Macroprudential policies in EMEs: theory and practice

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Abstract

This paper examines the macroeconomic and microeconomic dimensions of systemic risk. The design of practical macroprudential policies to address such risks is complex. Issues to be tackled include: (a) statistics to accurately measure currency and maturity mismatches (which usually lie at the heart of EME crises) and the degree of leverage; (b) clarification of macroeconomic and financial system dynamics; (c) the selection of policy tools best suited for particular countries; and (d) quantification of the many dimensions of the "cycle". Coordination between macroprudential and monetary policy will raise a number of thorny issues.

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Introduction

My task in this session is to introduce a debate about macro perspectives on financial stability. Everybody knows that the risks affecting the financial system are not simply aggregations of the risks of individual institutions. Bank supervisors must therefore take account of risks affecting the system as a whole. Everybody has heard the word "macroprudential", a term first used in Basel Committee discussions on systemic risk in the late 1970s. But people interpret the "systemic" or system-wide aspects of financial risk in different ways. This note therefore seeks to provide a conceptual overview – and highlights those areas where people disagree. The first section tries to clarify its various meanings of "systemic" and "macroprudential". The second section considers several strategic issues to be addressed when designing practical policies. The third section discusses the link with monetary policy. A few words on policies and governance follow in the final section.[2]

[1] Views expressed are my own, not necessarily those of the BIS. Thanks are due to Clare Batts for helping me prepare this note. Thanks also to participants for the helpful comments received during the conference. Comments by Karl Cordewener, Dietrich Domanski, Richhild Moessner, M S Mohanty and Tim Ng are also acknowledged with thanks.

[2] Galati and Moessner (2011) provide a good review. Moreno (2011) provides a useful analysis of the issues that are most important in an EME context.

1. "Systemic" aspects of risk

There is both a macroeconomic and a microeconomic dimension to the "systemic" aspects of risk.

(a) Macroeconomic

Because they affect all financial institutions, macroeconomic factors can create system-wide risks. Indeed a common symptom of overly expansionary domestic monetary or fiscal policies is that the supply of credit – whether from banks or through capital markets – becomes too easy. Regulators could try to curb the expansion of credit directly. But this would address only the symptom, not the underlying causes. The better response would be to tighten fiscal or monetary policy. How macroprudential policies should be coordinated with monetary policy is discussed in section 3: it suffices here to underline that macroprudential policies should never be seen as a substitute for domestic macroeconomic policies.

"Domestic" is underlined because foreign macroeconomic policies, which are beyond the control of the national authorities in an individual EME, may well require a macroprudential response.[3] For instance, India can do little about the extremely low level of interest rates in global markets, both long and short. The long-term real interest rate in US dollars has been very low for some years and is likely to remain low in the foreseeable future. As the global benchmark rate for risk-free maturity transmission, its influence pervades economic activity worldwide.

With free capital movements, there are at least two reasons why other countries cannot fully insulate themselves from this even with fully flexible exchange rates:

- One is that international business is largely conducted in dollars. Commodities markets are in dollars. Multinational companies operate in dollars. And so on.
- Another is that greater capital market integration makes long-term rates in different currencies move more closely together. If the exchange rate is flexible, short-term rates are under the control of the local central bank and can move independently. But long-term rates tend to converge internationally. Look at the high correlation between dollar yields and the long-term rates in the euro or in sterling, both floating exchange rate currencies.

Now developing countries – where real income per head is growing more rapidly – should, in a closed economy, apply a higher discount rate in assessing investment projects than advanced countries. Because of this, they may need to maintain higher long-term rates in local markets than rates prevailing in global markets. To do this, the domestic authorities may want to restrict non-resident flows into local long-term markets (as India does). When global macroeconomic variables are far away from their long-run equilibrium levels, there may be a particularly good second-best arguments for such restrictions.[4]

A second consideration is the high volatility in the major global financial markets. Capital flows far in excess of the absorptive capacity of (thin) domestic financial markets can lead to wild gyrations in local markets – both when non-resident capital is coming in and when it is going out. This can pose a major systemic threat to EMEs. Rakesh Mohan, who is well-

[3] But the policies of EMEs in aggregate (eg their demand for AAA-rated US dollar paper) do influence long-term interest rates in global markets.

[4] The general theory of the second best is that the presence of widespread distortions means that removing just one distortion (eg a specific restriction on capital movements) does not necessarily enhance overall welfare. This argues against a fully laissez-faire attitude to capital flows: see BIS (2009).

aware of the benefits of international capital flows, has made a lucid case for regarding deliberate capital account management – as opposed to a laissez-faire stance – as an essential element of macroeconomic and financial stability policies in EMEs.[5]

Governor Subbarao has suggested how to make such a policy orientation operational. He drew a distinction between "strategic" and "tactical" capital controls. Strategic controls define a longer-term policy orientation (in India's case, a preference for long-term over short-term flows and for equity over debt flows). This not only gives policymakers the levers they need, but also provides a clear and predictable framework of rules that the private sector needs for the management of risks. By contrast, tactical controls are opportunistic responses to particular surges in inflows or outflows – and they create uncertainty for market participants. He argued that India, faced with large swings in capital flows, could avoid the use of tactical controls because of the automatic buffers that strategic controls provided.

In short, then, policies on international capital flows can be an important dimension of policies to prevent financial instability. The policy issue is then how best to manage such flows in order to get the considerable advantages that international capital mobility offers whilst limiting the risks of certain types of flow.

(b) Microeconomic

The fundamental microeconomic dimension is the pervasiveness of externalities in any complex financial system. The interconnections that lead to externalities have many guises. Network effects, common exposures, leverage and procyclicality are the elements most cited. When there are externalities, market outcomes driven by individual choice tend to be inefficient. And externalities can create dynamic feedback effects between one market or institution and others – sometimes destabilising the system as a whole. Public policy may therefore have an important role.[6]

Banks and capital markets are riddled with opaque and oliogopolistic interconnections. Banks do not trade – with the public or with each other – in atomistic, perfectly competitive markets. In theory, perfectly competitive markets, fed by a constant stream of new entrants, would be resilient to the bankruptcy and exit of a single (small) firm. The banking industry, dominated by very large firms and dependent on public confidence (the failure of one bank can be read as a signal for other imminent failures), does not operate like this.[7]

Nor do capital markets. When investors are highly leveraged, capital markets become unstable: a fall in the price of a leveraged investor's assets may lead to margin calls that can force him – irrespective of underlying value – to sell into a falling market. Many of the over-the-counter (OTC) derivatives markets in which banks trade are dominated by a few large players. The 2008–09 crisis revealed that these markets had created large but opaque capital market links between banks. The failure of just one single major counterparty would bring down other firms and could threaten the whole system ("contagion").

"Procyclicality" refers to the tendency of the financial system to amplify macroeconomic or global financial shocks. Cyclicality is a natural feature of a market economy. Real capital formation is cyclical because it is stimulated when demand outruns existing capacity; market

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[5] The conclusion of Ron McKinnon (1993) is worth recalling: "Only when domestic borrowing and lending take place freely at equilibrium (unrestricted) rates of interest and the domestic rate of inflation is curbed … are the arbitrage conditions right for allowing free international capital mobility".

[6] Korinek (2011) argues that externalities associated with financial crises can also justify prudential capital controls.

[7] A banking industry not dominated by big banks and subject to strong restrictions on its risk-taking might be more stable. Kotlikoff (2010) provides an insightful advocacy of this view.

prices are cyclical as they respond to shortages; accounting conventions that are backward-looking accentuate procyclicality … and so on and so forth. The simple point is that the aim of public policy cannot be to eliminate cyclicality. But it should make sure that regulation and other public policies do not aggravate procyclicality. And it should protect the financial system from cyclicality that is inherent in any market system. (This is discussed further in section 2 below).

The feedback effects that come from externalities are more likely to destabilise the financial system as a whole if all banks respond in the same way to shocks ("herding"). Parts of the regulatory framework can unwittingly encourage such herding. So bank regulators can improve stability by encouraging diversity in banks' assessments of their own risks. This was part of the logic of the internal ratings-based (IRB) approach to Basel II. I recall arguing this point in an ICICI/IIMA conference in Mumbai some years ago. At that time, the focus was on the link between bank regulation and EME sovereign debt crises … now attention is focused on the euro area! The argument made then was that international bank lenders to EME governments should make their own risk assessments, and not rely blindly on rating agencies:

> "the use of internal ratings [ie the IRB of Basel II] has the great potential advantage of allowing for greater diversity in the assessment of credit risk … generating more scope for diversity. Any narrowing of the diversity of opinions could increase herding behaviour. For instance, a downgrade by a major [credit rating] agency could trigger sudden and simultaneous attempts by all banks to cut their exposure. If instead many banks are independently assessing risk, the chances of imposing progressive discipline on a country running into trouble, rather than provoking a sudden discontinuous drying up of foreign inflows, are greatly enhanced".[8]

But the attempt in the IRB approach of Basel II to get major banks to implement such independent risk assessment of sovereign borrowers failed. Almost all European banks, for instance, applied the zero risk weight to their holdings of the bonds of euro area governments. The EU's Capital Adequacy Directive required European banks to treat the debt of all European Union countries equally – and that in effect meant a zero risk weight for both German and Greek bonds. One result was that the European banks built-up large exposures to the weaker sovereigns (Hannoun, 2011). Jaime Caruana (2011) explained this morning how, as the euro area crisis deepened, bank and sovereign risk began to interact in highly destabilising ways (see also Bank for International Settlements (BIS), 2011b).

Nurturing diversity in risk management and encouraging banks to take a realistic view of sovereign risk is essential in the EMEs.[9] However, the difficulties of doing this are great. How can the regulators get the banks to take their own risk management responsibilities seriously, when it seems easier just to follow the herd? This can be especially hard if all the banks are following the same backward-looking models in assessing credit and market risks. Can regulators be sufficiently rigorous with bank holdings of the debt of their own government? Short-sighted indulgence may well be convenient for a time; but it exposes the government to the medium-term risk of having to deal with both weakened banks and a government bond market crisis at the same time.

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[8] Neumann and Turner (2005), page 102.

[9] Diversity can take many forms. The paper presented by M S Sriram to this conference echoed Thorat's (2010) argument that policies of financial inclusion can contribute to financial stability by increasing the diversity of bank's assets and liabilities.

2. Designing practical policies

The design of the practical policies to take account of system-wide risks raises complex operational issues. There is no one-size-fits-all. Country practices are bound to differ because countries have different histories and are at very different stages of development. Even when there is agreement about the general principles, there will be disagreement about the practice. But all supervisors will need to address similar general issues. This section therefore considers some key general questions.

(a) Are statistics on interconnections/common exposures/leverage etc adequate?

Policymakers need good measures of interconnections/common exposure/leverage. But current statistics on these factors are poor. Central banks in the advanced economies learnt this in the crisis. Where are the key data gaps in the EMEs?

One is the lack of comprehensive statistics on currency and maturity mismatches – frequently the major cause of systemic crises in the EMEs. Balance sheet data are still much less comprehensive than data on income or expenditure flows. Nor is it enough to oversee mismatches in individual institutions. Supervisors must monitor key dimensions of aggregate mismatches – both their total size (so they can judge common exposures) and their distribution across firms (concentration of a few banks could bring them down and infect the others). Rising exposures shared more-or-less equally across all players in a single jurisdiction should alert supervisors to common exposure risks – even if each institution considered by itself looks safe. Particular attention needs to be paid to the resilience of derivative markets used for hedging. Remember that individual firms acting in isolation almost always overestimate their ability to hedge or to close out exposures at short notice in a crisis. This misapprehension is all the greater in the thin, comparatively underdeveloped financial markets in the EMEs.[10]

Another consideration is the role of leveraged participants in capital markets. The innovative segments of domestic capital markets in EMEs are often dominated by leveraged foreign investors (hedge funds, proprietary trading desks of banks etc): foreigners use experience gained at home to give them an edge over the locals. But the responses of leveraged investors can become extremely volatile in a crisis. During the 2007–20xx financial crisis, several EMEs were caught by destabilising capital flight that had little or no domestic cause – primarily because leveraged foreign investors fled. In some cases, some large local players were much more highly geared than the regulators had thought. Hence it is important to monitor the leverage of key market participants.

(b) What should be the operational targets/reference variables of policy?

Consider this advice: a good prudential regulator should pay particular attention to limiting aggregate risk exposures which build up during booms and which create problems when conditions turn adverse. Translating such good advice into operational targets is very difficult.

A boom sustained by the strong macroeconomic/financial feedback effects brings with it a number of quite distinct risks:

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[10] For instance, banks and large companies will typically not hedge for long periods or for very large exchange rate changes. Instead, they will often cover themselves for the subsequent three months against a movement of up to, say, 5 percent in the exchange rate. They plan to roll over such hedges as and when needed. They see such flexibility as saving them hedging fees. They will count on the existence of markets to put on new hedges, should the rate move sharply against them. Individual firms may be quite unaware that aggregate exposures mean that other firms will all be trying try to hedge at the same time. Under stress, hedging markets may become dysfunctional.

- As aggregate demand rises above trend, firms and households become more optimistic about the future and want to borrow more. A rise in real estate prices encourages households to buy even more dwelling space, reinforcing an investment boom. Higher prices for houses and other assets give borrowers extra collateral against which to borrow;
- Banks, heartened by a cyclical decline in loan defaults, become more willing to lend. And higher asset prices will have bloated bank balance sheets with unsustainable capital gains;
- When borrowing conditions in markets become unusually favourable, local firms and households find their financing options widen: they can borrow more easily or more cheaply at (low) short-term rates or in foreign currency. Lower price volatility of financial assets during upswings leads to reduced haircuts on wholesale funding contracts, facilitating increased leverage.

When the cycle turns adverse, however, these favourable conditions reverse. Asset prices begin to falter, and investment becomes less attractive. When the interest rate or exchange rate cycle turns, borrowers will find themselves exposed to currency mismatches or maturity mismatches or both. During downswings, haircuts rise and investors are forced to scale back their leverage, implying a sharp contraction of their positions. Market volatility rises abruptly. The decline in asset prices that results has further feedback effects on the balance sheets of banks and other investors.

This story raises several elements that could destabilise the financial system – the macroeconomic cycle (eg path of real GDP, investment booms, inflation); economy-wide risk exposures (eg excessive credit expansion, currency/maturity mismatches); financial market measures (eg asset price volatility); bank balance sheet ratios (eg leverage) and collateral practices in wholesale markets. In principle, each element could become a key warning signal or reference variable or even an operational target. But too many indicators would create excessive noise, and policymakers will have to find ways of narrowing their choices.

(c) How should policy tools be selected?

The choice of target will influence the choice of tools. The EMEs have had much greater experience than advanced countries in the use of such instruments.[11] Reddy (2009) explains several measures that the RBI had taken before the 2007 financial crisis. These include: countercyclical requirements for interest rate exposure; variable risk weights for housing loans; limits on interbank liabilities; and securitisation rules that ensured that any profits on the sale of assets to a Special Purpose Vehicle (SPV) could not be recognised immediately.[12] Several advanced countries would have benefited from having such rules before the crisis.

Deciding between the many instruments that may qualify for macroprudential use will be very hard. Some strategic questions are:

- *Many or few instruments?* The analogy with the welfare economics of taxation suggests that the use of many instruments in a modest way would be less distortionary (and therefore more effective) than heavy reliance on just a few instruments. As a lower tax rate applied over a wider field (eg income, consumption, wealth etc) is less distortionary (and often encounters less resistance) than a high

[11] A recent BIS reported counted 39 such measures in the EMEs, but only eight in the advanced countries (see Table 3, page 10 in BIS (2010)).

[12] Profits had to be spread over the life of the certificates issued by the SPV. See Reddy (2009), pp 142–151.

tax rate narrowly applied, milder regulatory imposition on a large number of financial markets/products can be more efficient and may lead to less evasion. But there are major drawbacks in having too many instruments. One is that a greater number of instruments could make calibration much harder – particularly since we have little or no historical experience of the complexity of the interactions between different instruments. A second drawback is that the imposition of too many macroprudential constraints runs the risk of inadvertent overregulation.

- *How sector specific?* One temptation is to target sectors or markets that are most "overheated". This may not be easy to identify ex post. It also runs the obvious risk of hidden or implicit official credit allocation. So it seems better for any target to be defined broadly (eg total property lending).
- *How bank specific?* It would be difficult to explain to a bank which has already become more prudent because of they boom why a further regulator-inspired tightening is warranted. The banker would say to a regulator who proposed new curbs on property lending, "Yes, I am also concerned about overheated real estate markets, which is why I've already directed loan officers to tighten lending standards. But my competitor has not. He should be curbed more than me". This may mean that some bank-specific elements may have to enter into any macroprudential policy.

The possible range of tools is very wide. Charles Goodhart (2011) has argued that the first macroprudential instrument that a central bank could use is its own balance sheet. A central bank can buy (or sell) "claims on the public sector, claims on the private sector and claims on the rest of the world". Such transactions could be used to signal disapproval of riskier paper generated during booms: historically, this has been an important function of central bank discounting practices. They could also correct dysfunctional markets during slumps. This proposal deserves careful consideration (see also footnote 18 below).

Table 1

Examples of instruments serving macroprudential aims

Rules governing	Measures
Bank loans	Caps on loan-to-value for mortgages
	Caps on the ratio of debt-service-to-household income
	Rules on the reference interest rate used for mortgage lending
	Rules on currency mismatches of borrowers
	Ceilings on credit growth (aggregate or by sector)
Bank balance sheets	Countercyclical capital ratios (possibly including additional capital charges for the speed of any increase in bank lending). Dynamic provisioning
	Adjustment to asset risk weights
	Rules on loan-loss provisioning
	Caps on loan-to-deposit ratios, core funding ratios and other liquidity requirements
	Bank reserves deposited with the central bank
	Limits on interbank exposures (domestic or cross-border)
	Capital surcharges for systemically important institutions
Collateral used in wholesale funding	Prevention of procyclical variation in minimum margins or haircuts (or making such variation countercyclical)

Table 1 summarises other policy tools that are at present in force in some countries or are under consideration. Most of these measures serve microprudential as well as macroprudential objectives. Note that measures that have been used in the past tend to be country-specific, often because basic features of the structure of financial intermediation differ from country to country (BIS, 2010). Differences in the closeness of supervision, the development of capital markets, the presence of non-bank financial institutions and so on will all influence instrument effectiveness. As the different segments of a financial market become more integrated, official action in a single segment can be quickly transmitted to the other segments. More fragmented markets will require more specific measures. What appear to be differences in economic philosophy are often the result of different circumstances.

Given this diversity, it is unlikely that an international consensus will emerge on a few instruments best suited for macroprudential use. The large number of diverse instruments likely to be employed is that macroprudential policies cannot be characterised in a few simple dimensions. The scope for international coordination on specific tools may well prove to be quite limited. The lack of international agreements about instruments should not therefore inhibit national authorities from taking action in their own jurisdiction.

(d) How to respond to the macroeconomic cycle? To the "financial cycle"?

Prudential ratios or standards could be fixed or they could vary with the cycle. Such variation could be based on a predetermined rule. Or it could be decided in a discretionary way.

One important point is that fixed ratios can act as automatic stabilisers. The best known automatic stabiliser in economic policy is the tax system. The higher the marginal tax rate, the more stabilising is the tax system. The corollary for regulators is that they should look for prudential ratios that effectively incorporate higher marginal rates. Examples include: higher capital charges or provisioning requirements on the increase in bank lending and higher marginal reserve requirements. These work more effectively as automatic stabilisers than "flat" ratios (where the average and marginal rates are equal).

Setting prudential ratios that can vary with the cycle could also work. A number of national authorities have made such measures work in the past. Sinha (2011) points out that the Reserve Bank of India has been successfully following countercyclical capital and provisioning policies since 2004. The graph he showed on its effectiveness is really striking. More countries are likely to follow because, for the first time, international agreement on bank capital regulation has explicitly countenanced altering capital ratios with the economic cycle. Basel III incorporates a discretionary countercyclical buffer so that host supervisors can require banks operating in their jurisdiction to accumulate extra capital in upswings.[13] Supervisors could then release the buffer when strains materialise in the downswing.

Making this work will not be easy. First of all, regulation will have to look beyond the real economic cycle (ie GDP). Account must also be taken of the financial cycle. The problem is that the notion of a "financial cycle" is too nebulous. Our knowledge of the macroeconomic/financial linkages is very poor: as John Lipsky aptly put it, our "models are rudimentary to the point of being misleading".

There is no shortage in the supply of statistical variables suggested by economists to proxy the financial cycle – bank credit, asset prices, borrowing conditions in capital markets and so on. But how should these different elements be weighted together? Economists disagree about the relative importance of different factors even with 100% hindsight.

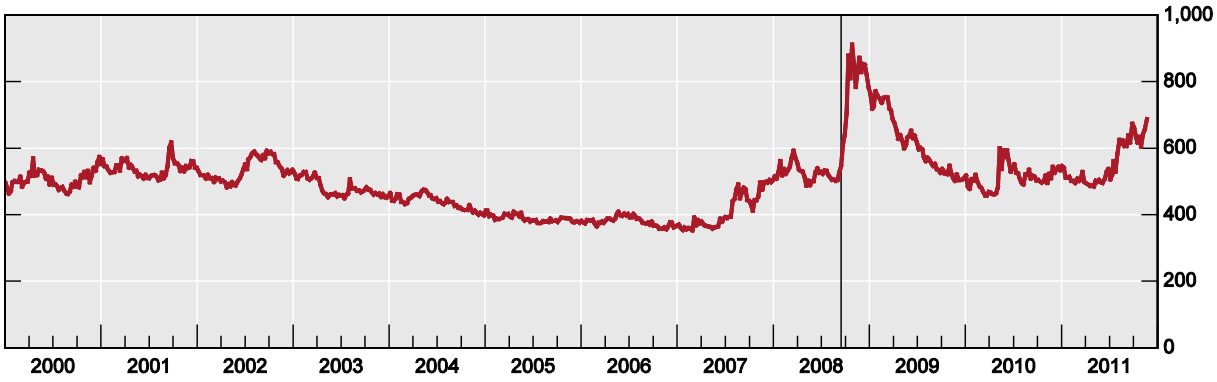
[13] See paragraphs 136 to 150 of Basel Committee (2010) for details.

Is there a way that those who give policy advice can extract in a timely manner the essence of the financial cycle (ie "excesses" of credit growth, "overshooting" of asset prices, "overabundant" liquidity etc) from normal cyclical variation and longer-term trends? Financial innovation and the rise of new industries mean that models based on past behaviour can be misleading. Several participants in this conference reported that the credit/GDP ratio was not a very good variable for EMEs. More generally, the radical transformation of the financial industry makes it particularly hard for policymakers in EMEs to "read" the signals emanating from the industry.

Graph 1

Composite indicator of risk aversion renormalized as a credit spread[1]

Weekly data, in basis points



Note: The vertical line marks the Lehman bankruptcy on 15 September 2008.

[1] Simple average of standardised scores of government bond yield spreads (average of Spanish and Italian over German yields); US corporate high yield spread (Merrill Lynch US High Yield index); implied volatility of US equities (VIX index); implied volatility of US Treasury bonds (Merrill Lynch MOVE index); and implied volatility of G7 exchange rates (JP Morgan GVXF7 index).

Sources: ECB; Bloomberg; national data.

Nevertheless, policymakers must strive to get a handle on the "financial cycle" – both global and local. A big help in doing this comes from the fact that risk-taking indicators tend to move together. One can therefore attempt to extract common "signals" from the very many indicators. Graph 1 shows a measure of sentiment in global markets, combining measures from major bond, equity and forex markets. Only simple measures of spreads and volatility have been taken into account in constructing this indicator, which could easily be replicated to produce a comparable domestic measure in most EMEs. More sophisticated indicators could be constructed: indeed, the crisis has spawned a veritable cottage industry in the production of such indicators. Measures that capture any "fattening" in the tails of probability distributions (eg from the prices of out-of-the-money options) seem promising – because the unexpected is the essence of a crisis.

All measures have shortcomings, and all are vulnerable to the Lucas critique (that markets would react in a preventive way if a "true" leading indicator were ever discovered). No one measure can be regarded as giving definitive answers in all circumstances.[14] But they can help policymakers frame three key questions:

[14] See the discussion in Domanski and Ng (2011) for an overview.

Qu 1: Is global risk appetite becoming dangerous (as it did from early 2005 to mid-2007)? If yes, ask questions.

Qu 2: Is there evidence that comparable measures derived from local financial markets are highly correlated with the global measure? If yes, worry about a disconnect from local conditions.

Qu 3: Is greater risk-taking in local markets associated with increased exposures of local financial firms in terms of aggregate debt, currency mismatches or short-term exposures?

The answers to these questions could help guide the orientation of policy. Statistics can force awkward questions into policy discussions. A quantitative surveillance framework can help the communication of policy. And it can help accountability.[15]

Many would question the ability of regulators to make discretionary prudential ratios work. The official sector is no more able to forecast the business cycle than is the private sector. Because diversity of opinion is more likely to be stabilising than uniformity, there is some presumption against having any single official body judge the cycle. To reiterate an argument made earlier: encouraging diversity in risk assessment can itself be stabilising.

Will it prove possible for the authorities to act quickly enough for measures taken to have countercyclical effects? There is a danger of being inadvertently procyclical given the length of recognition, policy decision and implementation lags of regulatory policies. Under Basel III, the implementation lag could be quite long: banks will have up to 12 months to comply with a countercyclical buffer. Although host supervisors could force their own banks to act more quickly, they cannot shorten this notice period for foreign banks without the agreement of their home supervisor.

The longer it takes to bring a countercyclical surcharge into force, the greater the risk that it would be mistimed. Remember that the record of discretionary fiscal policy is very poor – governments more often than not have destabilised economies with discretionary fiscal action.

Governor Subbarao has warned that regulators must steer a course between type I errors (imposing buffers too early out of excessive caution) and type II errors (waiting until it is too late to avert an implosion).[16] This may well be harder in EMEs than in countries with long-established financial systems. As Governor Subbarao said yesterday, high rates of growth in credit/GDP ratios in developing countries often reflect much-needed development – the increasing share of manufacturing and infrastructure investment increasing the demand for credit. Rapid credit growth often represents desirable financial deepening and not speculative or destabilising excesses. A final difficulty is that falling into a type I error may in practice make it politically difficult for the regulator to impose further constraints when even more needed at subsequent, more dangerous phases of the cycle.

There are also limits to the capacity of the official sector to persuade the public about the cycle. In a deep recession, for instance, a regulator might want to relax prudential ratios on banks. But the general public's worries about the future may discourage banks from following

[15] Goodhart's (2011) recent advice to a parliamentary committee on this was: "I would not be dogmatic about the choice and formulation [early warning] indicators, but I would like to suggest that the FPC (Financial Policy Committee) is required to choose somewhere between two to four such presumptive indicators … The idea is not to constrain the FPC's behaviour, but to put the FPC in a position where they either have to comply with action in circumstances [that suggest increasing financial fragility] or explain to you in public why this is not necessary". As he underlines, "the purpose of comply or explain, is to shift the default choice from inaction to action".

[16] Subbarao (2011a).

such easing. And the investing public may not want to buy the shares of banks whose capital ratios are falling in a recession. The old adage of monetary policy "pushing on a string" might apply with even greater force to regulatory policy easing in a slump.

One compromise in the debate about fixed versus cycle-dependent ratios might be to define quite wide "corridors of stability" within which the macroeconomic or financial reference variable could move. When the reference variable is within that corridor, the ratio would remain fixed. Only when the target goes outside that corridor would a cyclical change in a prudential ratio be considered. Prolonged credit-led booms might thus trigger countercyclical measures; but run-of-the-mill macroeconomic cycles might not.

Judgement could still be required to set aside a rule or to calibrate policy action. And a major exercise in public persuasion would still have to be undertaken.

3. Coordination with monetary policy

There is a danger that a greater emphasis on macroprudential policies could be used to disguise the symptoms of lax monetary policy. Strong demand and heightened inflation risks require monetary policy tightening. The combination of a domestic boom and persistent current account surpluses normally require real exchange rate appreciation, and forex intervention aimed at resisting this underlying adjustment increases inflation risks.[17] Several EMEs have on occasion in recent years taken direct measures to limit bank credit expansion sometimes justifying such measures as "macroprudential". But it was often tighter monetary policy and nominal currency appreciation that was really required.[18]

The more general point is that using macroprudential tools will complicate monetary policy. The use of regulatory ratios or rules that are sensitive to macroeconomic variables will in general influence credit supply conditions, and therefore alter the transmission mechanisms of monetary policy. By curbing financial "excesses" in upswings, successful macroprudential policy may reduce the amplitude of the business cycle. But such policies could also reduce the potency of interest rates in managing aggregate demand. Monetary policy works in part through induced movements in asset prices. Attempting to moderate such effects could weaken monetary policy transmission.[19]

In most circumstances, the desired change in monetary policy and macroprudential policy would be in the same direction. The correct policy would be a mutually reinforcing combination of monetary and macroprudential policies. But sometimes macroeconomic and macroprudential policies will need to move in opposite directions. In the event of a positive productivity shock, for example, unit costs would fall, driving prices down. Monetary policy might therefore need to ease. But macroprudential policy may well have to tighten. The

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[17] This does not say a fully flexible exchange rate is required: a managed float that respects necessary currency flexibility in a medium-term perspective can effectively preserve the essential price-stability focus of monetary policy.

[18] As the BIS (2010) pointed out in June 2010, "macroprudential measures cannot substitute for tightening monetary policy and increasing exchange rate flexibility as means to promote orderly and sustained domestic and external adjustments."

[19] The complications for monetary policy that will come from adopting a macroprudential perspective are probably inescapable. Green (2011) argued that policy tools concerned with financial imbalances "would be entirely familiar to central bankers of earlier decades as part of their monetary policy toolkit … [including] interest rate ceilings, variable reserve requirements, "window guidance", "corsets", monetary aggregate targeting or capital controls. What central bankers of the past would find much odder was the fact that "monetary policy", at least in some countries, became much more narrowly [focused] than in the past … purely on price stability, regardless of the condition of the financial system."

shock may have stimulated speculative borrowing in new, uncertain areas. Or the extrapolation of a temporary jump in productivity might have created unwarranted optimism about the future. Financial risks would therefore increase even when inflation risks have lessened. Macroprudential policy might need to counter such risks.

Complications would deepen if macroprudential settings were to be adjusted in response to cyclical developments. Central banks setting monetary policy would need to know how and when cyclical developments are likely to influence macroprudential policies, which in turn affect economic prospects. In practice, it will be difficult to separate monetary and macroprudential policies in any neat formulaic way (the one-objective-one-instrument mantra) so that great care will be needed to ensure that the implementation of effective macroprudential policies does not undermine monetary policy.

4. Politics and governance

The economics of policies to address systemic risk are very challenging, but the politics are positively daunting. One question is: "Which body should be at the controls of policies to address systemic risk?". Any realistic answer will have to take account of existing institutional arrangements and political realities in the widest sense. But there are three very practical reasons why central banks must play a key role:

- Adjusting regulatory instruments to general macroeconomic or financial market conditions will have effects that are close to monetary policy and may well share several transmission channels.
- Central banks have, by dint of their frequent participation, their fingers on the pulse of financial markets.
- It is the central bank that would have the lender-of-last-resort responsibility in a liquidity crisis. The wider use of the central bank's balance sheet for macroprudential purposes that Goodhart suggests reinforces this argument.

New responsibilities for financial stability will have major implications for the governance of central banks. This complex and important issue was reviewed comprehensively by a Study Group led by Stefan Ingves: see BIS (2011a).

Whichever body is made responsible, it will be essential to give that body operational independence. It must be independent of the political cycle. It must also be shielded from the commercial interests of the financial industry. Effectiveness will require it to take unpopular decisions. There will be no lack of public criticism – particularly when policymakers decide on restrictive policies.

Designing good disclosure principles to ensure adequate accountability will be a challenge. The measurement of systemic risk is inherently uncertain. Because regulators must use in full the confidential supervisory information about individual banks, it may be impossible for them to reveal their "true" measurement. Another problem is that quantifying the impact of preventive measures never before in place is almost impossible … and few will know about potential crises averted. But the resentment of the voter who is denied a loan ("because of the regulators" their bank manager will surely tell him) and of banks about the loss of potential business will on occasion be acute. Some form of frank ex post accounting in which the regulator reveals information no longer commercially sensitive (the US congress and UK Parliament both encouraged this at various stages of the crisis) should be developed.

Conclusion

A one-line sentence conclusion of this paper would be: translating macro perspectives on financial stability into operational policies is going to be extremely hard. Designing a framework for the management of the capital account will be difficult. The economic or financial cycle cannot be abolished. Macroprudential is not an easy substitute for other policies. There is, therefore, good reason for realistically limiting ambitions.

A fuller conclusion would add this: the intellectual case for taking a macro perspective is compelling. What is needed, however, is a dispassionate analysis of the policy options:

- The management of the capital account is important for financial stability in many EMEs, especially at times of global macroeconomic disequilibrium. How to do this whilst maintaining the benefits of international capital mobility is the challenge;
- More needs to be done to quantify externalities that are potentially destabilising – interconnections, common exposures, leverage, the unintended procyclicality of some microprudential regulations and so on;
- Greater diversity of risk management can counter procyclicality … the adoption of IRB in Basel II represented an attempt to do this.
- A process of regular measurement of movements in risk sentiment in international and domestic markets (combined with measures of aggregate exposures of the banking industry) can help to guide the orientation of policy.
- New macroprudential policies must not undermine or dilute the key focus of monetary policy on macroeconomic stability.

Whatever is done in these areas, the starting point will often be one of very imperfect information – both about underlying financial risks and about the potency of corrective measures to be taken. This requires a willingness to adapt as new information or evidence emerges. New policies inevitably involve trial and error. But the lack of decisive prior evidence on how such policies would work in practice is not a reason for not acting when the likely alternative would be worse.

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