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Dealing with the Challenges of Macro Financial Linkages in Emerging Markets

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The 2008 financial crisis has emphasized the importance of macro financial linkages. In the financial sector, attention is now focusing on macro prudential regulations that are geared toward the stability of the financial system as a whole. In the macro arena, the recognition that price stability was not sufficient to guarantee macroeconomic stability and that financial imbalances developed despite low inflation and small output gaps has highlighted the need for additional tools (macro prudential policies) to complement monetary policy in countercyclical management. Emerging markets (EMs) face different conditions and have key structural features that can have a bearing on the relevance and efficacy of policy measures. Drawing on Canuto and Ghosh (2013),¹ this note discusses the challenges of dealing with macro financial linkages and explores the policy toolkit available for dealing with systemic risks, particularly in the context of EMs.

The 2008 financial crisis has highlighted the challenges associated with global financial integration and emphasized the importance of macro financial linkages. Specifically, the crisis has shown how the real sector (business cycles) can interact with and be amplified by the financial sector, resulting in high procyclicality and a buildup of systemic risk in the financial sector that manifests during economic downturns.

Although boom-bust cycles in asset prices and credit were observed prior to the recent global crisis, they did not seriously challenge the prevailing paradigm. In the macro arena, the general view was that keeping monetary policy focused on price and output stability would deliver the best feasible outcome (Bernanke and Gertler 1999, 2001), although some proponents argued in favor of “leaning against the wind” (Blanchard 2000; Borio and White 2004). In the financial sector, prudential policies in most economies focused narrowly on the soundness of individual financial institutions.

Policies in both the macroeconomic and financial sector arenas are now being debated and reviewed (see Blanchard, Dell’Ariccia, and Mauro [2010, 2013] for overviews). In the

financial sector, the focus is now moving to macro prudential regulations geared toward the stability of the financial system as a whole. Some of the proposed measures under the Third Basel Accord (Basel III)² aim to dampen the procyclicality of the financial sector and reduce cross-sectional systemic risks partly by addressing liquidity and issues of banks being “too big to fail.” In the macro arena, the fact that price stability was not sufficient to guarantee macroeconomic stability and that financial imbalances developed despite low inflation and small output gaps have highlighted the need for additional tools (macro prudential policies) to complement monetary policy in countercyclical management. These outcomes have also raised questions about the respective roles and interactions between the monetary and macro prudential policies when either policy operates imperfectly and/or is constrained.

Policy debate is currently taking place largely in the context of advanced industrial countries. However, EMs face different conditions and have key structural features that can have a bearing on the relevance and efficacy of the proposed measures. Also important, because they suffered ear-

lier financial crises, many EMs have had greater experiences with macro prudential and other policies aimed at ensuring financial stability. As such, EMs can offer valuable lessons. This note broadly discusses the challenges of dealing with macro financial linkages and explores the policy toolkit available for dealing with systemic risks, with particular reference to EMs.

Macro Financial Linkages and Systemic Risk

What are the mechanisms through which interactions between the financial and real sectors take place and how do these lead to a buildup of systemic risks?

The financial sector is inherently procyclical—that is, it amplifies the business cycle. Interactions between the financial sector and the real sector that “cause” this procyclicality operate mainly through changes in the value of assets and leverage. Shin (2013) notes that financial intermediaries are not the typical textbook rational portfolio optimizer, who decides on asset holdings based on an assessment of some fundamental value. Instead, banks and other financial intermediaries have quite perverse portfolio choice behavior—their asset holdings depend on their “balance sheet capacity” and their demand for an asset tends to rise when the price of the asset rises and falls when the price of the asset falls. Balance sheet capacity depends on two factors: the amount of bank capital and the degree of permitted leverage. During a boom, balance sheet capacity is strengthened by two factors. First, bank capital is reinforced by increased profitability of the bank, or the capital gains implied by the increase in asset prices. Second, lowered measured risks during the tranquil up-phase of the financial cycle raise banks’ leverage. In particular, if the bank is managing asset risk through managing its value-at-risk (VaR), then a fall in measured risk translates directly into an increase in bank leverage: that is, leverage itself is procyclical. If all banks respond in the same way, the increased demand for assets raises their prices, further fuelling the cycle and leading to a generalized expansion of banks’ assets (credit). The amplifying, procyclical nature of banking sector balance sheet management has far-reaching implications for financial stability.

Although banks’ balance sheet management is a key element underlying the procyclicality of the financial sector, several other factors can lead to market failures and externalities that exacerbate the generalized expansion of bank assets (or contraction in a downturn), as discussed by Acharya (2013) and Claessens, Ghosh, and Mihet (2013). Indeed, some aspects of micro prudential regulations that are designed to ensure the stability of individual financial institutions can in fact aggravate both the cyclical and cross-sectional dimensions of systemic risks.

During an upturn or boom period, the financial system as a whole can become vulnerable by exposure to balance

sheet weaknesses or mismatches in areas such as liquidity, maturity, and foreign exchange. These vulnerabilities emerge in the face of shocks (or a downturn in the economy). Thus as leverage in the financial sector increases, bank portfolios can become highly exposed to particular asset classes (often real estate), and on the liabilities side, the ratio of noncore-to-core liabilities tends to rise. Core liabilities can be defined as the funding from which the bank draws upon during normal times and that is sourced (mainly) domestically. What constitutes core funding will depend on the context and the economy in question, but retail deposits of the household sector are a key candidate (Shin 2013). When banking assets are growing rapidly, core funding is likely to be insufficient to finance the rapid growth in new lending (because retail deposits tend to grow in line with aggregate household wealth). Thus, other sources of (noncore) funds need to be tapped—usually in the form of interbank liabilities or liabilities to a foreign creditor (capital inflows). Very often the source of the increase in noncore funds is from foreign creditors. Prior to the 2008 financial crisis, branches of foreign banks in the United States raised significant amounts of U.S. dollar funding in the U.S. capital markets that were then shipped to their headquarters. Although some of these borrowed dollars found their way back to the United States to finance purchases of mortgage-backed securities and other assets, a fair amount of these dollars also flowed to Europe, Asia, and Latin America, where global banks are active local lenders. Even for liabilities to domestic creditors, if the creditor is another intermediary, the claim tends to be short term. The distinction between core and noncore liabilities becomes meaningful once there are differences in the empirical properties of the two types of liabilities, with noncore liabilities generally exhibiting less “stickiness” and greater volatility in the face of shocks.

As mentioned, the vulnerability becomes apparent in the face of a negative shock or downturn (a fall in asset prices, a stop in capital inflows, or a sudden withdrawal of funds). Even a small shock, such as declines in collateral values during a downturn, can trigger systemwide problems once financial institutions’ balance sheets become weak. If equity buffers are insufficient to absorb losses, for example, banks may be forced to deleverage, creating systemwide declines in the supply of external financing. The reduced credit extension, in turn, can exacerbate an economic slowdown, raising the probability of default for all other borrowers, and can set off an adverse cycle of bank losses, further credit contraction, and economic slowdown. Alternatively, a negative shock that shakes depositors’ confidence can expose banks to the risk of runs, forcing them to hoard liquidity or sell assets at depressed market prices to meet withdrawals, if the systemwide maturity transformation (lending long and borrowing short) or reliance on wholesale funds (noncore funding) is high. Negative externalities related to fire sales can then come into

play as a generalized sell off of financial assets causes a decline in asset prices, which in turn further impairs the balance sheets of intermediaries, amplifying the contractionary phase of the cycle.

The cross-sectional dimension of systemic risk arises from the interconnectedness of financial institutions and markets. Because of their interconnectedness, the contemporary market-based financial sector should be thought of as not only the deposit-taking, loan-making activities of commercial banks, but also include investment banks, money market funds, insurance firms, and potentially even hedge funds and private equity funds. Although the financial sectors of emerging economies consist primarily of traditional commercial banks, recent evidence from China and India shows that when commercial banks are restricted in risk taking and leverage growth, emerging economies tend to have an outgrowth of “shadow banking,” that is, nonbank financial intermediaries (money market funds and nonbank finance operations) that often remain outside the scope of regulators.

As Acharya (2013) notes, several types of systemic risks can arise from the failure of interconnected financial institutions, such as counterparty risk, especially in interbank markets; spillover risk due to forced asset sales in asset- or market-based economies; the risk of runs on the shadow banking system; or simply the inability to resolve failed banks by selling them to better-capitalized firms (given the dearth of these firms during a systemic crisis), leading to a credit crunch or regulatory forbearance and the creation of “zombie” institutions that do not allocate resources effectively because of their debt overhang problems.

Unless the external costs of such systemic risks imposed on the rest of the financial sector as well as the rest of the economy are internalized by each financial institution, an incentive will remain to take risks whose costs are borne by others. A financial institution’s risk is a negative externality on the entire system. Thus financial regulation should be not only micro prudential, but also macro prudential in nature, focused on limiting systemic risk. Absent such macro prudential regulation, economies run the risk of excessively large amplifiers over and above the normal cyclical macroeconomic fluctuation. However, the issue is often not so straightforward. For instance, even if a domestic regulator penalized a multinational financial firm for producing systemic risk locally, the impact of this penalty may not carry through to all of the international markets in which the firm operates. This situation makes a case for more severe penalties for firms whose actions can lead to systemic consequences elsewhere. But financial institutions’ propensity to conduct regulatory arbitrage across national jurisdictions—that is, if institutions are more strictly regulated in one jurisdiction, they may move their base for financial intermediation services to jurisdictions that are more lightly

regulated—means such institutions expose all jurisdictions to their risk taking. Individually, jurisdictions may prefer to be regulation “lite” to attract more institutions and therefore more jobs.

Systemic risk concerns caused by interconnected firms are as important, if not more so, in EMs as in advanced countries (ACs). As the role of EMs in the global economy rises, the importance of risk spillovers across these markets has also grown. It is thus important to look for emerging pockets of macro prudential risk, not just within economies, but also outside them.

Often, cyclical and cross-sectional systemic risks grow in tandem. In a boom, when credit is growing rapidly, the growth of bank balance sheets outstrips the growth in the pool of retail deposits. As a result, the growth of bank lending results in greater lending and borrowing between the intermediaries themselves, or results in a “sucking in” of foreign debt. Thus, the cross-sectional dimension of risk, in which banks are vulnerable to a common shock, is closely related to the “time-series” dimension of risk, which concerns the procyclicality of the balance sheet where assets are larger during the peak of the financial cycle.

Are the Challenges of Macro Financial Linkages Greater in Emerging Markets?

Shin (2013) and Acharya (2013) provide the theoretical foundations for use of macro prudential policies. The adoption and application of these tools, however, remain in an early stage of analysis. Nonetheless, it seems clear that EMs are more likely than ACs to need such tools.

Although the 2008 global financial crisis originated in the ACs, highlighting the fact that reaping the benefits of financial integration without incurring the costs remains a key challenge for all economies,³ Claessens and Ghosh (2013) argue that, in general, EMs tend to face even greater challenges with respect to managing the implications of macro financial linkages, notably with regard to procyclicality. This tendency is for two reasons: their greater exposure to shocks and their institutional characteristics.

Not only are EMs more prone to shocks—particularly capital flows, surges, stops, and also commodity price and terms-of-trade shocks—but the magnitude of these shocks, both positive and negative, is often large relative to their domestic economies and the size and depth of their financial sectors. For example, on average, total net private capital flows relative to M2⁴ over 2000–10 has been some factor 100 times than that of ACs. As a share of local capital markets, financial flows in EMs are thus much larger than in ACs, and certainly more volatile. Also foreign bank presence is greater—more than double—in EMs than in ACs. Unsurprisingly, therefore, shocks to capital flows and foreign banks’ operations can have significant impacts on EMs’ do-

mestic financial and real sectors. Perhaps more importantly, the amplification of shocks tends to be larger in EMs.

In turn, both susceptibility to external shocks and amplifying transmission mechanisms can, to a significant extent, be traced to structural and financial market characteristics generally prevailing in EMs as well as to their institutional environments and policies. One reason is because financial sectors in most EMs are still largely bank dominated, and bank lending against collateral is generally more prevalent than in ACs. In EMs and developing countries, 72–85 percent of loans require collateral, higher than in ACs. Hence, when asset prices and collateral values change, other things being equal, they are more likely to affect lending by banks in EMs than those in ACs. Because borrowers are otherwise constrained, that is, given more limited alternative sources of financing, this change in bank lending is likely to have a greater impact on the real economy in EMs.

More broadly, shocks tend to amplify and propagate more easily in EMs because of their structural and institutional characteristics. Although EMs have made substantial progress, they still lag behind ACs in measures of overall institutional quality and have weaker legal regimes and enforcement. Market discipline of financial institutions may not work as well in EMs due to their typically weaker information disclosure and transparency requirements and greater prevalence of insider-type corporate governance arrangements, including firms often linked to financial institutions. These factors, in addition to narrower investor bases, less-developed capital markets and greater financial sector limitations and imperfections, such as limited availability of hedging instruments, tend to amplify and transmit shocks more easily. In the face of uncertainty or a shock, investor confidence fluctuates significantly, or can even evaporate. Capital inflows and the potential for sudden stops are key sources of risk and shocks for EMs.

Claessens and Ghosh (2013) explore and document what these factors mean for the nature of the links between various financial cycles—domestic credit cycles, asset price cycles, and private capital movements—financial crises, and domestic business cycles in EMs and contrast them with those in ACs. They find that, indeed, the interaction of real and financial cycles tends to be greater in EMs, both in terms of an overlap of recessions with financial events and of recoveries with financial events (figures 1 and 2).

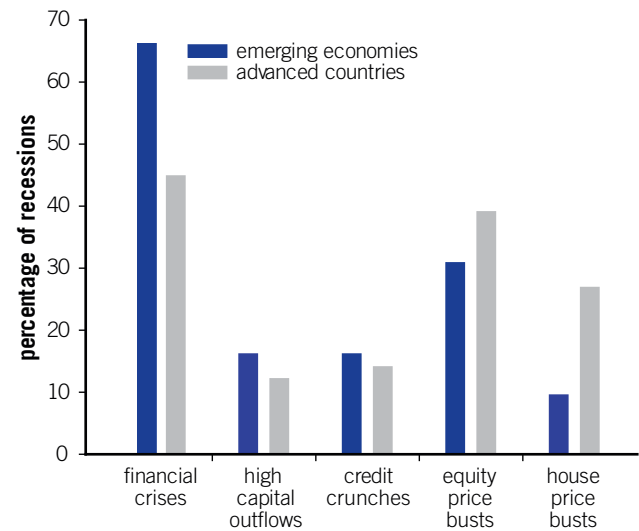
Moreover, the impacts in terms of both favorable and adverse outcomes are much larger in EMs. The stronger link is probably because gyrations in domestic financial markets are often associated with large swings in the direction and volume of capital flows. Indeed, in terms of adverse events, the worst outcomes in EMs are associated with sudden capital outflows, where output declines by some 9.5 percent, whereas large capital outflows in ACs are associated with a mean

drop in output of 2.8 percent; likewise cumulative output losses are 19.4 and 5.8 percent for EMs and ACs respectively (figure 3).

Broad Policy Toolkit: Monetary and Macro Prudential Policies and Their Interactions

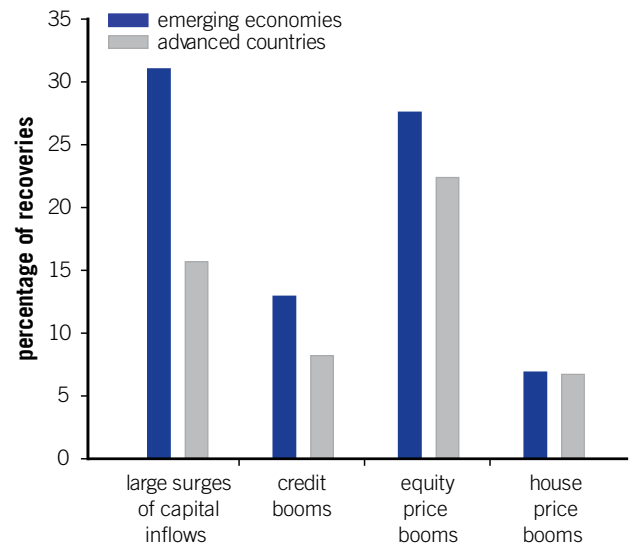
How have the global financial crisis and growing recognition of systemic risks altered views on what constitutes an appropriate policy framework? Canuto and Cavallari (2013) take stock of where monetary and exchange rate policies are heading as a result of recent experiences and revisit theoretical monetary tenets. As they note, the precrisis principles for a monetary policy framework did not give due attention to how

Figure 1. Recessions Associated with Different Financial Events



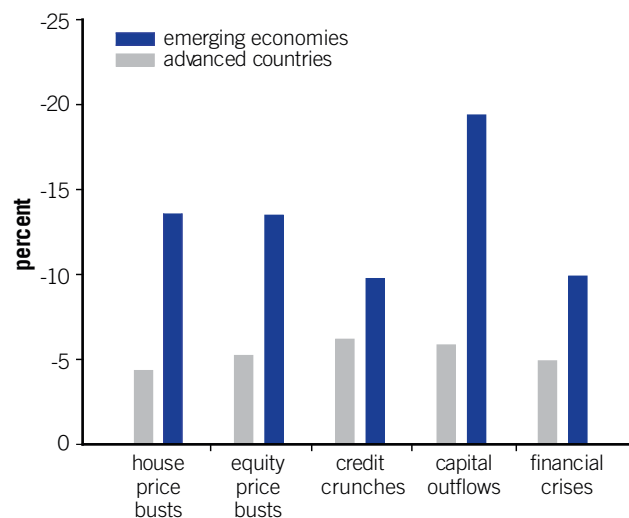
Source: Claessens and Ghosh (2013).

Figure 2. Recoveries Associated with Different Financial Events



Source: Claessens and Ghosh (2013).

Figure 3. Cumulative Output Losses Associated with Different Adverse Financial Events



Source: Claessens and Ghosh (2013).

financial markets and their channels of interconnectivity affect macro stability. Although many argued in favor of monetary policy “leaning against the wind” from financial developments, the prevalent opinion was that difficulties in detecting bubbles would outweigh the advantages of doing so, and furthermore, that monetary policy tools would be too blunt to curb the rise of bubbles, because correspondingly sharp interest rate hikes would have harmful unintended consequences on output growth and volatility. Thus the best approach would be to have monetary policy react only if and when a “mopping up” or “cleaning up” of the financial mess from a bubble burst was necessary.

Since the crisis, there is growing recognition that a framework of flexible inflation-targeting and micro prudential regulations is not sufficient to ensure financial and ultimately macroeconomic stability. Given the high costs associated with asset price busts, including the possibility of protracted negative feedback between unsound private balance sheets and public sector imbalances and/or foregone employment and gross domestic product, efforts are now focusing on addressing this failure. Canuto and Cavallari (2013) explore whether or not overcoming this failure implies that central banks should incorporate indicators of financial stability into their reaction function in an “augmented Taylor rule.” They then consider whether macro prudential policies alone can reduce financial instability and guarantee both financial and macro stability.

Most practitioners have expressed the view that a combined (articulate) use of both monetary and macro prudential policies is superior to a standalone implementation of either (Canuto 2011): both policies are needed, as neither one alone can achieve the two objectives. Monetary policy alone cannot achieve financial stability because the causes of finan-

cial instability are not always related to the degree of liquidity (which monetary policy can fix). Mitigating the effects of financial distortions or pricking an asset price bubble can require large changes in policy rates, and when financial distortions (individual behavior that is distorted giving rise to excessive risk taking and externalities) are more acute in some sectors of the economy than others, monetary policy is too blunt a tool. Conversely, the use of macro prudential policies primarily for managing aggregate demand may in fact cause additional distortions by imposing constraints on behavior beyond areas where financial distortions originate (Claessens and Valencia 2013).

At the same time, the two policies can have impacts on each other’s objectives. For instance, monetary policy can affect financial stability when it pursues its primary objective by (i) shaping ex ante risk-taking incentives of individuals through leverage, short-term borrowing, or foreign currency borrowing; or (ii) affecting ex post the tightness of borrowing constraints and possibly exacerbating asset price and exchange rate externalities and leverage cycles. Macro prudential policies also have side effects—by constraining borrowing and hence expenditures in one or more sectors of the economy, macro prudential policies affect overall output (Claessens and Valencia 2013).

The existence of side effects implies that the new paradigm needs to account for how the conduct of both policies is affected in the presence of their interactions. If macro prudential policies have strong effects on output, more accommodative monetary policy can offset these effects as necessary. If changes in the monetary stance affect incentives too much, the relevant macro prudential policies would need to be tightened.

A number of models surveyed by the International Monetary Fund suggest that when both policies are available, it is desirable to keep monetary policy primarily focused on price stability and macro prudential policies focused on financial stability, while accounting for the impact that each type of policy has on the other’s objectives. In particular, these models suggest that the optimal calibration of the reaction to monetary policy to output and inflation does not change markedly when macro prudential policy is also used, even when different shocks are considered. In other words, the sole presence of side effects has no major implications for the conduct of either policy.

However, as Claessens and Valencia (2013) highlight, these models assume that both policies operate perfectly. In practice, policies face constraints. Macro prudential policies may not operate perfectly, especially given the still-limited knowledge about their quantitative impact, which makes calibration difficult, and they may not fully offset financial shocks or distortions—institutions are imperfect and time inconsistencies can arise. Should these weaknesses prove important,

monetary policy may have to take a greater role in preserving financial stability and accept the associated tradeoffs. Similarly, where monetary policy is constrained—as within currency boards and in many small open economies—there will be greater demands on macro prudential policies. Thus, as Canuto and Cavallari (2013) note, “instead of a corner solution where one instrument is devoted entirely to one objective, the macro stabilization exercise must be viewed as a joint optimization problem where monetary and regulatory policies are used in concert in pursuit of both objectives” (CIEPR 2011).

Canuto and Cavallari (2013) also explore the challenges of dealing with cross-country spillovers in the context of the new policy paradigm. Cross-border capital flows and the potential transmission of asset price booms and busts via interconnected balance sheets imply additional layers of complexity as opposed to purely domestic asset price cycles. They propose that capital controls and exchange rate interventions can be seen as options to be combined with monetary and macro prudential policies, options that can even increase, or at least help, with the effectiveness of the latter. Claessens and Ghosh (2013), who also look at the challenges of dealing with cross-border flows in EMs and document how large surges of capital inflows are associated with increased financial sector vulnerability across several dimensions, also reach the conclusion that for most EMs receiving large inflows, it is likely that a combination of macroeconomic, macro prudential, and capital flow management policies is needed to avoid tradeoffs and limitations associated with each individual policy instrument. The appropriate combination will depend on the vulnerability identified, country-specific conditions, and constraints on individual policies.

Macro Prudential Framework and Efficacy of Macro Prudential Measures

What constitutes a macro prudential framework? It requires two elements: a set of indicators that can inform judgments on the degree of vulnerability to financial instability and hence serve as the informational basis for policy actions; and associated macro prudential policy tools or automatic stabilizers that can kick in when circumstances warrant, anticipating and mitigating the vulnerabilities.

From a procyclicality perspective—given the centrality of the banking sector and its potential for amplifying business cycles and exacerbating systemic vulnerability in the process—the pace of asset growth is of first-order interest. The challenge for policy makers, therefore, is knowing when asset growth may be “excessive” and finding policy tools that can address and counter excessive growth in a timely and effective manner.

There are various potential indicators of vulnerability. Because noncore liabilities play a key role in funding finan-

cial institutions’ asset expansion during a cyclical upturn, a key indicator of vulnerability is the ratio of noncore-to-core liabilities (Shin 2013). What constitutes core and noncore liabilities will vary from country to country and be context specific, particularly in countries where regulations restrict the banking sector from accessing the global banking system.

From a cross-sectional perspective, there may be value in using market-based signals of systemic risks (Acharya 2013). These measures are generally based on stock market data because they are more likely to be regularly available and least affected by bailout expectations. For instance, the marginal expected shortfall (MES) measure estimates the loss that the equity of a given firm can expect if the broad market experiences a large fall. A firm with both a high MES and high leverage will find its capital most depleted in a financial crisis relative to required minimum solvency standards and, therefore, faces high risk of bankruptcy or regulatory intervention. It is such undercapitalization of financial firms that leads to systemic risk. Notably, the MES can be used to identify institutions that can pose risks to the system as a whole as well as to help guide regulation in the U.S. banking system. Similar results are applicable for European institutions. These measures may be adapted and used in EMs.

Efficacy of Macro Prudential Measures: Empirical Evidence

Empirical studies on the efficacy of macro prudential policies are now underway. For instance, Claessens, Ghosh, and Mihet (2013) find that many of the macro prudential measures can help control banking system vulnerabilities. However, their analysis also suggests that macro prudential policies are much more effective in booms than in busts, with many coefficients statistically significant in expansionary periods and far fewer in contractionary periods. In some instances, they find that having a policy in place actually worsens the declines. The fact that macro prudential policies are mostly effective only in expansionary times may not be surprising, since most macro prudential policies are not designed to mitigate contractionary periods. Unless these limits are adjusted quickly with the proper calibration, that is, without unduly increasing systemic risks, their effects may be perverse. Claessens, Ghosh, and Mihet (2013) also find some differences in effectiveness of macro prudential policies in EMs versus ACs—for instance, debt-to-income ratios appear to be less effective in reducing leverage growth in EMs.

Conclusions

In principle, macro prudential policies can play a key role in promoting the stability of the financial sectors—both in dealing with the time series (procyclicality) as well as cross-

tional systemic risks. The types of policies that are deployed and the way they are calibrated in response to changing economic conditions, however, are heavily dependent on context, including but not limited to the level of development of the financial sector and the stage of the financial cycle. EMs, with greater experiences with macro prudential and other policies aimed at ensuring financial stability, have valuable lessons to offer. Pereira da Silva and Harris (2013) and Lee (2013) shed more light on this in the context of Brazil and the Republic of Korea, respectively.

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Notes

1. This *Economic Premise* is based on the "Overview" in *Dealing with the Challenges of Macro Financial Linkages in Emerging Markets* (Canuto and Ghosh 2013).
2. The Third Basel Accord is a global, voluntary, regulatory standard on bank capital adequacy, stress testing, and market liquidity risk.
3. The buildup of banking systems vulnerabilities in advanced economies prior to the global crisis took place through complex chains of financial intermediation and involved large gross capital flows. Global banks, particularly European banks, were key players in this process, raising funds in U.S. wholesale markets and then lending these back to U.S. residents through purchases of securitized claims on U.S. borrowers, mostly related to residential mortgages. While net capital flows—that is, the net of gross inflows and outflows—were relatively small, gross exposures ended up being very large. The shock that originated in the U.S. subprime market quickly affected many financial systems around the world. As banks were vulnerable on their funding side to wholesale markets and developments in the U.S. dollar shadow banking system, liquidity shortages quickly spread. These disturbances led to major real sector dislocations, as the tightening of funding spurred a downward cycle of balance sheet contractions and deleveraging declining asset prices, and declining economic activity (Claessens et al. 2012).

4. M2 is the sum of currency held by the public and transaction deposits at depository institutions (that is, financial institutions that obtain their funds mainly through deposits from the public, such as commercial banks, savings and loan associations, savings banks, and credit unions), savings deposits, small-denomination time deposits (those issued in amounts of less than US\$100,000), and retail money market mutual fund shares (Federal Reserve 2013).

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