Countercyclical Financial Regulation

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Abstract

The global financial crisis has focused much attention on procyclicality, particularly in the context of a macroprudential framework. This paper reviews a set of prudential measures that can be adopted by national authorities to deal with procyclicality and discusses issues in designing and implementing such measures. For developing countries, in addition to some general considerations on policy design and implementation, a range of issues may warrant special attention. These include the balance between financial stability and financial development objectives, selection and calibration of policy instruments according to national

circumstances and taking into account data limitations and capacity constraints as well as other practical challenges, and continued efforts to improve supervisory independence, supervisory powers and analytical capacity and to ensure adequate resources in order to perform the required tasks. Given the limited practical experience with countercyclical prudential measures, developing countries (as well as developed countries) will have to ascend a learning curve and experiment with select instruments while carefully monitoring and evaluating their effectiveness over time before a framework matures.

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I. Introduction

The global financial crisis has focused much attention on procyclicality, particularly in the context of a macroprudential framework.² Despite the great interest in countercyclical measures and the latest surge in policy discussions and academic papers, however, comprehensive review of alternative measures from the perspective of developing countries is lacking,³ and there is little guidance on if and how potential measures should be implemented in countries with relatively less developed financial systems and more concerns about risk management and supervisory capacity. This paper offers a modest attempt to address these issues.

Finance (especially banking activities) is inherently procyclical in the sense that it amplifies the dynamics of a business cycle. During the expansionary phase, credit growth tends to outpace overall economic growth; during the downturn, credit becomes significantly more constrained due to worsening creditworthiness of borrowers (resulting from shrinking corporate profits and declining household income and wealth), deteriorating collateral value, higher perceived risks, and tightened lending standards—which further worsens economic prospects.

In addition to this inherent nature of finance, financial regulation may exacerbate the procyclicality of the financial system, as the current crisis has shown. For example, regulatory capital requirements may force banks to limit their risk exposure and cut back on lending during the crisis due to deteriorating capital positions resulting from worsening credit quality and increasing losses. The reduced flow of credit further contributes to the deterioration of economic performance, which in turn causes more credit losses.

This paper will review a variety of policy measures that can be taken by national authorities to mitigate the procyclicality of financial systems stemming from both the inherent nature of finance and potential consequences of certain financial regulations.⁴ Some of these policy options are measures being studied and proposed by international standard-setting bodies, and others are measures that already exist in some countries. While no uniform policy prescription on countercyclical measures exists, as business and credit cycles are not entirely synchronized across countries and national circumstances vary substantially, a comprehensive review will nonetheless provide the basis for sound decision making.

² The macroprudential framework deals with systemic risk in both the time dimension (procyclicality) and the cross-sectional dimension (concentration and interconnectedness). This paper focuses only on the former. For discussions on the broader macroprudential framework, see Borio (2009), CGFS (2010) and IMF (2011a).

³ Moreno (2011) discusses policymaking from a macroprudential perspective in emerging market economies. Agénor and Pereira da Silva (2010) discuss reforming international capital standards from the perspective of the developing world. Both offer some useful policy insights, although their focus is not exclusively on countercyclical measures. Also see Calderón and Servén (2011) for a discussion on macroprudential policies over the cycle in the context of Latin American countries, with some lessons that can be generalized to other developing countries.

⁴ See Fernández de Lis and García-Herrero (2010) for a more detailed review of the causes of procyclicality.

II. Objectives of Countercyclical Measures and General Considerations

1. Scope and Policy Objectives

Countercyclical measures encompass a wide range of policy measures including prudential requirements as well as macroeconomic policies (monetary and fiscal). While the literature on financial and business cycles and relevant macroeconomic policies is well established, the discussion on macroprudential approach to dealing with cycles is relatively new.⁵ This paper will review only the relevant *prudential* measures in dealing with procyclicality—although they may interact with, and to some extent complement, monetary policy and broader macroeconomic management, relationships with which national authorities should be aware. However, with the latest discussion on macroprudential regulation, the boundary between prudential measures and macroeconomic policies has become rather blurred.⁶

In addition, there are various sources of procyclicality, some of which may be better dealt with through other policy tools than prudential regulation. For example, short-term capital flows are an important source of procyclicality in many developing countries. Some forms of capital controls (for example, unremunerated reserve requirements and capital flow taxes) may be considered under certain conditions, combined with appropriate macroeconomic policies.⁷ Fair value accounting may also contribute to procyclicality through its impact on earnings and capital as well as interaction with specific covenants and triggers in financial transactions that build on accounting information.⁸ This may be resolved by improved application of accounting standards and use of accounting information (including in prudential regulation). To focus the discussion, this paper limits its scope to a narrower set of countercyclical prudential measures and refers the readers to other research for discussions on related measures. It is worth noting, however, that to the extent to which the above-mentioned issues are not adequately addressed through other policy measures, prudential measures may be all the more important for ensuring the soundness of the financial system. Therefore developments in these areas may be important for purposes of monitoring and identifying systemic risk.

The objectives of countercyclical prudential measures are in principle two-fold. One is to strengthen the resilience of the financial system to a potential future downturn. The other is to actively “lean again the wind” over the cycle and curtail excess credit expansion, excessive risk

⁵ For a comprehensive literature review of macroprudential policy, see Galati and Moessner (2011). While the term “macroprudential” can be traced back to late 1970s, it became commonly used only very recently, particularly during the current global financial crisis.

⁶ For example, reserve requirements are being discussed as part of a broad macroprudential toolkit, which are traditionally considered an instrument of monetary policy. See Gray (2011) for a discussion of the three main purposes of reserve requirements: prudential, monetary control, and liquidity management.

⁷ For discussions on the use of capital control to deal with certain types of capital inflows under appropriate circumstances and relevant country experiences, see IMF (2011b); Ostry and others (2010); and Ostry and others (2011).

⁸ For discussions related to fair value accounting and procyclicality, see Caruana and Pazarbasioglu (2008); CGFS (2009); Laux and Leuz (2009); and Novoa, Scarlata, and Solé (2009).

taking, and buildup of imbalances in the upswing. However, there is no consensus on the relative weight of the two aspects. Some (most notably some prudential regulators) argue that countercyclical macroprudential policy should have a clear and achievable objective by emphasizing the strengthening of the resilience of the financial system rather than aiming explicitly at eliminating credit booms and asset price bubbles, which is seen as more of a “positive side benefit.”⁹ Others, however, favor more focus of countercyclical regulatory measures (as opposed to monetary policy) on leaning against the buildup of excesses and risks.¹⁰ One thing that is clear is that the level of difficulties in achieving the two aspects is different. Building up buffers to increase the resilience of the financial system is generally easier to achieve than effectively curtailing excesses in the upswing. Limited practical experience so far also seems to point to little success with the latter, except in some cases of sectoral measures. While leaning against the wind is a sound principle, a toolkit will need to be further developed and experimented with over time to make it an achievable goal.¹¹

2. General Considerations

There is an extensive debate on whether countercyclical measures should be principally rule-based or discretionary. On the one hand, a rule-based system is more transparent and credible, and experience with monetary policy has provided good examples of the benefits of such a system. The predictability of a rule-based system is also an advantage, as it may have a less distorting impact on financial development. In addition, a rule-based system may help minimize undue political and market influence over supervisory authorities in implementing countercyclical policy. However, such benefits should not be overstated because efforts to put in place a rule-based system will also encounter strong resistance, especially because such a system often needs to be put in place during good times when such resistance is most severe. On the other hand, the dynamics of credit cycle change over time and predicting cycles is never easy, which means a certain degree of judgment and discretion in operating a countercyclical measure is necessary. This is particularly relevant for many developing countries as they undergo structural changes during the course of development.

The optimal balance can be decided only in a particular national context, taking into account the stage of financial development, regulatory architecture, and political and supervisory environments. The decision may also hinge on the objective of specific measures. While building up cushions in good times according to a rule-based system will definitely strengthen the resilience of the financial system in bad times, the calibration may not be precise or penalizing enough ex ante to effectively lean against the buildup of excesses and risks. The lack of a clear target in terms of the “leaning” also makes the design of a rule-based countercyclical regime much more difficult than in the case of monetary policy, where price stability can be explicitly

⁹ See, for example, BIS (2010) and BCBS (2010b).

¹⁰ See, for example, Brunnermeier and others (2009).

¹¹ For comments on blending boldness and realism in implementing a macroprudential framework, see Borio (2010).

defined. Therefore, the more weight authorities intend to put on the latter objective (the “leaning”), the more discretion likely is needed.

Be it principally rule-based or discretionary, a countercyclical regime would require the authorities to select a set of indicators and establish continuous monitoring in order to identify systemic risk and gauge the timing and appropriateness of policy actions. Potential indicators¹² may include general economic conditions (such as GDP growth); credit conditions (such as credit growth, credit-to-GDP ratio, and lending standards); asset prices (such as property prices); banking sector performance and soundness indicators (such as bank profits, loan losses, and capital adequacy); credit and liquidity spreads; leverage of financial institutions, corporations, and households; and banking balance sheet structure (liquidity and currency mismatches). The selection of indicators will need to take account of the specific national context. Obviously, countries prone to sudden capital movements would need to monitor capital flows more closely, and those with heavy reliance on commodity trade would monitor commodity prices. Also, many developing countries are experiencing financial deepening and structural changes, which means that the interpretation of data may be different at different stages of development and that sectoral statistics may need to be examined in addition to aggregate statistics.

Some of the above-mentioned indicators tend to be lagging indicators, which makes them less useful in identifying systemic risk. Data capacity constraints, such as data gaps and reporting lags, make the monitoring even more difficult. Data collection and analytical capacity need to be upgraded in most developing countries as a precondition for effective implementation of countercyclical measures. Sometimes authorities in developing countries may have to continue to rely on market intelligence and expert opinions to supplement official data collection.

The focus on systemic risk implies that policy coordination and governance arrangements are of paramount importance in effective implementation of countercyclical measures.¹³ On the one hand, most measures are an extension of traditional microprudential measures for macroprudential purposes, which means that prudential supervisors are best suited to enforce the measures. Prudential supervisors also possess supervisory information that is important for monitoring and identifying risk. On the other hand, countercyclical measures require increased focus on macro-financial conditions and systemic risk, and the monetary authorities may have a unique position in monitoring and analyzing these risks and the workings of the financial system, as well as the right incentives (since they will be responsible for cleaning up the mess if things go wrong). Another important consideration is how to put in place governance arrangements that can ensure the independence of analysis and decision-making.

¹² For discussions on a variety of potential indicators and issues related to systemic risk identification, see Drehman and others (2010); IMF (2011a); and Moreno (2011).

¹³ The discussion in this section on governance arrangements of macroprudential framework draws on the findings of IMF (2011a) and BIS (2011). Also see Tucker (2011) for discussions on building financial stability institutions and the United Kingdom’s experience with the Financial Policy Committee.

Recent thinking and developments in regulatory structure have favored the establishment of some kind of financial stability institution incorporating a macroprudential mandate in order to monitor and identify systemic risk, make policy recommendations, and facilitate regulatory coordination. In some cases, a joint inter-agency committee is formed to manage macroprudential policy as a shared responsibility, usually with the central bank playing a prominent role. In others, the central bank is directly mandated as the super-regulator responsible for both macroprudential and microprudential oversight, in addition to its monetary policy function. The latter arrangement usually also involves the creation of an inter-agency committee to coordinate financial stability issues both within the central bank and with other relevant agencies, such as the fiscal authority and the supervisor of business conduct and consumer protection.¹⁴

These governance arrangements share some common features, although the detailed design, responsibilities, and powers may vary. An inter-agency committee may issue recommendations on macroprudential policy that need to be implemented by the microprudential supervisor(s). To what extent these recommendations are binding (that is, on the basis of comply-or-explain or as binding direction) is a decision that must be made as an important part of the governance arrangements. Whether the macroprudential authority has designated tools at its disposal also matters, although a complete toolkit may need to be developed over time. Putting multiple functions within one institution (the central bank) may improve access to a broad range of information and expertise. However, it does not guarantee improved policy coordination, as silos can exist within the same institution as well. In addition, the concentration of multiple functions may even jeopardize the credibility and effectiveness of individual functions as conflicts in policy objectives may arise. For example, there is an emerging discussion on whether to explicitly add the objective of financial stability into the monetary policy decision (in addition to the traditional objective of price stability).¹⁵ Although financial stability and price stability are interdependent, explicitly making financial stability part of the monetary policy objective will need much more study and consideration. It may cause more frustration than add value, as monetary policy risks losing its credibility in the absence of a clear and achievable goal. Overall, governance arrangements of macroprudential function are still being discussed and experimented with, and authorities and academics have yet to completely agree upon best practice.

Another issue that authorities need to bear in mind when designing and implementing countercyclical measures is the possibility of regulatory arbitrage. Most of the current measures and policy thinking are focused on the banking sector because of its systemic importance as well

¹⁴ Examples of the former arrangement include the Financial Stability Oversight Council of the United States, the European Systemic Risk Board of the European Union, and the Financial System Stability Council of Mexico. Examples of the latter include the Bank of England (and under it, the Financial Policy Committee), the Bank of France (and the Financial Regulation and Systemic Risk Council), and the Reserve Bank of India (and the Financial Stability and Development Council). For more details on the comparison of various governance arrangements, see BIS (2011).

¹⁵ For a discussion on the role of monetary policy in leaning against the buildup of imbalances, see Borio (2011).

as the fact that it is already within the regulatory perimeter. This poses the potential problem of “leakage” to the nonbank sector, as the incentive for intermediation outside the banking system increases.¹⁶ Authorities need to monitor the development outside the banking system closely, distinguishing between nonbank activities that are driven by genuine economic gains and those driven by pure regulatory arbitrage. However, this may not be very clear-cut, especially during the process of rapid financial development. Actions may be taken to broaden the regulatory perimeter,¹⁷ and regulation should ideally be applied based on the functional rather than the institutional form (bank versus nonbank). In addition, cross-border financial activities in a globally integrated financial market also pose challenges with respect to the effectiveness of countercyclical measures. It is worth noting that an advantage of the aforementioned designated financial stability institution—which would have an explicit macroprudential mandate—is to provide the means of monitoring *all* relevant activities and risks and not to remain confined to the purview of microprudential regulators.

It will take time to fully evaluate the effectiveness of various countercyclical measures, given the limited experience so far. But as will be discussed in more detail later, experience seems to point to limited effects in curtailing credit expansion during the upswing (except in a few cases of sectoral measures), but more success in improving the resilience of the financial system to the downturn. This has to do with the fact that these prudential measures, while necessarily increasing the cushion in the financial system, often are not “penalizing” enough to offset the huge incentives for financial institutions to expand and take risks during good times and/or while overall loose macroeconomic conditions prevail. Much more experimenting, monitoring, and evaluation is needed for a framework to mature.

In view of various potential countercyclical measures in the prudential toolkit, as well as other macroeconomic policies that a country can deploy, careful consideration of complementarities and interaction of measures is warranted. For example, provisioning requirements and capital requirements are generally complementary to each other, as the former is considered to cover expected losses, while the latter is considered to cover unexpected losses. To the extent that a bank underprovisions for expected losses, its capital ratio is overstated. This implies that the effectiveness of one type of measure relies on that of the other. Also, countercyclical prudential measures may have implications for the conduct of monetary and fiscal policy. Conversely, the effectiveness of prudential measures may be affected by the overall macroeconomic policy environment. For example, a tightened prudential requirement by itself may not be effective at halting excess credit expansion in the face of a very loose monetary environment. Meanwhile, some prudential measures may have a targeted impact on certain sector or exposures when broader monetary policy action is not deemed necessary or should move in different direction.

¹⁶ The discussion on shadow banking (broadly defined as all credit intermediation outside the banking system) is ongoing in the international financial policy arena and goes beyond the scope of this paper.

¹⁷ For a discussion of issues concerning the regulatory perimeter, potential and existing measures, and their pros and cons, as well as their applicability in the context of Latin American countries, see Cortés, Dijkman, and Gutierrez (2011). This discussion can be extended to other developing countries.

Finally, in discussing the potential measures that can be adopted by countries to mitigate procyclicality, it is important to consider the various stages of financial development in order to examine the suitability of alternative measures and the implementation issues within different national contexts. There are some general characteristics of the financial systems of developing countries that have broad implications for policy consideration, although developing countries are a very diverse set and idiosyncrasies in each country must be considered separately. What follows is a discussion of some of these general characteristics¹⁸ and their implications for policy design and implementation.

Dominance of the Banking Sector and Financial Market Imperfection

An important feature of many developing countries is the dominance of the banking sector within the financial system. This adds to concerns about risk concentration and the social costs of bank failures and banking system instability. Moreover, banks in developing countries may be exposed to larger default risk and higher loss in the event of default because information asymmetry is more severe and the legal framework and creditor rights are weaker. All these characteristics imply that risk parameters in developing countries are different from those of developed countries. Therefore, the calibration of capital and provisioning requirements should also differ, as the estimates for expected loss and variance of loss (and thus unexpected loss) differ. These considerations also relate to the question of whether some of the recently proposed measures by international standard setters (notably, capital requirements by the Basel Committee) have any binding effects for the financial sector of many developing countries. To be effective, these measures may need to be calibrated differently according to national circumstances.

Different Patterns of Cycles Compared to Developed Markets

Developing economies exhibit different patterns of financial and economic cycles than developed countries for various reasons.¹⁹ First, the trajectory of growth from a low initial point is different from that of a developed economy. Second, the observed credit expansion may be due to normal financial deepening instead of cyclical effects. Third, many developing countries (particularly small open economies) are subject to large external shocks due to cross-border capital flows or volatility in commodities prices resulted from economic conditions elsewhere, resulting in sudden boom and bust. Lastly, there is empirical evidence that financial cycles tend to be more pronounced in developing countries than developed countries and that within developing countries there are also large variations.²⁰ These characteristics imply that indicators

¹⁸ For a thorough discussion on the financial features of developing countries and their regulatory environment, see Agénor and Pereira da Silva (2010). The discussion in this paper is limited only to those features that are most relevant for the design and implementation of countercyclical prudential regulation.

¹⁹ The discussion on different patterns of cycles in developing and developed markets draws on the discussion of the BCBS consultative document, “Countercyclical Capital Buffer Proposal” (BSBS 2010d) at a World Bank seminar in August 2010, particularly inputs from Michael Fuchs, Thomas Losse-Muller, Richard Hands, and Thomas Jaeggi.

²⁰ For a discussion on the characteristics of financial cycles in Latin American in comparison to other countries, see Calderón and Servén (2011).

that prove useful in identifying cycles in developed countries and some suggested thresholds to identify systemic risk may need to be carefully reexamined in the policy-making process of developing countries, taking into account different national circumstances. Moreover, depending on the stage and pattern of development, countercyclical regulation may not have the same priority in all countries. Often the objective of financial stability needs to be balanced carefully against the needs for financial development in developing countries. There are concerns that the potential overreach of financial regulation sometimes may create undesirable distortions.

Limited Risk Management, Data, and IT Capacity of Banks, and Resource Constraints

The majority of banks in developing countries have limited risk management, data, and information technology (IT) capacity. Some countercyclical measures have relatively high requirements for data and modeling, which poses operational challenges for even the large banks in developed countries, let alone banks in developing countries. Authorities in developing countries should be mindful of this in selecting and designing policy tools to deal with procyclicality (for example, by calibrating supervisory models instead of relying on banks' internal models), while taking steps to cultivate a culture of prudent risk assessment, strengthen risk management, and improve data and IT capacity over time. While authorities should be proactive in exploring various measures, they should not feel compelled to adopt measures that pose too many operational challenges to render them ineffective, or worse yet, provide a false sense of security. Section III reviews a range of countercyclical measures, as well as some variations or simplifications that may be adopted by the authorities.

Supervisory Capacity Constraints

Concerns about supervisory independence, capacity, and corrective powers remain in many countries—albeit to varying degrees—which put constraints on the exercise of discretion, as well as effective enforcement and communications. To the extent possible, simple rules should be devised that limit the extent of political interference. Clear mandates should be set to empower the authorities to act and impose restrictions during the good times when risks have yet to materialize. In addition, resource constraints imply that reforms need to be prioritized and realistic goals need to be set.²¹ It may not be advisable for countries to rush into adopting sophisticated measures without meeting necessary conditions for effective implementation.

III. Review of Alternative Measures and Practical Experiences

With the aforementioned cross-cutting issues in mind, this section reviews a range of countercyclical prudential measures. These measures can be broadly categorized as provisioning

²¹ For a discussion on prioritization of reforms in strengthening banking supervision from the perspective of low-income countries, see Fuchs, Hands, and Jaeggi (2010).

measures, capital measures, and other measures targeting specific sectors/segments (table 1).²² Furthermore, under capital measures, three approaches will be discussed: a non-risk-based measure (leverage ratio); measures to reduce the procyclicality of the minimum risk-based capital requirement; and a countercyclical capital buffer. Select country experiences with these measures will be discussed to draw policy lessons.

Table 1. Countercyclical Prudential Measures in Use and under Discussion

Category	Measures	Country experience and proposals
Provisioning	Dynamic provisioning	Bolivia, Colombia, Peru, Spain, Uruguay
	Expected loss provisioning	IASB and FASB, Mexico ^a
Capital measures: non-risk-based	Leverage ratio	Basel III, Canada, Switzerland, United States
Capital measures: risk-based–minimum requirement	Measures to reduce the procyclicality of the minimum requirement	CEBS, United Kingdom
	Time-varying minimum capital requirement	China
Capital measures: countercyclical buffer	Countercyclical capital buffer	Basel III
Other measures targeting specific sectors/segments	Loan-to-value ratio caps and/or time-varying requirement on mortgages	China; Hong Kong SAR, China; Korea, Rep.; Malaysia; Singapore; Sweden; Thailand; Turkey
	Debt service to income ratio caps on household lending	China; Hong Kong SAR, China; Korea, Rep.
	Time-varying risk weights	India, Turkey
	Time-varying provisioning requirements	China; India; Korea, Rep.

Source: Author’s analysis based on various sources.

Note: This table provides examples of countries that have adopted various countercyclical measures and is not intended to be exhaustive.

a. Mexico recently instituted a provisioning model based on the expected loss of portfolio over the 12 months for credit card debt, mortgages and non-revolving consumer credit.

1. Forward-looking Provisioning

Regarding provisioning, the objectives of financial reporting versus regulatory reporting first need to be clarified, as they are not entirely aligned. Relatively speaking, accountants are more concerned about the current financial standing of a reporting entity in a specific reporting period, while supervisors are more interested in the longer-term health and performance of a financial institution. As Raimundo Poveda, former Director General of the Bank of Spain, notes, in discussing the critical importance of accounting regulation for credit institutions in the fundamental goal of prudential regulation, “In many countries bank accounting rules are kept

²² Liquidity requirement could also potentially be used for countercyclical purpose (for example, time-varying liquidity coverage ratio), but due to the early stage of development of the concept and little practical experience, this aspect will be left for future research.

apart from strictly prudential objectives. But this distancing is neither necessary nor advisable” (Poveda 2000, p. 1). In practice, accounting and regulatory treatments sometimes diverge, reflecting differences in objectives or practical reasons. Provisioning is one of the areas where such a divergence had occurred prior to the recent financial crisis

In principle, expected loss provisioning has a sound economic rationale. Banks take into account expected losses when pricing loans. So there is a misalignment when banks recognize interest revenue at the contractual interest rate without fully accounting for the corresponding expected loss. From a corporate governance point of view, management in principle should not declare or distribute as part of the earnings what they expect to lose (the expected losses). This in theory agrees with the matching principle in accounting: that is, expenses need to be matched to revenue recognition, whether they are already incurred or not. However, before the crisis, accounting practice mostly followed the incurred loss model in IAS 39²³ and FAS 114²⁴, largely because it is less subject to earnings and capital management and easier to verify. Regulators have long voiced concerns about the incurred loss model adopted by accounting standard setters. Some countries have different regulatory and accounting rules regarding provisioning. It is only after the onset of the crisis that consensus has started to form that more forward-looking provisioning is needed.

There are two frequently mentioned terms for which some clarification is due: expected loss provisioning and dynamic provisioning. The starting point is the same; provisioning should cover expected losses, include those that have yet to materialize. However, depending on the qualification of the timeframe during which expected losses are estimated (for example, over a certain period or through the entire cycle), the design of the measures can be very different. This section discusses the expected loss model recently proposed by the accounting standards setters, which focuses on portfolio or asset-level credit losses in a certain time period, and the dynamic provisioning models that have been implemented in several countries, which maintain a through-the-cycle view of credit losses and in one case explicitly utilize a macroeconomic indicator to gauge the stage of the cycle.

Expected Loss Provisioning as Proposed by Accounting Standard Setters

Since the onset of the crisis, there has been a broad consensus that provisioning should move from the incurred loss model widely used in the past few years to a more forward-looking expected loss model. The main concerns about the incurred loss model are that it prevents early recognition of losses, hinders the buildup of allowances, and causes overstatement of income before loss events; this factor, together with the subsequent realization of losses, is procyclical because of the impact on credit supply. Aside from concerns about procyclicality, banks’ capital

²³ IAS 39 is the standard on Financial Instruments: Recognition and Measurement in the International Financial Reporting Standards (IFRS).

²⁴ FAS 114 is the standard on Accounting by Creditors for Impairment of a Loan in the U.S. Generally Accepted Accounting Principles (US GAAP).

is also overstated to the extent to which provisioning falls short of expected losses. This is why under the Basel II internal ratings based (IRB) approach, the amount by which provisioning is short of expected losses is required to be deducted from regulatory capital.

At the center of the current debate are the proposals on impairment by accounting standard setters. After the initial divergence in their separate proposals, the International Accounting Standards Board (IASB) and the U.S. Financial Accounting Standard Board (FASB) reached a compromise and issued a joint proposal on an expected loss model in January 2011. It focuses on the timing of the recognition of expected losses in open portfolios that are measured at amortized cost.²⁵ The proposal answered some of the questions raised during the deliberation (see table 2) and would better address prudential regulators' concerns about provisioning and bring accounting rules more in line with the expected loss proposal put forward by the Basel Committee on Banking Supervision (BCBS).²⁶ However, deliberations are still ongoing concerning the comments received on the proposal and issues that were not addressed in the joint proposal.

Table 2. Deliberation Considerations Concerning Expected Loss Provisioning

Issue	To be considered			
Which expected losses (EL)	Over the life or shorter?	All EL or only “more-likely-than-not” to occur (for single instruments)		Through-the-cycle or not
When are <i>initial</i> loss expectations recognized?	◀ Allocation over life ▶			Upfront (likely be same treatment for changes in estimates)
	Integrated into interest rates	Separately as an annuity	Separately straight-line	
How are <i>changes</i> in loss estimates treated?	Full catch-up to P&L in period of change	Time proportionate catch-up to P&L	No catch-up in P&L (adjust prospectively)	Or combination based on good/bad book
Allowance account floor	No floor		Floor (for example, “incurred” losses)	

Source: IASB.

The latest discussion results in two important points, although many details remain to be sorted out.²⁷ First, the expected losses are defined as estimated credit losses over the remaining life of a financial asset. This would allow all relevant information, including forward-looking information, in estimating expected losses. But the timeframe is for the life of the portfolio, not through the cycle, which means a certain degree of procyclicality may still remain. Also, the measurement of

²⁵ See IASB (2009) and FSAB (2010) for the initial exposure drafts on their respective proposals on impairment and IASB (2011a) for the joint proposal on an expected loss model for impairment.

²⁶ See BCBS (2010c) for comments on IASB's Exposure Draft, *Financial Instruments: Amortised Cost and Impairment* (IASB 2009).

²⁷ The discussion that follows is based on ongoing deliberation of the IASB and FSAB at the time of this writing and may be subject to further changes. See IASB (2011b).

expected losses is still under discussion. Second, the impairment requirement and timing of recognition would differ according to the degree of credit risk deterioration. The full amount of remaining lifetime expected losses should be recognized immediately for those assets for which information is available that suggests that credit losses are expected to occur—or have occurred, on those individual assets or assets that are affected by events that indicate a direct relationship to possible future defaults (even if the specific assets in danger of default have not yet been identified). For assets evaluated collectively in a portfolio that do not meet the above criteria, provisions should be made to cover expected losses in the next 12 months, based on initial expectations plus the full amount of any changes in expected credit losses. This would improve early recognition of losses compared to the incurred loss model. Nonetheless, potential operational complexities remain to be dealt with, including the categorization of assets for impairment purpose and the catch-up adjustments due to changing expectations for the latter category in the context of open portfolios.

Despite the sound economic rationale of an expected loss model, many developing countries may face challenges in implementing it. As more than 100 countries around the world have adopted the IFRS or are in the process of doing so, what the IASB is now proposing will have broad implications for financial reporting in many developing countries. Although the IASB has yet to publish detailed rules on the measurement of expected losses,²⁸ concerns have already arisen about potential operational challenges, even in developed countries. Most banks in developing countries lack data on historical losses, let alone the capacity to estimate forward-looking expected losses. Regulators in some countries may consider providing standard risk parameters by types of exposures instead of relying on banks' internal models. Depending on the severity of data and risk management capacity constraints, different levels of simplification of the IASB rule may be considered.

Mexico, for example, has recently introduced a type of expected loss provisioning for credit card debt, mortgages, and non-revolving consumer credit, incorporating system-wide estimations of probability of default (PD), loss given default (LGD), and exposure at default (EAD).²⁹ The model estimates system-wide PD for a certain type of portfolio in the next 12 months, which is consistent with the timeframe specified under the IRB approach of Basel II for capital requirement calculation. The provisioning requirement based on such a model would ensure a floor on provisioning—that is, the expected losses in the next 12 months—but does not consider expected losses over the life of a portfolio, as is required in the joint IASB/FASB proposal. Nonetheless, the regulatory approach with a system-wide view may help mitigate concerns about banks' internal risk management capacity. In addition, this approach better utilizes all available

²⁸ At the time of this writing, a range of options is under debate on the measurement of expected losses, including expected value (probability-weighted possible outcomes), most likely outcome, the maximum amount that is more likely to occur than not, and whether to use discounted or undiscounted amounts.

²⁹ For a detailed methodology and estimation using information on credit card portfolios of Mexican banks, see Elizondo Flores and others (2010).

data (with data pooling), and may be considered in other countries with similar capacity, such as through centralized credit registries.

The BCBS has also called for the expansion of practical expedients already available in the IASB proposal of November 2009, especially taking into consideration the need for such practical expedients for small banks and smaller portfolios, where risk management capacity and resources are limited, or the costs of implementing sophisticated models outweigh the benefits. These are also realistic concerns in many developing countries. To this end, the BCBS proposed the use of a simplified average loss rate, which “would represent expected credit losses by loan type derived from historical experience based on some measure of actual losses (eg direct write-offs, specific provisions on non-performing loans) and adjusted for current conditions” (BCBS 2010c, p. 15). This is a considerably simpler approach than the IASB proposal, but still would require more refined calibration than the provisioning matrix based on classification currently in use in many developing countries. It is also similar to the dynamic provisioning schemes in some countries, as will be discussed in the next section (plus adjustments for current conditions).

Dynamic Provisioning

Regarding dynamic provisioning, there are only a few case studies available: namely, those for Spain, Uruguay, Bolivia, Colombia, and Peru. These systems (which come with or are referred to by different names—dynamic, statistical, countercyclical provisioning, and even “procyclical” provisioning) share some common features, but the specific design differs to various extent, as is discussed in Fernández de Lis and Garcia-Herrero (2010) and Wezel (2010).

All existing dynamic provisioning systems use estimation of expected losses based on historical experience and distinguish between different types of exposures (thus different loss experience and expectations). Most of them are rule-based, and use the concept of general provisioning. As mentioned, a rule-based system is more resistant to undue political and market pressures once the rule is successfully put into place, which is no small challenge in itself. General provisioning provides more flexibility than specific provisioning in terms of allocation to cover losses when they arise. There are also many differences in specific designs. For example, in some regimes, the rule dictates a continuous buildup and release of provisions, while in others it dictates the switching of states. While most rules focus on institution-specific measures of loan quality, the Peruvian regime is distinct in that it has an explicit systemic focus by setting the rules based on economic growth (see table 3 and a more detailed description in appendix A).

Table 3. Select Features of Existing Dynamic Provisioning Systems

Feature	Spain	Uruguay	Bolivia	Colombia	Peru
Rule or discretion	Rule	Rule	Rule	Discretion (may change)	Rule
Continuous or switching of states	Continuous	Continuous	Two states	Two states	Two states

Criteria for buildup and release	Institution-specific (loan quality)	Institution-specific (loan quality)	Institution-specific (loan quality)	Discretion (may change)	Systemic (GDP growth)
Requirement based on riskiness by type of exposures	Yes	Yes	Yes	Yes	Yes
General or specific provision	General	General	General	Specific (may change)	General

Source: Fernández de Lis and Garcia-Herrero (2010) and the author's analysis.

Because of their very short history, it is still too early to fully evaluate the effectiveness of existing dynamic provisioning regimes, despite some limited experience in Spain. The experience of the Spanish dynamic provisioning system (see box 1) shows that the system did work as designed to cover “latent” losses and improve banks’ solvency through the cycle,³⁰ by building up buffers in good times that can be drawn down during bad times. The generic provision fund grew steadily from 2000 to late 2007 and then started to be drawn down at the end of 2007, when specific provisions began to surge (see figure 1). Although it helped strengthening the resilience of the overall banking sector before the crisis, it had very little impact on credit expansion during good times, which was not the primary objective to begin with. Realistically speaking, the policy objective of a provisioning regime would seem to have to be modest and focused. For developing countries, dynamic provisioning at least can be a way of building buffers in good times for the financial system to be better prepared for bad times. As shown in appendix A, the system can be designed in different ways and to various degrees of sophistication depending on available data and national circumstances.

Figure 1. Spain: Buildup and Release of Generic Provisions by Credit Institutions

Source: Saurina (2009b); Bank of Spain.

³⁰ See Poveda (2000) for a discussion of the rationale of the Spanish statistical provisioning system.

Box 1. Spain's Experience with a Dynamic Provisioning System

The Spanish dynamic provisioning (officially referred to as statistical provisioning) was introduced in 2000 and subsequently reformed in 2004. It is a rule-based system, with a formula that has two parameters: α is the average estimate of credit loss in a cycle-neutral period, and β is the average through-the-cycle estimate of specific provision. The α component is a general provisioning requirement on new credit (ΔC_t), while the β component based on total credit (C_t) represents the smoothing of specific provisioning (SP_t) through the cycle. That is, when specific provisions for the period are lower than through-the-cycle average, the difference is charged to profit and loss account and accumulated in a statistical provision fund, and when specific provisions for the period are higher than average, the fund can be drawn down to cover part of the losses. The α and β parameters vary according to six risk categories of loans, ranging from negligible to high, and the total general provision is the sum of what is required in all categories. Instead of the standard supervisory model, banks may choose to use their own internal models, although in practice most banks followed the standard model. To avoid excessive provisioning, a cap was set on the statistical provision fund at three times the latent risk.

$$\Delta GP_t = \alpha \Delta C_t + (\beta C_t - \Delta SP_t)$$

The Spanish system was introduced in the context of loose macroeconomic conditions (due to the substantial reduction in real interest rates upon joining the European Monetary Union) and elevated credit growth in the late 1990s (see left-hand figure). It was introduced with an explicit prudential objective of covering “latent” losses and improving banks’ solvency through the cycle. The prudential buffer that the statistical provision fund provided was substantial prior to the global financial crisis (see right-hand figure), which helped improve the resilience of the Spanish banking system (although questions have emerged as to whether the buffer is enough to cover the actual losses as the crisis drags on).

Spain: Credit Growth

Source: Bank of Spain.

Spain: Total Provisions/Doubtful Credit

Source: Bank of Spain.

However, dynamic provisioning did not appear to have any effect in terms of curtailing credit growth, although it was not the primary goal to begin with. According to the Bank of Spain (2005), annual statistical provision represented around 12 percent of net operating income on average from 2000 to 2004, which coincides with a moderate slowdown of credit growth. However, it is hard to attribute the slowdown to dynamic provisioning alone, as the period also followed the burst of dot-com bubble. In subsequent years, credit growth accelerated to levels even higher than that of the late 1990s (see left-hand figure), largely due to the housing boom, until the crisis hit.

Source: The text box draws on the discussions on the rationale, design, and effectiveness of the Spanish dynamic provisioning system in Fernández de Lis and García-Herrero (2010); Poveda (2000); and Saurina (2009a, 2009b).

General Considerations about Provisioning

The provisioning approaches discussed above all represent some improvement over the incurred loss model, and the underlying concept is all expected losses. The exact formula and calibration may differ across countries, but there are basic requirements on loan loss data for any system. Although some approaches discussed may rely on or allow for the use of internal models, for most of developing countries, a model designed and calibrated by the regulator is probably needed due to widespread data constraints. A supervisory model also provides the added benefits in terms of competitive equality and discipline of the management. Countries with centralized credit registry may have an advantage in implementing such a system.

Another important consideration in designing a provisioning regime is the transparency of design and disclosure. There are concerns about income smoothing and capital management if too much management discretion is allowed in provisioning.³¹ A prescriptive rule-based system certainly reduces the scope of management discretion, but depending on its design, it may not be able to distinguish different levels of credit risk in the portfolios of individual banks. This means that the design of a countercyclical provisioning regime should be transparent and the disclosure should at minimum distinguish between the countercyclical component and the provision for losses that have been individually identified.

A related issue is whether expected losses should be covered through countercyclical provisions or reserves. Provisions are charged as an expense on the income statement of a bank and affect earnings. On the balance sheet, the accumulated provisions act as an offsetting account to gross loans. With expected loss provisioning, this can still be the way of presenting financial statements. However, as a countercyclical objective is included in provisioning, a question arises from a nonregulatory perspective whether it is appropriate to present provisions (and thus earnings) that are smoothed out over a certain period as opposed to presenting the current state of affairs. A potential alternative is to cover the countercyclical component of expected losses using reserves:³² that is, through transfers from retained earnings or segregation of other components of equity capital on the balance sheet. The main difference between these two approaches is that the former has a direct impact on the earnings of a bank on the income statement, while the latter does not, but only places a constraint on distributable earnings. One benefit of using reserves is that it affords some flexibility to the regulators and provides an easy way of reconciling conflicting regulatory and accounting objectives instead of requiring two sets of accounts. However, with the issue discussed in the previous paragraph as a caveat, there are strong arguments for countercyclical provisions to run through the income statement in order to mitigate the undue volatility of earnings through the cycle (and the biased incentives that come

³¹ There is a literature on management discretion in loan loss provisioning. For empirical studies on provisioning and income smoothing and/or capital management, see Cavallo and Majnoni (2001); Soares de Pinho and Carvalho Martins (2008); and Floro (2010).

³² For a discussion on provision versus reserving, see FEE (2010).

with it),³³ improve transparency, and avoid legal and regulatory ambiguity as to what is distributable and what is not.

It is worth noting that regulatory treatment of provisioning may affect the incentive for adequate provisioning. From the regulatory perspective, provisions should cover expected losses and capital should cover unexpected losses. Thus in principle, total provisions in excess of expected losses should be allowed in regulatory capital, and the shortfall should be deducted. But in practice, country experience varies. For example, some countries allow general provisions in regulatory capital, usually in Tier 2 and up to a limit as a percentage of risk weighted assets, while others do not. However, provisioning practices vary across countries, and capital requirements are calculated using different approaches (Basel I, Basel II standardized approach, or IRB approach). Therefore, regulatory capital treatments regarding provisioning are not directly comparable.

In addition, provisioning is also affected by tax treatments. Currently, tax treatments on provisioning vary widely across countries and there is usually little coordination between fiscal and regulatory authorities. Some countries allow tax deduction only at the write-off stage, some allow tax deduction of specific provisioning, and others also allow some tax deduction of general provisioning. When tax deduction is allowed, there may be a limit on the total amount of deduction, such as a percentage of total loans. In some developing countries, tax policies are explicitly blamed for hindering adequate provisioning or charge-offs. While the conflicting objectives between the right incentives to ensure adequate provisioning and the potential for earnings management as well as the fiscal cost in terms of lower tax revenue need to be recognized, there is room for cooperation between fiscal and regulatory authorities. The political economy factors also need to be considered in the design and implementation of provisioning requirements.

2. Leverage Ratio

The underlying leverage of some financial institutions and financial systems had become quite high before the crisis. The subsequent deleveraging has proven extremely painful for the financial system as well as the real economy. There had been several reasons for the buildup of the underlying leverage in the overall financial system, which include regulatory arbitrage between banking and trading books, off-balance sheet exposures with incomplete credit risk transfer, lesser-quality non-equity capital instruments artificially boosting regulatory capital ratios, lax deductions of intangibles reducing the quality of capital, and excessive financial innovation.

³³ The Financial Services Authority of the United Kingdom (FSA) proposed an economic cycle reserve, which is possible to be shown only as a movement on the balance sheet, rather than on the income statement. However, the FSA made clear that “there are very strong arguments that it should also appear somewhere on the P&L...” and that “incentive-based pay systems which refer to profit and EPS would then be based on distributable profit and distributable EPS, after the deduction of this reserve...” (FSA 2009a, p. 67).

Regulators have come up with policy responses on multiple fronts, one of them being the leverage ratio, which had been widely used prior to Basel I and has remained in place in countries such as Canada and the United States. During the crisis, Switzerland also proposed a leverage ratio for the two largest banking institutions, UBS and Credit Suisse. Most recently, the BCBS has set up a new Tier 1 leverage ratio³⁴ of 3 percent as part of the Basel III requirement, which is to be finalized and implemented in Pillar 1 minimum capital requirements by January 2018 (BCBS 2010a).

The main objective of the leverage ratio is to put a constraint on the extent to which a bank can leverage its capital base and help avoid destabilizing deleveraging, as well as to “backstop” the risk-based requirements with a simple non-risk-based measure. It has its merits in terms of setting a limit to the absolute exposures, counteracting the model risk in the risk-based requirements, and discouraging regulatory arbitrage, but it does not distinguish the different risk levels of different exposures and may provide perverse incentives by disproportionately punishing banks with lower risk. For this reason, it should serve only as a supplement to the risk-based capital requirement and should be calibrated to fall below the risk-based requirement and not to be binding under normal conditions. Despite its bluntness, the leverage ratio is easy to implement and can be a useful tool in the countercyclical toolkit.

The basic issue in defining the leverage ratio is the measurement of assets/exposures and capital. The capital measure is generally equity or regulatory capital (Tier 1 or total capital). However, the assets/exposures measure is less straightforward. Prior to the Basel III leverage ratio, different countries had very different approaches.³⁵ The United States included only on-balance sheet items, measuring exposures at total assets (net of the allowance for loan and lease losses) less capital deductions (such as goodwill and other intangible assets, deferred tax assets in excess of the limit for inclusion in Tier 1, and investments that are subject to deduction from Tier 1). Canada included both the on-balance sheet items and some off-balance sheet items deemed as direct credit substitutes (such as letters of credit and guarantees, transaction- and trade-related contingencies, and sale and repurchase agreements), adjusted for capital deductions. In the case of Switzerland, domestic lending activities are also excluded from the measurement of exposures due to their importance for the economy and concerns about the unintended consequences of unduly dampening domestic lending.

These differences will be reconciled as countries implement the Basel III requirements. The Basel III exposure measure includes both on-balance sheet and specified off-balance sheet items, generally using a 100 percent credit conversion factor (CCF) (except in the case of commitments that are unconditionally cancellable at any time by the bank without prior notice, where a CCF of 10 percent applies). To deal with the existing differences in accounting standards regarding

³⁴ The new ratio is defined as Tier 1 regulatory capital divided by total exposures (adjusted for Tier 1 capital deductions).

³⁵ For a discussion on the differences in the definition of leverage ratio, see D’Hulster (2009).

balance sheet netting,³⁶ Basel II netting rules apply in measuring exposures in securities financing transactions (such as repos, reverse repos, securities lending and borrowing, and margin lending transactions) and derivatives.

The calibration of the leverage ratio needs careful consideration. The Basel III Tier 1 leverage ratio of 3 percent may not be a meaningful constraint for banks in many developing countries, as they tend to have modest leverage. Some countries may choose to adopt a more prudent requirement. For example, China plans to follow the Basel III definition of Tier 1 leverage ratio, but impose a higher requirement of 4 percent. As mentioned, a different calibration may be justified due to different characteristics of the financial system in developing countries, although whether it is needed also depends on level of concerns about specific issues. Too stringent calibration may render the risk-weighted requirement ineffective and create perverse incentives.

3. Reducing the Cyclicity of the Minimum Capital Requirements

Many developing countries are still under the Basel I regime, but expectations are that over time Basel II will be implemented widely around the world.³⁷ As countries make the transition to the Basel II framework, they will inevitable face the trade-off between risk sensitiveness and procyclicality, as the actual levels of minimum capital requirement vary through the cycle in response to the changing risks and tend to amplify the cycle through the availability of credit.

The degree of procyclicality depends on the extent to which banks over-rely on external credit ratings (which tend to be backward-looking and procyclical) under the standardized approach, and to which banks' risk management and capital planning are based on point-in-time (PIT) estimates of potential credit losses under the IRB approach, rather than through-the-cycle (TTC) estimates.³⁸ The issue is also important because the effectiveness of the countercyclical capital buffer (such as the one devised under Basel III, which will be discussed in the next section) will depend on the degree of procyclicality of the minimum capital requirement, on top of which the buffer is built.

Under the standardized approach, minimum capital requirement relies on external ratings, which tend to be backward-looking and procyclical. The issue of external ratings is many-faceted, requiring policy changes on multiple fronts. One of the measures that have been proposed in the international debate, in particular at the Financial Stability Board (FSB), is to reduce or remove

³⁶ For example, currently the U.S. Generally Accepted Accounting Principles (US GAAP) allows for more netting than IFRS, resulting in the same financial institution having larger balance sheet under IFRS than under US GAAP, which has implications for the calculation of leverage ratio if left unadjusted. This is expected to be resolved in the near future, as IASB and US FSAB are jointly developing a converged standard on balance sheet netting.

³⁷ The results of 2010 Financial Stability Institute (FSI) Survey on the Implementation of the New Capital Adequacy Framework indicate that 112 out of 133 jurisdictions that responded to the survey have implemented or are planning to implement Basel II. See FSI (2010) for more details.

³⁸ Using data for Spanish banks from 1987 to 2008, Repullo, Saurina, and Trucharte (2010), for example, show capital requirements calculated using point-in-time estimates of PDs move significantly along the business cycle, ranging from 7.6 percent to 11.9 percent per unit of loan from peak to trough.

hard-wiring of external ratings in laws and regulations, including capital requirements.³⁹ The major constraint to the implementation of this measure is the limited internal risk management capacity of banks and the lack of alternative to external ratings. For many developing countries, this is exactly the constraint the majority of the banks are facing. Some countries (such as Brazil) have avoided the use of external credit ratings by adopting the simplified standardized approach (combined with the IRB approach for large banks), due to limited availability of external credit ratings or concerns about the quality of ratings. However, not all countries maintain the same views on credit ratings. There are economies of scale in the rating business and a benefit of specialization. In countries that continue to rely on external ratings in regulation, other measures to improve the incentive structure and oversight of the rating agencies and increase competition in the rating market warrant consideration.⁴⁰

Under the IRB approach of Basel II, banks are required to use long-term average of one-year probability of default (PD) and downturn loss given default (LGD), which should help mitigate procyclicality. However, banks' internal risk models often tend to focus on point-in-time estimates of PDs that vary through the cycle (due to reasons to be explained later in this section). These estimates then become inputs to the capital requirement calculation, making the latter procyclical. This tendency may have also revealed issues concerning supervisory validation of internal models due to data gaps and lenient interpretation of the Basel II requirements.

In order to mitigate the procyclicality of the minimum requirements, some regulatory bodies have proposed different approaches to adjusting banks' point-in-time PD estimates. The Committee of European Banking Supervisors (CEBS) proposed a Pillar 2 approach to adjusting for the compression of PD estimates during good times using downturn PDs.⁴¹ The Financial Services Authority (FSA) of the United Kingdom, whose proposal predated the crisis, used a so-called variable scalar approach to converting point-in-time estimates to through-the-cycle PDs in order to smooth out the Pillar 1 minimum requirement.⁴² This approach has been adopted by some UK banks for certain types of portfolios.

Conceptually these adjustments sound straightforward, but some practical challenges need to be considered in implementation.⁴³ First, there is a widespread lack of long time series of historical data, even in developed markets. Second, the choice of economic and credit cycle affects long-run estimates. Third, adding to the previous point, market structure and business practice evolve

³⁹ See FSB (2010).

⁴⁰ For a discussion of various measures on credit rating agencies, see European Commission (2010).

⁴¹ The CEBS proposal is devised in the context of stress testing under Pillar 2, but the methodology is linked to inputs for Pillar 1 minimum requirement and may be employed in Pillar 1 too. The adjustment can be thought of as an adjustment to the minimum requirement or a bank-specific countercyclical capital buffer (which is its initial intention). Due to its close link to the inputs in the minimum requirement, it is discussed in this section to distinguish it from the countercyclical capital buffer proposed by the Basel Committee to be discussed in the next section. See CEBS (2009) for details on the proposal.

⁴² See FSA (2006).

⁴³ For discussions about practical difficulties related to the variable scalar approach to estimating through-the-cycle PDs, see FSA (2007) and FSA (2009b).

over time and models need to take account of changes in default risk that are not purely related to the cycle. Lastly, there is a balance between granularity of measurement (data at the level of industry, portfolio, or segment based on risk drivers) and the availability of information.

Moreover, even though people generally agree on the need for smoothing capital requirement over the cycle, from the point of view of risk management and credit assessment, PIT estimates are more useful than TTC estimates, as they give more precise and up-to-date view of risk. Some may also argue that using TTC estimates would cause larger deviation of regulatory capital from a bank's economic capital as demanded by investors and counterparties, and weaken the effectiveness of Pillar 3 disclosure over time.⁴⁴ Adjustments to the regulatory capital calculation would need to take into account banks' internal risk management process and the supporting IT system. An option that has been proposed is to adjust the output of the Basel II formula (the minimum requirement) rather than the input (the PDs) using a multiplier based on deviation of GDP growth from its long-term trend, which would be more compatible with banks' existing risk pricing and risk management systems.⁴⁵

There are some studies on the procyclical impact of Basel II implementation in developing countries.⁴⁶ In addition to encouraging a long-term view of risk, one suggestion is to require banks to hold buffers⁴⁷ above the minimum requirement in good times. China, for example, adjusted minimum capital requirement based on supervisory discretion in 2009 in view of its rapid credit expansion. An additional 2 percentage points were added to the 8 percent minimum requirement for all banks, and another 1.5 percentage points were added for large banks. This looks similar to the countercyclical capital buffer to be discussed in the next section, but instead represents an adjustment to the minimum requirement. Compared to the earlier discussion on the adjustment of risk parameters, a simple adjustment may be more pragmatic for countries with data constraints and limited risk management capacity that may not be able to pursue more sophisticated approaches, although it may be less precise in calibration. However, the aforementioned challenges related to supervisory discretion, particularly the power and will to act, need to be considered under specific national circumstances.

4. Countercyclical Capital Buffer

Beyond the aforementioned adjustments to the minimum requirement, a separate countercyclical capital buffer can be devised. This section focuses on the rules on the countercyclical capital buffer published by the Basel Committee on Banking Supervision (BCBS) in December 2010 as

⁴⁴ See Gordy and Howells (2006).

⁴⁵ See Repullo, Saurina, and Trucharte (2010).

⁴⁶ See, for example, Segoviano and Lowe (2002); Griffith-Jones and Persaud (2006); and Kim and Lee (2006).

⁴⁷ Although banks usually hold capital cushions in excess of the minimum requirement, which tend to mitigate the procyclicality of the minimum requirement, the cushions may not be sufficient to fully offset the impact of a crisis (especially under increasing market pressure, as actual capital level approaches the minimum), as is evident in the current crisis. Additional regulatory measures may be justified.

part of the Basel III framework, which link capital requirements to macro-financial conditions and the level of systemic risk.⁴⁸

The objectives of a countercyclical capital buffer are different from those of the minimum requirements. The latter aims to ensure the solvency of individual banks, while the former goes beyond that and aims to ensure adequate level of capital in the banking system to avoid a credit crunch during the downturn. Under the countercyclical capital buffer regime of the BCBS, banks are required to build up capital buffers when excess credit growth is judged to be associated with a buildup of system-wide risk; these buffers can be released when the credit cycle turns, to help maintain the flow of credit. This is conceptually sound, as history has shown that episodes of serious financial stress were often preceded by periods of excess credit growth. The key issue is how to identify excess credit growth and the buildup of system-wide risk before the materialization of the risk and how to design a regime that can be effectively implemented.

The BCBS rule is based on guided discretion: that is, national discretion combined with a common reference guide, which represents the delicate balance between rules and discretions discussed earlier. The BCBS rule uses the gap between the credit-to-GDP ratio and its long-term trend as a reference and defines the thresholds for activating the countercyclical buffer. National discretion is necessary, as business and credit cycles are not entirely synchronized and national circumstances vary. In particular, although the credit-to-GDP gap seems to work reasonably well for BCBS member countries, as Drehman and others (2010) show, it would fail to identify the buildup of systemic risk in some developing countries, while striking a false alarm in others. For countries with a low initial level of financial depth, systemic risk may not be easily identified by simply looking at the deviation of credit-to-GDP ratio from the trend, as the trend trajectory itself tends to be high. In some countries, cyclical commodities-driven GDP growth may also dilute the credit-to-GDP ratio, masking potential systemic risk. In such cases, it may be more appropriate to monitor nominal credit growth.⁴⁹ Another issue is whether aggregate credit as defined by the BCBS—which captures all sources of debt funds for the private sector, including funds raised abroad—can be properly measured. Many countries, including developed countries, lack adequate statistics outside the banking sector.

Developing countries would need to take into account their stage of financial development, the structure of their financial system, and the exposure to external shocks when choosing the indicators for making buffer decisions. In addition, it may not be possible to identify a single indicator. Market structure changes over time, and each cycle has different characteristics. This is particularly true in developing countries as substantial financial deepening takes place. Even for the same cycle, indicators that signal the buildup of systemic risk may be different from those that signal the crisis. In this regard, the BCBS also admits that while the credit-to-GDP gap may

⁴⁸ See BCBS (2010a) for Basel III rules and BCBS (2010b) for guidance for national authorities operating the countercyclical buffer, as a supplement to the Basel III text.

⁴⁹ For a discussion of evidence from African countries that argues for the monitoring of nominal credit growth rather than credit-to-GDP gap, see Fuchs, Losse-Mueller, and Witte (2010).

be a good indicator to judge the risk buildup, it may be a lagging indicator for signaling the downturn. Furthermore, data availability and the timeliness of data reporting are a major concern in many developing countries. For these various reasons, many countries still rely largely on expert opinions and market intelligence when making policy decisions. However, increased efforts for data collection and an added focus on systemic risk indicators are needed. Overall, there is no single rule that can be followed in terms of what indicators to collect and monitor. Authorities will need to exercise discretion using all available information that is relevant for evaluating financial cycles (see discussion on potential indicators for monitoring systemic risks).

The BCBS guidance does not prescribe whether the countercyclical capital buffer should be placed within Pillar 1 or Pillar 2, while recognizing that the rule has features of both Pillar 1 and Pillar 2. On the one hand, it is a mandatory requirement once the buffer is imposed. On the other, it is not a fixed rule or formula, and authorities need to exercise discretion. There is indication that some countries may opt to use a Pillar 2 approach for its flexibility, especially when testing out the new tool. However, supervisory capacity and supervisory powers often pose constraints on the exercise of supervisory discretion, and more so in some developing countries than others. Therefore, a Pillar 1 approach may be more appropriate in some countries, in order to ensure adequate enforcement. This is not to deny the usefulness of Pillar 2 in ensuring adequate capital and risk management process, but only means that the allocation of resources and supervisory capacity should be rationalized in implementing the countercyclical capital buffer.

Another key feature of the BCBS proposal is jurisdictional reciprocity, which has implications for home-host coordination. Home-host issues, particularly the supervisory power of the host countries, are especially important to developing countries, many of which are the host countries of large international financial institutions. Under the BCBS arrangement, the home supervisor of the legal entity takes the lead in enforcing the buffer, although a bank's buffer is calculated according to its geographic exposures and the existing buffers set by host authorities of the jurisdictions where the exposures are. Despite specific guidance on home-host coordination and information sharing, concerns remain that the host supervisor's concerns may not be adequately addressed. This is a cross-cutting issue in the overall cross-border regulatory framework, not limited to the countercyclical capital buffer. In some cases, a bank's foreign operation in a certain country may be systemically important for the host country while being a small part of the parent group, as is the case in some Central and Eastern European, Latin American, and African countries, or the parent is not considered systemically important for the home country.⁵⁰ In these cases, reliance on consolidated supervision of the home countries may not be sufficient to address host supervisor's concerns.

⁵⁰ For a discussion on the potential conflicts between the interest of home and host supervisors, see Herring (2007).

Local subsidiarization—as is already required or encouraged (through differentiating regulatory treatment compared to branch structure) in some countries⁵¹—may help alleviate the concerns of the host authorities, albeit at a cost in terms of reduced group-wide efficiency in capital allocation and liquidity management, as well as potentially more fragility in individual parts of the group and less parent support in times of crisis (although the concern about parent support is mitigated by reputational factors). It is important to recognize that the legal form (branch versus subsidiary) in itself may not be a sufficient indication of the real operation: that is, subsidiaries may operate like branches, with key functions centralized at the parent level. There is no definite consensus on the superiority of one legal form over another,⁵² although the balance seems to have shifted more toward subsidiarization than before the crisis. Although supervisory cooperation is always important in ensuring that measures to protect domestic interest do not unduly jeopardize financial stability elsewhere, it is important that host supervisors in developing countries assert adequate scrutiny and powers over the presence of foreign banks to address their supervisory concerns, whether through subsidiarization or other ring-fencing measures (for example, asset maintenance requirements) and licensing requirements. More broadly, developing countries' perspective on the home-host issue, among other supervisory issues, remains a complicated issue and has been brought into the Group of Twenty (G-20) and FSB agenda.

Lastly, as mentioned, the interaction of alternative measures within the prudential toolkit needs to be considered, as well as the interaction with monetary and fiscal policies. Another aspect is that countercyclical capital buffer is a broad measure that does not differentiate between different exposures and sectors. Some countries may choose to use alternative measures to target issues in a specific sector or supplement such a broad measure using other sectoral measures (as discussed in the next section).

In summary, a countercyclical capital buffer can be a useful macroprudential tool, particularly in increasing the resilience of the financial system. However, the reference guide for systemic risk identification using the credit-to-GDP gap—which is developed using historical data for the BCBS member countries—may not be appropriate for all countries at various stages of development. The BCBS rule already emphasizes the importance of judgment. Many developing countries may find it especially important to focus on the element of national discretion due to different patterns of growth and cycles, stages of financial development, and policy priorities. In

⁵¹ For example, Russia has a de facto prohibition of foreign branches. China has a differentiating capital requirement for foreign branches, while locally incorporated subsidiaries are subject to the same requirement as domestic banks after the geographic and customer restrictions were removed in 2006 following WTO accession. New Zealand requires that systemically important foreign entities be organized as subsidiaries and conduct a substantial part of their business locally. After the onset of the crisis, the UK FSA has proposed to increase the power of the host supervisor, possibly by requiring subsidiarization (see FSA 2009a). The Reserve Bank of India also issued a discussion paper (RBI 2011) expressing views in favor of a subsidiary structure over a branch structure and proposing incentivizing subsidiarization, although the existing laws and regulations already provide a ring-fenced structure with requirements on locally assigned capital.

⁵² For a recent discussion on subsidiarization, see Fiechter and others (2011).

addition, cross-border cooperation between home and host supervisors and domestic policy coordination are both essential for effective countercyclical intervention.

5. Other Sectoral Measures

Countercyclical measures that target specific sectors/segments have been used by various countries, particularly some Asian countries, many of which deal with real estate cycles. Examples include (but are not limited to) changing the loan-to-value (LTV) ratio for mortgage loans and the debt-to-income ratio for retail lending, and changing risk weights and provisioning requirements for certain exposures, according the stage of the cycle. Some of these measures (such as the LTV ratio) directly affect the quantity of the credit, while others aim to affect the supply of credit indirectly through “prices” (such as risk weighting or provisioning requirements). Compared to the broad measures discussed earlier, targeted measures are less blunt and prove more effective in addressing emerging risks in specific sectors.

India, for example, has used a combination of time-varying risk weight and provisioning requirements since December 2004 on standard assets for certain sectors wherein “excessive credit growth, in conjunction with sharp rise in asset prices, has caused apprehension of potential build-up of systemic risk and asset bubbles.”⁵³ The measures are largely judgmental; although decisions are based on trends in aggregate and sectoral credit growth, combined with an assessment of macroeconomic conditions, no statistical analysis or modeling is conducted. The Reserve Bank of India (RBI) has maintained a sectoral approach to countercyclical prudential regulation, distinguishing between different types of exposures, although the overall direction of countercyclical prudential measures largely corresponds to the direction of monetary policy.⁵⁴ The sectoral approach, together with a high degree of discretion, has been emphasized by the RBI as more suitable for India’s situation both in identifying emerging risks and in tailoring prudential measures in supplement to the more blunt policy interest rate instrument (see box 2 for more details about India’s experience with countercyclical measures).

The limited experience so far from India has shown that time-varying risk weights and provisioning requirements have been more effective in dampening excess credit growth in the boom phase than stabilizing credit supply in the downturn. However, it is difficult to attribute the effects to countercyclical prudential measures alone since the direction of these measures has closely followed that of monetary policy. The provisioning requirements have been found to be more effective than risk weights, since the former has a direct impact on the bottom line of financial institutions, while the latter has limited supply-side impact when the capital adequacy is generally high and indirect demand-side impact through changes in loan pricing.

⁵³ The quote and subsequent discussion on India’s experience on time-varying risk weights and provisioning requirements are drawn from Sinha (2011).

⁵⁴ The RBI is responsible for both the monetary policy and the regulation and supervision of banks and nonbank financial companies, which has facilitated policy coordination.

Box 2. India's Experience with Countercyclical Measures

The Reserve Bank of India (RBI) has implemented time-varying risk weights and provisioning requirements for standard assets for certain sectors since December 2004. Taking commercial real estate exposures as an example, the risk weight was increased gradually from 100 percent in December 2004 to 150 percent over the next two years in view of rapid credit expansion, before it was reduced to 100 percent in November 2008 due to the impact of the global financial crisis. During the same period, the provision requirement as a percentage of standard assets were increased progressively from 0.25 percent to 2 percent, before it was revised to 0.4 percent (see table). Then in November 2009, the requirements were again strengthened. The risk weights and provisioning requirements on other exposures (such as capital market, housing, and other retail) were changed by a different magnitude and sometimes with different timing, although the overall direction of these measures is broadly in line with that of monetary policy. Evidence from commercial real estate sector seems to have shown that countercyclical prudential measures (particularly the provisioning requirement) have had some success in moderating loan growth (see figure). However, it is difficult to attribute such effects entirely to prudential measures, as they have closely followed the direction of monetary policy.

India: Time Varying Risk Weights and Provisioning Requirements and Policy Interest Rate

Month/ year	Capital market		Housing		Other retail		Commercial real estate		Reverse repo rate (%)
	Risk weight	Provisions (%)	Risk weight	Provisions (%)	Risk weight	Provisions (%)	Risk weight	Provisions (%)	
Dec-04	100	0.25	75	0.25	125	0.25	100	0.25	4.75
Jul-05	125	0.25	75	0.25	125	0.25	125	0.25	5.00
Nov-05	125	0.40	75	0.40	125	0.40	125	0.40	5.25
May-06	125	1.00	75	1.00	125	1.00	150	1.00	5.50
Jan-07	125	2.00	75	1.00	125	2.00	150	2.00	6.00
May-07	125	2.00	50–75	1.00	125	2.00	150	2.00	6.00
May-08	125	2.00	50–100	1.00	125	2.00	150	2.00	6.00
Nov-08	125	0.40	50–100	0.40	125	0.40	100	0.40	6.00
Nov-09	125	0.40	50–100	0.40	125	0.40	100	1.00	3.25
Dec-10	125	0.40	50–250 ^a	0.40–2.00	125	0.40	100	1.00	5.25

Source: Sinha (2011).

a. Varies according to the loan amount and LTV ratio.

India: Growth in Loans to Commercial Real Estate and Provisioning Requirement

Source: Sinha (2011).

Source: Sinha (2011).

LTV ratio caps are in place in many countries and have been adapted to deal with real estate cycles through time-varying requirements over the cycle in jurisdictions such as China; Hong Kong SAR, China; and the Republic of Korea. The LTV ratio has the effect of directly curtailing the amount of credit that can be issued and containing leverage, reducing the potential probability of default by screening out high-risk borrowers, as well as reducing the potential losses in the event of actual default.⁵⁵ The countercyclical effect can be further strengthened with adjustments of the LTV cap over different stages of the cycle, which can be further differentiated by the size, type (for example, primary residence or not), location, and age of the property, and fine-tuned for different stages of the cycle (see box 3 for Korea's approach to LTV regulation). In the Republic of Korea and Hong Kong SAR, China, time-varying LTV ratios—combined with debt-to-income (DTI) requirements—have been credited for helping curtail recent real estate booms. Some countries (such as Australia, India, South Africa, and Spain) also link capital requirements to the LTV ratio by assigning higher risk weights to mortgages with higher LTV ratios.

A sectoral approach to dealing with cyclicity may be appropriate in many developing countries, as credit exposures are often concentrated in key sectors. This approach enables authorities to more accurately identify the source of systemic risk and focus their policy actions. Targeted sectoral measures are also useful when the development of a specific sector diverges from overall macroeconomic conditions (for example, a real estate boom in the middle of an economic recession). These measures can be tailored to various degrees of complexity and are relatively easy to implement, which is a desirable feature in developing country context.

However, there are a few caveats to consider, which will affect the effectiveness of the sectoral measures.⁵⁶ First, the effectiveness of the measures depends on the design and effective monitoring. For example, both the LTV and DTI ratios need to be evaluated based on the borrower's total exposures, which is not always possible. Countries with centralized credit registry may be better equipped to enforce such measures effectively. Second, there are also concerns that effects may be short-lived, which calls for consecutive interventions. Third, the narrow target increases the concerns of regulatory arbitrage and migration of risk to nonregulated sectors. Last but not the least, many of the sectoral measures that have been experimented with are fully discretionary, and concerns exist about the uncertainty and timeliness of policy actions. The more discretion is applied, the more demanding it is for the supervisor in terms of the ability and willingness to act.

⁵⁵ See Crowe and others (2011).

⁵⁶ For more discussion about the effectiveness of the LTV and DTI regulation and its limitations, see Crowe and others (2011).

Box 3. Korea's Experience with LTV Regulation

The Korean authorities implemented several prudential measures in view of the overheating in the real estate market in 2001–02. Between 2001 and 2002, the risk weight for mortgage loans was raised from 50 percent to between 60 and 70 percent. In November 2002, the minimum loan loss reserve coverage ratio for household loans classified as normal was raised from 0.5 percent to 0.75 percent, and for those classified as precautionary, from 2 percent to 8 percent. Since September 2002, the supervisory authority has used LTV ratio as the main policy instrument to constrain the growth in mortgage loans, as the above-mentioned indirect measures were considered insufficient.

The LTV cap was first lowered in September 2002 and twice more in 2003. By examining the apartment price movement in the speculative Seoul metropolitan area, together with the changing LTV cap and Bank of Korea (BoK) policy rate (see figure), it appears that lowering the LTV cap (in combination with other prudential measures, such as a DTI ceiling for certain types of borrowers, as well as other restrictions on granting mortgage loans and maturity extensions) had some positive effects in curbing the overheating housing market. It is interesting to note that monetary policy was expansionary during the same period due to concerns about economic weakness, which indicates the importance of macroprudential policy in addressing issues that may not be included in the defined objective of monetary policy.

Korea: Change in Apartment Price Index and LTV Cap in Seoul and Bank of Korea Policy Rate

Source: Chang (2010)

Source: The author thanks Soon Taek Chang for sharing information on Korea's experience with LTV regulation, as well as his helpful suggestions for the text box. See Chang (2010) for a more detailed discussion.

IV. Conclusion

This paper reviews a set of prudential measures that can be adopted by national authorities to deal with procyclicality and discusses issues in designing and implementing such measures. While it is impossible and also undesirable to provide a standard policy prescription for the diverse set of developing countries, such a review of potential measures will hopefully help provide a sound basis for further analysis and policy making. It is important to recognize that the

general framework is still being debated and developed in the international policy forums and that potential tools need to be experimented with and their effectiveness carefully monitored and evaluated over time.

For developing countries, an important consideration in financial regulation in general is the need to balance the objectives of financial stability and financial development. Financial regulation is by no means without cost. There are concerns that some measures to mitigate credit cycles are similar to credit controls and may cause distortions and unintended consequences in the process of financial deepening. The cost and practical challenges of deploying various countercyclical measures will also need to be evaluated. The priority differs across countries depending on their stage of development and perceived risks, which ultimately determines the most suitable policy actions.

Authorities in developing countries have various potential tools that they can include in their countercyclical prudential toolkit. A shift away from over-reliance on capital adequacy to provide assurance about the resilience of the financial system may be desirable in some developing countries. Capital and provisioning measures are generally complimentary to each other, as the former deals with unexpected loss, and the latter, with expected loss. Countries may combine both measures in their attempts to deal effectively with procyclicality, bearing in mind that the effectiveness of provisioning requirements has a direct impact on true capital adequacy. In addition, sectoral measures may be employed to target emerging systemic risk in specific sectors, especially when such development diverges from broad macro-financial conditions. Each measure has its advantages and limitations, which must be evaluated for policy decisions in a specific national context. However, no regulatory measures can substitute for rigorous supervision of the business processes and associated risks of specific financial institutions. The increased emphasis on systemic risk and macroprudential regulation should not diminish the importance of microprudential supervision and timely corrective actions.

Various countercyclical measures are of different levels of sophistication. On the one hand, authorities in developing countries should not feel compelled to adopt measures that pose too many operational challenges, which could render them ineffective, or worse yet, provide a false sense of security. On the other hand, some measures are relatively easy to implement or can be simplified based on international discussions and the experience of some countries. Authorities should not be excessively deterred from experimenting with measures that may help improve financial stability.

To implement countercyclical measures effectively, policy coordination and governance arrangements are of paramount importance. Many countries are in the process of rethinking their regulatory structure and considering the establishment of a financial stability institution with specific macroprudential mandates. Consensus on many details has yet to occur, although some key elements of a macroprudential framework have been identified. These include defining clear and achievable objectives; specifying the agencies involved and their respective responsibilities;

attaining the powers and accountability to make recommendations or policy decisions; and ensuring adequate transmission channels, policy instruments, regulatory perimeters, and information sharing arrangements. Developing countries, as well as developed countries, will have to ascend a learning curve and some trial and error is likely before a framework matures.

The increased emphasis on systemic risk and macroprudential supervision poses challenges to the authorities in developing countries and requires continued efforts in analytical and supervisory capacity building. The macroprudential focus requires enhanced data collection and analytical tools to gauge macro-financial conditions and identify emerging systemic risk. In addition to sound analysis, effective policy intervention requires both the power and the willingness to act, especially given the fact that the objectives of countercyclical measures require timely intervention before risks materialize. Much still needs to be done in many developing countries to ensure that supervisory authorities have the operational independence, clear mandates, and adequate resources that are needed to perform the required tasks. Policy reforms will need to be carefully prioritized and paced while supervisory capacity is being improved.

Appendix A. Dynamic Provisioning Regimes in Comparison

This appendix provides a summary of the design and main features of the existing dynamic provisioning regimes in Spain, Uruguay, Bolivia, Colombia, and Peru.

Spain

The Spanish dynamic provisioning was introduced in 2000 and subsequently revised in 2004. It is a rule-based system, with a formula that has two parameters [see equation (1)]: α is the average estimate of credit loss in a cycle-neutral period, and β is the average through-the-cycle estimate of specific provision. The countercyclical effect is two-fold: the α component is a general provisioning requirement on new credit (ΔC_t), while the β component based on total credit (C_t) represents the smoothing of specific provisioning (SP_t) through the cycle (that is, building cushions in good times to help cover losses in bad times). The state of the cycle is determined automatically, depending solely on whether specific provisioning is below or above its through-the-cycle average. The α and β parameters vary according to six risk categories⁵⁷ of loans, ranging from negligible to high, and therefore the total general provision is the sum of that required in all categories. The Spanish system was introduced in the context of loose macroeconomic conditions and elevated credit growth in the late 1990s, with an explicit *prudential* objective of covering “latent” losses and improving banks’ solvency through the cycle. While it did help improve the resilience of the Spanish banking system to the downturn, it did not seem to have much effect on credit growth (which was not the primary goal to begin with).

$$\Delta GP_t = \alpha \Delta C_t + (\beta C_t - \Delta SP_t) \quad (1)$$

Uruguay

The Uruguayan dynamic provisioning system was introduced in 2001. It is also a rule-based system similar to the Spanish one, but with only a β parameter, and in the place of specific provision under the Spanish system, it uses net loan losses, LL_t , or specific provision net of recoveries [see equation (2)]. β is the annual expected loss rate, which is then divided by 12 to arrive at the monthly provisioning requirement. Similar to the Spanish system, there are five categories⁵⁸ of loans with different β 's. Wezel (2010) uses a simulation approach and finds that the stock of dynamic provisions in Uruguay’s banking system would fully absorb a medium-

⁵⁷ The six categories (in ascending order of riskiness) are cash and public sector exposures; mortgages with LTV ratio below 80 percent and exposures to corporations with a rating of A or above; mortgages with a LTV ratio above 80 percent and other collateralized loans not previously mentioned; other loans, including corporate exposures that are nonrated or have a rating below A and exposures to small- and medium-sized firms; consumer durables financing; and credit card exposures and overdrafts. The α and β parameters for the six categories are (0, 0.6, 1.5, 1.8, 2, and 2.5 percent) and (0, 0.11, 0.44, 0.65, 1.1, and 1.64 percent), respectively. See Saurina (2009a) for details.

⁵⁸ The five categories and corresponding β 's are: loans with public sector guarantees (0.1 percent); loans with other guarantees (0.5 percent); other loans (1.1 percent); consumer loans (1.4 percent); and credit card loans (1.8 percent). See Wezel (2010).

sized shock by offsetting the cost of additional specific provisions, but would fail to withstand a severe crisis.

$$\Delta DP_t = \frac{1}{12} \beta C_t - LL_t \quad (2)$$

Bolivia

Bolivia introduced a rule-based cyclical provisioning requirement in 2008, which adds on top of the specific provisioning requirement and specifies the required percentages of loans that banks need to maintain as cyclical provision for different types of loans.⁵⁹ The provision is built up monthly at a rate of 2.78 percent of total required cyclical provision (that is, over a period of 36 months), with a frontload at the beginning of the implementation in December 2008 ($n=9$, or a buildup of 25 percent of the required provision) [see equation (3)]. During a downturn, banks can access the stock of the cyclical provision to cover up to 50 percent of the increase in specific provision in a given month as long as the loan quality, as measured by the actual ratio of specific provision required (RPR), has deteriorated for six months and the cyclical provision has been fully phased in. When credit quality improves, as indicated by the decrease of the six-month moving average of the RPR, banks are required to restart cumulate cyclical provision [see equation (4)].

$$\text{Cyclical provision}_n = 2.78\% * n * \text{Total required cyclical provision} \quad (3)$$

$$RPR = \sum_{k=A}^H \alpha_k c_k, \quad (4)$$

where α is the actual ratio of specific provision in a given loan category, c is the share of the given loan category in total loans, and A through H are categories by loan classification.

Colombia

The Colombian countercyclical provisioning system differs from all other dynamic provisioning systems in that it is based on specific provision and that it is fully discretionary in supervisory decision regarding the switching of states. The system, which was adopted in 2007, uses two matrices of PDs (by loan type and classification) to calculate “individual provision” (a concept of specific provision) [see equation (5)]. Each period, the regulator decides which of the two matrices applies, and the difference between the two will be the required countercyclical provision. In effect, the required countercyclical provision has two states: on and off. In good times, banks are required to maintain a countercyclical provision to bring total provision to the level implied by the matrix with higher PDs, which can be used in bad times (once the change of the state is declared) to cover losses until the level of total provision reaches the requirement implied by the matrix with lower PDs. The biggest issue in such a discretionary system, of course, is making the call. Supervisory independence and the will to act, as well as access to

⁵⁹ The rates of cyclical provisioning are 1.5 percent for mortgages; 2.3 percent for consumer loans; 1.6 percent for micro credit; and 2.3, 3.2, and 5.5 percent for different categories of commercial loans. See SBEF (2008) for details.

information and analytical capacity (in the absence of mechanic rules), need to be in place to make the system operational. Another issue with the Colombian system is that the dynamic provisions are cumulated as individual provisions, which means it is specific to a credit and cannot be allocated to cover losses of other credit. Due to these concerns, the Colombian authorities have already come up with plans to make the system more rule-based and to use dynamic provisions as general provisions.⁶⁰

$$\textit{Individual provision} = PD * LGD * C \quad (5)$$

Peru

The Peruvian system was initially introduced in 2000 and revised in 2008.⁶¹ It is a rule-based system with a clear macroprudential objective, and the accumulation and release of the funds is based on GDP growth. The rule dictates two sets of general provisioning requirements according to two states of GDP growth, by specifying two sets of PDs and LGDs by type of loans (mortgage, consumer, and different types of commercial loans) [see equation (6)]. Simply put, in a “low growth” period, banks are required to maintain a lower level of general provision (0.7 or 1 percent, depending on the type of loans); in a “high growth” period, banks are required to increase the level of general provision (to 1.1 to 2.5 percent, depending on the type of loans). The additional funds accumulated in good times can be accessed in bad times to offset increasing specific provisioning. The advantage of the Peruvian system is its systemic perspective, but the data requirement on high-frequency and up-to-date GDP data may pose a challenge in other countries and the relevance of GDP growth vis-à-vis other indicators also may need to be evaluated.

$$\textit{Procyclical provision} = PD * LGD * C \quad (6)$$

⁶⁰ See Fernández de Lis and Garcia-Herrero (2010) for more details.

⁶¹ The discussion on the Peruvian system benefits from the presentation on the subject by Michel Canta Terreros at the Workshop on Countercyclical Provisioning Systems for the Superintendencia de Bancos del Banco Central del Paraguay and Autoridad de Supervisión del Sistema Financiero de Bolivia, organized by the World Bank in April 2010 (Canta Terreros 2010). Also see Fernández de Lis and Garcia-Herrero (2010) for a discussion of the Peruvian system.

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