Financial Sector Regulation and Implications for Growth

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Abstract

Growth with equity is the foremost objective in all economies in the world today, especially in the emerging market economies (EMEs), where the poor still make up a sizeable proportion of the population. To ensure growth and development with equity, financial sector policies are expected to be tuned to sub-serve these broad objectives. Though there is no unanimity among economists, including Nobel laureates, on the relevance of finance for growth, the crisis has provided ample evidence that a stable financial system will have a positive impact on both growth and equity and an unstable one will harm both these economic objectives. There could, however, be conflicts in the short and medium term between the objective of financial stability on the one hand, and growth and equity on the other hand. But there cannot be any dispute that in the long term all three objectives are simultaneously achievable. This paper highlights the interaction between prudential and other financial sector and macroeconomic policies and goes on to review financial sector regulation in the pre-crisis, mid-crisis and post-crisis periods, with a special focus on issues specific to the EMEs in the implementation of Basel II and III. The paper argues that even though the EMEs find implementing the Basel capital regulations a major challenge, in the long run following these standards will contribute to strengthening their banking systems. The paper also emphasises that some aspects of regulation can be oriented towards achieving the development objectives of EMEs without necessarily sacrificing prudent regulation and financial stability considerations, and that EMEs can supplement their development objectives with other well designed financial sector policies.

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Introduction

Growth with equity is the foremost objective in all economies in the world, especially in the emerging market economies (EMES),[2] where the poor still comprise a sizeable proportion of the population. Since governments are concerned about the poor being left out of the development process, they tend to focus on ensuring that public policies promote inclusiveness and equity. In addition, it is common for governments to emphasise certain activities/sectors from the perspective of development. Consistent with such an approach towards growth and development, financial sector policies are also tuned to subserve the broad objective of ensuring growth with equity.

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[2] In this paper, the terms "emerging market economies" and "developing countries/economies" are used interchangeably.

However, there is no unanimity on the relevance of financial sector in promoting growth. Eminent economists, including Nobel laureates, have sharply disagreed on this issue, with views ranging from the total irrelevance of finance to Nobel laureate Merton Miller's remark that asserting that financial markets contribute to economic growth was a proposition too obvious for serious discussion. There is a more restrained conclusion, too, which rejects the idea that the finance-growth nexus can be safely ignored without substantially limiting our understanding of growth. Nevertheless, the evidence from the current crisis should irrefutably establish that a well functioning financial system has a central role to play in the growth and development of an economy.

Failure of regulation is widely accepted as one of the main causes of the current crisis. Reform of regulations, covering more dimensions than in the past and with much greater intensity of supervision and oversight by international bodies, has therefore come to occupy centre stage for ensuring the well functioning financial system that is so vital for economic growth. The new regulations embodied in Basel III have much more onerous requirements, particularly in terms of capital and liquidity, than hitherto. These rapidly evolving global standards have received support from all quarters, including EMEs.

Nevertheless, some disquiet is expressed in certain quarters about the relevance of these reforms in their entirety to the EMEs and the likely impact on their growth prospects. The argument goes like this: The post-crisis reforms are driven by the need to fix what went wrong in the advanced economies and, inevitably, there will be a price to pay in terms of growth forgone in ensuring a more stable and resilient financial system. Applying these regulations uniformly may have different implications for EMEs given the different stages of their financial sector development and varied macroeconomic circumstances. More specifically, the concerns raised are: (a) whether these regulations need to be applied in their entirety to EMEs whose financial systems hardly have the features of the financial systems in the advanced economies which led to the crisis, and (b) that the attendant slowdown in growth in EMEs may be a disproportionate price to pay given that these are structurally transforming economies where poverty and inequity alleviation are extremely vital, much more than for advanced economies. For the regulatory reforms to be efficient without hampering a future economic recovery, therefore, policymakers are urged to assess their impact on crucial drivers of economic growth like trade finance, long-term financing and credit availability to small and medium-sized enterprises (SMEs), to adapt the regulations where necessary to mitigate their negative impact, and to take additional measures to promote economic growth.

The above concerns can be paraphrased as follows:

- Will the new regulatory approaches and measures impinge upon, and run counter to, the growth objective?
- Has overall post-crisis regulation altered the balance in favour of stability rather than growth, to the disadvantage of EMEs?
- What would the impact of increased capital and liquidity requirements be on the flow of credit to the commercial sector in general and to the trade, SME and infrastructure sectors in particular?
- What can EMEs expect to gain from Basel III? Are Basel III and other post-crisis regulations really relevant for them when they did not experience or contribute to the recent financial market turmoil in the developed economies?

This paper is essentially a position paper and reviews the regulatory philosophy in relation to growth and development in the pre-crisis, mid-crisis and post-crisis periods, with a focus on EMEs, as a backdrop to discussing the issues concerning EMEs outlined above.

The rest of the paper is organised in four sections. Section 1 highlights interaction among prudential and other financial sector and macroeconomic policies. Section 2 provides a review of pre-, mid- and post-crisis policies. Section 3 deals with issues specific to EMEs in the implementation of Basel norms. Section 4 analyses current economic situation in EMEs and contains concluding remarks from an EME perspective.

1 Interaction among prudential and other financial sector and macroeconomic policies

Financial sector policies can be broadly classified into the following categories:

- Prudential policies to ensure safety and soundness of the financial system (financial stability)
- Regulatory and supervisory policies
- Depositor and consumer protection policies
- Financial inclusion policies
- Other policies for ensuring an adequate supply of credit to economically important sectors such as SMEs, infrastructure etc
- Market structure and competition

1.1 Objectives of prudential policies

Prudential policies comprise macroprudential and microprudential policies. The objective of macroprudential policies is to detect and prevent the build-up of vulnerabilities in the financial system as a whole which may culminate in systemic risk. Microprudential policies are focused on ensuring the safety and soundness of individual financial institutions. Together, macro- and microprudential policies aim to ensure the stability of the financial system, aiding it in efficiently allocating resources to the real economy.

The Basel II capital regulations, risk management standards and other prudential standards such as those related to provisioning, asset classification and large exposure norms form the basis of microprudential regulation. Several features of Basel III considerably enhance the microprudential regulations and would contribute to making individual banks/banking groups much safer. However, the novel feature of Basel III is the recognition of the need to address systemic risk, which it does through macroprudential policies.

1.2 Interaction between prudential policies and other financial sector policies

However, while financial stability is a necessary condition to achieve other objectives of financial sector policies as well as growth and macroeconomic stability, it is not a sufficient condition to attain these objectives. While prudential policies (Basel II, Basel II.5, Basel III and the Core Principles for Effective Banking Supervision) can, by delivering financial stability, facilitate growth and other objectives of financial sector policies, other policies will have to be implemented to balance numerous considerations such as growth imperatives, the flow of credit to disadvantaged and preferred sectors, consumer protection, financial inclusion and equity etc. At times, it becomes extremely challenging to balance these considerations and, if adequate care is not taken, other financial sector policies may impact financial stability negatively. For instance, allowing excessive credit growth to feed GDP growth without keeping a tab on the build-up of systemic risk in segments of the economy may have serious consequences for financial stability. A loose monetary policy for an extended period may result in substantial financial sector imbalances, as was the case in run-up to the current crisis. Flawed financial inclusion policies may not only increase the indebtedness of households without raising their standards of living, they may even destabilise the banking system or part of it. The subprime crisis is one example of a seriously flawed financial inclusion and consumer protection policy. Similarly, increased dependence on a few large financial institutions for financial services may lead to moral hazard issues – the “too-big-to-fail” syndrome. Therefore, it is important that a set of sound financial sector policies (including prudential policies) be followed to deliver the various objectives – growth with equity against the backdrop of financial stability.

1.3 Managing conflicts between prudential and other financial sector policies in the short to medium term

In the short to medium term, there could be conflicts between prudential and other financial sector policies. Some of the apprehensions in the context of EMEs are that (i) the liquidity and much higher capital requirements under Basel III would adversely affect growth (a major concern for EMEs); (ii) the

additional risk sensitivity of Basel II would slow down credit flows to SMEs, a sector which even otherwise is unattractive to banks; (iii) the proposed Net Stable Funding Ratio (NSFR) would raise the cost of infrastructure financing; and (iv) adhering to single/group exposure norms would seriously hamper infrastructure financing in countries like India. It therefore becomes important to manage these conflicts. In such situations prudential policies could be made accommodative without compromising financial stability objectives. For instance, an extended period for Basel III implementation and recent amendments to Basel II trade finance rules (waiver of the one-year maturity floor under the AIRB for short-term letters of credit and waiver of the sovereign floor for claims ie short-term letters of credit on banks using the standardised method for credit risk) are cases in point.

Where prudential policies cannot accommodate the conflicts, other supportive policies need to be applied. For instance, a slowdown in growth due to higher capital requirements, in normal periods, can be cushioned by monetary policy; SME and infrastructure financing can be facilitated by guarantee schemes and other measures.

2 Financial sector regulation in the pre-, mid- and post-crisis world

2.1 Regulation in developed countries

During the period preceding the crisis, financial sector regulation in the developed countries was characterised by progressive deregulation of various aspects of the functioning of financial firms under the assumption of market efficiency. Dimensions of deregulation included removal of overall policy constraints on banks' ability to perform their core functions; encouraging universal banking; permitting non-bank financial entities to undertake financial intermediation; placing greater emphasis on financial markets to allocate resources; and increased integration of financial markets. The financial innovation in areas such as structured finance and derivatives was encouraged through minimal use of intrusive regulatory policies, consistent with the philosophy that regulation generally stifles innovation. This policy did reduce costs and enhanced efficiency in several areas, and the overall impact of such regulatory policies was assessed to be unarguably positive until the eruption of the global financial crisis.

Another important feature of financial regulation in the developed countries was an almost exclusive focus on institution-specific regulation and almost complete absence of macroprudential regulation despite the increase in the size and complexity of activities of large banks, banks' exposure to lightly regulated or unregulated activities, and growing leverage and interconnectedness of banks and other financial entities. The Geithner Report[3] noted that in the United States no regulator saw its job as protecting the economy and financial system as a whole. Existing approaches to bank holding company regulation focused on protecting the subsidiary bank, not on comprehensive regulation of the whole firm. Investment banks were permitted to opt for a different regime under a different regulator, and in doing so escaped adequate constraints on leverage. Other firms, such as AIG, owned insured depositories but escaped the strictures of serious holding company regulation because the depositories that they owned were technically not "banks" under relevant law. All these features resulted in inadequate and lax regulations which contributed to the crisis.

2.2 Regulation in EMEs

During the past two decades many developing countries have liberalised their financial markets and introduced sound policies to strengthen the stability of the their financial systems. The stimulus for these reforms in many cases was provided by the financial crises which had occurred in the 1980s and 1990s or formed part of broader programmes of financial sector reforms funded by loans from the World Bank or other multilateral agencies. Conditionalities related to bank regulation and supervision were a prominent feature of World Bank financial sector adjustment loans. Prudential reforms,

[3] "Financial Regulatory Reform, A New Foundation: Rebuilding Financial Supervision and Regulation", US Department of the Treasury, June 2009.

generally modelled on the pattern of the United States or European countries, have been adopted by most of the developing countries. Basel capital regulations and other risk management guidelines are yet another important force behind the regulatory and supervisory improvements implemented in the developing countries. Thus the strengthening of the financial system and prudential regulation and supervision combined with the adoption of sound macroeconomic policies and a limited shadow banking system greatly helped to cushion the impact of the crisis. Another remarkable feature was that, unlike the advanced economies, many EMEs employed macroprudential tools which helped to contain the build-up of systemic risk and increase the resilience of their financial systems.

2.2.1 India's position

In recognition of the critical role of the financial sector, structural reforms in the financial system were introduced in India in the early 1990s. In the post-reform period, the focus of the regulatory and supervisory policies of the Reserve Bank of India (RBI) was to strengthen the Indian banking system in terms of capital adequacy, asset quality and risk management practices. The development of financial markets and gradual and calibrated introduction of new financial products also received significant attention under RBI's regulatory policies. A notable feature was that RBI had prescribed sound liquidity regulations along with capital regulations and had extensively used countercyclical prudential policies. At the time of crisis, the banking system was well capitalised and did not have significant exposure to toxic assets or the shadow banking system.

Table 1

Countercyclical prudential regulation: variation in risk weights and provisioning

	Capital market		Housing		Other retail		Commercial real estate		Non-deposit taking systemically important non-financial companies	
Date	Risk weight	Provisions (%)	Risk weight	Provisions (%)	Risk weight	Provisions (%)	Risk weight	Provisions (%)	Risk weight	Provisions (%)
Dec 04	100	0.25	75	0.25	125	0.25	100	0.25	100	0.25
July 05	125	0.25	75	0.25	125	0.25	125	0.25	100	0.25
Nov 05	125	0.40	75	0.40	125	0.40	125	0.40	100	0.40
May 06	125	1.00	75	1.00	125	1.00	150	1.00	100	0.40
Jan 07	125	2.00	75	1.00	125	2.00	150	2.00	125	2.00
May 07	125	2.00	50–75	1.00	125	2.00	150	2.00	125	2.00
May 08	125	2.00	50–100	1.00	125	2.00	150	2.00	125	2.00
Nov 08	125	0.40	50–100	0.40	125	0.40	100	0.40	100	0.40
Nov 09	125	0.40	50–100	0.40	125	0.40	100	1.00	100	0.40
Dec 10	125	0.40	50–125[1]	0.40–2.00[2]	125	0.40	100	1.00	100	0.40

[1] The provisioning requirement for housing loans with teaser interest rates was increased to 2.0% in December 2010. It remains at 2% till one year after reset of the interest rate to a higher rate and thereafter is 0.4%. For other housing loans the provisioning requirement remains at 0.4%. [2] The risk weights for housing loans vary according to the amount of the loan and the loan-to-value (LTV) ratio as below.

Loan amount	LTV ratio (cap of 80% for loans above ₹ 2 million and 90% for loans up to ₹ 2 million)	Risk weight (%)
Up to ₹ 3 million	≤75%	50
	>75%	100
₹ 3 million to below ₹ 7.5 million	≤75%	75
	>75%	100
₹ 7.5 million and above		125

Source: Reserve Bank of India.

Table 2

Coordination between monetary and prudential policies

	Monetary tightening phase (September 2004–August 2008)	Monetary easing phase (October 2008–April 2009)	Monetary tightening phase (October 2009 to date)
Monetary measures			
Repo rate	300	–425	250
Reserve repo rate	125	–275	300
Cash reserve ratio	450	7400	100
Provisioning norms			
Capital market exposures	175	–160	0
Housing loans	75	–60	160[1]
Retail loans other than housing loans	175	–160	0
Commercial real estate loans	175	–160	60
Non-deposit taking systemically important non-financial companies	175	–160	0
Risk weights			
Capital market exposures	25	0	0
Housing loans	–25 to 25[2]	0	0–25[3]
Retail loans other than housing loans	25	0	0
Commercial real estate loans	50	–50	0
Non-deposit taking systemically important non-financial companies	25	–25	0

[1] The provisioning requirement for housing loans with teaser interest rates was increased to 2.0% in December 2010. [2] Risk weights on housing loans of relatively smaller size classified as priority sector was reduced from 75% to 50% in May 2007, which was not a countercyclical measure but rather an attempt to align the risk weights on secured mortgages with the provisions of Basel II, which was to be implemented with effect from March 2008. On the larger loans and those with a LTV ratio exceeding 75% the risk weight was increased from 75% to 100%. [3] The risk weight on loans above ₹ 7.5 million was increased to 125%.

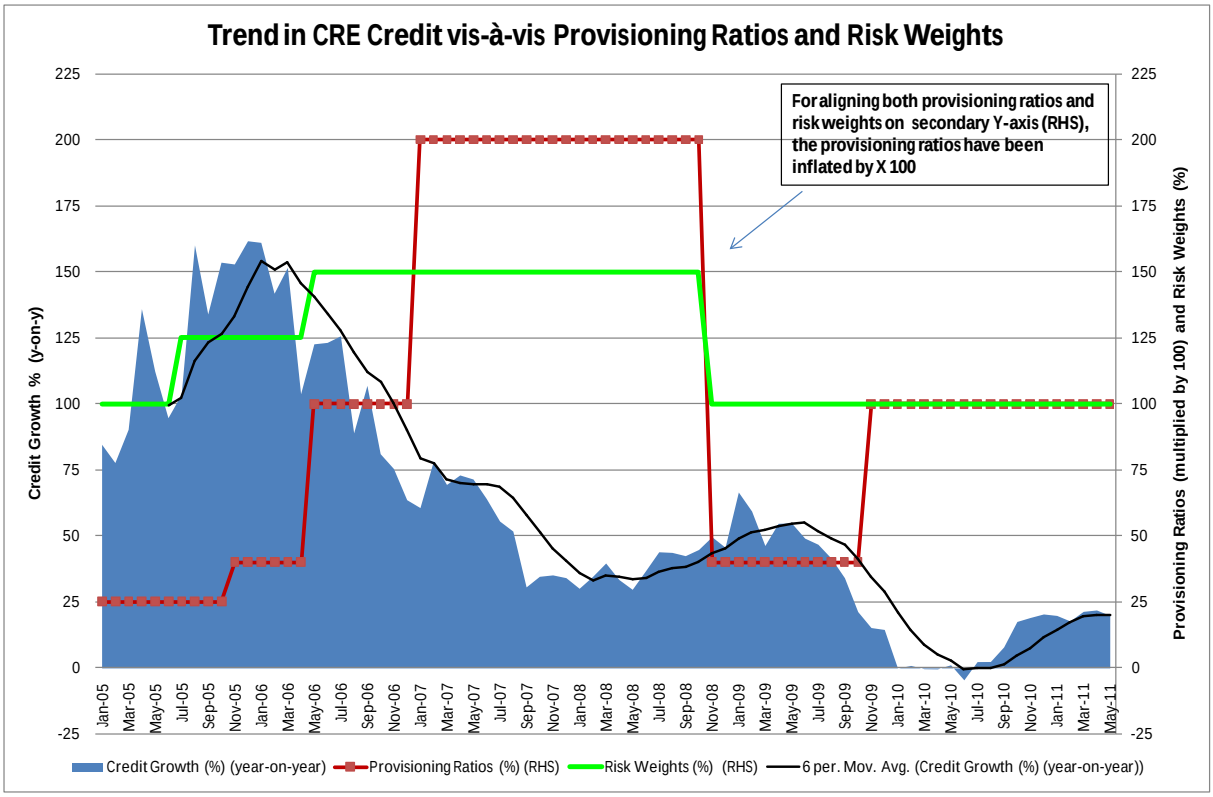
Source: Reserve Bank of India.

RBI started following macroprudential policies to address procyclicality and interconnectedness issues much earlier. The countercyclical policies consisting of time-varying countercyclical capital and provisioning policies were implemented from 2004 onwards when the credit growth in certain sectors such as commercial real estate, personal loans and the non-banking financial sector started rising significantly on the back of large credit growth and 9% plus growth in the three years preceding the crisis. These policies focused on banks due to their centrality and criticality in the Indian financial system. They operated in close coordination and in synch with monetary policies. Tables 1 and 2 indicate the time-varying risk weights and provisions for certain segments and the movement in monetary measures and the countercyclical prudential norms respectively during both boom and downturn.

Chart 1 below illustrates the moderation of the credit cycle for commercial real estate (CRE) in response to the tightening of capital and provisioning requirements.

Chart 1

Impact of macroprudential policies on CRE credit



Source: Reserve Bank of India.

In brief, RBI's methodology and experience in operating countercyclical policies during the period 2004–08 and the subsequent downturn are as follows:

(i) The view regarding the implementation of countercyclical policies was based on tracking of various indicators in the economy, notably general credit growth and sectoral credit growth. This was complemented with market intelligence and some feedback from the Annual Financial Inspections of banks. No detailed statistical analysis or modelling was used. The decisions were judgmental based on constant monitoring of the macroeconomy and were not rule-based.

(ii) RBI, being the monetary authority as well as the regulator and supervisor of banks, non-banking financial companies and important segments of markets, ie the forex, government securities and money markets, had the necessary information and overall view of the risks building up in the system. It was, therefore, well placed to operate countercyclical policies.

(iii) Monetary policy and the countercyclical policy were in the same direction (Table 2). Such a coordinated response was facilitated due to RBI's wide regulatory ambit. If policies are not well coordinated, the costs of implementing such policies may be high.

(iv) It was important to deal with sectoral exuberance through countercyclical policies even as monetary policy, while dealing with the inflation scenario, dealt with generalised exuberance. The interest rate alone, being a blunt instrument, would not have been able to handle the sectoral exuberance, or else the cost to the economy would have been higher.

(v) A combination of risk weights and provisioning requirements for standard assets were used as countercyclical policies. It would appear, however, that varying the provisioning requirements may have been more effective than varying risk weights in moderating credit flow to the specific sectors. This is because, since the average capital adequacy ratio of banks operating in India has been well above 12% for many years (as of December 2010, it was above 14%), risk weights may not always be effective in dampening the growth of credit as banks can continue to finance riskier sectors yielding higher returns by allowing their capital adequacy ratios to fall by a few basis points while still remaining well above the regulatory requirements. To the extent higher risk weights translate into an increase in interest rates, demand for credit may come down. On the other hand, varying provisioning requirements would be potentially more effective as it would impact the profit and loss account, to which banks are more sensitive.

(vi) It would, however, be premature to draw any conclusion with finality about the relative effectiveness of various macroprudential tools. For example, while the countercyclical provisioning policy did seem to work in moderating the credit boom in commercial real estate in India, it is generally acknowledged that dynamic provisioning, which was pioneered by Spain, could not contain the housing sector boom in Spain though it did increase the resilience of the banking sector, which enabled Spanish banks to withstand the financial crisis better than banks in other advanced economies. Today, the choice of instruments for countercyclical policies and their relative effectiveness, as also the interaction of these policies with other policies, particularly monetary policy, is a major area of research.

(vii) The countercyclical policies were able to dampen exuberant credit growth in the targeted sectors. However, their effect was asymmetrical during the downturn. Despite aggressive easing of monetary policy and prudential measures in a countercyclical fashion, the credit supply did not increase adequately. Credit growth slowed down substantially due to, among other things, subdued credit demand and risk aversion among banks.

(viii) Since the monetary policy and countercyclical policies have operated in tandem, it is difficult to isolate the effect of countercyclical policies from that of monetary policy.

Reserve Bank of India had also taken a number of measures to address systemic risks arising out of interconnectedness among banks, between banks and non-banks, and from common exposures. These included the following:

- prudential limits on aggregate interbank liabilities and cross-holdings;
- restrictions on exposures to complex activities and products;
- monitoring of financial conglomerates;
- monitoring of common exposures (sensitive sectors);
- enhancing transparency and risk mitigation in OTC transactions through trade repositories and CCPs;
- strengthening the regulatory and supervisory framework for non-banking financial entities.

During the pre-crisis period, Indian banks experienced strong balance sheet growth in an environment of operational flexibility. The financial health of banks improved significantly, in terms of both capital adequacy and asset quality. Financial markets became well integrated. Banks and other financial institutions have undeniably been major partners in supporting the impressive growth rates posted by the Indian economy in the post-reform period.

2.3 Regulation in developed countries during the crisis

While the United States was the epicentre of the crisis, many other advanced economies – mainly in Europe – were also drawn into it. As soon as the gravity of the crisis and its causes started becoming apparent, measures were initiated both to contain its impact and to address the major gaps in regulation and supervision of the financial sector that lay behind it. The first set of measures comprised steep cuts in policy rates and provision of adequate liquidity to distressed financial institutions, immediate capitalisation of viable institutions, orderly resolution of non-viable entities to minimise loss to the banks' depositors, and ensuring adequate credit to the commercial and household sector during the recession. The second set of reforms constituted a massive agenda for financial sector reforms under the aegis of G20, which have been in the process of implementation for the last two years to ensure the long-term stability of financial systems around the world.

The crisis tested the strength and usefulness of various policy instruments. It became clear that if the crisis is a crisis of confidence, only the lender of the last resort can salvage the situation. The role, appropriateness and extent of disclosures required of distressed financial institutions during the crisis also became important. The Federal Reserve and other central banks expanded eligible collateral beyond sovereign securities and also expanded eligible counterparties for central bank operations.

The crisis pushed the United States and many other advanced economies into recession and measures had to be taken to ensure that the financial sector continued to provide the necessary support to help the real sector come out of recession at the earliest opportunity. The financial sector policies were expected to complement the massive fiscal package introduced by governments in these countries.

2.3.1 Measures taken to assist SMEs in OECD countries

SMEs are generally hit hardest during financial crises, because in the normal course of events they are also perceived by banks as the riskiest corporate borrowers. Considering their importance for the economy, particularly in terms of employment generation and export potential, special measures were taken to ensure that their financial position was not irreparably damaged due to the crisis.

Many OECD countries put in place anti-crisis packages to assist SMEs, combining, in different proportions, the following lines of action:

- *stimulation of demand* (consumption packages, infrastructure programmes, tax policies);
- *credit enhancement* measures, including *recapitalisation of banks* which, in some cases, included explicit provisions or mechanisms to preserve or enhance banks' capacity for financing SMEs such as public credit guarantees, insurance, factoring for receivables and better payment discipline by governments;
- *labour market measures* (reduced employment taxes or social security charges and extended temporary unemployment programmes); and
- measures aimed at helping SMEs to maintain their investment level and more generally their capacity to respond in the near future to a possible surge in demand through investment grants and credits, accelerated depreciation, and financing of research and development.

In Japan, the government reduced the corporate tax rate from 22% to 18% for SMEs with ¥8 million (€61 thousand) or less in annual income in the coming two years. In the Netherlands one of the tax brackets was reduced from 23% to 20% for both 2009 and 2010 for amounts up to €200,000. Canada increased the income threshold for which the small business rate applies. The Czech Republic, France and Spain refunded VAT payments.

Some governments undertook moves to shorten payment delays for public procurement (Australia, France, Hungary, Italy, the Netherlands, New Zealand and the United Kingdom) and enforce payment discipline (France). The European Commission suggested that public authorities should pay their bills within 30 days. In parallel, the Commission committed itself to speed up payment for goods and services so to fully respect the targets for paying bills. In the United Kingdom, the government cut payment times to 10 days. Governments also eased tendering and procurement procedures and policies (Australia, France, the Netherlands, New Zealand and the United Kingdom). Lastly, in order to maintain employment, some governments gave wage subsidies to enterprises so that employees could receive full wages while working part time.

Extension of loans and loan guarantees was a widely used policy measure to increase the access to finance. In some countries, governments found the response of the newly recapitalised banks to the needs of SMEs unsatisfactory or insufficient even though guarantees were available. These countries resorted to discipline measures that in some cases complemented the incentives, in order to pressurise banks to continue lending to enterprises. Belgium and France appointed a "credit mediator", who at regional and central levels could intervene to ease difficulties and help enterprises obtain bank funding. The United States chose to strictly monitor, on a monthly basis, the credit activities of banks that had been rescued by public funding. Furthermore, it requires all banks to report on a quarterly basis. Ireland enacted a legally binding code of conduct on SME bank lending. The Belgian Ministry for SMEs gave pre-fund agreements directly to SMEs which could be taken to the banks to obtain guaranteed loans.

2.4 Regulatory response of emerging market economies

2.4.1 Macroeconomic situation of EMEs at the onset of the crisis

As a result of various reform measures, especially the financial sector reforms, most countries in Asia-Pacific enjoyed a sound set of economic and financial fundamentals. Standards of living were significantly higher after years of robust growth with fairly well behaved inflation, healthy banking systems, sustainable government fiscal positions and sustainable and sizeable foreign exchange reserves. However, there were some vulnerabilities, not least those arising from the increased financial and trade openness that was part and parcel of the growth story. Greater openness exposed the region to unexpected spillovers from the international financial crisis in the west. For example, these financial vulnerabilities eventually translated into large portfolio flows, such as in Korea, Malaysia and Singapore, and fragility of household balance sheets owing to rising indebtedness, such as in Australia, Korea and New Zealand.

Table 3

Selected global economic indicators during pre-crisis period

Average annual growth rates, in per cent

	1992–99	**2000–07**
World real GDP	3.1	4.2
Advanced economies	2.8	2.6
Emerging and developing economies	3.6	6.5
World prices in US dollars		
Manufactures	–0.6	2.8
Oil	–0.9	18.8
Non-fuel primary commodities	–1.5	7.9
Consumer prices		
Advanced economies	2.4	2.1
Emerging and developing economies	47.2	6.7

Source: IMF, *World Economic Outlook*, 2010.

From 2001 to 2007 the world economy grew faster than in any other six-year period over the past 30 years (Table 3). Global real GDP grew at an average rate of 4.2% during the period 2000–07 as against 3.1% during 1992–99. Over the last decade, GDP per capita has risen by 30% on average. Most developing countries, including sub-Saharan Africa, participated in the boom. The average growth rates experienced by the emerging and developing economies went up significantly from 3.6% (1992–99) to 6.5% (2000–07). Average private net capital flows to the emerging economies during the

period 2000–07 were $233 billion and in 2007 alone they were $605 billion. The current account surplus of emerging and developing economies went up from $124.8 billion to $654.3 billion during the period. The foreign exchange reserves held by these countries reached $4.37 trillion and were growing further. The share of world foreign exchange reserves held by emerging markets had jumped from about 37% in 2000 to nearly 64% in 2007.

Another important aspect of the period was the sustained improvement in productivity across all regions. The productivity growth had helped businesses to report higher profit growth despite the substantial increase in commodity prices during the period. While technological improvements led to higher productivity in advanced economies, the structural transformation undertaken by many EMEs helped them achieve strong productivity growth. The IMF has concluded that strong productivity growth has been supported by a combination of technological developments, an increasingly open global trading system, rising cross-country capital flows and more resilient macroeconomic policy frameworks and financial systems.

Equity markets also showed a secular uptrend during the period. Emerging Asian and eastern European equity markets nearly tripled from 2001 to 2007, while Latin American markets more than quadrupled. Credit growth also remained buoyant during the period.

During the initial phase of the crisis, EMEs remained largely resilient. This was due to improved fundamentals, adequate reserves and strong growth. In many EMEs macroeconomic stabilisation programmes had created a climate of reduced distortions and minimal external imbalances, making them less sensitive to external shocks. EME banking systems entered the crisis period from a position of strength. Profitability as measured by the median return on assets for larger EMEs was around 1.5%. By 2007, large EMEs had regulatory capital ratios significantly in excess of the Basel-mandated 8%, with median ratios of around 13%. Median non-performing loan (NPL) ratios were less than 3%. Moreover, some EMEs had a regulatory architecture in place – in terms of countercyclical capital requirements, loan-to-value (LTV) ratios etc – which made their banking systems better capable of facing a downturn. However, some EMEs where domestic credit growth was fuelled by external funding and large current account deficits were vulnerable to a credit crunch. Eastern Europe, for example, had a group of countries with high current account deficits financed by private debt or portfolio flows. In these countries, there was concern related to a sharp drop in capital flows.

It was feared that banks and financial institutions in advanced economies might reduce funding to local subsidiaries; EME corporate credit risks might increase; EME financial institutions might become vulnerable to financial contagion through exposure to subprime or other structured products; and that a spike in exchange rate volatility could slow or reverse flows into EME fixed income assets.

2.4.2 Impact of the crisis and response of commercial banks

Decline in exports

As the crisis progressed, EMEs were hit significantly. In the final quarter of 2008, the world economy saw a severe drop in export demand that coincided with a significant reversal in international bank lending and a substantial reversal in foreign portfolio investment. Exchange rates in many EMEs depreciated, equity prices declined and the cost of external financing rose sharply. Stagnant growth in advanced economies led to a sharp contraction in economic activity in EMEs with significant declines in exports and industrial production. There was depressed consumer and investor spending in the advanced economies which further reduced the demand for EME exports, which reinforced capital outflows. Heavy reliance of many EMEs on external demand raised concerns about the recovery this time. India and a few other EMEs which were relatively less dependent on exports faced a lesser impact.

Decline in external funding/capital flows

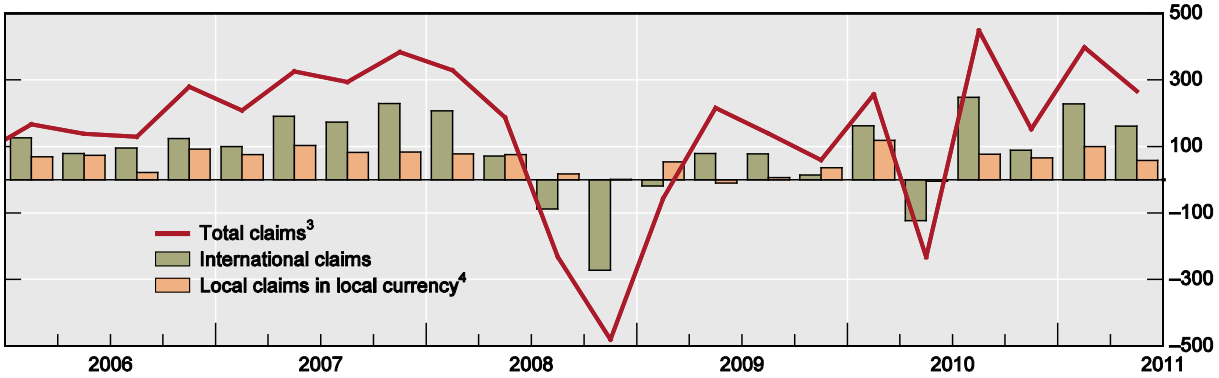
With international banks withdrawing funds from some emerging markets in the third quarter of 2008, the reversal of portfolio equity inflows accelerated, spreads on international sovereign bonds widened sharply and domestic bond yields rose in many EMEs. Countries with high fiscal deficits and those sensitive to a slump in commodity prices were the hardest hit. For those EMEs which had a better external position, the impact on capital flows was through the corporate sector. In international debt markets, primary issuances were frozen and secondary market trading of emerging market bonds declined significantly. The reversal in cross-border banking flows also became extremely severe. Countries with more developed local bond markets may have fared better in the face of capital outflows; however, there is no clear-cut evidence for this. The severe contraction in external demand

compounded the financial crisis and there was a cumulative effect on capital inflows. These effects were more visibly felt in the area of trade finance. The effect of the crisis on forex markets was quite significant in both spot and swap markets. Chart 2 shows the trends in banks' consolidated lending to EMEs during the period 2006–09 according to the data available to the BIS.

Chart 2

BIS reporting banks' consolidated lending to EMEs(Adjusted)[1]

Changes in stocks,[2] in billions of US dollars



[1] Emerging market consolidated positions of banks headquartered in 30 reporting countries. [2] Quarterly difference in outstanding stocks. [3] Sum of international claims and local claims in local currency (unadjusted); international claims comprise cross-border claims in all currencies and local claims in foreign currencies; local claims relate to those booked by reporting banks' foreign offices on residents of the country in which the foreign office is located. [4] Adjusted for exchange rate movements by converting all changes in local claims at the exchange rate prevailing in Q2 2011. Note that total claims (red line) are computed using unadjusted local claims.

Source: BIS consolidated banking statistics on an immediate borrower basis.

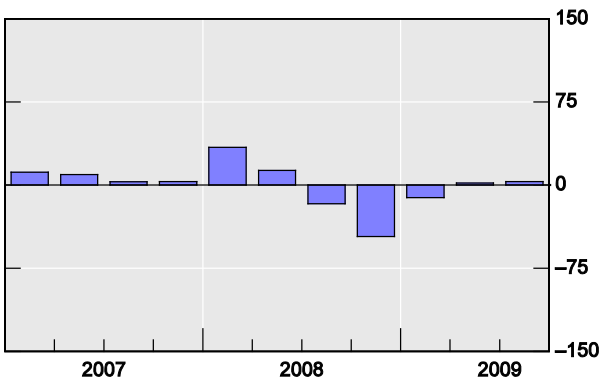
One of the main channels of transmission of the crisis to EMEs was cross-border bank lending. Difficulties in cross-border funding affected domestic liquidity conditions through at least three channels: funding costs, heightened counterparty risk and shortening of the maturity structure. Cross-border bank lending declined steeply during the crisis, leading to a credit crunch and liquidity problems in many EMEs. EMEs with a dominant foreign bank presence were particularly affected. Under these circumstances banks with a heavy reliance on wholesale funding were hit hard. It appears that, during the crisis, supply factors, in particular liquidity and capital constraints of international banks, played a significant role in cross-border lending. Organisational structures (decentralised vs centralised capital and liquidity management) and risk monitoring by central banks substantially affected the intensity of the decline in cross-border lending. Chart 3 shows reversal of financial flows according to BIS data during 2008 and 2009.

Chart 3

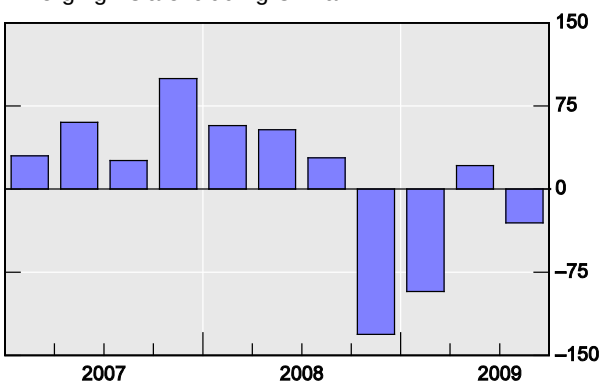
Reversal of financial inflows[1]

In billions of US dollars

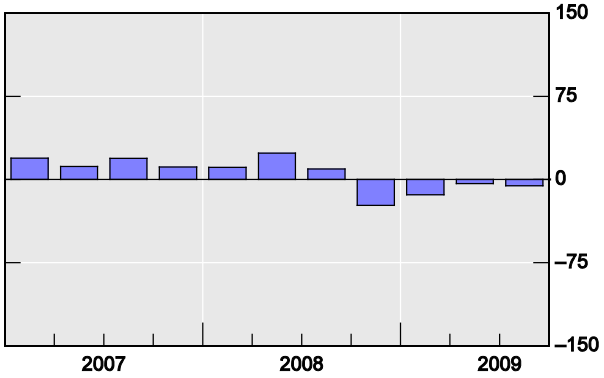
China



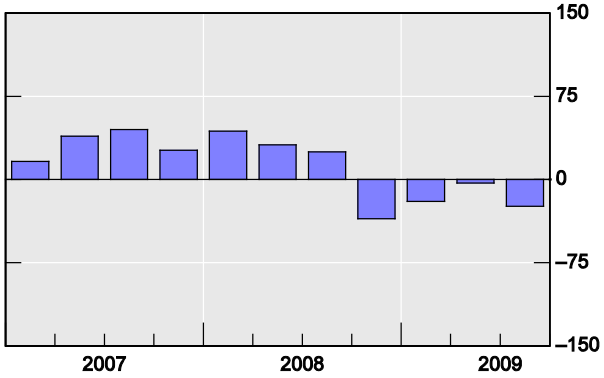
Emerging Asia excluding China[2]



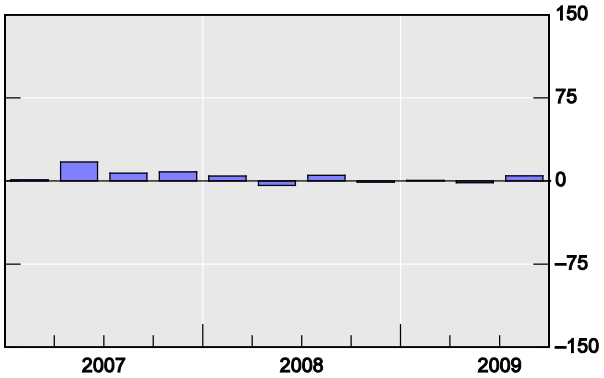
Latin America[3]



Emerging Europe[4]



Africa and Middle East[5]



[1] External loans of BIS reporting banks vis-à-vis EMEs; estimated exchange rate adjusted changes. [2] Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [4] The Czech Republic, Hungary, Poland, Russia and Turkey. [5] Israel, Saudi Arabia and South Africa.

Source: BIS.

2.4.3 Changes in banks' balance sheets/business models

The crisis led to a temporary reorientation of the way banks function in many EMEs. There were changes in bank funding (maturity and sources of funding); in bank lending (in terms of loan maturities, required collateral, types of borrowers, etc); and in liquidity management (evidence of a build-up of liquid assets, shortening of lending maturities, etc). In fact, banks adjusted both the asset and the liabilities side of their balance sheets. On the liabilities side, banks were forced to reduce their reliance on wholesale markets and were required to focus on increasing retail deposits. On the assets side, due to risk aversion as well as a slump in demand, banks reduced the growth of new loans to firms and households, reoriented their balance sheets towards less risky types of lending and increased their holdings of government bonds. On the liquidity side, there was a shortening of the maturity of their assets, less reliance on the interbank market and more emphasis on central bank liquidity facilities. Foreign as well as domestic banks adjusted to the crisis in the same way. The funding model mattered more for adjustment than the bank ownership. Since in most EMEs securitisation of domestic bank loans was neither widespread nor complex, they escaped the worst consequences of the "originate to distribute" model.

Foreign bank subsidiaries in some EMEs transferred capital and liquidity to their parents. This raised concerns in some countries. In countries where foreign banks had significant presence, it led to a liquidity and credit crunch. This has led to a reassessment of the relative merits of the two models of foreign bank operations, viz operations through "branches" and operation through "subsidiaries". The subsidiaries model of presence signals a greater commitment as it is based on funding and lending locally.

2.4.4 Local money and debt markets of EMEs during the crisis

The money and debt markets of the advanced countries were affected significantly during the crisis due to increased risk aversion and perceptions of counterparty risk. This further spilled over to foreign exchange (FX) markets. There was a significant widening of Libor-OIS spreads, implying tremendous problems in the interbank markets. The effects on EMEs were relatively muted until the failure of Lehman Brothers in September 2008. However, after that the impact was more direct. As a result of deleveraging pressures in advanced countries, there were large capital inflow reversals, notably in cross-border bank lending, as discussed earlier. International debt markets for emerging market issuers were virtually closed and trading collapsed, irrespective of the credit quality of borrowers. The shock affected asset prices across several markets including EME sovereign bonds and equities. Exchange rates depreciated in many countries, although in some cases heavy FX market intervention dampened exchange rate volatility. In some EMEs, funding pressures also arose in domestic money markets. However, the worst stress episodes seemed to have declined significantly by the end of 2008 and declined further after rebounding around February–March 2009.

2.4.5 Action taken to improve the situation in EMEs

Policy actions taken by central banks in developed economies helped lower the stress. Substantial central bank funding and financial rescue efforts, including the provision of dollars in Federal Reserve swap lines with some central banks of advanced economies, helped stabilise global funding markets. As market sentiment stabilised, the reduction of policy rates towards zero in developed economies increased the attractiveness of emerging market assets, eventually contributing to improvements in financing conditions and a resumption of capital flows.

Increased IMF resources and the launch of the Flexible Credit Line helped to boost investor confidence in EMEs in general. In Europe, regional coordination between private and public sectors averted a collapse of capital flows to emerging Europe. Swap lines with central banks improved foreign exchange liquidity in EMEs and massive liquidity injections by central banks at the epicentre of the crisis reduced acute deleveraging pressures and supported investor risk appetite. EMEs also initiated various measures as part of their domestic monetary policies aimed at easing liquidity and credit conditions, which included establishment of financing facilities, guarantees by sovereigns and changes in regulations, reserve requirements and policy rates. In some cases central bank action was directed towards the smooth unwinding of foreign currency derivatives positions and other complex issues. Some central banks extended maturities, accepted new types of collateral and also new counterparties in implementing open market operations. Others reduced reserve requirements, in some cases in ways that provided support to priority sectors. These actions in some cases led to increased confidence, thereby reducing uncertainty about counterparty risks or the availability of financing, and resulting in a marked improvement of the risk perception towards EMEs. A big difference from past crises was that many EMEs had more room to ease macroeconomic policies to counter a severe tightening of financing conditions and an economic downturn. Further, the general strength of domestic banking systems played an important role (eg by helping to stabilise deposits). Policy responses to the crisis may be grouped mainly into three categories: reserve-enhancing measures, measures to strengthen financial sectors and fiscal stimulus packages.

Central banks drew heavily on foreign reserves accumulated over a period of time, justifying the accumulation of large reserves. The crisis clearly demonstrated that self-insurance in the form of large reserves is needed although it may prove to be costly in some cases. Central banks also resorted to innovative ways to support local currency financing.

Towards the end of 2009 and in early 2010, demand in EMEs started to recover strongly. In many countries, including India, headline inflation rates rose, necessitating a tightening of monetary policies. Concerns were raised that with low interest rates continuing in advanced economies, tighter monetary policy in EMEs would lead to higher capital inflows resulting in currency appreciation. Resisting appreciation could lead to faster credit growth and the development of asset price bubbles. Many EMEs tried to use capital controls to ward off excessive inflows. It was thought that macroprudential policies had a better prospect of succeeding under such circumstances. Although international financial integration seemed to offer many benefits to capital-deficient EMEs, like capital inflows that augment internal capital accumulation, in many countries it may be that cross-border flows and cross-border bank lending accentuate the crisis.

2.4.6 Measures taken to address problems of SMEs

To increase the incentives for banks to lend to SMEs, the Bank of Korea (BoK) raised the aggregate credit ceiling by more than 50% (from KRW 6.5 trillion in November 2008 to KRW 10 trillion in March 2009). The BoK introduced the Foreign Currency Loans Secured by Export Bills Purchased scheme in order to provide incentives for banks to be active in handling trade financing for SMEs.

In Malaysia, special funds aggregating $400 million were established to assist viable SMEs, provide continued support for enhancements in efficiency and productivity, and help them manage temporary cash flow problems. In addition, a special guarantees scheme with allocation of $3.4 billion was formulated to increase SMEs' access to finance and increase productive investments in new ventures. Malaysia had established a debt restructuring scheme called the Small Debt Resolution Scheme (SDRS) in 2003 to facilitate loan restructuring and financing solutions for small businesses. In May 2009, the Bank Negara Malaysia expanded the scheme to include the debt resolution of distressed SMEs with multiple financial institutions.

In Philippines, Bangko Sentral ng Pilipinas (BSP) launched a credit enhancement scheme in the form of the Credit Surety Fund Programme (CSFP) in the second half of 2008 to facilitate unsecured borrowings from banks by micro, small and medium enterprises (MSMEs) that are members of cooperatives. Loans granted by banks under the CSFP are eligible for rediscounting with the BSP.

In Thailand, in February 2009, through the Small Business Credit Guarantee Corporation (SBCG), the government approved the portfolio guarantee scheme for SMEs. Under this scheme, the SBCG partially guarantees commercial banks' SME loan portfolios. The credit guarantee limit is set at THB 40 billion for a period of five years with a provision that the loss incurred by the SBCG will be compensated by the government within a limit of THB 2 billion. Other measures taken by the Thai government to support credit expansion included approval of the THB 927 billion credit fast track project to accelerate the credit approval procedures of seven state banks in order to offset the reduction in commercial banks' credit extension and setting out plans to recapitalise certain government specialised financial institutions (SFIs).

2.5 India's position

Measures to improve liquidity

The Indian economy was hit by the global crisis due to its rapid and growing integration with the global economy. Under the impact of an external demand shock, there was a moderation in growth in the second half of 2008/09 compared to the robust growth of 8.8% per annum in the preceding five years. With regard to financial markets, India witnessed a reversal of capital inflows following the collapse of Lehman Brothers. Due to a heavy sell-off by foreign institutional investors (FIIs) there was a significant downward movement in the domestic stock markets. The withdrawal by FIIs and the reduced access of Indian entities to external funds exerted significant pressure on dollar liquidity in the domestic FX market. This created adverse expectations on the balance of payments outlook, leading to downward pressure on the Indian rupee and increased FX market volatility. While the banking system was sound and well capitalised, some segments of the financial system such as mutual funds and non-banking financial companies came under pressure due to reduced foreign funding and a subdued capital market. Moreover, the demand for bank credit increased due to the drying-up of external sources. Against this backdrop, RBI stepped in with liquidity-supplying measures – both in the rupee and in foreign currency – and the government implemented fiscal stimulus measures. In order to help banks to lend without getting constrained by capital, the risk weights and general provisions on exposure to the sectors which had been hit hard by the crisis were reduced as a countercyclical measure in tandem with a 425 basis point reduction in policy rates during the period October 2008 to April 2009.

Measures to support SMEs

Considering the importance of SMEs for the Indian economy, SME financing has constantly engaged attention of financial sector policies of the government and RBI. As a result of these policies, credit to this sector from public sector banks witnessed a threefold rise from ₹ 67, 600 crore ($13.5 billion) on 31 March 2005 to ₹ 1,90,958 crore ($38.2 billion) as on 31 March 2009. However, access to credit for these units witnessed curtailment due to the subsequent downturn, triggered by the recent global financial crisis. It was at this stage that the government and RBI took several measures to ensure holding on operations and support for the units affected. Banks were advised on 31 October 2008 to consider restructuring of the dues of viable Micro and Small Enterprises (MSEs) wherever warranted,

and to continue to disburse loans against the sanctioned limits. RBI extended special refinance of $1.4 billion to Small Industries Development Bank of India (SIDBI) to enable it to onlend to banks and financial institutions towards incremental SME loans. Banks were advised to carve out and monitor separate sub-limits of large companies to meet payment obligations to micro and small enterprises. The Micro, Small and Medium Enterprises (MSME) Refinance Fund of ₹ 2000 crore ($400 million) was instituted and banks were asked to contribute towards this fund against their shortfall in their lending to the weaker sections as low-interest deposits with SIDBI to be used by the latter for providing assistance to the MSME sector**.**

2.6 Financial sector regulation in the post-crisis world

Towards the end of 2008, it became clear that weaknesses in financial sector regulation and supervision had contributed to the crisis significantly. The efforts to reform financial sector regulation began under the aegis of G20, and the Financial Stability Board and the Basel Committee on Banking Supervision (BCBS) embarked on an ambitious agenda for regulatory reforms. During the next two years, a number of initiatives were taken by the BCBS with the objective of improving the banking sector's ability to absorb shocks arising from financial and economic stress and to reduce the risk of spillover from the financial sector to the real economy. The first instalment of these measures announced in July 2009, now called Basel II.5, included strengthening of the trading book capital requirements, higher capital requirements for resecuritisation products held in both the banking book and trading book and strengthening of guidance on Pillar II. In late 2010, the BCBS issued the Basel III document enumerating measures focused on improvements in the definition of regulatory capital, introduction of a leverage ratio as a backstop for risk-based capital requirement, capital buffers, enhancement of risk coverage through improvements in the methodology to measure counterparty credit risk and liquidity measurement standards. A brief description of these measures is given below.

Raising the quality, consistency and transparency of capital: Common equity should be the predominant form of capital and will form 75% of Tier 1 capital and 4.5% of risk-weighted assets. Tier 1 capital should be at least 6.0% of risk-weighted assets and total capital (Tier 1 capital plus Tier 2 capital) should be at least 8.0% of risk-weighted assets. Deductions from capital and prudential filters will be applied generally at the level of common equity instead of total capital as hitherto. Innovative hybrid capital instruments with step-up clauses or other incentives to redeem are gradually phased out. In addition, Tier 3 capital instruments have been eliminated. Finally, to improve market discipline, all elements of capital are required to be disclosed along with a detailed reconciliation to the reported accounts.

Minimum requirements to ensure loss absorbency at the point of non-viability: The terms and conditions of all non-common Tier 1 and Tier 2 instruments issued by banks must have a provision that requires such instruments, at the option of the relevant authority, to be either written off or converted into common equity upon the occurrence of the trigger event. The trigger event is the earlier of: (1) a decision that a write-off, without which the firm would become non-viable, is necessary, as determined by the relevant authority; and (2) the decision to make a public sector injection of capital, or equivalent support, without which the firm would have become non-viable, as determined by the relevant authority.

Risk coverage – counterparty credit risk: Measures have been introduced to strengthen the capital requirements for counterparty credit exposures arising from banks' derivatives, repo and securities financing activities. These reforms will raise the capital buffers backing these exposures, reduce procyclicality and provide additional incentives to move OTC derivative contracts to central counterparties, thus helping reduce systemic risk across the financial system. They also provide incentives to strengthen the risk management of counterparty credit exposures. Going forward, banks must determine their capital requirement for counterparty credit risk using stressed inputs. This will address concerns about capital charges becoming too low during periods of compressed market volatility and help address procyclicality. Banks will be subject to a capital charge for potential mark to market losses associated with deterioration in the creditworthiness of the counterparty (the Credit Value Adjustment (CVA) is a measure of diminution in the fair value of a derivative position due to deterioration in the creditworthiness of the counterparty). Standards for collateral management and initial margining have been strengthened. Banks with large and illiquid derivative exposures to counterparties will have to apply longer margining periods as a basis for determining the regulatory capital requirement. Additional standards have been adopted to strengthen collateral risk management practices.

Addressing reliance on external credit ratings: To mitigate the reliance on external ratings of the Basel II framework, measures have been proposed that include requirements for banks to perform their own internal assessments of externally rated securitisation exposures, the elimination of certain "cliff effects" (sharp increase in applicable risk weights) associated with credit risk mitigation practices, and the incorporation of key elements of the IOSCO *Code of Conduct Fundamentals for Credit Rating Agencies* into the Committee's eligibility criteria for the use of external ratings in the capital framework.

Macroprudential elements of Basel III: The introduction of macroprudential elements in the form of the capital conservation buffer, countercyclical capital buffer and leverage ratio are the hallmark of Basel III. These elements are intended to reduce the procyclicality of capital regulations and control the build-up of systemic risk. In November 2011, the BCBS issued guidance on the regulation of global systemically important banks (G-SIBs).

Capital conservation buffer: A capital conservation buffer of 2.5% of risk weighted assets, comprising Common Equity Tier 1, is to be built up outside periods of stress. This would be above the regulatory minimum, and can be drawn down as losses are incurred during periods of stress. When buffers have been drawn down, banks can build them up either through a reduction in distribution of dividend, share buyback and staff bonus payments or raising capital from the private sector. The balance between them is to be discussed with the supervisor as part of the capital planning process. Table 4 below shows the minimum capital conservation ratios a bank must meet at various levels of the Common Equity Tier 1 capital ratios:

Table 4

Individual bank minimum capital conservation standards

Common Equity Tier 1 ratio	Minimum Capital Conservation Ratio (expressed as a percentage of earning)
4.5% – 5.125%	100%
>5.125% – 5.75%	80%
>5.75% – 6.375%	60%
>6.375% – 7%	40%
>7%	0%

Source: BCBS.

The capital conservation buffer will be phased in as of 1 January 2016 at 0.625% of risk-weighted assets and become fully effective on 1 January 2019.

*Countercyclical capital buffer***:** The countercyclical capital buffer is aimed at ensuring that banking sector capital requirements take account of the macrofinancial environment in which banks operate. National authorities will monitor credit growth and other indicators which may signal a build-up of system-wide risk and, accordingly, they will put in place a countercyclical buffer requirement as and when circumstances warrant. This requirement will be released when system-wide risk crystallises or dissipates. The buffer will be implemented through an extension of the capital conservation buffer and vary between zero and 2.5% of risk-weighted assets, depending on the extent of the build-up of system-wide risks. Banks are required to meet this buffer with Common Equity Tier 1 or other fully loss-absorbing capital. Further, banks will be subjected to the restrictions on distributions also if the capital level (capital conservation buffer plus countercyclical buffer) falls below the required levels. Banks will have to ensure that their countercyclical buffer requirements are calculated and publicly disclosed at least with the same frequency as their minimum capital requirements. The countercyclical buffer regime will be phased in in parallel with the capital conservation buffer between 1 January 2016 and year-end 2018 and will be fully effective from 1 January 2019.

Leverage ratio: The Basel Committee has introduced a simple, transparent, non-risk-based leverage ratio as a supplementary measure to the risk-based capital requirements. The ratio is implemented with the objective of constraining the build-up of leverage in the banking sector and reinforcing the

risk-based requirements with a non-risk-based "backstop" measure. The Committee has proposed testing a minimum Tier 1 leverage ratio of 3% during the parallel run period from 1 January 2013 to 1 January 2017.

Regulation of G-SIBs: The Basel Committee will group G-SIBs into different categories of systemic importance based on the score produced by the indicator-based measurement approach. G-SIBs will be initially allocated into four buckets based on their scores of systemic importance, with varying levels of additional loss absorbency requirements applied to the different buckets. Based on policy judgment informed by the various empirical analysis, the Basel Committee has determined that the magnitude of additional loss absorbency for the highest populated bucket should be 2.5% of risk-weighted assets at all times, with an initially empty top bucket (fifth bucket) of 3.5% of risk-weighted assets. The magnitude of additional loss absorbency for the lowest bucket should be 1.0% of risk-weighted assets. The magnitude of additional loss absorbency is to be met with Common Equity Tier 1 as defined by the Basel III framework. The G-SIBs will also be subject to tighter supervision.

Liquidity standards: Basel III has introduced two new liquidity standards to ensure that liquidity risk concerns are addressed. In the short term, banks will be required to maintain a buffer of highly liquid securities measured by the Liquidity Coverage Ratio (LCR). This liquidity buffer is intended to promote resilience to potential liquidity disruptions over a 30-day horizon. It will help ensure that a global bank has sufficient unencumbered, high-quality liquid assets to offset the net cash outflows it could encounter under an acute short-term stress scenario of 30 days. The scenarios may include a significant downgrade of the institution's public credit rating, a partial loss of deposits, a loss of unsecured wholesale funding, a significant increase in secured funding haircuts and increases in derivative collateral calls and substantial calls on contractual and non-contractual off-balance sheet exposures, including committed credit and liquidity facilities. Another liquidity risk measure, the *Net Stable Funding Ratio (NSFR),* requires a minimum amount of stable sources of funding at a bank relative to the liquidity profiles of the assets, as well as the potential for contingent liquidity needs arising from off-balance sheet commitments, over a one-year horizon. The NSFR aims to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and encourage better assessment of liquidity risk across all on- and off-balance sheet items. The objective of the NSFR is to promote resilience over a longer time horizon by creating additional incentives for banks to fund their activities with more stable sources of funding on an ongoing basis. The NSFR has a time horizon of one year and has been developed to provide a sustainable maturity structure of assets and liabilities. The NSFR is the ratio of the "available amount of stable funding" to the "required amount of stable funding". This should be more than 100%. However, the liquidity requirements are still subject to an observation period. The LCR will be introduced in 2015 and the NSFR in 2018.

3 Issues specific to EMEs in the implementation of Basel norms

The overarching objective of regulations designed in the aftermath of the crisis is to improve the resilience of the banking system to withstand macroeconomic shocks and minimise the chances of recurrence of financial crisis on the scale of the subprime crisis. At a more granular level, these measures seek to improve regulation and supervision of financial institutions, establish comprehensive supervision of financial markets, minimise regulatory arbitrage between the banking system and the shadow banking system, protect consumers and investors from financial abuse, promote sound compensation practices and provide governments/central banks and supervisory authorities with more tools to minimise the probability of occurrence of financial crises. While the ultimate aim of all these measures is undeniably to support and promote growth and development, there are likely to be immediate costs from higher capital and liquidity requirements under Basel III. EMEs also face several challenges in implementing Basel II and III on account of the state of development of financial markets and risk management practices as well as due to some structural issues. These are analysed under the following broad headings:

- Challenges in implementing Basel II
- Challenges in implementing Basel III – macroeconomic impact and estimates
- Difficulties in implementing countercyclical prudential policies
- Impact on trade finance

- Impact on financing of SMEs
- Impact on financing of infrastructure
- Structure of the banking system and optimum level of financial activity
- Fiscal consequences

While EMEs face several challenges as mentioned earlier, it must also be recognised that they have strengthened their regulatory and supervisory standards and architecture considerably over the last 15 years, in an attempt to match the international best practices and standards. To this end, most EMEs have adopted a regulatory approach that follows the standards set in the Basel I and Basel II frameworks. Basel II reflected a significant departure from Basel I in terms of greater recognition and coverage of risks with the addition of capital for operational risk, recognition of banks' internal risk models, emphasis on risk management systems and practices, enhanced coverage of risks under Pillar 2 and emphasis on market disclosures. The implementation of Basel II in EMEs has been driven mainly by the appreciation of the benefits to be realised in terms of financial soundness through promoting sound risk management systems and efficient use of capital. The flexibility and menu of approaches for measurement and management of various risks by banks has provided opportunities for banks and regulators in EMEs to implement Basel II**.** EMEs have, consequently, made considerable progress in implementing the Basel II Framework, even though most of them are yet to migrate to the advanced approaches.

The past 10–15 years have seen significant improvement in risk management practices in a number of emerging markets. There has been greater emphasis on market discipline requiring greater transparency in governance and prudent accounting. Prudential oversight of financial institutions has, increasingly, focused on promoting financial stability, rather than only on ensuring compliance with rules. The adoption of technology has also helped in strengthening the risk management practices in several ways such as (i) improvements in valuation techniques; (ii) quantification of various risks, particularly of market risks through the use of value-at-risk (VaR) calculations and stress tests; (iii) risk-based pricing of credit; and (iv) provisioning and allocation of capital on the basis of risk assessment.

During the last 10 years or so, banks in EMEs have based their lending decisions increasingly on intensive risk assessment. Collateral is no longer seen as an alternative, but as a supplement, to proper credit appraisal for mitigating risks. A survey of central banks shows that the use of various quantitative risk management techniques by banks in emerging markets has expanded significantly. Valuations are increasingly based on market prices; scoring models are used to assess the credit risks of households and of small business borrowers; portfolios are stress-tested for various adverse scenarios; and the pricing of and provisioning for credits are increasingly based on quantitative risk assessments. Banks' boards in the EMEs are increasingly focusing on detailed quantitative reports in the oversight of risk exposures. Efforts to instil greater rigour into risk assessment are probably beginning to bear fruit, and this means that risks are being better managed in most emerging markets.

3.1 Challenges in implementing Basel II

If banks have to achieve closer alignment of capital requirement with their risk profile, the answer lies in the implementation of the advanced approaches of Basel II by larger banks. The adoption of the advanced approaches also helps in better understanding and quantifying Pillar II risks. However, adoption of the advanced approaches is much more challenging than that of the standardised approaches. As per a 2010 Financial Stability Institute survey, only eight Asian countries, one Latin American country and one African country had implemented the Internal Ratings-Based Approach (IRB Approach) so far. The Advanced Measurement Approaches (AMA) for operational risk had been implemented by six Asian countries and one African country. Implementation of advanced approaches by EMEs is constrained by a number of factors.

In the advanced economies, the evolution of quantitative risk management techniques preceded the conception of Basel II. The risk modelling techniques pioneered by large international banks in the western countries provided the fundamental building blocks for Basel II. Therefore, it has been relatively easy for large international banks in advanced economies to migrate to the advanced approaches. The EME banks have not generally been using sophisticated quantitative techniques in their day-to-day risk management. This makes implementation of the advanced approaches by EMEs very challenging. Moreover, banks do not have the requisite database for calibration of various

parameters of the risk models for which five to seven years of data are required. Most of these data would have to be collected only prospectively or built up, if possible, from the historical database after a decision to implement the advanced approach is taken by a bank. This would be a daunting task or would result in a long wait.

In India, the Indian Banks Association (IBA) has recently set up an operational loss data exchange, but it would take time to collect and offer valid data to banks for the purpose of operational risk modelling. As most of the Indian banks do not have Basel II compliant operational loss data for past years, the IBA exchange would be able to offer data only for future years.

Almost all advanced approaches of Basel II require stress testing of capital adequacy. Stress testing would involve identifying possible events or future changes in economic conditions that could have unfavourable effects on a bank's credit, operational and market risk exposures. In India, it has been particularly challenging to select sufficiently stressed plausible scenarios for stress testing because there is no history of systemic banking crises. Further, designing plausible scenarios and estimating their financial impact on banks requires a significant amount of quantitative modelling both of macro and micro level risk factors. Given that the stress testing by banks in EME economies is not based on such models, a lot of work would need to be done by them in this regard.

Adoption of the advanced approaches places a huge responsibility on the board of directors and senior management of banks to ensure the integrity of various systems, procedures and controls. In addition, they are required to possess a general understanding of the bank's risk management systems. Finding board level persons with a sound understanding of these aspects is going to be a challenge for EME banks, given that there are not many senior people with related expertise in these countries. Staffing of the internal audit function of banks and finding external auditors with appropriately skilled people are issues for banks in EME economies.

"Use Test" is one of the fundamental requirements for migration to the advanced approaches. For example, internal ratings and default and loss estimates must play an essential role in the credit approval, risk management, internal capital allocations and corporate governance functions of banks using the IRB approach. To comply with this requirement, banks should have been using a rating system that is broadly in line with the minimum requirements under Basel II for at least three years prior to qualification. Similarly, operational loss experience and VaR-based limits should have been in use by banks to be eligible for the AMA for operational risk and the Internal Models Approach (IMA) for market risk, respectively. Since these processes have not been much in use in EMEs, these have to be put in place before banks can consider migration to the advanced approaches.

Risk quantification requires modelling capabilities and banks have to employ staff with requisite qualifications and experience. While in the case of public sector banks in India this aspect is constrained mainly by inflexible compensation systems, in general there is a dearth of qualified personnel in EMEs for this purpose as not many local universities would offer good-quality graduate and postgraduate courses in quantitative finance. The entire responsibility for creating a trained workforce in quantitative finance presently rests with the banks.

Basel III modifications aimed at greater coverage of risks are almost exclusively focused on advanced approaches resulting in significantly higher capital requirements. This may result in banks having to keep significantly lower capital for similar exposure if they are following the standardised approach. There would thus be an inbuilt incentive not to move to the advanced approaches under Basel II. For instance, the introduction of Stressed-VaR under the IMA under Basel III has raised the capital requirements significantly for trading book exposures. Since, at present, most of the banks in EMEs follow standardised approaches for computing capital charge for market risks, there is a potential disincentive for EME banks to migrate to the advanced approaches.

The calibration of parameters of Basel II was based on the quantitative impact studies, wherein the sample consisted predominantly of banks functioning in advanced economies. However, the standard is intended to be implemented uniformly, though it may not reflect the risks faced by EME banks appropriately. While these issues can be dealt with under Pillar II, the drawback is that under Pillar II there can only be capital add-ons and no downward adjustment is permissible. Moreover, the use of Pillar II by EME banks is also constrained as, unlike Pillar I, the development of Pillar II has to undergo an evolutionary process.

Even in the face of all these challenges, larger banks in EMEs should try to migrate to these approaches over the next few years as the move to advanced approaches would significantly raise

their standards of risk management. The larger banks in EMEs would be in a position to absorb the fixed costs required for implementing the advanced approaches.

3.2 Challenges faced by EMEs in implementing Basel III

Basel III entails a much higher level of quality and quantity of capital as well as much stiffer liquidity requirements. While these requirements have generated apprehension about the impact on growth and equity (see the concerns highlighted in the Introduction), EMEs are likely to face several challenges even from an operational perspective.

3.2.1 Capital

Capital requirements for banks in EMEs are likely to rise substantially under Basel III for various reasons. Given that most EMEs are developing countries experiencing high growth rates, their incremental credit requirements are going to be much larger. Higher credit growth would obviously lead to larger capital requirements.

It is likely that with the increase in sophistication of financial markets in the EMEs, the derivatives transactions aimed at hedging and redistribution of risks amongst various players also increase substantially. Considering the newly introduced Credit Valuation Adjustment (CVA) capital charge, the rise in the volume of derivative transactions could potentially be another major source of additional capital requirements going forward.

The leverage ratio could be yet another source of increased capital requirements as the off-balance sheet exposures in the form of letters of credit for trade finance will be counted at their full value as against the 20% credit conversion factor currently being applied for capital adequacy purposes. Since trade finance is of particular importance for EME growth, the leverage ratio will have a greater impact on them due to the higher cost of trade finance credit. It will increase the cost of trade credit particularly for SME borrowers engaged in export business.

Securitisation markets in EMEs are still developing and generally have simpler structures, but have nonetheless been affected due to the financial crisis. However, going forward, these markets are likely to be one of the main channels for credit risk transfer along with credit derivatives. The increase in capital requirements specifically for resecuritisations coupled with very strict standards for due diligence by investors is likely to increase capital requirements for market participants undertaking such transactions.

Additional Tier 1 instruments are now required to have a write-off or conversion feature which allows them to absorb losses in a bank as soon as the bank is treated as non-viable by the authorities. Raising capital through these instruments in EMEs would be very challenging given that the capital markets in these countries may not have the required depth and sophistication to price and trade such instruments.

Higher capital requirements on cross-holdings in the capital instruments of other banks / financial entities and banks' investments in other financial entities will put strain on those financial entities which were hitherto depending upon banks / other financial institutions for raising capital. This could be of particular concern to banks in EMEs where the participation of retail investors is low for various reasons including higher volatilities.

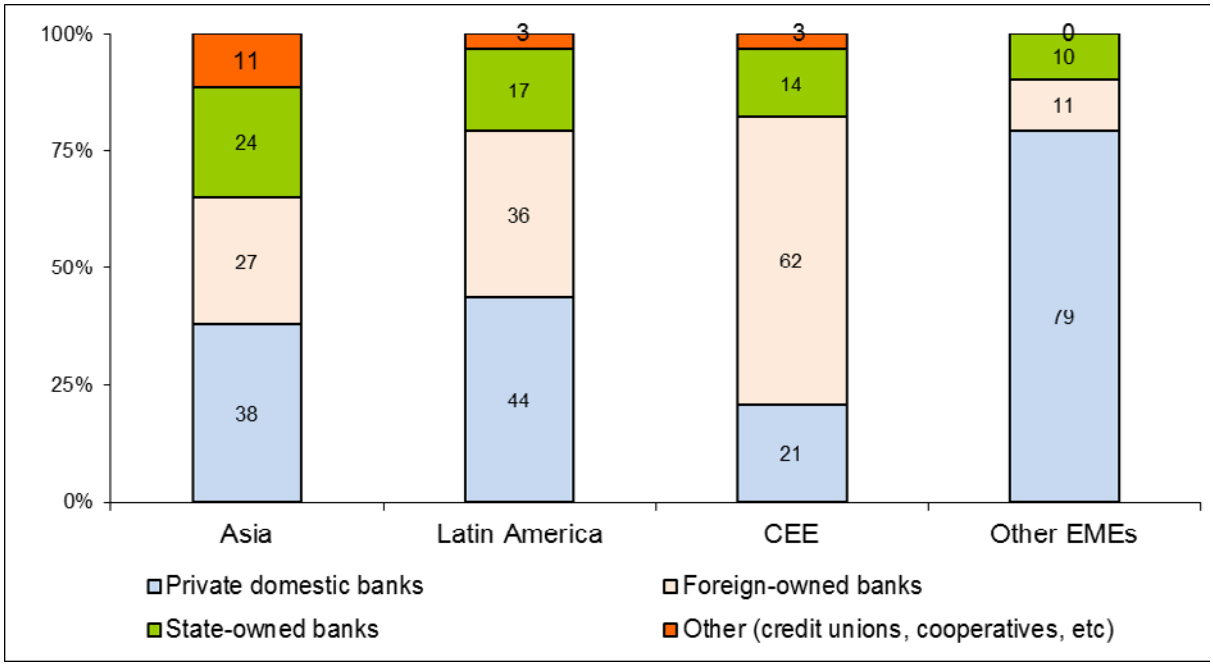
Implementing the countercyclical capital buffer will also present several challenges, which are elaborated on below.

In view of their existing higher capital ratios, including equity capital ratios, banks in EMEs can be expected to comfortably meet the higher Basel III capital requirements in the initial phase. However, going forward, as the capital requirements increase owing to the factors described above, banks will have to raise significant amounts of capital from the markets, which may present difficulties due to inadequate participation by non-institutional investors. This may also put fiscal pressure on governments in jurisdictions where the banking system is dominated by public sector banks.

Chart 4

Ownership structure of emerging market banks, 2009

As a percentage of total banking system assets



Source: BIS, Central bank questionnaires.

3.2.2 Liquidity standards

The Basel III liquidity standards (Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR)) seek to address concerns relating to liquidity risk faced by banks. While the LCR is aimed at ensuring that banks keep an adequate reserve of high-quality liquid assets to take care of outflows for a stressed period of 30 days, the NSFR seeks to limit the maturity mismatches in banks' balance sheets. Implementation of these standards raises some issues.

The requirement to have a buffer of high-quality liquid assets may put more downward pressure on the income of banks in EMEs relative to those in advanced economies as sovereign bonds are the only form of eligible assets in these jurisdictions. In order to reduce the pressure on income due to this factor, it would be necessary to have a liquid market for high-quality corporate bonds in which banks can invest to meet the LCR requirements.

Relatively shallow capital markets in EMEs may restrict banks' ability to bolster the liquidity buffer or elongate the maturity structure of their liabilities. The absence of specific deposit insurance in some EMEs will also have an adverse impact on the liquidity ratios.

3.3 India's position

As regards the impact of Basel III, major comfort exists in Indian banks' having a high Tier I ratio with high common equity proportion. Hence, shifting deductions from Tier I and Tier II capital to the common equity will not be a major constraining factor for Indian banks. Further, some of the deductions are either not relevant in India or are already being made as per existing RBI guidelines. Thus, sufficient cushion is available with banks to absorb the enhancement in the equity and Tier I capital requirements. However, at individual bank levels, some banks may be required to raise additional capital. The step-up clause in capital instruments already issued by banks such as Innovative Perpetual Debt Instruments (IPDI) and subordinated debt may put them under some strain, as they will have to be phased out over a period of 10 years beginning 1 January 2013. However, the share of such instruments is not very significant for Indian banks. Further, compared to international

standards, banks in India have significantly less exposure to OTC derivatives, which reduces the impact of the enhanced capital requirements on account of counterparty risk. This advantage will, however, be offset to a certain extent because at present the bilateral netting of counterparty exposures is not permitted due to legal issues.

Overall, therefore, the transition of the Indian banking system to Basel III will be smooth. Nevertheless, going forward, raising additional equity capital to meet the needs of an economy growing at a high rate and undergoing structural changes would be a challenge. The credit-to-GDP ratio for India is currently at a low of 55%, which should increase rapidly due to the intensive drive for financial inclusion and the likely shift towards manufacturing activities from services in future.

As there is a large gap between the existing Tier I capital ratio of Indian banks (around 9%) and the leverage ratio requirement (3%), Indian banks are not likely to be constrained by this measure either.

In India, banks are statutorily required to hold minimum reserves of high-quality liquid assets. Currently, such reserves (Statutory Liquidity Ratio – SLR) are required to be maintained at a minimum of 24% of demand and time liabilities. Since these reserves are part of the minimum statutory requirement, RBI faces a dilemma whether and how much of these reserves can be allowed to be reckoned towards the LCR. If these reserves are not reckoned towards the LCR and banks are to meet the entire LCR with additional liquid assets, the proportion of liquid assets in total assets of banks will increase substantially, thereby lowering their income significantly. RBI is examining to what extent the SLR requirements could be reckoned towards the liquidity requirement under Basel III.

Since, in general, dependence on bank borrowings is greater in EMEs than in the advanced economies, the increased cost of funds due to Basel III regulations is believed to have a more negative impact on the growth of EMEs, even though some studies suggest otherwise.

3.4 Macroeconomic impact of Basel III – a review of studies

Despite a consensus in the G20 for a major overhaul and tightening of regulatory and supervisory norms, there have been concerns about the macroeconomic costs and benefits of the new Basel III proposals at a time when the global economy has been in severe economic recession. EMEs have particular concerns about the macroeconomic impact of Basel III as growth is vital for them for eliminating poverty and inequality. These concerns in the given scenario are no less important for advanced economies, which continue to reel under the impact of the crisis. This has fuelled discussions in the form of research studies and reports in several quarters on this issue. A key feature of these studies is that they provide alternative perspectives and different estimates on the impact of higher capital and liquidity measures on economic growth attributable to differences in the transmission mechanism, methodology, data, sample period and coverage of countries and banks, as briefly discussed in the following paragraphs.

3.4.1 BIS studies

To phase in the new regulations in a manner that is compatible with the global economic recovery, the BIS and the FSB undertook studies to assess the macroeconomic effects of the transition to higher capital and liquidity requirements. In February 2010, a Macroeconomic Assessment Group (MAG) was set up by the BCBS and FSB which submitted an interim report in August 2010 and a final report in December 2011. The MAG's quantitative analysis was complemented by consultations with academics and experts in the private sector as well as with the IMF. The MAG applied common methodologies based on a set of scenarios for shifts in capital and liquidity requirements over different transition periods. These scenarios served as inputs into a broad range of models (semi-structural large-scale models, reduced-form models and bank augmented DSGE models) developed for policy analysis in central banks and international organisations.

The MAG analysis proceeds on the basis that since it is more expensive for banks to fund assets with capital than with deposits or wholesale debt, banks facing stronger capital requirements will seek to use a combination of increasing retained earnings and issuing equity as well as reducing risk-weighted assets. The approach will depend at least in part on the length of time over which capital needs to be increased. If the time span is shorter then banks are likely to emphasise equity issuance, shift in asset composition and reduced lending. In a longer implementation schedule, banks will have more flexibility as regards mechanisms and they may put more reliance on raising additional capital primarily through retained earnings, which will substantially mitigate the impact on credit supply and eventually on aggregate activity. Based on evidence from past episodes, the MAG analysis assumes that banks will

initially increase lending margins and reduce the quantity of new lending. Any increase in the cost and decline in the supply of bank loans could have a transitory impact on growth, especially in sectors that rely heavily on bank credit. In the longer term, however, as banks become less risky, both the cost and quantity of credit should recover, reversing the impact on consumption and investment.

Based on the above intuition, the MAG analysis was largely formulated on a two-step approach, though other models – reduced-form estimations and bank augmented DSGE models – were also used. The first step involves estimating the effect of higher capital targets on lending spreads and lending volumes using statistical relationships and accounting identities to predict how banks will adjust. The second step takes these forecast paths for lending spreads and volumes as inputs into standard macroeconomic forecasting models in use at central banks and regulatory agencies. These models are then used to estimate the effects of changes to lending spreads and bank lending standards on consumption, investment and other macroeconomic variables.

In its final report the MAG assumed that the Basel III-mandated minimum common equity Tier I capital ratio of 7% would be attained by the global banking system at the end of the eight-year transition period from a starting point of 5.7% and banks would raise their capital ratio by 1.3% (7% – 5.7%) in a linear fashion over the eight-year period. The MAG study carried out 97 simulations in which some models additionally (ie in addition to the increase in lending spreads) assumed banks constrained credit supply beyond what is reflected in the increase in lending spreads, and many models also assumed a monetary policy response to lower output levels and reduced inflationary pressures. Based on the unweighted median estimate across 97 simulations, the MAG estimates that bringing the global common equity capital ratio to a level that would meet the agreed minimum and the capital conservation buffer would result in a maximum decline in GDP, relative to baseline forecasts, of 0.22%, which would occur after 35 quarters. In terms of growth rates, annual growth would be 0.03 percentage points (or 3 basis points) below its baseline level during this time. This is then followed by a recovery in GDP towards the baseline growth path. The estimated maximum GDP impact per percentage point of higher capital was 0.17%.

In addition to the reports of the MAG, the BCBS has also brought out a study focusing on the Long-term Economic Impact (LEI) of the stronger capital and liquidity requirements, ie assuming banks have completed the transition to the new levels of capital and liquidity. Taking a conservative approach, the results assume that institutions pass the added costs arising from strengthened regulations on to borrowers in their entirety while maintaining pre-reform levels for the return on equity, interest cost of liabilities and operating expenses. Thus, the costs of meeting the standards may be close to an upper bound. The higher cost of bank credit lowers investment and consumption, in turn influencing the steady state level of output. The LEI study suggested that the main benefits of a stronger financial system reflect a lower probability of banking crises and their associated output losses. Another benefit reflected a reduction in the amplitude of fluctuations in output during non-crisis periods. However, the net benefits remain positive for a broad range of capital ratios with the incremental net benefits from the reduction in the probability of banking crises gradually declining to become negative beyond a certain range. Long-term net benefits involve calculating the expected yearly output gain associated with the reduction in the frequency and severity of banking crises.

3.4.2 IIF study

The International Institute of Finance (IIF), a private sector institution, has also come up with two reports on its assessment of the net cumulative impact on economic activity of the proposed financial sector reforms. The interim report published in June 2010 formed the basis of the final report unveiled in September 2011. In the final report the IIF covered only five jurisdictions, which in its view were likely to be the *most* affected by the Basel III measures. The report assumes a financial system where banks fund themselves at particular prices (interest rates) on one side of their balance sheet and lend to the private sector at a spread set by a mixture of their own objectives and broader economic conditions. The report also assumes that since shareholder positions are diluted by requiring more equity, post-tax profits and lending rates must increase to offer shareholders the same rate of return. Therefore, banks' desired lending rate can be expressed as the weighted average of the relevant funding rates, with the weights reflecting the relative shares of those liabilities employed to fund the risk assets on banks' balance sheets. The central estimate of the IIF's final report, which incorporates a wider subset of regulatory measures than the interim report at both national and international level, is that level of GDP will be 3.2% lower than it would otherwise be (ie relative to the baseline scenario) after five years with an output loss of 0.7% per annum. This is several magnitudes higher than the MAG's estimate of an output loss of 0.03% per annum.

In its final report of September 2011, the IIF argued that the BIS-MAG, by incorporating national models of countries with a low impact of Basel III norms, pulled the median estimates of output losses down. The IIF supported its higher estimates of the impact of regulatory reform on all key variables, namely lending rate, credit volume, GDP level and GDP growth, compared to the BIS estimates with a variety of explanations. First, the definition of regulatory change employed in the IIF approach is claimed to be broader in scope as well as more precise, resulting in higher estimates. Second, the BIS study included economies for which the impact of the proposed regulatory change was smaller, biasing the average impact downward. Finally, the IIF study, in the light of considerably restricted latitude for monetary policy in the near future, argued against the assumption of monetary policy stance found in the BIS model.

On the other hand, the BIS viewpoint on such a big difference between the BIS/FSB estimate and that of IIF is that the IIF study assumes a much larger increase in the lending rate, largely reflecting the withdrawal of implicit government support. The study has also not assumed any changes in dividends, compensation policies and operational efficiency, nor the benefits coming from a more resilient financial system, including lower funding premia that safer banks need to pay. The MPG and IIF estimates are given in the table below.

Table 5

Estimates of macroeconomic impact of Basel III

	BIS study – MAG	**IIF study**
Components of Basel III considered	Increase in equity capital (1.3%)	Increase in equity capital and liquidity requirements
Period under consideration	35 quarters	Five years
Drop in GDP (%) after full implementation	0.22	3.20
Average annual drop in GDP (%) with full implementation	0.03	0.7
The overall effect of a one percentage point capital increase	0.17	–

Source: Bank for International Settlement, Institute of International Finance.

3.4.3 Other studies

The researchers at the OECD and IMF have provided alternative estimates of the economic impact of the Basel III measures. However, the IMF study while estimating the increase in lending rates on account of Basel III norms, does not provide an estimate of the macroeconomic impact.

The OECD study by Slovik and Cournède (2011), employing the IIF dataset provided in the June 2010 IIF Interim Report, combined the IIF banking sector model with the OECD macroeconomic model to assess the macroeconomic impact of the Basel III measures. The study estimated sensitivities of bank lending spreads to a 1 percentage point increase in capital requirements for the three main OECD economies. In the OECD study, it was assumed that an increase in bank capital will affect overall bank funding costs. Banks were assumed to adjust their lending spreads to compensate for the change in funding cost, with the costs of equity and debt financing assumed to remain constant. The analysis was based on input data from aggregated bank balance sheets averaged over the last three pre-crisis years (2004–06). The potential impact of Basel III on bank lending spreads was computed by combining the estimated bank lending spread sensitivities with the remaining bank capital increases required to meet Basel III requirements effective in 2015. The average increase in lending spreads by banks was estimated to be 15 basis points to meet the capital requirements targeted by the Basel III proposal by 2015. Also, the OECD study estimated an average increase in lending spreads of 50 basis points by 2019. The study found that in the three main OECD economies, a 1 percentage

point increase in the ratio of bank capital to risk-weighted assets could result in an average negative impact of 0.20% on the GDP level five years after implementation, leading to a 0.04 percentage point decline in annual GDP growth. For adjustment taking place ahead of the schedule, the negative impact of Basel III on annual GDP growth was estimated to be in the range of 0.05 to 0.15 percentage points over the medium term.

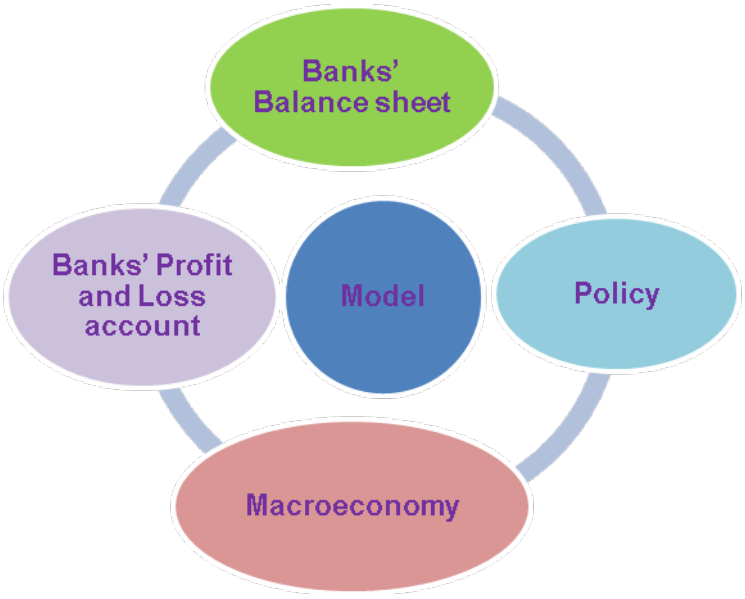
3.4.4 A model for India for the assessment of the macroeconomic impact

The Indian context

In the Indian context, RBI has developed a small macroeconomic model for analysing the macroeconomic implications of the Basel III proposal, especially the higher capital charge. The model comprises four blocks to capture the interaction among the banking sector's balance sheet and profit and loss account, the macroeconomy and policy instruments (Chart 5). The macro-variables (GDP, consumption, investments) and the banking sector's balance sheet and profit and loss account variables constitute a set of dependent/endogenous variables. Variables like policy rates, the Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Capital to Risk (Weighted) Assets Ratio (CRAR) etc are the exogenous variables. All endogenous variables are solved simultaneously. The model takes into account the monetary transmission mechanism through both the credit and interest rate channels. The model involves estimation of changes in GDP consequent upon a rise in capital requirements in increments of 1 percentage point. A brief discussion on key features of the model is provided in Annex 1.

Chart 5

Indian model approach



Source: Reserve Bank of India.

The Indian banking system: some stylised facts

The empirical validity of the model derives from some stylised facts about the Indian banking system. The composition of liabilities and assets holds the key to the macroeconomic impact of the changes in the balance sheet induced by the capital requirements. On the liabilities side, aggregate deposits account for the bulk (about four fifths) of banks' total liabilities. Capital and reserves and surpluses account for about 7% of total liabilities. Banks do not depend much on borrowing from RBI on an annual basis. The share of other liabilities in total liabilities remained more or less steady in the last five years. On the assets side, loans and investment account for the bulk of total assets: about four fifths. A large part of investment is accounted for by investment in SLR securities. Banks' balances with RBI account for CRR balances. In terms of the profit and loss account, interest income on

advances and investments accounts for about 80% and non-interest income for about 20% of total income. Interest expenditure forms the bulk of total expenditure and consists mainly of interest on deposits. The remaining expenditure is on account of operating expenses including wages and salaries as the major component.

Macroeconomic impact

The model was simulated for the period 1996/97 to 2008/09 using the estimated structural equations. The key findings of the model pertain to the simulated impact of an increase in the capital requirement (CRAR). The impact of GDP could be attributable to the impact through credit and lending rate channels in the model. Simulation results suggest that a 1 percentage point increase in the CRAR could be associated with a 25 basis point reduction in average annual credit growth and a slightly higher 35 basis point increase in the lending rate. Also, a 5 percentage point increase in the CRAR could lead to about 100 basis point reduction in average annual credit growth along with a 150 basis point increase in the lending rate. Consequent upon the reduced credit volume and increased lending rate, a 1 percentage point increase in the CRAR could be associated with a 35 basis point reduction in the real GDP growth rate. A 5 percentage point increase in the CRAR could be associated with a significant 153 basis point reduction in real GDP growth (Table 6). These findings are subject to key assumptions of the model. The actual outcome will depend upon the actual increase in the capital charge and the change in capital buffer, if any.

Table 6

Impact of a CRAR increase on average real GDP growth

(simulation period 1996/97 to 2008/09; in per cent)

Scenario	GDP growth
Actual	6.96
Simulated	6.58
CRAR = 1.0	6.23
CRAR = 2.0	5.91
CRAR = 3.0	5.60
CRAR = 4.0	5.32
CRAR = 5.0	5.05

Source: Reserve Bank of India.

3.4.5 A comparative analysis of the models

The comparability of the predictions of the Indian study with that of the studies by international institutions is quite restricted due to differences in the sample period, assumptions and methodology adopted. As the Indian study is country-specific, any meaningful comparison can be achieved only with respect to the relevance and realistic nature of assumptions vis-à-vis the assumptions employed in other studies. In the Indian context, quantity adjustments in bank credit have to be accorded an equal if not greater role in the initial years as opposed to the price channel for various reasons. Moreover, country-specific reasons such as the decision of public sector banks to enhance their capital base are dependent upon the government's ability to contribute its share for preventing dilution of its stake as the majority stakeholder; and certain other features of the Indian banking system like directed lending may play an important role. Another aspect is that the international studies postulate an adjustment in banks' profitability through partial absorption of the required increase in lending rates due to increased capital requirements. However, the Indian study imposes a profitability constraint, wherein banks are subject to a cost plus markup (profitability) pricing model of loans. The bank's choice of capital influences its loan rate, since the marginal cost of loans takes into account the cost of deposits and equity. This profitability constraint could be quite binding, particularly during this adjustment process.

The Indian approach entails a simplified model providing a parsimonious description of the underlying macroeconomy and bank balance sheet relationships, which can be subjected to further refinements. The model for India has some limitations and the findings can be regarded only as preliminary evidence. First, the model involves static analysis, and a dynamic model could be expected to provide refinements to the findings. Illustratively, a dynamic model could facilitate analysis of a calibrated adjustment period for the capital requirement and the associated time path for the growth impact reflecting upon the convergence of the economy to the growth path. A dynamic model involving optimising behaviour of households, business, banks and other intermediaries reflecting upon the growth potential and threshold rate of inflation could be expected to provide robust results. Second, some of the structural equations could be re-estimated in alternative ways involving non-linear relationships among the variables with advanced statistical techniques. Third, the model does not take into account asset quality relating to non-performing loans and marked to market losses on account of the investment portfolio. Fourth, structural changes in the future may affect the model's outcome. Finally, the preliminary estimate in the RBI model of a dip in GDP growth of 0.35% is based on certain critical assumptions about Indian banks' capital requirement. Illustratively, within the framework of a static model, it assumes immediate adjustment of the CRAR in line with Basel III norms, unlike the significantly longer adjustment period of 35 quarters and five years assumed in the MAG and OECD models respectively. With a longer adjustment period, the impact of the higher capital charge on economic growth in the Indian context could be expected to be more or less comparable with the modest estimates of the BIS and OECD studies. Also, the RBI model assumes that with Basel III, banks will continue to maintain the existing capital buffer. In this context, it is to be noted that Indian banks are currently maintaining a capital buffer by way of the actual CRAR 250 to 450 basis points higher than the regulatory requirement of 9%. With Basel III, which emphasises the quality of capital, banks may not continue with the existing magnitude of the capital buffer. Furthermore, the impact of Basel III would depend upon whether banks faced a capital constraint. In the Indian context, public sector banks, which account for a major share in the banking system, may not face a capital constraint if the government engages in recapitalisation of banks or dilution of shareholding in order to enable banks to mobilise capital through the equity market at a cheaper cost and support the growing credit needs of the producing sector. Here, the government's approach would critically depend upon the fiscal policy stance. In view of these limitations, efforts are being made to upgrade the model for evaluation of the macro impact of the new Basel III norms and arrive at a more realistic and robust assessment of the impact on economic growth.

The discussions above indicate that, over a broad range of estimates, it appears there would be an unavoidable but affordable trade-off with growth in the short term for ensuring long-term stability. Realistically speaking, in today's globalised world there is simply no option of following significantly different financial sector policies as the spillover effects are large. The decoupling theory fashionable not too long ago stands completely debunked and, if anything, the euro zone crisis has added more weight against the decoupling theory. Macroeconomic and financial stability in the world can come only if all major economies follow responsible macroeconomic and financial sector policies including prudential policies.

As regards implementing Basel III in India, there are a few issues to be settled: (a) should the implementation schedule be accelerated in view of a comfortable transition given that some jurisdictions have done so, and (b) should regulations continue to remain more stringent when implementing Basel III where they are already more stringent than the provisions of Basel III? These issues could possibly be decided by further developing the model and assessing the impact on growth.

Banks everywhere, including in EMEs, will initially find raising equity costlier as their return on equity (RoE) will be compressed due to the higher cost of equity. However, it can be expected that investors will come to accept lower RoE from banks when they perceive a much safer and sounder banking system. The initial phase does provide a challenge to banks, particularly in EMEs, to maintain RoE by increasing productivity through better use of technology and skilled human resources.

3.5 Difficulties in implementing countercyclical prudential policies

The BCBS has recommended the credit-to-GDP ratio as the metric for determining the build-up of the countercyclical capital buffers. This may be complemented by other market-based indicators. This metric is, however, not suitable for many EMEs, including India, as they are undergoing rapid structural changes because of which the upward deviation of the credit/GDP metric from trend would not, necessarily, be on account of the build-up of systemic risk. The trend would have structural

components also. For the credit/GDP metric to be applied, it would be necessary to segregate the cyclical component from the structural component. This is not an easy task.

RBI has found the sectoral approach more suitable for implementing countercyclical policies because generally the credit boom is not uniform across all sectors. Certain sectors experience much higher growth than others. Basel III does not provide any guidance on this. EMEs can formulate their own policies to deal with sectoral credit booms just as India has done. However, this will lack the reciprocity arrangements under the Basel III framework and could dampen the effect of the measures or render the measures ineffective due to cross-border flows. While it is possible to accommodate any deviations from the recommended framework under the "comply or explain" framework, the risk is that markets could see it as non-compliance. Going ahead, with some banks moving to IRB, implementing the sectoral approach could be challenging. Another challenge is to deal with the asymmetrical effect of countercyclical policies during the upturn and downturn of the economy. Clearly, it would appear that countercyclical policies may not be able to maintain the supply of credit during downturns, as is borne out by the Indian experience, due to the "disaster myopia" of both borrowers and lenders resulting in risk aversion, as also market pressure and expectation of higher capital ratios as the perceived risk is high. There is, therefore, a need to sharpen communication for countercyclical policies along much the same lines as central banks have perfected the art of communicating monetary policy, to make countercyclical policies more effective during downturns in particular, as well as to enable the markets to make nuanced judgment on deviations in the "comply or explain" framework.

Operating countercyclical policies will require judgments regarding the business cycle projections and identification of periods of excessive credit growth. This will be particularly challenging in EMEs where it will be difficult to distinguish excessive credit growth from the increased credit growth due to structural changes in rapidly growing and transforming economies. Any wrong judgment in this regard may involve substantial costs in terms of forgone growth. EMEs will need to develop expertise in identifying business cycles and in identifying the structural and cyclical components in credit growth, which will be a very challenging task.

3.6 Countercyclical provisioning policies

Countercyclical provisioning policies complement the countercyclical capital buffers. The BCBS and IASB are engaged in developing guidance on this issue. Only a few countries, such as Spain, Peru and Colombia, have implemented such an approach (dynamic provisioning framework). Though India has also implemented a similar approach, it is largely judgmental and is not exactly a dynamic provisioning framework. Implementation of a countercyclical provisioning framework in EMEs may be constrained due to the lack of historical data.

3.7 Impact on trade finance

The global financial crisis impaired the access to trade finance. Many observers have attributed this to particularly marked increases in the cost of trade finance and decline in its availability. Surveys conducted by the Bankers' Association for Finance and Trade (BAFT) and the IMF and by the International Chamber of Commerce have confirmed that banks, particularly at the height of the crisis, had been reducing lending in support of international trade and making it available on more restrictive terms and at higher prices, driven by both increased perception of default risk and higher capital requirements under Basel II. There was also a shift in trade financing towards more traditional secured but higher-cost instruments.

It is estimated that EMEs, whose trade expansion is a main driver of their economic growth, were most affected by the shortages in trade finance. It has been reported that there was also a general reassessment of risk caused by the financial crisis, which tightened the trade finance availability to EMEs. Spreads on the opening of letters of credit were up from 10–15 basis points above Libor to 300 basis points in some EMEs.

In order to mitigate problems relating to trade finance faced by SMEs, national governments, government-supported agencies and multilateral institutions had announced various measures to enhance trade finance availability. Multilateral institutions had also announced expansion of their trade facilitation programmes.

Since early in the financial crisis widespread concern had been expressed over the adverse impact of Basel II and its successor, Basel III, on trade finance. The regulatory impact on trade finance includes

a general increase in banks' cost of funds due to the rise in capital requirements and introduction of liquidity standards, the increased focus on counterparty risk rather than product or performance risk, higher asset value correlations in the case of interbank exposures, and the one-year maturity floor for certain trade finance instruments under the advanced internal ratings-based approach (AIRB) for credit risk and the sovereign floor for risk weights on interbank exposures and leverage ratio (see below).

Trade finance involves interbank exposures in the context of letters of credit. Therefore, the Basel II provision which stipulates the risk weight for the relevant sovereign as the floor for trade finance exposures, and the Basel III provision which stipulate an increase in asset value correlation by 25% in respect of interbank exposures, are likely to have a negative impact on trade finance.

Another important proposed measure with implications for global trade finance is the new leverage ratio. This will result in increased cost of trade finance and will affect EMEs more (see Section 3.2.1).

Following consultations with the World Bank, the World Trade Organisation and the International Chamber of Commerce, the BCBS has evaluated the impact of Basel II and III on trade finance in the context of low-income countries. As a result of this evaluation, the Committee adopted two changes to the treatment of trade finance in the Basel II and III capital adequacy framework in October 2011. The one-year maturity floor for issued and for confirmed letters of credit – instruments that are particularly relevant for low-income countries when they import goods – has been waived. This would reduce capital requirements for banks engaged in trade finance and which use the AIRB. The other change agreed by the Committee is relevant for banks using the standardised approach for credit risk. When a bank confirms a letter of credit, it has an exposure to another bank (the bank that issues the letter of credit – the "issuing bank"). In the case of a low-income country which imports goods, the issuing bank is usually domiciled in the importing country and typically does not have an external credit rating. Under the regulatory capital framework, where the risk weights are based on external ratings of bank counterparties, claims on an unrated bank are subject to a risk weighting of 50% or, in the case of short-term claims, 20%. The risk weighting applied to this bank exposure cannot, however, be lower than the risk weighting of the sovereign in which the issuing bank is incorporated. In the case of low-income countries, this is typically 100% (the so-called "sovereign floor"). Waiving this floor to allow the risk weighting to move below 100% will help reduce capital requirements for banks engaged in trade finance and thus foster the import of goods for low-income countries.

3.8 Impact on financing of SMEs

SMEs are considered to be the riskiest among corporate borrowers owing to difficulties in credit risk assessment, high transaction costs and high intrinsic risk. This is due to a lack of reliable and audited financial data in many cases. SME financing and other aspects of development financing have traditionally been very constrained, including in the advanced economies, even under the pre-Basel I regime. These constraints are attributable to a market failure in small business finance which is well documented in the academic literature. A well designed and well targeted policy intervention is required to improve welfare. Papers[4] in the *Journal of Financial Stability*, Volume 6, Issue 1 (April 2010) note that while domestic credit to the private sector has been growing in EMEs at rates higher than GDP, there is anecdotal and increasingly statistical evidence that SMEs have not benefited from the financial deepening to the same extent as other borrower groups. One solution has been the widespread use of government-backed loan guarantee programmes throughout the developed and developing world. Well over 2,000 such schemes exist in almost 100 countries. Thus, more than half of all countries, and all but a handful of the OECD countries, have some form of credit guarantee schemes, usually targeted at some sector, region or category of firms or individuals which is thought to be underserved by the financial sector. In addition, all multilateral development banks have guarantee schemes as well as loans and other instruments. The other tools are directed lending, ceilings on

[4] P Honohan, "Partial credit guarantees: principles and practice"; T Beck, L F Klapper and J C Mendoza, "The typology of partial credit guarantee funds around the world"; M Cowling, "The role of loan guarantee schemes in alleviating credit rationing in the UK"; F Columba, L Gambacorta and P E Mistrulli, "Mutual guarantee institutions and small business finance".

interest rates, interest subvention or guarantees of central or state governments or of specified institutions. There is a view that the more risk-sensitive Basel II & III will further constrain the flow of credit to SMEs. This does not appear to be an entirely correct conclusion because the underlying premise is that since under Basel I there was no risk discrimination from other corporates for capital purposes, the credit flow to SMEs was less constrained. Obviously, this cannot be the case as banks would certainly make a distinction in credit allocation and pricing based on their perception of riskiness. In this context, it may be noted that SMEs which come under the "regulatory retail" portfolio under Basel II are assigned a preferential risk weight of 75%.

The question, therefore, is whether the prudential standards for lending to SMEs should be relaxed. This would not be prudent. The solution would lie in extending external support by way of guarantees and other measures For instance, in India, well before the introduction of even Basel I, there have been measures such as a credit guarantee scheme (not operative now) operated by the Deposit Insurance and Credit Guarantee Corporation (DICGC); cover to exporters and banks provided by the Export Credit and Guarantee Corporation (ECGC); directed lending (priority sector – 40% of net bank credit); and an interest ceiling on small loans and export credit. Subsequently in 2000, ie in the Basel I era, a Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) was set up which guarantees collateral-free and/or third-party guarantee-free credit facilities to micro- and small enterprises granted by member lending institutions. In fact, it is interesting to note that the requirement in India of lending to borrowers below ₹ 2 lakh (US$ 4,000) at a rate not exceeding Bank Prime Lending Rate (BPLR) has caused some distortion in the pricing of loans. Reflecting the maturity of the markets, the stipulation of the BPLR system was withdrawn and replaced by a Base Rate system under which lending rates on loans below ₹ 2 lakh (US$ 4,000) have been deregulated.

SMEs that do not qualify as regulatory retail credit are subject to an external rating-based risk weight under the standardised approach of Basel II. EMEs face significant challenges in applying this approach. First, the rating agencies in these countries may not have adequate credit history to model the default rate. Second, the volumes are huge and difficult to cope with. Third, the ratings could increase the cost of credit. Fourth, even with a good rating the availability and pricing of credit depends on other factors. Finally, SME borrowers may not be able to present well audited accounts and facts about markets and business dynamics that can be relied upon by credit rating agencies.

3.9 Impact on financing of infrastructure

In EMEs, in the absence of other avenues of finance such as a developed corporate bond market, banks are the major providers of credit to corporates. Since corporates in EMEs are growing at a fast rate, banks are constrained in meeting their credit requirements due to the exposure ceiling under the large exposure rules. These rules particularly constrain financing of infrastructure, where credit requirements are huge and infrastructure development is extremely crucial for growth. Infrastructure financing may be further impacted after the revision of the large exposure rules which is under way in the Basel Committee. In addition, owing to new liquidity standards, infrastructure lending would increase the requirements of stable long-term sources of funds for banks, which in turn, while correcting the asset/liability management mismatch, would increase the cost of funding and consequently that of infrastructure financing, with implications for growth. In the long term, such cost considerations would have policy implications for the commercialisation and pricing of infrastructure services in these countries. However, there are limits to relaxing prudential standards for infrastructure finance. Risk mitigants in the form of credit enhancement, liquidity support, take-out financing, etc would need to be provided by government and multilateral institutions to support bank finance to the infrastructure sector. Similarly, the development of the market for corporate bonds and credit derivatives would be crucial.

3.10 Implications of the financial crisis for banking system structure, financial markets and the optimum level of financial activity

The crisis has highlighted the usefulness of a bank-dominated financial system in EMEs for supporting a high rate of growth with financial stability. During the crisis, EME jurisdictions with a smaller foreign bank presence showed higher resilience. The crisis also underscored the fact that large and complex financial institutions can cause severe negative externalities to the financial system and the economy.

In the light of these lessons from the crisis, EMEs will have to deal with issues like the appropriate mix of public sector and private sector banks; the balance between domestic and foreign banks; and the desirability of large financial institutions to meet their large financing needs, etc. The Growth

Commission, in its special report "Post-crisis growth in developing countries" issued in 2010, discussed a "utility model" of banking for the developing countries which seems very similar to the UK Vickers Report recommendation of ring-fencing retail banks. Under the utility model, a portion of the banking system that offers a limited range of services, such as deposit and savings accounts, holds a restricted range of safe assets, is segregated and heavily regulated. As this provides a kind of reassurance in bad times, the rest of the system can afford to be relatively less regulated and explore more sophisticated business strategies and lead financial innovation.

EMEs will have to carefully evaluate what proportion of their financial system should comprise large financial institutions and what simple financial intermediaries. EMEs will necessarily require large banks to meet their developmental needs, particularly for financing infrastructure and large industrial projects. Large banks also provide economies of scale and scope. There is no known way yet to determine the tipping point when "large" becomes undesirable, ie when the negative externalities outweigh the positives. What will have to be ensured, however, is that the large banks are not allowed to have complex structures. In India RBI has discouraged complex structures, for example by discouraging step-down subsidiaries and limiting the involvement of banks and banking groups in non-financial activities. Recently RBI has been pushing for a financial holding company structure which will ensure simplicity of structure. One option could be to adopt a three-tier structure of financial institutions comprising a few large financial conglomerates, a good number of large standalone banks and other financial intermediaries, and a reasonable network of small and medium-sized local banks. Different categories of financial intermediaries can also be subjected to differential regulation and supervision.

Efforts to reform and strengthen the public sector banks in EMEs should continue. Greater home-host cooperation is needed to ensure effective implementation of the cross-border resolution frameworks, maintenance of liquidity and countercyclical capital buffers.

The crisis has highlighted the importance of decentralised bank structures. Regulation of the organisational structure of international banks' local operations is an important issue for EMEs as, possibly, this could be used as a channel for mitigating supply shocks. For example, decentralised bank structures could have better protected the local operations of international banks from global shocks. This is the reason why some EMEs, like India, favour the subsidiarisation approach to foreign bank presence. Apart from easing the resolution process this will also provide greater regulatory control and comfort to the host jurisdictions. In a banking crisis situation, a subsidiary structure would enable the host country authorities to act more independently. However, there are downside risks too, inasmuch as a subsidiary structure makes it easier for the parent bank to withdraw support compared to a branch and therefore financial stability is likely to be vulnerable if these foreign bank subsidiaries dominate the domestic banking system. Any policy formulation in this regard will have to factor in these downside risks. For example, the Discussion Paper released by RBI regarding the presence of foreign banks in India proposes a cap on the total capital of foreign bank branches and subsidiaries as a proportion of the total capital of the Indian banking system while extending near national treatment to the foreign bank subsidiaries.

Asian countries have been developing financial markets with a view to reducing the fragility of financial intermediation. The relatively lower level of development and integration of the financial markets than in the United States and Europe turned out to be fortunate for these countries. For example, structured credit markets, where problems first originated in the United States, were in their infancy in Asia and the Pacific. Also, while Asia-Pacific markets were gradually opened to foreign participants, extant restrictions on transactions with non-residents partly insulated domestic financial markets from disruptions occurring abroad. However, in the long run, these countries will have to realise the benefits of further development of financial markets while managing vulnerabilities to external shocks transmitted through financial markets. Even though the financial markets were not necessarily a source of shocks, they were an important factor in transmitting and spreading the shocks. Increasing the flexibility of monetary policy operating procedures and the capacity of standing facilities; reducing counterparty and operational risks in over-the-counter markets; and increasing transparency of trading activities, prices and exposures could go a long way in developing these markets further to realise the growth potential.

There is a need to assess the optimum level of financial activity in an economic system given its potential to distort asset and commodity prices away from genuine supply-demand. The recent crisis has discredited the belief that growth and development of the financial sector necessarily leads to economic development. The contribution of the financial sector to employment and output growth in the economy, especially the real sector, is being assessed more carefully now. It has been observed

that the financial sector has recently focused more on redistributing wealth to itself rather than creating wealth. EMEs need to determine what level of sophistication of financial markets is appropriate for them – socially and economically suboptimal financial innovation needs to be shunned. Structured and derivatives products will need to be carefully evaluated in terms of the pace of introduction and their suitability and appropriateness for customers. Consumer protection policies and their implementation will have to be strengthened considerably in order to strike a judicious balance between financial innovation and financial stability.

Increased capital requirements will have fiscal consequences. In the light of heightened risks and weakened bank balance sheets, particularly in the advanced economies, governments have had to recapitalise many banks and/or guarantee their liabilities. This has had major implications for the fiscal position of several governments.

3.11 Fiscal consequences of Basel III

EME banking systems (eg those of India or China) have a high proportion of state-owned banks. Governments will have to contribute large additional equity capital in these banks to meet the Basel III requirements. This is likely to have implications for the fiscal position, particularly for India, and delay the achievement of fiscal prudence targets set under the fiscal management programmes. In the long term, however, the capital investment by governments should have a positive impact on the fiscal position of governments as a safer and sounder banking system in the backdrop of financial stability would generate steady returns on equity investments.

4 Current economic situation in EMEs and the way forward

During 2010, though the global economy showed signs of resuscitation, downside risks continued to hover as the recovery remained fragile. Whereas the advanced economies had to combat risks emanating from high unemployment and low growth, emerging market economies grappled with new challenges arising from strong domestic demand, rapid credit growth, relatively accommodative macroeconomic policies and large capital inflows. While growth was low in advanced countries, it was relatively higher in EMEs. This "two-speed recovery" posed different policy challenges for the countries. More specifically and importantly, volatility in oil prices during the period due to the flare-up in North Africa and the Middle East also accentuated the downside risks.

During this period, stronger growth in the EMEs compared to developed countries has resulted in copious capital inflows (Table 7). These flows have been aided by the easy monetary policy of the advanced economies in terms of extended periods of low interest rates and ample liquidity in the system. Such large capital inflows accompanied by strong domestic demand and buoyant credit growth are perceived to overheat the economies and build up systemic vulnerabilities. During the first half of 2011, the net capital flows to emerging markets remained strong due to higher nominal interest rates, strong growth and appreciating currencies. Emerging market corporate debt has also elicited interest and has absorbed a large part of inflows. The positive aspect of this development is that such inflows provide a source of funds for companies that were credit-constrained and were on margin. However, the downside is that sudden inflows may lead to mispricing in the asset class and may also result in complacency leading to lowering the standards of due diligence. Another trend that is being witnessed is that of "exporting credit risk" abroad by companies in emerging markets by way of overseas international debt issuance (eg by Chinese real estate firms) due to tight prudential regulations, domestic credit conditions, lower interest rates in developed countries, etc.

The capital inflows to the emerging markets have resulted in pressure on financial markets in terms of inflationary pressure, a sharp increase in asset prices and possibly higher leverage. These flows have placed constraints on the efficacy of the transmission of monetary policy as any hike in rates would result in an increase in the interest rate differential, leading to additional inflows. However, in some EMEs, such as Brazil (Petrobras issue of $70 billion) and China (Agricultural Bank of China issue of $22 billion), large issuance of equity and debt could absorb the inflows, thereby offsetting the rise in asset prices. Large credit growth was witnessed in Latin American countries. To counter strong and copious capital flows, some EMEs introduced capital control measures (Brazil, Peru, Chinese Taipei). In fact, Brazil was amongst the first emerging markets to raise taxes on foreign fixed income investment. In October 2009, the Brazilian government imposed the *Imposto sobre Operações Financeiras* (IOF, a tax on financial operations) and then in 2010, it further hiked it. Other countries

too, rather than controlling the volumes, managed inflows using prudential measures that endeavoured to enhance stability and stem the volatility resulting from such flows.

Table 7

Emerging and developing economies: net financial flow

(in billions of US dollars)

Region	Type	2009	2010	2011[1]	2012[1]
Emerging and developing economies	Private financial flows, net	267.4	482.3	574.7	610.9
	Change in reserves[2]	–508.2	–892.2	–1,130.6	–1,061.4
Central and eastern Europe	Private financial flows, net	26.6	79.5	99.6	109.6
	Change in reserves[2]	–29.0	–37.1	-22.5	–15.4
Developing Asia	Private financial flows, net	196.1	319.5	320.7	308.2
	Change in reserves[2]	–452.4	–592.7	–712.0	–745.4
Latin America and the Caribbean	Private financial flows, net	34.4	99.3	160.4	128.7
	Change in reserves[2]	–49.3	–103.5	–120.2	–62.6
Middle East and North Africa	Private financial flows, net	62.1	10.5	–20.0	17.1
	Change in reserves[2]	21.5	–102.8	–145.0	–122.1

[1] Projections. [2] A minus sign indicates an increase.

Source: IMF, *World Economic Outlook*, September 2011.

It is interesting to note that the growth in bank lending in emerging markets during 2007–10 was higher than in the previous five years leading to the crisis. The factors contributing to this trend include high domestic growth, more avenues for local banks due to foreign banks pulling back in overseas operations, and favourable domestic policies for bank lending. Incidentally, it may also be mentioned here that after the banking crises in the 1990s, EMEs strengthened their banks' capital levels. There were, however, knock-on effects through other channels. During 2010, the bigger banks in emerging markets had comfortable regulatory capital ratios. However, rapid growth in credit has the downside risk in terms of overheating of the economy and increased vulnerabilities. The traditional source of funds, viz current and savings account deposits, has been replaced by external financing. Emerging market banks issued a record $110 billion in dollar-denominated debt in 2010, led by banks in Russia, Korea and Brazil.[5] Whereas the larger banks extended the duration of their liabilities and used most of the sale proceeds for new lending, small and medium-sized banks in Brazil, Peru and Chile relied on global wholesale funding markets. All these factors, including rapid credit growth, balance sheet releveraging and rising asset prices, may ultimately lead to deteriorating bank asset quality. In addition, it is pertinent to note that emerging markets are highly vulnerable to the vagaries of capital flows, especially in a global downturn where a sudden stop of capital inflows and increase in funding costs may stress the capitalisation of banks in emerging markets. According to the September 2011 *Global Financial Stability Report*, "capital adequacy of banks in emerging markets could be reduced by up to 6 percentage points in a severe scenario combining several shocks".

Against this background, the focus of the policy intervention by EME regulators has been two-pronged – on the one hand, ensuring financial stability by containing the build-up of systemic leverage that leads to a build-up of systemic risks, and on the other, adopting a tighter macroeconomic policy

[5] IMF, *Global Financial Stability Report*, April 2011.

stance. As the capital flows may prove to be long-lasting, macroeconomic measures such as rate hikes, flexible exchange rates and fiscal tightening are more likely to succeed in combating overheating and maintaining financial stability. On the fiscal front, better management of public finances is likely to reduce the sovereign risk premium, which in turn is likely to reduce the pressures on the banks.

Emerging market policymakers need to guard against a build-up of financial imbalances, making use of both conventional and macroprudential measures. The rapid growth in credit raises risks of deteriorating asset quality, and policymakers need to closely monitor the health of bank balance sheets, preferably using economic capitalisation measures when testing for resilience to adverse shocks. The corporate sector is also facing the problem of leveraging that may make corporate balance sheets more vulnerable to external shocks.

EMEs need to appreciate that the ongoing structural transformations and public confidence in the economic reforms of the real sector would be seriously shaken in a situation of financial instability. Therefore, there can be no doubt that financial stability is as important for EMEs as for the advanced economies. Consequently, all regulations which are being contemplated for ensuring financial stability should be implemented by the EMEs, because the recent events have shown that in today's globalised world "decoupling" is simply not possible. However, equally imperative is to pace the adoption of the new regulations and to use it and supplement it through other financial sector policies so as to sustain the developmental efforts of the EMEs. Inevitably there will be a trade-off with growth in pursuit of financial stability, but the objective should be to ensure that the transitory sacrifice in growth remains "affordable". The conclusions of the official studies in this regard are comforting. There is a view that there should be special dispensation to ensure adequate allocation of credit and softer pricing for segments which are vital for developmental objectives. This is not to advocate regulatory forbearance or relaxation of prudential norms, but to support through our policies the financing of directly productive activities in the real sector. Empirical evidence has suggested that the policies followed by India and China have resulted in positive outcomes for growth and stability. Similarly, there is merit in incorporating incentives for financial inclusion in the regulatory regimes of developing countries. On the whole, the balancing of the twin objectives of financial stability and growth with equity has never been so challenging for EMEs. It is important that the prudential policies and other financial sector policies are sound and reinforce each other to achieve the objective of growth and equity against the backdrop of financial stability. Any suboptimal financial sector policy, whether prudential or otherwise, would affect all these objectives through a negative feedback loop as elaborated in Section 1 of this paper.

Ensuring an uninterrupted flow of credit to SMEs and the infrastructure sector will remain a high priority for EMEs for many years to come. EMEs should improve the capacity of their banking systems to meet the demands of these sectors without compromising their financial soundness. Regulators will inevitably find themselves in innumerable conflicting situations while balancing the financial stability objectives and growth of these sectors, which need to be resolved with foresight and through external intervention (government, credit guarantee schemes, etc).

As discussed in this paper, EMEs will have to make additional efforts to (a) develop capabilities and resources for implementing a macroprudential approach to supervision and regulation; (b) strengthen technology and skills to improve banks' risk management practices and stress testing, particularly in the context of the advanced approaches under Basel II; (c) implement an effective liquidity risk management framework; (d) effectively use the Supervisory Review and Evaluation Process in identifying bank-specific risks; (e) promote an enhanced home-host supervisory relationship; (f) develop financial markets; and (g) find solutions for infrastructure financing, which is a huge challenge.

EMEs will also have to choose the structure of their banking and financial systems carefully in the light of the crisis. While there is merit in having larger banks to meet the financing needs of the economy, particularly for infrastructure and large industrial projects, their structures cannot be allowed to become complex. EMEs also need to strengthen their resolution regimes in accordance with the guidance being developed in this regard by the BCBS and FSB.

Overall, the emerging regulatory framework is very challenging for EMEs, and not only from the perspective of containing the downside risk to growth. EMEs would be far better off meeting those challenges they are capable of.

Annex 1

A model for assessing the macroeconomic impact of the enhanced capital requirement for banks in India

The Indian model is based on some key assumptions and features. First, banks are expected to maintain the capital buffer in line with the baseline scenario. Second, banks are subject to a cost plus markup (profitability) pricing model of loans for sustaining the financial intermediation service role. Third, banks are subject to balance sheet constraint or asset-liability management subject to various regulatory requirements such as the Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR) with respect to investment portfolio and the prudential parameter, the Capital to Risk (Weighted) Assets Ratio (CRAR). Fourth, monetary transmission occurs through both the credit and interest rate channels. Fifth, for operational simplicity, it is assumed that the risky asset for banks mainly refers to loans and advances, though some part of investment could also carry a marginal risk weight.

The model begins with banks' balance sheet. On the liabilities side, aggregate deposits, the major component, are estimated through a structural equation, determined by household financial saving and the deposit interest rate. Banks' capital is assumed to be exogenous. Accretion to reserves and surpluses are determined by banks' profit. Other components of liabilities, including banks' borrowing from RBI, are assumed to be random walk, determined by the previous year's level. On this basis, total liabilities are estimated. By the balance sheet identity, total liabilities should equal total assets. On the assets side, investment is determined through a structural equation subject to the SLR requirement. Reflecting the portfolio choice, banks decide on SLR holdings in excess of the requirement in response to the differential between the yield on government bonds and the cost of deposits. The supply of loans and advances is determined by capital and reserves and surplus divided by the CRAR parameter. The final adjustment on the assets side takes place through other assets. In terms of the profit and loss account, the expenditure side determines interest expenditure on deposits, the deposit rate of interest multiplied by total deposits. The deposit rate of interest is determined through a behavioural equation, influenced by its own lag and the interbank call money interest rate reflecting the policy effect of the liquidity and price channels of the monetary transmission mechanism. Similarly, the yield on government bonds is influenced by the call money rate to account for the pass-through of monetary policy. The operating expenditure to assets ratio is assumed to be random walk, similar to the previous year. Operating expenditure in absolute level is determined by the operating expenditure ratio multiplied by total assets. Total expenditure is determined as interest expenditure and operating expenditure. Banks' profitability ratio (profit to asset ratio) is determined by the additional capital requirement and the previous year's level of profitability, thus, taking into account the cost of capital channel due to the increase in the capital requirement. The required level of profit is determined by the profitability ratio multiplied by total assets. Total expenditure plus required profit and provisions impose a constraint on the income side. Income from investment is determined by the yield on investment multiplied by resources deployed for investment. Other non-interest income is assumed to be random walk. Thus, total interest charged on loans is determined as total expenditure plus profit and provisions less income from investment and other non-interest income. The loan interest rate is determined by the total interest on loans divided by loans outstanding. In the macroeconomic block, private consumption, investment, government expenditure, net indirect tax and net exports are determined through structural equations. The link to banks' balance sheet is established through the investment equation; both the loan interest rate and the amount of loans in real terms are expected to affect real investment. A rise in the capital requirement (CRAR) will scale down loans and raise the loan interest rate, and thus adversely affect investment and real activity. The model operates on a static balance sheet of the Indian banking system where the resource side grows with household saving and GDP. Capital is allowed to grow only on account of internal accruals. The risky asset allocation takes place with the constraint imposed by the risk capital available. A reduced capital level results in deleveraging. An increased capital requirement impacts the lending rate, which in turn impacts credit growth. GDP growth is impacted by a reduction in credit growth and rise in the rate of interest. The model's structural equations were estimated using the ordinary least squares methodology and annual data for the period 1993/94 to 2008/09. The model was simulated for the period 1996/97 to 2008/09.

Specification of the Indian model: structural equations and constraints			
Equations	**Banks' balance sheet**		**Specification**
I	Liabilities	=	Capital + Reserves & surpluses + Deposits + Others
S	Δ(Deposits)	=	F[Financial savings, deposit rate]
I	Deposits	=	Deposits(-1) +Δ(deposits)
I	Capital	=	Capital(-1) + re-capitalisation (ΔCapital)
I	Reserves & surpluses	=	Reserves(-1)+ accretion: Δ(reserves)
S	Δ(Reserves & surpluses)	=	F[Profit]
I	Other liabilities	=	Other liabilities (-1)
I	Assets	=	Loans + Investment + Reserve balances with RBI + Others
I	Loans	=	(Capital + Reserves)/CRAR
I	CRAR	=	CRAR(-1) + Δ(CRAR)
I	Investment	=	Investment(SLR) + Investment (Non-SLR)
I	Investment SLR	=	SLR*Deposits
S	ESLR (SLR-SLR*)	=	F(yield-deposit rate, ESLR(-1))
I	Investment Non-SLR	=	Investment Non-SLR(-1)
I	Cash and Reserve balance with RBI	=	CRR*Deposits
I	Other assets	=	Assets (Liabilities) – Loans – Investment - cash reserve balances with RBI
	Profit and Loss account		
I	Total Expenditure	=	Interest on Deposits + Operating Expenses
I	Interest on deposits	=	Deposit rate * Deposits
S	Deposit rate (Rd)	=	F[call money rate, Rd(-1)]
I	Operating expenses (OE)	=	OE ratio(-1)*Assets
I	Total Income	=	Interest income Loans + Interest income Investment + Other income
I	Interest income Investment	=	Yield (Rg)*Investment
S	Yield (Rg)	=	F[Call money rate, Rg(-1)]
I	Other Non-interest income (OY)	=	OY ratio(-1)*Assets
I	Profit	=	Profit ratio(-1)*Assets
I	Loan interest	=	Total expenditure + Profit +Provisions- Interest Income on Investment - Other income
I	Loan rate (RL)	=	Interest on loans/ Loans
	Macro economy		
I	Real GDP at constant MP	=	Private consumption + Government consumption + Gross domestic capital formation + net exports
I	Real GDP at FC	=	GDP(MP) – Net indirect tax
S	Net indirect tax (NTX)	=	F[real GDP, NTX(-1)]
S	Private consumption	=	(GDP(-1), interest rate)
S	Household financial saving	=	F(nominal GDP (-1), deposit rate)

S	Investment (real gross domestic capital formation)	=	F[Real GDP(-1), Loan interest rate (RL), Δ(Loans/WPI)]
S	Government expenditure	=	F[Real GDP (-1)]
S	Net exports (NFY)	=	F[Δ(Exchange rate), NFY(-1)]
S	WPI	=	F[real GDP, WPI(-1)]
S	GDP deflator (DFL)	=	F[WPI]
I	Nominal GDP	=	Real GDP*DFL

Note: F: Function, S: structural equation ,I : identity/constraint , Δ:first difference operator, (-1):one period lag.

Variables definition: D=deposits, HFS: household financial saving, Y=real GDP, Yn: nominal GDP, C: private consumption, I: investment, G: government expenditure, NFY: net exports, NTX: net indirect tax, L: loans or bank credit, Pw: wholesale price index, Pd=GDP Deflator, Rd=deposit interest rate, Rg=yield on government bonds, RL=loan interest rate, Rp=policy rate (interbank call money rate), KRS: banks' reserves and surplus, Pft: profit, ZSLR: excess SLR holdings ratio, Zliab: liabilities of banks other than capital, reserves and surplus, and deposits, π:profitability ratio, k: capital to risk weighted asset ratio.

Figures in brackets indicate the 't' statistic, which is about 1.8 for the 10% level of significance and 2.0 for the 5% level of significance.

References

Alici, A and U Ozgoker (2006): "Can financial regulations strengthen financial stability in developing countries? The case of Turkey", ECPR/CRI Conference.

Bank for International Settlements (2006): "The banking system in emerging economies: how much progress has been made?" *BIS Papers* no 28.

——— (2009): *79th Annual Report*.

——— (2010): *80th Annual Report*.

——— (2010): "The international financial crisis and policy challenges in Asia and the Pacific: Proceedings of the wrap-up conference of the Asian Research Programme, Shanghai, 6–8 August 2009", *BIS Papers* no 52.

——— (2010): "The global crisis and financial intermediation in emerging market economies", *BIS Papers* no 54.

Basel Committee on Banking Supervision (2010), "Basel III: A global regulatory framework for more resilient banks and banking systems".

——— (2010): *Basel III: International framework for liquidity risk measurement, standards and monitoring*.

——— (2010): *Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements*, Final Report of the Macroeconomic Assessment Group established by the FSB and BCBS, Bank for International Settlements, Basel, Switzerland.

——— (2011): *Treatment of trade finance under the Basel capital framework*.

Borio, C and W White (2003): "Whither monetary and financial stability? The implications of evolving policy regimes", *BIS Working Papers* no 147.

Cecchetti, S G (2010): "Strengthening the financial system: comparing costs and benefit" – remarks prepared for the Korean-FSB Financial Conference, 3rd September.

Commission on Growth and Development (2010): "Post-crisis growth in developing countries".

Cornford, A (2010): "Basel II and the availability and terms of trade finance", revised version with postscript of a paper originally submitted to the UNCTAD GLOBAL COMMODITIES FORUM, Palais des Nations, Geneva.

Cosimano, T F and D S Hakura (2011): "Bank behaviour in response to Basel III: a cross-country analysis", *Working Paper* no 11/119, International Monetary Fund, Washington.

Financial Stability Institute (2010): "2010 FSI survey on the implementation of the new capital adequacy framework", *Occasional Paper* no 9.

Institute of International Finance (2011): *The cumulative impact on the global economy of changes in the financial regulatory framework*.

International Monetary Fund (2007); *World Economic Outlook*, April.

——— (2007–11): *Global Financial Stability Reports*.

Levin, R (2004): "Finance and growth: theory and evidence", *Working Paper* no 10766, National Bureau of Economic Research, Cambridge.

Organisation for Economic Co-operation and Development (2009): *The impact of the global crisis on SME and entrepreneurship financing and policy responses*.

Reddy, Y V (2011): *Global crisis, recession and uneven recovery*.

Sinha, A (2011): "Macroprudential policies – Indian experience", address at Eleventh Annual International Seminar on Policy Challenges for the Financial Sector, co-hosted by the Board of Governors of the Federal Reserve System, the International Monetary Fund and the World Bank, Washington DC.

——— (2011): "Reflections on regulatory challenges and dilemmas", address at FICCI-IBA conference on "Global Banking: Paradigm Shift".

Sharma, V K (2008): “Genesis, diagnosis and prognosis of current global financial crisis”- Address at the Senior Management Conference.

Slovik, P and B Cournède (2011): “Macroeconomic impact of Basel III”, *Working Paper* no 844, OECD, Economics Department. COFER database, IMF.

Subbarao, D (2009): “Financial stability: issues and challenges”, inaugural address at the FICCI-IBA Conference on “Global Banking: Paradigm Shift”.

——— (2011): “India and the global financial crisis: what have we learnt?”, K R Narayanan Oration at the South Asia Research Centre of the Australian National University, Canberra.

Thorat, U (2009): “Impact of global financial crisis on Reserve Bank of India (RBI) as a national regulator”, presentation at the 56th EXCOM Meeting and FinPower CEO Forum organised by APRACA in Seoul, Korea.

——— (2010): “Setting new paradigm in regulation”, keynote address at the Panel Session at the FICCI-IBA Conference on ”Global Banking: Paradigm Shift”.

J-C Trichet (2007): “Charting a new global landscape: the growing impact of emerging markets on the world economy”, speech at the 75th anniversary of the central bank of the Republic of Turkey, Ankara.

Wade, R (2008): “The first-world debt crisis of 2007–2010 in global perspective”, *Challenge*, vol 51, no 4, July/August, pp. 23–54.