Macro-prudential Approach to Regulation - Scope and Issues

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1. Explicit pursuit of macroeconomic and financial stability can be said to be the single most significant take away from the recent crisis. More than the specifics, 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 being acknowledged that a macro prudential perspective is critical in designing and pursuing micro prudential regulation of institutions and markets. Two distinct but highly inter-related constructs have come to epitomize this post-crisis framework: macro prudential regulation and systemic risk management. Both these concepts are philosophically appealing and conceptually sound, but operationally quite challenging. Understanding the nuanced interplay between these would be crucial in designing an efficient operative framework for financial stability.

Systemic risk management

2. Systemic risk is a much broader concept implying probability of sudden disruption to a large part of the financial system, reflected in 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
   - Minimising the moral hazard associated with failure of systemically important institutions and finding mechanisms to restrict the contagion impact of failing institutions during crisis

3. It is in the above context that the role of macro prudential approach in financial sector policies becomes critical. Macro prudential regulation can be considered as one of the tools of this larger policy framework.

Analytics of macro prudential regulation

4. Macro-prudential regulation, as it has come to be generally interpreted, essentially envisages that the key instruments of prudential regulation viz. capital, liquidity and provisioning vary dynamically according to macroeconomic circumstances. The macroeconomic triggers could arise either from the 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.

5. The dynamics of macroprudential regulation is evident when seen in terms of the broad objectives:

(i) **To address procyclical elements in the financial system**: the basic idea is that cushions should be built up in upswings so as to be relied upon when the rough times arrive - the counter-cyclical 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 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 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 to the long-term trend is judged to be associated with the buildup of systemwide risk. . In order 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 flow of credit to the economy during a period of stress

- Promoting forward looking provisions through a change in accounting standards towards 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.

(ii) **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 that in the pre-crisis boom period there was general euphoria and the financial sector was severely underpricing the risks. In a risk-based capital regime, during booms this directly implied lesser capital for risky activities and hence increased lending to risky sectors and increased trading volumes in riskier instruments. In was only after the crisis had set in that the true extent of risk underpricing became evident. The situation swung to the other extreme after the crisis. The macro prudential tools including the leverage ratio are meant to address situations like this by effectively influencing the costs of credit exposures dynamically.

(iii) **To attempt pre-empting asset price bubbles in the economy and limit the build-up of financial risks in the system**. Asset price booms have invariably been identified with a pre-crisis economic configuration as both

symptomic as well as causative factors. Earlier, though, the policy frameworks adopted an approach of benign neglect of asset prices as they saw little role either for the monetary policy or prudential policy in addressing these. The recent crisis however has forced a rethink in this regard. There is now a broad consensus on the need to use credit channel as a macroprudential instrument.

6. The Group of Governors and Heads of Supervision (GOHS), the oversight body of the BCBS have recently announced[1] broad agreement on the overall design of the capital and liquidity reform package, though much of the work in regard to countercyclical buffers and forward looking provisions is still work in progress.

7. The recent BCBS consultative document[2] lays out a broad framework in regard to countercyclical capital buffers, conceptually based on deviation of credit to GDP ratio from its long term trend. Recognising the different contexts in each jurisdiction, each national supervisory is expected to apply judgment in the setting of the buffer after using the best information available to gauge the build-up of system-wide risk. However, it does not envisage addressing sectoral credit issues through such countercyclical measures.

8. The challenge, particularly in growing emerging market economies, would be to reconcile this approach with the risk of credit constraints given the supply side issues which are qualitatively very different from advanced economies. Generalized credit increase higher than the trend may not, in itself, be a matter of systemic concern in view of the changing structure of economies. The framework in these countries would therefore necessarily 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 macro prudential tools which may not generally be the dominant funding source.There have been instances where asset prices build-up is due to leverage outside the banking sector. Third sectoral approach will inevitably involve an element of regulatory judgement and discretion.

9. In this context, it would be pertinent to recount the Indian experience in applying macro-prudential elements in view of apparently excessive credit to certain sectors, particularly commercial real estate (CRE) which has been the cause of most banking crisis.

The Indian Experience

10. During the expansionary phase since 2004, the Reserve Bank had taken various measures to counter pro-cyclical trends. The potential adverse impact of high credit

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[1] BIS Press Release, The Group of Governors and Heads of Supervision reach broad agreement on Basel Committee capital and liquidity reform package, July 26, 2010

[2] BCBS Consultative Document, Countercyclical capital buffer proposal, July 2010

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. It was for the first time in October 2004 that the rapid growth in housing and consumer credit was flagged as a concern and as a temporary counter cyclical measure, the risk weight applicable to these loans was increased by 25 basis points. In the context of continuing high credit growth, the limitations of the prudential framework in capturing the ex-ante risks of pro-cyclical nature of bank credit were explicitly recognized in October 2005 which triggered an across the board increase in provisioning requirement for standard assets.

11. To counter the possibility of an asset bubble in addition to concerns about credit quality led to risk weight on banks' exposure to the commercial real estate (CRE) and capital market being increased from 100 per cent to 125 per cent 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 per cent in May 2006. Further, the general provisioning requirement on standard advances in specific sectors, i.e., personal loans, loans and advances qualifying as capital market exposures, residential housing loans beyond Rs.20 lakh and commercial real estate loans was increased from 0.40 per cent to one per cent in April 2006 and further to two per cent on January 31, 2007.

Year/Month	**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

The Backdrop of Our Countercyclical Actions

12. While contemplating the measures, we did not have any disaggregated statistical data or evidence to support our concerns on the potential risks of rising bank exposures to real estate, among other sensitive sectors based on the incurred loss method. However, what we did have was a clear trend in significant year-to-year increase in aggregate bank credit. The Indian financial system is still largely a bank-intermediated system and for this reason, 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.

13. In view of the rapid credit expansion in the period 2003-2006, in addition to the countercyclical measures being taken, it was explicitly indicated by the RBI in April 2006 that growth of non-food bank credit, including investments in bonds/debentures/shares of public sector undertakings and private corporate sector and commercial paper, will be calibrated to decelerate to around 20 per cent during 2006-07 from a growth of above 30 per cent. 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 per cent by April 14, 2007 from its level of 6.0 per cent in September 2004. Further, the CRR was raised by 200 basis points in stages from 4.5 per cent in September 2004 to 6.5 per cent.

Specific case of real estate

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

(i) The onsite inspections of banks had started giving indications of the negative fallouts of the euphoria evident in lax underwriting standards and a few frauds that came to light;

(ii) There were emerging signs of underpricing of risks as the real estate prices were spiralling fuelled by ample liquidity and the dominant wealth effect transmittal from the stock market boom. There were clear tax incentives at work here which made utilisation of stock market gains into real estate an extremely tax-efficient arrangement.

(iii) A new factor in the housing credit market that was emerging was the mortgages for investment purposes – the trend for second homes, particularly in metros having a rising population of young, skilled job owners with salaries. Real estate, so to say, had crossed the rubicon to emerge as a true investment asset.

(iv) There was increasing anecdotal evidence 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) There was a visible steep increase in land prices coming from auction results. Large real estate companies could monetise 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.

15. It was in the above backdrop that it was decided to make it costlier for banks to finance loans backed by real estate. It was felt that the usual sector-neutral

monetary policy instruments would not be effective without posing significant costs to the economy generally. So while the monetary policy instruments were indeed used, the objective of this generalised, gradual tightening was quite different from the requisite stronger action in respect of bank exposures to sectors such as real estate.

16. It needs to be appreciated that in the Indian context, the sharp rise in bank credit to the real estate was *per se* not a clear indicator of any asset price bubble given the inherent demand-supply dynamics in the economy and the genuine needs of an economy on a high growth path. There was a confluence of positive factors contributing to the development including a decline in inflation and stable inflationary expectations, resulting in decline in both nominal and real interest rates and availability of ample systemic liquidity, contributed no less by the rising tide of capital flows. Concomitantly, there was a shift in funding by the corporates to non-bank sources, including external borrowing, which forced banks to look at diversifying their lending portfolios. This shift also helped in meeting the increasing genuine demands on the commercial real estate front, including the office space largely accounted for by the IT boom and gradual expansion of organised retail to Tier II cities.

17. The objective, I must underline, 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 we adopted what is now called the "expected" as well as "unexpected" loss approaches.

18. What are the key inferences? First, that harmonisation of the 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 that macro prudential policy is no substitute for monetary tightening but should rather act as complement to monetary policy and third , that supervisors need to have the necessary independence and flexibility to act timely on the basis of available information, which may *albeit* be incomplete.

Going beyond macro prudential regulation

19. As with all ideas which gain currency and wide acceptance in a short period of time, macro prudential regulation runs the risk of being over applied. However, there is an equally strong risk of making it too narrow in focus. It must be reiterated that macro prudential regulation is just one element of a broader macro prudential 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.

20. Frankly it would be difficult to make a binary distinction between micro prudential and macro prudential policies - ultimately all macro risks translate into micro risks for financial institutions. The critical thing is incorporation of systemic perspective while designing policies.

21. A recent survey conducted by the CGFS[3] on macro prudential frameworks in various countries found that though conceptions of macro prudential policy aims and objectives were fuzzy, many countries had used various instruments keeping the broad systemic perspective in mind. The survey also found far more extensive use of macro prudential policies by policy makers in emerging market economies as opposed to their counterparts in the more advanced nations. It has helped enhance financial system resilience.

22. The survey clearly shows that the emerging markets were also open to target 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 LTV ratios or debt/income ratios) as well aggregate or sectoral credit growth ceilings and limits on exposures by instruments. Many emerging economies, given their specific context already had placed 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 forex risk.

23. In the Indian context, I can say that this perspective was writ large on most of the elements of the prudential framework. I would like to briefly mention about the key areas:

   - Addressing interconnectedness

     - In regard to wholesale funding markets, prudential limits are in place on aggregate inter-bank liabilities for banks as a proportion of their net worth.

     - The overnight un-collateralised 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. Also, the bank's aggregate investment in Tier II bonds issued by other banks and financial institutions is limited to 10 percent of the investing bank's total capital.

     - Exposure limits apply to exposures between banks and non-bank finance companies.

   - Forex 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 non-residents are subject to minimum maturity requirements and interest rate caps.

[3] Macroprudential instruments and frameworks: a stocktaking of issues and experiences; CGFS paper No. 38; May 2010

- Banks are required to hold a minimum of 25 percent 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.

- The credit conversion factors (CCF) 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 CCFs as per the Basel norms did not fully capture the volatility in the interest rate and forex markets in the Indian context.

- Profits on sale of assets to an SPV under securitisation are not allowed to be recognised immediately on sale but over the life of the pass through certificates issued by the SPV. Any liquidity facility by the originator or a third party is to be treated as an off- balance sheet item and attracts 100% credit conversion factor as well as 100% risk weight.

24. The nature and sources of systemic risks are different in emerging market economies. This part of the world has seen many systemic crises over the past two decades and each of these crises have 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 macro prudential safeguards. It therefore becomes imperative for the systemic stability perspective to guide other realms of economic policy framework as well.

25. I can highlight two specific areas of perceived systemic risk in our context where a macro prudential approach has been used and found useful.

    (i) Volatile capital flows: Excessive volatility of capital flows could impose 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 procyclical. .

    While capital account regime in India has accorded substantially large freedom to equity flows – both FDI 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.

    (ii) Management of sovereign borrowings - Since the stop to automatic monetization of Government debt in the nineties, market borrowing by the Government has been a critical variable in the macroeconomic framework. The stipulation of Statutory Liquidity Ratio (SLR) 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, which buffered sovereign balance sheet from vicissitudes of 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. There is a strong domestic investor base, apart from banks, in the form of insurance and pension/provident funds which 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.

Issue of Systemically Important Financial Institutions (SIFI)

26. 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'(TBTF). The view is that resolution of systemically important financial institutions (SIFI), short of a public-funded bailout, is at the heart of the TBTF issue. SIFIs exaggerate the negative externalities and correlated exposures within the financial system. Their scale, complexity and interconnectedness also implies that their resolvability becomes extremely difficult and hence the 'too big to fail" conundrum.

27. The real challenge will be to have a non-discretionary framework for quantitatively defining the SIFIs. In November 2009, G20 finance ministers agreed on the criteria for identifying institutions and markets of systemic importance[4], based on the joint proposals of the International Monetary Fund, Bank for International Settlements and Financial Stability Board. Three main criteria are proposed:
    - **size**: measuring the volume of financial services provided by an institution or group. Size – for the purposes of systemic risk identification – is an exhaustive notion covering the exposures, or balance sheet and off-balance sheet risks of the entity in question.
    - **the 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.
    - **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.

28. The efforts at the FSB have since proceeded towards addressing three specific issues: (i) reducing the probability and impact of failure via higher prudential requirements, better supervisory practices, potential limitation on the size, breadth and intra-group connectivity; (ii) improving resolution capacity; and (iii) strengthening the core financial infrastructures and markets to address interconnectedness and lessen the risk of contagion in case of resolution.

29. The specifics of the broad template are still under preparation and it will indeed be a huge challenge for global regulators to arrive at an agreed framework. Given the

[4] G20 Communiqué, Meeting of Finance Ministers and Central Bank Governors, United Kingdom, 7 November 2009

heterogenous country situations in respect of banks that are not internationally active, a 'constrained discretion' approach is being discussed which will help country jurisdictions to design a suitable framework for SIFIs. The authorities' choice of a particular measure or combination of measures from the agreed range of policy options will depend on conditions in each financial system and be targeted to the specific risks posed by SIFI institutions in each jurisdictionwhile agreeing to the broad, internationally accepted principles.

30. ***Reducing the probability of failure***: Pre-crisis, the twin instruments of effective supervision and market discipline were expected to address the factors endogenous to the firms that increased their probability of failure – essentially the risk it took on its books. These instruments were found insufficient in doing so. Further, in the new systemically oriented regulatory philosophy, it was believed that apart from being a risk to themselves, many large institutions posed risk to the system at large through significant negative externalities. It therefore became a sort of public good cause to contain the riskiness of these large institutions. The exact mechanism for doing this would be contingent on multiple factors, including size, interconnectedness, complexity, business model and industry structure etc.

31. ***Alternate resolution mechanism*****:** In spite of the above regime, if an institution fails on account of systemic stresses, the objective must be to minimise the cost for the taxpayers. Different models have been proposed with the objective to allow the orderly resolution of a systemically important nonbank financial firm, including a mechanism to cover the costs of the resolution. Various approaches that have gained traction in policy deliberations for improving resolution capacity include limits to complexity of internal structures – preference for standalone subsidiaries, recovery and resolution planning, use of contingent capital and other instrument to absorb losses as a going concern, a special resolution regime for SIFIs which makes the shareholders and creditors share losses; and a bailout fund, contributed 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 which allows the government to impose losses on shareholders and creditors, unlike the normal bankruptcy provisions for other firms where the aim is to reorganise or liquidate a failing firm "for the benefit of its creditors".

32. ***Strengthening markets and market infrastructure***: The singular area of attention in this regard has been to move much of the OTC derivatives market to a central clearing model. There is broad agreement in this regard though few important concomitant issues arising out of risk concentration in CCPs will need be addressed carefully, including cross margining across CCPs or across different products.

33. 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 risk of transactions undertaken through CCP sit in banks/regulated financial entities books either directly or indirectly and if so it needs to be ensured that they are subject to all the prudential norms and risks are captured appropriately. Ideally, regulators of CCPs should prefer collaterals in the form of liquid securities rather than bank deposits or guarantees.

34. However, besides the issue of CCPs, there are equally important issues relating to market practices which have bearing on the financial stability. One fundamental issue is the undisputable faith in the benefits of ever increasing volumes and liquidity in all markets. Shifting to CCPs is only shifting the risks. There is need to regulate all derivatives markets in interest rate, credit and forex products from a systemic perspective – the concept of 'market regulation' as practiced by many emerging countries may perhaps not be so anachronistic.

35. The regime for credit rating agencies is another such area. In spite of the systemic risk inherent to ratings, current efforts to regulate rating agencies focus mainly on micro-prudential issues and typically aim at reducing conflicts of interest and cliff effects by lowering use in 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 assumption of support. Addressing financial stability issues relating to potential procyclicality and systemic risk stemming from rating agencies is, an agenda for future work.

36. The other important issue I would like to flag, which is going to get accentuated by the move towards CCPs and collateral support arrangements, is the increasing collateralization of bank balance sheets. Leverage is one part of this aspect – a recent IMF paper[5] clearly brings out the risks inherent in widespread re-hypothecation of collaterals in many of the developed markets. The other part is the impact on bank balance sheets of the 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.

Existing framework in India for monitoring large financial conglomerates

37. The financial system in India is largely bank dominated and the banks are the parents of most of the large Financial Conglomerates. Incidentally, those FCs are not owned by any Holding Companies. Since 2004 there is a framework in place to closely monitor certain large financial conglomerates 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.

38. The 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, periodic reviews by a Technical Committee having members from sectoral financial market regulators.

[5] Singh, Manmohan, Aitken, James: The (sizable) Role of Rehypothecation in the Shadow Banking System, IMF Working Paper, July 2010

39. 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 systemically important financial institutions. From time to time these groups 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.

40. Recently other initiatives have also been launched for further strengthening of the regulatory/ supervisory approaches for the identified conglomerates. Discussion with the main auditor of the Group by the lead regulator is being contemplated. Steps are already underway to tighten the capital adequacy norms for these conglomerates so as 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 the non-discretionary risks like operational, reputational, strategic risks especially from fiduciary activities.

Perspectives on the Indian Approach

(i) The above approach towards large financial conglomerates is focused primarily on a more intensive supervisory process aimed at capturing risk concentrations within the group;

(ii) A differential prudential framework for systemically large institutions has not been considered necessary as the regulatory framework for banks, in general, tries to address issues of excessive risk taking by individual institutions. The financial system is considerably less complex than most of the developed markets as many complex, high risk products are not allowed or are regulated.

(iii) The sole metric of size has not been found to be much helpful as, apart from the largest bank which is state owned and a large private sector bank which has a relatively lower market share, the market share of the other larger banks is not that significant. Relative to the needs of the growing economy and the rapid growth in non-financial conglomerates, emerging countries will require a larger number of banks with optimal size to meet the increasing demands. The focus has therefore been on differential and intensive supervision of large banks that are conglomerates (which includes the size metric).

(iv) The real concern from the inter-connectedness perspective arises from the non-banking financial sector which is regulated by regulators for respective sectors viz. insurance, securities broking, mutual funds, venture capital, housing finance. All the other non-banking financial activities are regulated by the RBI as part of a separate regulatory framework.

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

(v) Going forward, we will have to consider strong SIFI policies drawing on a range of policy levers.

Conclusion

41. Macro-prudential regulation is essentially 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. Macroprudental measures are well suited to enhance resilience of the financial system but their effect on aggregate demand and inflationary expectations are weak compared to 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. It is in this context that the imperative for involvement of central banks becomes evident as otherwise the required synergy between monetary management and macroprudential management will be lost.

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

43. 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 non-financial sector. EMEs will have to address these issues with a range of policy tools. .

44. We also need to be realistic about what capital regulations can do. Banks need capital for lending and to be resilient against shocks. More important is to focus on the business model and continuously monitor leverage and liquidity risks.

45. Going beyond macroprudential regulation, an issue which will be of critical importance to the EMEs from a stability perspective is the nature of 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 BIS paper[6] attempts to make a distinction between multinational banks and international banks primarily based on their funding models. It argues that from the perspective of stability of banks' exposures to borrowers, local funded positions as in the case of multinational banks are more stable during the crisis than those funded across borders and currencies, as in the case of international banks.

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[6] McCauley, Robert; McGuire, Patrick; Goetz von Peter: The architecture of global banking: from international to multinational? BIS Quarterly Review, March 2010

46. For the host country, the key relevant issue from a market disruption perspective is the destabilizing spillovers on local lending decisions as a result of problems in the global wholesale funding and swap markets. This fear actually materialised for many borrowing countries during the recent crisis.

47. And lastly, the most important issue of the effectiveness and intensity of supervisory process. There is clearly a link between the depth and magnitude of the crisis to the weakness of oversight over the financial system. Stressed environments often reveal weaknesses in supervisory framework and methods which were not readily apparent in times of stability. Regulators and supervisors should be better equipped to not just identify but also take appropriate action preemptively to address risks that have the potential to destabilize the system. This brings us to the critical factor of supervisory space. It is possible that, at times the sense coming out of supervisory assessments will be in the nature of potential leads more in the nature of anecdotal evidence rather than 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. It is for the broader political economy and policy setup to provide the tolerance 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 judgement is necessary to deal with system risk that is constantly changing.