



## **ADB Working Paper Series**

### **Macprudential Approach to Regulation—Scope and Issues**

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**Abstract**

This paper provides an overview of the Reserve Bank of India's approach to macroprudential regulation and systemic risk management, and reviews lessons drawn from the Indian experience. It emphasizes the need for harmonization of monetary policy and prudential objectives, which may not be possible if banking supervision is separated from central banks. It also notes that supervisors need to have the necessary independence and flexibility to act in a timely manner on the basis of available information. Macroprudential regulation is an inexact science with limitations and needs to be used in conjunction with other policies to be effective.

**JEL Classification:** E52, E58, G28

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## 1. INTRODUCTION

Explicit pursuit of macroeconomic and financial stability can be said to be the single most significant lesson from the global financial crisis. The importance of this mandate lies in decisively effecting a course correction with regard to the approach and philosophy for regulation of the financial system. It is now being acknowledged that a macroprudential perspective is critical for designing and pursuing microprudential regulation of institutions and markets. Two distinct but highly interrelated constructs have come to epitomize this post-crisis framework: systemic risk management and macroprudential regulation. Both these concepts are philosophically appealing and conceptually sound, but operationally quite challenging. Understanding the nuanced interplay between these is crucial for designing an efficient operative framework for financial stability.

### **Systemic Risk Management**

Systemic risk is a broad construct with no universally accepted single definition. Conceptually, it implies the probability of sudden disruption to a large part of the financial system, reflected in the failure of multiple institutions and freezing of markets, triggered by a common shock and propagated through interconnected exposures and correlated positions. Any framework for containing systemic risks would need to involve the following elements:

Strengthening the financial system's resilience to economic downturns and other adverse aggregate shocks;

Sound monitoring of common, correlated exposures among financial institutions arising out of network linkages; and developing measures to quantify the contribution of individual institutions to systemic risk; and

Minimizing the moral hazard associated with failure of systemically important institutions and finding mechanisms to restrict the contagion impact of failing institutions during crisis.

The role of a macroprudential approach to financial sector policies becomes critical in this context. Macroprudential regulation can be considered one of the tools of this larger policy framework.

## 2. ANALYTICS OF MACROPRUDENTIAL REGULATION

Macroprudential regulation, as it has come to be generally interpreted, essentially envisages that the key instruments of prudential regulation—capital, liquidity, and provisioning—vary dynamically according to macroeconomic circumstances. The macroeconomic triggers could arise either from changes in the normal economic cycle or sharp asset price movements. Conceptually, this is supposed to be in addition to stricter prudential standards for capital, liquidity, and leverage across the board. The dynamics of macroprudential regulation are evident when seen in terms of the broad objectives:

**To address pro-cyclical elements in the financial system.** The basic idea is that cushions should be built up in upswings to be relied on when rough times arrive—the countercyclical approach. The key measures under consideration, which have countercyclical characteristics and could act as automatic stabilizers are the following:

Building buffers through capital conservation based on simple capital conservation rules. The objective is to ensure that banks which have depleted capital buffers rebuild them by reducing the discretionary distribution of earnings. A buffer range will be

established above the regulatory minimum capital requirement and distribution constraints will be imposed on the bank when the capital level falls within this range.

A countercyclical capital buffer that will sit on top of the conservation buffer established as a range to take account of the macro-financial environment in which banks operate. The buffer will be triggered only when excessive credit growth, compared with the long-term trend, is judged to be associated with the buildup of system-wide risk. To make this buffer effective, it has to be combined with jurisdictional reciprocity. The upside of this will be that capital will not be a constraint to maintain the flow of credit to the economy during a period of stress.

Promoting forward-looking provisions through a change in accounting standards toward an expected loss approach. Current standards do not permit credit losses based on events that are expected to occur in the future to be included in provisions.

**To provide a mechanism to correct the inherently skewed pricing of credit risk by financial institutions through the cycle.** One of the major causes of the recent crisis was the general euphoria in the pre-crisis boom period which led to the financial sector's severe under-pricing of the risks. In a risk-based capital regime, this directly implied less capital for high-risk activities during booms, hence increased lending to high-risk sectors and increased trading volumes in riskier instruments. The extent of risk under-pricing only became evident after the crisis had set in. The situation swung to the other extreme after the crisis. Macroprudential tools, including the leverage ratio, are meant to address situations like this by effectively influencing the costs of credit exposures dynamically.

**To attempt pre-empting asset price bubbles in the economy and limit the buildup of financial risks in the system.** Asset price booms have invariably been identified with a pre-crisis economic configuration as both symptomatic as well as causative factors. Before the crisis, though, policy frameworks adopted an approach of benign neglect of asset prices as they saw little role for monetary or prudential policy in addressing these. The recent crisis has forced a rethink in this regard. There is now broad consensus on the need to use the credit channel as a macroprudential instrument.

The Basel III Framework announced in December 2010 incorporates some of the above elements, particularly in regard to capital requirements. Starting 2016, banks will be required to build up, over a 3-year period through 2018, a capital conservation buffer of 2.5% as well as a countercyclical buffer ranging from 0% to 2.5% of risk-weighted assets, depending on the extent of the buildup of system-wide risk. With regard to countercyclical capital buffers, a broad framework is laid out based on deviation of the credit to gross domestic product (GDP) ratio from its long-term trend. Recognizing the different contexts in each jurisdiction, each national supervisor is expected to apply judgment in setting the buffer after using the best information available to gauge the buildup of system-wide risk. However, the proposed framework does not envisage addressing sectoral credit issues through such countercyclical measures.

The challenge, particularly in growing emerging market economies, is to reconcile this approach with the risk of credit constraints, since emerging market supply side issues are qualitatively very different from those in advanced economies. Generalized credit increases, higher than the trend, may not be a matter of systemic concern in view of the changing structure of economies. The framework in these countries would therefore have to adopt a more nuanced, sectoral focus. There are challenges in trying to influence asset prices through the credit channel. First, it is really difficult to set an optimum level of asset prices as a target. Second, only bank-financed exposures to asset markets can be influenced through macroprudential tools, which may not generally be the dominant funding source. There have been instances where asset

price buildup is due to leverage outside the banking sector. Third, the sectoral approach will inevitably involve an element of regulatory judgment and discretion.

In this context, it is pertinent to recount the Indian experience in applying macroprudential elements in view of excessive credit to certain sectors, particularly commercial real estate, which has been the cause of most banking crises.

### **The Indian Experience**

During the expansionary phase since 2004, the Reserve Bank of India took various measures to counter pro-cyclical trends. The potential adverse impact of high credit growth in some sectors and asset price fluctuations on banks' balance sheets at various points in time were contained through pre-emptive countercyclical provisioning and differentiated risk weights for certain sensitive sectors. In October 2004, the rapid growth in housing and consumer credit was flagged as a concern. As a temporary countercyclical measure, the risk weight applicable to these loans was increased by 25 percentage points. In the context of continuing high credit growth, the limitations of the prudential framework in capturing risks of the pro-cyclical nature of bank credit *ex-ante* were recognized in October 2005. This triggered an across-the-board increase in provisioning requirements for standard assets.

To counter the possibility of an asset bubble, in addition to concerns about credit quality, the risk weight on banks' exposure to commercial real estate and the capital market was increased from 100% to 125% in July 2005. Given the continued rapid expansion in credit to the commercial real estate sector, the risk weight on exposure to this sector was increased to 150% in May 2006. Further, the general provisioning requirement on standard advances in specific sectors—personal loans, loans and advances qualifying as capital market exposures, residential housing loans above Rs2,000,000 and commercial real estate loans—was increased from 0.4% to 1.0% in May 2006 and further to 2.0% in January 2007 (Table 1).

**Table 1: Countercyclical measures for Commercial Real Estate**

Month and Year	CRE Risk Weight (%)	CRE Provisions on Standard Assets (%)
December 2004	100	0.25
July 2005	125	0.25
March 2006	125	0.40
May 2006	150	1.00
January 2007	150	2.00

CRE: Commercial Real Estate

Source(s): Reserve Bank of India

### The Backdrop of India's Countercyclical Actions

While contemplating the measures, the Reserve Bank did not have any disaggregated statistical data or evidence to support our concerns regarding the potential risks of rising bank exposures to real estate, among other sensitive sectors, based on the incurred loss method (Box 1). However, a clear trend in a significant year-on-year increase in aggregate bank credit. The Indian financial system is still largely a bank-intermediated system, so the bank credit channel becomes a key monetary policy transmission instrument. Thus, the aggregate bank credit growth has always formed an important variable in the conduct of monetary policy. The credit-deposit ratio, particularly on an incremental basis, has been an important indicator.

In view of the rapid credit expansion during 2003–2006, in addition to the countercyclical measures being taken, the Reserve Bank of India indicated in April 2006 that growth of nonfood bank credit—including investments in bonds, debentures and shares of public sector undertakings and private corporate sector and commercial paper—would be calibrated to decelerate to around 20% during 2006–2007 from the then prevailing growth of above 30%. Inflationary expectations had also started firming up, and as part of monetary management the repo rate was increased by 175 basis points in stages to 7.75% in March 2007. Simultaneously, the cash reserve ratio (CRR) was raised by 200 basis points to 6.50%.



### Box 1: Addressing Increased Bank Lending to Real Estate

From a regulatory perspective, the key observable features that tilted the balance in favor of some kind of preemptive sectoral action, aimed primarily at preparing the banking sector to better manage the potential downsides, were the following:

- (i) Onsite inspections of banks started giving indications of the negative fallout of the euphoria evident in lax underwriting standards, and a few frauds that came to light.
- (ii) Signs of under-pricing of risks were emerging as real estate prices spiraled, fuelled by ample liquidity and the dominant wealth effect transmittal from the stock market boom. Tax treatment of capital gains on investments in shares facilitated a tax-efficient transfer of the wealth effect to the real estate market.
- (iii) A new factor in the housing credit market that was emerging was the mortgage for investment purposes—the trend for second homes, particularly in bigger cities with a rising population of young, skilled salaried class. Real estate had crossed the Rubicon to emerge as a true investment asset.
- (iv) Anecdotal evidence was increasing of the inventory buildups of completed commercial as well as residential units. These were clearly signs of real estate having crossed the basic demand–supply equation to an investment asset.
- (v) A steep increase in land prices was visible from auction results. Large real estate companies could monetize the huge land banks on the back of the then booming stock market valuations, with a simultaneous increase in bank lending for commercial real estate.

With this backdrop, the Reserve Bank of India decided to make it costlier for banks to finance loans backed by real estate. The rationale of the sectoral, prudential approach was that the usual sector-neutral monetary policy instruments could pose significant costs to the whole economy in the form of increased credit costs. Therefore, while monetary policy instruments were used, the objective of this generalized, gradual tightening was quite different from the stronger action required in respect of bank exposures to sectors such as real estate.

In the Indian context, the sharp rise in bank credit for real estate was not a clear indicator of an asset price bubble, given the inherent demand–supply dynamics in the economy and the genuine needs of an economy on a high growth path. A confluence of positive factors contributed to the sharp increase in bank lending to real estate, including a decline in inflation and stable inflationary expectations, resulting in a decline in both nominal and real interest rates and the availability of ample systemic liquidity. Concomitantly, larger companies shifted funding to nonbank sources, including external borrowing, which forced banks to look at diversifying their lending portfolios. This shift also helped meet the increasing genuine demands on commercial real estate, including office space largely accounted for by the IT boom, and gradual expansion of organized retail to smaller cities.

The objective of tightening bank credit to real estate, therefore, was not to address the asset price bubble *per se* and not to curtail genuine credit needs of the economy but to prepare the banking sector to better manage the potential downsides related to selective sectors. In other words the Reserve Bank of India adopted what is now called the “expected” as well as “unexpected” loss approaches.

Source(s): Reserve Bank of India

Since the crisis, sectoral provisioning and risk weight requirements have been modulated in sync with the emerging conditions. In the immediate aftermath of the crisis, the provisioning requirements were brought back to a uniform level of 0.40% in

November 2008. However, in view of a large increase in credit to the commercial real estate sector and the extent of restructured advances in this sector, the provisions required on standard assets in the commercial real estate sector were increased again to 1% in November 2009 to build up a cushion against a likely deterioration in asset quality. Recently, in December 2010, the risk weights on residential housing loans of Rs7.5 million and above were raised to 125%. In addition, a minimum loan-to-value ratio of 90% has been prescribed for all mortgage loans above Rs2 million and 80% for lesser amounts. In respect of a particular category of housing loans, wherein the loans are offered at a 'teaser' rate in the first few years, the standard asset provisioning requirement was enhanced to 2%.

Pending finalization of the BCBS guidelines on countercyclical provisioning, in India banks were required to achieve an aggregate provisioning level of 70% against non-performing assets (NPAs) as a macroprudential measure, with a view to augmenting provisioning buffer in a counter-cyclical manner when the banks were making good profits. The excess of such provisions, made with reference to gross NPAs as on September 30, 2010, over the prescribed prudential norms needs to be kept in a separate account styled as "countercyclical provisioning buffer". This buffer will be allowed to be used by banks for making specific provisions for NPAs during periods of system wide downturn, with the prior approval of RBI.

What are the key inferences? First, harmonization of monetary policy objectives and prudential objectives can give a more complete picture, which may not be possible if banking supervision is separate from central banks. Second, macroprudential policy is no substitute for monetary tightening; rather, it should act complementary to monetary policy. Third, supervisors need to have the necessary independence and flexibility to act in a timely manner on the basis of available information, which may be anecdotal, circumstantial or incomplete.

### **3. GOING BEYOND MACROPRUDENTIAL REGULATION**

As with all ideas that gain currency and wide acceptance in a short period of time, macroprudential regulation runs the risk of being over-applied. However, there is an equally strong risk of making it too narrow in focus. Macroprudential regulation is just one element of a broader macroprudential approach and needs to be supplemented with other tools to address systemic risk issues. Such tools could be in the form of additional prudential measures applied to all institutions with a systemic objective. While it may be difficult to make a binary distinction between microprudential and macroprudential policies—as ultimately all macro risks translate into micro risks for financial institutions—it is critical to incorporate a systemic perspective when designing policies.

A recent survey (Committee on the Global Financial System 2010) on macroprudential frameworks in various countries found that, although the aims and objectives of macroprudential policy were not tightly defined, many countries had used various instruments keeping the broad systemic perspective in mind. The survey also found far more extensive use of macroprudential policies by policy makers in emerging market economies as opposed to their counterparts in more advanced nations. Such macroprudential frameworks have helped enhance financial system resilience.

The survey clearly shows that emerging markets were also open to targeting specific sectors. The most widely used instruments have been measures to limit credit supply to specific sectors that are seen as prone to excessive credit growth. These included limits calibrated to borrower risk characteristics (caps on loan-to-value ratios or debt-income ratios) as well aggregate or sectoral credit growth ceilings and limits on

exposures by instruments. Many emerging economies had already instituted measures to address specific risks—loan-to-deposit limits, core funding ratios, reserve requirements for liquidity risk, and limits on open currency positions or on derivatives transactions for foreign exchange risk.

The nature and sources of systemic risks are different in emerging market economies. The Asian economies have seen many systemic crises since the nineties and each crisis has demonstrated the importance of prudential policy to minimize risks to financial stability and to reduce the impact from disturbances domestically and globally. Financial markets in emerging markets tend to be less well developed and resilient than such markets in advanced economies. This makes the system more vulnerable to even small disturbances and increases the criticality of macroprudential safeguards. It therefore becomes imperative for the systemic stability perspective to guide other realms of economic policy framework as well.

In India, this perspective was writ large on most of the elements of the policy framework. The approach adopted in three separate areas—prudential regulation of institutions, the capital account management framework, and management of sovereign borrowings—illustrates the instilled systemic perspective in the policy sphere.

### **(i) Regulatory framework for banks**

The following specific examples indicate the systemic focus of prudential policies prescribed for banks:

#### **(a) Addressing interconnectedness**

- In regard to wholesale funding markets, prudential limits are in place on aggregate interbank liabilities for banks as a proportion of their net worth.
- The overnight un-collateralized funding market is restricted only to banks and primary dealers, and there are ceilings for both lending as well as borrowing by these entities.
- Investment by banks in subordinated debt of other banks is assigned 100% risk weight for capital adequacy purpose. In addition, the bank's aggregate investment in Tier II bonds issued by other banks and financial institutions is limited to 10% of the investing bank's total capital.
- Exposure limits apply to exposures between banks and nonbank finance companies.

(b) Foreign Exchange liabilities: There are limits on the proportion of wholesale foreign currency liabilities intermediated through the banking system, other than for lending for exports. Retail foreign currency deposits from nonresidents are subject to minimum maturity requirements and interest rate caps.

(c) Banks are required to hold a minimum of 24% of their liabilities in the form of liquid domestic sovereign securities. This stipulation has worked both as a solvency as well as a liquidity buffer.

- (d) The credit conversion factors used for calculating the potential future credit exposure for off-balance sheet interest rate as well as exchange rate contracts were doubled across all maturities in 2008. This was done since it was felt that the credit conversion factors according to the Basel norms did not fully capture the volatility in the interest rate and foreign exchange markets in India.
- (e) Profits on the sale of assets to a special purpose vehicle (SPV) under securitization are not allowed to be recognized immediately on the sale but over the life of the pass-through certificates issued by the special purpose vehicle (SPV). Any rated liquidity facility by the originator or a third party is to be treated as an off-balance sheet item and attracts a 100% credit conversion factor. The risk weights to be applied to such exposures depend on the rating.

## **(ii) Capital account management**

Excessive volatility of capital flows imposes significant costs to the economy beyond the obvious exchange rate impact. There are implications for financial stability in the form of induced risks of asset price bubbles and excessive foreign currency exposures in the financial system and external debt in general. Experience shows that the most volatile components of capital flows have been portfolio flows. These flows as well as debt flows are also pro-cyclical.

While the capital account regime in India has accorded substantially large freedom to equity flows—both foreign direct investment as well as portfolio flows—debt flows have been attempted to be modulated contextually through a regulatory framework with a combination of quantitative and price-based measures. Calibration of the debt flows into sovereign as well as corporate debt has been the most actively used instrument for this purpose.

## **(iii) Management of sovereign borrowings**

Since the end of automatic monetization of government debt in the 1990s, market borrowing by the government has been a critical variable in the macroeconomic framework. The stipulation of a statutory liquidity ratio for banks needs to be seen in this context. Banks have been permitted to hold this mandated investment as “held to maturity.”

Another critical factor that buffered the sovereign balance sheet from the vicissitudes of the global crisis is that India does not have foreign currency market borrowing and only a limited dependence on foreign investors in respect of domestic currency debt. A strong domestic investor base, apart from banks, in the form of insurance companies, pension funds and provident funds, has enabled India to elongate the maturity of its domestic debt. The experience in general of emerging market countries has been that foreign investors in sovereign debt prefer short-term investments.

## 4. SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS

The universally accepted post-crisis approach with regard to management of systemic risks in the financial system accords primacy to addressing the issue of “too big to fail.” The view is that resolution of systemically important financial institutions (SIFIs), short of a public-funded bailout, is at the heart of the too big to fail issue. SIFIs exaggerate the negative externalities and correlated exposures within the financial system. Their scale, complexity, and interconnectedness imply that their resolvability becomes extremely difficult—hence, the too big to fail conundrum.

In November 2010, the Financial Stability Board set out a framework for addressing the moral hazard risks associated with SIFIs (Financial Stability Board 2010). Favoring a calibrated approach, the focus initially would be on global SIFIs, i.e., institutions of such size, market importance, and global interconnectedness that their distress or failure would cause significant dislocation in the global financial system and adverse economic consequences across a range of countries. The recommendations are given in Box 2.

### Box 2: Financial Stability Board Recommendations on Systemically Important Financial Institutions

The policy framework for SIFIs should combine

- (i) a resolution framework and other measures to ensure that all financial institutions can be resolved safely, quickly, and without destabilizing the financial system and exposing the taxpayer to the risk of loss;
- (ii) a requirement that SIFIs, initially in particular global SIFIs, have higher loss absorbency capacity to reflect the greater risks that these institutions pose to the global financial system;
- (iii) more intensive supervisory oversight for financial institutions that may pose a systemic risk;
- (iv) robust core financial market infrastructures to reduce the contagion risk from the failure of individual institutions; and
- (v) other supplementary prudential and other requirements as determined by national authorities.

Additionally, home jurisdictions for global SIFIs should

- (i) enable a rigorous coordinated assessment of the risks facing the global SIFIs through international supervisory colleges;
- (ii) make international recovery and resolution planning mandatory for global SIFIs and negotiate institution-specific crisis cooperation agreements within cross-border crisis management groups; and
- (iii) subject their global SIFI policy measures to review by the proposed Peer Review Council.

*Notes:* SIFI: Systemically Important Financial Institutions

\* The Financial Stability Board, in its report on “Reducing the moral hazard posed by systemically important financial institutions” recommends establishment of a Peer Review Council (PRC), comprising senior members of the relevant national authorities having global-SIFIs operating as home or host in their jurisdictions, with a mandate to assess and report to the FSB the efficacy of national global-SIFI policies.

Source(s): Financial Stability Board

The real challenge will be to have a nondiscretionary framework for quantitatively defining the SIFIs. In November 2009, G20 finance ministers agreed on the criteria for identifying institutions and markets of systemic importance (G20 2009), based on the

joint proposals of the International Monetary Fund, the Bank for International Settlements, and the Financial Stability Board. Three main criteria are proposed:

- (i) **Size**—measuring the volume of financial services provided by an institution or group. For the purpose of systemic risk identification, size is an exhaustive notion covering the exposures, or balance sheet and off-balance sheet risks, of the entity in question.
- (ii) **Lack of substitutability**—assessing the financial system’s relative dependence on the financial services provided by a single entity to measure the system’s immunity to the disappearance of said entity.
- (iii) **Interconnectedness**—looking at the direct and indirect links between financial institutions that will contribute to the spread of systemic risk and its contagion to the real economy.

The Financial Stability Board and the Basel Committee on Banking Supervision have since started work on developing a broad methodology for identification of global SIFIs. Based on the assessment of quantitative criteria, national supervisors will be required to apply their judgment informed by ancillary indicators and other supervisory knowledge. The moral hazard associated with disclosing the names of SIFIs has been a critical issue. However, markets can usually identify banks that are considered SIFIs from the level of capital, buffers, and other aspects—without their names being disclosed. However, if banks operate well above the minimum requirement of capital and buffers, it may be harder for markets to identify SIFIs. Clear communication of policies to markets is important so that they understand the purpose and intent behind the identification of SIFIs and the regulatory approach in dealing with them.

Work is also under way at the Financial Stability Board in regard to improving authorities’ ability to resolve SIFIs in an orderly manner, without exposing taxpayers to loss, while maintaining continuity of their vital economic functions. In particular, the focus is on prescription of higher loss absorbency capacity for global SIFIs than the minimum levels agreed in Basel III, subjecting them to more intensive coordinated supervision and resolution planning to reduce the probability and impact of their failure.

**Improved resolution regime.** The objective should be for all financial institutions to be resolvable in an orderly manner, without taxpayers’ solvency support, under applicable resolution regimes in the jurisdictions in which they operate. Various approaches that have gained traction in policy deliberations for improving resolution capacity include limits to the complexity of internal structures—a preference for stand-alone subsidiaries, recovery and resolution planning, the use of contingent capital and other instruments to absorb losses as a going concern, a special resolution regime for SIFIs that makes shareholders and creditors share losses, and a bailout fund financed by the same entities expected to be bailed out. In the US, the Dodd-Frank Wall Street Reform and Consumer Protection Act envisages a resolution regime that allows the government to impose losses on shareholders and creditors, unlike the normal bankruptcy provisions for other firms where the aim is to reorganize or liquidate a failing firm for the benefit of creditors.

**Strengthening supervision.** The effectiveness and intensity of the supervisory process is critical. There is clearly a link between the depth and magnitude of the crisis, and the weakness of oversight of the financial system. Stressed environments often reveal weaknesses in the supervisory framework and methods that were not apparent in times of stability. Regulators and supervisors should be better equipped

not just to identify but also take appropriate action preemptively to address risks that have the potential to destabilize the system. In this context, the critical factor of supervisory space becomes significant. It is possible that at times supervisors may just have to rely on potential leads and do not have conclusive evidence. In such a scenario, the supervisors would be prone to making either a Type I error or a Type II error in their judgment. The accountability mandates for the supervisors will need to clearly spell out the tolerance level for each of the two errors. This would largely determine the decision-making framework and provide the necessary space for the regulators to take timely decisions, given that dynamic judgment is necessary to deal with system risk that is constantly changing.

**Strengthening markets and market infrastructure.** One of the key areas of attention in this regard has been to move much of the over the counter (OTC) derivatives market to a central clearing model. There is broad agreement in this regard, although a few important related issues arising out of risk concentration in central counterparties (CCP) will need to be addressed carefully, including cross margining across CCPs or across different products.

There is also the issue of implicit or explicit liquidity support by the banking system to the CCPs in the form of lines of credit, or to intermediaries such as brokers and market participants in the form of margins for trades, payment commitments, or other forms of guarantees. It is likely that the risks of transactions undertaken through CCPs reside in banks' and/or other regulated financial entities' books directly or indirectly. In such a scenario, it needs to be ensured that CCPs are subject to all the prudential norms and that risks are captured appropriately. Ideally, regulators of CCPs should prefer collateral in the form of liquid securities rather than bank deposits or guarantees.

Besides CCPs, equally important issues relating to market practices affect financial stability. A fundamental issue is the undisputable faith in the benefits of ever-increasing volumes and liquidity in all markets. Shifting to CCPs is only relocating the risks. There is need to regulate all derivatives markets in interest rate, credit, and foreign exchange products from a systemic perspective—the concept of market regulation practiced by many emerging countries may not be anachronistic.

The regime for credit rating agencies is another critical area. In spite of the systemic risk inherent to ratings, current efforts to regulate rating agencies focus on microprudential issues and typically aim at reducing conflicts of interest and cliff effects by lowering use of credit ratings in the regulatory and supervisory framework. A moral hazard created by rating agencies is the use of support ratings wherein implicit sovereign support available to systemically important institutions is taken into account to upgrade ratings. It may be necessary to require agencies to provide ratings without an assumption of support. Addressing financial stability issues relating to potential pro-cyclicality and systemic risk stemming from rating agencies is an agenda for future work.

The other important issue, which will be accentuated by the move toward CCPs and collateral support arrangements, is the increasing collateralization of bank balance sheets. Leverage is one part of this aspect—a recent International Monetary Fund paper (Singh and Aitken 2010) highlights the risks inherent in widespread re-hypothecation of collateral in many developed markets. The other part is the impact on bank balance sheets of pro-cyclical collateralization regimes. If a large part of the good quality collateral on banks' books is locked up for their trading operations, what does it do to the resolvability issues in times of crisis and burden sharing? Both regulation of markets and close monitoring of interconnected exposures would be required to address the underlying risks.

## Indian Perspective

### Existing framework in India for monitoring large financial conglomerates

The financial system in India is largely bank-dominated and banks are the parents of most of the large financial conglomerates<sup>1</sup>. Since 2004, a framework has been in place to monitor certain large financial conglomerates closely, aimed at reducing the probability of failure of these institutions considered to be systemically important in view of concerns relating to the moral hazard associated with the too-big-to-fail proposition, and the contagion or reputation effects on account of the holding-out phenomenon.

Current practices being followed in supervision of these conglomerates include off-site surveillance through quarterly returns, regular interactions with the CEOs of the parent companies and other entities in the group, and periodic reviews by a technical committee including members from sectoral financial market regulators.

The two-pronged structured processes in the nature of off-site surveillance and the periodic interface with the conglomerates has proved quite robust in assessing the risks faced by these conglomerates. These conglomerates have been advised to improve their corporate governance processes and risk management systems—especially with respect to the management of credit concentration risks and liquidity risks on a group-wide basis.

Recently, other initiatives have been launched to strengthen the regulatory and supervisory approaches for the identified conglomerates. Discussion with the main auditor of the group by the lead regulator is being contemplated. The Reserve Bank of India is taking steps to tighten the capital adequacy norms for these conglomerates to ensure that the amount of capital that the group possesses on a consolidated basis is adequate not only from the discretionary risks that the group entities take but also sufficient from nondiscretionary risks such as operational, reputational, and strategic risks—especially from fiduciary activities.

### Perspectives on the Indian Approach

The above approach to large financial conglomerates is focused on an intensive supervisory process aimed at capturing risk concentrations within the group.

A differential prudential framework for systemically large institutions has not been considered necessary, as the regulatory framework for banks generally tries to address issues of excessive risk-taking by individual institutions. India's financial system is considerably less complex than that of most developed markets, as many complex, high-risk products are not allowed or are regulated.

The sole metric of size has not been found to be very helpful in identifying systemically important institutions. Apart from the largest bank, which is state-owned, and a large private sector bank that has a relatively low market share, the market share of the other large banks is not very significant. Relative to the needs of the growing economy and the rapid growth in nonfinancial conglomerates, emerging countries will require a larger number of banks with optimal size to meet increasing demand. The focus has therefore been on differential and intensive supervision of large banks that are conglomerates (which includes the size metric).

The real concern from the interconnectedness perspective arises from the nonbanking financial sector. Broadly the sector comes under the regulatory jurisdiction of the Reserve Bank of India, though certain key segments viz. insurance, securities broking, mutual funds, venture capital, and housing finance have been exempt from RBI regulation as there are other regulators for these segments.

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<sup>1</sup> These financial conglomerates are not owned by any holding companies.



Many of the nonbank financial institutions that do not accept public deposits are significantly large and could pose a systemic risk through their interaction with other financial market segments. For such entities, a stricter prudential framework on the lines of banks has been put in place.

Going forward, stronger SIFI policies will have to be considered, drawing on a range of policy levers.

## 5. CONCLUSION

Macroprudential regulation is an inexact science. It has its limitations and needs to be used in conjunction with other policies to be effective. For leaning against the buildup of imbalances, a combination of monetary and macroprudential policies is required. If inflation risks are emerging, macroprudential measures cannot take the place of interest rate increases. Macroprudential measures are well suited to enhancing the resilience of the financial system, but their effect on aggregate demand and inflationary expectations is weak compared with interest rates. It is also important to acknowledge what macroprudential regulation cannot do—it cannot manage economic cycles or target asset prices. It can only provide instruments to respond to these developments to cushion the financial system from potential stresses. In this context, the imperative for the involvement of central banks becomes evident. Otherwise, the required synergy between monetary management and macroprudential management will be lost.

The real challenge of macroprudential regulation is strong resistance to countercyclical actions during booms. Having a rule-based approach will largely obviate this problem, but this approach has its limitations. It is difficult to lay down simple rules as the financial system and markets are evolving and banks continue to be the dominant source of funding. Suitability of tools can change as the structure of the economy and financial system changes, but regulators may have to rely on continued use of discretionary adjustments.

As the global policy stance remains highly accommodative, there are concerns that the current two-speed recovery will imply short-term volatile capital flows or accentuation of carry trades, which increase foreign currency mismatches of the nonfinancial sector. Emerging market economies will have to address these issues with a range of policy tools. A realistic assessment may be required about what capital regulations can do. Banks need capital for lending and to be resilient against shocks.

Going beyond macroprudential regulation, an issue that will be of critical importance to the emerging market economies from a stability perspective is the nature of the presence of foreign financial institutions. This would determine the exposure of the domestic financial systems to the risk of proxy contamination with problems in global markets. A recent Bank for International Settlements paper (McCauley, McGuire, and von Peter 2010) attempts to make a distinction between multinational banks and international banks, primarily based on their funding models. It argues that, from the perspective of the stability of banks' exposure to borrowers, locally funded positions (as in the case of multinational banks) are more stable during crises than those funded across borders and currencies (as in the case of international banks). For the host country, the key relevant issue from a market disruption perspective is the destabilizing spillover on local lending decisions as a result of problems in the global wholesale funding and swap markets. This materialized for many borrowing countries during the recent crisis.

In India, the banking sector is at a crucial regime-shift point and the way ahead is significantly contingent on the evolving thinking in regard to SIFIs. Policy deliberations

are weighing the various options in respect of two areas: one, increasing competition and furthering financial inclusion by licensing new banks domestically and two, giving further space for foreign banks to expand their operations. Increasing competition can help in reducing the extent of systemic significance of the existing institutions, provided it is accompanied by other requisite measures to strengthen the legal and institutional framework.

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