of these answers suggests caution in basing too much of the responsibility for safe and sound banking on discretionary supervisory policies, as we have seen, not just in this crisis, that they do not function well. Consequently, the interest in reducing reliance on supervisory discretion and installing some automaticity in regulatory standards is understandable.

b. Methods for countering procyclical behavior in banking

The above reasons provide ample justification for an attempt to slow excessive lending by banks during boom times. Until the current crisis, most regulatory attention has been on microprudential factors, that is those factors that are relevant for individual financial intermediaries. The earlier debate on restraining credit booms therefore not surprisingly centered on the role of monetary policy in deflating asset bubbles. Unfortunately, an ample literature did not produce a consensus (Posen, 2006; Roubini, 2005), nor was one evident in policy circles. The Federal Reserve Board led the debate in favor of not intervening until a bubble collapsed, and as late as the end of 2008 apparently had not changed its view, saying that it was more in the remit of regulatory policy as long as

overall price stability targets were satisfied (Kohn, 2008). The European Central Bank made it known in several of its annual reports that it favored monetary policy intervention to reduce the amplitude of asset bubbles, though noting that this does not imply opposition to regulatory attempts to slow excessive credit expansion. The essence of the debate on using monetary policy to reign in bubbles turns on the benefits and costs of such intervention, with the Fed arguing that the difficulty of identifying bubbles in time to address them with monetary policy, as well as the likely ineffectiveness of relatively small increases in interest rates in restraining speculative bubbles (which are based on expectations of rates of return that are much larger than even the most vigorously countercyclical interest rate hikes by an activist central bank), implies that it is better to wait to use monetary policy if and when a bubble bursts. The opposing position puts less weight on the costs of bubble bursting and emphasizes the damage done by asset prices that are out of line with fundamentals. Serven and Demirguc-Kunt (2009) conclude that monetary policy still should try to reign in asset bubbles, a position that is especially important to the extent that countercyclical capital or provisioning requirements cannot be relied on to do that job.

Outside of the monetary policy area, perhaps the first alternative to reduce the procyclicality of lending would be to reduce or eliminate features of the regulatory system that encourage it. Risk-based capital requirements are an example: because minimum capital holdings are based a risk weighted average, factors that depress estimates of risk during booms and elevate them during recessions make capital requirements more procyclical than, for example, a simple and time-invariant leverage requirement. Using models with few years of data, or basing risk weights on ratings that might be higher in

boom times than in recessions encourages procyclicality. And ratings do appear to be procyclical -- as for example in the 1994 Mexican crisis, the 1997-99 East Asian crisis, and in the current one. In all cases, ratings stayed high until after difficulties were widely known. Consequently, the many requirements that different fund managers (e.g., those of pension funds) only hold rated instruments introduces some procyclicality. Ending the reliance of regulation on risk weights and ratings would thus help lessen procyclicality (see Caprio, Demirguc-Kunt, and Kane, 2008); somehow compelling the risk weights and ratings to be based on 'through the cycle' estimates of vulnerability would help as well.

Aside from removing sources of procyclicality, there are several ways for officials to use regulatory policy to 'lean against the wind' of a vigorous credit expansion. Perhaps the easiest way for regulatory authorities to intervene is on an ad hoc basis, meaning that as they see credit expansion and/or asset prices increasing beyond some rate (admittedly difficult to determine), they would attempt to slow credit expansion, perhaps beginning with the banks that are growing the fastest, by using discretionary limits on the expansion of their balance sheet. In effect by operating one by one on the most rapidly expanding banks, such discretionary intervention, if actually implemented, could serve both microprudential and macroprudential ends. However, as suggested earlier, discretionary supervision may not dependable. Although U.S. bank supervisors are quick to point to the role of non-bank financial intermediaries, such as investment banks and AIG (the American Insurance Group, which wrote credit default swaps (CDS) covering many securities that later experienced losses), in the current crisis, a number of large commercial banks clearly had excessive levels of leverage and needed access to government funds through a variety of channels. The malfunctioning of discretionary supervision in the U.S.

S&L crisis, which prompted the FDICIA legislation, provides some support for making regulatory interventions both automatic and easy to monitor, so that whether regulations are being enforced or not is readily apparent. As we will discuss in the last section, however, the fact that FDICIA malfunctioned in the current crisis might serve as a warning against putting too much stock on seemingly automatic policy levers.

It should be noted that supervisory breakdowns were not exclusive to the United States. High leverage – 20 or 30-to-1, or higher – also plagued banks in a number of high and middle-income countries (Barth, et al 2009). Moreover, while much 'toxic waste,' the impaired securities that have been so widely vilified in this crisis, originated in the U.S., much was purchased by European and other non-U.S. institutions. True, the securities largely were AAA-rated, but they were paying interest rates above other AAA securities. Which supervisory agency asked why this was the case and forced their institutions to hold additional capital against them? Apparently the answer is that none did so.

More concrete, formulaic means of interventions recently have been suggested to put regulation on automatic pilot. One way would be to have the models that either banks or supervisors use in setting minimum capital requirements be more conservative in the default probabilities that are employed. This could be accomplished for example by estimating default probabilities over entire business cycles, or even over (or giving extra weight to) the worst parts of business cycles; either method would generate higher default probabilities and therefore higher minimum capital holdings compared with the run up to the current crisis, when banks were able to use data from only the positive phase of the business cycle. To be sure, capital levels might still be insufficient; for example capital levels based on relatively short and mild recessions (such as 2001) would be insufficient

for sharper slowdowns. More generally, there is a clear issue as to the optimum length of time over which models should be estimated and how safe society wants it banking system. If banks regard default probabilities sufficiently high, they might choose not to lend to any but the very safest firms or in the limit just to the government, thereby limiting economic development and access to credit. This issued is revisited in the penultimate section below.

One method for dealing with an increase in systemic risk has been proposed by Adrian and Brunnermeier (2009), namely by measuring risk spillovers and tail risk correlations. As noted above, much of the focus of supervision and regulation prior to the current crisis has been on individual banks, and much attention has been on their assets, with much less to the asset-liability mismatches, let alone cross-institution risk. Adrian and Brunnermeier instead come up with essentially a series of measures that attempt to gauge an institution's contribution to systemic risk, or the value at risk of the financial sector given that an individual institution is at risk or in financial distress. They propose that institutions that contribute more to systemic risk should face greater regulation and/or restrictions. This very recent suggestion certainly looks to be worthy of more research.

Another proposal (Brunnermeier, Crockett, Goodhart, Persuad, and Shin, 2009, or henceforth BCGPS) is to make capital requirements a function not just of microprudential factors but of macro factors as well. BCGPS propose that multiplying the basic minimum capital ratio, however derived (e.g. by Basel), by a factor that reflects leverage, maturity mismatches, and credit and asset prices. Although they state "Highly levered and fast growing 'systemic' *institutions* would be subject to higher capital requirements than the rest (p. 31)," they clearly intend that their multiplication factor would vary with macro

indicators, and would be larger (greater than unity) during boom periods and smaller (less than unity) during slowdowns in credit growth and asset price increases. Thus their multiplier would presumably take account of economy-wide leverage and mismatches, in addition to overall asset prices and credit growth.

As explicated below, a different proposal, which has been adopted by the Spanish authorities, is to have banks build their provisions when credit is expanding rapidly. Provisions are the funds that banks set aside to take account of expected losses. As Borio, Furfine, and Lowe (2001) point out, from an economist's view, the economic value of a loan is the face amount less any provisions, which, as the difference between the face value of the loan and its current value, should equal the discounted value of losses minus the present value of any default premium that the bank collects.[2] The implication is that all future profits and losses matter, not just those in the current period. Accountants, whose primary concern is with the interpretation of accounts by shareholders, only look at the current period; hence their view is that provisions need to reflect what has actually happened, not what might occur. Accountants' focus is measuring accurately net income period by period, and contrasts sharply with the supervisory view (and certainly the view from a deposit insurance agency) that banks should be aggressively provisioning so as to avoid losses in the future. As Wall and Koch (2000) mention, supervisors can demand additional information from banks, whereas most actual and potential shareholders cannot; in the absence of additional information, it will be difficult for shareholders to weigh the different future scenarios, hence the accountants' attitude (given their role in protecting the accuracy of accounts for current and potential shareholders) in focusing on what has materialized. Still, from the economist view, if banks' provisions are less than their true

[2] Borio et al also note that if the risk premia is sufficient, there may be no need to set aside provisions.

expected losses, then their capital is overstated and potentially misleads investors and creditors.

Capital, on the other hand, is there to absorb unexpected losses. To be sure, there is a grey line separating expected and unexpected losses, due to the uncertainty of the distribution of various risks and the confidence interval applied. Still, countercyclical provisioning appeals to economists and supervisors – in effect it is a way of taking account of the finding that credit standards demonstrably deteriorate during booms and that credit then goes to riskier and less collateralized borrowers (Jimenez and Saurina, 2006).

III. Countercyclical Regulation in Practice

Although no country thus far has adopted a countercyclical capital requirement policy, as recommended by Brunnermeier et al (2009), a few have been adopting countercyclical provisioning. The Spanish authorities were the first to do so, followed by Colombia and much more recently (November, 2008) Peru. In this section we will look at the first two cases in order to understand how countercyclical features were implemented. As will become clear with the individual descriptions, it is at best too soon, and the cases are too few, to put much weight on them as models for others. Section IV will consider reasons why countercyclical measures might not be as effective as those who have designed them intend.

a. The Spanish example

The Spanish authorities first adopted the so-called statistical or dynamic provisioning in 2000, in part because of their loss of control of the money supply due to their membership in the Euro Zone. Although authorities in other countries that are not in common currency areas at least have the option to "lean against the wind" when asset prices begin rising sharply, Spanish authorities do not enjoy this ability; monetary policy is decided by the ECB and Euro zone conditions, not just those in Spain, will dominate policy decisions. Moreover, studies showed that Spain experienced sharply procyclical credit growth since the 1960s (Fernandez de Lis and Garcia Herrero, 2009). Jimenez and Saurina (2006) also found strong evidence that over the period 1984-2002 credit standards declined during booms, both in regard to the screening of borrowers – riskier projects/borrowers getting financing – and in the share of loans that were collateralized. Thus lending both was expanding and simultaneously deteriorating in quality, just as many bank supervisors had long asserted occurred in booms.

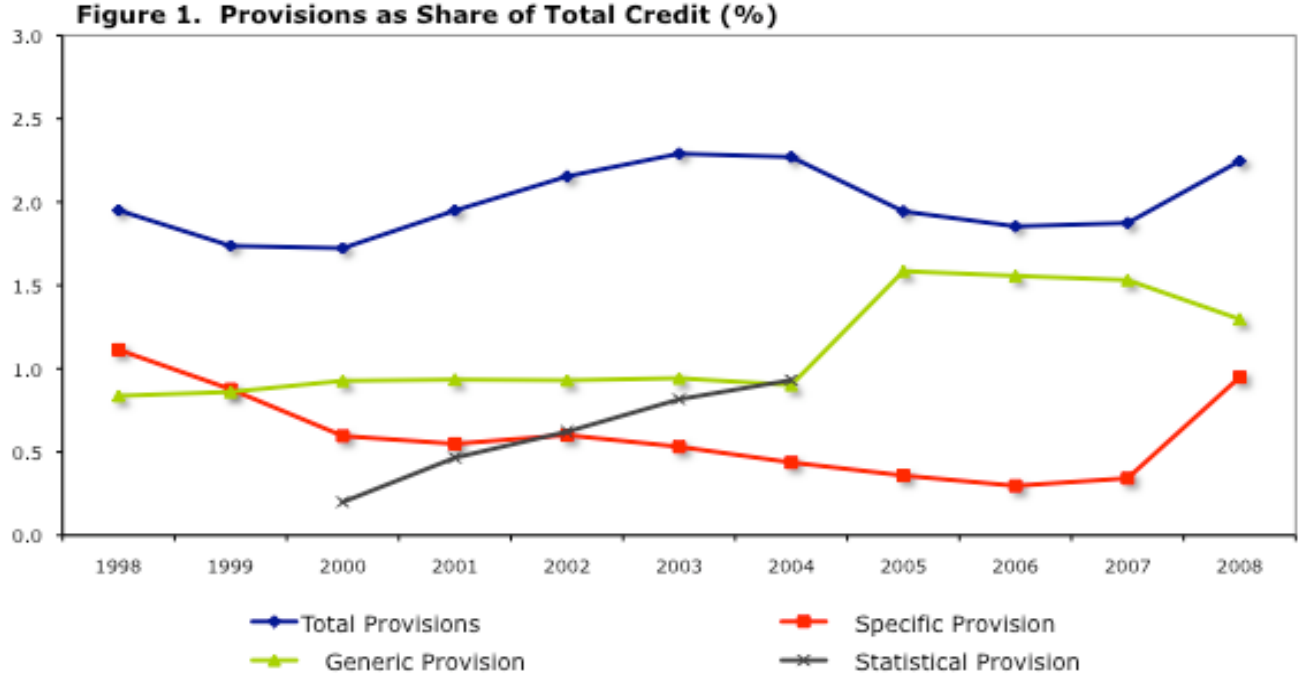
The attempt to reduce lending procyclicality began in July of 2000 with the creation of a new category of provisions, statistical provisions, which were merely added on to generic and specific provisions. Then in 2004, in order to deal with concerns from accountants, as noted in the discussion in Section II, the system was modified so that statistical provisions were subsumed into generic provisions, which were set as

$$\text{Generic provisions} = \alpha\, \Delta \text{ Credit} + \beta \text{ Credit} - \text{ Specific provisions},$$

where α is bounded by 0 and 2.5, and β by 0 and 1.64 (Fernandez de Lis and Garcia Herrero, 2009).

The first term, $\alpha \Delta$ Credit, captures what are normally termed general provisions, that is a small portion of all new loans is set aside to cover losses. The second term takes into account longer-term factors, and these calculations are done for each class of loan risk. In setting β, bank assets were assigned different risk weights; alternatively, banks could use their own internal models to set these weights, subject to supervisory oversight. However, statistical provisions depended on the difference between a measure of 'latent exposure' (that is, losses that might emerge on the banks' balance sheets in the future, but which are not recognized by traditional accounting systems) and specific provisions (these due to specific problems already identified). Thus latent exposure depends in part on the credit cycle, and statistical provisions can be positive or negative. Statistical provisions accumulate in a fund and are limited to between zero and three times latent risk (Poveda, 2000, and Fernandez de Lis and Garcia Herrero, 2009). As can be seen in Figure 1, in the initial years, the impact on total provisions was modest, as statistical provisions were

Figure 1. Provisions as Share of Total Credit (%)



Source: Banking Supervision Report 2001-2008 and Statistical Bulletin, Bank of Spain

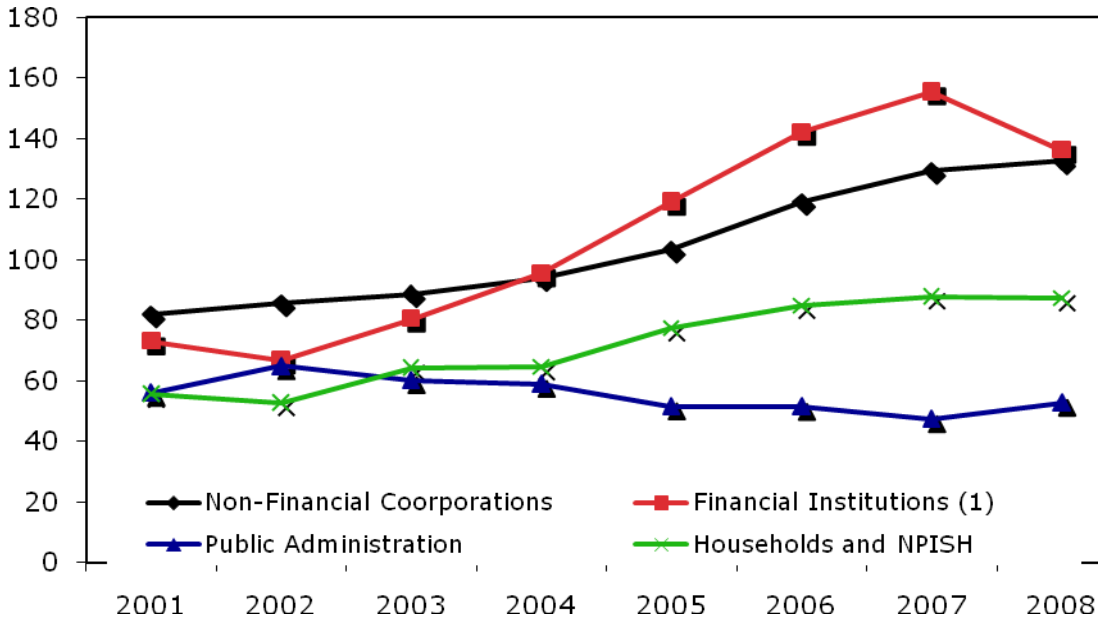
partly offset by a decrease in specific provisions.

Not surprisingly, there was resistance to statistical provisioning from the banks, as bankers felt that it made them less competitive, presumably because it entailed lower stated profits compared with those of banks in other regulatory jurisdictions. This claim is difficult to evaluate. At the level of the banking system, as seen above, the increase in provisions is tiny. Bankers could argue that it was reducing their profits and potentially making it more costly to issue stock (because their stated profits would look bad relative to other European banks not using statistical provisioning), but one would think that the dullest stockholder would see through to the underlying values, and realize that other banks would be underprovisioned compared with Spanish banks (again, to the extent that the effects were judged significant). And Spanish banks could help the market understand their positions better by disclosing more information about their statistical models and how they were being applied.

Some are quick to declare the Spanish system a success (Griffith-Jones and Ocampo, 2009, and Wall Street Journal, November 10, 2008), however it is still too soon to see how the Spanish financial system will fare in this crisis. An IMF report showed that as of 2005, Spain had a much higher ratio of provisions to NPLs, compared with other high-income countries, but the issue is how well the latter are estimated. Housing prices rose even more dramatically in Spain than they did in the U.S., growing by a factor of 2.5 over the period from 2000 to their peak in March of 2008 (Bank of Spain). As seen in Figure 2, total debt in Spanish financial institutions rose by a comparable amount. Moreover, the

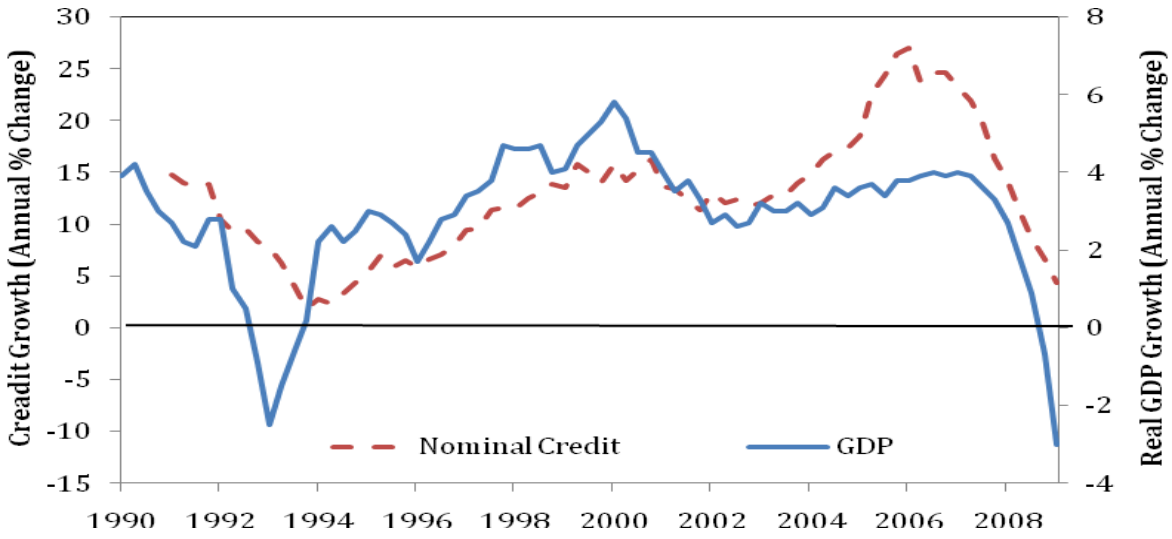
relationship between credit and GDP does not seem to have changed in the years following the adoption of countercyclical provisioning.

Figure 2. Total Debt in Spain
(% of GDP)



Source: Banking Supervision Report 2001-2008 and Statistical Bulletin, Bank of Spain

Figure 3. Nominal Credit and GDP Growth
(%)



Source: Bank of Spain and National Institute of Statistic

As of June 2009, the latest estimate by the head of the Spanish Savings Bank Association was the loan losses were expected to more than double to over 9 percent in 2010, from 4% in 2009; according to the same report, a rise of NPLs to 10% of assets would put about 20 banks below the minimum 8% capital ratio.[3] What is not yet clear is the extent to which the housing boom was financed through the banking system and how much larger a decline of housing prices – which fell by about 7% in the year ending in March 2009 -- will occur by the end of the crisis.

Importantly, even if the Spanish banking system fares well during this cycle, it is by no means clear that their provisioning system is or would be the principal cause. First, as noted above, Spanish banks had been through their own serious crisis in the early 1980s and then experienced a series of losses related to their Latin American exposure in the 1990s and early 2000s. Banks traditionally become more risk averse following crises – as the world is discovering in the current one! – and tend to reduce the rate of growth of lending (and/or provision more conservatively), even when regulator policy is being relaxed. Second, similar to Canada, Spanish authorities adopted a relatively conservative position related to securitization, so that off-balance sheet securitization accounts for less than 7% of total securitization (Fernandez de Lis and Garcia Herrero, 2009) and involves far less complicated instruments than in the United States. This policy change could easily have been more important in reducing the scope of the crisis in Spain, compared with a realistic counterfactual. Third, there may be other regulatory and supervisory factors, should Spanish banks emerge from this crisis in better condition than those elsewhere, that account for their better performance. Thus Canadian banks, which seem to

[3] See Thomson Reuters, UPDATE 2: CECA says Spanish banks may post losses in 2010, June 17, 2009.

be faring well, do not have a system of counter cyclical provisioning, yet seem to be among the better performing banking systems in the OECD region, notwithstanding the economic performance of their neighbor. Among the factors that could account for their relative stability are a higher franchise value (less competition), less financial innovation, avoidance of policies to encourage home ownership (though with the same home ownership rate as in the United States), and a policy of not allowing capital relief to banks who purchased CDS. In sum, *aficionados* of the Spanish approach must acknowledge a serious identification problem and be less quick to claim victory for countercyclical provisioning.

b. Colombia[4]

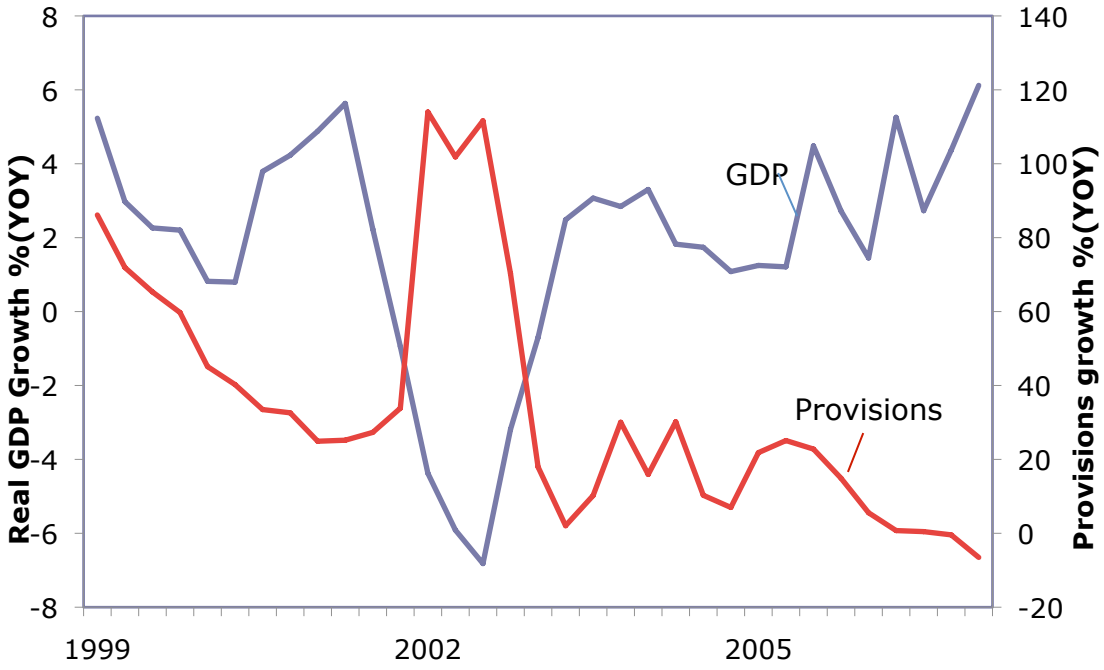
Authorities in Colombia adopted in 2002 a System for the Administration of Credit Risk (SARC), which is a collection of rules, procedures, methodologies, tools, knowledge, and human and physical capital aimed at the understanding, measurement and control of credit risk. According to the current legislation, expected losses related to credit risk have to be overcome using general or specific provisioning on the exposed portfolio, with expected losses estimated using the internal evaluation model(s) of each bank. The system explicitly acknowledges that provisioning should consider counter–cyclical adjustments, per the discussion of section 2. Interestingly, countercyclical provisioning can be performed either on an individual or a general basis. Prior to the adoption of SARC, provisioning in Colombia appeared to be firmly procyclical as seen in Figure 4; for example, provisions declined in the years up to 1998 when growth was relatively strong

[4] This section draws on reports and circulars from the Banco de la Republica, Fedesarrollo (2009), and Martinez, Pineda, and Salamanca (2005).

and soared in the recession that began later that year. Initially, legislation merely permitted countercyclical provisioning but did not require it or even define how it could be implemented.[5]

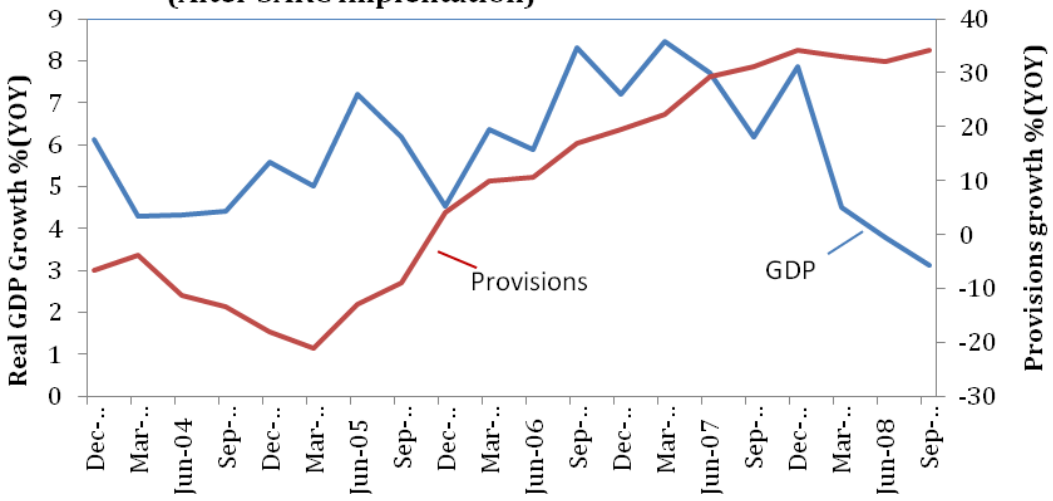
As seen in Figure 5, provisioning behavior changes markedly in 2005, even though the system was still not mandatory. It is not clear if there was any attempt at 'moral suasion' on the part of the authorities to achieve this result.

Figure 4. Provisions and GDP growth
(Before SARC implementation)



[5] Though intended to commence in 2003, the SARC had several revisions, extending the period that was allowed for institutions to present their internal models and to comply with the required data dissemination standards. There were difficulties in the construction of the internal models between 2003-2005 and on January 1st 2005 the Superintendencia Financiera de Colombia (SFC) presented a transition model or benchmark model for risk assessment while the internal models were evaluated and approved. The 2005 benchmark model included the use of countercyclical provisions but it did not have an explicit methodology for its use. In 2007 the SARC was modified and amended with a benchmark model for the constitution of countercyclical provisions for commercial credit only, and the following year a benchmark model was introduced for consumption credit lines. Thus between 2005 - 2007 the countercyclical scheme was voluntary.

Figure 5. Provisions and GDP growth (After SARC implentation)



As with the Spanish system, the Colombian approach defines latent losses for each loan based on outstanding exposures and average provisions (over the previous cycle) for each credit category. In accordance with the 2005 measures, to the extent that latent losses are below provisions (calculated on each credit category), banks can put the difference into a fund, on which they can draw when losses rise above provisions. Specific provisions were split into two categories: individual provisions (IP) and individual countercyclical provisions (IPC). Thus the provisioning scheme can be summarized as follows:

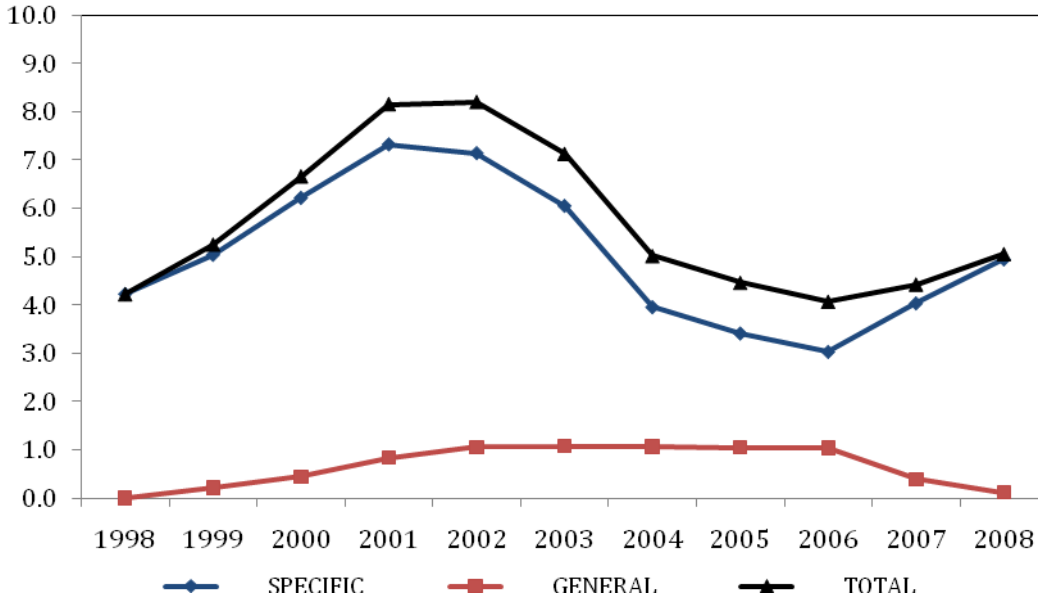
$$TP_{i,t} = GP_t + IP_{i,t}(s_{i,t}) + IPC_{i,t}(s_{i,t}),$$

where TP are the total provisions of category *i*, GP are the general provisions which remained at 1% of the portfolio, IP are the individual or specific provisions for credit category *i* calculated using the internal risk model and IPC are the countercyclical adjustment of the individual provisions within the credit category, for time t.

Since the IP and IPC are state dependent, $s_{i,t}$ is an index capturing the current state of the economy, and each bank has to use a different set of parameters in their internal risk model to assess the amount of provisioning required. By construction, individual provisions are pro-cyclical, because in the expansionary phase of the cycle, credit risk – both the probability of default and the loss given default -- will be overshadowed by the favorable environment and thus provisions will be moderate to low. To avoid an unnecessary tightening in provisions when the economy deteriorates, the IPC component is calculated during the expansionary phase using the parameters consistent with the bad state of nature and thus increasing total provisions before the downturn. When economic conditions worsen, IPC is set at zero and the bank can use the saved resources during the expansion to make up for the IP, thus reducing the burden of provisioning when the economy is contracting. By being able to determine the benchmark model and to define the state of the economy (and transition matrices), the authorities retain tight control of the system, so that provisioning behavior is not quite on automatic pilot.

Notwithstanding this control, as in the case of Spain, there was some substitution, as general provisions declined to offset some of the increase in countercyclical provisions (Figure 6). Overall credit growth in Colombia did decelerate markedly – from 34% in the year ending in March 2007 to 18% by December 2008. Again, however, a variety of factors played a role in the change, not least of which was a nearly 400 basis points tightening in the reference interest rate set by the central bank, as well as the global credit crunch and slowdown in trade that would have made banks more risk averse.

Figure 6. Colombia: Provisions as Share of Total Credit (%)



Overall, then, the experience of Spain and Colombia has to be judged as limited and a weak basis for other countries in deciding to adopt countercyclical policy. As we will see in the next section, there are good reasons for this ambiguity.

IV. Limitations and Concerns Regarding Countercyclical Requirements

"If you entrench yourself behind strong fortifications, you compel the enemy to seek a solution elsewhere." von Clausewitz

While some attempt to induce banks to build up capital or provisions in good times, and thus restrain the pace of their lending in a boom, is appealing, there are several reasons to be skeptical that such regulations will be effective, as well as some potential problems about their implementation. Regarding their efficacy, a serious concern is that the theoretical and empirical case for the effectiveness of countercyclical capital (and

provisioning) requirements is weak. As numerous authors have noted, there is no theoretical consensus that higher capital ratios will reduce risk-taking behavior.[6] Koehn and Santomero (1980) and others have argued that higher capital requirements could induce risk-taking behavior to the extent that shareholders and/or managers target some rate of return and that supervisors cannot monitor banks effectively or on a timely basis. The latter assumption would be difficult to dispute after the current crisis. So according to theory, raising capital requirements – which is what countercyclical capital requirements would do during boom times – could lead to an increase or a decrease in the risk that banks undertake. The issue is the adjustments that banks can make when the minimum required capital ratio is above that which they judge to be optimal, which is when they might have the incentive to engage in riskier activities.

Nor is there evidence that higher capital requirements lead to greater banking system stability. Barth, Caprio, and Levine (2006) assemble a large cross-country database on regulation and supervision and, among their other findings, see no evidence that the stringency of capital requirements have any impact on the stability of the banking system. A number of researchers have investigated these data and have not overturned this conclusion. Moreover, Laeven and Levine (2009) find that bank risk taking varies directly with the concentration of ownership among shareholders – in those countries with more (less) concentrated ownership, higher capital requirements result in greater (less) risk taking by banks, which provides confirmation of the ambiguous result obtained by Barth, Caprio, and Levine, and of the stalemate in the theoretical literature. Although there have not been tests on cross-country data about the stringency of provisioning requirements (in Barth, Caprio and Levine, provisioning is treated as part of their index of supervisory

[6] See Barth, Caprio, and Levine (2006) for a short summary.

powers), conceptually provisions are similar to capital and therefore it is expected that the same empirical result would govern; compelling banks to set aside more provisions than they deem optimal should lead to the same behavior as forcing them to hold capital in excess of their optimal levels.

To be sure, the aforementioned empirical work holds for the range of capital regulation seen around the world in recent years; if in adopting countercyclical capital requirements, countries would effectively raise capital ratios in booms times to levels well outside the range in the data, then it is possible that there could be some effect. Perhaps for example if in a boom minimum capital requirements were raised from 8% to 20% or 30%, it might be difficult to for banks to take sufficiently large risk to offset this change. On the other hand, experience in the recent crisis belies this point – after all, some banks were able to take leverage from its supposed limit of 12.5 to 1 to about 30 to 1. Moreover, substantial changes in capital requirements of this magnitude likely will prove to be difficult politically – and Barth, Caprio and Levine (2006) also found that political factors are critical in determining the type of regulation that is implemented.

In effect, reliance on countercyclical provisioning or capital requirements is similar to depending on risk-based deposit insurance premia to rein in risk taking in banks. Here the idea was that if banks were made to pay for their increased risktaking through higher deposit insurance premia (similar to paying through higher provisions), they would take less risk. However, the difficulty is that it was hard to measure banks' risk, and bankers also may have had an influence on the legislation adopted in the countries that tried this experiment. The result was that the differences in premia appeared small relative to differences in risk profiles, and indeed in cases such as the United States, other features of

deposit insurance legislation overrode attempts to used risk-based pricing – in this case, the feature of the U.S. laws that limited the size of the total premia collected meant that in fact for a number of years leading into the crisis, all banks were paying the identical premium – zero! Thus even if countercyclical provisioning or capital requirements survives other critiques, it would be unwise to rely on them to stabilize the banking system.

In addition to theory and related empirical work, there is much experience in finance with regulatory avoidance. Inasmuch as it is precisely in booms when, for all of the reasons noted in Section II (disaster myopia, etc.), banks want to lend and borrowers want access to credit, there will be great pressure to evade regulations that attempt to restrict lending in good times. This so-called boundary problem in finance has existed for as long as there has been a formal financial sector. For example, usury restrictions in Medieval times in Western Europe made it profitable to find ways around limitations on the payment of interest, leading to the creation of bills of exchange -- selling a piece of paper (receiving funds) today with the agreement to buy it back (repay funds) in the future at a specified higher price (the difference being the interest rate). In the present context, countercyclical capital or provisioning requirements would be expected to induce banks to try to conceal or shift their lending, much as current capital requirements with differential risk weights led to the creation of off-balance sheet vehicles so as to allow banks to shed higher risk exposure and to leverage themselves well above levels consistent with existing requirements. In the above discussion on Spain, we do not know the extent to which such

concealment or avoidance behavior was occurring, though the boom in real estate prices and in the growth of total debt make it likely that some avoidance was operating.[7] Goodhart and Persaud, in their January 30, 2008 op-ed in the Financial Times, acknowledge that some shifting to NBFIs will occur and that some steps will be necessary to deal with this behavior, but they do not specify how this will be accomplished.

When countercyclical requirements are most binding is precisely when the *short-term* profits from lending would be the greatest. As long as banks have in place compensation systems that reward volume and short-term profits – generating new loans, bundling them in securities, etc. – one would expect that this pressure would be particularly intense. Thus if compensation systems do not change, it is unrealistic to expect that bank behavior would change. To be sure, specific regulatory changes from this crisis might well limit some forms of risk taking, but the history of finance (and the von Clausewitz quote at the start of this section) suggest that others will be invented. Thus it seems important to consider some regulatory response to the compensation issue Caprio, 2009).

Another form of the boundary issue of course is that we would expect to see nonbanks take on some of the activity of banks to the extent that countercyclical requirements were binding. In this sense, as Goodhart (2009) notes, to the extent that the NBFIs are unregulated or less regulated, it could lead to more serious crises. Indeed, that type of interplay between more and less regulated parts of the financial sector has been key to understanding the present crisis – the practically nonexistent regulation of investment banks and of instruments such as CDS were important ingredients underlying its magnitude. The traditional response to these concerns is that institutions in the

[7] See Brunnermeier, Crockett, Goodhart, Persuad, and Shin (2009) and Goodhart (2009) for an excellent discussion of the boundary problem.

unregulated sector can be allowed to fail. However, another lesson of the current crisis is that when NBFIs grow sufficiently large, they will be rescued. Moreover, with less holdings of liquid assets, banks increasingly are linked through a variety of markets and instruments to NBFIs, so avoiding a rescue when the latter are in distress will be especially difficult. Thus to the extent that credit moves out of the banking system during booms, some type of regulation and supervision would seem necessary.

Goodhart (2009) has proposed "…to limit the periods in which regulation is effectively biting to those few in which it is essential, so that the overall costs of such regulation are reduced, and hence the incentive to avoid it is lessened (p. 110)." Although this is a clever idea, banks surely will see the danger it poses to their ability to leverage themselves when it most appears profitable to do so. Countercyclical provisioning and capital requirements have no or little cost[8] during recessions – banks would be allowed to reduce provisions and/or capital then – yet their cost could be quite high during a boom. Indeed, the greater and longer the boom period, the higher the costs. Thus dealing with the boundary problem has to be counted as a serious implementation issue.

Notwithstanding these concerns, authorities that proceed to implement countercyclical requirements still need to consider how to vary them through the cycle or how to set through the cycle provisioning requirements. As noted above, part of the rationale for countercyclical requirements is that merely leaving the decision on a discretionary basis to supervisory authorities regarding varying provisions (or capital) is questionable given the political opposition that banks could be expected to muster when the macro cycle picks up. Moreover, supervisory agencies or departments (even within central banks) do not

[8] Banks can easily reduce their provisions in contractions and expand them later. Reducing capital in recessions only to expand it later imposes some transactions costs.

have much macroeconomic expertise, and if the discretion is lodged elsewhere, that is where political pressure will be brought to bear. Even if the decision were left to the monetary authorities, this would have the effect of exposing them to greater political pressure, which could compromise their independence.

Thus if countercyclical provisioning or capital requirements are to be relied on to restrain booms, then a formula must be devised to do so. Should requirements vary based on credit growth? If so, then other risks, such as market risks, will be ignored. Or should they be based on asset prices? If so, which prices and what rate of change should set off an increase in the requirement? And suppose a technological improvement takes place that increases the steady state rate of growth and the demand for financing. Will authorities be willing and able to sit by and watch their formula choke off economic growth? These are merely some of the questions that must be answered before governments proceed far down the path of countercyclical requirements.

Finally, authorities implementing countercyclical requirements should understand that the effect could be asymmetric. It is possible that raising capital or provisioning requirements might have some effect during a boom, in particular if the increases were substantial – though really large increases were not seen in Spain and Colombia, and would undoubtedly engender significant political opposition. However, it is less likely that lowering these requirements would be effective in an economic slowdown. As is well known in the credit view of monetary policy, several transmission channels operate through credit markets that hamper attempts to encourage banks to lend (again, as seen in this crisis). As a slowdown takes hold and asset prices fall, borrowers' net worth declines, making them a less attractive target for bank loans. The value of collateral also declines,

with the same effect, raising the cost of credit intermediation for the banks and cutting loan supply. Bank net worth would also decline as losses increase, reinforcing this effect. And banks' risk aversion would rise, for example if managers that had been encouraging expansion during a boom were removed and replaced by more conservative bankers.[9] In fact, by late 2009 it seems clear that banks are holding significant amounts of resources in short-term public debt that is paying a near-zero rate of return, rather than increase their lending. Since loan provisioning is not the binding constraint, it is difficult to believe that easing provisioning further would stimulate lending. Instead, policy interventions that reduced risk premia (improvements in information, perhaps greater government spending) might be more successful in stimulating lending.

For all of these reasons, it would be risky to think that easing provisioning or capital requirements in a slowdown would be met with an increase in lending. To the extent that countercyclical measures are only effective in the tightening phase – and there are good reasons to doubt even this effect – policy makers might save themselves the dilemmas as to how to set the formula for when and by how much requirements would increase and decrease, and instead just implement a simple leverage requirement. Stated alternatively, Goodhart's point on minimizing the pain from regulation might mislead authorities: although banks surely would oppose being forced to raise capital during a recession, when it might be difficult to do, many banks would enjoy having higher capital ratios and/or provisions during a slowdown, and even support a system in which they could raise capital when it is easy (during booms) and hold onto it when they most want to do so (during recessions).

[9] See Kuttner and Moser (?) for a good discussion of the various transmission channels.

V. Conclusions and advice for developing countries

The view that regulation should be more countercyclical certainly is appealing in light of the evidence that banking tends to be procyclical. And the appeal of using 'speed bumps,' meaning limits on credit expansion when asset prices appear to be rising well beyond what fundamentals suggest, would seem to be a useful approach for regulatory authorities. Since discretionary intervention by supervisors has not worked well in recent bubbles, some attempt to put regulation on automatic pilot, forcing banks to add to their capital or provisions in boom times and reduce the same in a bust has much appeal. Two proposals are under consideration in various fora: either to vary minimum capital requirements or provisions on a countercyclical basis, the former being untried but recommended by an impressive group of experts and the latter being the methods used in Spain and Colombia. The advantage of these proposals is that the current crisis has revealed the limitations of a static approach to regulation, which market participants will evade over time, much the same as the way in which the German army dealt with the Maginot line by going over and around it. Thus a more dynamic approach to regulation is laudable.

Unfortunately, as review above, there is a dearth of theory, evidence, or practical experience that would support countercyclical regulatory requirements. While the Spanish and Colombian examples are cited favorably, it is important to remember that they have demonstrated no ability to reign in or reduce an asset bubble. Before the regulatory community rushes off to adopt countercyclical regulation, it would be useful to understand how the forces that led to the failure of the previous intellectual fad, namely the prompt corrective action features of FDICIA, and how these forces would be contained in

preventing the failure of countercyclical regulation.[10] Although some would hold that ideology accounted for the failure of FDICIA and the crisis in the U.S., they would also have to explain the failure of discretionary supervision in Iceland, Ireland, the United Kingdom, Spain, and numerous Eastern European and some Central Asian countries, where asset bubbles and sharp increases in credit also occurred.

While waiting for more evidence on countercyclical regulation, what should developing country authorities do? First, if countercyclical provisioning is not certain to significantly reduce the procyclicality of the banking system, then monetary authorities still must plan on using monetary policy to burst incipient asset bubbles before they get out of hand (Demirguc-Kunt and Serven, 2009). Certainly improving the quality of information and a focus on incentives in the financial system should continue to be a high priority. Supervisors have a clear job in this process, both in compelling disclosure as well as verifying the accuracy of information. Also, authorities should look to removing or limiting procyclical features of the regulatory system, as noted above. Both ratings and internal models, underpinnings of pillar 1 of Basel II, accentuated procyclicality in the recent boom and bust cycle (Caprio, Demirguc-Kunt, and Kane, 2008). To the extent that developing countries move in the direction of risk modeling, compelling banks to use more than a few years of data is critical, as are other attempts to take account of how assets will perform in the contractionary phase of the business cycle. Reliance on rated instruments in industrial countries amounted to an outsourcing of regulation – and was procyclical as well. Requirements for holding rated instruments need to be removed from legislation, so that fund managers can face civil lawsuits should they deviate from

[10] The other notable fad is the drive to consolidate regulation in a single agency. Although the balkanization of regulation is blamed for the U.S. crisis, the U.K. FSA also is viewed as having failed.

following the best fiduciary standards. Without officially-approved ratings organizations offering their highest rating on complex securities, it is unlikely that banks would have been able to sell many of their loans in the run-up to the current crisis. For developing countries, this will mean much less reliance on securitization, compared to what was in place in many industrial economies up to the crisis. Moving to a simple leverage requirement, rather than a more complex risk weighting system for capital regulation, will help reduce the procyclicality of regulation.

Lastly, authorities should focus more attention incentives in the financial sector. Banks will be more likely to hold more provisions and capital when it is in their self-interest to do so, which requires uninsured creditors – those who actually believe that they will lose money if banks take excessive risk – to help in the process of disciplining banks. Incentives also matter for regulators; despite much talk of holding regulators accountable, the consequences for them in the current crisis have been limited. Greater disclosure of the information available to regulators is a requirement if this is to happen. And if regulators are not accountable, why should we expect to be spared from serious crises in the future?

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