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by Duvvuri Subbarao, Governor, Reserve Bank of India

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*Third Quarter Review of Monetary Policy 2012-13**

Introduction

Since the Second Quarter Review (SQR) of Monetary Policy in October 2012, headwinds holding back the global economy have begun to abate gradually, although sluggish conditions prevail. In the US, activity gathered momentum in Q3 of 2012 but this is unlikely to have been sustained in Q4. While a political consensus to avert the 'fiscal cliff' has calmed financial markets, how the debt ceiling is managed will be crucial in shaping market sentiment on the way forward. The euro area economy is threatened by continuing contraction, notwithstanding the liquidity firewall of the European Central Bank (ECB) and the commitment to act collectively to backstop the union. Overall, however, risks of the sovereign debt crisis disrupting the global financial system have ebbed. Japan has re-entered recession. Among the emerging and developing economies (EDEs), a pick-up in the pace of growth in China is likely. A combination of a slump in external demand and domestic structural bottlenecks has slowed down growth in most other EDEs. Furthermore, inflationary pressures persist in some of them. Overall, global economic prospects have improved modestly since the SQR even as significant risks remain.

2. Domestically, growth remains sluggish, notwithstanding some tentative signs of the slowdown beginning to level off. Industrial activity weakened, reflecting subdued manufacturing, deceleration in electricity generation and contraction in mining activity. While the series of policy measures announced by the Government has boosted market sentiment, the investment outlook is still lacklustre, especially in terms of demand for new projects. Consumption demand too is slowing. As regards prospects for agriculture, whether the *rabi* output will offset the shortfall in the *kharif* output is as yet unclear. Lead indicators of service sector activity point to an expansion in the months ahead, *albeit* constrained by the drag imposed by depressed global demand conditions.

3. Headline wholesale price inflation, led by non-food manufactured products inflation, has softened through Q3, providing some relief from the persistence that dominated the first half of the year. On the other hand, food inflation has edged up, pushing up consumer price inflation in turn. Lead indicators such as weaker pricing power of corporates, excess capacity in some sectors, the possibility of international commodity prices stabilising as assessed by the International Monetary Fund (IMF) and momentum measures suggest that inflationary pressures have peaked. However, further moderation in domestic inflation going into 2013-14 is likely to be muted as the correction of under-pricing of administered items is still incomplete and food inflation remains elevated. Accordingly, the setting of monetary policy has to remain sensitive to conflicting pressures and attendant risks.

4. This policy review is accordingly set in the context of a slowly improving global environment and a tipping point in the balance of risks between growth and inflation on the domestic front. It should be read and understood together with the detailed review in *Macroeconomic and Monetary Developments* released yesterday by the Reserve Bank.

5. This Statement is organised in four sections: Section I provides an overview of global and domestic macroeconomic developments; Section II sets out the outlook and projections for growth, inflation and monetary aggregates; Section III explains the stance of monetary policy; and Section IV specifies the monetary measures.

* Announced by Dr. Duvvuri Subbarao, Governor, Reserve Bank of India on January 29, 2013 in Mumbai.

I. The State of the Economy

Global Economy

6. Signs of stabilisation in global economic activity have been in evidence in recent months, led by stronger than expected growth in the US in Q3, acceleration in the pace of activity in China and a pick-up in industrial production in EDEs in Q4. Activity in the euro area continues to be in a contraction mode, though financial market confidence has improved. Japan has embarked on a fresh fiscal stimulus following contraction in Q3. In the UK, a modest GDP growth in Q3 was followed by a decline in Q4. The HSBC Emerging Market Index rose in Q4. The global composite purchasing managers' index (PMI) also rose marginally in December.

7. According to the IMF, consumer price inflation has eased in both advanced economies (AEs) and EDEs in 2012. However, risks to the inflation outlook from commodity price pressures persist.

Domestic Economy

8. Year-on-year (y-o-y) real GDP growth slowed from 5.5 per cent in Q1 of 2012-13 to 5.3 per cent in Q2. The decline in the GDP growth rate became broad based, with consumption demand also slowing alongside stalling investment and declining exports. On the supply side, there are indications of weakening resilience of services to sluggish global growth.

9. Looking ahead, there are some tentative signs of a reversal in momentum. While industrial production slowed to a y-o-y increase of 1.0 per cent in April-November 2012, the seasonally adjusted three-month moving average of the index of industrial production (IIP) points to a pick-up. The manufacturing PMI rose in December on the back of higher order book volumes and new export orders. The services purchasing managers' index (PMI) also rose in December on expectations of a revival of demand. The Reserve Bank's industrial outlook survey indicates positive business sentiment in Q3 and Q4. Coverage under *rabi* sowing has been broadly the same as in the corresponding period of last year.

10. Headline wholesale price index (WPI) inflation eased significantly from 8.1 per cent in September 2012 to 7.2 per cent by December. Notably, inflation on account of non-food manufactured products, which have a weight of 55 per cent in the WPI, fell sharply in November-December as input price pressures eased primarily on the back of ebbing metal, non-metallic minerals and chemicals group inflation. The seasonally adjusted three-month moving average annualised inflation also suggests a moderation in headline as well as non-food manufactured products inflation. With the industrial outlook survey also pointing to softening of the rate of increase of output prices, the pricing power of corporates seems to have weakened. Fuel group inflation moderated in December, mainly reflecting the tempering of inflation of non-administered petroleum products as well as the range-bound exchange rate of the rupee.

11. Food inflation, on the other hand, showed a contrarian behaviour, moving into double digits in December. Significant price pressures emanated from cereals. Prices of pulses and other protein-based food items remained elevated. Furthermore, with the firming up of prices of edible oils and grain mill products, the overall momentum in food inflation remained firm.

12. Inflation based on the new combined (rural and urban) consumer price index (CPI) (Base: 2010=100) rose to 10.6 per cent in December, largely reflecting the surge in food inflation. Excluding food and fuel groups, CPI inflation remained unchanged at 8.4 per cent during Q3.

13. According to the latest Reserve Bank's urban households' survey, inflation expectations for Q4 edged up marginally. Wage inflation in rural areas remained high, notwithstanding some recent moderation; as these wage increases have not been accompanied by improvement in productivity, they have imparted inflationary pressures. House price inflation, as measured by the Reserve Bank's quarterly house price index, also remains elevated on a y-o-y basis.

14. Analysis of the early results of corporate performance in Q3 indicates that both sales and expenditure growth moderated while profit margins remained broadly unchanged.

15. Y-o-y money supply (M_3) growth fell to 12.9 per cent by mid-January and remained below the indicative trajectory of 14.0 per cent. This essentially reflected the deceleration of growth in aggregate deposits and moderation in economic activity.

16. Y-o-y non-food credit growth, at 16.2 per cent by mid-January, was around the indicative trajectory. However, bank credit to industry showed a significant deceleration while credit to agriculture registered an increase.

17. The estimated total flow of financial resources to the commercial sector for the current financial year up to mid-January was ₹9.6 trillion, higher than ₹8.1 trillion during the corresponding period last year. This was mainly due to increase in bank credit and subscriptions by non-banks to commercial paper.

18. As regards monetary policy transmission during Q3 of 2012-13, the average term deposit rates of scheduled commercial banks (SCBs) declined marginally. Although a few banks reduced their Base Rates modestly during the quarter, the weighted average lending rate as well as the modal Base Rate remained broadly unchanged over the quarter.

19. Liquidity conditions tightened from the second week of November on account of a build-up in the Centre's cash balances, festival-related lumpy increase in currency demand, and structural pressures brought on by the widening wedge between deposit growth and credit growth. Anticipating liquidity pressures, the Reserve Bank had lowered the cash reserve ratio (CRR) successively in the Mid-Quarter Review (MQR) in September and in the SQR in October. In addition, the Reserve Bank conducted open market operations (OMOs) on five occasions during December 2012 to January 2013, thereby injecting liquidity of ₹470 billion into the banking system. Despite these measures, the average net LAF borrowings at ₹910 billion in January (up to January 27), were above the Reserve Bank's comfort level.

20. The government securities (G-Secs) market recorded increased turnover, with yields easing substantially in January. The equity market rose further in Q3 of 2012-13 on account of improved sentiment and pick-up in inflows from foreign institutional investors (FIIs).

21. Exports contracted in December for the eighth month in succession, reflecting depressed external demand conditions and structural bottlenecks. On the other hand, imports rose on the back of higher oil and gold imports, consequently widening the merchandise trade deficit in Q3 compared to its level a year ago. On top of the large trade deficit, the slowdown in net exports of services and larger outflows of investment income payments is expected to widen the current account deficit (CAD) further in Q3, beyond the level of 5.4 per cent of GDP recorded in Q2 of 2012-13.

22. So far, net capital flows have been sufficient to finance the CAD. Higher net inflows of portfolio investment and accretions to non-resident deposits compensated for lower net external commercial borrowings and foreign direct investment (FDI) into India. Even though net capital flows have been strong, the sheer size of the external financing requirement imposed by the large CAD has brought to bear downward pressures on the rupee which depreciated in nominal and real terms by January 2013 relative to its level in March 2012.

23. Various measures undertaken by the Government since mid-September, including liberalisation of FDI in retail, aviation, broadcasting and insurance, deferment of general anti-avoidance rules (GAAR), reduction in withholding tax on overseas borrowings by domestic companies and setting up of the Cabinet Committee on Investment have significantly lifted market sentiment which, in due course, should spur investment. Alongside, measures such as progressive

deregulation of administered fuel prices, with concerted efforts to adhere to fiscal discipline and carry forward consolidation can potentially correct the twin deficits. These policy actions could help engender stable macroeconomic conditions and return the economy to its high growth trajectory. Further reforms to raise productivity, improve competitiveness and manage the supply constraints, including augmenting energy availability, are crucial for raising the potential growth path in the medium-term.

II. Outlook and Projections

Global Outlook

Growth

24. While the improvement in global financial conditions is supportive of global growth prospects for 2013, the recovery is likely to be anaemic and is also fraught with significant downside risks. The outlook for AEs generally remains weak. Despite manufacturing stabilising in Q4 of 2012 and forward-looking indicators of services activity showing an uptick, growth in 2013 is most likely to be tepid in view of the persisting drag from high unemployment, continuing deleveraging, financial fragility, persisting sovereign risks and fiscal tightening, all feeding into one another through negative feedback loops. Breaking out of this downward spiral will depend on resolute structural reforms and credible fiscal consolidation. For EDEs, weakness in external demand is expected to be a major factor holding back resumption of strong growth in 2013. Taking stock of all this in its latest World Economic Outlook update (January 2013), the IMF revised its forecast of global growth for 2013 downwards to 3.5 per cent from 3.6 per cent projected in October 2012.

Inflation

25. Inflation rates remain subdued in most AEs, reflecting large output gaps and downward pressure on wages. Although inflation receded in a majority of EDEs during 2012, it remained stubbornly high in South Asia, Latin America and the Caribbean. Elevated oil prices and country-specific supply-side constraints may continue to put upward pressure on inflation in EDEs through 2014. Given the subdued global demand, the IMF forecasts oil prices to somewhat soften in 2013. However, there are upside risks from geo-political factors and supply disruptions.

Domestic Outlook

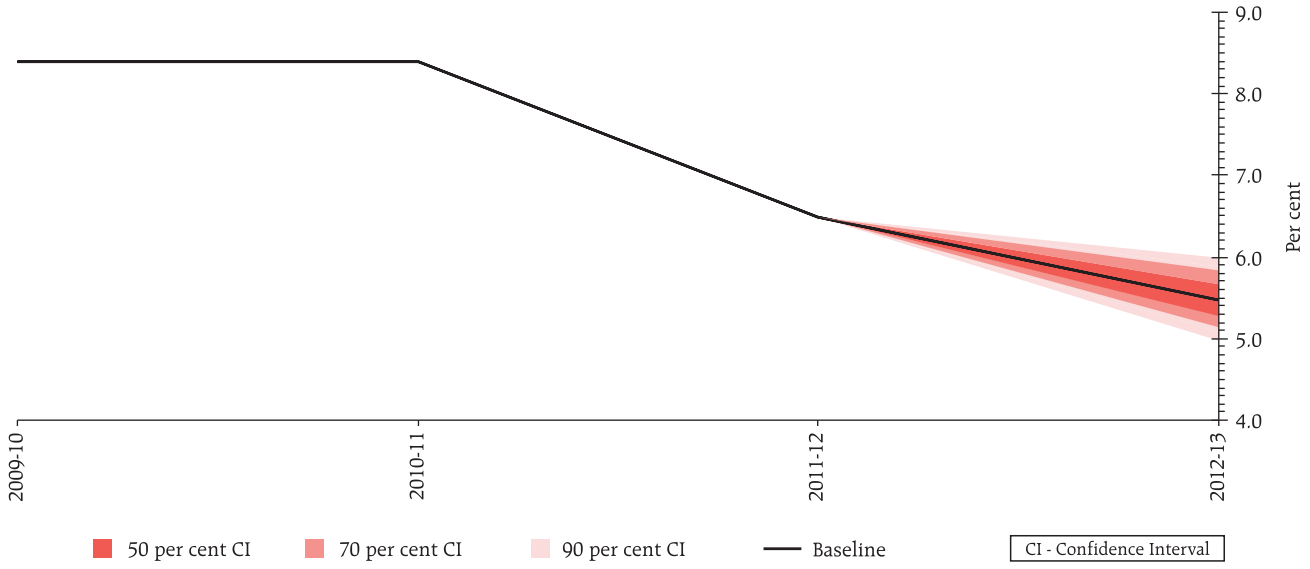
Growth

26. The Reserve Bank's projection of GDP growth for 2012-13 in the First Quarter Review (FQR) of July 2012 was 6.5 per cent. In the SQR of October, this was revised downwards to 5.8 per cent, signalling increasing global risks as well as accentuated domestic risks on account of halted investment demand, moderation in consumption spending and erosion in export performance. Since then, industrial activity has remained subdued. Sluggish external demand continues to inhibit improvement in services. While the coverage of *rabi* sowing has picked up, severe winter in certain parts has endangered crop prospects. New investment demand, which should be the key driver of the upturn, continues to be weak. While the series of policy initiatives by the Government has boosted market sentiment, it will take some time to reverse the investment slowdown and reinvigorate growth. Accordingly, the baseline projection of GDP growth for 2012-13 is revised down from 5.8 per cent given in the SQR to 5.5 per cent (Chart 1).

Inflation

27. The substantial easing of non-food manufactured products inflation over Q3 in an environment of slower growth and excess capacity in some sectors suggests that inflation has come off its peak. However, it is expected to be range-bound around current levels due to persisting food inflation, the pass-through of diesel price adjustments over the next several months and the possibility of adjustment in other administered prices. If international commodity prices, including of crude, move further downwards,

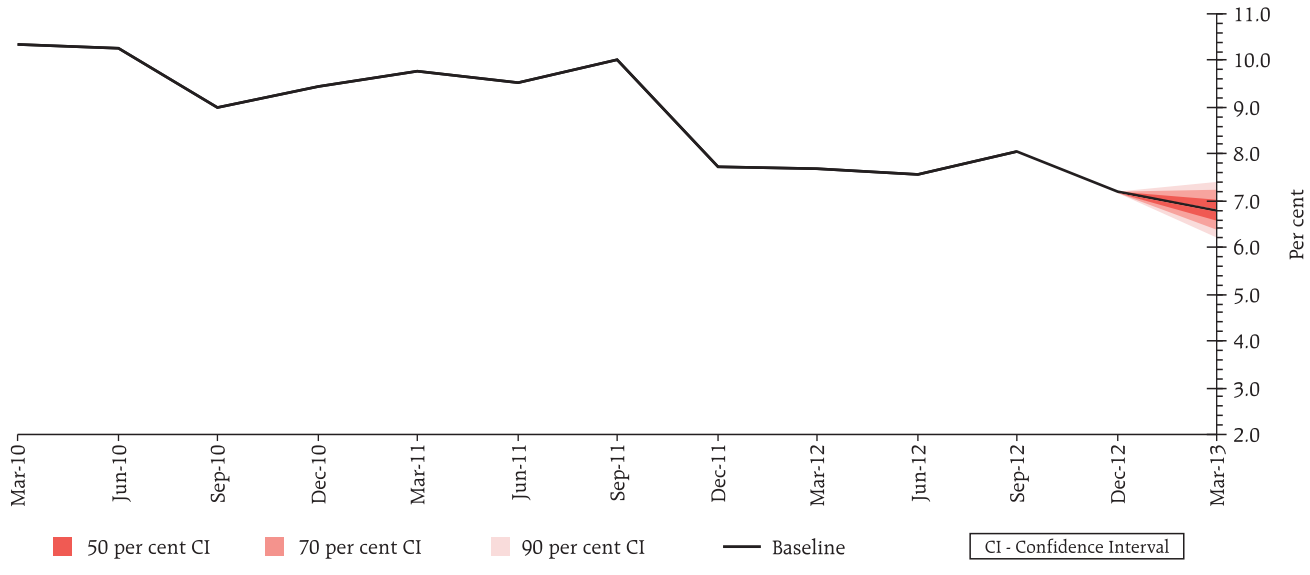
Chart 1: Projection of GDP Growth (y-o-y) for 2012-13



they should cushion the phased increase in diesel prices, provided they are not offset by currency movements. A sustained reduction in inflation pressure is, however, contingent upon alleviation of supply constraints and progress on fiscal consolidation. This will also help mitigate the cost-push pressures stemming from the surge in wages. Keeping in view the expected moderation in non-food manufactured products inflation, domestic supply-demand balances and global trends in commodity prices, the baseline WPI inflation projection for March 2013 is revised downwards from 7.5 per cent set out in the SQR to 6.8 per cent (Chart 2).

28. Although inflation has remained persistently high over the past two years, it is important to note

Chart 2: Projection of WPI Inflation (y-o-y) for 2012-13



that during the 2000s, it averaged around 5.5 per cent, both in terms of WPI and CPI, down from its earlier trend rate of about 7.5 per cent. Given this record, the conduct of monetary policy will continue to condition and contain perception of inflation in the range of 4.0-4.5 per cent. This is in line with the medium-term objective of 3.0 per cent inflation consistent with India's broader integration into the global economy.

Monetary Aggregates

29. Money supply (M_3) growth has been below its indicative trajectory for 2012-13 so far, while non-food credit growth has been around the projection. Keeping in view the seasonal pattern for the last quarter, M_3 growth projection for 2012-13 has been scaled down to 13.0 per cent from 14.0 per cent while non-food credit growth projection is retained at 16.0 per cent. These numbers, as always, are indicative projections and not targets.

Risk Factors

30. Macroeconomic management going forward is subject to a number of risks as indicated below:

i) Domestically, the widening of the CAD to historically high levels in the context of a large fiscal deficit and slowing growth exposes the economy to the risks from twin deficits. Financing the CAD with increasingly risky and volatile flows increases the economy's vulnerability to sudden shifts in risk appetite and liquidity preference, potentially threatening macroeconomic and exchange rate stability. Large fiscal deficits will accentuate the CAD risk, further crowd out private investment and stunt growth impulses.

ii) Global risks remain elevated, with the potential for spillovers on the Indian economy through trade, finance and confidence channels. In the US, the risk of political inaction to manage the debt ceiling or even a sudden onset of fiscal austerity can lead to turmoil in financial markets, followed by a downturn in economic activity. Escalation of the euro area sovereign debt stress in view of the continuing absence of credible and comprehensive policy responses remains a contingent global risk, along with geopolitical tensions that can adversely impact supplies/prices of key commodities, particularly of crude oil. These forces can potentially increase global risk aversion with implications for financing of the CAD.

iii) Inflation over the last three years has been a result of demand pressures as well as supply constraints. With demand pressures now on the ebb, the supply constraints need to be urgently addressed. This will require developing an adequate, credible and flexible supply response in respect of those commodities and segments of the economy characterised by structural imbalances. In the absence of an effective supply response, inflationary pressures may return and persist with adverse implications for macroeconomic stability.

iv) The key to stimulating growth is a vigorous and sustained revival in investment. Achieving this will, however, depend on a number of factors such as bridging the infrastructure gaps, especially in power and transport, hastening approvals, removing procedural bottlenecks, and improving governance.

v) Risk aversion in the banking system stemming from concerns relating to asset quality is constraining credit flow. Notwithstanding the importance of repairing asset quality, banks should be discerning in their loan decisions and ensure adequate credit flow to productive sectors of the economy.

III. The Policy Stance

31. Since October 2011, the stance of monetary policy shifted to addressing increasing growth risks as reflected in the slowing down of the economy. The monetary policy response was, however, constrained

because of inflation broadening and persisting at a level much above what is conducive for sustained growth. The risk of expectations getting entrenched in the event of a premature change in the policy stance was significant. Notwithstanding the constraints, the CRR was reduced cumulatively by 125 basis points during January-March 2012 to prepare liquidity conditions for a front-loaded 50 basis points reduction in the policy repo rate in April. However, the Reserve Bank had to pause in its policy rate reduction as the expected complementary policy actions towards fiscal adjustment and improving the investment climate did not follow, and inflation risks persisted. Nevertheless, the Reserve Bank persevered with efforts to ease credit and liquidity conditions through a 100 basis points reduction in the statutory liquidity ratio (SLR) in July and a cumulative 50 basis points reduction in the CRR during September-October.

32. Against this backdrop of global and domestic macroeconomic conditions, outlook and risks, the policy stance in this review is shaped by two major considerations.

33. First, headline WPI inflation and its momentum edged down in November-December on the back of softening of non-food manufactured products inflation, even though food inflation has risen, adversely impacting households' inflation expectations. The staggered increase in diesel prices announced earlier this month will percolate through to overall costs and inflation; however, these price pressures will dissipate over time, and the consequent reduction entailed in the fiscal deficit will bring about an enduring reduction in inflation and inflation expectations. At the same time, still high input costs and wages continue to impart upward pressures on prices. Accordingly, it is critical that even as the monetary policy stance shifts further towards mitigating growth risks, the objective of containing inflation and anchoring inflation expectations is not de-emphasised.

34. Second, growth has decelerated significantly below trend through 2011-12 and 2012-13 so far and overall economic activity remains subdued. On the demand side, investment activity has been way below desired levels and consumption demand has started to decelerate. External demand has also weakened due to the slowdown in global growth. On the supply side, constraints in the availability of key raw materials and intermediates are becoming binding. In turn, this is being reflected in a widening of the CAD with adverse implications for external sustainability. While the monetary policy stance has sought to balance the growth-inflation dynamic through calibrated easing, it is critical now to arrest the loss of growth momentum without endangering external stability. The moderation in inflation conditions provides the opportunity for monetary policy to act in conjunction with fiscal and other measures to stem the growth risks.

35. Against this backdrop, the stance of monetary policy in this review is intended to:

- provide an appropriate interest rate environment to support growth as inflation risks moderate;
- contain inflation and anchor inflation expectations; and
- continue to manage liquidity to ensure adequate flow of credit to the productive sectors of the economy.

IV. Monetary Measures

36. On the basis of current assessment and in line with the policy stance outlined in Section III, the Reserve Bank announces the following policy measures:

Repo Rate

37. It has been decided to:

- reduce the policy repo rate under the liquidity adjustment facility (LAF) by 25 basis points from 8.0 per cent to 7.75 per cent with immediate effect.

Reverse Repo Rate

38. The reverse repo rate under the LAF, determined with a spread of 100 basis points below the repo rate, stands adjusted to 6.75 per cent with immediate effect.

Marginal Standing Facility (MSF) Rate

39. The Marginal Standing Facility (MSF) rate, determined with a spread of 100 basis points above the repo rate, stands adjusted to 8.75 per cent with immediate effect.

Bank Rate

40. The Bank Rate stands adjusted to 8.75 per cent with immediate effect.

Cash Reserve Ratio

41. It has been decided to:

- reduce the cash reserve ratio (CRR) of scheduled banks by 25 basis points from 4.25 per cent to 4.0 per cent of their net demand and time liabilities (NDTL) effective the fortnight beginning February 9, 2013.

42. As a result of this reduction in the CRR, around ₹180 billion of primary liquidity will be injected into the banking system.

Guidance

43. With headline inflation likely to have peaked and non-food manufactured products inflation declining steadily over the last few months, there is an increasing likelihood of inflation remaining range-bound around current levels going into 2013-14. This provides space, *albeit* limited, for monetary policy to give greater emphasis to growth risks. The above policy guidance will, however, be conditioned by the evolving growth-inflation dynamic and the management of risks from twin deficits.

Expected Outcomes

44. The policy actions and the guidance in this Statement given are expected to:

i) support growth by encouraging investment;

ii) continue to anchor medium-term inflation expectations on the basis of a credible commitment to low and stable inflation; and

iii) improve liquidity conditions to support credit flow.

Mid-Quarter Review of Monetary Policy 2012-13

45. The next mid-quarter review of Monetary Policy for 2012-13 will be announced through a press release on Tuesday, March 19, 2013.

Monetary Policy 2013-14

46. The Monetary Policy for 2013-14 is scheduled on Friday, May 3, 2013.

Mumbai
January 29, 2013

Macroeconomic and Monetary Developments Third Quarter Review 2012-13

Overview

1. *Growth since Q4 of 2012-13 is expected to stage a gradual recovery aided by some revival in investment demand and the favourable effect of some moderation in inflation on consumption. Inflation in Q3 of 2012-13 has trended down, though upside risks remain from suppressed inflation which could impart stickiness to inflation trajectory in 2013-14. Core inflation pressures have receded markedly and are unlikely to re-emerge quickly on demand considerations. However, high food and fuel inflation still remain a concern and this in part is reflected in high CPI inflation.*

2. *Since the beginning of 2012, the Reserve Bank has worked towards easing monetary and liquidity conditions in a calibrated manner so as to not jeopardise the trend of moderating inflation. The strategy yielded dividends, as headline and core inflation moderated during Q3 of 2012-13. However, monetary policy needs to continue to be calibrated in addressing growth risks as inflation remains above the Reserve Bank's comfort level and macroeconomic risks from twin deficits persists.*

Global Economic Conditions

Fiscal adjustments likely to keep global recovery muted in 2013

3. *Though the US registered high growth in Q3 of 2012 and the pace of economic contraction moderated in the euro area, growth prospects for advanced economies (AEs) in 2013 remain subdued. While the immediate risk of the fiscal cliff in the US has been averted due to a hurried deal on tax rate hikes, the debt ceiling limit and the sequester issue pertaining to expenditure reduction are still unsettled. Growth in emerging market and developing economies (EMDEs) may have bottomed out, but an enduring recovery hinges on global headwinds.*

Global commodity price inflation likely to remain soft, although with some risks from QE

4. *Inflation in AEs is likely to remain moderate as demand remains weak, leaving the global inflation scenario benign in the near term. As a baseline case, improved supply prospects in key commodities such as oil and food are also likely to restrain commodity price pressures. However, upside risks persist, especially on the back of some recovery in EMDEs and large quantitative easing (QE) by AE central banks. In the presence of significant excess global liquidity, triggers for supply disruptions or incremental news flow on reduced slack could exacerbate price volatility and become a source of inflationary pressure.*

Unconventional monetary policies reduce global financial stress in the interim, but risks remain ahead

5. *International financial market stress moderated greatly following aggressive monetary easing measures by the central banks of AEs, as also recent policy initiatives on fiscal consolidation in the euro area economies, encouraging capital flows into EMDEs. However, in the absence of credible long-term fiscal consolidation in the US, and generally reduced fiscal space in AEs, the efficacy of monetary policy actions may get subdued. Risks to the global financial sector, although moderating, are likely to persist.*

Indian Economy: Developments and Outlook

Output

Growth remains below trend, recovery likely in 2013-14

6. *The Indian economy further decelerated in the first half (H1) of 2012-13, with moderation in all three sectors of the economy. The weak monsoon dented agricultural performance. Policy constraints, supply and infrastructure bottlenecks and lack of sufficient demand continued to keep industrial growth below trend. Subdued growth in other sectors and weak*

external demand pulled down the growth of services as well. Though a modest recovery may set in from Q4 of 2012-13 as reforms get implemented, sustaining recovery through 2013-14 would require all-round efforts in removing impediments to business activity.

Aggregate Demand

Improvement in investment climate is a pre-requisite for economic recovery

7. *Demand weakened in H1 of 2012-13. There was significant moderation in consumption as private consumption decelerated even as government expenditure accelerated. On the fiscal side, near-term risks have diminished due to the government's repeated avowal of commitment to the revised fiscal deficit target of 5.3 per cent of gross domestic product (GDP) for the year. However, sustainable fiscal consolidation would require bringing current spending, especially on subsidies, under control and protecting, if not enhancing capital expenditure. Going forward, the key to demand revival lies in improving the investment climate as well as investor sentiments through sustained reforms.*

External sector

Widening of CAD and its financing remains a key policy challenge

8. *The current account deficit (CAD) to GDP ratio reached a historically high level of 5.4 per cent in Q2 of 2012-13. Low growth and uncertainty in AEs as well as EMDEs continued to adversely impact exports in Q3 of 2012-13. This, combined with continuing large imports of oil and gold, resulted in a deterioration of the trade balance. For the time being, strong capital flows have enabled financing of CAD without a significant drawdown of foreign exchange reserves. However, the possibility of volatility in these flows, which may put further pressure on the external sector, cannot be ruled out. A two-pronged approach, of lowering CAD in the medium term while ensuring prudent financing of CAD in the interim, is necessary from the policy perspective.*

Monetary and Liquidity Conditions

With tightening cycle gradually impacting inflation, the Reserve Bank takes measures to combat tight liquidity conditions

9. *Monetary policy in India has sought to balance the growth-inflation dynamics that included a frontloaded policy rate cut of 50 basis points (bps) in April 2012 and several liquidity enhancing measures. These included lowering of the cash reserve ratio (CRR) by 50 bps on top of a 125 bps reduction in Q4 of 2011-12 and the statutory liquidity ratio (SLR) by 100 bps in a bid to improve credit flows. The Reserve Bank also infused liquidity of over ₹1.3 trillion through outright open market operation (OMO) purchases during 2012-13 so far. However, growth in monetary aggregates remains below the indicative trajectory.*

Financial Markets

Domestic reform initiatives and surging capital flows improve market sentiment and revive the IPO market

10. *Improved global sentiments along with recent policy reforms by the government beginning September 2012, and market expectations of a cut in the policy rate in the face of moderation in inflation, aided FII flows into the domestic market. The equity markets showed significant turnaround, while the rupee remained range-bound. In addition, revival is witnessed in the IPO segment. Although Indian financial market sentiments improved significantly in Q3 of 2012-13, some macroeconomic concerns persist, as witnessed in the inverted yield curve. Sustained commitment to curtail twin deficits and nurture growth without fuelling inflation is critical to support investor confidence.*

Price Situation

Headline and core inflation moderated, but suppressed inflation poses risks

11. *Headline inflation moderated in Q3 of 2012-13 with significant moderation in non-food manufactured products inflation. Both weakening domestic demand and lower global commodity prices contributed to the*

softening of headline inflation. Though the recent hike in diesel prices will put some pressure on the overall price level, the near-term inflation outlook indicates that the moderation may continue through Q4 of 2012-13. While the pressure from generalised inflation remains muted at the current juncture, risks from suppressed inflation, pressure on food prices and high inflation expectations getting entrenched into the wage-price spiral need to be reckoned with. The inflation path for 2013-14 could face downward rigidity as some of the risks from suppressed inflation materialise.

Macroeconomic Outlook

Balance of macroeconomic risks suggest continuation of calibrated stance

12. *Reforms since September 2012 have reduced immediate risks, but there is a long road ahead to bring about a sustainable turnaround for the Indian economy. Business sentiments remain weak despite reform initiatives and consumer confidence is edging down. The Reserve Bank's survey of professional forecasters anticipates a slow recovery in 2013-14 with inflation remaining sticky. Fiscal risks have somewhat moderated in 2012-13, but a sustained commitment to fiscal consolidation is needed to generate monetary space. Widening CAD, which is at historically high level, remains a constraint on monetary easing. Against this backdrop, while growth can be supported by monetary policy if inflation risks recede, credible fiscal correction with improved execution in infrastructure space to boost investment would be needed for a sustained revival. The balance of macroeconomic risks suggest continuation of the calibrated stance while increasingly focussing on growth risks.*

I. Output

India's growth slipped to 5.3 per cent in Q2 of 2012-13 from 5.5 per cent in Q1. Agricultural growth in 2012-13 is likely to be below trend as the rabi crop is unlikely to fully compensate for the kharif deficiency. Industrial growth is expected to stay below its trend due to supply and infrastructure bottlenecks and slack in external demand. Growth in the services sector has decelerated due to lackadaisical conditions in commodity-producing sectors and some of its own drivers faltering. Consequent to these factors, growth in 2012-13 may fall below the Reserve Bank's October 2012 projection of 5.8 per cent. Even though a modest recovery may set in from Q4 of 2012-13 as reforms and efforts to remove structural constraints get underway, sustaining this recovery through 2013-14 would require all-round efforts in removing impediments for business activity. With global recovery likely to stay muted in the near term, closing the output gap in India would be challenging.

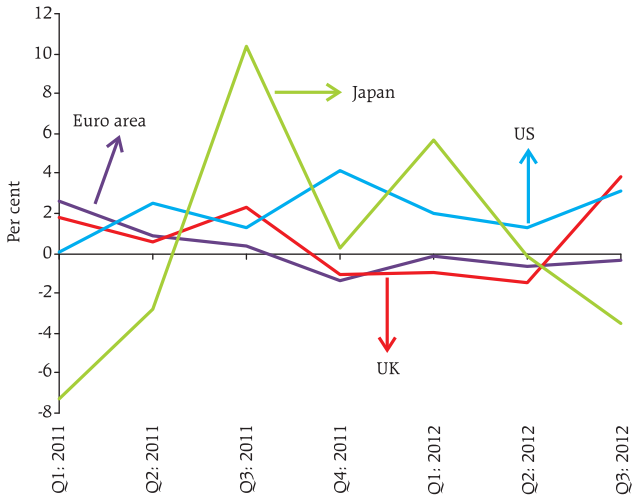
Fiscal adjustments likely to keep global recovery muted in 2013

I.1 There was a mild improvement in macroeconomic conditions in advanced economies (AEs) in Q3 of 2012. However, the sustainability of this improvement through 2013 remains uncertain in view of the fiscal adjustment agenda facing most AEs.

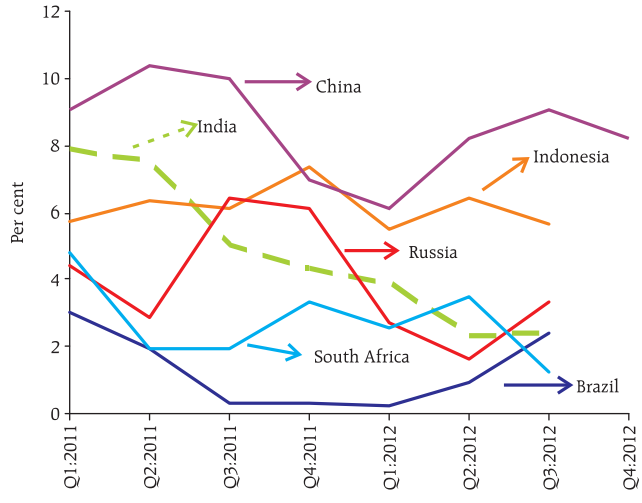
I.2 While the US economy expanded significantly by 3.1 per cent (q-o-q annualised) in Q3 of 2012, growth in Q4 is expected to be lower than in Q3. The pace of contraction in the euro area slowed from 0.7 per cent in Q2 to 0.3 per cent in Q3 of 2012 (Chart I.1). Spain, Italy and Portugal continued to be in recession, while GDP contracted in the Netherlands. The euro area's composite Purchasing Managers Index (PMI) for December 2012 suggests that recession continues in the region. German economy, the largest in the region, is estimated to have contracted in Q4 of 2012.

I.3 Labour markets in AEs exhibited a mixed picture in Q4 of 2012. The unemployment rate in the US remained steady at about 7.8 per cent in December 2012 after improvements seen in the preceding quarter. In the UK, the unemployment rate fell by 0.1 percentage points to 7.7 per cent for the period September-November 2012. However, in the euro area the unemployment rate reached a new high of 11.8 per cent in November 2012. The unemployment rate in Spain and Greece exceeds 26 per cent, with youth unemployment rates of about 57 per cent. Such

Chart I.1: Growth (Q-o-q, SAAR)



Source: Eurostat.



Source: OECD.

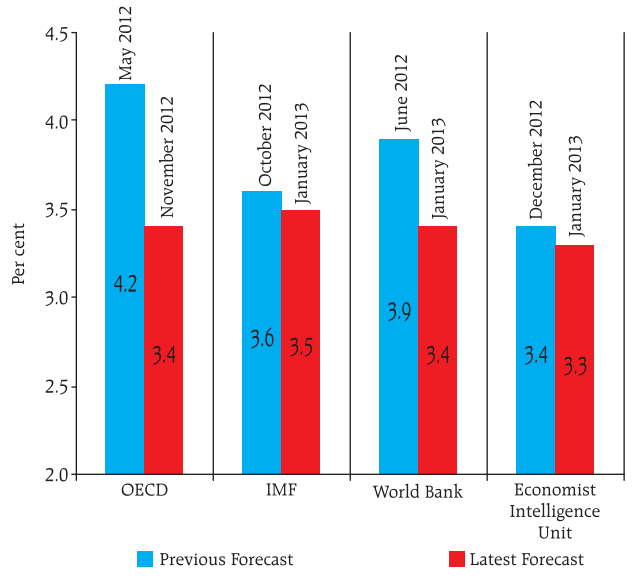
levels clearly impart a socio-economic constraint to fiscal consolidation programmes to support adjustment and stabilisation in the euro area. As such, risks to global growth emanating from euro area remain significant.

I.4 Growth in emerging market and developing economies (EMDEs) turned weaker during Q3 of 2012. However, there are signs of a modest improvement in Q4. China registered its first acceleration in growth in two years in y-o-y terms in Q4 of 2012. Brazil's PMI also showed a marked improvement in November and December 2012. The readings indicate that growth may have bottomed out.

I.5 Despite signs of improvement in activity in recent months, prospects for recovery in 2013 remain highly uncertain. International agencies have sequentially scaled down their forecasts for growth in 2013 (Chart I.2).

I.6 The patchy deal on fiscal cliff in the US, through enactment of the American Taxpayer Relief Act of 2012, has lowered the immediate risks. However, the deal is still likely to have some adverse effect on the US recovery in 2013. Under 'no deal' scenario, the fiscal cliff was estimated to hike revenues close to 20 per cent and also lower spending a little. The deal has substantially reduced the tax side of the cliff but not eliminated it. The budget sequestration on the spending side will still have an impact if not negotiated before the automatic spending cuts take effect on March 1, 2013. Overall, the deal may still result in a deficit reduction of about a third of the original estimate. Also, even though the US is on its way to temporarily suspend the requirement for the Congress to approve a higher debt ceiling as the US$16.4 trillion borrowing limit is reached, concerns about long term debt sustainability remain.

Chart I.2: Global Growth Forecasts for 2013



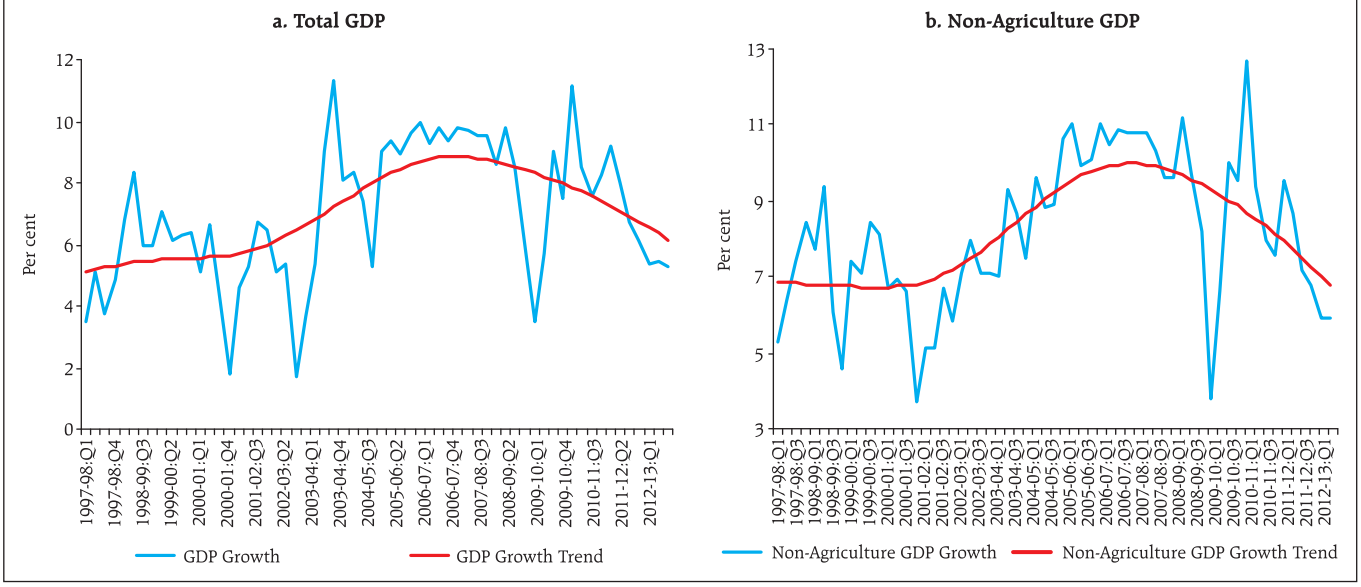
I.7 Concerns remain heightened about economic fundamentals and policy adjustment in the euro area. In Japan, though the government has announced further fiscal stimulus of US$116 billion to ride the economy out of recession, concerns remain about the level of public debt.

I.8 In the EMDEs, the short-term growth recovery hinges upon the extent to which the external risks relating to escalation of uncertainties in the euro area crisis and the possibility of bumpy fiscal adjustment in the US are averted. Against the backdrop of uncertain growth prospects and generally low and stable inflation, central banks in many EMDEs held or reduced policy rates to low levels in 2012. The need and scope for monetary policy action, however, differs across economies, mainly reflecting varying growth and inflation risks, and risks to financial stability from past stimuli.

Growth slowdown in India continues, revival may take some more time

I.9 Growth in India continued to be subdued at 5.3 per cent in Q2 of 2012-13 and is likely to remain low in Q3 as well. The slowdown reflects the uncertain global macro-economic environment as well as domestic factors such as low growth in real investment (gross fixed capital formation) and a weak south-west monsoon. Consequently, growth in the first half (H1) of 2012-13 was 5.4 per cent and below

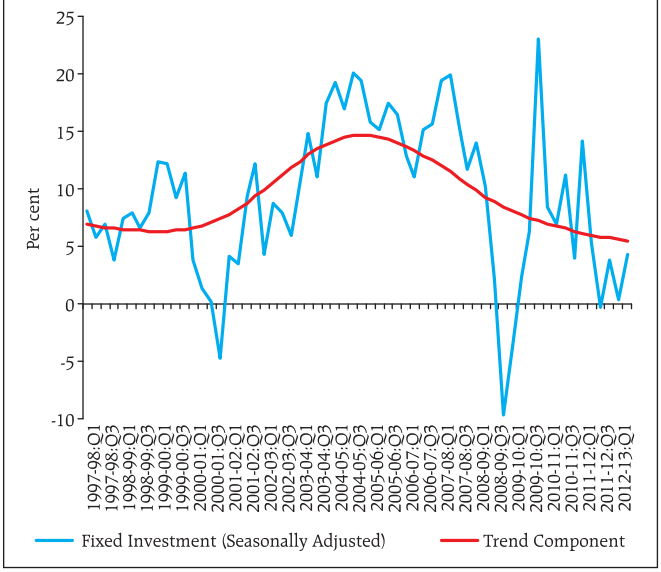
Chart I.3: GDP Growth



trend, compared with growth of 7.3 per cent in H1 of 2011-12 (Chart I.3).

I.10 Looking ahead, even as inflation is moderating and growth is likely to have bottomed out, the Reserve Bank's growth projection of 5.8 per cent for 2012-13 could face downside risks. This is largely because the positive impact of the various policy measures announced by the government is yet to show up fully or definitively in the various data releases, partly reflecting inherent gestation lags of the policy initiatives and partly the persistence of structural supply bottlenecks. Moreover, real fixed investment has been trending down since peaking in Q1 of 2005-06 (Chart I.4).

Chart I.4: Real Fixed Investment (Y-o-y growth)



Agriculture and industry further drag down growth in Q2 of 2012-13

I.11 The deceleration in growth in H1 of 2012-13 was seen across all the major sectors. The agriculture sector was adversely impacted due to the weak south-west monsoon. Industrial slowdown was on account of moderation in manufacturing and 'electricity, gas and water supply'. The dip in services sector growth was mainly on account of 'trade, hotels, transport, storage and communication', even as the other sub-sectors showed improvement (Table I.1).

I.12 Against the backdrop of the moderation in the performance of industry and services sectors, the Planning Commission has scaled down the average annual growth target of the economy to 8.0 per cent (8.2 per cent earlier) during the Twelfth Five Year Plan.

Table I.1: Sectoral Growth Rates of GDP (2004-05 prices)

(Per cent)

Item	2010-11*	2011-12#	2011-12				2012-13		2011-12	2012-13
			Q1	Q2	Q3	Q4	Q1	Q2	H1	H1
1	2	3	4	5	6	7	8	9	10	11
1. Agriculture & allied activities	7.0	2.8	3.7	3.1	2.8	1.7	2.9	1.2	3.4	2.1
2. Industry	6.8	2.6	6.5	2.7	0.9	0.7	0.8	1.2	4.6	1.0
2.1 Mining & quarrying	5.0	-0.9	-0.2	-5.4	-2.8	4.3	0.1	1.9	-2.8	0.9
2.2 Manufacturing	7.6	2.5	7.3	2.9	0.6	-0.3	0.2	0.8	5.1	0.5
2.3 Electricity, gas & water supply	3.0	7.9	7.9	9.8	9.0	4.9	6.3	3.4	8.9	4.8
3. Services	9.2	8.5	9.3	8.5	8.7	7.5	7.4	7.1	8.9	7.2
3.1 Trade, hotels, transport, storage & communication	11.1	9.9	13.8	9.5	10.0	7.0	4.0	5.5	11.6	4.7
3.2 Financing, insurance, real estate and business services	10.4	9.6	9.4	9.9	9.1	10.0	10.8	9.4	9.6	10.1
3.3 Community, social & personal services	4.5	5.8	3.2	6.1	6.4	7.1	7.9	7.5	4.6	7.7
3.4 Construction	8.0	5.3	3.5	6.3	6.6	4.8	10.9	6.7	4.9	8.8
4. GDP at factor cost (total 1 to 3)	8.4	6.5	8.0	6.7	6.1	5.3	5.5	5.3	7.3	5.4

*: Quick Estimates. #: Revised Estimates.
Source: Central Statistics Office.

Growth during the previous Plan period was 7.9 per cent. Overall, the growth rate is projected to progressively increase to 9.0 per cent by 2016-17, the terminal year of the Twelfth Plan. This is arduous as a quick revival appears difficult with slack in global demand and serious structural issues that need to be addressed. Total investment in the infrastructure sector during the period is estimated at ₹56.3 trillion (about US$1 trillion). The attainment of this target is contingent on increasing the share of private investment in total investment in infrastructure from 38 per cent in the previous Plan to about 48 per cent during the Twelfth Plan.

Rabi crop expected to be normal despite deficient rains

I.13 The recovery of rainfall during August-September helped maintain soil moisture. Even though the north-east monsoon continued to be below normal (by 21 per cent as on December 31, 2012) sowing of *rabi* crops has not been affected as the water level in major reservoirs is satisfactory. Sowing under major *rabi* crops so far in the year is comparable with the level in the previous year (Table I.2).

Table I.2: Progress of *Rabi* Sowing

(Million hectares)

Crops	Normal as on Date	2011-12*	2012-13*	Percentage change from previous year	Percentage deviation from Normal
1	2	3	4	5	6
Foodgrains	49.3	50.8	50.7	-0.2	2.8
Wheat	28.2	29.6	29.5	-0.3	4.6
Rice	1.3	1.0	0.9	-10.0	-30.8
Coarse Cereals	6.3	5.8	6.1	5.2	-3.2
Cereals	35.8	36.5	36.4	-0.3	1.7
Pulses	13.5	14.3	14.2	-0.7	5.2
Oilseeds	8.7	8.4	8.5	1.2	-2.3
All Crops	**58.0**	**59.2**	**59.2**	**0.0**	**2.1**

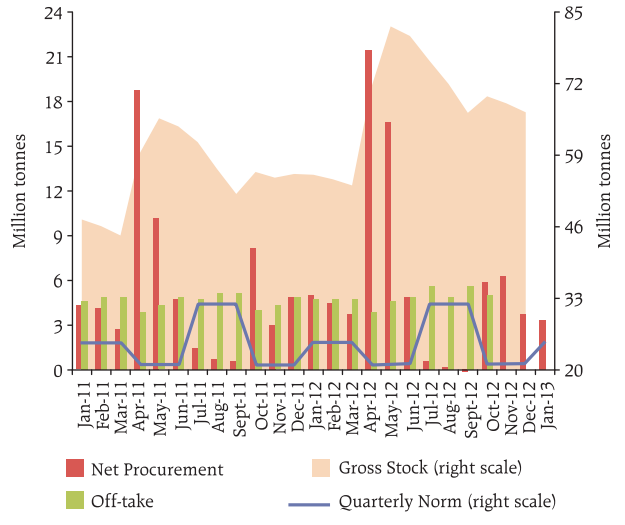
*: January 18.
Source: Ministry of Agriculture, GoI.

I.14 The high stock of foodgrains indicates that the country is currently self-sufficient in wheat and rice (Chart I.5). In recent months, however, cereal prices, particularly of wheat and rice, have remained elevated.

Weakness in industrial performance likely to persist

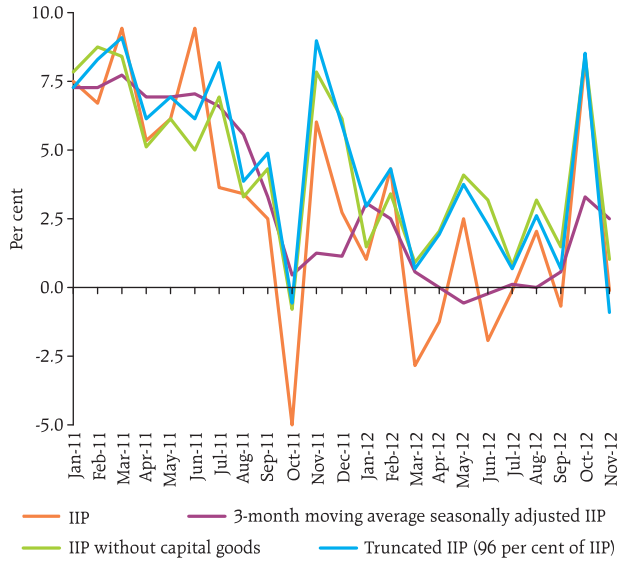
I.15 Industrial growth has remained subdued since July 2011 due to weak global demand, weak supply linkages, high input costs and sluggish investment

Chart I.5: Food Stock and its Determinants



Note: 1. Data for off-take is up to October 2012 and stock up to December 2012.
2. Data for procurement is up to January 13, 2013.

Chart I.6: Industrial Growth (Y-o-y)



activity. During 2012-13 (April-November) industrial growth slowed to 1.0 per cent. Barring a spike in October 2012 due to a favorable base effect and festival-related pick-up in production, growth has been disappointing across sectors. The industrial sector was mainly affected by the contraction in the output of capital goods and the mining sector (Table I.3). Subdued investment activity has led to the decline of capital goods production, while regulatory and environmental issues have affected the output of the mining sector. Excluding capital goods, the growth rate of overall IIP during April-November 2012 was 3.0 per cent (Chart I.6). Truncated IIP (96 per cent of the IIP), calculated by the Reserve Bank by excluding the volatile items, shows higher growth than the overall IIP for the same period.

Table I.3: Index of Industrial Production: Sectoral and Use-based Classification of Industries

(Per cent)

Industry Group	Weight in the IIP	Growth Rate			Weighted Contribution#		
		Apr-Mar	Apr-Nov		Apr-Mar	Apr-Nov	
		2011-12	2011	2012 P	2011-12	2011	2012 P
1	2	3	4	5	6	7	8
Sectoral							
Mining	14.2	-2.0	-2.4	-1.5	-7.6	-7.1	-15.9
Manufacturing	75.5	3.0	4.2	1.0	83.2	85.7	76.1
Electricity	10.3	8.2	9.5	4.4	24.3	21.6	40.1
Use-based							
Basic Goods	45.7	5.5	6.3	2.8	74.5	64.8	110.5
Capital Goods	8.8	-4.0	-1.0	-11.1	-20.4	-3.8	-152.0
Intermediate Goods	15.7	-0.6	-0.6	1.8	-3.0	-2.0	24.1
Consumer Goods (a+b)	29.8	4.4	5.0	3.8	48.6	41.2	117.3
a) Consumer Durables	8.5	2.6	5.2	5.2	13.2	19.7	76.3
b) Consumer Non-durables	21.3	5.9	4.9	2.5	35.3	21.5	40.7
General	100	2.9	3.8	1.0	100	100	100

P : Provisional. #: Figures may not add up to 100 due to rounding off.
Source: Central Statistics Office.

I.16 The manufacturing sector witnessed sharp moderation in growth during April-November 2012. Within the manufacturing sector, capital goods industries such as machinery and equipment, electrical machinery and computing machinery registered a contraction in output. The slowdown in consumption demand has affected the growth of motor vehicles, food products and apparel industries.

I.17 Lack of reliable power supply has emerged as a challenge in capacity utilisation of small- and medium-scale industries. Electricity generation decelerated sharply during April-November 2012 due to a weak monsoon and shortages in coal supply. Capacity utilisation or plant load factor (PLF) of thermal power plants was 69.6 per cent during April-December 2012, compared with 71.9 per cent during the same period in the previous year. Shortage of coal is one of the main reasons for lower PLF in the current year. As on January 7, 2013, 36 of the 90 thermal power stations had coal stocks for less than 7 days (critical), of which 22 power stations had stocks for less than 4 days (super-critical), while the normative stock required is for 22 days.

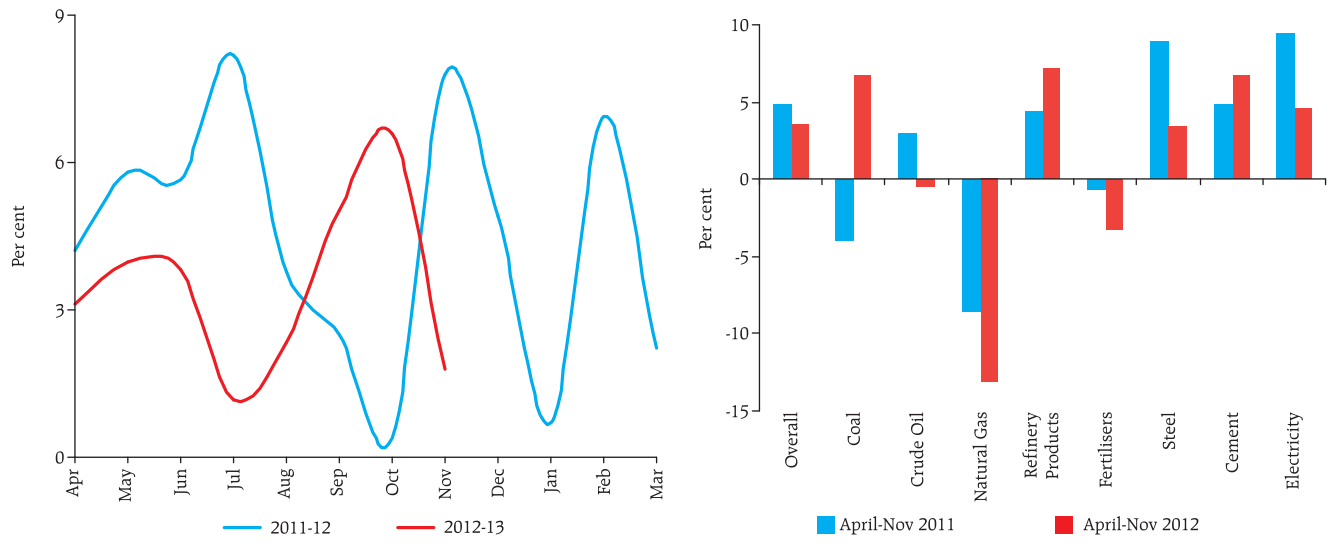
I.18 With investment activity remaining subdued, the prospects of a recovery in industrial growth appear weak. The export channel also plays an important role. The revival of global growth is, therefore, crucial for industrial recovery in India. There is strong co-movement between domestic and global IIP, the correlation coefficient between the two during April 2008 to November 2012 was 0.7.

Recovery of core industries yet to pick up momentum

I.19 Growth in eight core infrastructure industries decelerated to 3.5 per cent during April-November 2012 compared to 4.8 per cent during the corresponding period of the previous year. While the production of coal, cement and petroleum refinery products accelerated during the period, it was offset by the deceleration in the production of electricity and steel (Chart I.7).

I.20 The subdued growth of the core industries has remained a drag on industrial production. Policy uncertainties in areas such as iron ore and coal mining have adversely affected the output of the steel and power industries. The recent initiatives taken by the government for the allocation of new coal blocks and commencement of production from CIL's new coalfields are expected to boost coal output going forward. However, in the interim, constraints in infrastructure sector remain (see Chapter 2).

Chart I.7: Growth in Core Industries (Y-o-y)



Marginal increase in capacity utilisation

I.21 Capacity utilisation as measured by the 19th round of the Order Books, Inventories and Capacity Utilisation Survey (OBICUS) of the Reserve Bank increased marginally in Q2 of 2012-13 after bottoming out during the previous quarter (http://www.rbi.org.in/OBICUS19). There is a broad co-movement between capacity utilisation and de-trended IIP manufacturing (Chart I.8). On a sequential quarterly basis, new orders moderated in Q2 of 2012-13 and finished goods inventory increased faster than raw material inventory.

Lead indicators of services sector signal moderation

I.22 The moderation of services sector growth in H1 of 2012-13 was largely due to the sharp deceleration in the growth of the 'trade, hotels, transport, storage and communication'. Slowdown in services associated with trading activity reflects the sluggish domestic industrial scenario.

I.23 The telecom industry in India has witnessed significant moderation in growth in the recent period due to increased saturation and regulatory uncertainties. Heightened competition has led to aggressive pricing which has reduced the average revenue per user to one of the lowest in the world. Stagnating revenues from voice services imply that business would now be largely driven by wireless data services. At the same time, for continued growth of the telecom sector it is critical to establish appropriate mechanisms to achieve a balance between competition and consolidation to benefit both the users and the providers of telecommunication services.

I.24 Going forward, various indicators of the services sector activity as also the Reserve Bank's services sector composite indicator point towards weakening of growth (Table I.4 and Chart I.9). There has been significant deceleration in automobile sales and railway freight earnings during November-December 2012. The pace of foreign tourist arrivals has been slack through 2012-13 and cargo handled at ports contracted significantly during November-December 2012. Services exports too are likely to remain low given the uncertain outlook for global growth.

Chart I.8: Capacity Utilisation and De-trended IIP (Manufacturing)

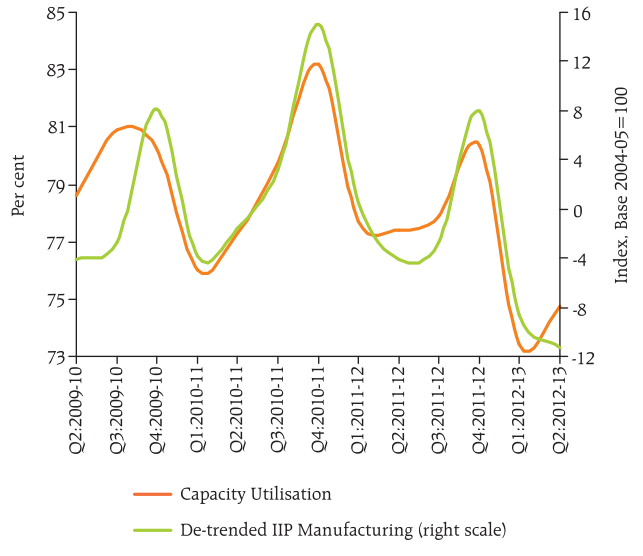


Table I.4: Indicators of Services Sector Activity

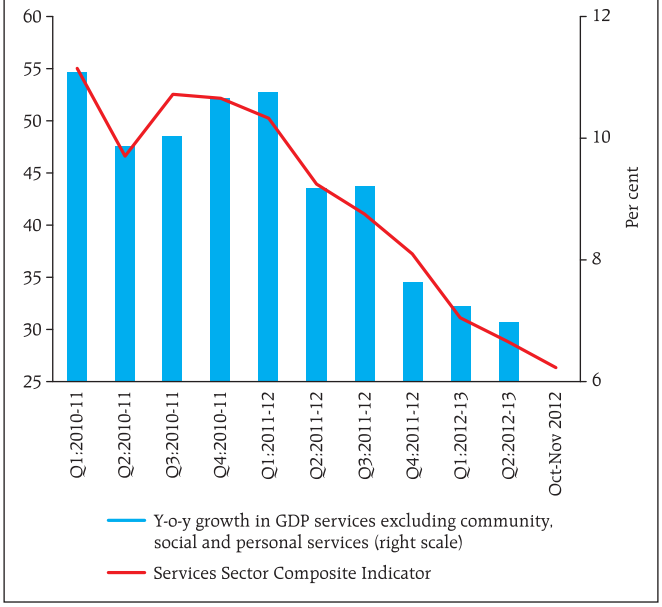
(Growth in per cent)

Services Sector Indicators	2011-12	Apr-Dec 2011-12	Apr-Dec 2012-13
1	2	3	4
Tourist arrivals	8.6	9.4	3.0
Cement	6.7	4.8#	6.7#
Steel	7.0	8.9#	3.4#
Automobile sales	11.2	11.0	4.6
Railway revenue earning freight traffic	5.2	4.5	4.5
Cargo handled at major ports	-1.7	0.4	-3.1
Civil aviation			
Domestic cargo traffic	-4.8	-6.0*	-1.1*
Domestic passenger traffic	15.1	19.0*	-5.3*
International cargo traffic	-1.9	0.1*	-4.5*
International passenger traffic	7.6	7.8*	1.9*
Financial Services Indicator			
Aggregate Deposit	13.5	12.0	9.6
Non-food Credit	16.8	10.4	8.6

*: Data refers to Apr-Oct. #: Data refers to Apr-Nov.

Source: Ministry of Statistics and Programme Implementation, Ministry of Tourism, SIAM and CMIE.

Chart I.9: Services Sector Composite Indicator



Employment situation weakens in Q1 of 2012-13

I.25 As per the 15th quarterly Quick Employment Survey conducted by the Labour Bureau in select sectors of the economy, employment growth moderated during Q1 of 2012-13 compared with the previous quarter. However, there were gains in employment in recent years. As per the latest Annual Survey of Industries, organised industrial sector employment increased by 7.8 per cent in 2010-11 while wage per worker rose by 14.8 per cent. There was a significant increase in both employment and wages in the second half of the decade 2001-10 (Table I.5).

Table I.5: Employment and Wage Statistics

	Rural	Urban	Total
1	2	3	4
Growth in employment (Per cent)			
2000s	6.3	4.1	4.9
First half	4.8	1.1	2.5
Second half	7.8	7.2	7.2
Growth in wage per worker (Per cent)			
2000s	7.1	5.9	6.2
First half	2.6	2.0	2.0
Second half	11.5	9.8	10.4

Source: Annual Survey of Industries, MOSPI, GoI

Below-trend growth likely to persist through the second half of 2012-13

I.26 In spite of the shortfall in *kharif*, overall growth in agricultural and allied activities during 2012-13 may remain positive. Foodgrain and non-foodgrain crops account for about a third of this output, with horticulture and livestock accounting for about half and forestry and fishing the rest.

I.27 With industrial performance still remaining sluggish, growth is likely to remain below trend during H2 of 2012-13. Weak industrial growth and unfavourable global economic conditions pull down the momentum in the services sector, which accounts for about two-third of GDP. However, the construction sub-sector has generally been robust thus far, and is likely to improve further with the ending of the monsoon season.

I.28 A slow recovery is likely to shape up in 2013-14 with progressive implementation of some of the reforms announced since mid-September 2012. These include, *inter alia*, liberalisation of FDI in multi-brand retail, amendment of the Banking Regulation Act and the setting up of the Cabinet Committee on Investments chaired by the Prime Minister to expedite decisions on approvals/clearances for implementation of mega projects. The setting up of debt funds to provide long-term resources for infrastructure projects would help in reducing financing constraints currently facing the sector. Financing is also expected to improve with the government accepting the major recommendations of the Expert Committee on General Anti-Avoidance Rules (GAAR) that will bring about greater clarity on taxation aspects.

I.29 Global risks may have temporarily reduced in terms of part resolution of the US 'fiscal cliff' issues and financial fragility issues in the euro area. However, going forward the euro area risks remain significant, as key economies in the region are contracting. In this milieu, it is imperative that reform measures continue to be executed efficiently and domestic inflation recedes further, to support sustainable recovery in India.

*II. Aggregate Demand**

Demand conditions in the economy remained tepid during Q2 of 2012-13. Private consumption, the mainstay of aggregate demand, continued to decelerate, reflecting the impact of high inflation. However, government consumption accelerated during the first half of the year. The envisaged fiscal correction now underway is expected to improve demand management. Steps to contain subsidies need to be persisted with and expedited so that fiscal imbalance is reduced and resources are freed to step up capital expenditure next year. There was a marginal sequential rise in investment in Q2 of 2012-13, as reflected in a modest increase in gross fixed capital formation as also the sanctioned project assistance during the quarter. A turnaround in the investment cycle, which has been in downturn for two years, crucially hinges on increased public investment to crowd in private investment and resolution of power and road sector bottlenecks.

Expenditure side of GDP continued to show weak demand

II.1 Growth in GDP at market prices decelerated sharply to 2.8 per cent in Q2 of 2012-13 from 6.9 per cent in the corresponding period of 2011-12, the lowest in the previous 13 quarters (Table II.1). Though private final consumption expenditure (PFCE) continues to be the major driver of growth, its contribution to growth has declined since Q4 of 2011-12 (Table II.2).

II.2 During H1 of 2012-13, growth in GDP at market prices was significantly lower than that at factor cost due to lower growth in net indirect taxes. The

Table II.1: Expenditure Side GDP (2004-05 prices)

(Per cent)

Item	2010-11*	2011-12#	2011-12				2012-13		2011-12	2012-13
			Q1	Q2	Q3	Q4	Q1	Q2	HI	HI
1	2	3	4	5	6	7	8	9	10	11
Growth Rates										
Real GDP at market prices	**9.6**	**6.9**	**9.0**	**6.9**	**6.2**	**5.6**	**3.9**	**2.8**	**7.9**	**3.4**
Total Consumption Expenditure	8.1	5.4	4.9	4.9	6.1	5.8	4.7	4.4	4.9	4.6
(i) Private	8.1	5.5	4.9	4.6	6.4	6.1	4.0	3.7	4.7	3.8
(ii) Government	7.8	5.1	4.9	7.2	4.7	4.1	9.0	8.7	6.0	8.8
Gross Fixed Capital Formation	7.5	5.5	14.7	5.0	-0.3	3.6	0.7	4.1	9.7	2.3
Change in Stocks	37.4	2.4	7.1	2.8	0.4	-0.4	-1.2	-0.1	5.0	-0.7
Valuables	32.4	7.9	9.8	9.4	2.9	9.3	-55.4	-27.9	9.6	-41.5
Net Exports	5.5	-30.7	-23.2	-46.7	-117.9	117.8	-2.1	-11.6	-35.5	-7.5
Discrepancies	38.9	-112.7	-51.8	-119.6	-152.0	-124.0	-123.7	51.1	-88.0	-276.3
Relative Shares										
Total Consumption Expenditure	70.1	69.1	70.1	70.8	72.7	63.6	70.6	71.9	70.4	71.3
(i) Private	58.7	57.9	59.5	60.3	60.4	52.2	59.5	60.8	59.9	60.2
(ii) Government	11.4	11.2	10.6	10.5	12.3	11.4	11.1	11.1	10.5	11.1
Gross Fixed Capital Formation	32.5	32.0	33.9	33.4	30.3	30.9	32.8	33.8	33.6	33.3
Change in Stocks	3.7	3.5	3.7	3.6	3.4	3.4	3.5	3.5	3.7	3.5
Valuables	2.4	2.4	2.6	2.7	2.1	2.2	1.1	1.9	2.7	1.5
Net Exports	-6.0	-7.3	-8.6	-11.3	-11.1	0.6	-8.5	-12.3	-10.0	-10.4
Discrepancies	-2.5	0.3	-1.7	0.8	2.6	-0.6	0.4	1.2	-0.4	0.8
Memo:										
Real GDP at market prices (₹ billion)	52,368	55,959	13,174	13,111	14,377	15,296	13,693	13,480	26,285	27,173

*: Quick Estimates. #: Revised Estimates.

Source: Central Statistics Office.

* Despite their well-known limitations, expenditure-side GDP data are being used as proxies for components of aggregate demand.

Table II.2: Contribution-Weighted Growth Rates of Expenditure-Side GDP (2004-05 Prices)*

(Per cent)

	2011-12				2012-13	
	Q1	Q2	Q3	Q4	Q1	Q2
1	2	3	4	5	6	7
1. Private Final Consumption Expenditure (PFCE)	3.0	2.8	3.9	3.2	2.4	2.2
2. Government Final Consumption Expenditure (GFCE)	0.5	0.8	0.6	0.5	1.0	0.9
3. Gross Fixed Capital Formation (GFCF)	4.7	1.7	-0.1	1.1	0.2	1.4
4. Change in Stocks (CIS)	0.3	0.1	0.0	0.0	0.0	0.0
5. Valuables	0.3	0.2	0.1	0.2	-1.5	-0.8
6. Net Exports (i + ii)	-1.8	-3.8	-6.4	4.0	-0.2	-1.3
(i) Exports	3.9	4.4	1.5	4.6	2.4	1.1
(ii) Imports	5.7	8.2	7.9	0.6	2.6	2.4
7. Sum (1 to 6)	7.0	1.8	-2.0	9.0	1.9	2.4
8. Discrepancies	2.0	5.1	8.2	-3.4	2.1	0.4
9. GDP at Market Prices (7+8)	9.0	6.9	6.2	5.6	3.9	2.8

*: Contribution-weighted growth rate of a component of expenditure side GDP is obtained as follows: (Y-o-y change in the component ÷ Y-o-y change in GDP at constant market prices) × Y-o-y growth rate of GDP at constant market prices.
Source: Central Statistics Office.

deceleration was reflected in all components except government final consumption expenditure (GFCE). Growth in private consumption moderated due to high inflation coupled with lower income growth during 2012-13 so far. Net exports growth continued to be negative partly due to weak external demand. This is in line with the record current account deficit observed during Q2 of 2012-13.

II.3 Going forward, possible moderation in inflation would support private final consumption. The announced efforts towards fiscal consolidation could also restrain government final consumption somewhat. More definitive indication of a pick-up in gross fixed capital formation is yet to be seen. On the whole, the growth process during 2012-13 would be largely driven by private consumption.

Problems facing infrastructure sector still constraining investment

II.4 As on November 1, 2012, out of 563 central sector projects (of ₹1.5 billion and above), largely concentrated in five sectors, *viz.*, road transport and highways, power, petroleum, railways and coal, nearly half were reported to be delayed. As a result, there were significant cost overruns in many of these projects. The major factors reported for the time overruns were delays in land acquisitions/environmental clearances/ tie-up of project financing/finalising of engineering designs, lack of infrastructure support and linkages, change in scope and other contractual issues. The maximum number of delays was reported for two key infrastructure sectors – power, and road transport and highways.

II.5 The problems in the power sector are yet to be fully resolved despite concerted efforts by the government. On the coal linkage issue, while power producers have started signing new fuel supply agreement with Coal India Limited that commits supply of 65 per cent of the assured coal quantity through domestic sources and another 15 per cent in the form of imported coal, the key issue of price pooling remains unresolved. Given the large price differential between domestic and imported coal, the understanding on price pooling is essential to bridge the demand-supply gap through imports. Also, adequate response from state governments on the

discom restructuring package is not forthcoming. The state governments and their state electricity boards need to quickly commit themselves to the restructuring of their debt with all attendant requirements.

II.6 In the road sector, the record tendering by the National Highways Authority of India awarding 6,491 kilometres of road projects in 2011-12 has not helped in reversing the declining investment in this sector as a very large number of these projects have not achieved environmental clearances. Some projects are also stuck due to land acquisition issues. In addition, firms engaged in these projects are finding it difficult to achieve financial closure. Investment in road sector has collapsed in 2012-13, with scant interest in new projects, large delays and poor execution in existing projects. Even the projects being awarded on engineering, procurement and construction (EPC) basis, where the state bears the cost, are making little headway. This is because the new legal framework necessitates upfront environmental clearances for even small stretches of land, before private contractors execute the project.

Sales growth moderates further, indicating slack demand

II.7 Sales growth for listed non-government non-financial (NGNF) companies moderated and reached its lowest level in three years in Q2 of 2012-13 (Table II.3). The deceleration in sales was spread across manufacturing, IT and non-IT services sectors, all size groups and all use-based groups, except intermediate groups, with sharper deceleration in motor vehicles, iron and steel, and textiles. However, net profits recorded a growth of more than 25 per cent in Q2 of 2012-13 reversing the declining trend of the previous four quarters. The growth in profits was on a low base and reflected support from other income and lower rate of growth in interest payments. Resultantly,

Table II.3: Corporate Sector- Financial Performance

Indicator	Q2:2011-12	Q3:2011-12	Q4:2011-12	Q1:2012-13	Q2:2012-13
1	2	3	4	5	6
No. of Companies	**2,241**				
	Growth Rates (Y-o-y growth in per cent)				
Sales	18.8	19.7	15.5	13.2	11.1
Expenditure, *of which*	21.9	25.3	16.7	15.5	11.9
Raw Material	23.0	25.4	16.6	13.2	14.1
Staff Cost	16.5	18.7	14.4	17.6	14.8
Power and fuel	31.4	30.5	25.4	17.7	13.9
Operating Profits (EBITDA)	0.2	-5.1	-1.0	-4.0	10.9
Other Income*	41.9	67.1	51.4	29.0	50.9
Depreciation	11.7	10.5	11.0	9.9	9.4
Gross Profits (EBIT)	2.8	-2.0	3.7	-3.0	19.0
Interest	58.5	44.4	36.9	37.0	11.4
Tax Provision	5.1	-1.6	2.5	-4.5	10.4
Net Profit	-14.2	-29.7	-5.8	-10.3	25.8
	Select Ratios (in per cent)				
Change in stock # to Sales	0.6	2.2	0.9	1.0	1.5
Interest Burden	29.1	28.1	26.3	32.3	27.2
EBITDA to Sales	13.1	12.6	13.1	12.8	13.1
EBIT to Sales	11.9	11.2	12.5	11.5	12.7
Net Profit to Sales	6.3	5.0	7.0	6.1	7.1

#: For companies reporting this item explicitly.
*: Other income excludes extraordinary income/expenditure if reported explicitly

Table II.4: Corporate Sector Financial Performance (Q-o-q growth in per cent)

Indicator	2011-12			2012-13	
	Q2	Q3	Q4	Q1	Q2
1	2	3	4	5	6
No. of Companies	**2,241**				
Sales	2.8	6.4	8.6	-4.7	0.9
Expenditure, *of which*	4.1	8.5	6.7	-4.1	0.9
Raw Material	0.9	8.3	9.5	-5.4	1.7
Staff Cost	5.6	4.3	1.2	5.6	3.1
Power and fuel	0.9	3.7	5.5	6.6	-2.3
Operating Profits (EBITDA)	-10.3	2.3	13.0	-7.4	3.7
Other Income	21.5	-7.8	50.0	-23.3	42.2
Depreciation	2.3	2.2	8.3	-3.0	1.8
Gross Profits (EBIT)	-9.1	0.4	20.8	-12.1	11.5
Interest*	15.5	-3.1	13.3	8.1	-6.0
Tax Provision	-10.8	-4.8	14.6	-1.9	3.2
Net Profit	-16.0	-15.4	52.7	-17.4	17.8

*: Some companies report interest on net basis.

profit margins also improved during the quarter (Table II.4). Inventory accumulation, reflected in the change in stock-to-sales ratio, went up during the quarter but remained below the recent peak observed in Q3 of 2011-12 (Chart II.1).

II.8 Early results of 166 companies for Q3 of 2012-13 indicate continued moderation in sales. Expenditure growth also decelerated further and profit margins remained almost intact. However, the early results are from a small set of companies which are not representative of the overall corporate sector.

Marginal increase in envisaged project expenditure

II.9 Based on data received from 39 banks/financial institutions as also on financing from external commercial borrowings (ECB) and foreign currency convertible bonds (FCCB), there was a small increase in the total cost of projects sanctioned in Q2 of 2012-13. However, the amount of sanctioned assistance was much lower than during the corresponding quarter of the previous year (Chart II.2).

Fresh policy measures helping fiscal consolidation

II.10 In October 2012, the government announced a revised fiscal roadmap following the recommendations of the Report of the Committee on Roadmap for Fiscal Consolidation (Chairman: Dr. Vijay L. Kelkar). As per the revised roadmap, the gross fiscal deficit (GFD) for 2012-13 is estimated at 5.3 per cent of GDP compared with the budget estimate of 5.1 per cent. The government's fiscal consolidation plan envisages fiscal deficit to decline to 4.8 per cent of GDP in 2013-

Chart II.1: Movement in Change in Stock to Sales Growth

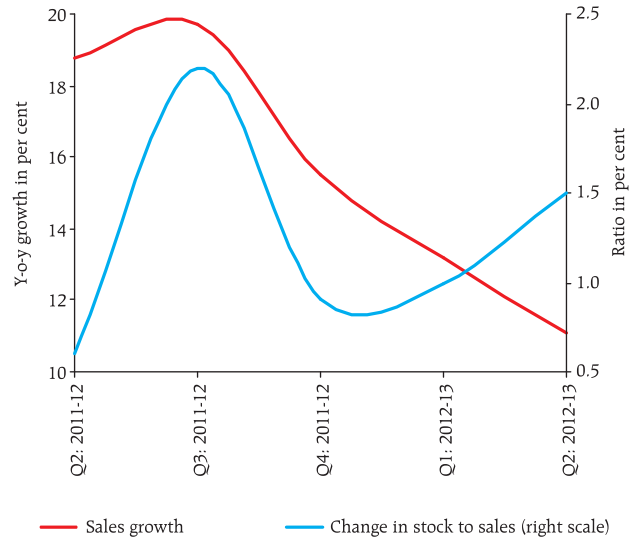
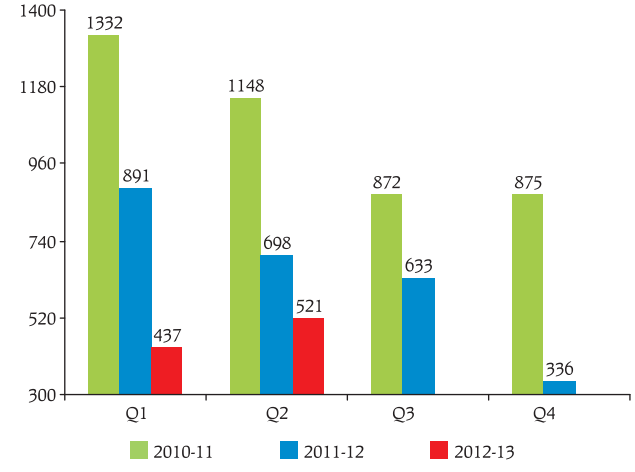


Chart II.2: Total Envisaged Cost of Sanctioned Projects (₹ billion)



Note: Capex figures include data reported by 39 banks and financial institutions. It also includes ECB/FCCB financing. Data for Q2 of 2012-13 is provisional and based on reported data from 33 banks and financial institutions.

14 and by 0.6 percentage points every year thereafter to reach 3.0 per cent of GDP in 2016-17.

II.11 The government has taken several steps to curtail deficit and put government finances on a more sustainable path. In a significant move, in January 2013, the government partially deregulated the prices of diesel, allowing full adjustment of prices for bulk consumers and a staggered increase for others. On the other hand, the annual supply of subsidised LPG cylinders per household has been increased to nine, from the cap of six announced in September 2012. These measures on the whole constitute an important signal to address fiscal imbalances, though its impact in the current fiscal year is expected to be negligible.

II.12 Renewed thrust to disinvestment of public sector undertakings so as to meet the budgetary target, cut-back in both plan and non-plan expenditure and increased reliance on direct cash transfers to cut leakages in subsidies also constitute important steps in reducing fiscal deficit. The government has, however, committed to retaining allocations to all flagship schemes to protect the poor. On tax reforms, it has committed to introducing the goods and services tax (GST) and reviewing the Direct Tax Code (DTC). More recently, the government has reiterated its stance of restricting expenditure in the last quarter of the financial year to 33 per cent of the budget estimates, and that during March to 15 per cent, to curb the bunching of expenditure towards the close of the financial year.

II.13 Further fiscal consolidation measures would be necessary in near term. The Kelkar committee has recommended several steps in this direction. For instance, over the next two to three years, resources could be raised by monetising government's unutilised and under-utilised land resources. These resources could be used to finance infrastructure needs particularly in urban areas. Such innovative measures would need to be examined though, as such asset sales do not support a structural correction in the fiscal position

Fiscal deficit remains high as slowdown impacts revenues

II.14 During the first eight months of the current year, the fiscal deficit amounted to 4.1 per cent of GDP or 80.4 per cent of the budget estimates (Table II.5). Revenue deficit, at 3.1 per cent of GDP, was marginally lower than in the corresponding period of the previous year. Given the current trends, significant shortfall in tax revenues and some shortfall in budgeted spectrum receipts is likely. Realisation of budgeted disinvestment proceeds crucially hinges on market conditions. However, the government is working to achieve the revised fiscal deficit target of 5.3 per cent with containment of both plan and non-plan expenditure during the last quarter of the year.

Growth slowdown remains a drag on revenue collections

II.15 Revenue collections remained sluggish at 47.6 per cent of budget estimates during April-November 2012 (49.7 per cent in the previous year). The growth in collection of corporation tax and excise duties remained modest due to continued growth moderation, while customs duty collections were adversely impacted, reflecting the deceleration in imports. Collections under personal income tax, however, remained buoyant partly due to lower refunds compared to previous year. Non-tax revenue receipts, at 46.3 per cent of budget estimates, were also significantly lower than the receipts of 57.7 per cent during the corresponding period of the previous year due to the poor response to spectrum auction and the reported staggering of auction receipts.

Non-plan expenditure continues to exert pressure despite a moderation in total expenditure

II.16 During April-November 2012, the total expenditure of the government was lower at 58.2 per cent of the budget estimates (60.5 per cent in the previous year). The deceleration in expenditure has been more pronounced since September 2012, with a narrowing down in the differential between

Table II.5: Central Government Finances during April-November 2012

(₹ billion)

Item	2012-13 Budget Estimates	April-November		Percentage to Budget Estimates		Growth Rate (Per cent)	
		2011-12	2012-13	2011-12	2012-13	2011-12	2012-13
1	2	3	4	5	6	7	8
1. Revenue Receipts (i+ii)	**9356.9**	**3928.1**	**4458.2**	**49.7**	**47.6**	**-17.6**	**13.5**
i) Tax Revenue (Net)	7710.7	3204.7	3696.0	48.2	47.9	8.0	15.3
ii) Non-Tax Revenue	1646.1	723.4	762.2	57.7	46.3	-59.8	5.4
2. Non-Debt Capital Receipts	416.5	145.1	89.0	26.4	21.4	-47.1	-38.7
3. Non-Plan Expenditure	9699.0	5394.2	6242.6	66.1	64.4	12.4	15.7
of which							
i) Interest Payments	3197.6	1659.1	1828.6	61.9	57.2	23.3	10.2
ii) Food Subsidies	750.0	440.7	620.0	72.8	82.7	-12.3	40.7
iii) Fertiliser Subsidies	609.7	450.4	552.9	90.1	90.7	17.7	22.8
iv) Petroleum Subsidies	435.8	233.0*	403.0	98.4	92.5	49.1	72.9
4. Plan Expenditure	5210.3	2212.8	2433.9	50.1	46.7	4.9	10.0
5. Revenue Expenditure	12861.1	6732.7	7653.2	61.4	59.5	9.1	13.7
6. Capital Expenditure	2048.2	874.2	1023.3	54.4	50.0	18.4	17.0
7. Total Expenditure	**14909.3**	**7606.9**	**8676.5**	**60.5**	**58.2**	**10.1**	**14.1**
8. Revenue Deficit	**3504.2**	**2804.6**	**3195.0**	**91.3**	**91.2**	**100.1**	**13.9**
9. Gross Fiscal Deficit	**5135.9**	**3533.7**	**4129.3**	**85.6**	**80.4**	**89.5**	**16.9**
10. Gross Primary Deficit	**1938.3**	**1874.6**	**2300.7**	**129.4**	**118.7**	**260.7**	**22.7**

*: Refers to non-plan expenditure in respect of Ministry of Petroleum and Natural Gas which primarily includes post-APM subsidies and compensation made to oil marketing companies for under-recoveries on account of sale of sensitive petroleum products, apart from marginal amount for other non-plan expenditure.

Source: Controller General of Accounts, Ministry of Finance.

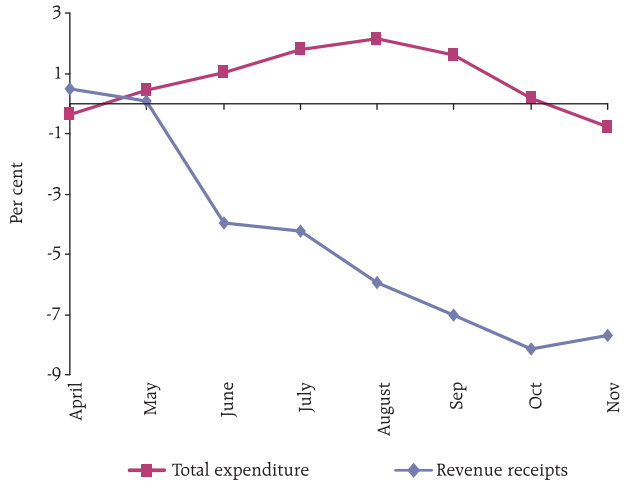
the current year's expenditure (as per cent of budget estimate) and the respective three-year average (as per cent to actual), indicating the government's efforts to rein in expenditure (Chart II.3).

II.17 The total expenditure of the government during 2012-13, however, is likely to exceed budget estimates mainly on account of non-plan revenue expenditure. At 16.7 per cent, the growth in non-plan revenue expenditure during April-November 2012 was significantly higher than the budgeted growth of 6.1 per cent.

Quality of fiscal adjustment remains a concern

II.18 Significant cut-backs in plan and capital expenditure and reliance on non-durable receipts such as disinvestment proceeds could compromise the quality of fiscal adjustment. During April-November 2012, plan expenditure and capital expenditure as percentages to budget estimates were significantly lower than those in the preceding year. Plan expenditure as a percentage of budget

Chart II.3: Central Government Revenue Receipts and Total Expenditure*



*: Difference between the current year's revenue receipts/total expendiure (as per cent of budget estimate) and the respective previous 3-year average (as per cent of actuals).

estimate was lower for major departments/ministries such as power, road transport and highways, rural development and women and child development. Lower public investment in crucial infrastructure would have implications for growth. While the quality of expenditure remains an area of concern, fiscal augmentation through increased recourse to disinvestment proceeds and one-off receipts such as spectrum auctions may not be sustainable.

Additional market borrowing likely to be averted this year, but further steps needed

II.19 The government announced the first supplementary demand for grant, which entails a net cash outgo of ₹308 billion mainly to provide part compensation for estimated under-recoveries to oil marketing companies (₹285 billion) and infusion of equity in Air India (₹20 billion). This additional expenditure may not entail any additional market borrowings. However, the subsidy provision made so far appears inadequate.

Reviving investment demand is the key to economic turnaround

II.20 The government has made a commitment to bring down the level of the fiscal deficit. However, if the compression in government expenditure is mainly from plan/capital heads, it raises concerns relating to quality of the fiscal consolidation. As the reforms announced by the government take effect, the improvement in investment climate would help in reviving growth. Increased public investment to crowd-in private investment along with removal of structural impediments slowing private investment is needed to pull the economy out of the current slowdown.

III. The External Sector

The CAD–GDP ratio reached a historic high of 5.4 per cent in Q2 of 2012-13, heightening concerns about the sustainability and financing of CAD. Worsening trade deficit and slower growth in services exports were the major factors behind the sharp rise in CAD. Weak external demand, which affected merchandise exports adversely, combined with continuing high imports of POL and gold, resulted in deterioration of the trade balance in Q3 of 2012-13. Despite the policy initiatives taken by the government, export revival is contingent on economic recovery in advanced economies as well as EMDEs. Even though capital flows have been sufficient to finance CAD for the time being, the volatility therein can put pressure on the external sector. Clearly, it is imperative to lower the CAD, while ensuring in the interim its prudent financing.

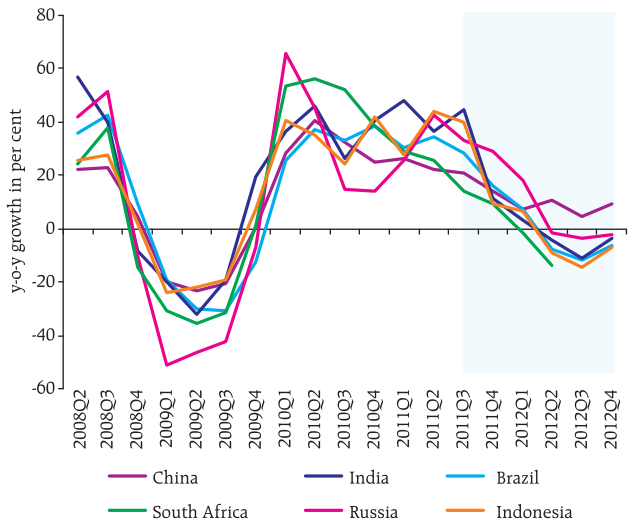
Weak external demand continues to affect merchandise exports adversely

III.1 India's export performance continued to show the adverse impact of low growth and uncertainty in the advanced as well as major Emerging Market and Developing Economies (EMDEs). The downturn in the global manufacturing cycle in both advanced economies and EMDEs has impacted the overall world trade volume, which is also reflected in negative export growth of major EMDEs, including India, Brazil, Russia, South Africa and Indonesia (Chart III.1). Even though the export growth of China remains positive, it has also decelerated in the recent period.

Despite policy actions, revival of export growth remains uncertain

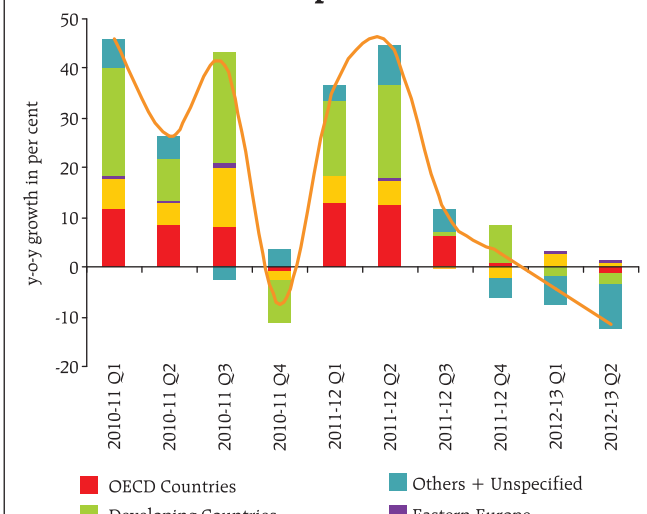
III.2 India's subdued exports performance, which began in H2 of 2011-12, showed further deterioration during 2012-13 so far. Since the outlook for global growth remains weak, it is unlikely that exports will reach even the previous year's level. Commodity-wise data show that growth in exports of engineering goods, petroleum products, textile products, gems & jewellery and chemicals & related products was severely affected because demand conditions in key markets such as the US and Europe continued to remain sluggish. Demand from new export destinations explored under diversification efforts also weakened. For instance, apart from export growth to developed countries, export growth to developing countries has also either decelerated or declined in recent quarters (Chart III.2). During April-November

Chart III.1: Export Growth in Select EMDEs



Sources: DGCI&S, GoI and Direction of Trade Statistics, IMF and preliminary estimates from country sources.

Chart III.2: Region-wise Share in India's Export Growth



2012, EU accounted for 27.4 per cent of total decline in merchandise exports, followed by Singapore (21.0 per cent), China (20.7 per cent), Hong Kong (4.8 per cent) and Indonesia (4.6 per cent). Lower growth in export-oriented Asian economies caused by setbacks to global recovery has clearly weighed on India's external demand from these economies.

III.3 In view of the lacklustre performance of the exports sector, the government announced export promotion measures on December 26, 2012. These include (i) the extension of the interest subvention scheme for select employment-oriented sectors up to end-March 2014, (ii) the introduction of a pilot scheme of 2 per cent interest subvention for project exports through EXIM Bank for countries of the SAARC region, Africa and Myanmar, (iii) broadening the scope of the Focus Market Scheme, Special Focus Market Scheme and Market-Linked Focus Product Scheme and (iv) incentives for incremental exports to the US, EU and countries of Asia during the period January–March 2013 over the base period. To enhance the flow of credit to the export sector, the Reserve Bank introduced a US dollar-rupee swap facility for scheduled banks to support incremental Pre-shipment Export Credit in Foreign Currency (PCFC) by banks on January 14, 2013. Despite these measures, quick recovery in exports to major trading partners may not take place unless economic activity in both advanced economies and EMDEs picks up significantly.

Continued high imports of POL and gold may widen India's trade deficit further

III.4 Import growth has surged since September 2012, mainly due to a pick-up in the quantum of POL (Chart III.3). With the uptrend in the international price of gold in recent months, gold imports stayed at an elevated level in recent months. On the other hand, non-oil non-gold imports registered a decline, reflecting a slowdown in domestic economic activity.

III.5 With imports growth turning positive from September 2012 and exports growth remaining subdued, concerns regarding a deteriorating trade deficit have been reinforced. During April–December 2012, the trade deficit was 7.2 per cent higher than that in April–December 2011 (Table III.1). Going forward, apart from global and domestic growth conditions, the trend in POL and gold imports will be critical determinants of India's overall trade deficit.

III.6 Policy attempt so far has been to deftly balance the genuine interests of the gold business, as also the

Chart III.3: India's Merchandise Trade

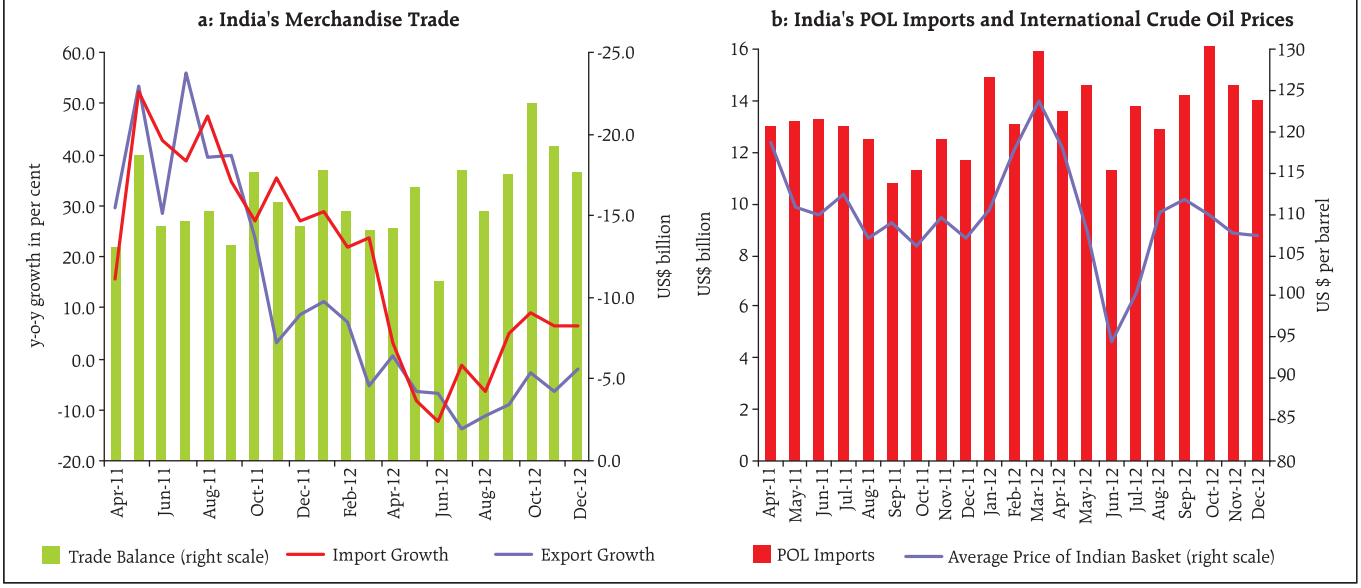


Table III.1: India's Merchandise Trade

(US$ billion)

Item	April–March				April–December			
	2010-11 (R)		2011-12 (R)		2011-12 (R)		2012-13 (P)	
	Value	Growth (%)	Value	Growth (%)	Value	Growth (%)	Value	Growth (%)
1	2	3	4	5	6	7	8	9
Exports	251.1	40.5	306.0	21.8	226.6	29.6	214.1	-5.5
of which: Oil	41.5	47.1	56.0	35.1	42.3	49.5	40.0	-5.4
Non-oil	209.7	39.3	249.9	19.2	184.3	25.8	174.1	-5.5
Gold	6.1	39.6	6.7	10.8	5.0	31.6	4.7	-6.0
Non-Oil Non-Gold	203.6	39.2	243.2	19.5	179.3	25.6	169.4	-5.5
Imports	369.8	28.2	489.3	32.3	363.9	35.2	361.3	-0.7
of which: Oil	106.0	21.6	155.0	46.2	111.0	47.6	125.4	13.0
Non-oil	263.8	31.1	334.4	26.7	252.9	30.4	235.9	-6.7
Gold	40.5	41.6	56.3	38.9	41.7	46.3	37.8	-9.4
Non-Oil Non-Gold	223.3	29.4	278.0	24.5	211.2	27.6	198.1	-6.2
Trade Deficit	-118.6		-183.4		-137.3		-147.2	
of which: Oil	-64.5		-98.9		-68.7		-85.4	
Non-oil	-54.1		-84.4		-68.6		-61.8	
Non-Oil Non-Gold	-19.7		-34.8		-31.9		-28.7	
Memo : *Trade Deficit/GDP (in per cent)*		*-7.0*		*-10.0*		*-10.1*		*-11.7*

R : Revised P : Provisional

need of the savers to hedge against inflation, against the overwhelming need to dampen gold imports with a view to preserving current account and macro-financial stability. The gold demand in recent years has also picked up for speculative purposes. Against this backdrop, the Reserve Bank had constituted a Working Group to Study the Issues Related to Gold and Gold Loans by NBFCs in India (Chairman: Shri K.U.B. Rao). The Group, in its report, noted that high gold imports have implications for external sector vulnerability. The Group has recommended measures to contain gold demand like introduction of new gold-backed financial products, supply management measures such as channelising the existing supply of scrap gold, and the introduction of tax incentives on gold-related instruments as well as steps to increase the monetisation of gold. The Reserve Bank placed the report of the Group on its website on January 2, 2013 for comments from stakeholders and the public.

III.7 Besides enhancing the customs duty from 4 per cent to 6 per cent on gold imports, the government has proposed to unfreeze or release a part of the gold physically held by mutual funds under Gold ETFs and enable them to deposit the gold with banks under the Gold Deposit Scheme. The minimum quantity as well as minimum tenure of gold deposits (from 3 years to 6 months) have been reduced.

Concerns about sustainability of CAD heighten as the CAD–GDP ratio reaches a historic high in Q2 of 2012-13

III.8 India's current account deficit (CAD) increased further in Q2 of 2012-13 mainly due to the worsening trade deficit, decelerated growth in net export of services and higher outflows under primary income (Table III.2). The CAD–GDP ratio at 5.4 per cent is not only unsustainable, but is also the highest-ever peak level. Early indications are that in Q3 of 2012-13, CAD as a percentage of GDP may increase further from this peak. Subdued growth conditions in major advanced economies seem to have impacted growth in India's export of software services in recent quarters. However, results of major IT firms for Q3 of 2012-13

Table III.2: Major Items of India's Balance of Payments

(US $ billion)

	2011-12 (PR)	2011-12				2012-13	
		Q1 (PR)	Q2 (PR)	Q3 (PR)	Q4 (PR)	Q1 (PR)	Q2 (P)
1	2	3	4	5	6	7	8
1. Goods Exports	309.8	78.8	79.6	71.5	80.0	76.7	69.8
2. Goods Imports	499.5	123.7	124.1	120.1	131.7	119.0	118.2
3. Trade Balance (1–2)	-189.7	-44.9	-44.5	-48.6	-51.7	-42.3	-48.3
4. Services Exports	140.9	33.7	32.3	37.3	37.7	34.8	34.8
5. Services Imports	76.9	17.4	18.3	21.1	20.0	20.8	19.2
6. Net Services (4–5)	64.0	16.3	14.0	16.1	17.7	14.0	15.7
7. Goods & Services Balance (3+6)	-125.7	-28.6	-30.5	-32.5	-34.0	-28.3	-32.8
8. Primary Income (Net)	-16.0	-3.6	-4.0	-3.8	-4.6	-4.9	-5.6
9. Secondary Income (Net)	63.5	14.8	15.6	16.2	16.9	16.8	16.1
10. Net Income (8+9)	47.5	11.2	11.6	12.4	12.3	11.9	10.5
11. Current Account Balance (7+10)	-78.2	-17.4	-18.9	-20.2	-21.7	-16.4	-22.3
12. Capital Account Balance	-0.1	-0.3	0.2	0.1	-0.2	-0.2	-0.3
13. Financial Account Balance	80.7	18.7	19.0	20.6	22.4	15.7	24.2
of which: Change in Reserves	12.8	-5.4	-0.3	12.8	5.7	-0.5	0.2
14. Errors & Omissions (11+12–13)	-2.4	-0.9	-0.4	-0.5	-0.6	1.0	-1.6
Memo: As a ratio to GDP (in per cent)							
15. Trade Balance	-10.3	-9.8	-9.9	-10.7	-10.6	-10.0	-11.7
16. Net Services	3.5	3.6	3.1	3.5	3.6	3.3	3.8
17. Net Income	2.6	2.4	2.6	2.7	2.5	2.8	2.5
18. Current Account Balance	-4.2	-3.8	-4.2	-4.4	-4.5	-3.9	-5.4
19. Capital and Financial Account, Net (Excl. changes in reserves)	3.7	5.2	4.4	1.7	3.4	3.8	5.7

Note: Total of sub-components may not tally with aggregate due to rounding off.
PR: PartiallyRevised. P: Preliminary.

suggest some improvement in their dollar revenues. Even though global IT spending is projected to increase by 4.2 per cent in 2013, uncertainty regarding global recovery continues to be one of the downward risks for India's software exports. Unless global economic and trade conditions improve significantly and boost India's export of goods and services, the high CAD may continue to be challenging.

Strong capital flows facilitate financing of CAD

III.9 BoP statistics shows that improved capital flows were about adequate to finance an expanding CAD during Q2 of 2012-13, as evident from only a marginal drawdown of foreign exchange reserves (Table III.3).

III.10 While net inflows under FDI moderated somewhat during April-November 2012, net inflows by foreign institutional investors (FII) have shown a significant uptrend. Net FII inflows during 2012-13 (up to January 18) at US$ 18.8 billion were significantly higher than during the corresponding period of the previous year (US$ 7.6 billion), thus providing temporary comfort for financing of CAD (Table III.4).

III.11 Besides improved global liquidity and sentiment, robust FII inflows were largely the outcome of improved perception about the domestic economy, driven by recent reforms announced by the government since September 2012. These reforms include, *inter alia*, liberalised FDI norms for the retail, insurance and pension sectors, a roadmap for fiscal consolidation and an increase in FII limits in the corporate and government debt markets. The FII investment limits in government securities and corporate bonds were raised by US$ 5 billion each, taking the total investment limit in domestic debt (including corporate debt for infrastructure) to US$ 75 billion. While the increased limit may enhance debt inflows, they do not provide a solution to CAD financing on a sustainable basis.

Table III.3: Disaggregated Items of Financial Account

(US$ billion)

	2011-12 (PR)	2011-12				2012-13	
		Q1 (PR)	Q2 (PR)	Q3 (PR)	Q4 (PR)	Q1 (PR)	Q2 (P)
1	2	3	4	5	6	7	8
1. Direct Investment (net)	**22.1**	**9.3**	**6.5**	**5.0**	**1.4**	**3.9**	**8.9**
1.a Direct Investment to India	33.0	12.4	9.5	6.9	4.2	5.9	10.3
1.b Direct Investment by India	-10.9	-3.1	-3.0	-1.9	-2.9	-2.0	-1.4
2. Portfolio Investment (net)	**16.6**	**2.3**	**-1.4**	**1.8**	**13.9**	**-2.0**	**7.6**
2.a Portfolio Investment in India	16.8	2.5	-1.6	1.9	14.1	-1.7	7.9
2.b Portfolio Investment by India	-0.2	-0.2	0.2	-0.05	-0.2	-0.3	-0.3
3. Financial Derivatives & Employee Stock Options	–	–	–	–	–	**-0.5**	**-0.3**
4. Other Investment (net)	**29.2**	**12.6**	**14.2**	**1.0**	**1.4**	**14.8**	**7.9**
4.a Other equity (ADRs/GDRs)	0.6	0.3	0.2	0.1	0.03	0.1	0.1
4.b Currency and deposits	12.1	1.2	3.1	3.2	4.6	6.4	3.5
Deposit-taking corporations, except the central bank: (NRI Deposits)	11.9	1.2	2.8	3.3	4.7	6.6	2.8
4.c Loans*	16.8	14.9	9.5	-7.7	-0.03	3.5	3.3
4.c.i Loans to India	15.7	14.9	8.9	-8.1	-0.02	3.4	3.6
Deposit-taking corporations, except the central bank	4.1	11.5	3.9	-8.7	-2.6	3.0	2.0
General government (External Assistance)	2.5	0.4	0.3	1.4	0.3	0.02	0.1
Other sectors (ECBs)	9.1	3.0	4.7	-0.8	2.3	0.4	1.4
4.c.ii Loans by India	1.0	-0.02	0.6	0.5	-0.01	0.1	-0.3
General government (External Assistance)	-0.2	-0.04	-0.04	-0.04	-0.04	-0.1	-0.1
Other sectors (ECBs)	1.2	0.02	0.6	0.5	0.03	0.1	-0.3
4.d Trade credit and advances	6.7	3.1	2.9	0.6	0.2	5.4	4.1
4.e Other accounts receivable/payable	-6.9	-6.8	-1.5	4.8	-3.3	-0.6	-3.0
5. Reserve Assets (increase –/ decrease+)	**12.8**	**-5.4**	**-0.3**	**12.8**	**5.7**	**-0.5**	**0.2**
Financial Account (1+2+3+4+5)	**80.7**	**18.7**	**19.0**	**20.6**	**22.4**	**15.7**	**24.2**

Note: Total of sub-components may not tally with aggregate due to rounding off.
P: Preliminary. PR: Partially Revised – : Not available
*: Includes External Assistance, ECBs, non-NRI Banking Capital and short-term trade credit.

III.12 Much of the recent FII investment under the G-sec limits has flown into short term T-bills, enhancing the refinancing risks to external debt. On the other hand, a range-bound currency after a bout of depreciation has made the Indian equity market attractive for FIIs. Going forward, the implementation and acceleration in domestic reforms would be critical for sustained equity flows to the economy. Though the risk aversion in global markets declined during the previous quarter, the flows could be volatile given the euro area risks.

Table III.4: Capital Flows

(US$ billion)

Component	2011-12				2012-13		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	Average of monthly flows						
1	2	3	4	5	6	7	8
FDI in India	4.1	3.1	2.3	1.5	2.0	3.4	1.9*
FDI by India	1.0	1.0	0.6	1.0	0.7	0.5	0.9*
FIIs	0.8	-0.5	0.6	4.7	-0.6	2.6	3.3
ADRs/GDRs	0.1	0.1	0.03	0.01	0.03	0.03	0.0
ECB	1.0	1.6	-0.3	0.8	0.1	0.5	1.3
NRI	0.4	0.9	1.1	1.6	2.2	0.9	0.9*

*: October–November.

III.13 Benefitting from higher interest rates and a weakening rupee, non-resident Indians (NRIs) nearly doubled their deposits with banks in India during April–November 2012 compared with the corresponding period of 2011-12. Net flow through external commercial borrowings (ECBs) was higher during Q3 of 2012-13 compared to previous quarter,

despite high principal repayments made by the Indian corporate sector. ECBs were mainly raised for the import of capital goods, new projects and the redemption of FCCBs.

After depreciating in October and November, the rupee exchange rate was range bound in December 2012

III.14 The rupee had recovered in September 2012 due to the announcement of various reform measures by the government and increasing global risk appetite. However, challenged by concerns relating to high CAD and uncertainty regarding domestic growth, the rupee again showed a downtrend during October and November 2012 and subsequently remained range bound (₹54.2–55.1 per US dollar) in December 2012. Reflecting the trend in the rupee in nominal terms, the REER based on 6-currency and 36-currency as on January 18, 2013 showed a depreciation of 3.5 per cent and 3.9 per cent, respectively, over end-March 2012 (Table III.5).

External debt witnessed steep rise in Q2 of 2012-13

III.15 India's external debt as at end-September 2012 was significantly higher than in the preceding quarter, with a rise in both long-term as well as short-term components of debt (Table III.6). In particular, there was a surge in non-resident external rupee-denominated deposits (NRE), reflecting the continued interest shown by non-residents due to better returns and rupee depreciation.

Table III.5: Nominal and Real Effective Exchange Rates: Trade-Based (Base: 2004-05=100)

	Index Jan 18, 2013 (P)	y-o-y Variation (Average) 2011-12	FY Variation (Jan 18, 2013 over end-Mar 2012)
1	2	3	4
36- REER	91.7	-3.2	-3.9
36-NEER	78.9	-6.4	-4.9
6-REER	105.7	-6.8	-3.5
6-NEER	75.8	-7.9	-5.2
₹/US$ (end-March)	53.9*	-12.7	-5.0*

NEER: Nominal Effective Exchange Rate.
REER: Real Effective Exchange Rate.
P: Provisional. *: As on January 24, 2013.
Note: Rise in indices indicates appreciation of the rupee and *vice versa.*

Table III.6: India's External Debt

(US$ billion)

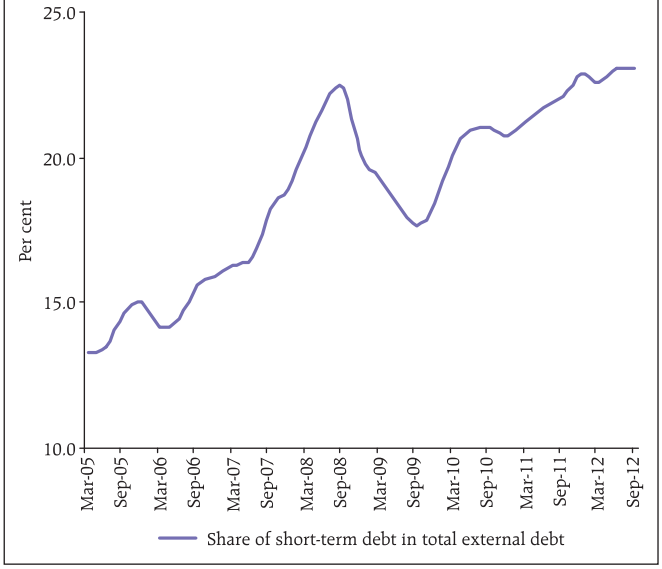
Item	End-Mar 2011 (PR)	End-Mar 2012 (PR)	End-Jun 2012 (PR)	End-Sep 2012 (QE)	Variation (end-Sep 2012 over end-Jun 2012)
	Amount				Per cent
1	2	3	4	5	6
1. Multilateral	48.5	50.5	49.7	50.7	2.0
2. Bilateral	25.7	26.7	27.1	27.6	1.7
3. IMF	6.3	6.2	6.0	6.1	1.6
4. Trade Credit (above 1 year)	18.6	19.0	19.0	19.0	–0.3
5. ECBs	88.5	104.9	104.3	109.0	4.6
6. NRI Deposits	51.7	58.6	60.9	67.0	10.1
7. Rupee Debt	1.6	1.4	1.2	1.3	6.8
8. Long-term (1 to 7)	240.9	267.2	268.3	280.8	4.7
9. Short-tem (Original Maturity)	65.0	78.2	80.5	84.5	5.0
10. Short-term (Residual Maturity)#	129.1	147.4	150.0	159.6	6.4
Total (8+9)	**305.9**	**345.4**	**348.8**	**365.3**	**4.7**

PR: Partially Revised QE: Quick Estimates #: RBI estimates

Composition of external debt changes with greater share of short-term debt

III.16 The share of short-term debt in the composition of external debt has been rising in recent years, except

Chart III.4: Changing Composition of External Debt



for a dip in the immediate aftermath of the financial crisis (Chart III.4). The dip in share of short-term debt immediately after the financial crisis was mainly due to a deceleration in short-term trade credit. The reversal in this trend has been on account of rising short-term trade credit and FII investment in government T-bills and some other instruments.

External vulnerability indicators showed mixed trend in Q2 of 2012-13

III.17 The trends in the external vulnerability indicators were mixed in Q2. While the ratio of external debt (measured in terms of the rupee) to GDP showed marginal improvement, the ratio of short-term debt (original maturity) to external debt stayed at the same level as in the preceding quarter. However, the ratio of foreign exchange reserves to external debt deteriorated (Table III.7).

III.18 India's net international investment position (NIIP), as represented by net international liabilities, increased to US$ 271.5 billion at end-September 2012 from US$ 223.8 billion at end-June 2012. The rise in net liabilities occurred mainly due to a significant increase in liabilities and the valuation changes emanating from exchange rate movements. Accordingly, the NIIP-GDP ratio at end-September 2012 deteriorated compared with that at end-June 2012 (Table III.8). India's NIIP has shown gradual deterioration during the post-crisis period, as net international liabilities as a per cent of GDP increased from 5.5 per cent as at end-March 2008 to 15.3 per cent as at end-September 2012 due to the widening current account deficit.

III.19 In sum, concerns about the sustainability of India's external sector have increased. Despite the second round of export promotion measures announced by the government, uncertainty relating to recovery in global economic and trade conditions may continue to weigh on India's exports. In order to bring the CAD on a sustainable path, the trends in India's imports, particularly POL and gold imports, need close monitoring. Even though the recent policy announcements in advanced economies have eased the global financial stress, re-acceleration of economic activity which is critical for recovery in global trade prospects may take time. Growth prospects for EMDEs also needs to improve in order to strengthen external demand for India. Even though abundant global liquidity augurs well for capital flows to economies like India, lowering CAD is important even as a sound domestic economic and business environment would continue to be critical to facilitate sustained capital flows and financing of CAD without stress.

Table III.7: External Sector Vulnerability Indicators

(Per cent)

Indicator	End-Mar 2012	End-Jun 2012	End-Sep 2012
1	2	3	4
Ratio of Total Debt to GDP*	19.9	21.6	20.7
Ratio of Short-term to Total Debt (Original Maturity)	22.6	23.1	23.1
Ratio of Short-term to Total Debt (Residual Maturity)	42.6	42.9	43.7
Ratio of Concessional Debt to Total Debt	13.9	13.5	13.2
Ratio of Reserves to Total Debt	85.2	82.9	80.7
Ratio of Short-term Debt to Reserves	26.6	27.8	28.7
Ratio of Short-term debt (Residual Maturity) to Total Debt#	42.7	42.9	43.7
Ratio of Short-term Debt (Residual Maturity) to Reserves#	50.1	51.8	54.1
Reserves Cover of Imports (in months)	7.1	7.0	7.2
Reserves Cover of Imports and Debt Service Payments (in months)	6.8	6.6	6.8
Debt Service Ratio (Debt Service Payments to Current Receipts)	6.0	5.8	5.8
External Debt (US$ billion)	345.4	348.8	365.3

*: Annualised GDP at current market prices.
#: RBI Estimates.

Table III.8: Overall International Investment Position of India

(US$ billion)

	Mar-11	Mar-12	Jun-12	Sep-12
1	2	3	4	5
NIIP	-203.6	-248.4	-223.8	-271.5
Assets	439.8	437.8	433.7	441.7
Liabilities	643.4	686.2	657.6	713.2
NIIP–GDP Ratio*	-12.1	-13.5	-12.3	-15.3

* Based on annualised GDP.
'-' implies net international liabilities.

IV. Monetary and Liquidity Conditions

Monetary policy in this financial year so far has sought to balance the growth–inflation dynamics through a combination of measured steps for liquidity easing and policy rate cut. While reserve money growth adjusted for CRR has maintained reasonable pace during Q3, broad money growth remained below the indicative trajectory. Aggregate deposit growth lagged behind credit growth, even as credit expansion remains moderate due to slack in activity and deterioration in the asset quality of banks. Despite considerable primary liquidity infusion by the Reserve Bank through CRR cuts and open market purchases of government securities, liquidity conditions tightened in Q3 of 2012-13. This was mainly because of an increase in government cash balances with the Reserve Bank. Going forward, contingent on further moderation in inflation, monetary policy could increasingly shift focus and respond to growth, giving due cognizance to the evolving macro-financial factors.

Tightening cycle gradually impacted inflation

IV.1 During the current financial year, growth has slowed markedly, even as inflation remained above the Reserve Bank's comfort level. Monetary Policy has responded to this evolving growth-inflation dynamics through calibrated easing. After lowering the cash reserve ratio (CRR) by 125 basis points (bps) during Q4 of 2011-12, the Reserve Bank frontloaded a reduction in its repo rate by 50 bps in April 2012. Even as elevated inflation and the twin deficits have severely restricted the space for further easing of the policy rate since April 2012, subsequent measures were directed towards ensuring adequate liquidity to facilitate a turnaround in credit deployment to productive sectors for supporting growth. As part of liquidity management measures, the CRR was reduced in two stages by a further 50 bps in a pre-emptive manner to ease monetary and liquidity conditions. Also, the statutory liquidity ratio (SLR) of scheduled commercial banks (SCBs) was reduced to improve the credit conditions facing the private sector (Table IV.1).

IV.2 Furthermore, apart from supplying liquidity through daily liquidity adjustment facility (LAF), the Reserve Bank made active use of the auctions under outright open market operations (OMOs) and injected primary liquidity of about ₹1.1 trillion

Table IV.1:Movements in Key Policy Variables

(Per cent)

Effective since	Reverse Repo Rate		Repo Rate		Cash Reserve Ratio*		Statutory Liquidity Ratio*	
1	2		3		4		5	
May 3, 2011	6.25	(+0.50)	7.25	(+0.50)	6.00		24	
June 16, 2011	6.50	(+0.25)	7.50	(+0.25)	6.00		24	
July 26, 2011	7.00	(+0.50)	8.00	(+0.50)	6.00		24	
September 16, 2011	7.25	(+0.25)	8.25	(+0.25)	6.00		24	
October 25, 2011	7.50	(+0.25)	8.50	(+0.25)	6.00		24	
January 28, 2012	7.50		8.50		5.50	(-0.50)	24	
February 13, 2012	7.50		8.50		5.50		24	
March 10, 2012	7.50		8.50		4.75	(-0.75)	24	
April 17, 2012	7.00	(-0.50)	8.00	(-0.50)	4.75		24	
June 18, 2012	7.00		8.00		4.75		24	
August 11, 2012	7.00		8.00		4.75		23	(-1.00)
September 22, 2012	7.00		8.00		4.50	(-0.25)	23	
November 3, 2012	7.00		8.00		4.25	(-0.25)	23	

Figures in parentheses indicate changes in policy rates/ratios.
* : Per cent of Net Demand and Time Liabilities.

coupled with liquidity injection of around ₹229 billion through anonymous trading platform (NDS-OM) in 2012-13 so far. The judicious use of the two sets of instruments, *i.e.*, keeping the policy rate unchanged since April and pro-active liquidity easing measures conferred dual benefits that were evident as inflation gradually declined from its peak and credit off-take showed signs of improvements during most of November and December 2012. Inflation, however, continues to remain above the Reserve Bank's comfort level (Chart IV.1).

Reserve Bank takes measures to combat tight liquidity conditions

IV.3 Liquidity conditions since April 2012 can be broadly classified into three phases. The financial year started with the spillover of the tight liquidity condition from the previous year, which was beyond the Reserve Bank's comfort zone. The deficit was managed through a combination of primary liquidity injection through OMOs and LAF as well as an enhancement of the export credit refinance limit. The second phase commenced in July 2012 when, consequent upon these policy measures, the liquidity deficit declined and returned to the Reserve Bank's comfort level and remained mostly there until the beginning of November 2012. To pre-empt any prospective tightening of liquidity conditions arising out of frictional factors such as advance tax outflows, festive season currency demand and increase in the wedge between the growth rates of credit and deposit, the Reserve Bank reduced the CRR by 25 bps in September 2012 in addition to the 100 bps SLR cut effective from August 2012 (Table IV.1). Since November 2012, the inter-bank market has witnessed a tightening of liquidity conditions mainly due to the build-up of government cash balances and rise in currency in circulation with the liquidity deficit crossing the Reserve Bank's comfort level of (-1) per cent of net demand and time liabilities (NDTL) (Chart IV.2).

IV.4 To address the tightness, the Reserve Bank, after considering the prevailing macroeconomic situation, again reduced the CRR of scheduled banks by 25 basis points to 4.25 per cent of their NDTL effective November 3, 2012. Consequently, about ₹175 billion of primary liquidity was injected into the banking system. Liquidity deficit worsened due to an

Chart IV.1: Repo Rate and Inflation

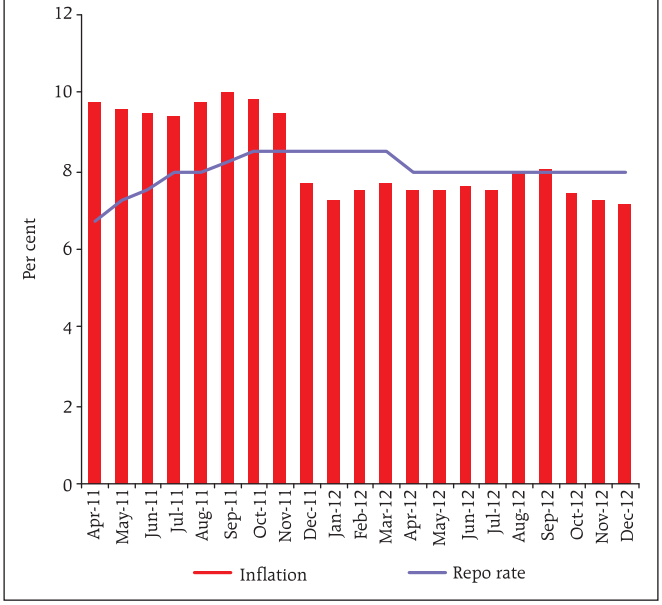


Chart IV.2: Liquidity Conditions

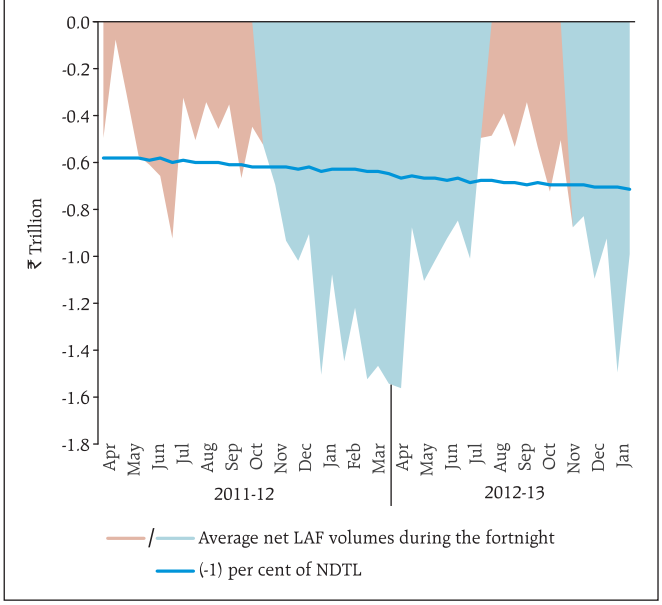
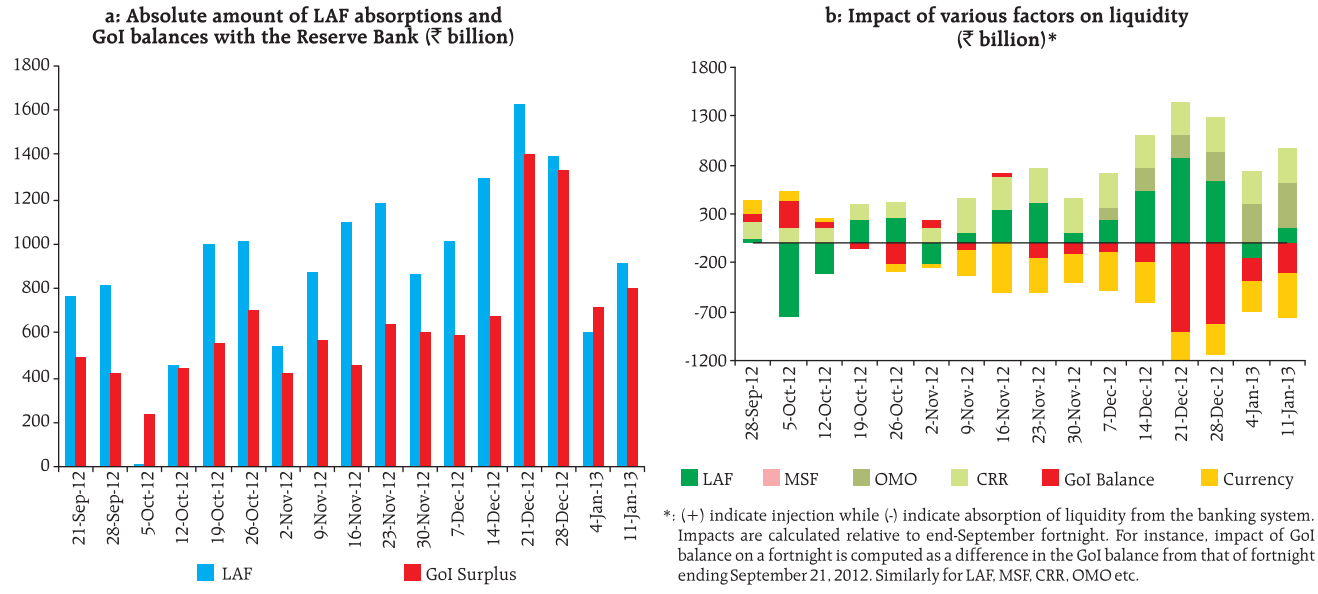


Chart IV.3: Determinants of Liquidity in Q3 of 2012-13



*: (+) indicate injection while (-) indicate absorption of liquidity from the banking system. Impacts are calculated relative to end-September fortnight. For instance, impact of GoI balance on a fortnight is computed as a difference in the GoI balance from that of fortnight ending September 21, 2012. Similarly for LAF, MSF, CRR, OMO etc.

unprecedented increase in currency demand during the first half of November 2012. The quarterly advance tax outflows in December 2012 further increased the liquidity deficit (Chart IV.3).

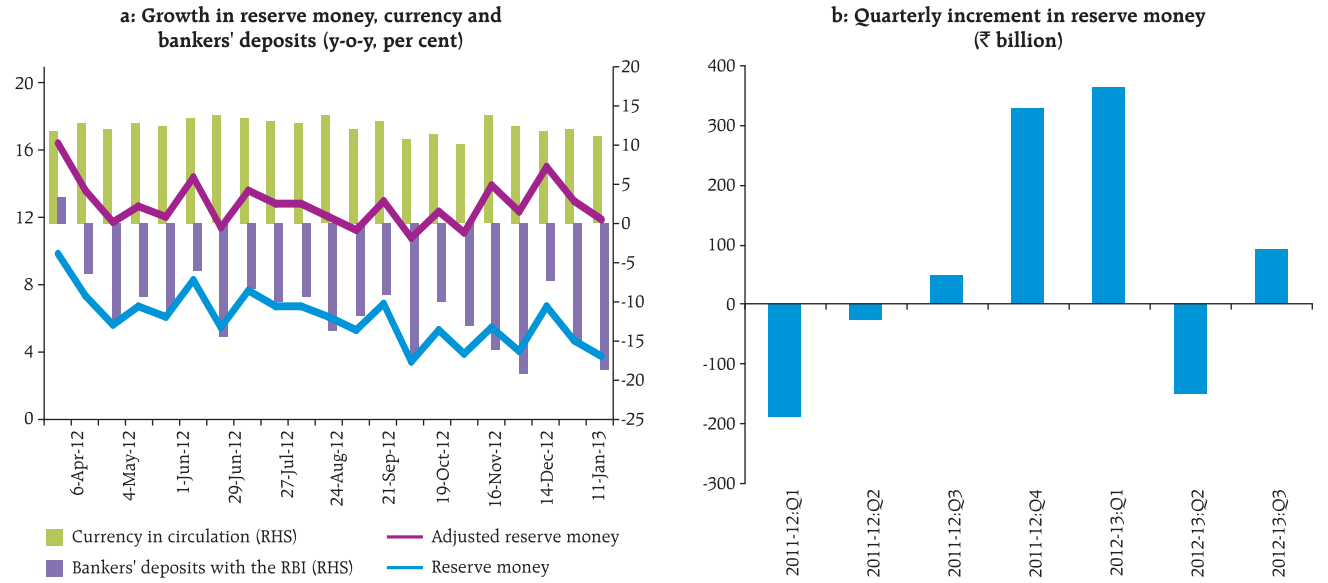
IV.5 Given the significant squeeze on liquidity creation and large build-up of government cash balances, the Reserve Bank resumed open market purchase auctions of government securities on December 4, 2012 after a gap of nearly five months. The Reserve Bank injected primary liquidity through open market purchases to the tune of ₹391 billion during the month in addition to the liquidity injection through its LAF operations averaging about ₹1.2 trillion during the month.

IV.6 In January 2013, with an increase in government spending, the recourse to LAF declined compared with the previous month. However, it continues to mostly remain higher than the Reserve Bank's comfort level. The Reserve Bank remains committed to actively manage the liquidity conditions. Despite the large liquidity shortage since November 2012, there has been only one instance of recourse to Marginal Standing Facility (MSF) during November-December 2012. The call rate generally hovered around the repo rate, without significant spike, indicating the depth and resilience of the inter-bank market. This reflects the favourable effect of the new monetary policy operating procedure.

Reserve money adjusted for CRR expanded at reasonable pace in Q3 of 2012-13

IV.7 Reserve money growth generally decelerated during Q3 of 2012-13, despite large injection of primary liquidity by the Reserve Bank through OMO and LAF (Chart IV.4). On the sources side, high government cash balances since end-September dampened the increase in the net Reserve Bank credit to the centre (Chart IV.3). On the components side, the decline in bankers' deposits with the Reserve Bank due to CRR cuts eroded the effect of the increasing trend in the currency in circulation that was observed during the quarter. The quantum of reserve money, adjusted for the first-round impact of the CRR cuts, however, increased during the quarter compared to a decline in previous quarter. The release of impounded liquidity through CRR cuts was expected to stimulate credit creation and positively impact the broad money growth through the multiplier mechanism.

Chart IV.4: Movements in Reserve Money



Broad money growth remains below indicative trajectory

IV.8 Broad money growth decelerated in Q3 and fell below the indicative trajectory of the Reserve Bank, mainly due to deceleration in the growth of aggregate deposits (Table IV.2). On the sources side, both the global and domestic macroeconomic situation had some dampening impact on credit growth, which also muted the multiplier expansion that was expected to boost broad money growth (Chart IV.5).

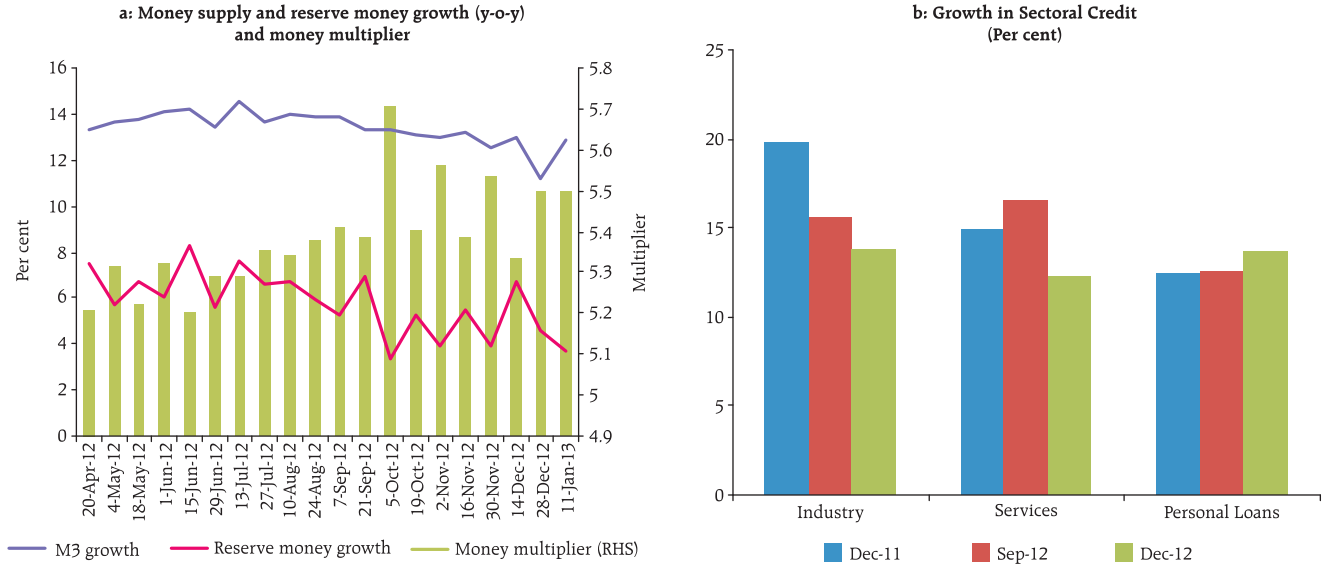
IV.9 Data on sectoral deployment of credit from select 47 banks accounting for about 95 per cent of the total non-food credit deployed by all the SCBs generally indicated a decrease in y-o-y growth in industrial credit

Table IV.2: Monetary Indicators

Item	Outstanding Amount (₹ billion) January 11, 2013	FY variations (per cent)		Y-o-y variations (per cent)	
		2011-12	2012-13	Jan 13, 2012	Jan 11, 2013
1	2	3	4	5	6
Reserve Money (M_0)*	**14,795.4**	**5.4**	**3.7**	**12.7**	**2.0**
Reserve Money (Adjusted)*		**5.5**	**5.9**	**12.9**	**10.0**
Broad Money (M_3)	**81,115.7**	**10.5**	**10.2**	**15.7**	**12.9**
Main Components of M_3					
Currency with the Public	11,097.7	9.6	8.2	12.1	11.0
Aggregate Deposits	70,003.5	10.6	10.6	16.3	13.2
of which: Demand Deposits	6,886.1	–6.5	–2.3	4.9	1.9
Time Deposits	63,117.4	13.2	12.2	17.9	14.6
Main Sources of M_3					
Net Bank Credit to Govt.	26,529.4	14.6	11.9	24.5	16.7
Bank Credit to Commercial Sector	54,282.0	10.3	9.4	16.7	16.1
Net Foreign Assets of the Banking Sector	16,293.4	9.5	5.5	12.0	6.8

Note: Data are provisional.
* : Data pertain to January 18, 2013.

Chart IV.5: Broad Money and Aggregate Deposit Growth



as well as credit to the services sector in December 2012 compared with corresponding period previous year, and also compared with September 2012 (Chart IV.5b).

Increased wedge between credit and deposit growth remains a concern

IV.10 In 2012-13, the lack of commensurate growth in aggregate deposit to fund the credit growth has given rise to an asset-liability gap, which is also indicated by the increase in the credit-deposit ratio (Chart IV.6). The deceleration in the term deposits, which constitutes the major component of aggregate deposit, could be largely attributed to the low and declining real interest rates on time deposits. Moreover, with an increase in the wedge between credit and deposit growth, banks are likely to tap the inter-bank market

Chart IV.6: Spread between Credit and Deposit Growth of Bank

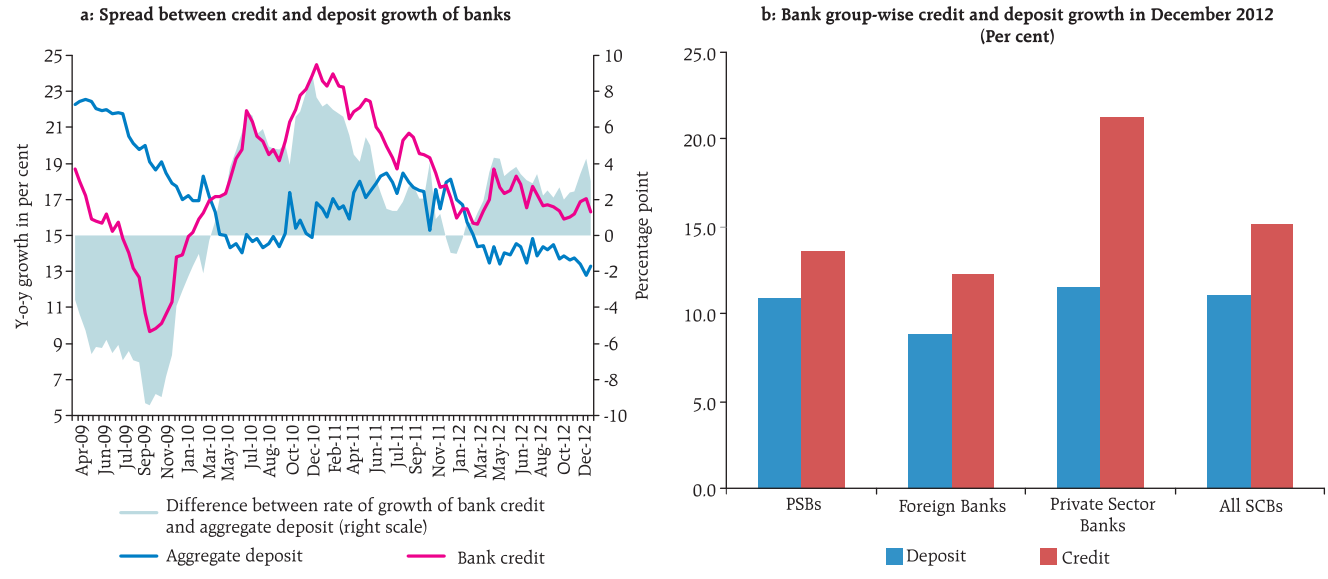


Table IV.3: Credit Flow from Scheduled Commercial Banks

(₹ billion)

Bank Credit	As on Jan 11, 2013* Outstanding Amount	Variation (Y-o-y)			
		As on Jan 13, 2012		As on Jan 11, 2013*	
		Amount	Percent	Amount	Percent
1	2	3	4	5	6
1. Public Sector Banks*	36,624.8	4,462.6	16.2	4,630.8	14.5
2. Foreign Banks	2,536.0	364.2	19.1	260.4	11.4
3. Private Sector Banks	9,928.6	1,148.0	16.8	1,930.5	24.1
4. All Scheduled Commercial Banks@	50,427.9	6,139.2	16.5	7,081.1	16.3

*: Excluding RRBs in public sector banks. @: Including RRBs.
Note: Data as on Jan 11, 2013 are provisional.

to fund this gap. With already tight liquidity conditions, the widening wedge poses a concern as it is likely to worsen the tight liquidity condition.

Risk aversion impacting credit as asset quality concerns accentuate

IV.11 Besides sluggish demand, a major factor that could have led to the low credit growth of the PSBs over the past quarters is the deterioration in their asset quality (Table IV.3). Asset quality indicators of the banking sector, which had deteriorated significantly during 2011-12, have further deteriorated in the financial year so far (Table IV.4). The worsening asset quality during Q2 of 2012-13 continued to be led by public sector banks, which account for the major portion of bank advances. Deterioration in asset quality and in macroeconomic conditions resulted in increased risk aversion in the banking sector. This, in turn, led to a portfolio switch from credit creation to investment in SLR securities on the back of large government market borrowings (Chart IV.7).

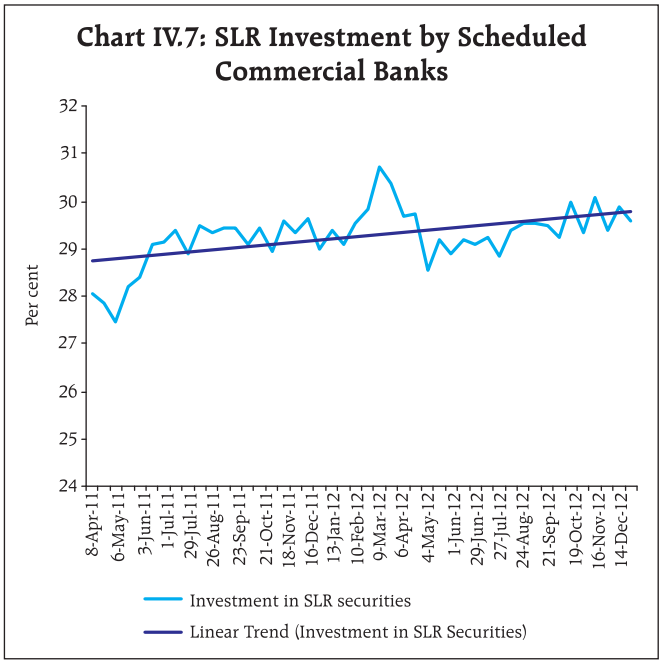
Lagged monetary policy transmission to lending rate also indicates structural rigidities in the credit market

IV.12 Taking a cue from the reduction in the policy rate (repo rate) by 50 bps in April 2012 and the subsequent reduction in the SLR by 100 bps in August 2012 and the CRR by 175 bps during January-November 2012, several banks have reduced their deposit and base rates during 2012-13 (up to January 15, 2013). Accordingly, the modal deposit rate and modal base rate of banks declined during the financial year so far. Though the impact of these policy measures is still unfolding, available data suggest that the

Table IV.4: Bank Group-wise NPA Ratios

Bank Group	Jun-12					Sep-12				
	Gross NPAs to Gross Advances (%)	Net NPAs to Net Advances (%)	Slippage Ratio #	Restructured Standard Asset to Gross Advances (%)	CRAR (%)	Gross NPAs to Gross Advances (%)	Net NPAs to Net Advances (%)	Slippage Ratio #	Restructured Standard Asset to Gross Advances (%)	CRAR (%)
1	2	3	4	5	6	7	8	9	10	11
Public Sector Banks	3.57	1.75	3.49	6.67	12.78	4.02	2.02	2.89	7.34	12.33
Foreign Banks	2.90	0.83	2.43	0.08	15.72	2.90	0.76	1.38	0.16	17.07
New Private Sector Banks	2.19	0.45	1.31	1.06	16.11	2.1	0.45	1.12	1.05	16.34
Old Private Sector Banks	1.92	0.61	0.02	3.83	13.82	2.16	0.81	1.61	3.85	13.78
All Banks *	3.25	1.45	3.04	5.37	13.74	3.59	1.66	2.50	5.86	13.60

Source: Latest updated OSMOS database. * Includes LABs.
Based on the data collected from banks for special analysis. Sep-12 figures of slippage ratio are annualised.



transmission of the policy rate to deposit and lending rates of banks is relatively less pronounced than money market rates, reflecting the presence of structural rigidities in the credit market.

Non-bank domestic sources augmented flow of resources to the commercial sector

IV.13 The total flow of financial resources to the commercial sector for the financial year so far (up to January 11, 2013) was higher compared with the corresponding period of the previous year (Table IV.5). The increase in flow has been accounted for by both bank and non-bank sources, though the latter played a dominant role. Among the domestic sources, non-food credit and non-SLR investment by SCBs, net issuance of commercial paper, net credit by housing

Table IV.5: Resource Flow to the Commercial Sector

(₹ billion)

	April-March			April 1 to Jan 11		
	2009-10	2010-11	2011-12	2011-12	2012-13	
1	2	3	4	5	6	
A. Adjusted Non-Food Bank Credit (NFC)	**4,786**	**7,110**	**6,764**	**3,953**	**4,397**	
i) Non-Food Credit	4,670	6,815	6,525	3,705	4,058	
of which: petroleum and fertiliser credit	*100*	*-243*	*171*	*7*	*0*	^
ii) Non-SLR Investment by SCBs	117	295	239	248	338	
B. Flow from Non-banks (B1+B2)	**5,850**	**5,341**	**5,338**	**4,154**	**5,232**	
B1. Domestic Sources	***3,652***	***3,011***	***3,034***	***1,913***	***2,951***	
1. Public issues by non-financial entities	320	285	45	40	103	*
2. Gross private placements by non-financial entities	1,420	674	558	328	442	P+
3. Net issuance of CPs subscribed to by non-banks	261	68	100	393	778	*
4. Net Credit by housing finance companies	285	428	530	248	387	^
5. Total gross accommodation by 4 RBI regulated AIFIs - NABARD, NHB, SIDBI & EXIM Bank	338	400	469	215	184	*
6. Systemically important non-deposit taking NBFCs (net of bank credit)	607	795	912	480	716	+
7. LIC's net investment in corporate debt, infrastructure and Social Sector	422	361	419	210	341	*
B2. Foreign Sources	***2,198***	***2,330***	***2,304***	***2,241***	***2,281***	
1. External Commercial Borrowings / FCCB	120	555	421	309	406	*
2. ADR/GDR Issues excluding banks and financial institutions	151	92	27	26	10	^
3. Short-term Credit from abroad	349	502	306	269	519	+
4. Foreign Direct Investment to India	1,578	1,181	1,550	1,637	1,346	^
C. Total Flow of Resources (A+B)	**10,636**	**12,451**	**12,102**	**8,107**	**9,629**	
Memo:						
Net resource mobilisation by Mutual Funds through Debt (non-Gilt) Schemes	966	-367	-185	-54	699	*

Note: ^ : Up to November 30, 2012. + : Up to September 30, 2012. * : Up to December 2012. P: Provisional.

finance companies, systemically important non-deposit taking NBFCs, witnessed large increase compared to corresponding period previous year. Foreign sources of funding (up to December 2012), also recorded marginal increase compared with the previous year, mainly on account of a higher external commercial borrowings/ foreign currency convertible bonds and short-term credit from abroad. However, FDI, which is considered to be the most stable source of capital inflows, witnessed a decline during the period.

Monetary conditions may evolve with shifting growth-inflation dynamics

IV.14 Since January 2012, monetary policy has sought to balance the growth–inflation dynamics through a combination of liquidity easing measures and policy rate cut. It has reduced the CRR and the SLR and infused primary liquidity through open market purchases. After front-loading a 50 bps repo rate cut in April 2012, the Reserve Bank has maintained a pause on policy rate so far because of inflation remaining above its comfort level and the lack of requisite adjustments to fiscal and current account imbalances. Going forward, if inflation continues to trend down, monetary policy could increasingly shift focus and respond to growth moderation. However, the exact policy path would be contingent upon the evolving dynamics of inflation and growth, the trajectory of monetary and credit aggregates and other macroeconomic and financial parameters.

V. Financial Markets

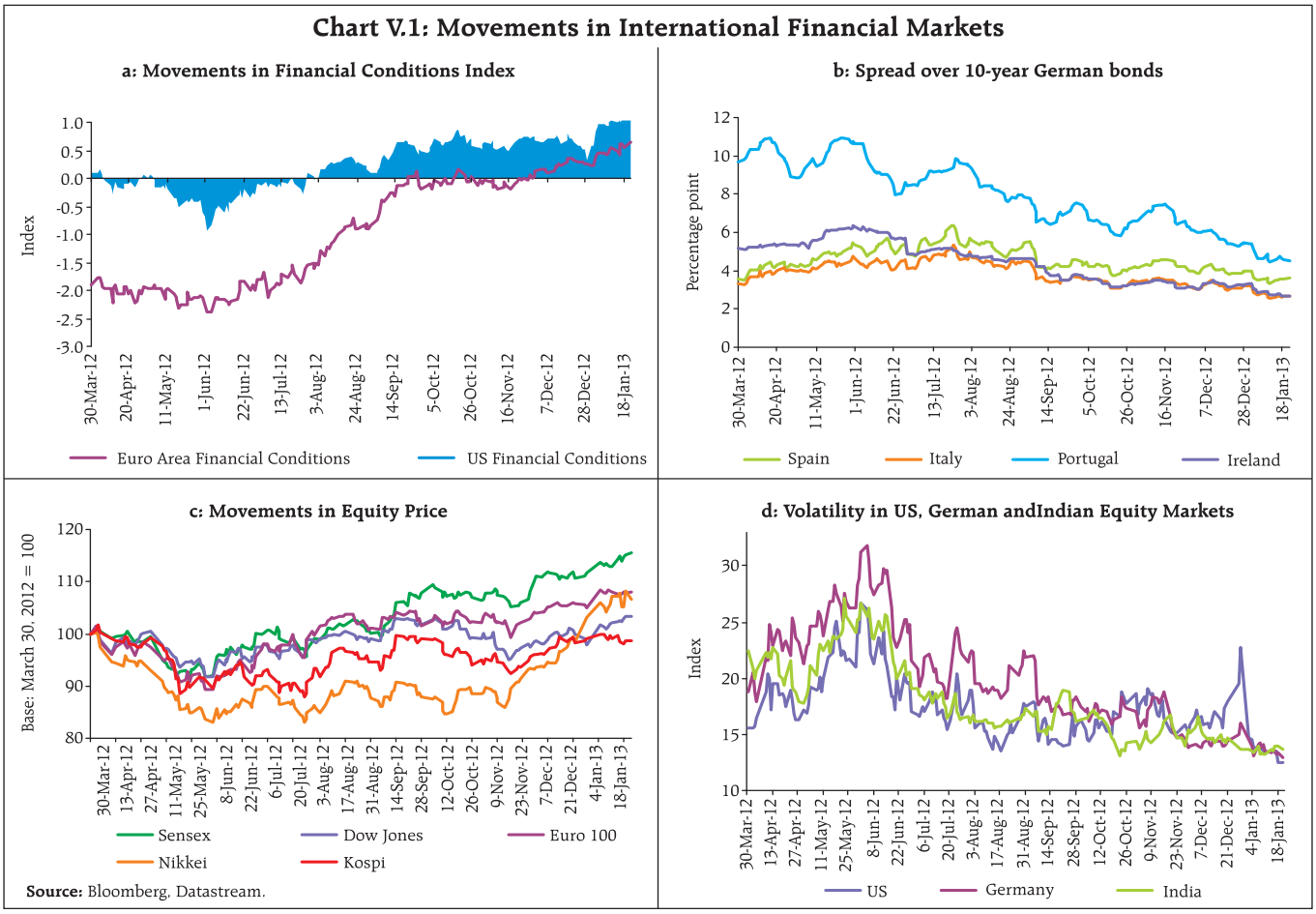
Policy actions, both domestic and global, augured well for the Indian financial markets in Q3 of 2012-13. With aggressive monetary-easing measures by central banks of advanced economies and some policy initiatives in distressed euro area economies, capital flows surged into emerging economies. The Indian rupee and equity markets greatly benefitted from the improved investor optimism. Despite the domestic macroeconomic stress, expectations of a turnaround in the economy drove the rally in the Indian markets. Improved investor confidence was also visible from the pick-up in the IPO market after a subdued year.

Global financial markets improve on euro area policy action and fiscal cliff agreement

V.1 International financial market conditions improved in Q3 of 2012-13 despite a fragile global economic outlook. Recent financial market developments indicate a perceived reduction in some major downside risks to the world economy. The easing of stress can be seen in the positive streak shown by Bloomberg's Composite Financial Conditions Index (BFCIUS Index) that tracks the overall stress in money, bond, and equity markets, thereby enabling assessment of the availability and cost of credit (Chart V.1a).

V.2 The possibility of a near-term worsening of the euro area crisis also appears to have declined following new policy announcements and the extension of financial help to troubled periphery economies. In December 2012, the euro area finance ministers empowered the European Central Bank (ECB) as the common bank supervisor from 2014. They also approved €39.5 billion aid to Spanish banks. International leaders also agreed upon a deal to again restructure Greece's debt, with further large hair cuts

Chart V.1: Movements in International Financial Markets



Source: Bloomberg, Datastream.

that paved the way for the release of €34.4 billion in aid payment. Following these developments, credit default swap (CDS) spreads for European economies have reduced.

V.3 With the improvement in borrowing conditions in the financial markets, the 10-year G-sec interest rate spread between distressed euro area countries such as Spain, Italy, Ireland and Portugal, and Germany declined (Chart V.1b). The Italian and Spanish governments were also able to raise longer-maturity debt from the markets with improvements in funding conditions.

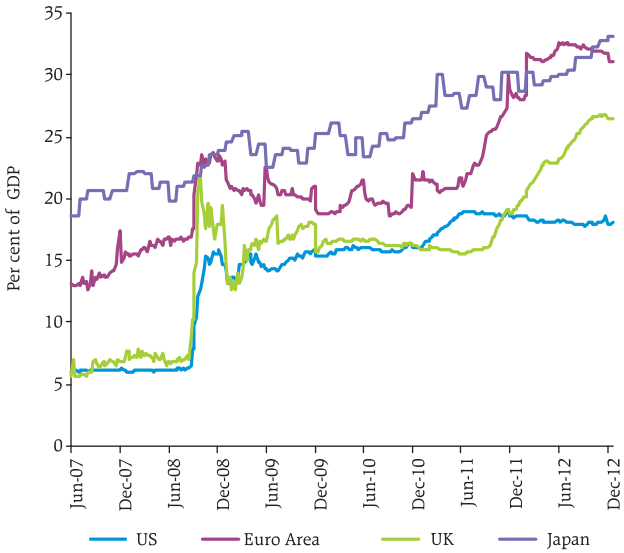
V.4 Global equity prices showed major gains in 2012, as investor preference to hold risky assets increased following quantitative stimuli announced by major central banks, despite weak corporate earnings. The mini-fiscal deal clinched by the US also aided the rally in global markets in 2013 so far (Chart V.1 c). Stock market uncertainty, as measured by implied volatility, also decreased during the period under review (Chart V.1d).

AE central banks' unconventional policy stimuli boost market sentiments

V.5 Unprecedented monetary stimuli by central banks of advanced economies (AEs), which include QE3 and recently announced additional purchase of long-term treasury securities to the tune of US$ 45 billion per month by the US Federal Reserve (Fed), the outright monetary transactions (OMT) programme by the ECB and the asset purchase programme by the Bank of Japan (BoJ), as well as measures taken by the European Union to contain the euro area debt crisis, have helped revive global financial market sentiments. Concomitantly, the balance sheets of these central banks have expanded significantly (Chart V.2).

V.6 Despite the positive impact of central banks' unconventional monetary policy actions, the future impact of such policy is of concern as latter rounds of QE had a subdued effect (Chart V.3a). Monetary policy stimuli in Q4 of 2012 did not necessarily have a dampening effect on the long-term treasury yield in the US (Chart V.3b). This could be because, in the absence of a credible long-term fiscal consolidation plan, yields may have become less responsive to central bank actions. On the whole, the evaluation of the success of QE would require further research.

Chart V.2: Central Bank Balance Sheet Expansion



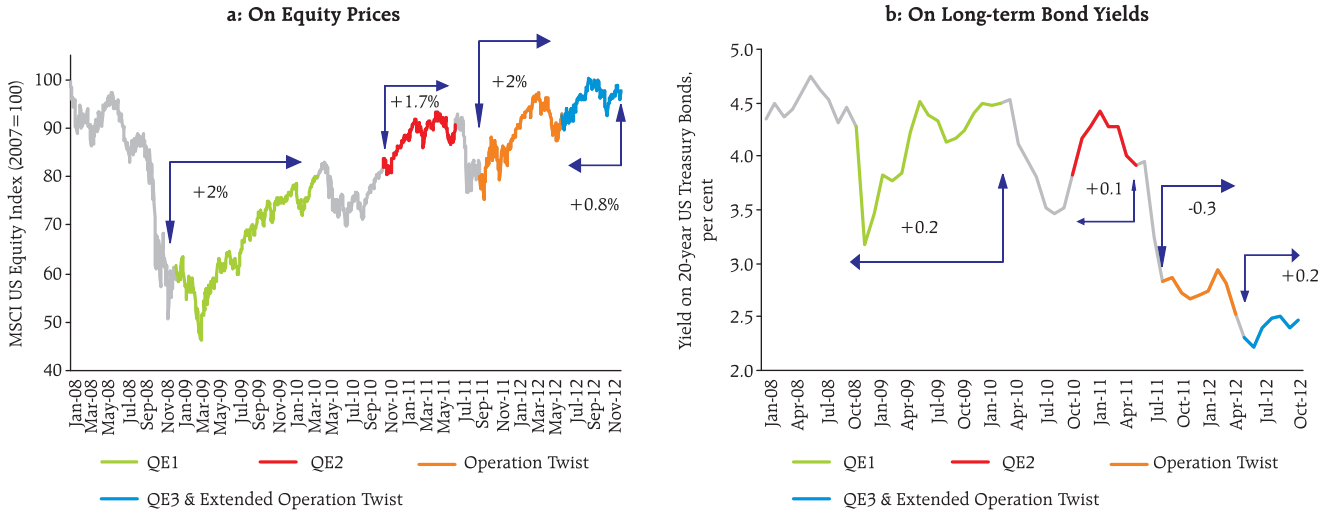
Source: Datastream.

Buoyant capital flows drive asset prices in EMDEs

V.7 Excessive global liquidity arising from the easy monetary policy pursued by central banks in AEs, along with the lack of investment opportunities, channelled funds into the emerging market and developing economies (EMDEs) in search of higher returns. India and other Asian countries, such as South Korea, Philippines and Thailand, received higher FII inflows in 2012 than in 2011 (Chart V.4).

V.8 Apart from the push factors discussed above, various pull factors emanating from domestic factors, such as the continued dependence of the Indian economy on domestic consumption unlike other export-driven economies and the relatively stable earnings of listed companies, aided the surge in flows into India. The domestic reform measures announced by the government since mid-September 2012 also boosted investor sentiments. Indian equity markets showed significant turnaround, while the rupee remained range-bound.

Chart V.3: Impact of US Federal Reserve Actions



Note: Figures denote average monthly percentage change.
Source: Datastream.

Note: Figures denote yield change in percentage points.
Source: Datastream.

Money markets remained stable despite liquidity deficit

V.9 Notwithstanding tight liquidity conditions due to advance tax payments, high government cash balances and rise in currency in circulation, the weighted average call money rate generally remained around the repo rate in Q3 of 2012-13. The rates in the collateralised segments *i.e.*, CBLO and market repo, which constitute the predominant share (around 80 per cent) of the overnight money market, moved in tandem with the call money rate (Chart V.5).

V.10 The amount of outstanding certificates of deposits (CDs) witnessed a fall during 2012-13. The weighted average effective interest rate (WAEIR) of

Chart V.4: FII flows into EMDEs

Source: Bloomberg.

Chart V.5: Movement in Money Market Rates

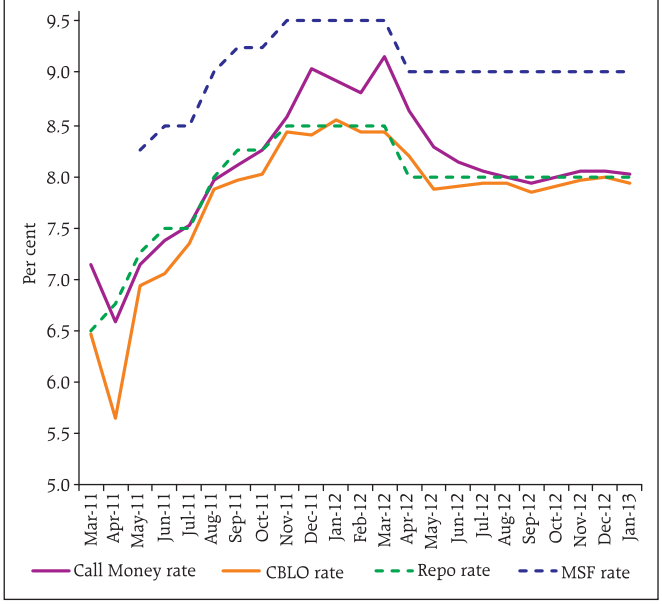


Table V.1: Average Daily Volume in Domestic Financial Markets

(in ₹ billion)

Month	Money Market						Bond Market		Forex Market inter-bank (US$ bn)	Stock Market ##
	LAF	Call Money	Market Repo	CBLO	Commercial Paper*	Certificates of Deposits*	G-Sec**	Corporate Bond#		
1	2	3	4	5	6	7	8	9	10	11
Mar-12	–1574	175	112	380	912	4195	99	26	21	152
Jun-12	–913	152	180	376	1258	4252	258	30	19	117
Sep-12	–517	143	185	502	1706	3572	260	36	21	143
Oct-12	–671	150	218	436	1941	3531	230	39	20	139
Nov-12	–941	141	207	368	1994	3066	157	25	18	128
Dec-12	–1231	142	147	398	1818	3328	197	28	19	145

*: Outstanding position. ** : Average daily outright volume traded in central government dated securities.

: Average daily trading in corporate bonds. ## : Average daily turnover in BSE and NSE.

Note: (–) ve figure under LAF indicates injection of liquidity into the system.

aggregate CD issuances decreased to 8.7 per cent at end-December 2012 from 11.1 per cent at end-March 2012 (Table V.1).

V.11 Increased risk aversion by banks to lend to the corporate sector, as evident from the moderation in credit off-take, also manifested in a significant uptick in the size of fortnightly issuance of commercial paper (CP). The weighted average discount rate (WADR) of aggregate CP issuances decreased to 9.0 per cent at end-December 2012 from 12.2 per cent at end-March 2012.

Yield curve gets inverted on economic slack and as borrowing programme stays on track

V.12 During Q3 of 2012-13, G-sec yields firmed up in October, but declined markedly since December, with bonds rallying in response to four major factors. First, the market assessed that the year may pass without additional market borrowing. Second, expectations of a rate cut were built on moderating inflation. Third, resumption of OMO purchases by the Reserve Bank also led to a rally in G-sec market. Fourth, on review of the government's cash position, the auction of dated securities scheduled for January 4, 2013 got postponed to late February 2013, which also caused the yields to soften. The 10-year generic yield declined from 8.63 per cent at end-March 2012 to 7.99 per cent on January 1, 2013 and further to 7.88 per cent as on January 24, 2013 (Chart V.6).

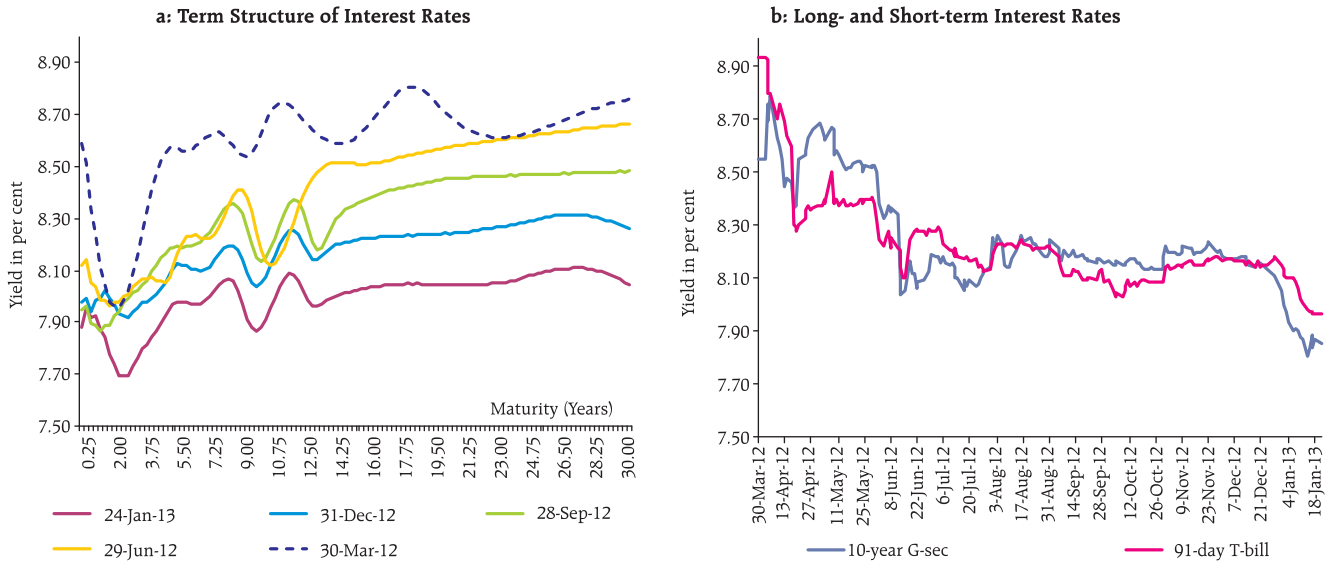
V.13 However, during Q3, the fall in short term yields was not as significant, largely on account of persistent tightness in liquidity and the government's decision to increase the quantity of T-bill issuances during the last quarter of the fiscal. With the spread between the yield on the 10-year G-sec and 91-day T-bill turning negative, the G-sec market showed an inverted yield curve. During the financial year, up to January 21, 2013, the weighted average maturity of the dated securities issued has increased to 13.5 years from 12.5 years during the corresponding period last year. The bid-cover ratio stood in the range of 1.36-4.10 as against 1.39-5.12 in the previous year (Table V.2).

V.14 In the same period, 27 states have raised ₹1.3 trillion on a gross basis compared with around ₹1.1 trillion raised during the corresponding period of the previous year.

Rupee exchange rate remained range bound in Q3 of 2012-13

V.15 Various reform measures, including liberalised FDI limits for certain sectors and the announcement of a fiscal consolidation path, enhanced global investor confidence in the Indian economy. This, along with announcements of quantitative easing by the US Fed and the BOJ, boosted capital inflows to India and aided the recovery of the rupee. Following the significant

Chart V.6: Movements in G-sec Yield



appreciation in September 2012, the rupee movement turned range bound with a weakening bias, reflecting the wide trade deficit (Chart V.7).

V.16 As on January 23, 2013, the rupee showed lower depreciation over end-March 2012 compared to other major EMDEs like Brazil, South Africa and Argentina (Table V.3).

Domestic equity markets firmed up as market liquidity improved with FII flows

V.17 As on January 24, 2013, the domestic equity markets witnessed a y-o-y gain of 17.2 per cent with a 6.2 per cent gain over end-September 2012. Following the global equity market rally driven by a spate of generally better international economic data and policy actions, the Indian bourses also picked up. The BSE Sensex and S&P CNX Nifty crossed the 20,000 and 6,000 mark, respectively after two years. The BSE Sensex closed at 19,924 on January 24, 2013.

V.18 Various factors, including recent reform measures such as the diesel price hike, cap on

Table V.2: Issuances of Central and State Government Dated Securities

Item	2011-12	2012-13*
1	2	3
Central Government		
Gross amount raised (₹ billion)	5,100.0	5,220.0
Devolvement on primary dealer (₹ billion)	121.1	18.3
Bid-cover ratio (range)	1.39-5.12	1.36-4.10
Weighted average maturity (years)	12.66	13.48
Weighted average yield (per cent)	8.52	8.39
State government		
Gross amount raised (₹ billion)	1,586.3	1,312.3
Cut-off yield range (per cent)	8.36-9.49	8.58-9.31
Weighted average yield (per cent)	8.79	8.92

* Up to January 21, 2013.

Chart V.7: Nominal Exchange Rate of the Rupee

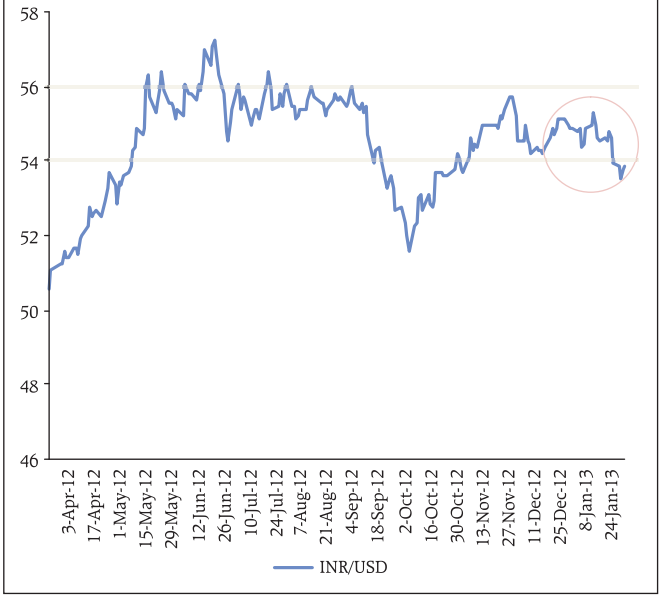


Table V.3: Movement in Exchange Rates of Select EMDEs against the US dollar

Appreciation (+)/Depreciation (-) in per cent

Currency	2010-11	2011-12	Jan 23, 2013 over end-March 2012
1	2	3	4
Current Account Deficit Countries			
1. Brazilian Real	9.7	-10.8	-10.4
2. Indian Rupee	1.1	-12.7	-4.9
3. Mexican Peso	4.3	-7.0	1.2
4. South African Rand	8.0	-11.5	-14.3
5. Turkish Lira	-4.8	-10.5	0.6
Current Account Surplus Countries			
1. Argentina	-4.3	-7.5	-11.7
2. Indonesian Rupiah*	4.7	-5.1	-4.7
3. Malaysian Ringgit	8.2	-1.4	1.0
4. South Korea Won	2.2	-2.7	6.9
5. Thai Baht	6.7	-1.8	3.6
6. Russian Rouble	3.4	-2.8	-3.0
7. Euro	5.4	-6.0	-0.2
8. China	4.1	4.2	0.3

*: Since Q4 of 2011 Indonesia has turned into a current account deficit country.

subsidised LPG, permission for FDI in retail and aviation and the passing of the Banking Laws (Amendment) Bill, 2011 in Parliament, along with hopes of a cut in the policy rate by the Reserve Bank in January 2013, and sustained FII inflows helped revive the domestic equity market.

V.19 Market indicators, such as market capitalisation and daily turnover, have shown an increasing trend in 2012, reflecting the positive sentiment in the Indian stock market. Further, the PE ratio of the BSE Sensex increased in 2012, indicating a rise in the valuation of Indian stock over the year.

V.20 During 2012-13 (up to January 23, 2013), FIIs made net investments of ₹1,190 billion in the capital market (both equity and debt) compared with that of ₹520 billion during the corresponding period in the previous year. FIIs made net investments of ₹1,011 billion in the equity markets compared with ₹27 billion last year.

V.21 Domestic institutional investors (DIIs) (comprising banks, domestic financial institutions, insurance companies, new pension fund and mutual funds) made net sales during 2012-13 (up to January 23, 2013) (Chart V.8).

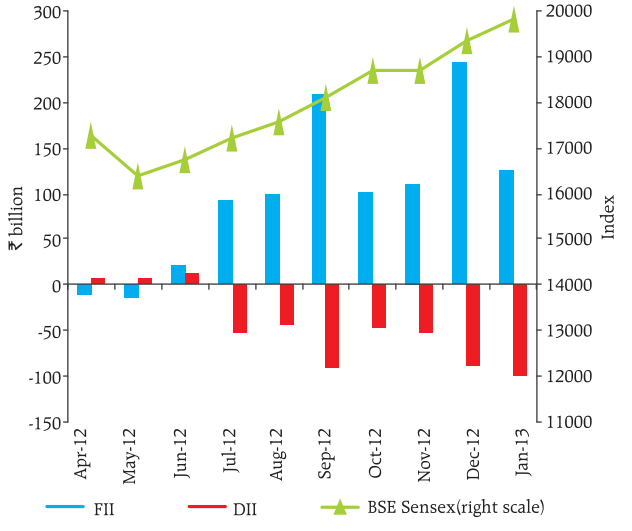
Bankex outperformed Sensex

V.22 As at end-December 2012, the BSE Bankex, which represents major banks in India, recorded much higher y-o-y gains of 57 per cent than the BSE Sensex (26 per cent), despite concerns about modest loan growth, deterioration in asset quality and alleviated risks. The factors that influenced the BSE Bankex favourably are the strong balance sheet performance by some private sector banks, stable net interest margin owing to a reduction in the CRR by 175 basis points of NDTL and expectation of treasury profit as bonds rallied. The Bankex also benefitted from the positive sentiments in the overall Indian equity markets.

Signs of IPO market revival in December 2012 after a subdued period

V.23 During September–December 2012, ₹110 billion was mobilised through 18 issues compared to ₹23

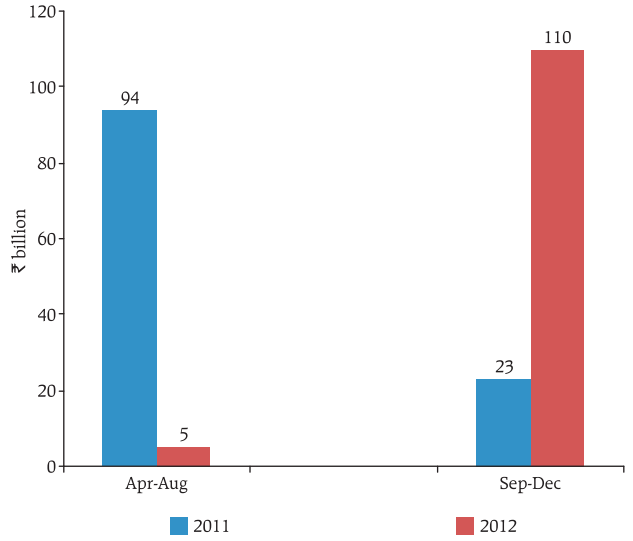
Chart V.8: FII and DII Investments in Equity Market



Source: SEBI and BSE.

billion mobilised through 11 issues during the corresponding period last year (Chart V.9). Various measures taken by SEBI, such as allowing qualified foreign investors (QFIs) to invest in the primary as well as secondary markets, electronic initial public offers (e-IPOs), requiring companies to attain the minimum public shareholding of 25 per cent by June 2013, introduction of the Rajiv Gandhi Equity Savings Scheme, 2012 and the disinvestment programme by the government may also enhance primary market activity.

Chart V.9: Trends in Public Issues Mobilisation



Source: SEBI.

House prices show slight moderation, but with increasing volumes

V.24 The annual growth in the Reserve Bank's quarterly House Price Index at the all-India level remains strong at 23 per cent in Q2 of 2012-13. The q-o-q increase, however, moderated to 3 per cent, the lowest in the past seven quarters. Transaction volumes have picked up and showed an annual growth of over 12 per cent in Q2 (Table V.4).

Table V.4: House Price and Transaction Volume Indices (Base Q4:2008-09 = 100)

Quarter	Mumbai	Delhi	Bengaluru	Ahmedabad	Lucknow	Kolkata	Chennai*	Jaipur	Kanpur	All India
1	2	3	4	5	6	7	8	9	10	11
House Price Index										
Q1:2011-12	191.6	152.8	116.9	152.3	149.3	157.0	106.3	161.1	135.4	152.0
Q2:2011-12	206.1	153.0	116.0	162.8	159.2	159.0	113.9	165.1	138.3	157.8
Q3:2011-12	191.7	168.6	146.1	171.8	172.3	155.0	120.3	163.5	140.0	164.1
Q4:2011-12	224.7	195.3	140.6	177.2	169.7	158.4	117.0	164.4	148.7	176.9
Q1:2012-13	231.8	217.3	140.2	176.6	179.4	204.2	133.9	171.9	144.9	188.6
Q2:2012-13	232.4	225.2	143.0	183.4	208.9	226.9	129.5	177.7	135.8	194.3
Growth in per cent										
y-o-y	12.8	47.2	23.2	12.7	31.3	42.7	13.7	7.6	–1.8	23.1
q-o-q	0.3	3.6	2.0	3.9	16.4	11.1	–3.3	3.4	–6.3	3.0
House Transactions Volume Index										
Q1:2011-12	89.5	149.4	100.8	134.3	93.9	107.9	80.3	243.1	208.4	123.2
Q2:2011-12	79.0	165.5	123.5	154.1	106.7	139.2	85.5	239.1	131.1	129.1
Q3:2011-12	75.9	195.9	84.6	131.2	165.1	108.9	130.9	222.0	120.6	128.9
Q4:2011-12	108.6	149.8	70.8	122.2	153.0	128.5	99.0	247.5	172.1	126.5
Q1:2012-13	153.2	133.6	81.6	140.1	151.9	98.2	80.9	296.7	154.9	134.6
Q2:2012-13	100.4	142.6	112.6	130.5	233.7	96.9	68.2	322.6	409.2	145.4
Growth in per cent										
y-o-y	27.1	–13.8	–8.8	–15.3	119.1	–30.4	–20.2	34.9	212.1	12.6
q-o-q	–34.5	6.7	38.0	–6.9	53.9	–1.3	–15.7	8.7	164.1	8.0

Note: *Chennai index is based on both residential and commercial properties.
All-India index is a weighted average of city indices, weights based on population proportion.

Markets improve, but uncertainty still significant for 2013

V.25 Reduced fiscal space in several AEs and limited scope for monetary policy actions due to the enlarged balance sheets of central banks are expected to keep sentiments and markets range bound. The stress in the global financial markets has eased in view of reduced uncertainties in the euro area and the temporary resolution of the fiscal cliff in the U.S. However, a credible fiscal consolidation by the US can generate a more significant impact. Quantitative easing by the AEs has translated into higher capital flows to EMDEs, including India, which may witness some moderation going forward, but is nevertheless, likely to remain positive in the near term.

V.26 Looking at domestic factors, commitment to reforms and efforts for sustainable fiscal consolidation would provide a positive impetus to the markets. Stronger signs of global and domestic recovery are crucial to support investor optimism.

VI. Price Situation

Headline inflation moderated from over 8 per cent in September 2012 to 7.2 per cent in December 2012. The significant slowdown in growth below trend led to a decline in non-food manufactured products inflation. Food inflation, however, continued to persist at elevated levels as new drivers emerged, which was also reflected in double-digit consumer price inflation. Inflation is expected to moderate gradually, supported by softer global commodity prices and weak domestic demand even though some pressure could be felt from the staggered increases in diesel prices. Also, there are continued risks from persistent price pressures from food, high inflation expectations and wage-price spiral, leading to further pressure on generalised inflation.

Global inflation conditions remain benign, albeit with some pressure in EMDEs

VI.1 Subdued global inflation environment in AEs continued into Q3 of 2012-13, as weaker global growth dampened demand conditions and commodity prices remained range bound. The average inflation in OECD countries was 1.9 per cent in November 2012, with core inflation (excluding food and fuel) being lower at 1.6 per cent. Among the major EMDEs, China recorded inflation of 2.5 per cent in December 2012, while inflation in Russia, Brazil and South Africa ruled above 5 per cent.

Fresh round of quantitative easing (QE) enhances global liquidity

VI.2 Continued weakness in the global economy has forced the central banks in most AEs to continue with extremely easy monetary policy of near zero nominal interest rates and quantitative easing (Table VI.1).

Table VI.1: Global Inflation Indicators

Country/ Region	Key Policy Rate	Policy Rate (as on January 24, 2013)	Changes in Policy Rates (basis points)		CPI Inflation (Y-o-y, per cent)	
			Sep 2009 to Dec 2011	Jan 2012 to Jan 2013 (as on 24th Jan)	Dec-11	Dec-12
1	2	3	4	5	6	7
Advanced Economies						
Australia	Cash Rate	3.00 (Dec 5, 2012)	125	(-) 125	3.0#	2.2#
Canada	Overnight Rate	1.00 (Sep 8, 2010)	75	0	2.9$	0.8$
Euro area	Interest Rate on Main Refinancing Operations	0.75 (Jul 11, 2012)	0	(-) 25	2.7	2.2
Israel	Key Rate	1.75 (Jan 1, 2013)	225	(-) 100	2.2	1.6
Japan	Uncollateralised Overnight Call Rate	0.0 to 0.10* (Oct. 5, 2010)	(-) 10	0	-0.5$	-0.2$
Korea	Base Rate	2.75 (Oct 11, 2012)	125	(-) 50	4.2	1.4
UK	Official Bank Rate	0.50 (Mar 5, 2009)	0	0	4.2	2.7
US	Federal Funds Rate	0.0 to 0.25* (Dec 16, 2008)	0	0	3.0	1.7
Emerging and Developing Economies						
Brazil	Selic Rate	7.25 (Oct 11, 2012)	225	(-) 375	6.5	5.8
China	Benchmark 1-year Deposit Rate	3.00 (Jul 6, 2012)	125	(-) 50	4.1$	2.5
	Benchmark 1-year Lending Rate	6.00 (Jul 6, 2012)	125	(-) 56		
			(600)	(-150)		
India	Repo Rate	8.00 (Apr 17, 2012)	375	(-) 50	9.3$	9.5$
			(100)	(-175)		
Indonesia	BI Rate	5.75 (Feb 9, 2012)	(-) 50	(-) 25	3.8	4.3
Philippines	Reverse Repurchase Rate	3.50 (Oct 25, 2012)	50	(-) 100	4.2	2.9
	Repurchase Rate	5.50 (Oct 25, 2012)	50	(-) 100		
Russia	Refinancing Rate	8.25 (Sep 14, 2012)	(-) 275	25	6.8$	6.5$
South Africa	Repo Rate	5.00 (Jul 20, 2012)	(-) 150	(-) 50	6.1	5.7
Thailand	1-day Repurchase Rate	2.75 (Oct 17, 2012)	200	(-) 50	3.5	3.6

*: Change is worked out from the minimum point of target range. #: Q4 (Oct–Dec). $: November.
Note: Figures in parentheses in Column (3) indicate the effective dates when the policy rates were last revised. Figures in parentheses in Columns (4), and (5) indicate the variation in the cash reserve ratio during the period. For India, data on inflation pertain to CPI for industrial workers (CPI-IW).
Source: Websites of respective central banks/statistical agencies.

VI.3 The US Federal Reserve (US Fed) expanded its QE from the start of 2013 with the expiry of Operation Twist. The Bank of Japan expanded the size of its QE further and in January 2013 adopted a revised inflation target of 2 per cent. The US Fed also tweaked its September 2012 forward guidance of keeping the target range for the federal funds rate at exceptionally low levels of 0 to 0.25 per cent until at least mid-2015 with an indication to do so till: (i) the unemployment rate remained above 6.5 percent, (ii) inflation between 1–2 years ahead was projected at no more than a 0.5 percentage point above its 2 per cent longer-run goal, and (iii) longer-term inflation expectations continued to be well-anchored. However, in January 2013 it indicated the possible end of QE before the end of the year on concerns over the sustainability of such large-scale asset purchases in view of risks associated with financial stability and the size of its balance sheet.

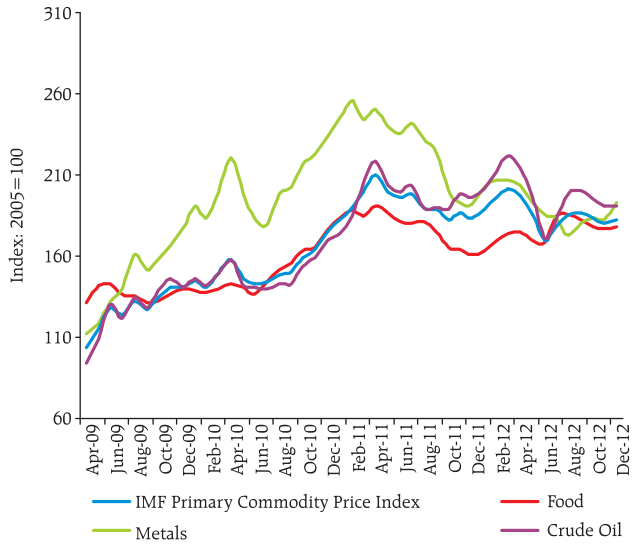
VI.4 As the recovery prospects for the global economy remain weak (see Chapter 1) amidst high unemployment, spare capacity and subdued wage pressures, the monetary policy stance of AEs is likely to continue to remain accommodative. Following significant slowdown in growth in the recent period, more and more central banks in EMDEs have reduced their policy rates to address growth concerns.

Muted global growth indicates range-bound global commodity prices in the near term

VI.5 International commodity prices gradually moderated during Q3 of 2012-13 after exhibiting some uptick in Q2 (Chart VI.1). Crude oil prices moderated as supply prospects improved and geo-political tensions eased in the Middle East. Moreover, the prospects of a weaker global economy also played a role in keeping oil prices range-bound. Metal prices continued to show signs of weakening as demand has slowed significantly, especially from China.

VI.6 The near-term outlook on global crude oil prices indicates a softening bias as many of the factors

Chart VI.1: Trends in Global Commodity Prices



Source: International Monetary Fund.

that led to lower crude prices in 2012 continue to play out. While continued slow growth of AEs and EMDEs is expected to keep demand subdued, the prospects of improved production from a number of oil-producing economies along with a possible step-up in shale oil and gas production could keep overall demand-supply conditions in favour of lower price levels. However, a major decline in oil prices seems unlikely given the tight demand-supply balance, offsetting pressure from QE and the risks of geo-political tensions further feeding into oil prices.

VI.7 International food prices moderated in recent months from the sudden spike witnessed in Q2 of 2012-13 following severe droughts this year in the US, a large part of Europe, central Asia and Australia. According to the Food and Agricultural Organization (FAO), the shortfall in global production of cereals, especially for wheat and coarse cereals could be met by drawdown of stocks. Despite some moderation, the current level of food prices remain significantly high compared to historical levels and food prices remain extremely vulnerable to shocks induced by weather-related disturbances, which have increased in the recent period.

Headline inflation moderated, but consumer price inflation remained high

VI.8 Headline Wholesale Price Index (WPI) inflation (y-o-y) in India moderated from 8.1 per cent in September 2012 to 7.2 per cent (provisional) in December 2012. The moderation in inflation during Q3 of 2012-13 was faster than expected during the second quarter review. Vegetable and fruit prices declined as the south-west monsoon revived in the latter half. The moderation was also driven by a decline in the prices of freely-priced fuel products and metals in line with some moderation in their global prices. A range-bound exchange rate further helped this course. Moreover, the indirect impact of the diesel price hike in September 2012 remained contained, indicating that firms did not pass on rising input costs to output prices on account of weak demand conditions.

VI.9 The build-up in price pressures seems to have tapered off in recent months, as the headline WPI remained almost flat (Chart VI.2). The momentum of price changes, as indicated by the 3-month moving average seasonally adjusted month-over-month changes, also indicate significant moderation. The financial year build-up of inflation during 2012-13 (up to December 2012) indicates that the price pressures that were building up in the initial months have eased significantly since September 2012, as prices remained range-bound in all the three major groups of the WPI (Chart VI.3).

Chart VI.2: Wholesale Price Index, Inflation and Month-over-Month Seasonally Adjusted Annualised Changes

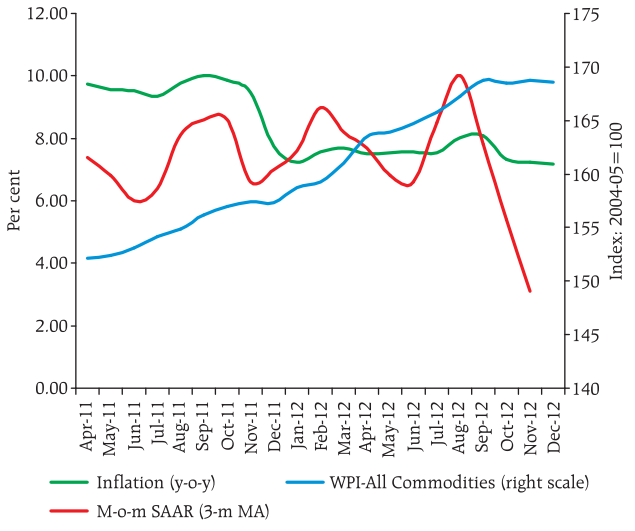
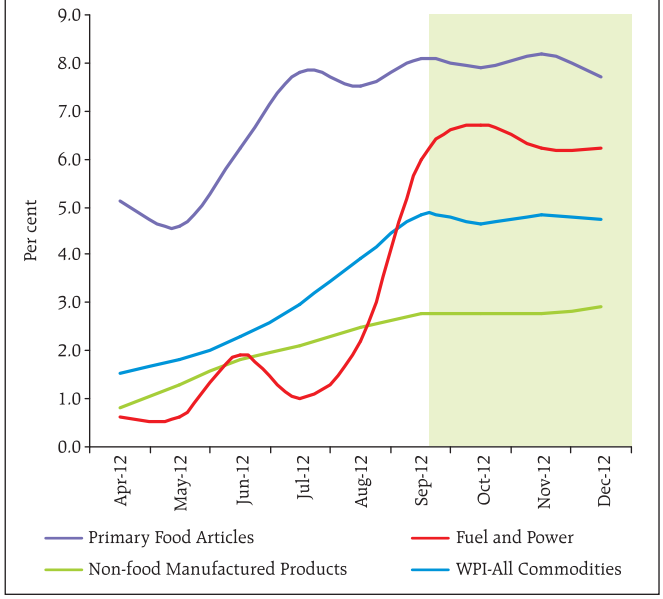


Chart VI.3: Financial Year Build-up of Inflation

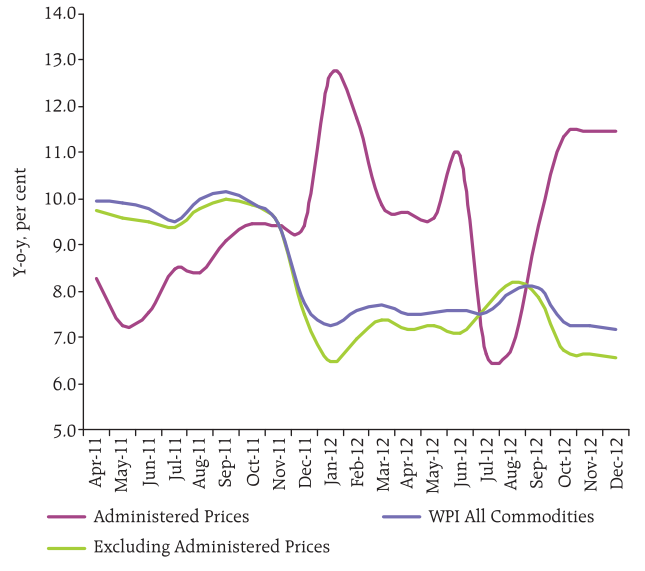


VI.10 Though headline inflation moderated somewhat, price increases for items under administered prices have been much higher than those for freely-priced products in the recent period (Chart VI.4). Moderation in inflation, commensurate with slowdown in growth, is getting constrained by suppressed inflation coming into the open with administered price revisions, especially on fuel products such as diesel and electricity. Though such revisions add to near-term price pressures, they are desirable from a medium-term price stability objective, as suppressed inflation could lead to fiscal costs in terms of mounting subsidies that could turn inflationary.

Food inflation remains persistent as new drivers emerge

VI.11 Food inflation continued to remain high as new drivers of food inflation emerged (Chart VI.5). With

Chart VI.4: Administered and Non-Administered Price Inflation in India

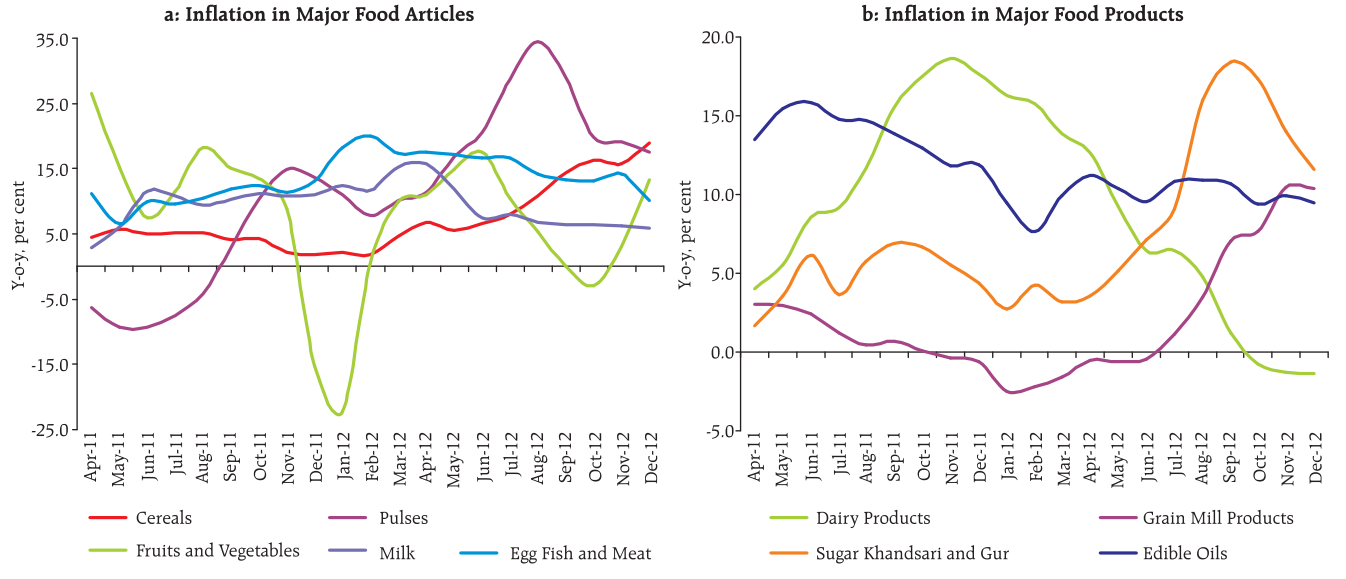


the late revival of the monsoon, prices cooled off, especially for vegetables and fruits. Price pressures, however, continued to remain significant for cereals and pulses, with financial year build-up of cereals inflation at 16 per cent and pulses at 19 per cent (up to December 2012). It may be noted that the impact of the delayed and skewed south-west monsoon was significant on the production of cereals and pulses. Inflation in protein-rich food items remained elevated, notwithstanding some moderation in recent months.

VI.12 Manufactured food products inflation also remained near double digits, as price increases were significant in sugar, grain mill products, edible oils and oil cakes. The increase in edible oil and oil cake prices could be attributed to significant increases in oilseeds prices in the recent period. Though there has been some moderation in December 2012, y-o-y price increases in oilseeds remain high at 29 per cent. The increase in the price of oil cake, used as a fodder, could spill over to milk prices.

VI.13 Persistent high food inflation has emerged as a major challenge for inflation management. There has been a significant increase in the cost of production in agriculture, driven largely by the increase in wage costs, which has also resulted in higher minimum support prices. Also, the changing pattern of consumption in favour of protein-rich items has not been matched by supply elasticities, which add to price pressures in these products. Augmenting supply capacities and integrating the supply chain by removing inefficiencies could be critical in achieving the goal of stable food prices.

Chart VI.5: Food Inflation Trends



Moderate decline in fuel inflation aided by rupee appreciation, but suppressed inflation persists

VI.14 The revision in diesel prices by ₹5 per litre in September 2012 led to fuel inflation reverting to double digits. However, in October and November 2012, prices of freely-priced fuel products declined aided by a stronger rupee and some decline in international crude oil prices. In December 2012, there was a marginal increase owing to higher bitumen prices.

VI.15 The revision in administered fuel prices and some decline in freely-priced fuel product prices led to partial closing of the gap between the two price levels (Chart VI.6). Despite this, the magnitude continues to remain large, which has resulted in the build-up of under-recoveries of the oil marketing companies (OMCs) to the tune of ₹1.25 trillion during April-December 2012, of which 59 per cent was on account of diesel.

VI.16 Given this unsustainable level of under-recoveries, the government on January 17, 2013 allowed the OMCs to raise the retail price of diesel in a staggered manner and to charge bulk consumers of diesel taking supplies directly from the installations of the OMCs at non-subsidised prices. Accordingly, the retail price of diesel was increased by ₹0.45 per litre (excluding VAT) and the price of diesel for bulk consumers was increased by ₹9.25 per litre (excluding VAT) from January 18, 2013. The government also decided to raise the number of subsidised LPG cylinders per customer from 6 to 9 in a financial year. While the increase in diesel prices could lead to higher price levels in the near-term, the reduction in fiscal burden as prices get adjusted would help in medium-term inflation management.

VI.17 High domestic fuel inflation at a time when global fuel prices remained range-bound reflects the role that administered prices play in shaping the inflation trajectory. For most periods, inflation in administered fuel products remained well below the freely-priced products under the fuel group, contributing to suppressed inflation. Now, revisions of administered prices are driving up fuel inflation at a time when freely-priced products show a significant decline in inflation, thereby making fuel inflation more persistent (Chart VI.7).

VI.18 Though global crude price (Indian basket) declined by about 2 per cent in dollar terms during April-December 2012 compared to the corresponding

Table VI.6: Global and Domestic Fuel Prices

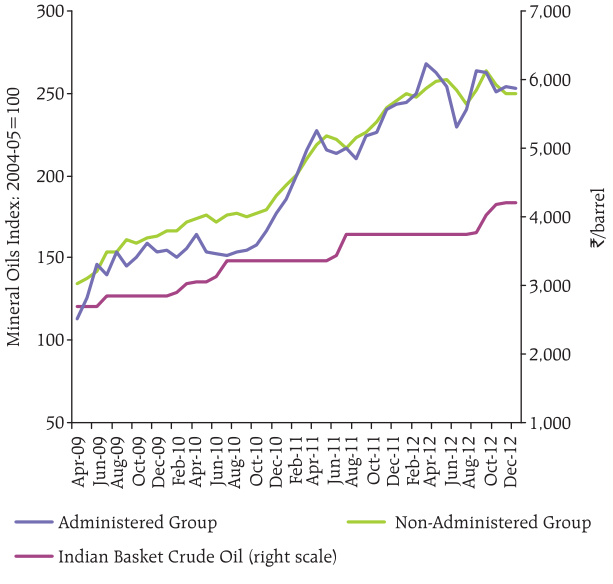
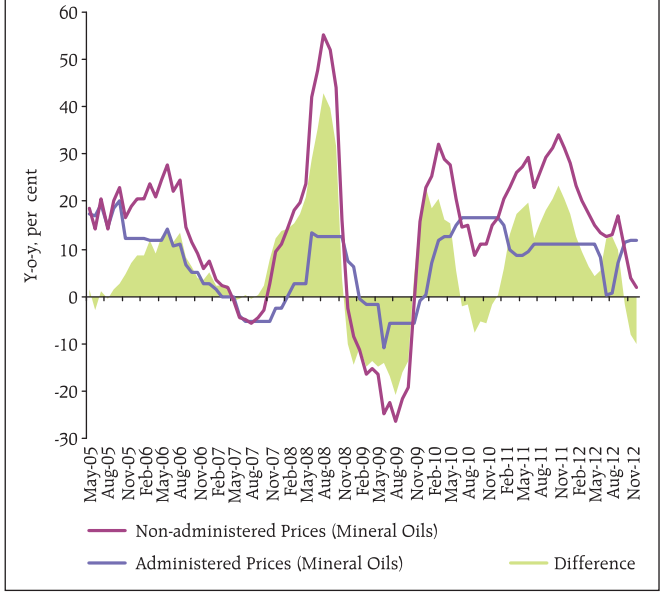


Chart VI.7: Fiscal Control on Fuel Inflation



period in the previous year, in rupee terms it increased by about 13 per cent, owing to the depreciation of the rupee. Administered price revisions were much lower than the increase in global prices, which further increased the subsidy burden. This had also limited the demand adjustments to price and exchange rate signals, thereby leading to a widening of the current account deficit (see Chapter III for details). The recent revision in diesel prices could be expected to correct some of these imbalances.

Core inflation pressure has eased and is likely to remain subdued amidst the slowdown

VI.19 Non-food manufactured products inflation, the indicator of generalised inflationary pressures, declined considerably to 4.2 per cent (provisional) in December 2012 from 5.8 per cent in August 2012. The month-over-month seasonally adjusted annualised changes (3-month moving average) also indicate significant moderation in price pressures in recent months.

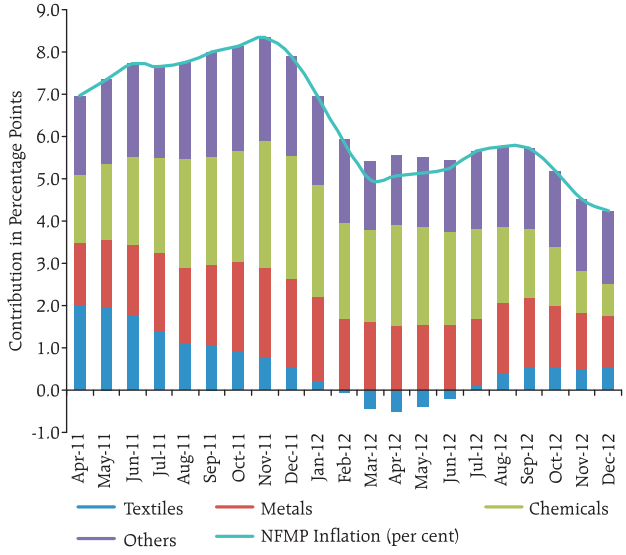
VI.20 The decline in inflation in this segment reflects both the impact of the growth slowdown, which has impacted the pricing power, as well as the pass-through of lower commodity prices, especially that of metals, as the exchange rate volatility has reduced. This also indicates the moderating impact of tight monetary policy on inflation, which is now becoming increasingly visible, *albeit* with a lag.

VI.21 Within non-food manufactured products, 'basic metals and metals products' has been the major driver of the recent decline in inflation. It is also seen that the contribution of metals and chemicals to inflation in non-food manufacturing has been significantly high in the recent period (Chart VI.8). Month-over-month price changes in most commodity groups remained marginal, indicating that the pressure on generalised inflation has ebbed significantly in the recent period.

Depreciation of the rupee offset the impact of softer global commodity prices on domestic inflation

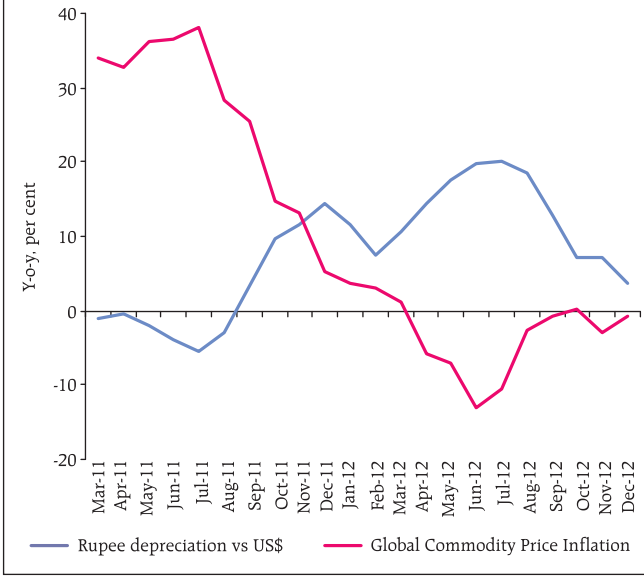
VI.22 The impact of softer global commodity prices during 2012 compared to the previous year was

Chart VI.8: Contributors to Non-food Manufactured Products (NFMP) Inflation



expected to provide some comfort on generalised inflation, especially in items such as metals and chemicals, that have a significant weight in the non-food manufactured products component of the WPI. However, the depreciation of the rupee offset this favourable impact for most of this period, thereby leading to the persistence of inflation (Chart VI.9).

Chart VI.9: Exchange Rate and Commodity Price Movements



Risks to inflation persist from high fiscal deficit, if not contained

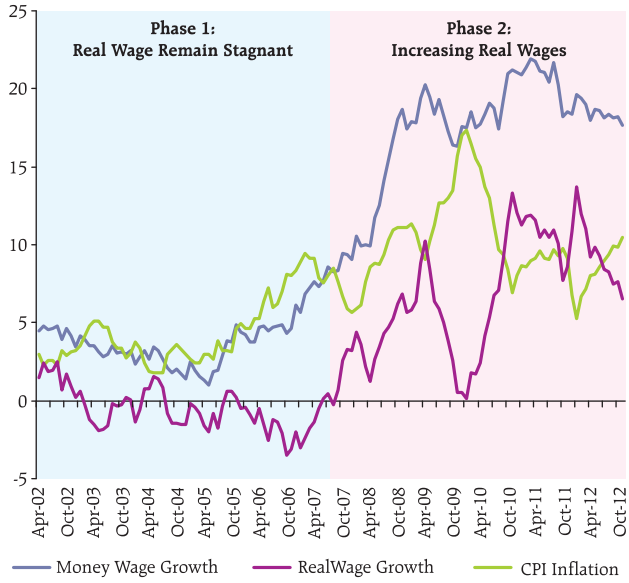
VI.23 The high level of fiscal deficit and higher revenue expenditure by the government may add to the inflationary process. Incomplete pass-through of energy prices may result in higher subsidies, which are also inflationary. While in the present macroeconomic scenario of below-trend growth the risks to inflation from the fiscal deficit may not be visible in the near term, the medium-term inflationary impact cannot be overlooked. Empirical estimates indicate that the fiscal deficit significantly contributes to inflation in the long run. There is, therefore, a need to move towards further fiscal consolidation.

Persistent wage inflation pressures may constrain inflation moderation

VI.24 Recent trends in rural wages indicate that the pace of increase in rural wages moderated from a peak of about 22 per cent (y-o-y) in August 2011 to about 18 per cent in November 2012. This, along with an increase in inflation in rural areas in recent months, led to a decline in real wage growth to about 6.5 per cent in November 2012. Though a rapid increase in wages (both nominal and real) has been a common phenomenon during the current high inflation period, a comparison with the previous period (2002-07) reveals that a significant increase in real wages occurred only in the recent period (Chart VI.10). Empirical estimates of causality between wages and inflation in rural areas show that in the recent period causality ran from wages to prices, indicating that increase in real wages has been feeding into the cost of production and also sustaining demand, thereby leading to higher prices. State-specific factors also play a major role in wage-price dynamics as is evident from the large variation in inflation and wage growth in rural areas across major states (Chart VI.11).

VI.25 There is also evidence that increasing wage costs are a source of concern even in the organised sector. Private sector surveys indicate that wage

Chart VI.10: Wages and Inflation in Rural Areas

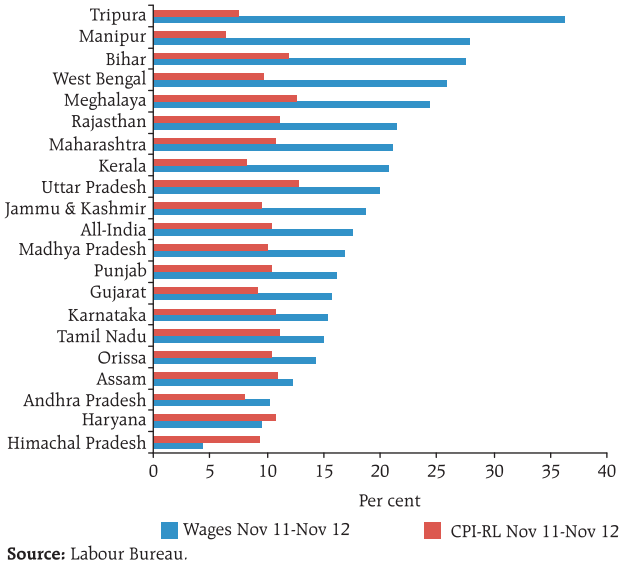


increases in India are much higher than in other EMDEs. In the private corporate sector, the increase in staff costs remained at double digits, indicating persistent pressure from wage costs (see Chapter II).

Divergence between CPI and WPI inflation persists

VI.26 Even as WPI inflation moderated, inflation, as per the all-India new Consumer Price Index (CPI-

Chart VI.11: State-wise Rural Labourers Inflation and Wage growth: November 2012



Source: Labour Bureau.

Table VI.2: WPI and New CPI (Combined) Inflation

	Food		Fuel		Excl. Food and Fuel		Overall	
	WPI	New CPI	WPI	New CPI	WPI	New CPI	WPI	New CPI
1	2	3	4	5	6	7	8	9
Weight	*24.3*	*47.6*	*14.9*	*9.5*	*60.8*	*42.9*	*100.0*	*100.0*
Apr-12	9.3	10.1	12.1	11.2	5.4	10.2	7.5	10.3
May-12	8.9	10.5	11.5	10.7	5.8	10.1	7.5	10.4
Jun-12	9.1	10.8	12.1	10.3	5.6	8.9	7.6	9.9
Jul-12	9.0	11.6	8.4	7.3	6.5	8.5	7.5	9.9
Aug-12	9.3	12.1	8.7	7.5	7.1	8.3	8.0	10.0
Sep-12	8.8	11.7	12.0	7.2	6.6	8.1	8.1	9.7
Oct-12	7.8	11.5	11.6	7.6	5.8	8.4	7.3	9.8
Nov-12	9.0	11.8	10.0	7.4	5.6	8.4	7.2	9.9
Dec-12	10.4	13.1	9.4	8.2	5.0	8.4	7.2	10.6

combined: rural+urban), remained elevated, with inflation for December 2012 at 10.6 per cent. Double-digit food inflation in the new CPI, which has a higher weight for food than the WPI, continues to keep CPI inflation above the WPI. Also, in the new-CPI, excluding the food and fuel component, inflation remains much higher than the WPI (Table VI.2). This could be partly because the WPI does not cover services and rent, whereas both are covered in the new CPI. In terms of contribution to inflation, the pattern remained consistent in the recent period with the food and beverage group being the major driver. The persistence of high CPI inflation compared to the headline inflation moderation is a source of concern.

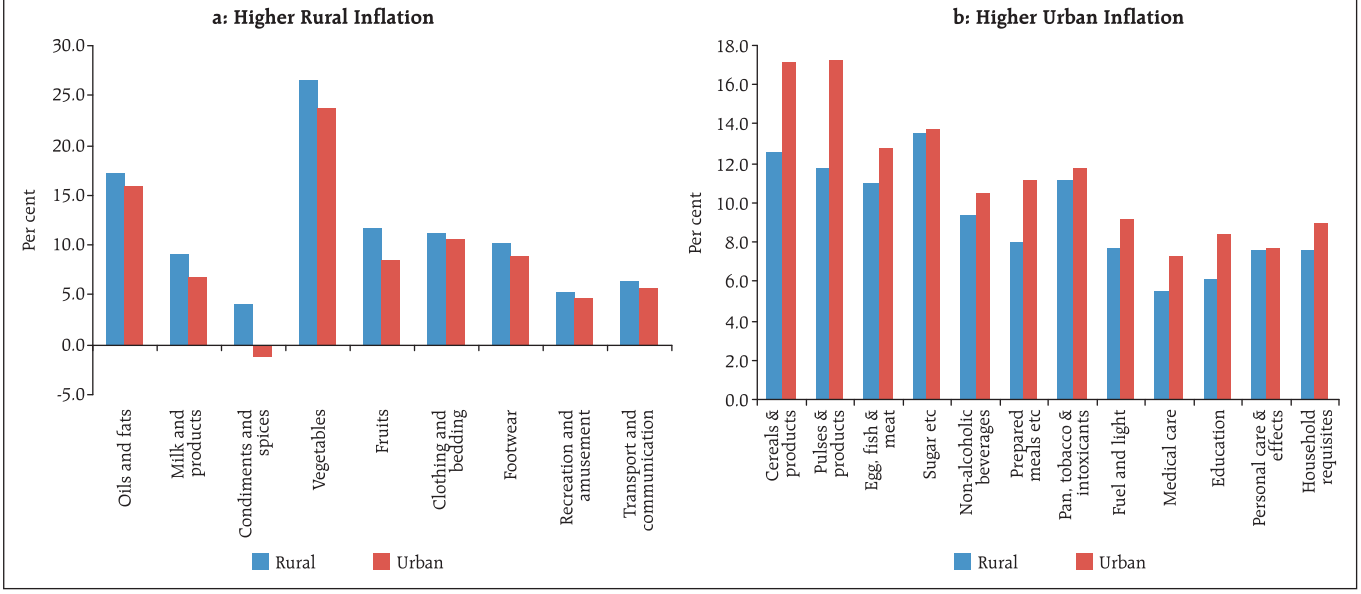
Inflation remains divergent between rural and urban areas across product groups

VI.27 Though the overall inflation in rural and urban areas remains close (at 10.7 and 10.4 per cent, respectively, in December 2012), there is wide variation in inflation across various commodity groups (Chart VI.12). In the case of vegetables, condiments & spices and milk, inflation is higher in rural areas than in urban areas, even though rural areas are the producers of these products. In urban areas, cereals, pulses, prepared meals, sugar and some miscellaneous goods and services report higher inflation. It is also observed that food prices are more volatile in urban areas than in rural areas. The role of supply-chain inefficiencies merits closer analysis in this context.

Inflation moderation may be constrained by persistent risks during 2013-14

VI.28 The current moderation in both headline and core inflation reflects the impact of a significant slowdown in growth and past monetary policy measures. While the supply-side pressure from high

Chart VI.12: Commodity Group-wise Rural and Urban Inflation: December 2012



food prices persists, suppressed inflation in the fuel group needs to be passed on even at the cost of a higher inflation reading in the short term.

VI.29 Going forward, while the likely persistence of a high consumer price inflation remains a concern, expected moderation in headline WPI inflation in Q4 of 2012-13 could improve the overall inflation scenario. Softer global commodity prices could keep pressure from imported inflation benign, though risks from global commodity price volatility and exchange rate changes cannot be ruled out. Further moderation in food inflation would be conditional on easing of supply pressures, as well as improving the efficiency of the supply chain. The revision in diesel prices announced on January 17, 2013 and the proposed staggered increases in the coming months will result in higher inflation numbers in the near-term. Price pressures can also arise from possible adjustments in prices of coal and electricity. Nevertheless, these steps are desirable from a medium-term inflation management point of view. The pressure on generalised inflation, however, can be expected to remain muted given the weak pricing power of firms. Pressures from industrial raw material prices, which had been a significant source of inflation in non-food manufactured products in the recent past, are also abating. However, the risks of entrenchment of higher food inflation into higher inflation expectations and a wage-price spiral remain. Given these risks, the moderation in inflation is expected to be gradual.

VII. Macroeconomic Outlook

Growth remains subdued due to a combination of external and domestic factors. Various surveys show that business and consumer confidence remain subdued. Government's commitment to reforms is expected to instill confidence among investors and support gradual recovery. Inflation has moderated but remains high. The decline has not been commensurate with the slowdown in growth and upside risks remain from suppressed inflation. While government has embarked on a fiscal adjustment path, staying on this course over the medium-term is necessary for providing sufficient space for monetary policy to stimulate growth. The widening current account deficit also remains a major source of concern. While domestic and global conditions are expected to improve slowly, calibration of the policy stance is important due to prevailing uncertainties.

Reforms reduce immediate risks, but long road ahead

VII.1 The fresh round of reforms that were initiated in September 2012, after a hiatus, has reduced the immediate risks facing the Indian economy. The recent measures taken, especially in January 2013 have further reinforced this momentum. There are signs that growth may have bottomed out, though recovery may take some more time and is likely to be paced gradually. However, on an immediate footing, the recent reforms and measures to debottleneck infrastructure and other sectors have reduced the macroeconomic and financial risks facing the Indian economy. These measures need to be carried forward as certain key constraints continue to impede investments in road and power sectors. As the envisaged measures are implemented to remove the impediments, the economy can start turning around in 2013-14. However, weak global economic conditions, domestic business constraints and low confidence levels may keep the recovery modest next year, while the near-term risks to the economy emanating from fiscal and external imbalances remain.

VII.2 Clearly, there is a long road ahead to regain the pre-crisis potential growth. Traversing this requires tough economic and political decisions that do not fritter away the recent modest gains, as the compulsions of political cycles mount in the run-up to the 2014 general elections.

Business sentiments stay weak, further action needed to restore confidence

VII.3 Latest rounds of business confidence surveys portray a mixed picture. On the whole, it appears that the reform measures taken so far have not decisively lifted business sentiments and further action may be needed to restore confidence.

VII.4 The NCAER survey shows a further drop in business confidence, due mainly to perceptions on investment climate deteriorating (Table VII.1). The CII's Business Confidence Index showed a marginal fall in business confidence during Q3 of 2012-13. Domestic economic developments, high interest rates,

Table VII.1: Business Expectations Surveys

Period Index	NCAER- Business Confidence Index Jan 2013	FICCI Overall Business Confidence Index Q2:2012-13	Dun & Bradstreet Business Optimism Index Q1:2013	CII Business Confidence Index Q3: 2012-13
1	2	3	4	5
Current level of the Index	119.7	62.4	146.8	49.9
Index as per previous survey	125.4	51.8	140.8	51.3
Index levels one year back	125.2	51.6	156.2	48.6
% change (q-o-q) sequential	-4.5	20.5	4.3	-2.7
% change (y-o-y)	-4.4	20.9	-6.0	2.7

infrastructure bottlenecks and institutional issues emerged as key concerns in the survey.

VII.5 However, FICCI's overall business confidence index suggests a significant improvement in business confidence. Reform measures, including opening up of FDI in multi-brand retail appear to have lifted sentiments, though inadequate infrastructure and rising costs of manpower and raw materials were cited as constraints. The Dun & Bradstreet Business Optimism Index rose moderately as compared to the previous quarter. Optimism indices of volume of sales, net profits, new orders and employment improved relative to the previous quarter.

VII.6 The seasonally adjusted HSBC Markit Purchasing Managers' Index for manufacturing indicated a pick up in manufacturing activity during October-December 2012 driven by new orders. The HSBC Markit PMI for services in December 2012 recorded the fastest growth in three months.

Industrial Outlook Survey reflects marginal improvement

VII.7 The Reserve Bank's 60th round of the Industrial Outlook Survey (http://www.rbi.org.in/IOS60) conducted during Q3 of 2012-13 showed marginal improvement in the business sentiments of the manufacturing sector.

VII.8 The Business Expectation Index (BEI), a composite indicator based on several business parameters, signals marginal improvement for Q3 of 2012-13. However, the index remained broadly at the same level for Q4 (Chart VII.1). These indices have persisted in the growth terrain (*i.e.* above 100, which is the threshold separating contraction from expansion).

VII.9 Analysis of the net responses among various components of demand conditions shows that the assessment on production remained flat in Q3 of 2012-13. The declining trend in the net response on order books in the previous two quarters was reversed in Q3 of 2012-13. While the respondent companies had lower optimism on capacity utilisation, exports and imports during Q3 of 2012-13, their outlook for Q4 of 2012-13 shows improvement (Table VII.2).

Chart VII.1: Business Expectation Index

VII.10 There was continued optimism on the availability of finance. The cost of external finance is perceived to rise, but by a lower percentage of respondents. The cost of raw material is also expected to rise at a marginally lower rate in the next quarter. The perception on profit margins remained nearly unaltered for Q4 of 2012-13.

Consumer confidence remains subdued

VII.11 The Reserve Bank's 11th round of Consumer Confidence Survey (http://www.rbi.org.in/CCS11), conducted in December 2012 continued to show a decline in the index in the latest quarter. There was deterioration in the perceptions on current economic conditions, current household circumstances and current spending. The Future Expectations Index also indicates a decline in consumers' perceptions of the future (Chart VII.2).

Table VII.2: Reserve Bank's Industrial Outlook Survey

Parameter		Optimistic Response	Net Response[1]								
			Jan -Mar		Apr-Jun		Jul-Sep		Oct -Dec		Jan-Mar
			2012		2012		2012		2012		2013
			E	A	E	A	E	A	E	A	E
1		2	3	4	5	6	7	8	9	10	11
1.	Overall Business Situation	Better	33.6	26.5	34.9	18.3	30.6	16.1	32.2	17.2	37.5
2.	Overall Financial Situation	Better	25.2	18.5	27.7	14.2	23.6	12.2	25.8	12.7	27.0
3.	Production	Increase	40.4	33.1	34.7	20.3	33.6	18.8	35.7	18.6	37.1
4.	Order Books	Increase	31.3	24.8	29.5	16.9	29.9	12.0	30.3	12.9	29.8
5.	Capacity Utilisation	Increase	24.3	16.7	19.9	8.6	18.4	6.3	20.0	5.7	21.7
6.	Exports	Increase	18.6	14.2	20.7	10.8	20.5	10.0	18.0	9.3	18.4
7.	Imports	Increase	15.5	14.4	15.7	11.6	15.5	9.8	14.0	8.8	13.5
8.	Employment in the Company	Increase	13.6	12.9	14.6	10.0	12.3	8.3	13.3	6.7	10.3
9.	Availability of Finance	Improve	19.0	15.8	22.9	15.0	20.4	13.8	21.3	10.0	19.5
10.	Cost of External Finance	Decrease	-38.8	-37.4	-22.7	-30.5	-24.0	-27.4	-20.6	-24.4	-18.1
11.	Cost of Raw Material	Decrease	-50.1	-59.4	-49.0	-63.1	-51.4	-59.6	-48.6	-50.7	-45.0
12.	Selling Price	Increase	14.7	13.5	19.0	17.5	18.8	18.5	17.3	10.2	15.8
13.	Profit Margin	Increase	-2.9	-11.3	-1.2	-17.9	-3.6	-15.1	-1.3	-16.7	-2.0

[1] *Net response* is the percentage difference between the *optimistic* (positive) and *pessimistic* (negative) responses; responses indicating status quo (no change) are not reckoned. Higher 'net response' indicates higher level of optimism and *vice versa*.
E: Responses for Expectation quarter and A: Responses for Assessment quarter.

External agencies lower India's growth projections further

VII.12 Various agencies have further revised downwards their growth projections for the year 2012-13. The recent projections for growth in GDP at factor cost now range from 5.4 to 5.9 per cent (Table VII.3).

Chart VII.2: Current Situation Index and Future Expectation Index

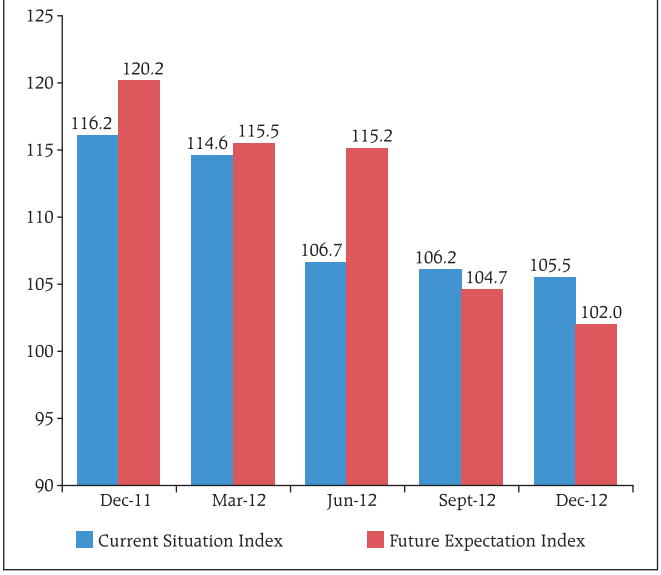


Table VII.3: Various Agencies' Growth Projections for 2012-13

	Latest Projection		Earlier Projection	
	Real GDP Growth (Per cent)	Month	Real GDP Growth (Per cent)	Month
1	2	3	4	5
PMEAC	6.7	Aug-12	7.6	Feb-12
Ministry of Finance	5.7 to 5.9	Dec-12	7.6 (+/-0.25)	Mar-12
IMF*	5.4	Jan-13	5.6	Oct-12
World Bank	5.4	Jan-13	6.0	Oct-12
OECD**	4.4	Nov-12	7.3	Jun-12
ADB	5.4	Dec-12	5.6	Oct-12
NCAER	5.9	Nov-12	6.4	Jul-12

*: Corresponds to the World Economic Outlook update of January 2013 projection of 4.5 per cent for GDP at market prices for the calendar year 2012, The growth for 2013-14 is projected at 6.0 per cent, both at factor cost and market prices.

**: GDP at market prices.

Survey of professional forecasters anticipates slow recovery[1]

VII.13 The 22nd round of the Survey of Professional Forecasters (http://www.rbi.org.in/SPF22) conducted by the Reserve Bank, forecasts slower growth in 2012-13 revising its median growth projection downwards to 5.5 per cent. Forecasts suggest gradual recovery with higher projected GDP growth in 2013-14 while the average WPI inflation is projected to gradually moderate in the coming year. The twin deficits are expected to improve in 2013-14 with the CAD as a percentage of GDP projected to moderate to 3.5 per cent and the central government fiscal deficit as a percentage of GDP projected to fall to 5.3 per cent (Table VII.4).

Inflation expectations see marginal increase

VII.14 The latest round of Inflation Expectations Survey of Households (IESH) (http://www.rbi.org.in/IESH30) conducted among 5,000 households across 16 cities (of which 4 cities are covered for the first time in this round) and 7 occupational categories during November 30 to December 7, 2012, indicates that the perception of current inflation as well as the expectations on future inflation have increased marginally (q-o-q) in Q3 of 2012-13. However, the percentage of respondents expecting a higher rise in prices in Q4 of 2012-13 as well as in Q3 of 2013-14 has decreased as compared with the last round of the survey.

Output gap may start closing in 2013-14, although at a slow pace

VII.15 On current assessment, growth in 2012-13 is likely to fall below the Reserve Bank's baseline projection of 5.8 per cent set out in the Second Quarter Review (October 2012). The IIP recorded a dismal growth of 1.0 per cent during April-November 2012. The full year growth may fall even below last year's

Table VII.4: Median Forecasts of Select Macroeconomic Indicators by Professional Forecasters 2012-13 and 2013-14

	Actual 2011-12	Annual forecasts				Quarterly Forecast									
		2012-13		2013-14		2012-13				2013-14					
						Q3		Q4		Q1		Q2		Q3	
		E	L	E	L	E	L	E	L	E	L	E	L	E	L
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Real GDP growth rate at factor cost (%)	6.5#	5.7	5.5	6.6	6.5	5.6	5.5	6.2	6.0	6.4	6.1	6.7	6.5	-	6.6
a. Agriculture & Allied Activities	2.8#	1.4	1.5	3.0	3.0	-0.3	0.5	1.5	1.9	2.4	2.5	2.5	3.0	-	3.2
b. Industry	2.6#	3.0	2.8	5.3	4.7	3.2	3.5	3.9	4.0	4.6	4.4	5.1	4.6	-	5.5
c. Services	8.5#	7.8	7.4	8.0	7.8	8.0	7.6	8.2	7.8	8.0	7.6	7.9	7.7	-	7.9
2. Gross Domestic Saving (% of GDP at current market price)	-	30.3	30.5	31.6	31.2	-	-	-	-	-	-	-	-	-	-
3. Average WPI-Inflation	8.9	7.7	7.5	6.7	7.0	7.3*	7.4	7.7	7.0	7.0	6.8	7.0	6.6	-	7.0
4. Exchange Rate (INR/1USD end period)	51.2	52.0	54.0	50.8	52.0	54.8&	55.0	51.5	54.0	51.5	53.0	51.3	52.5	-	51.5
5. 10-year G-sec Yield (%-end period)	8.6	8.0	7.9	7.8	7.8	-	-	-	-	-	-	-	-	-	-
6. Export (growth rate in %)!	20.9*	0.0	-3.5	12.0	11.2	-	-	-	-	-	-	-	-	-	-
7. Import (growth rate in %)!	30.3*	-0.9	-1.4	12.7	8.6	-	-	-	-	-	-	-	-	-	-
8. Trade Balance (US$ billion)	-189.8*	-	-	-	-	-46.5	-55.9	-47.6	-48.1	-45.2	-46.5	-47.0	-50.8	-	-53.0
9. CAD (% of GDP)	4.2*	3.5	4.2	2.7	3.5	-	-	-	-		-	-	-	-	-
10. Central Government Fiscal Deficit (% of GDP)	5.1^	5.7	5.7	5.3	5.3	-	-	-	-	-	-	-	-	-	-

E: Previous Round Projection. L: Latest Round Projection. #: Revised Estimate *: Preliminary
- : Not Available. !: US$ on BoP basis. &: Actual ^: Budget Estimate
Note: Latest round refers to the 22nd round for quarter ended Dec-12, while previous round refers to the 21st round for quarter ended Sep -12.
Source: Survey of Professional Forecasters, Third Quarter 2012-13.

[1] The forecasts reflect the views of professional forecasters and not of the Reserve Bank.

disappointing 2.9 per cent growth. With a generalised slowdown in consumption as well as investment, a turnaround looks difficult this year.

VII.16 However, the output gap could start closing in 2013-14 on the back of some revival in investment demand. The improvement would, *inter alia*, hinge on inflation receding which will support higher consumption. Current slack demand has not been associated with a build-up of finished goods inventories as firms have cut down supplies in response to falling demand. This raises hopes that the inventory cycle may be supportive of recovery when it shapes up. External demand has already shrunk and as a baseline case, is also unlikely to dampen growth ahead. As such, it is important to quickly move to resolve the problems that are still impeding investments particularly in the infrastructure and mining sector.

Inflation risks may remain in 2013-14

VII.17 Although, inflation is likely to moderate to below the baseline projection of 7.5 per cent for March 2013 set in the October policy, the direct and indirect impact of the recent increase in diesel prices would exert some upward pressure on overall price level. Suppressed inflation continues to pose a significant risk to the inflation trajectory in 2013-14 and as some of this risks materializes, inflation path may turn sticky. Amidst the large current account deficit (CAD), the possibility of currency depreciation and its pass-through to domestic prices constitutes an additional risk that cannot be glossed over. On the other hand, as fundamentals improve, it could impart strength to the rupee. This can have a favourable impact on inflation.

VII.18 An important element in the inflation mathematics is that core inflation pressures have markedly receded and are unlikely to re-emerge quickly on demand considerations. However, a close vigil on cost-push inflation and wage-inflation spiral would need to be maintained.

Fiscal risks moderate in 2012-13, but sustained commitment to fiscal consolidation is needed to generate monetary space

VII.19 Fiscal risks have declined in recent months as the government re-dedicated itself to the goals of fiscal consolidation. However, a sustainable path to fiscal consolidation hinges on fundamental fiscal reforms that cut subsidies and augment revenues. Measures to contain subsidies have been initiated and would need to be persisted with. Front-loaded fiscal consolidation would generate sufficient space for monetary policy to act without stoking inflationary pressures.

Wide CAD remains a constraint on monetary policy easing

VII.20 At the present juncture, the widening CAD has become a major constraint on easing monetary policy. Even if inflation recedes further, the wide CAD may slow the pace and extent to which monetary policy can be eased. With the likelihood that the CAD may exceed 4 per cent of GDP for the second successive year in 2012-13, prudence is necessary while stimulating aggregate demand.

VII.21 Given, India's growth potential and liberalised capital account there may be a case that India can run a wider CAD/GDP ratio than was possible in the 1980s and 1990s. In inter-temporal terms, it can import more today, if it can export more in future. While it can build up liabilities to the rest of world that are financed by inflows in the financial account, it is important to ensure that the borrowed capital is productively used for real investments that yield marginal product in excess of the interest rate the country has to pay on the foreign liabilities. Secondly, even if CAD is inter-temporally solvent, a view is necessary whether the size of the CAD is easily financeable given the shocks that can emerge from volatile capital flows, which include surges and sudden stops or reversals.

VII.22 The forward-looking assessment provided in the previous Macroeconomic and Monetary Developmets clearly pointed to a widening of the CAD in Q2 of 2012-13. It had emphasised the need to stay on the path of fiscal consolidation, as also keeping a tab on private consumption and supplementing it with the selective use of expenditure-switching policies to lower the CAD. This was one of the key considerations while setting the monetary policy in October and December 2012. With the CAD turning out to be a record high of 5.4 per cent of GDP in Q2 of 2012-13, further caution is warranted while framing monetary and fiscal policies.

VII.23 While making the overall interest rate environment more conducive to investments and with some improvement in consumption, it is necessary to ensure that fiscal and monetary policies do not lose control over government or private consumption spending, even if it means a more gradual recovery of the Indian economy. Given India's low trade elasticities, especially at this point of time when world demand is low, there is little alternative but to use expenditure-reducing policies in addition to expenditure-switching policies to bring CAD down to a more sustainable level of around 2.5 per cent of GDP. At the same time, reducing dependence on debt-creating capital inflows is needed. This is particularly important as the export prospects remain impacted by global slowdown. On the other side, India's energy security position is likely to keep imports high. As a result, the balance of payments position is likely to remain vulnerable to global growth cycles and oil price fluctuations.

Balance of macroeconomic risks suggests continuation of calibrated stance

VII.24 In view of all the considerations discussed above, the balance of macro-economic risks suggests continuation of a calibrated stance. In Q3 of 2012-13 headline inflation has receded somewhat faster-than-anticipated. Core inflationary pressures have also turned subdued. However, headline inflation has not declined at a pace commensurate with the negative output gap that has now prevailed for the fifth successive quarter. The size of the negative output gap now exceeds one per cent of GDP. While growth remains low, inflation concerns have not dissipated. Consumer inflation remains high and even the headline remains above the comfort level.

VII.25 The emerging slack in investment needs to be addressed. This slack has emerged from a combination of domestic and global factors. While global growth may remain slow for some more years as significant fiscal adjustment is needed to overcome the debt overhang in the advanced economies, the domestic growth could respond to the policy action that has now begun. Given the preponderance of non-monetary factors behind the current slowdown in an environment where risks from high inflation, current account and fiscal deficits still remain, the scope for supportive monetary policy action is constrained. However, as reform actions get executed, monetary policy could increasingly focus on growth revival.

THE FIFTEENTH C. D. DESHMUKH MEMORIAL LECTURE

Welcome Remarks
by Duvvuri Subbarao

A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis
Joseph E. Stiglitz

Vote of Thanks
by Deepak Mohanty

*Welcome Remarks**

Duvvuri Subbarao

On behalf of the Reserve Bank of India, I have great pleasure in welcoming Prof. Joseph E. Stiglitz, who will shortly be delivering the C.D. Deshmukh Memorial Lecture. Also, a warm welcome to Mrs. Anya Stiglitz who has accompanied him. I am delighted to acknowledge the presence here of the family members of Sir Chintaman Deshmukh – Shri Atul Deshmukh, Smt. Sheetala Deshmukh, and their children, Ashish and Priyanka, Prof. Sunita Chitnis and her son Dr. Ajay Chitnis. Your presence here means a lot to us. Finally, and importantly, a warm welcome to all our invitees to this prestigious lecture.

C. D. Deshmukh

2. Sir Chintaman D. Deshmukh has a special place in the history of the Reserve Bank. He was the first Indian Governor of the Reserve Bank, and served the institution with great distinction and dignity from August 1943 to June 1949. He presided over the transformation of the Reserve Bank from a private shareholders' bank to a nationalised institution and was the intellectual force behind the enactment of a comprehensive legislation for the regulation of banking companies which has stood the test of time. Governor Deshmukh participated actively in the establishment of the Bretton Woods Institutions in 1945 and played a critical role in managing India's nascent economy as we confronted the challenges of war financing following the Second World War.

3. After leaving the Reserve Bank, Shri Deshmukh went on to become the Finance Minister of India, a career graph repeated by our current Prime Minister, Dr. Manmohan Singh nearly forty years later. Shri Deshmukh brought to the office of the Finance Minister a passion for newly independent India's development and a humane and inclusive vision for nation building. By all accounts, Sir Chintaman Deshmukh was one of the finest public policy intellectuals of post-independence India.

4. The Reserve Bank instituted the C. D. Deshmukh Memorial Lecture in 1984 to honour the memory of this illustrious Governor of the Bank. The last Deshmukh Memorial Lecture was delivered by Lord Adair Turner in February 2010 on: 'After the Crisis: Assessing the Costs and Benefits of Financial Liberalisation'.

Today's Speaker – Prof. Stiglitz

5. It is befitting that the fifteenth C. D. Deshmukh Memorial Lecture today will be delivered by a pre-eminent public policy intellectual and one of the most influential economists of our time. Introducing Prof. Stiglitz is a challenge because he is so well known and that no introduction can be original or revealing. It is a challenge also because his contribution to public policy has been so enormous and phenomenal that it is difficult to summarise that briefly. Nevertheless, I will take on the task of introducing Professor Stiglitz if only to pay homage to a tradition.

6. Professor Joseph Stiglitz is currently University Professor at Columbia in New York and Co-chair of Columbia University's Committee on Global Thought.

7. In 1979, Joseph Stiglitz was awarded the coveted John Bates Clark Medal, given by the American Economic Association to an economist under 40 who has made the most significant contribution to the field. Prof. Stiglitz lived up to that early promise by winning, as we all know, the Nobel Prize for Economics in 2001 for his analysis of markets with asymmetric information. He has the distinction, in a sense, of a 'double Nobel' as he was a lead author of the 1995 Report of the Inter-governmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize. In 2011, the prestigious *Time* magazine named him one of the 100 most influential people in the world.

8. Prof. Stiglitz helped create a new branch of economics, 'The Economics of Information', exploring the consequences of information asymmetries and

* Welcome Remarks by Dr. Duvvuri Subbarao, Governor, Reserve Bank of India at the 15th C. D. Deshmukh Memorial Lecture delivered by Prof. Joseph Stiglitz.

pioneering such pivotal concepts as adverse selection and moral hazard which have now become standard tools not only of theorists, but also of policy analysts.

9. I am sure many in this audience have read his book *Globalisation and Its Discontents.* Some of you may have read the authorised edition, some may even have read the pirated edition because this seminal book has been translated into 35 languages, besides at least two pirated editions. In the non-pirated editions, it has sold more than a million copies worldwide. His most recent book, *The Price of Inequality: How Today's Divided Society Endangers Our Future*, hit the New York Times best seller list within a few weeks of publication. The book provides a powerful critique of the free market orthodoxy, but ends on a note of hope, arguing that 'another world is possible'.

Revolution in Monetary Policy

10. The topic for Prof. Stiglitz's Lecture today is: 'A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis'.

11. Since the topic is about a revolution in monetary policy, I can do no better than invoking Vladimir Lenin, something of an authority on revolutions, who said: 'A revolution is impossible without a revolutionary situation'. Global macroeconomic developments over the past five years have indeed led central banks to a revolutionary situation. When the crisis hit following the collapse of Lehman Brothers, central banks acted with an unusual show of policy force, quickly exhausted their conventional tools, then threw out the rule book and went on an uncharted territory of money creation which has taken many names and metamorphosed into many acronyms.

12. Today, there is quite some bewilderment among policy makers, particularly central bankers, about what else can be done to engineer a recovery. This bewilderment has spawned a vigorous, interesting and instructive debate on the pursuit of monetary policy. Let me briefly outline some key issues in this debate.

Quantitative Easing

13. The point of departure in this debate is the view that after policy interest rate has been brought to the zero lower bound, nothing else needs to be done except for the central bank to say that it will keep interest rates low in the future too. It is argued that this would encourage people to borrow more and spend it, bailing the economy out of recession.

14. But this idea of topping up monetary easing with communication may not always work. People may not believe that the central bank will keep its promise of low interest rates. Even if they believe the central bank, they may not still borrow since what they are trying to do is to get out of debt rather than get into further debt as is the case today.

15. So, how do central banks improve their credibility? By tying their promise of low interest rates to specific quantitative real sector variables? The US Federal Reserve has recently led the way in this direction by saying that it will keep interest rates low as long as the unemployment rate remains above 6.5 per cent, and in the process, is willing to tolerate inflation slightly above its long-run target. Another way of reinforcing this promise of low interest rates is the idea of shifting from targeting inflation to targeting nominal GDP.

Financial Stability

16. Quantitative easing has not been the only issue in this monetary policy revolution. A parallel, if also related, debate has been about the role of financial stability in the monetary policy objective function. This has raised several questions. What is the role of central banks in preserving financial stability? When and how should they use monetary policy to pursue financial stability? If you admit the argument that one instrument can secure only one objective, do central banks have the policy instruments to pursue the financial stability objective?

Independence of Central Banks

17. A third major debate in monetary policy has been about the independence of central banks. In

recent weeks, we have all seen this issue of central bank independence play out in Japan with political pressures on the Bank of Japan to adopt a higher inflation target so as to create more room for growth stimulus. The example of Japan is recent and high profile, but by no means an exception; the issue of monetary policy independence has acquired greater potency following the expansion of the mandates of central banks and their more explicit pursuit of real sector targets such as growth and unemployment.

Emerging Market Economies and Monetary Policy Revolution

18. Revolution in monetary policy is not exclusive to advanced economy central banks. Emerging market economy central banks are going through a revolution too with, of course, different nuancing. They have not been inflation targetters in the strict sense; they have always struggled to maintain the balance between growth and price stability. And learning from the experience of several country specific and regional crises, they have also added, either explicitly or implicitly, financial stability to their objective functions.

19. Monetary policy revolution in emerging market economy central banks has an additional dimension, which is that in formulating their monetary policy, they are having to contend with the forces of globalisation, in particular the spillover impact of the advanced economy central banks. The 'impossible trinity' asserts that a country cannot simultaneously maintain all three policy goals of free capital flows, a fixed exchange rate and independent monetary policy. Recent experience in emerging market economies has demonstrated that the 'impossible trinity' is no longer a text book paradigm; balancing between these three policy goals is becoming a practical policy consideration.

Monetary and Fiscal Policies

20. Even as monetary policy, both in advanced and emerging market economies. is going through a 'revolution', one thing is clear. Central banks cannot fix economies by themselves. Governments need to act too from the fiscal side, and monetary and fiscal policies have to act in harmony. On top of this, governance needs to improve to inspire the trust and confidence of consumers and investors.

21. The crisis is still with us; and the revolution in monetary policy is still work in progress. But it has thrown up a number of questions. How will this revolution play out? What will it mean for the mandates of central banks and the autonomy with which they will deliver on that mandate? Who will win and who will lose? And, to sum it all up, what are the lessons from this 'revolution' for monetary policy? For answers to these weighty questions, who better to turn to than Professor Joseph Stiglitz.

22. Ladies and gentlemen, please join me in welcoming Professor Joseph Stiglitz to deliver the C. D. Deshmukh Memorial Lecture on: 'A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis'.

*A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis**

Joseph E. Stiglitz

It is a real pleasure for me to be able to deliver this lecture in memory of the Reserve Bank of India's first Indian Governor, who set an example and a tradition which has resulted in the Reserve Bank of India being viewed as one of the exemplars of central banks around the world. As I shall comment later, one could not help but notice this in the aftermath of the 2008 Global Financial Crisis – which to a very large extent was brought about by failures of central banks in the United States and Europe. C. D. Deshmukh understood not only the importance of the financial sector to the functioning of an economy, but that to ensure that the financial sector fulfills its roles requires regulation – otherwise, there is a risk that it won't do what it should and that it will do what it shouldn't. He did not succumb to ideology that has plagued central banks in so many countries: he understood that the state may have to play an important role in providing credit, either directly or through regulation, especially as part of the early stages of the development process and in the rural sector.

The themes that I will take up today would, I think, resonate with Governor Deshmukh. I want to lay out a vision of what Central Banks should do, a vision that is markedly different than that which was fashionable in the years before the Great Recession.

It is understandable that the global financial crisis should give rise to considerable reflection among macroeconomists, and especially monetary theorists and policymakers. After all, their models didn't predict the crisis – the most important economic event in three quarters of a century. Economics is supposed to be a science, and the test of any science is its ability to predict; and if a sub-discipline can't predict something of this importance, then it *suggests* something is wrong.

I say *suggests* because devotees of the model claim that there are always random exogenous shocks that cannot be anticipated. But this crisis was not an exogenous shock: the credit bubble that brought the economy down was *endogenous.* It was a shock created by the market itself. And it was the kind of shock that the theory said couldn't happen: for if markets are rational, there won't be bubbles.

This is but one example of the many flaws in the prevalent paradigm that were exposed by the crisis. In this lecture, I do not want to dwell so much on the flaws in the economic theories and models that dominated mainstream thinking, including thinking inside many central banks, but on the central policy stances that typically followed – sometimes quite loosely – from those theories and models.

These theories and models not only contributed to the failure to see the crisis coming, but led some leading central bankers to argue that its effects were contained, even after the bubble broke.[1] They were also extra-ordinarily influential in shaping the policies that both contributed to the crisis and to its rapid spread around the world, and have contributed to the

* This lecture is given in Mumbai on January 3, 2013, to commemorate C. D. Deshmukh, who capped his 21 years in the Indian Civil Service with an outstanding stint as Governor of the Reserve Bank of India from 1943-1949. During his tenure, he oversaw the Bank's transformation to a nationalised institution, promoted regulation of banks, and established India's first financial institution for the provision of long-term credit to industry. He later served as Union Finance Minister, India's Special Financial Ambassador to America and Europe, and among many other notable achievements, made his mark in academia and public service. It is my honour to give this lecture in recognition of his deep contributions to India and to his field.

[1] Bernanke said, as late as March 2007, that 'the impact on the broader economy and financial markets of the problems in the subprime market seems likely to be contained.' Statement of Ben S. Bernanke, Chairman, Board of Governors of the Federal Reserve System, before the Joint Economic Committee, U.S. Congress, Washington, DC, March 28, 2007.

lack of effectiveness in responding to the crisis. A half decade after the beginning of America's recession, more than six years after the breaking of the bubble, unemployment in Europe and America remains unacceptably high, the GDP in many countries is still below the level attained before the crisis, a few countries are mired in depression, and the global economy is on the verge of another recession.

In this lecture, then, I will enunciate 14 lessons for monetary policy that I believe emanate from the recession. Some are controversial. Most reflect a marked departure from the stances taken by at least many monetary authorities.

1. Self-regulation doesn't work

The notion that financial markets are self-regulating seems slightly quaint now, but we should not forget how widespread and deeply believed that doctrine was. That that was so is testimony to the ability of ideology to prevail over the lessons of history and theory. Financial markets have repeatedly been prone to bubbles, which when they burst would bring havoc in their wake.[2] Conflicts of interest and predatory and abusive practices had repeatedly marked financial markets. These were among the reasons that the sector had become highly regulated. To think that somehow, things would have suddenly changed, beginning around 1980, was sheer fantasy.

Indeed, advances in economic theory had explained why unfettered markets – and unfettered financial markets in particular – were likely not to be efficient or stable, and why they were likely to be marked by abuses and exploitation.

The general theory of imperfect and asymmetric information, developed in the 1970s and 80s, had shown that whenever information is imperfect and asymmetric (that is, some individuals know things that others do not) and risk markets incomplete – that is, always – the economy is not likely to be (constrained) Pareto efficient.[3] [4] Adam Smith's invisible hand was invisible because it was not there. The theory also explained why risk markets are likely to be incomplete – why key risks could not be insured against.

The theory explained too why markets in which information was important were not likely to be fully competitive – for instance, someone who offered the same product at a lower price would not attract the entire market, as assumed in the conventional theory, simply because not everyone would know about the offer.

Moreover such markets could well be characterised by rationing – unemployment and credit rationing were real phenomenon, with important economic consequences.

Finally, markets in which information problems were important were likely to be marked by severe agency problems – where those making decisions might not fully reflect the interests of those on whose behalf they were supposed to be acting. Managers might not maximise shareholder value, let alone societal welfare.

These issues are of particular relevance to financial markets, precisely because information is at the center of what financial markets do. They are supposed to allocate scarce capital resources and manage risk, but what makes these tasks difficult and interesting are information imperfections, ascertaining the returns and risks associated, for instance, with different assets, determining which risks are best suited for different individuals, *etc.* That America's financial markets did an abysmal job in this, their central function, should be obvious. The failures were not, however, that of a single bank, or an isolated banker: they were systemic, suggesting that the problems that gave rise to them were systemic, as indeed they were.

[2] See, for example, Charles Kindleberger's *Manias, Panics, and Crashes: A History of Financial Crises* (New York: Basic Books, 1978).

[3] B. Greenwald and J. E. Stiglitz, 'Externalities in Economies with Imperfect Information and Incomplete Markets,' Quarterly Journal of Economics, Vol. 101, No. 2, May 1986, pp. 229-264.

[4] The term 'constrained Pareto optimal' refers to the fact that the costs of creating new markets and obtaining more information are included in the analysis: information is not a free good.

Further, the reason that we care so much about failures in the financial system (or even of a single large bank) is that there are systemic consequences – there are large externalities on the rest of the economy.

The implication is that there is a need for strong governmental regulation of financial institutions. Much of the rest of this lecture will be concerned with the design of a good regulatory system.

This brings me to the second important lesson:

2. Regulation is needed for a well-functioning market and economy.

Financial sector regulation is required both because it is a sector characterised by large market failures, and where there are systemic consequences (large externalities) arising from these market failures. Regulators need to bear this in mind, as they think both about the need for regulation and its design. In subsequent sections (in particular, points 3-7 below), I touch on the multi-faced nature of this regulation, a long list that includes ensuring the safety and soundness of individual banks and systemic stability; maintaining competition; promoting access for all; protecting consumers and investors from exploitation, predation, manipulation, and a wide range of abusive practices that have become part of every-day business in the sector; and enhancing transparency. While regulations and regulators may be imperfect, the track record of success – in India, and even in the United States in the decades after the last great crisis, the Great Depression – shows that good regulation is both possible and can make a difference.

In the aftermath of the financial collapse in 2008, Alan Greenspan, the chairman of the Federal Reserve, lamented about the flaw in his reasoning.[5] He was surprised that the banks had not managed their risk better. I was surprised at his surprise: after all, banks had repeatedly not managed risk well. Why did he think they would do so in the twenty first century, when they had done such a bad job in previous centuries? Moreover, anyone looking at the incentive structures facing banks and bankers should have understood that they had incentives to engage in excessive risk taking and short sighted behaviour. They acted as any economist should have predicted that they would.

Even if there had not been such perverse incentive structures, those in the financial sector have often been prone to irrational exuberance. Even Greenspan had commented on this. History was replete of instances of such irrational exuberance. What distinguishes banks from other institutions is that in this sector, irrational exuberance has systemic consequences – there are large externalities. Bankers with irrational exuberance are gambling with other people's money.

But the problems go deeper. Bank managers and industry leaders often seem to show remarkable ignorance of some of the basic principles of risk – including the Modigliani-Miller theorem, which asserts that increasing leverage doesn't increase market value – it doesn't create wealth, it simply shifts more risk upon the residual equity base. (Of course, there could be an increase in value because of market imperfections, either because (a) market participants are irrational, and don't fully understand the increased risk imposed on equity; (b) shareholders as a whole may gain because of the shift of risk to the government, resulting from an increase in what might be termed the 'bail-out subsidy'; or (c) distortions in the tax code. But none of these are reasons to countenance an increase in leverage)[6].

[5] In Congressional testimony on October 23, 2008, Greenspan described being 'in a state of shocked disbelief' that the lending institutions' self-interest had not protected shareholders' equity. Testimony available at http://democrats.oversight.house.gov/images/stories/documents/20081023100438.pdf (accessed December 14, 2012).

[6] For a more extensive discussion of these issues see 'On the Need for Increased Capital Requirements for Banks and Further Actions to Improve the Safety and Soundness of America's Banking System,' witness testimony of Joseph E. Stiglitz to the Senate Banking Committee, August 3, 2011, available at http://banking.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=97cec3e1-2d1d-44fa-acd9-a0a1bc640bc4 (accessed December 14, 2012), and A.R. Admati, P.M. DeMarzo, M.F. Hellwig and P. Pfleiderer, 2010, 'Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive,' Stanford University Working Paper No. 86.

Thus, the widely held notion in the banking community that increased capital requirements (say under Basel III) will increase the cost of borrowing either reflects a profound misunderstanding of risk among those in the banking community; and/or their understandable desire to increase the subsidy the sector gets from the public, disguising this in terms of the benefits to their customers; and/or their understanding of risk, but their understanding that other market participants don't understand risk.

This implies that there should be strong regulations on the incentive structures of banks – it is not just the size of the bonuses that should be of concern, but the design. Higher deposit insurance fees levied on banks engaged in higher levels of risk taking might also discourage excessive risk taking, offsetting the implicit subsidy associated with government bailouts. But because of pervasive irrationalities, we cannot rely on incentive structures to curb excessive risk taking. There have to be strong restrictions on the risk taking, including the degree of leverage. Excessively rapid expansion of a bank's assets, particularly within a given area, are almost a sure sign of excessive risk taking. There need to be 'speed bumps.' The costs of such restriction – a slight postponement of perhaps some socially profitable lending – is far less than the benefit – avoiding the kind of financial collapses that have occurred repeatedly.

It is natural to ask why so many financial institutions chose to adopt incentive structures that seem so perverse. Traditionally, one of the purported virtues of the market economy is that it provides not just strong incentives but well designed incentive structures. That has obviously not been the case. The explanation lies in deep rooted failures in corporate governance. Much of our thinking about the market economy is based on simple models of Marshallian nineteenth century economics, with little relevance to understanding the functioning of managerial and corporate capitalism of the twenty-first century.(This illustrates a more general theme, to which we return later in this lecture: The financial sector cannot be viewed as separate from the rest of the economy. It is affected by the laws and mores that affect other sectors – laws like those related to bankruptcy and corporate governance, and mores such as those that affect the acceptability of exploitation and the primacy of material values and incentives. I will have little to say about these issues of social mores, except to note that as trust and social capital weakens, the need for public regulation is enhanced.)

There needs to be deep reform of corporate governance laws, providing in particular better provisions for say in pay.

The problems of distorted incentives are especially important with financial institutions which cannot be allowed to fail because of the systemic consequences. This brings me to the third major lesson:

3. Banks that are too big to fail, too interconnected to fail, and/or too correlated to fail present a real danger to the financial system and the economy

Financial institutions which are too big to fail, too interconnected to fail, or too correlated to fail have an incentive to gamble: if they win, they walk off with the profits, if they lose, the public picks up the losses. But the problems are deeper: banks have an incentive to become too big, too intertwined, and too correlated to fail; and because of the implicit guarantee that is provided to such institutions, they have an advantage over other institutions. The private returns to growth in size and to interconnectedness exceed by a large measure the social returns (which may, in fact, be negative).

One aspect of 'correlated' risk taking is the herding behaviour that marks credit bubbles. Such irrational bubbles are a major source of macroeconomic volatility. In the past, regulation has typically focused on the safety and soundness of individual banks, but once we recognise the central role of the correlated

behaviour of banks in causing macroeconomic fluctuations, we have to ask how can we design a regulatory structure to reduce the scope and severity of such finance induced fluctuations.

There should be strong regulations restricting the size and interconnectedness of banks. (Some of these restrictions relate to derivatives and CDS's, are discussed under point 6 below.) *Taxes on large banks should be levied to 'level the playing field.'*

Reducing the risk of 'too correlated to fail' is more complex, and requires ensuring a diversity of financial institutions, with different ownership, incentives, and objectives.[7] *This argues strongly against the universal bank model. While more specialised financial institutions may face a greater risk of bankruptcy, the risk of systemic failure is greater where all banks are universal banks, and the social costs of systemic failure is an order of magnitude greater than the costs of the failure of individual institutions* (Much of that cost can be handled through diversification of the ownership shares).

Macro-prudential regulation is essential to prevent the growth of credit bubbles and other forms of macroeconomic volatility. Of particular concern is collateral based lending – where the value of the collateral, and thus the magnitude of lending, increases in a bubble, thus reinforcing the bubble. By demanding high lending standards and increased collateral in boom periods, the financial system can act as an automatic stabiliser, rather than the automatic destabiliser that it is under current arrangements.

4. The Pervasive Imperfections in Competition need to be curbed

In most countries, the financial sector is far from perfectly competitive. In many markets, even in advanced countries, there are only one or two lenders to small businesses. In many countries, banks have acted collusively to obtain outsized returns from their control of the payments mechanism. In most countries, the persistence of returns that are far higher than could be justified by effective competition in certain lines of business are suggestive of limitations of competition.

Imperfections of information naturally give rise to imperfections in competition, so we should not be surprised that even in countries where there are many banks, markets are far from competitive. Because markets that are fully transparent are more competitive, and less profitable, there are strong market incentives for reducing and impeding transparency. That is just one of the reasons that we need strong regulation ensuring transparency, including – and especially – for derivatives (see the discussion below).

But even with reasonable laws governing transparency, effectively enforced (not the situation today), in many areas within the financial markets competition is likely to remain limited. We can however circumscribe the worst practices. Modern technology has, for instance, made it possible to have an efficient electronic payments mechanism, where it would cost but a fraction of a cent to transfer money from a customer's bank account to the merchant from which he has purchased a good. But the banks, in their attempt to extract monopoly rents out of their control of the payments mechanism, have resisted the creation of this kind of an electronic transfer mechanism.

There need to be strong restrictions on credit card fees, interchange fees charged merchants, and other anti-competitive practices. Restrictions on the size and ranges of bank activities and the interconnectness of banks would not only increase systemic stability, it would also enhance competitiveness.

[7] This was a key point emphasised in *The Stiglitz Report: Reforming the International Monetary and Financial Systems in the Wake of the Global Crisis*,with Members of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Monetary and Financial System, New York: The New Press, 2010.

5. Consumer and investor protection: information asymmetries and exploitation

In most countries, the financial sector has been actively engaged in exploiting poorly educated and financially uninformed users. They have engaged in deceptive practices, and even in market manipulation and fraudulent practices with seemingly sophisticated customers. They have demonstrated a remarkable level of moral turpitude. This has contributed not only to creating high levels of inequality – moving money from the bottom and middle of the pyramid to the top – but also to a lack of trust in markets and the market economy. Markets cannot function well without such trust – and this is another way in which the banks have exhibited enormous adverse externalities. More generally, there are large costs to the sector's rent seeking activities--money doesn't move from the bottom to the top costlessly; the benefits to those at the top are less than the losses to the rest.

There needs to be strong consumer protection legislation, a regulatory framework along the lines of the US Consumer Financial Protection Bureau. There need to be strong restrictions on usury, overdraft fees, credit card fees and penalties, predatory lending, etc.

But the consumer protection agency needs to do more than just protect against abuses of the private financial sector. It needs to innovate – to design, for instance, mortgage products that help ordinary citizens manage the risks of home ownership.

The London Interbank Offered Rate (Libor) scandal illustrates the potential depth of the consequences of unfettered markets: there is a $350 trillion derivative market and somewhat smaller loan market indexed to a number that we now know is manipulatible and manipulated, that doesn't represent what the words seem to suggest it represents.

The continuation of the market linked to Libor is itself scandalous. There is ample evidence that even today it does not reflect any true lending rate: is it conceivable that interbank lending rates for a particular bank whose cds's spread have soared barely move?

Contracts should be indexed to T-bill rates, which are less manipulable, and may be even more linked to the kinds of risks which these indexed contracts are suppose to handle.

But even if the T-bill rate is less correlated with the risks that individuals care about, the advantages in the reduction of potential for manipulation and exploitation make the movement away from Libor desirable.

6. Derivatives and CDS's: We need to make Markets Work like Markets

*De*rivatives and CDS's bring together many of the issues discussed so far: the market is far from competitive, with a few big banks deriving significant returns (in the billions) from these activities, making it understandable why they resist regulation so strongly. The lack of transparency facilitates market manipulation and a lack of competition, enhancing bank profits, but at the same time posing significant systemic risk, which became so evident in the 2008 crisis. There is also an element of regulatory arbitrage, or what might more accurately be described as regulatory deception. If regulators treat a bank's holding of a risky bond combined with a CDS (supposedly an insurance policy on the bond) as if the bank were holding a safe asset, it allows the bank to lend more money – to leverage its portfolio even more. But the insurance may be phony insurance – sold at a low price because the benefits would never be paid by the insurance company because in the event of the insured against event occurring, the insurance would default: this was precisely what happened with AIG.

Moreover, by failing to net out their positions and by not trading through exchanges, the banks increase systemic risk and reduce transparency, another instance of externalities imposed upon

others. Indeed, they reduce the overall efficiency of the market, since the standard arrangements undermine principles of market decentralisation. For example, with large credit default swaps not cleared through an adequately capitalised clearing house, knowing the risk of default of any one firm required knowing the risk position of every firm with which it was financially interlinked – in a vast, difficult, simultaneous equation system.

Transparency and the euro-crisis

The euro crisis has once again brought out the consequences of the lack of transparency in derivative positions. No one knew for sure the full consequences of a Greek restructuring, partly because no one knew who bore the risks, or what banks may have taken a speculative positioning. One of the explanations for the ECB's hard-to-justify position that the restructuring should be done in a way that was not a credit event – that is, so that the banks who had bought insurance would not be repaid – was that they were more concerned with the banks who had taken a speculative position.

Government insured financial institutions (whether the insurance is explicit, or implicit – as a result of being too big to fail) should not be allowed to issue derivatives. While it is not clear whether such financial products are insurance products or gambling instruments, they are not loans, there is no justification for government encouraging them through implicit or explicit insurance. There is no evidence of compelling economies of scope to offset the market distortion arising from such subsidies.

Derivatives should be traded over adequately capitalised exchanges and positions should be transparent. Some critics have worried that trading over exchanges will concentrate risk; there could be systemic consequences to the failure of an exchange. The response is to increase capitalisation and to require all those who make use of the exchange to be jointly and severally liable for the losses. The rest of society should not have to bear the consequences of their failure at risk management.

It should be clear that Dodd-Frank went only a little way towards addressing the problems posed by derivatives. A fundamental flaw of Dodd-Frank was that it did not recognise the deep disparity between private rewards and social returns; it did not recognise that market participants had incentives to design transactions in ways that increased systemic instability *and* decreased the economy's efficiency, either in gathering and disseminating information or in assessing or distributing risk.

Derivatives and other new financial productions were championed as part of financial innovation. But as Paul Volcker pointed out, it was hard to see that any of this financial innovation had led to faster real economic growth. It had contributed to more inequality – to greater wealth for the bankers – but it was hard to see societal benefits. Indeed, it has been associated with more instability.

We now understand better why that is the case. Much of the financial innovation was not directed at improving the efficiency of the economy and enhancing the ability of ordinary Americans to manage the risks which they faced. Some of the innovations were directed at improved ways of exploiting poor Americans; some at regulatory arbitrage; some at new forms of market deception. In each of these cases, *there were marked discrepancies between social and private returns.* Whenever there are such discrepancies, not only will markets not be efficient, innovation will not be directed at enhancing societal welfare.

The one part of the agenda that *seemed* to have some rationale was called 'completing the market.' Since the earlier work of Arrow and Debreu, one of the widely recognised market failures was the absence of key risk markets. The notion was that the new products enabled individuals to manage risks better. Ironically, they were typically priced by using 'spanning' theorems – the new products were viewed

as a linear combination of existing products, or at least near enough so to be able to base prices on these related products. In this view, the real advantage of the new products was the lower transactions cost. But as those in the financial sector heralded these benefits, total transactions costs soared – to the point that *just* profits in the financial sector amounted to 40 per cent of all corporate profits.

But there is a basic result called the theory of the second best, which says that when there are many market distortions, eliminating one of them may actually make matters worse. In the presence of imperfect risk markets, for instance, removing trade barriers may make *everyone* in both countries worse off.[8] In the presence of imperfect risk markets, capital market liberalisation may increase volatility in consumption and make the economy worse off.[9]

In this case, matters may be even worse. When individuals have different assessments of risk (the probability of a given event), they can through buying and selling derivatives create pseudo-wealth – both parties believe that they will win the bet, and hence both believe that they are well off. In reality, of course, this is just a zero sum game, and next period, one will be proven right, the other wrong. But at that point, there can be large destruction of this pseudo-wealth, with severe macroeconomic consequences. Of course, if only two individuals engaged in such bets, the macroeconomic consequences would be negligible. But when they are engaged in by large numbers, there can be severe consequences.

This provides a still further reason for restricting derivatives – or at the very least, making sure that they are not facilitated and subsidised, implicitly or explicitly, by government policy.

Unfortunately, not only do we encourage the derivatives through allowing them to be sold by government-insured institutions, we implicitly encourage them through bankruptcy laws that give them priority in bankruptcy.

It is imperative for government to try to correct discrepancies between social returns and private rewards because in the presence of such distortions, not only will markets be inefficient, but innovation will be misdirected.

Legal frameworks – corporate governance laws, competition laws, bankruptcy laws, financial sector regulations – provide the rules of the game, affect the distribution of income and the relationship between social and private returns, and can be thought of as providing (implicitly) the basis of industrial policy, encouraging some sectors at the expense of others. The legal framework in some countries, such as the United States, has resulted in a distorted and bloated financial sector. For example, among the reforms needed in our bankruptcy law are the following:

Bankruptcy law should treat derivatives junior to workers and senior creditors. Bankruptcy law should be used to encourage transparency: any derivative not registered would be junior to all other claimants; and losses on derivatives that are not fully disclosed would not be tax deductible.

7. The shadow banking system

Prior to the crisis, many thought that the shadow banking system did not pose systemic risk. An investment bank that failed would (some believed) have no systemic consequences. We now know that that is not true. Even a large insurance company can pose systemic risk.

Much of the shadow banking system arose to circumvent regulations imposed on commercial banks. And much of the theory providing justification for the shadow banking system has been put into question by the crisis. For instance, while the benefits of risk diversification through securitisation are well

[8] See D. Newbery and J. E. Stiglitz, 'Pareto Inferior Trade,' *Review of Economic Studies*, 51(1), January 1984, pp.1-12.

[9] See J. E. Stiglitz, 'Capital Market Liberalisation, Globalisation, and the IMF,' in *Capital Market Liberalisation and Development*, J.E. Stiglitz and J.A. Ocampo (eds.), New York: Oxford University Press, pp.76-100.

recognised, the crisis has exposed the downside to securitisation:

One of the arguments for institution – (bank-) based lending is the internalisation of information externalities. Securitisation offered advantages in risk diversification, but these advantages were more than offset by the attenuation of the quality of information. A great deal of attention has been focused recently on the failures of the rating agencies; but the problems associated with the inadequacy of incentives for gathering good information are partially inherent and have long been recognised: if markets perfectly conveyed information (as the advocates of informationally efficient markets claimed), then there would be no incentives to gather information.[10] Earlier, we noted that private decisions with respect to sharing and transferring risk are not, in general, socially optimal. Even worse, the way private markets balance risk and information efficiency is not, in general, optimal. Systems that disperse risk inherently weaken 'accountability' and incentives not just for gathering information, but for ensuring the 'quality' of the financial products being produced.

If diversification leads to an attenuation of incentives for obtaining good information,[11] it can lead not only to poorer overall performance, but more instability. Hence, the trade-off is markedly different than has traditionally been envisaged in the securitisation literature, where it was presumed that securitisation would lead to enhanced systemic stability. Different policy frameworks (rules of the game) can lead to different financial architectures; and different financial architectures balance the trade-offs differently, some better than others, some enhancing the ability to absorb small risks, but making the economy more prone to systemic risk in the event of a large shock, or a set of correlated smaller shocks.

The shadow banking system has to be tightly regulated, e.g., with tight leverage (capital and liquidity) requirements – and because wholesale deposits may be even more fickle that consumer deposits in commercial banks, the requirements may even have to be higher. Originators of securities have to have 'skin-in-the game,' i.e., they have to retain at least a 10 per cent stake in the security.

There need to be deep reforms in the credit rating agencies. The quasi-public role (delegating responsibility in ascertaining which securities are safe enough to be held by a pension fund) needs to be re-examined. There needs to be standardisation of the ratings. There needs to be a rating of the rating agencies performance. They need to be held more accountable. (Litigation in Australia where the credit rating agencies were found culpable is a beginning in doing so.)

8. The centrality of banks and the necessity of central banks using a full range of instruments

Banks, and their failures, were central to the crisis of 2008. But curiously, banks play little role in standard macroeconomics models, in which the financial sector is often summarised in a money demand-and-supply equation. These models typically didn't model the banking sector carefully – or at all. Such a reduced-form approach may suffice in normal times, but not now, or in other times of crisis, such as the East Asia crisis.[12]

The importance of banking (including the shadow banking system), as opposed to the provision of credit through markets, is rooted in information economics. In particular, they are the repository of institutional knowledge (information) that is not easily transferred, and the internalisation of

[10] See Sanford Grossman and J. E. Stiglitz, 'Information and Competitive Price Systems,' *American Economic Review*, 66(2), May 1976, pp.246-253, and Sanford Grossman and J. E. Stiglitz, On the Impossibility of Informationally Efficient Markets,' *American Economic Review*, 70(3), June 1980, pp.393-408.

[11] As in Calvo, Guillermo A. and Mendoza, Enrique G., 2000. 'Rational contagion and the globalisation of securities markets,' *Journal of International Economics*, Elsevier, 51(1), pp. 79-113.

[12] The irony is that many of the proponents of these models made a great fuss over the fact that they were *structural*, *i.e.* deriving savings behavior from intertemporal utility maximising behaviour.

information externalities provides better incentives for the acquisition of information, but, as we have noted, at the cost of a lack of *direct* diversification of risk .[13]

It should now be clear why an analysis of banking has to be central in any macroeconomic analysis: A key channel through which monetary policy affects the economy is the availability of credit and the terms at which it is available. It is the lending rate that firms can borrow at that they care about – not the interest rate at which the government can borrow. The spread between the two can and does vary greatly; banks are central to the setting of the lending rates at which small and medium sized enterprises can borrow. Government policy can affect the spread through both conventional monetary instruments and a variety of regulatory policies, and monetary authorities need to be sensitive to the various market forces which might affect the spread, so that they could take offsetting actions.

If we are to understand the impact of monetary policy, we must better understand how what Central Banks do (either in conventional open market operations, reserve requirements, interest provided on reserves, or regulatory requirements) affects the behavior of banks and the shadow banking system. This is especially so because banks are still the locus of most SME borrowing, and because variability in SME investment and employment is central to understanding macroeconomic variability.

Greenwald and Stiglitz[14] provide a beginning of a research program of creating macroeconomic models where banks play a central role and are explicitly modeled. Credit availability too plays a central role – rightly so, because credit markets are often characterised by credit rationing. If there were no credit rationing, there would be no liquidity crises.

Already, though, there are clear policy prescriptions both about policies aimed at macro-stability (preventing crises) and in restoring the economy after an economic crisis – prescriptions that may differ markedly from those arising out of the standard conventional (DSGE) models.

Quantities (credit availability) and liquidity can be as, or more important, than interest rates.

The interest rate that matters is the lending rate, not the Treasury bill rate, and this should be the focus of attention.

Credit availability and the terms at which banks lend money is affected by the T-bill rate (which in turn is affected by open market operations) but also by a host of regulatory measures, such as capital requirements. These regulatory instruments have first order macroeconomic consequences and should be treated as macroeconomic instruments. In some cases, they can be far more effective. Increasing margin and down payment requirements would have been far more effective in curbing the tech and housing bubbles than just adjusting interest rates.

Changes in technology and market structure and some regulations can affect the effectiveness of other instruments. In particular, the elimination of regulation Q has meant that changes in T-bill rates have a smaller wealth-effect on banks, so that much of the effect of conventional monetary policy is through substitution effects, which typically are far weaker.

Most importantly, central banks need to use all of the instruments at their disposal. The artificially self-imposed constraint adopted by many central bankers influenced by neo-liberal doctrines – that central bankers should limit themselves to adjusting short term interest rates – has been costly. It was predicated on the false notions that markets were always efficient, and therefore central banks should minimise their interventions. But all central banks intervene – that is why they were created. And there is no theorem that says that optimal intervention

[13] Though shareholder risk diversification can still occur. The fact that this is so raises questions even about the validity of the risk argument for diversification through securitisation.

[14] B. Greenwald and J.E. Stiglitz, *Towards a New Paradigm in Monetary Economics*, Cambridge: Cambridge University Press, 2003.

should be limited to short term rate setting. Indeed, in other contexts,such as tax policy, we know that optimal intervention (taxation) involves imposing a multiplicity of interventions(taxes) – it is better to have a large number of small interventions than one large intervention[15].

The crisis has forced many Central Banks to rethink their doctrinaire policies. Even the Fed has become more active in the use of alternative instruments. I should say a word a few words later about one such instrument, quantitative easing.

9. Broader objectives – beyond inflation – as well as more instruments

In the aftermath of the crisis, it is evident that the single-minded focus of some central banks on inflation was misplaced. The losses in welfare from low to moderate inflation were of orders of magnitude smaller than the losses from the financial collapse. But the underlying hypothesis, held by many central bankers, that keeping inflation low was necessary, and almost sufficient, for stable and strong growth has been shown to be wrong – and was never really justified by sound economic models. By diverting attention from what was really important,inflation targeting may accordingly not only have failed to enhance macro-stability, it may actually have contributed to instability. (Of course, high levels of inflation are a problem, but they are often symptomatic of other more general problems in the economy).

The period immediately before the crisis showed another aspect of the destabilising effects of inflation targeting: developing countries exposed to an adverse supply shock which results in 'imported' inflation increased interest rates, slowing the economy down even more, and imposing even greater costs on workers already suffering from high food and energy prices. The only way that the increased interest rate would have had a significant effect on inflation was by imposing such stress on the non-traded sector and on wages that prices of non-traded goods and labor declined enough to offset the rising international prices. But then the cure would have been worse than the disease.

The more general point is that the response to any shock to the economy should depend on the nature of the shock. If it is, for instance, a demand shock, then it *may* be appropriate to curb demand through interest rate policy.

This and the preceding point illustrate another more general one: for years, Tinbergen's approach to policy has been extremely influential. If the number of instruments equals the number of objectives, it has been argued that one should 'match' instruments with objectives, and different institutions should be assigned an instrument and a target for which they are responsible. The central bank should be responsible for inflation, using its instrument of choice, the interest rate. Tinbergen focused on controllability, but this system has been argued for on the basis of accountability: there is a simple metric (the level of inflation), in this view, by which central bank performance can be judged.

But Tinbergen's analysis was conducted in a highly stylised linear model, in which with n instruments one could control n objectives. In a complex non-linear system with risk – including instrument uncertainty[16] – and where one is concerned not just with the ultimate equilibrium (which in practice may never be attained) but with real-time performance--one should use all the instruments at one's disposal, and coordination among policymakers is essential. There are no general theorems on decentralisation – to the contrary, what theorems we have relate to the dangers of decentralisation.

In practice, this means that monetary and fiscal policy needs to be coordinated, and it makes no sense for the body controlling one of these to be allegedly

[15] P.P. Ramsey, 'A Contribution to the theory of Taxation.' *Economic Journal* (1927), 47-61.

[16] That is, one cannot be sure about the consequences of any action. See, *e.g.* B. Greenwald and J.E. Stiglitz, 'Toward a Theory of Rigidities,' *American Economic Review,* 79(2), May 1989, pp.364-69.

independent, while the one responsible for the other is politically accountable, a point to which I shall return shortly.

Central banks should broaden their objectives beyond inflation. They need to focus too on employment, growth, and financial stability. And monetary policies need to be coordinated with fiscal policies.

10. The complex effects of monetary policy: asymmetries, irreversibilities, sectoral effects, distributional effects

Monetary authorities need to be especially sensitive to asymmetries in 'controllability' and the costs associated with the conduct of monetary policy. While monetary policy may be an effective instrument in constraining output, it may be far less effective in stimulating the economy in a deep downturn. This, in turn, implies asymmetries in the conduct of monetary policy. There is always going to be uncertainty, for instance in judging the level of employment or growth at which inflation starts to increase or in judging whether there is a bubble. But a slight restraint on the economy in dampening a potential bubble has a miniscule cost relative to the costs imposing by the breaking of a bubble.

This is an example where there are long–term, hard-to-reverse effects of mistakes. There are other examples: prolonged high unemployment gives rise to hysteresis effects, as skills atrophy.

So too, advocates of monetary policy as a control instrument (over fiscal policy) stress its flexibility, the ability to fine tune policies as new information comes in. But they fail to note that some parts of the economy are more interest-sensitive than others, and some parts are more sensitive to the availability of bank credit than others. Hence loosening and tightening of credit induces more volatility in some sectors than others, and because of imperfections in risk markets, this imposes significant costs on these sectors. In a sense, the way monetary policy is conducted distorts the economy.

At the same time, the way monetary policy is conducted can have significant distributional effects. While it is often asserted that inflation is the cruelest tax, in advanced countries at least we have protected the poor against much of the consequences, since social security and other programs are often indexed to inflation. With competitive labor markets, wages tend to rise with inflation, and so even workers are protected. (Sometimes it seems that this is not the case, but that is because the shocks to the economy that set off inflationary episodes often are shocks that affect labour productivity; we confuse correlation with causation). Inflation has redistributive effects – against holders of long term bonds. But fighting inflation by raising interest rates and increasing unemployment also has distributive effects – not only is the cost of the higher unemployment borne directly by workers, but workers suffer doubly as the higher unemployment exerts downward pressure on wages, and triply, as lower GDP leads to lower tax revenues and cutbacks of public programs aimed at the bottom and middle.

Not only have monetary authorities often failed to note the significant distributive effects of their policies, the models on which they rely have not given them the prominence that they should. Even if one did not put much weight on inequality, inequality can have large macroeconomic effects. My own work (summarised in my recent book *The Price of Inequality*)[17] highlights this. So too did the International Commission of Experts appointed by the President of the UN General Assembly examining the causes of the 2008 crisis.[18] And so too has the IMF, which has noted the systematic relationship between inequality and instability.[19]

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[17] *The Price of Inequality: How Today's Divided Society Endangers Our Future*, New York: W.W. Norton, 2012; see also J. E. Stiglitz, 'Macroeconomic Fluctuations, Inequality, and Human Development,' *Journal of Human Development and Capabilities*, 2011, 13(1), pp. 31-58.

[18] Available as *The Stiglitz Report: Reforming the International Monetary and Financial Systems in the Wake of the Global Crisis*,*Op.cit.*

[19] See Andrew G. Berg and Jonathan D. Ostry, 'Inequality and Unsustainable Growth: Two Sides of the Same Coin?,' IMF Staff Discussion Note, April 8, 2011, available at http://www.imf.org/external/pubs/ft/sdn/2011/sdn1108.pdf (accessed December 14, 2012).

While I can't in this brief lecture go into all the channels through which this occurs, let me note one that was evident in the run up to this crisis. As incomes of most Americans stagnated and declined, they incurred greater indebtedness as they strived to maintain their standards of livings and to keep up with those at the top who were doing so well. Had monetary authorities not offset the effects of growing inequality (because the marginal propensity to consume of those at the top is so much lower at the top than at the bottom and middle, as income shifts from the middle and bottom to the top total consumption demand is lowered) by lowering interest rates and relaxing regulations, thereby helping create a housing bubble, aggregate demand would have been lowered, and unemployment would have increased. But such actions provided only a temporary palliative. The temporising was sowing the seeds of destruction: it was simply a matter of time before the bubble which sustained the economy, offsetting the effects of the growing inequality, broke. But the period of recovery, during which actual output remains substantially below potential output, may be longer and the costs far greater than the benefits and duration of the bubble. And this is especially so when the underlying problem is not addressed; for the downturn itself gives rise to adverse distributional effects which weaken the economy further.

Monetary authorities need to be more sensitive to the distributive and sectoral consequences of their policies, and to the fact that some mistakes – letting bubbles grow, or allowing unemployment to rise in an excessive zeal for fighting inflation – have long-term consequences which are hard to correct.

11. Limited effectiveness of monetary policy and the channels of monetary policy: exploiting market imperfections

This discussion has highlighted one of the lacuna in the models used by many monetary authorities--the lack of attention to distribution. Earlier remarks highlighted other lacuna – the lack of attention to banks and the details of the financial system more broadly. But these are not just mistakes of modeling, about which I have written more extensively elsewhere[20], but they lead to misguided views about the channels through which monetary policy affects the economy, and indeed, the very reasons that monetary policy affects the economy. And without understanding these channels, one can't understand why sometimes monetary policy is less effective than at other times, nor can we design policies to maintain stability or restore the economy to full employment.

The effectiveness of monetary policy hinges critically on certain market imperfections.[21]

Some years ago, I proved a generalisation of the Modigliani-Miller (MM) theorem, which had shown the irrelevance of corporate financial policies, for the public sector.[22] I showed that, under the idealised conditions under which the MM theorem held, public financial operations, such as a change in the maturity

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[20] J.E. Stiglitz, 2011, 'Rethinking Macroeconomics: What Failed and How to Repair It,' *Journal of the European Economic Association*, 9(4), pp. 591-645;J. E. Stiglitz, *Freefall: America, Free Markets, and the Sinking of the World Economy,* New York, W.W. Norton, 2010.

[21] This section of my lecture is adapted from my paper, 'Monetary Policy in a Multi-PolarWorld,' presented to an IEA Roundtable on capital flows at Izmir, Turkey on November 1-2, 2012.

[22] That work itself was based on my generalisation of the MM theorem (J. E. Stiglitz, 'A Re-Examination of the Modigliani-Miller Theorem,' *American Economic Review*, 59(5), December 1969, pp.784-793; J. E. Stiglitz, 'On the Irrelevance of Corporate Financial Policy,' *American Economic Review*, 64(6), December 1974,), work which itself, together with J. E. Stiglitz 'Information and Capital Markets,' in *Financial Economics: Essays in Honor of PaulCootner*, William F. Sharpe and Cathryn Cootner (eds.), Prentice Hall, New Jersey, 1982, pp.118-158;reprinted in *The Selected Works of Joseph E. Stiglitz, Volume II: Information and Economic Analysis: Applications to Capital, Labor, and Product Markets*, Oxford: Oxford University Press, 2013, pp. 55-84), explained the limitations on the theorem . For instance, in 'On the Irrelevance of Corporate Financial Policy,' *American Economic Review*, 64(6), December 1974, pp.851-866, I showed the irrelevance of corporate financial policies in a general equilibrium model, under much more general conditions than those that Modigliani and Miller had established the result.

I subsequently extended these results to the public sector in 'On the Almost Neutrality of Inflation: Notes on Taxation and the Welfare Costs of Inflation,' in*Development in an Inflationary World*, M. June Flanders and Assaf Razin (eds.), New York: Academic Press, 1981, pp.419-457; 'On the Relevance or Irrelevance of Public Financial Policy: Indexation, Price Rigidities and Optimal Monetary Policy,' in *Inflation, Debt and Indexation*, R. Dornbusch and M. Simonsen (eds.), MIT Press, 1983, pp.183-222 and *of Economic Education*, 19(2), Spring 1988, pp.171-177; and 'On the Relevance or Irrelevance of Public Financial Policy,' in *The Economics of Public Debt,* Proceedings of the 1986 International Economics Association Meeting, London: Macmillan Press, 1988, pp.4-76.

structure of government debt, should have no effect. (The result could also be thought of as a generalisation of the Barro-Ricardo theorem, suggesting that government debt itself had no effect). In a simple model with infinitely lived individuals, putting aside any distributive effects, we owe money to ourselves, so government debt is simultaneously a liability and an asset. That that is so provides an important critique to those excessively worried about government debt, at least when it is internally held (it's another matter when the debt is held by foreigners, because then the debt amounts to a diminution in the country's 'net worth').

The intuition, of course, is simple, and it is the same that underlies the Barro-Ricardo analysis (in its general equilibrium form): if the government borrows more now (say, instead of paying for current expenses by raising taxes), to be repaid at some later date, the effect can and will (in general equilibrium) be precisely offset by the representative consumer saving more, and using the funds to repay the government debt later. But in the general equilibrium formulation, there can be multiple heterogeneous individuals, and the result holds, assuming, of course, that those who would have paid the taxes now pay the 'equivalent' amount later, *i.e.,* that there are no distributive consequences to the postponement of the taxes. And the same holds if the government decides to raise more funds by a sequence of short-term borrowings, rather than by long term debt.

The empirical evidence is overwhelming that the Barro-Ricardo theorem, and my generalisationof it, are wrong.[23] The question is not the validity of the proposition, but why it fails. And what insights does this provide us into capital markets and the workings of monetary policy?

Distributive effects, capital constraints, and seeing through the public veil

It should be obvious, as we have already noted, that it is hard to avoid distributive effects and political economy considerations (the absence of which are essential to the validity of the Barro-Ricardo result). In the limiting case, with an overlapping generations model, the decision to postpone financing for current expenditures through taxes has potentially important intergenerational effects. To be sure, there may be partially offset through changes in intergenerational transfers, but the fact is that most individuals do not leave any significant bequests to their children[24], in which case there can't and won't be such offsetting bequests.

A variety of capital market imperfections provide the basis of the strongest theoretical critique. If, for instance, individuals would have want to have borrowed more, but are constrained from doing so, the existence of an incremental future liability will not induce them to start saving. The borrowing constraint will simply be less binding than it was before. By the same token, were the government to decide to tax more and borrow less, the individual facing a borrowing constraint won't be able to offset the effect through increased borrowing.

In reality, most individuals do not fully incorporate future tax liabilities into their budget constraints – and even less so, do they incorporate the 'risk pattern,' so that changes in the risk pattern, as a result of a change in say the maturity structure of debt (or a shift from unindexed debt to indexed debt) are

[23] See for example, D.S. Johnson D S, J.A. Parker, N.S. Souleles, 2006, 'Household Expenditure and the Income Tax Rebates of 2001,' *The American Economic Review*, 96(5): 1589-1610. Anecdotally, when Bush cut taxes dramatically in 2001 and 2003 the average savings rate fell to near zero – it did not increase as the Barro-Ricardo analysis would have suggested. Of course, there were many other things going on, and defenders of the theory might argue that were it not for the tax cut, savings would have been even lower, *i.e.,* minus 2 or 3 per cent of GDP. But with credit constraints already binding for so many individuals – and with the bottom 80 per cent of America already consuming 110 per cent of their income – it is hard to believe that in the absence of the tax cuts, the savings rate would have been that low.

[24] In fact, most individuals have almost no wealth--and hence no bequests of significance. See, for example, E.N. Wolff and M. Gittleman, 'Inheritances and the Distribution of Wealth Or Whatever Happened to the Great Inheritance Boom?' BLS Working Paper 445, January 2011, who find that between '1989 to 2007, 21 percent of American households at a given point of time received a wealth transfer and these accounted for 23 per cent of their net worth.'

not offset by corresponding changes in their portfolios. (As another example: as the Fed bought long term bonds, there was the obvious risk that should it reverse the purchases as the economy recovers, there would be a capital loss.[25] The expectation of such a capital loss, with full integration of the public and private budget constraints, should have had a contractionary effect on consumption, offsetting the intended expansionary effect. The Fed suggested it might hold the bonds to maturity, using other ways of tightening credit, *e.g.* by paying interest on deposits at the Federal Reserve, in effect enabling it never to realise the capital losses. But these only mask the reality that (the present discounted value of) government revenues are less than they otherwise would have been; they don't change the predicted adverse effect on consumption, assuming full integration of public and private budget constraints and full rationality[26]).

Monetary policy in a world of interest bearing money

It is clear that the idealised world of Modigliani-Miller provides an inadequate description of the economy.[27] There is a widespread assumption that monetary policyhas *some* effects.

But modern monetary theory lives in a half-way house of incompletely articulated assumptions of imprecisely defined market imperfections and distributive effects, leading to speculative observations about possible channels through which monetary policy might yield effects, with ambiguous quantitative significance.

Today, for instance, with cash management accounts, T-bills can, in effect, be used as money for purposes of transactions. In the standard model in which interest rates are determined by the demand and supply for money, an open market operation entailing an exchange of T-bills for, say, 'money', doesn't change the effective supply of money, since T-bills themselves can be used for transactions, and so such an exchange (open market operations) shouldn't have any effect on interest rates. And this is especially so in a world in which T-bills are yielding close to zero nominal interest rates.

Institutional constraints, credit availability, profit maximising risk-averse firms, and the liquidity trap

But it is possible in a world of banks with institutional rigidities that such open market operations could have an effect. For an increase in deposits held by the banking system in the Federal Reserve ('base money') can, through the credit multiplier, lead to increased lending. I say, *can,* not necessarily *will.* For banks are (for the most part) profit maximising risk averse firms[28], and they may decide the best way to allocate their portfolios is not to issue new loans to, say, SME's, but to buy government bonds from the household sector or from abroad, or simply to hold the excess liquidity at the Fed. This can give rise to a liquidity trap, though one that is distinctly different from that discussed by Keynes (where it arises because the demand function for money becomes infinitely elastic at low interest rates) and some more recent commentators focusing on the zero lower bound on the interest rate.

We have already referred to one reason that today, monetary policy may be much less effective than in the past: with the abolition of Regulation Q, restricting competition in the setting of deposit rates,

[25] The general point that it is hard to explain why temporary interventions (such as associated with IMF short term loans to a country) should have long term effects in models with rational expectations was made in Stiglitz [1999].

[26] The irony is that government insists that banks use mark to market accounting, but the central bank doesn't do so for itself.

[27] My own earlier work on asymmetric information and stressing the importance of bankruptcy provided part of the critique. Higher debt ratios may entail higher (expected) losses from bankruptcy and may have signaling/ screening effects. (Stiglitz, J.E., 1969, 1982, O*p.cit* . But these 'limitations' are not relevant, at least for countries like the United States, where there is essentially no risk of soverign default.

[28] I should be more cautious: given the agency issues that were revealed so vividly in the crisis, they might be better described as managerial enterprises, maximising the well-being of the managers, subject to certain constraints on the access to credit. In either case, we have to describe the *behavioural* responses to a change in, say, base money or T-bill interest rates.

the wealth-effects of monetary policy are largely eliminated, implying that monetary policy exerts its effects through much weaker substitution effects.

But in deep downturns, there are two further reasons for the inefficacy of monetary policy: the interest insensitivity of investment (and consumption) and the blocking of credit channels, so that the impact of monetary policy on the flow of credit is diminished.

The distinction between the situation confronting Keynes in the Great Depression and that of today is important: Keynes was confronting a situation where prices were falling at 10 per cent a year, so real interest rates remained in excess of 10 per cent, so it was plausible that the inability to lower real interest rates represented a constraint on the ability of monetary authorities to ignite the economy. Today, however, there is moderate inflation, of say 2 per cent, so that real (T-bill) interest rates are negative. To be sure, at a sufficiently negative real interest rate, individuals might be spurred to consume more and firms to invest more, but within reasonable ranges, further lowering (expected) real T-bill interest rates, to say – 4 per cent – even were that feasible – is unlikely to spur much further investment or consumption.

There are some obvious reasons for this interest inelasticity: with firms sitting on excess capacity, even large changes in interest rates are not likely to induce much more investment. Why would firms acquire even more excess capacity, just because the interest rate is lowered? Moreover, as Greenwald and I have explained in our earlier work[29], because of information imperfections, capital markets are imperfect; and because of capital market imperfections, firms act in a risk averse manner. In deep downturns, firms are likely to be particularly risk averse, and so particular unresponsive to even moderate changes in interest rates.

Today, large firms are sitting on some $2 trillion dollars of cash. It is hard to believe that small changes in T-bill rates are going to result in large changes in their willingness to convert those cash holdings into real investments.

For many smaller businesses, however, the real constraint *is* the lack of *availability* of credit (a problem that simply cannot be analysed in a model with perfect capital markets). For these firms, credit availability is far more important than interest rates. Providing more liquidity to banks does not necessarily lead either to more lending or to lower lending rates (Greenwald-Stiglitz, 2003).

The ineffectiveness of temporary interventions: QE as an example

One of the arguments often put forward *in favor* of monetary policy is its flexibility – the ability to change interest rates quickly up and down. But while that is undoubtedly an advantage (over the much slower process of adjustments of tax rates or government expenditures – though not of well-designed automatic stabilisers built into sound fiscal and financial frameworks), there has been a long standing theoretical conundrum: why should policy measures that are seen to be (and often announced to be) temporary have much of an effect?[30]

Consider, for instance, the temporary intervention of Quantitative Easing – buying long term bonds now, under the presumption that the economy will recover in say a couple of years, in which case the action will be reversed. Apart from slight changes in endowments (increases in the levels of state variables like human and financial capital) that might have been induced by the temporary

[29] 30 1993, 2003, *Op. cit.*

[30] Temporary interventions can have long term effects if (a) they move the economy from one equilibrium to another, in a model in which there are multiple equilibria; (b) there are large *substitution* effects, so that, for instance, investment that might have occurred in a later period occurs earlier; or (c) it can generate large 'permanent' income effects, with longer last effects on the evolution of the economy. Many of the interventions associated with monetary policy have none of these characteristics. See, for instance, my Keynote address before the 1998 Annual Bank Conference on Development Economics, 'Knowledge for Development: Economic Science, Economic Policy, and Economic Advice,' in *Annual World Bank Conference on Development Economics*, B. Pleskovic and J. Stiglitz (eds.), Washington: World Bank, 1998, pp.9-58.

intervention, at the later date, asset prices will be the same as they would have been before the intervention. Knowing this, it is hard to see why there should be large changes in asset prices (share prices) today. With lifetime budget constraints essentially unchanged, it is hard to see why there should be any *significant* changes in consumption during the period of the temporary interventions, even if there should be some changes in asset prices during that period.

Moreover, as we noted earlier, the capital gain on long term government bonds that individuals might enjoy today as long term interest rates fall will be offset either by a capital loss on their holdings when the intervention is reversed and/or by the capital loss that the government will realise when it sells back the long term bonds back to the public at a time when long term interest rates are lower. If public and private life-time budget constraints are largely integrated, then these effects are offsetting, and it is hard to believe that there will be large effects on aggregate demand.

Market imperfections and why QE may have some effects

Of course, in models with less than perfect rationality, high degrees of risk aversion, and significant capital market imperfections, such temporary interventions can have *some* effects.

The financial press continually describes the response to low interest rates as leading to a 'drive for yield.' There is, of course, no general theory that would suggest that as yields go down, individuals act in a less risk-averse manner; quite the contrary, the adverse wealth effects might more plausibly lead to more risk-averse behavior.But such behavior, if widespread, could in turn lead to an increase in the price of stocks – even if 'rationally' the forces leading to this increase (above what the prices would otherwise be) are just temporary. The standard wisdom from the advocates of QE are that the higher stock prices will lead to more consumption. We have questioned, though, whether that is so, if they rationally expect the intervention to be temporary.

But there is a more fundamental problem: if the reason for the increase in stock prices is the 'drive for yield,' then it reflects a *worsening* of the life-time budget constraint as a result of lower interest rates, and net, that should have ambiguous effects on consumption, with wealth and substitution effects operating in opposite directions.

But there is another set of effects that may be operating that may also imply that QE can have an adverse effect on consumption (and aggregate demand). The standard model ignores the effects of distribution, including across generations. Those that go into retirement at, say, t, and had been planning to sell their assets, will, if QE results in an increase in stock or bond prices, now receive more from them that they otherwise would have received, and this group may consume more than they otherwise would have.[31]

But once we start focusing on distributive effects, we need to take into account other effects associated with the lowering of interest rates: those prudent older people who had invested in say government bonds will find their incomes lowered as interest rates are reduced, and for many of these, a lowering of income translates quickly into a lowering of consumption. Their consumption is cash-constrained, and their cash flows will be diminished.

There are many other potentially significant effects that are typically ruled out in the 'standard' model: lower interest rates lead to more capital intensive technologies, laying the seeds for a 'jobless' recovery; lower interest rates can lead to asset price booms, increasing the prices of oil and other commodities which act much like a tax on consumers.

[31] But those among the elderly who expect to live long will obtain lower yields as they re-invest the proceeds, and this will largely cancel out these benefits.

Market imperfections and the ineffectiveness of QE

While capital market imperfections help explain why monetary interventions like QE might have larger effects than one would have expected in a 'perfect markets' model, capital market imperfections also help explain why QE may have less of an effect than expected. (The most important reason for the limited effect of QE in the United States is globalisation of financial markets, and that is discussed in the next part of this lecture.)

As we noted earlier, what matters for aggregate demand is the availability of credit and short and long term lending rates, and even with quantitative easing, credit availability and the spread between T-bill rate or other rates set by the Fed and the lending rate are endogenous variables. In deep downturns, changes in conventional monetary policies may have limited effects, especially if the monetary authorities have not done what they should have done to ensure the health of the institutions responsible for the flow of credit.

One of the hoped for effects was that lower long term interest rates would lead to lower mortgage rates, which in turn would lead to large numbers of Americans refinancing their mortgages, and the lower interest rates would effectively put cash in the pockets of households, leading to more consumption.

Note that underlying this analysis are implicit assumptions about distributive effects of interest rate changes. Lower interest payments by households corresponds to lower receipts of interest by lenders. In representative agent models, the effect would be a wash. More realistically, given large differences in the marginal propensities to consume of creditors and debtors, the redistribution from creditor to debtor should increase consumption (as the advocates of QE hoped. In the presence of capital constraints (limiting borrowing by households), the effect is even stronger.

However, in more general models focusing on capital and institutional constraints, the effects are more complex and ambiguous. For instance, in the presence of institutional constraints on banks, lower revenues/profits for the banks translates into less lending, an effect which could be stronger than that generated by differences in marginal propensities to consume.

The many and growing imperfections in the mortgage market help explain the ineffectiveness of monetary policy, including quantitative easing. There has been increasing concentration[32] – to the point where no one would describe the market as a competitive one. Without precisely specifying the appropriate model of tacit collusion or oligopoly, it is certainly conceivable that the banks would not pass on to consumers the full benefits of the lower long term government rates; they would limit the supply of mortgages so much as to increase their spread, their profit margins. And this is precisely what has happened. (This is especially the case because of the multiplicity of conflicts of interests that have been creating under existing institutional arrangements. The banks also derive large revenues as 'service providers,' from servicing existing mortgages, and the contracts as service providers also provide them with incentives not to refinance.) The result is that the consumer benefits (and thus the increase in aggregate demand through that channel) have been less than had been touted. Critics suggest that, like so many of the Fed's programs, the real beneficiaries are the banks, especially the large banks that control the lion's share of the mortgage market. If that is the case, the short run benefit to the economy, at least through this channel, will be limited.

[32] William C. Dudley, President of the Federal Reserve Bank of New York, noted in a recent speech, 'Federal Reserve MBS purchases have succeeded in driving down mortgage rates to historically low levels. But these purchases would have had still more effect on the economy if pass-through rates from the secondary market to the primary market had been higher […]The incomplete pass-through from agency MBS yields into primary mortgage rates is due to several factors – including a concentration of mortgage origination volumes at a few key financial institutions and mortgage rep and warranty requirements that discourage lending for home purchases and make financial institutions reluctant to refinance mortgages that have been originated elsewhere.' William C. Dudley, 'The Recovery and Monetary Policy', Remarks at the National Association for Business Economics Annual Meeting, New York City, 15 October 2012, available at http://www.newyorkfed.org/newsevents/speeches/2012/dud121015.html.

Another market imperfection may have reduced the benefits derived from QE III even more. Mortgages that could easily be refinanced have already been refinanced; borrowers who have not have either insufficient income or are 'underwater.' The mortgage could be refinanced only if there were a principal write down. In a standard model with rationality, it would pay both lenders and borrowers to engage in debt restructuring. Foreclosures are expensive for everyone involved, including the communities in which they occur. There is enormous dead weight loss. But principal write downs entail a recognition of losses faster than would otherwise be the case, especially since the change in accounting regulations in 2009 that allowed even impaired mortgages *not* to be written down. That would make the *seeming* profits in the short run lower, even if it would make long run profits higher. But agency problems pervade the banking system, and bank management has incentives to focus on the short run. Moreover, some banks may face high costs in raising funds (a natural capital market constraint, arising in part from the high level of non-transparency of the banks)[33].

In short, the level of refinancing may be far smaller than would be the case if financial markets were perfect, but analysing the extent to which there will be refinancing, and the impact on banks and aggregate demand, entails a complex analysis of institutional constraints and imperfections.[34] Monetary policy ignores these at its peril.

Balancing

Here, I do not wish to argue for the quantitative importance of any of the effects that I have described. What I do contend is that once one moves away from the 'perfect markets' model, or the 'almost perfect markets model' in which we know that monetary policy should have no (or negligible) effects, we have to be careful in thinking through the source of 'imperfections' and their consequences.

Too much reasoning on the impacts of monetary policy interventions has been based on an almost incoherent pastiche of analyses based on 'rationality,' 'rational expectations,' and 'well functioning markets' overlaying a variety of forms of imprecisely specified and explained market imperfections. I've alluded to some examples already: while there is ample discussion of markets 'discounting' future actions, temporary measures, it is still believed, can have significant effects.[35]

Some of the disappointments with QEII and QEIII would not have come as a surprise, if monetary authorities had grasped better the nature of market imperfections *as they existed at the time of the implementation of these policies.* Given the role that local (community) and regional banks play in the provision of credit to SME's, given the weaknesses that persist in these banks, given the role that collateral plays for such lending, given that real estate is the predominant form of collateral, and given that real estate prices remain persistently and markedly below the level before the crisis, it should be no surprise that QE would have limited effects on SME lending. Given that large firms were sitting on large amounts of cash, it should be no surprise that QE might have little effect on lending to large firms and/or investment by these firms.

It is at least conceivable in a situation where there is excess capacity in industry and real estate and

[33] Still further problems are posed by the conflicts of interest between the holders of the first and second mortgages. See J. E. Stiglitz, *Freefall: America, Free Markets, and the Sinking of the World Economy*, New York: W.W. Norton, 2010. Still further problems have resulted from the put-backs of flawed mortgages and the surrounding litigation: risk-averse banks now realise that there is more risk associated with the process of mortgage origination and securitisation than they had realised.

[34] The list of imperfections in the mortgage market is not meant to be exhaustive. Institutional arrangements, for instance, make it difficult for lender A to refinance a mortgage held by lender B, and lender A often has little incentive to refinance the mortgage – it will simply lower his revenues. More broadly, the mortgage servicers have little incentive to facilitate mortgage restructurings. There is Congressional legislation under consideration as this paper goes to press attempting to deal with some aspects of these issues.

[35] They can, but typically only through substitution effects (a temporary investment tax credit or VAT tax), or through redistributive effects (*e.g.,* the recapitalisations of the banking system, transferring, often in a non-transparent way, resources to the banks at the expense of others).

excess leverage in households, that the adverse effects of QE described earlier (including the adverse consumption effect among the elderly) could outweigh any inducement towards more investment or consumption among firms or households, and so lowering interest rates could have an adverse affect on aggregate demand.

The realisation that it is partly because of – and in some cases mainly because of – market imperfections that monetary policy has the effects it does (or does not have the effects it is supposed to have) complicates monetary policy in many ways.

It means that the simplistic notion, current in recent years, that all one needs to focus on is the real interest rate is simply wrong – even if one could figure out which real interest rate one should focus on.

It implies too that the current fad to suggest that the reason that monetary policy is ineffective today is the zero lower bound is misguided. We are not in a Keynesian liquidity trap.

It implies too that the effectiveness of monetary policy can be increased if monetary authorities work on increasing the effectiveness of the credit channel – strengthening the banks that are responsible, for instance, for SME lending and eliminating blockages in the mortgage market.

These insights help us understand why QE II and QE III have not been effective – and are not likely to be.

12. Access to credit

These experiences also highlight a point which is especially important in developing countries: lower T-bill rates do not necessarily translate into more access to credit. Access to credit for SME's is especially important for growth; and private financial systems, on their own, may not provide adequate access. (Emran and Stiglitz[36] provide a partial explanation for why this is so: it is difficult to ascertain who will be good entrepreneurs, and repay their loans; those who prove themselves good get poached away by others. It is thus difficult for those providing capital to appropriate the full value of the information associated with their lending activities).

Governments and central banks need to have explicit programs to encourage lending to certain groups/sectors that are underserved.

This may entail partial government guarantees and direct government lending programs and specialised institutions (like development banks) as well as regulatory interventions (like CRA lending requirements in the United States and geographical requirements).

It is important that such requirements be imposed not only on domestic institutions but also on foreign banks.

13. International finance

Globalisation has changed the way that monetary policy operates, and its effectiveness. Capital and financial market liberalisation was supposed to help stabilise financial markets, but the evidence is to the contrary: it has brought new and higher levels of instability, without bringing the promised growth.

Even the IMF, long the champion of capital market liberalisation, has suggested that capital account interventions may be desirable.[37]

These changes in view are not a surprise. Liberalisation/globalisation played a central role in the rapid movement of the 2008 crisis from the United States around the world. The world of liberalisation has been one marked by far higher levels of volatility--and in the advanced countries far lower rates of growth--than the era before liberalisation. Closer studies of financial market liberalisation have shown

[36] S. Emran and J.E. Stiglitz, 2009, 'Financial Liberalisation, Financial Restraint and Entrepreneurial Development,' working paper, Columbia University, available at http://www2.gsb.columbia.edu/faculty/jstiglitz/download/papers/2009_Financial_Liberalisation.pdf (accessed December 14, 2012).

[37] See, *e.g.*, Jonathan D. Ostry et al., 'Capital Inflows: The Role of Controls,' IMF Staff Position note 10/04, February 19, 2010, available athttp://www.imf.org/external/pubs/ft/spn/2010/spn1004.pdf (accessed December 14, 2012).

that the flow of funds to SME's is often reduced, with consequent adverse effects on economic growth.

QEII too has heightened these concerns. In a world of globalisation, money goes where the returns are highest--and not necessarily to the country increasing liquidity. Thus, some argue that the major impact of the increased liquidity by the Fed has been to increase demand in emerging markets (and perhaps to support asset price increases globally); and in response to the overheating to which it has contributed in the emerging markets, the central banks there have tried to undo the effects of what they view as the US competitive devaluation and have constructed impediments to the free flow of capital. In effect, they have tried to offset, in their country, the expansionary effect of US Fed policy. In short, money has been going where it's not needed, and not going where it's needed. Why should an investor with access to funds invest them in the United States or Europe, where there is excess capacity and a long-term slump, rather than in the high return booming emerging markets? In the older, closed economy models, they had no choice: but in a globalised world with free capital markets, they do. From a global point of view, one needs to ask: of what value is there for the Fed to increase liquidity, which then moves to other parts of the world, and the Central Banks in these countries then take largely offsetting actions?

(One of the effects of that policy that may have increased US aggregate demand is a lowering of its exchange rate. But this attempt at competitive devaluation is a beggar-thy-neighbor policy, one to which emerging markets have rightly responded, suggesting that the US policy of quantitative easing has let loose a 'currency war').

Advances in economic theory have helped us to understand what was wrong with earlier models, which assumed that risk diversification associated with liberalisation would obviously enhance stability and efficiency; and why the promised gains have not been materialised. The standard models made strong assumptions not only about perfect markets (including the absence of information imperfections and asymmetries) but also about the absence of non-convexities, so essentially *by assumption,* risk diversification worked. But as I showed in some recent papers, in the presence of such non-convexities, financial market integration may increase risk.[38] A host of papers have now shown that greater interlinkages (among financial institutions, across countries) may lead to a greater risk of systemic failure.[39]

Advances in economic theory have also highlighted some of the reasons that foreign banks are different from domestic banks: their risk profile is different, and they face greater asymmetries of information (*e.g.,* about which small firms are likely to be good). Imperfections and asymmetries of information help also explain the high level of volatility associated with foreign capital flows.[40]

There is now an emerging consensus among economists on several aspects of policy concerning cross border capital flows:

a. *Just as there is a need for financial sector regulation, there is a need for regulation of cross-border flows – countries should be*

[38] 'Contagion, Liberalisation, and the Optimal Structure of Globalisation,' *Journal of Globalisation and Development,* 2010, 1(2), Article 2, 45 pages; and 'Risk and Global Economic Architecture: Why Full Financial Integration May be Undesirable,' *American Economic Review*, 100(2), May 2010, pp. 388-392.

[39] See, *e.g.,* S. Battiston, D. Delli Gatti, M. Gallegati, B. Greenwald, and J. E. Stiglitz, 'Default Cascades: When Does Risk Diversification Increase Stability?' *Journal of Financial Stability*, 2012, 8(3), pp.138-149; Gallegati, M., B. Greenwald, M. Richiardi, and J. E. Stiglitz (2008), 'The Asymmetric Effect of Diffusion Processes: Risk Sharing and Contagion,' *Global Economy Journal*, 8(3), Article 2; Stefano Battiston, Domenico Delli Gatti, Mauro Gallegati, Bruce Greenwald, and J. E. Stiglitz, 2012'Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk,' *Journal of Economic Dynamics and Control*, 36, pp. 1121-1141; Haldane, A. G. (2009), 'Rethinking the Financial Network,' address to the Financial Students Association, Amsterdam, April, available at http://www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf; and Haldane, A. G. and R.M. May (2010), 'Systemic Risk in Banking Ecosystems,' University of Oxford mimeo.

[40] See Greenwald and Stiglitz, 2003, *op. cit.*

cautious both about capital and financial market liberalisation.[41]

b. *Cross-border flows and foreign banks behave differently in important respects from domestic sources of funds and domestic banks, and therefore there is a need for a different regulatory regime.* Of course, foreign financial institutions will oppose these regulations.

c. Of particular concern is that *many international agreements, signed in the hey-day of neoliberalism, restrict the ability of governments to impose adequate regulatory regimes, and these need to be changed.*

d. *There is a need for closer cooperation among monetary authorities around the world, and*

e. *Larger central banks, the Fed and ECB in particular, need to recognise that they can impose large externalities on other countries; by contrast, the externalities imposed by any small country are limited.*

14. Institutional design: The failure of independent central banks

Modern development economics has stressed the importance of good institutions.[42] Before the crisis, American financial institutions and American regulatory institutions (including the Fed) were often held up as models for others to imitate. The crisis has not only undermined confidence in these institutions, but has also exposed deep institutional flaws. It has shown that one of the central principles advocated by Western central bankers – the desirability of central bank independence – was questionable at best. In the crisis, countries with less independent central banks – China, India, and Brazil – did far, far better than countries with more independent central banks, Europe and the United States. Elsewhere[43] I have provided part of the explanation. There is no such thing as truly independent institutions. All public institutions are accountable, and the only question is to whom. America's central bank was captured by Wall Street: it came to reflect the ideology and interests of the financial sector, which it was supposed to regulate. As we saw earlier in this lecture, it glossed over central issues like externalities and agency problems, as it came to believe in self-regulation. The pervasive conflicts of interest--with the New York Fed President being at the center of bailouts of the very banks that had played a role in his appointment--were a model of bad governance. The Fed had allowed the development of a financial structure that was rife with conflicts of interests, and had turned a blind eye to practices that not only exploited the poor, but put into jeopardy the American and global financial system.

The notion of the desirability of an independent central bank was predicated on the belief that monetary policy was a technocratic matter, with no distributional consequences. There was a single policy that was best for all – a view to which the simplistic models that the central banks employed may have contributed, but which was not supported by more general models. There does not, in general, exist a Pareto superior monetary policy.

That in turn implies that delegating the conduct of monetary policy and regulations to those who come from and reflect the interests of the financial market is going to result in policies that are not necessarily (and weren't) in society's broader interests.

Even if one wanted independence, one could have combined independence with broader representativeness--making sure that consumers who were hurt by banks' predatory and exploitive

[41] Reflective of this new trend, the IMF has recently supported the imposition of capital controls in certain instances, a major change in their stance, since 1997, when they tried to change their charter to give them a mandate to impose capital market liberalisation. See Ostry et al., *op. cit.* For a discussion of that older debate, see J. E. Stiglitz, *Globalisation and its Discontents,* New York: WW Norton, 2002.

[42] See, for instance, the World Bank, 2002, *Building Institutions for Markets:World Development Report 2001-2002,* Washington, D.C.: The World Bank.

[43] J.E. Stiglitz, *Freefall, Op. cit.*; *The Price of Inequality, Op. cit.*

behaviour, merchants who were hurt by banks› anti-competitive behavior, or workers who were hurt by higher levels of unemployment--had a greater voice in the conduct of monetary policy and regulation.[44]

The crisis has called into question the notion of independence on other grounds: monetary authorities have been engaged in quasi-fiscal operations, giving away tens of billions of dollars, in ways that are non-transparent, and often seem capricious. The Fed saved some banks, throwing tens of billions of dollars at them, but let other banks go. It saved some bondholders, but not others. The loans by the Fed and ECB to banks at low interest rates – which they could then use to buy higher yielding bonds – was, in effect, a gift worth tens of billions of dollars, a gift from the public, but which circumvented the usual public appropriations process. It is unconscionable that such power over the purse be given to a non-elected body.

Monetary authorities need to be held more accountable, especially when they are engaged in policies with strong distributive consequences and which are quasi-fiscal in nature. Monetary institutions need to be designed to ensure that they are more reflective of societal interests.

Concluding Comments

Some years ago, in joint work with my colleague Bruce Greenwald, we provided a critique of traditional models in which the effects of monetary policy are mediated just through interest rates, and interest rates reflect the balancing of the demand and supply of money. We pointed out that with most 'money' being interest bearing, the traditional view that the interest rate is the opportunity cost of holding money is just wrong; furthermore, most transactions are not income generating, but rather the exchange of assets, so even if money were required for transactions, there would still be no simple and stable relationship between money and the level of economic activity (since the ratio of asset transactions to income can be highly variable.) Further, most transactions do not require money; credit is typically an effective substitute, and when it is not, one needs to explain why not.

Over the past thirty years, macroeconomics has made a valiant struggle to place itself on firm micro-foundations, but it chose the wrong micro-foundations – that based on the perfects markets models that were just then becoming discredited, as the economcs profession gained deeper insights into the related effects of transactions costs, imperfections of competition, absence of risk markets, and imperfections and asymmetries of information. Most disappointing, the standard models for the most part didn't even provide structural foundations for the financial sector. (And when they attempted to do so, it was as a result of peculiar and unconvincing assumptions. For instance, cash-in-advance models simply *assume* that credot is not an effective substitute for cash).

In the 1930s there was an active debate between two approaches to the determination of the interest rate, the Keynesian approach, based on the demand for money used for transactions purposes, and that of Robertson[45], based on the demand and supply of loanable funds. In some ways, our approach represents a further development of the work of Robertson, with two important changes.

First, in his model, the supply of loanable funds was based just on savings. In ours, there is a critical role for banks, who make assessments of the credit worthiness of potential borrowers. Imperfect and asymmetric information is central. (Such information tends to be local and specialised; foreign lenders (suppliers) of funds have different information than

[44] See J. E. Stiglitz, 'Central Banking in a Democratic Society,' *De Economist* (Netherlands), 146(2), 1998, pp. 199-226. (Originally presented as 1997 Tinbergen Lecture, Amsterdam, October).

[45] 46 See, for instance, D. Robertson, 1951,'Some Notes on the Theory of Interest,' a contribution to *Money, Trade and Economic Growth, Essays in Honor of Professor J. H. William* (New York: Macmillan, 1951); reprinted in Sir Dennis Robertson, *Essays in Money and Interest* (Manchester: Collins, 1966), pp. 203-22.

domestic lenders, so that their allocation of funds is markedly different. This is one of the reasons that there is a need for special regulation of cross-border capital flows and foreign banks).

Secondly, in both Keynes and Robertson, demand always equals supply; yet in models with imperfect and asymmetric information, there can exist rationing equilibrium. Indeed, such equilibria are pervasive.

Thus, traditional models (of both the Keynesian and Robertsonian version) have little to say about the determination either of credit availability or of the spread, the difference between the T-bill rate and the lending rate. If there is a difference, it only reflects a difference in (objectively determined) risk. With risk neutral lenders, the expected payments are the same. In the absence of a theory of credit rationing, it is hard to explain a liquidity crisis – and without a theory of liquidity (credit availability) it is hard to know how to respond to a liquidity crisis.

In the Greenwald-Stiglitz models, monetary policy is largely mediated through the banking system. The lowering of interest rates may (or may not) be reflected in a commensurate lowering of lending rates or a commensurate increase in credit availability. Indeed, there is a new version of a liquidity trap – not caused (as Keynes suggested) by a high elasticity of the demand for money, but by a low responsiveness of bank lending, even as the central bank provides the banking sector with more liquidity. This is precisely what has been happening in the United States and Europe; and the theory developed by Greenwald and Stiglitz anticipated and predicted this kind of liquidity trap well before it became evidenced in the aftermath of this crisis.

Keynesian models of monetary economics came into fashion in the last Great Crisis, the Great Depression. The world has changed much since then; and our understanding of economics too has advanced. And yet, in some circles, we are wedded to ways of thinking that have not kept pace. Worse, in the interlude between the Great Depression and the Great Recession, some were lulled into believing that markets *normally* worked well; and the old classical model, slightly modified, came back into fashion. There was, as I have already noted, an irony in this, for among the advances in economics (game theory and theories of imperfect and asymmetric information) was an enhanced understanding of what was wrong with that model, and why it provided such a poor description of what was going on, both in normal times and even more so in times of crises.[46]

These alternative theories provided the foundations of a new theory of financial markets--an understanding of why financial markets are typically not perfectly efficient, and of how imperfect financial markets actually work. The effects of monetary policy are, of course, mediated through financial markets, so this new theory of financial markets is central to monetary theory. Modern monetary policy has to be based on these foundations.[47]

Monetary policy (understood broadly, to include financial regulatory policy) is of such importance in part because the financial sector is so important: the financial sector has been likened to the brain of an economy, and if the financial sector does not work well, the economy does not work well. In many countries around the world – including the US and the EU – the financial sector has not done what it should have done and done what it shouldn't have done; the

[46] For a broader discussion of the evolution of these two strands of thinking, see B. Greenwald and J. E. Stiglitz, 'Keynesian, New Keynesian and New Classical Economics,', *Oxford Economic Papers*, 39, March 1987, pp.119-133 . Within the so-called New Keynesian tradition, there have also been two traditions. One following Keynes ignored the details of financial markets, and, following Hicks' interpretation of Keynes, focused on wage and price rigidities. The other focuses explicit on financial market imperfections (*e.g.* H.P. Minsky's, 'The Financial Instability Hypothesis,' The Jerome Levy Economics Institute of Bard College, Working Paper No. 74, May 1992; as well as the work of Greenwald and Stiglitz to which I referred earlier), and encompasses an analysis of the consequences of *deflation* (following the work of Fisher [I. Fisher, 'The debt-deflation theory of great depressions,'*Econometrica*1 (1933), pp. 337–357)]. See B. Greenwald and J. E. Stiglitz 'New and Old Keynesians,' *Journal of Economic Perspectives,* 7(1), Winter 1993, pp.23-44.

[47] See Greenwald and Stiglitz, 2003, *Op. cit.*

costs of their failures in the US alone amount to trillions of dollars.

In this lecture, I hope I have tried to describe what monetary policy based on a deeper understanding of the functioning of financial markets might look like. Most of the propositions that have been at the center of monetary policyfor the past quarter of a century need to be rethought. Monetary policy has not served our economies and societies well. It has arguably contributed to the growing inequality that has marked most countries around the world.[48] But of this there can be no doubt: It has not only failed to stabilise the economy in the way that was hoped; but the way that some central banks have conducted monetary policy and regulation has been at the center of our greatest crisis in three quarters of a century.[49] This should be the grounds for a revolution in monetary policy.

[48] See, in particular, Chapter 9 of J. E. Stiglitz, *The Price of Inequality, Op. cit.*

[49] Thus, I take strong issue with Bernanke who has tried to suggest that there was nothing wrong with standard macroeconomic and monetary theory; there were only some minor flaws in its implementation. See Ben Bernanke, , 'On the Implications of the Financial Crisis for Economics,' address delivered September 24, 2010 at Princeton University, available at http://www.federalreserve.gov/newsevents/speech/bernanke20100924a.htm, (accessed July 28, 2011).

*Vote of Thanks**

Deepak Mohanty

Honourable Professor Joseph Stiglitz, Governor Dr. Subbarao, distinguished guests and colleagues from the Reserve Bank.

Central banks have come under severe intellectual scrutiny ever since the global crisis, even as they have crossed all conventional barriers in responding to the crisis. Monetary policy was partly blamed for the genesis of the crisis, and it continues to be blamed for ineffectiveness in giving us a durable recovery. We need nothing short of a revolution to make monetary policy more relevant. Two major forces playing out since the crisis could aid this revolution: First, the innovative response of advanced country central banks to ensure that this time it should be different from the Great Depression. Second, the animated academic debate amongst the best minds in economics and finance, led by Nobel laureates like Prof. Stiglitz, to recommend what should be the framework for monetary policy in future?

In his opening remarks, Governor Dr. Subbarao discussed the first dimension, which included extensive reliance of advanced country central banks on quantitative and credit easing measures, operation twist and forward guidance, to escape the theoretical limits posed to the conventional conduct of monetary policy by the zero lower bound (ZLB). He noted the far reaching changes emerging in the recent period in monetary policy frameworks of advanced country central banks, with the Fed announcing an explicit target for unemployment; the Bank of England examining possible replacement of inflation targeting with nominal income targeting, and the Bank of Japan being expected to respond to prolonged deflation by accepting a higher explicit inflation target.

Emerging market central banks, despite the pre-crisis best practices, generally preferred to continue with multiple objectives, which included financial stability, and also tried to manage the impossible trinity, with country specific approach to exchange rate regimes and capital account. After the global crisis, the spillovers form ultra-accommodative monetary policies in advanced economies have amplified the challenge from the impossible trinity, besides increasing commodity price pressures. Governor, Dr. Subbarao, encapsulated in his remarks the complex nature of the issues involved in the recent innovations in the conduct of monetary policy, most of which could be experiments, and how these may influence the mainstream monetary policy frameworks, going ahead.

Here, one has to look up to guidance from eminent thinkers like Prof Stiglitz. In today's C. D. Deshmukh lecture, he unraveled fifteen attributes for monetary policy architecture post-crisis. While each of these recommendations would need to be discussed and understood in the country specific context, some of them are clearly path-breaking and thought-provoking.

First, his boarder definition of monetary policy also included financial regulatory policy. The argument here is that what matters for the real economy is lending rates and availability of finance. While monetary policy affects both, regulation can improve the access to credit and terms of credit.

Second, faith in the invisible hand and excessive reliance on market efficiency should not blind side central banks to the possibility of market failures.

Third, a central bank should not be reluctant to use all possible instruments available at its disposal, constrained by the notion that only rate-based policy is more efficient.

* Vote of thanks by Shri Deepak Mohanty, Executive Director, Reserve Bank of India, on the occasion of the 15th C D Deshmukh Memorial Lecture delivered by Prof. Joseph Stiglitz at Taj Mahal Palace, Mumbai on January 3, 2013.

Fourth, macro-prudential regulation is necessary to deal with asset bubbles and macroeconomic volatility.

Fifth, monetary policy should be sensitive to distributional consequences.

Sixth, national monetary policy should stand ready to address globalisation-induced spillovers, and in this context capital control should very much be a part of the policy toolkit.

Most of the recommendations of Prof. Stiglitz are intuitively appealing to many of us in emerging and developing economies. In India, we have a multiple-objectives and multi-indicators approach to the conduct of monetary policy. While price stability remains the dominant objective, financial stability has been recognised an explicit objective of monetary policy. We have used macro-prudential measures even before the crisis as a stabilisation instrument. Our approach to financial sector reforms and liberalisation of the capital account has been cautious and gradual. We recognise that improving access to credit to certain sectors through sector specific policies should be integral to monetary policy. We are also vigorously pursuing financial inclusion as an intermediate objective to promote inclusive growth.

We, in the Reserve Bank, would need to reflect more closely on the key messages from Prof. Stiglitz to strengthen the micro-foundations of macro-economic policies. For a large and diverse economy of over 1.2 billion populations, micro-foundation of monetary policy is indeed a major challenge for us.

Ladies and Gentlemen, I extend my sincere thanks to Prof. Joseph Stiglitz for having accepted our invitation to deliver the Fifteenth C. D. Deshmukh Memorial Lecture, and leaving with us very thought provoking ideas, which I am sure would trigger further debate and research, not only in the Reserve Bank, but globally.

I thank Mrs. Anya Stiglitz for her gracious presence. I thank the family members of late Dr. C. D. Deshmukh for kindly gracing the occasion.

The successful conduct of this programme owes much to the guidance and keen interest of our Governor, Dr. D. Subbarao, and I thank him for that.

I thank all the distinguished invitees present here for attending the function with great enthusiasm. I thank all my colleagues from the Reserve Bank for their overwhelming participation. I thank the event management team of the Taj Hotel and all other service providers for their support. I thank the liaison officers of the Bank for their cooperation.

Finally, I must thank Adviser K U B Rao and his team from the Department of Economic Policy and Research (DEPR) for meticulously planning every aspect of this programme so well.

Thank you all, once again.

THE FIRST PROF. TENDULKAR MEMORIAL ORATION

Welcome Remarks
by Duvvuri Subbarao

Vote of Thanks
K. C. Chakrabarty

*Welcome Remarks**

Duvvuri Subbarao

On behalf of the Reserve Bank of India, I am delighted to welcome Prof. Abhijit Banerjee, who will shortly be delivering the First Professor Tendulkar Memorial Oration. I also have great pleasure in acknowledging the presence here of Smt. Sunetra Tendulkar and other family members of late Prof. Tendulkar. Your presence here means a lot to us. A hearty welcome also to all the distinguished invitees to this lecture.

Prof. S. D. Tendulkar

2. Prof. Suresh Tendulkar was, by all accounts, one of the pre-eminent economists of India who was deeply respected both in the academia and the public policy space. His scholarship straddled a wide range of sub-disciplines in economics but his seminal work on the measurement and analysis of living standards in India, with focus on inequality and poverty, will remain his enduring legacy to public policy formulation.

3. This topic which dominated his academic work, and the passion with which he pursued it say a lot about two essential characteristics that defined Prof. Tendulkar. The first was his abiding sensitivity to poverty and his belief that the design and implementation of anti-poverty programmes should be informed by a deeper understanding of the nature of poverty and the sociology of the poor. The second was his dedication to empiricism. Not for him broad generalisations based on anecdotal evidence. He believed that the only route to knowledge and wisdom is data, and that public policy should be based on research findings that are drawn from diligent analysis of sound data.

4. Both these characteristics – deep sensitivity to poverty and a commitment to data based research to understand poverty – have in a way determined Prof. Tendulkar's academic and career graph. His academic track record will overawe any student of economics. After a Masters degree in Economic Statistics from the Delhi School of Economics in 1962 where he finished at the top of his class, Prof. Tendulkar got a doctorate from Harvard University with big names like Professors Hendrik Houthakker and Hollis Chenery as his thesis advisers. He returned to India to join the Indian Statistical Institute (ISI) following which he went on a prestigious two-year assignment to the Development Research Centre of the World Bank. Almost all of his later active career, from 1978 on, was in the Delhi School of Economics where he served with great distinction, first as a professor, then as Head of the Department of Economics and finally as the Director of the School. From 2000 until his retirement in 2004, Professor Tendulkar served as the Executive Director of the Centre for Development Economics in the Delhi School.

5. Professor Tendulkar's concern for data quality led him to a life-long involvement with the process of generation of economic data through a succession of public assignments. He served on numerous Working Groups for the design and conduct of the National Sample Surveys, was the Chairman of the Governing Council of the National Sample Survey Organisation (NSSO), Chairman of the National Accounts Advisory Committee and Chairman of the National Statistical Commission.

6. Quite understandably, Prof. Tendulkar's commitment to empirical research and his sensitivity to poverty led him to very extensive and influential work on estimation of poverty in India. He was a member of the Lakdawala Committee for estimation of poverty 1993 which, among other things, recommended state specific consumption baskets for estimation of poverty. The more recent Tendulkar Committee Report, which was the subject matter of

* Welcome Remarks by Dr. Duvvuri Subbarao, Governor, Reserve Bank of India at the First Prof. Tendulkar Memorial Oration at CAB, Pune on January 19, 2013.

a vigorous national debate, revisited these norms and improved on them by recommending bringing estimation of rural poverty in line with that of urban poverty.

7. Although I had long heard of Prof. Tendulkar from his students and colleagues who spoke very highly of him, I did not have the good future of meeting him until late in my career when he was a member of the Prime Minister's Economic Advisory Council and I was the Secretary to the Council. Later, he became the Chairman of the Council in which position he advised the Prime Minister on important policy issues.

8. My association with Prof. Tendulkar continued as I moved to the Reserve Bank in 2008. Prof. Tendulkar was a Director on the Central Board and Chairman of the Eastern Region Local Board of the Reserve Bank during 2006-11. The Reserve Bank deeply values this association with him and has benefitted immensely from his wise counsel and mature guidance.

9. Like thousands of his students, colleagues and well wishers, we in the Reserve Bank were deeply saddened by his unexpected demise in June 2011. We remember him as an outstanding economist distinguished by his intellectual integrity, and more importantly, as a wonderful human being with disarming simplicity and endearing humility.

10. The Reserve Bank has decided to institute this oration to honour the memory of Prof. Tendulkar, his contribution to the Economics profession and his association with the Reserve Bank. Unlike other memorial lectures instituted by the Reserve Bank which are typically delivered in Mumbai, the venue for the Tendulkar Memorial Oration will be the Reserve Bank's College of Agricultural Banking in Pune which was the native place of Prof. Tendulkar and the oration will be devoted to a topic in Development Economics.

Professor Abhijit Banerjee

11. We are fortunate that the inaugural Tendulkar Memorial Oration is going to be delivered today by an internationally renowned economist like Professor Abhijit Banerjee who shares with Professor Tendulkar a passion for understanding poverty based on hard core ground research. Professor Banerjee's scholarship is deep and extensive, but most of us know him through his seminal book - *Poor Economics* - that he co-authored with Esther Duflo in 2011.

12. *Poor Economics* provides refreshingly original insights into how the poor live and why they make such seemingly irrational choices. The unique feature of this book is that it eschews generalisations and uninformed guesses about the nature of poverty. Banerjee and Duflo have literally got their hands dirty by visiting dozens of countries and studying first hand how the poor live and how they make decisions about everyday issues. The message of the book is that there is no grand, universal formula for poverty reduction. The battle has to be fought on several fronts. What works somewhere does not necessarily work everywhere. The way forward lies in grass root field experiments to understand the causal relationships in poor people's behaviour and in learning by doing.

13. Professor Banerjee is currently the Ford Foundation International Professor of Economics at the Massachusetts Institute of Technology. In 2003 he founded the Abdul Latif Jameel Poverty Action Lab (J-PAL) with the objective of promoting randomised trials – similar to the ones used in medical research – to study antipoverty programmes. Prof. Banerjee and his colleagues have a simple, but radical goal. They want to overhaul development aid so that more of it is spent on programmes that actually make a difference. In 2009, J-PAL won the BBVA Foundation 'Frontier of Knowledge' award in the development co-operation category.

14. Professor Banerjee has had a distinguished academic career. He studied Economics at the Presidency College in Calcutta and later at the Jawaharlal Nehru University in Delhi. He earned his PhD, like Professor Tendulkar, at Harvard for his thesis entitled 'Essays in Information Economics'. He won several academic awards for his research which has

been widely acknowledged as pushing the frontiers of development economics.

Identifying of the Poor

15. Professor Banerjee will be speaking today on 'Identifying the Poor'. This is a topic that, for us in India, has been intellectually challenging and politically contentious. Yet, poverty measurement and identification are important for at least three reasons.

i. First, a credible measure of poverty is a powerful instrument for focusing the attention of policymakers on the living conditions of the poor. To put it another way, it is easy to ignore the poor if they are statistically invisible.

ii. Second, in order to target interventions, one cannot help the poor without at the minimum knowing who they are. This is the purpose of a poverty profile, which sets out the major facts on poverty and then examines the pattern of poverty to see how it varies by geography and by community.

iii. Third, measuring poverty helps to clearly define the expected outcomes of an anti-poverty programme and also to compare the actual outcomes against the expected outcomes.

Poverty and the Reserve Bank

16. While all of us understand the importance of poverty measurement for framing good development polices, one could legitimately ask about why the Reserve Bank is moving out of its traditional domain into identification and measurement of poverty. I believe this is a topic of importance for the Reserve Bank for at least two reasons.

17. First, it is well known that inflation impacts different segments of the income distribution differentially. For example, low income segments, which spend a greater proportion of their budgets on food, are more adversely impacted by high food inflation. On the other hand, sluggish demand could well be constraining their employment opportunities. Measuring the aggregate welfare consequences of a particular monetary stance is clearly something that central banks need to be able to do in order to make a holistic assessment of their policies. Identification is one important step in that direction, which needs to be complemented with focus group or panel tracking approaches. The research community has made some effort in this direction; perhaps it is time to give the approach more prominence in the macroeconomic policy dashboard.

18. The second reason for the Reserve Bank's interest in poverty identification and measurement stems from the priority the Bank attaches to financial inclusion and literacy. I must add here that over the last five years, our financial system, particularly our banking system, has been furthering financial inclusion and financial literacy with commitment, enthusiasm and earnestness. But financial inclusion is not an end in itself; it is a means to higher and more stable levels of household welfare. In order to assess whether this more fundamental goal is being achieved, we need to measure the impact of inclusion programmes on individual households, particularly those at the lower end of the income distribution. Here again, identification and tracking are pre-requisites for an effective monitoring and control mechanism.

19. Despite all our collective experience and expertise, one thing is clear: we need to improve our understanding of the poor and of poverty. Who better to take us along the path of continuing education than Professor Abhijit Banerjee? Ladies and gentlemen, please join me in welcoming Prof. Banerjee to deliver the First Professor Tendulkar Memorial Oration on 'Identifying the Poor'.

*Vote of Thanks**

K. C. Chakrabarty

Respected Governor, Honourable Prof. Abhijit Banerjee, distinguished guests, my colleagues from Reserve Bank, ladies and gentlemen

2. On behalf of the Reserve Bank of India and also College of Agricultural Banking, Pune, I sincerely thank Prof. Abhijit Banerjee for having accepted our invitation to deliver the first Suresh Tendulkar Memorial Oration here today.

3. The Memorial Orations series in Reserve Bank have been a platform for all of us to share knowledge from academicians and policy makers of international repute on issues of contemporary relevance. We are fortunate to have Prof. Banerjee to deliver the lecture on the theme: 'Identifying the Poor'. It is surely most thematic and appropriate in the context of a tribute to late Prof. Suresh Tendulkar who had done some remarkable work in the field of development economics.

4. In his Oration today, Prof. Banerjee has argued, very clearly and persuasively, the need for identifying the poor. His talk showed his clarity of thought that allowed him to cut through complex evidence, identify the priority issues, weigh them up quickly, work out appropriate advice and reach clear and definite conclusions. It also reflected the solid body of related research that Prof. Banerjee has behind him.

5. These issues are extremely relevant for public policy institutions like the Reserve Bank. We are thankful to Prof. Banerjee for addressing them and sensitising us so effectively in his Oration today. While dealing with such a core and urgent issue like poverty, it is of course imperative that we focus on and change our mindset and delivery systems too.

6. We are also grateful to Smt. Tendulkar and other family members of late Prof. Tendulkar for gracing the occasion.

7. The successful conduct of this programme owes much to the guidance and keen interest of our honourable Governor, Dr. D. Subbarao, and I thank him for the same.

8. I also thank all the distinguished invitees present here for attending this Oration in large numbers. I thank my colleagues from the Human Resource Management Department, Central Office and College of Agricultural Banking in Pune for their excellent efforts in putting together this event and making it such a success.

9. I thank all the service providers here for their cooperation and support. Thanks are also due to Liaison Officers at this College for looking after all of us so well.

Once again, Thank you all

* Vote of Thanks by Dr. K. C. Chakrabarty, Deputy Governor, Reserve Bank of India at the First Prof. Tendulkar Memorial Oration at CAB, Pune on January 19, 2013.

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*The Outreach Programme**

Duvvuri Subbarao

I am pleased to visit Lalpur Karauta village today and meet the people here.

2. I have come here from the Reserve Bank of India, Mumbai. The Reserve Bank also has an office in Lucknow and my colleagues from there have also accompanied me today. On this occasion, along with Bank of India and other banks, your member of parliament Shri P. L. Punia and senior officers of the Uttar Pradesh state government are also present.

3. You must be thinking that what is the need for the Reserve Bank to visit you? Many of you must also be wondering, what kind of work does the Reserve Bank of India do and how does it help you?

4. Today, I have come to your village for an outreach programme. I have come here so that I can spend some time with you and try to understand your difficulties and problems and also to tell you about the Reserve Bank's role and functions.

5. These rural visits are very important for us. As you know, our offices are in big cities like Mumbai, Delhi, Chennai, Lucknow, Kanpur *etc.* We try to know about the happenings in the villages and the day-to-day lives of the rural people through reports and newspapers. Actually, we do not get any chance to meet the people residing in villages. During the past four years, me and my colleagues have visited many villages of our country. In this series of visits, I have got an opportunity to visit your village today. I am impressed by the affection and welcome you have given me.

6. I regret that I was not able to visit your region earlier. History is witness to the fact that whenever anyone has invaded India, this region has always resisted them and stood as a strong watch guard. Despite facing many difficulties, Uttar Pradesh keeps making its importance felt in the country. Who can forget the special contribution of this State in the Indian freedom struggle? The importance of Uttar Pradesh in the progress made by our country is known by the fact that with a population of 20 crore, it is the largest state of the country. As compared to other states, Uttar Pradesh has the maximum number of metropolitan cities. This State selects 34 candidates for the Rajya Sabha and 80 candidates for the Lok Sabha in the Indian Parliament. I have full faith that when Uttar Pradesh makes progress, no one will be able to stop the pace of our country's progress.

Developments in the Reserve Bank

7. Now I would like to tell you about the functions of the Reserve Bank of India. Many people do not understand the difference between the Reserve Bank of India and other banks. Many people think that the Reserve Bank of India is also like the State Bank of India, Punjab National Bank, Bank of India *etc.* The Reserve Bank of India is not like any other bank. Let me tell you that it is very different from all other banks. In a way, the Reserve Bank of India is a bankers' bank.

8. Many people think that the Reserve Bank only prints currency notes. It is true that we do print currency, however, we also do many important things in the interest of the public.

9. The work we do in the Reserve Bank affects your daily life. For example, when you deposit money in a bank, the interest that you receive on it and when you

* Free translation of Governor's Address delivered in Hindi at the Outreach Programme in Lalpur Karauta Village in Uttar Pradesh on January 16, 2013.

take a loan from a bank, the interest you pay on it and also the things you purchase, their prices are all fixed in a way by the Reserve Bank.

Controlling Inflation

10. Inflation control is our most important function. I would like to draw your attention towards the promise printed on the currency notes which you have in your pockets. If you look at a 100 rupees note you will be able to read the promise, 'I promise to pay the bearer the sum of hundred rupees'. Below the promise you will also find my signature as the Governor of the Reserve Bank. You must have heard a proverb in Hindi that says *'Pran Jaye par Vachan na Jaye'*. Therefore, keeping in mind this promise, the Reserve Bank always makes efforts to see that the value of the rupee does not fall and that inflation does not increase.

11. I know that inflation has increased in the past few years. Prices of almost all the goods, especially, food items and clothes have increased substantially. Inflation has affected all of us, more so the poor people. During the past two years we have been successful in bringing down the inflation rate to some extent. But I accept that even now the inflation rate is very high. Inflation control is our priority and will always be. It is only through inflation control that the poor people can be given protection.

Clean Note Policy

12. The Reserve Bank also prints currency. Some people ask us why we do not print more currency so that India becomes a rich country. This suggestion arises out of ignorance. We cannot become a rich nation simply by printing more currency notes. Our country will become rich only when our production increases. If we print currency notes without increasing production, then inflation will increase. That is why the Reserve Bank prints only that much currency as is required for the economy.

13. Our endeavour is to always try to supply clean notes to the public. Still I receive complaints that all the clean notes are circulated only in big cities and metros and the villagers always get mutilated notes. I also receive complaints that the villagers do not get sufficient coins. It is the Reserve Bank's policy that the rural public should get clean notes and sufficient coins. Banks are requested to cooperate fully with the Reserve Bank in this endeavour.

14. We are facing one more problem and that is of fake currency notes. There are some criminal, unsocial elements who are involved in fraudulent activities. We are making every effort to remove fake notes from circulation. We are also trying to see that the police department is vigilant towards these fraudsters. I also request you all to learn to identify genuine notes so that you are safeguarded from fake notes. For this, we are making all efforts through various means, towards creating awareness among the general public

Regulation of Banks

15. Banks deposit the savings of the people and provide money to those who need it.

16. It is a very big challenge for banks to give maximum interest to the people who save and reduce the interest rate for those who take loans. For this, it is the job of the Reserve Bank to make banks more capable and competent. One of our major jobs is to make sure that the money which you deposit in banks remains safe. That is why we supervise banks.

Financial Inclusion

17. Financial Inclusion is the most important developmental programme of the Reserve Bank.

18. In our country there are about 6,00,000 villages, but out of these only 60,000 villages have banking facilities. 90 per cent of the villages do not have a bank. It is unfortunate that the people of these villages are not able to get the benefit of banking facilities.

19. It is the goal of the Reserve Bank that each and every person of our country should have a bank account. Out of the 6,00,000 villages, about 1,00,000 villages are in your state. Therefore, I request all banks to meet this difficult goal as soon as possible.

Why is it important for you? There are various reasons for this:

i. First, instead of keeping your savings at home you can keep it in a bank where it is secure and you will also earn interest on it.

ii. Second, you can send your money to each other. If your family members who are working in big cities like Delhi, Kanpur, Lucknow, Agra *etc.*, have bank accounts there, they can deposit the money in your bank account here. Otherwise, they will send money through informal means, which will be expensive as well as insecure.

iii. Third, by having your own bank account you can take a loan for agriculture, small business, building a house or to send your daughter to college. You can save yourself from the clutches of the money lender who charges exorbitant interest rates.

iv. Fourth, if you have a bank account, the money you receive from the Government, for example MGNREGA wages, old age pension *etc.*, will be directly deposited in your account. In this way, you need not pay any commission to brokers or agents.

v. In the villages, the income of the poor people is irregular and also there is no guarantee. You have to face problems, such as, bad crops, loss of employment, sickness or death in the family. You also need money for marriages and festivals. By putting your savings in bank accounts, you can also increase your income.

20. The Reserve Bank encourages banks to open branches wherever possible, especially in villages. Earlier, banks had to obtain a licence from the Reserve Bank to open branches, but now it is not so. Banks can open branches in villages without obtaining licence from the Reserve Bank.

21. Considering the expenses involved in opening branches in every village, banks are appointing banking correspondents in every village. These correspondents act as the agents of the bank.

Other Functions of Reserve Bank

22. The Reserve Bank of India performs many other functions. Here I have mentioned only those things which are related to you. I request all of you to open bank accounts and cultivate the habit of saving. Banks are able to lend to the needy only with the savings deposited by you. Therefore, I make a special request to all those who have taken loans from banks to repay the loans in time so that the banks remain strong and the money kept by your brothers and sisters in the banks remains safe.

23. There is one more thing that I would like to share with you. Some of you may have received letters on the Reserve Bank's fake letter heads saying that you have won a lottery. They ask you to give your bank account details to them so that they can deposit the money you have won in the lottery in your bank

account. I would like to caution you not to believe in these letters. All these are false and fraudulent. The Reserve Bank does not run any lottery nor does it deposit any money in anybody's account. This is the handiwork of fraudsters. They ask for your bank details and then steal the money from your bank account. If you receive any such letters immediately complain to the police.

24. Lastly, I would like to say that I am very pleased to have visited your village Lalpur Karauta. I also wish you, your family and children a bright and happy future.

*The Magical World of Mathematics – The Charm, Challenges and Career Prospects**

K. C. Chakrabarty

Introduction

1. Dr. Rajeeva Karandikar, Director, Chennai Mathematical Institute; Dr. Mrs. J.K. Phadnis, Principal of the VES College of Arts, Science and Commerce; Prof. Amiya Kumar Pani, Chair Professor, Department of Mathematics, IIT Bombay; Mrs. Dipta Dasgupta, Convener of this conference aptly titled 'Mathemight', faculty members; other distinguished speakers and student participants; ladies and gentlemen. I am delighted to be here today in the midst of eminent scholars and students of mathematics. The Vivekananda Education Society has successfully completed fifty years in its 'Pursuit of Excellence in Higher Education' and I congratulate the Society on this achievement. I understand that the Society is organising frontline seminars and conferences for our younger generation to sow the seeds of curiosity and to enhance their knowledge base. You may recall that this year, we are celebrating the 150th birth anniversary of Swami Vivekananda, one of the greatest spiritual leaders of India. He once observed: 'you know how many sciences had their origin in India. Mathematics began there. You are even today counting 1, 2, 3, *etc.* to zero, after Sanskrit figures, and you all know that algebra also originated in India.' It is, therefore, very appropriate that the college, which is named after Swami Vivekananda, is organising this conference on Mathematics coinciding with the 150th birth anniversary of Swami Vivekananda.

2. This conference is most appropriately timed for several reasons. First, the year 2013 has been designated by the International Mathematical Union as The Year of Mathematics of Planet Earth. Second, we have recently celebrated the 125th birth anniversary of one of India's greatest mathematics geniuses, Srinivasa Ramanujan (1887-1920). Ramanujan's true legacy is the demonstration of how a humble, untutored village boy, with sheer passion, inspiration and inherent talent, rose to become one of the world's greatest mathematicians. From this perspective, this conference is perfectly positioned to create awareness amongst the undergraduates about the collaborative nature of mathematics, technology, commerce, science and social sciences and the vast opportunities that mathematics can offer. In this background, I plan to talk briefly about the attractions of mathematics, the need for studying mathematics, its applications, the challenges in mastering the subject, prospects it holds for those who pursue the discipline and about the risk of misusing mathematics.

Mathematics, the Prince Charming

3. What is Mathematics?

a. The word itself comes from Greek *'Mathema'* meaning knowledge, study, learning.

b. There seems to be no consensus among professionals on the issue of defining what Mathematics is. In fact, you will be surprised that there is even no consensus on whether it is an art or a science.

c. Definition-wise, there are three sets of definition that I am aware of :

   i. Logicist: Benjamin Pierce's 'the science that draws necessary conclusions', or Russell's 'all mathematics is symbolic logic'.

   ii. Intuitionist: From the philosophy of Brouwer 'Mathematics is the mental activity which consists in carrying out constructs one after the other.'

* Address by Dr. K. C. Chakrabarty, Deputy Governor, Reserve Bank of India at 'Mathemight', a conference organised by the Department of Mathematics of the V.E.S. College of Arts, Science and Commerce, Mumbai on January 18, 2013. Assistance provided by Shri A. B. Chakraborty, Shri Sanjoy Bose and Shri Shailendra Trivedi in preparation of this address is gratefully acknowledged.

iii. Formalist: Identifying mathematics with all its symbols and the rules for operating on them

4. Mathematics is, perhaps, the oldest of sciences that has existed, developed and matured in either explicit or in latent form over thousands of years. The concept of numbers was not only known to prehistoric man but may also be known to animals. For example, when lions hear a neighboring pride roaring, they calculate how many lions are roaring compared to the number of lions in their own pride. If there are more lions in their own pride, or the numbers are equal, or the other pride outnumbers them by up to three to one, they will always roar back. If the other pride outnumbers them by more than three to one, they stay quiet. Most animals would know the difference between a bowl containing 4 apples and one with 8 apples or even the fact that there is something common between 4 apples and 4 oranges.

5. The beauty and charm of mathematics has lured, intrigued and inspired countless geniuses across the globe to spend sleepless nights in the hope of unraveling its mysteries. Why have the seekers of knowledge been attracted to mathematics from time immemorial? I feel the primary charm of mathematics is that it is both interesting and, if you can crack its intricacies, enjoyable. People like its challenge, its clarity, and the fact that in solving problems of mathematics you know when you are right. The study of mathematics can satisfy a wide range of interests and abilities. It helps develop one's imagination and aids in building a clear and logical thought process.

6. Let me share with you an example to illustrate the charm of mathematics. It is a well-known story about Ramanujan and his mentor, another famous mathematician, Prof. G. H. Hardy, who recognised his immense talent and took him to England. At one point of time, Ramanujan was unwell and lying in an England hospital where Hardy had gone to visit him. Hardy told him that he came in a taxi, the number plate of which had a most uninteresting number 1729. Ramanujan was very quick in his reply. He said it was one of the most interesting numbers that one came across. It is the smallest positive integer, which can be written as the sum of two cubes in two different ways, *viz.*, $(12)^3 + (1)^3$ and $(10)^3 + (9)^3$.

7. Prof. C. R. Rao, one of the most outstanding mathematicians in the world, once said, 'All sciences are, in the abstract, mathematics', which aptly captures the immense contribution of mathematics towards the development of other sciences. Perhaps, recognising this centuries ago, Gauss termed Mathematics as the 'Queen of all Sciences'.

Why Study Mathematics ?

8. Just type the words 'why study mathematics' in a Google search and you will get around 67 million results – these many people, institutes or articles trying to see the benefits of studying mathematics. Study of Mathematics is extremely important for many reasons. Maths surrounds us in many ways as we go about our everyday life. Let me now tell you why you should study mathematics:

a. Mathematics makes life simple by quantification. Numbers, units and dimensions help in comprehending things better and lead to precision and certainty in measurement and expression.

b. It helps formulate as well as establish measurement standards in respect of observable phenomena.

9. Take some simple examples:

a. 'Ajay is tall or Ajay is strong' – What do you make of such statements. It will make sense when we compare with some benchmark or measure and quantify it. Only then do we know what is tall or what is strong. Then things become precise.

b. Suppose your parents tell you, 'You have to study very hard' or 'you have to study very very hard' – do these sentences make much

sense? Yes, they certainly make. But, I am sure, 'you have to get 80 per cent marks' is something which will give you greater focus as the goal is unambiguously stated.

Mathematical concepts like measurement, which were applicable earlier only to physical sciences, are now being made use of in social as well as biological sciences too.

10. Turning to more formal discussion, one of the important features of a scientific investigation is its fixation with putting numbers to things, by quantification using mathematical formulae. Often, scientific work is judged more by the quality of its mathematics than by its empirical content. Let me quote what James Clerk Maxwell said 'All the mathematical sciences are founded on relations between physical laws and laws of numbers, so that the aim of exact science is to reduce the problems of nature to the determination of quantities by operations with numbers.'

11. Let me cite some classical examples.

i. First one relates to modeling of astronomical data, whereby you may recall how logarithmic tables were found useful for analysing centuries of astronomical observations collated by Tyco Brahe and put to use by Johannes Kepler to form the basic laws of Planetary motion in the early 1600s. Kepler's three laws of planetary motion are: (i) The path of the planets about the sun is elliptical in shape, with the center of the sun being located at one focus (The Law of Ellipses). (ii) An imaginary line drawn from the center of the sun to the center of the planet will sweep out equal areas in equal intervals of time (The Law of Equal Areas) and (iii) The ratio of the squares of the periods of any two planets is equal to the ratio of the cubes of their average distances from the sun. (The Law of Harmonies). It is the third law that involves difficult exponentiation of squares and cubes, which does not yield easily to the naked eye when the actual data are observed. Many would know how later Newton's universal law of gravitation could be found equivalent to Kepler's laws of planetary motion. But it is also no less magical that Kepler's Third Law of planetary motion can actually be traced back to Napier's invention of logarithms (1614), which is supposed to be the main force to derive the postulate about the third law almost twelve years after the establishment of the first two laws.

ii. Second, I would like to cite the Mendel's law of segregation of Hereditary Characters (1866), which was rediscovered at the beginning of the last century, without which, Darwin's theory of evolution could not be explained statistically. Here, I would also like to underscore that statistics is a major branch of mathematical science but with a difference. Math seems to be providing rigorous base for deterministic, logical framework of establishing truth whereas statistics comes out of measurements and observations with errors.

iii. The third one is the now well-known work of the French Mathematician, Louis Bachelier on the study of finance, which is treated historically as the first of its kind. His Ph. D thesis on the Theory of Speculation (1900) is credited with being the first such work on the phenomenon of Brownian Motion that was, much later, put into use to evaluate stock options.

iv. In modern times, majority of the financial mathematics driven formulae behind pricing of different financial assets are testimony to how they can be both used and abused if not verified rigorously based on real life data.

The above examples relate to close approximation to reality with the help of mathematics, but based on well-established quantifications and measurement standards.

12. Whether we deal with mechanical, electrical or electronic objects such as the light, fan, TV, car, bicycle or computers – understanding their functioning calls for use of mathematics. We all perform tasks ranging from simple arithmetic to complex computations as we deal with money, deposits, insurance, income tax, and so on. Today's society would not be in existence without the application of mathematics. In The Republic, the great Greek philosopher Plato presented a profound argument for why mathematics should be required for all high school and college students. He argued that mathematics and geometry teach problem-solving skills and an ability to analyse and think. It is also important to study mathematics because it gives one a different perspective on things. Learning mathematics involves a different type of thinking that is not addressed in other subjects.

Applications of Mathematics

13. While we all have some familiarity with the everyday uses of the elementary aspects of mathematics, there are far more advanced and complex phenomena in almost all fields of science, where mathematics is widely used, but often in an unseen and unadvertised way. Let me give only a few examples of diverse applications of mathematics:

i. Travel by airplane would not have been possible without the mathematics of airflow and control systems.

ii. The spaceships' journey to the planets could not have been calculated without the mathematics of differential equations. The stunning pictures of far away planets sent by Voyager II could not have had their crispness and quality without mathematics.

iii. The advances in development of supercomputers is backed by the application of mathematical theory which instructs the computer on what is to be done, thereby allowing it to optimally utilise its capacity for speed and accuracy.

iv. The next generation of software requires the latest methods in Category Theory, a theory of mathematical structures which has given new perspectives on the foundations of mathematical logic.

v. Mathematical methods provide the backbone of Statistical theory and methodology for the analysis of wide varieties of data in Economics, Banking, Finance, Physical Sciences, Genetics, Biology, and so on.

vi. Body scanners are the expression of subtle mathematics, which makes it possible to construct an image of the inside of an object from information on a number of single X-ray views of it. Thus, mathematics is often involved in matters of life and death.

14. These applications have often been developed from the study of general ideas for their own sake: numbers, symmetry, area and volume, rate of change, shape, dimension, randomness and many others. Mathematics makes a special contribution to the study of these ideas, namely, the methods of (a) precise definitions; (b) careful and rigorous argument; representation of ideas by many methods, including symbols and formulae, pictures and graphics; (c) means of calculation; (d) obtaining precise solutions to clearly stated problems, or clear statements of the limits of knowledge. These features allow mathematics to provide a solid foundation to many aspects of daily life, and to give a comprehension of the complexities inherent in apparently simple situations.

15. However, while mathematics is applied to both physical sciences and social/biological sciences, there are certain differences in the application of mathematics to the two areas. As physical sciences are more exact in nature, mathematics can be readily

applied to them. However, social/biological sciences are more uncertain and involve elements of errors. Hence, statistics and probabilities find greater application in these areas. You, as students, have to decide on the area which is of greater interest to you and pursue knowledge and excellence in that area.

Maths in Indian Context

16. What is India's contribution to the subject of Mathematics? Let me refer to an old song from the movie 'Purab aur Paschim' (lyrics: Indeevar and others) picturised on the celebrated actor Manoj Kumar, ' .....Bharat ka rahne waala hoon, Bharat ki baat sunaata hoon....' – how many of you have heard? I am sure all of the speakers here and even the teachers. The song has some excellent lines depicting India's contribution to the subject of Mathematics. The lines are as under:

''जब जीरो दिया मेरे भारत ने, भारत ने मेरे भारत ने,
दुनिया को तब गिनती आई,
तारों की भाषा दुनिया को , भारत ने पहले सिखलाई ।
देता ना दशमलव भारत तो, यूँ चांद पे जाना मुश्किल था,
धरती और चांद की दूरी का, अंदाज़ा लगाना मुश्किल था ।''

Loosely translated, extolling the contribution of India to the field of mathematics and astronomy, the protagonist conveys that 'It was only with the invention of zero by Indian mathematicians that the World could get its number system. Also, without India's contribution to the decimal system, it would not have been possible to fathom the distance between Earth and the Moon or to manage a voyage to the Moon'.

17. It is necessary to reminisce about the past heady days of Indian mathematics, beginning from the Vedic period. The ancient Vedas (synthesised about 5,000 years ago) contained Vedanga Jyotisha comprising three parts, one of which pertains to basic math about arithmetic, algebra, geometry, trigonometry and equations (Sameekaran). India's primacy in establishing the foundations of math is widely accepted among the scholars and practitioners in math. It is apt to note what the famous French mathematician Laplace (1749 – 1827) had remarked: 'It is India that gave us the ingenious method of expressing all numbers by means of ten symbols, each symbol receiving a place value position as well as an absolute value. The idea escaped the genius of Archimedes and Apollonius'. While the Indian system of counting has been the most successful intellectual innovation ever made, the most intelligent invention is that of zero, the inclusion of which added much needed wholeness and completeness to the system of natural numbers and for making it the very basic building block of the real number system. Unfortunately, the rich heritage and achievements of our ancient and pre-medieval Indian mathematicians were sort of rediscovered and then reintroduced from the West in the regular curricula on mathematics.

18. It is, indeed, very saddening to note that for the past 2000 years India's contribution in the field of mathematics has been negligible. We should not rest on our past laurels and allow complacency to set in. We need to re-establish our position of pre-eminence in the area of mathematics and mathematical research by contributing new thoughts and concepts to the body of knowledge on mathematics. Our students and teachers of mathematics and others associated with the academic world have to contribute significantly to make it happen.

Mathematics is challenging

19. One should, however, remember that mathematics is also one of the most challenging disciplines. It calls for special skills and mental ability to visualise the mysteries of the universe through abstract patterns, symbols, structures and formulae, which is mathematics. As Galileo said many centuries ago, 'The great book of nature can be read only by those who know the language in which it was written. And that language is mathematics.'

20. I must add a word of caution here. I believe that you must have the necessary aptitude for studying

higher mathematics. In case you do not have the numerical aptitude and liking for numbers, please do not pursue higher studies in mathematics.

Mathematics as a Career Option

21. Those who qualify in mathematics are in the fortunate position of having a wide range of career choices. Their abilities (i) to use logical thought; (ii) to formulate a problem in a way which allows for computation and decision; (iii) to make deductions from assumptions; (iv) to use advanced concepts, are all enhanced by a mathematics degree course. It is for this reason that mathematicians are increasingly in demand. With a mathematics degree, you should be able to try your hand in banking and finance, statistics, engineering, computers, teaching, econometrics, biometrics, or accountancy with a unique edge that may not be available to those graduating in other streams.

22. Thus, one of the benefits of studying mathematics is the variety of career options that open up. A recent survey has shown that graduates in mathematics and computer science were at the top of the earning lists, six years after graduation. In one such study in The Wall Street Journal (2009) on the best and worst jobs in the US, it was observed that the top three out of the best two hundred jobs listed in order of income and other factors were careers suited for math majors, namely, mathematics, actuary and statistics. Besides other favourable conditions like indoor working conditions and places free of toxic fumes or noise, the study also considers pay, which was determined by measuring each job's median income and growth potential. Another recent survey shows that the top 15 highest-earning college degrees have a common element: mathematics.

23. Some of the preferred career options for students of mathematics are: (a) Mathematics proper as teaching assignment as well as research in the theoretical aspects; (b) Actuarial science that develops applied tools using mathematics and statistics and using them in finance and insurance; it includes a number of inter-related disciplines, including probability and statistics, finance, and economics; (c) Computer science, based on the theoretical foundations of computation and their implementation and application in computer systems. Students of maths, with their training in logical and precise thinking, are highly prized in this field. (d) Operations research, developed as an interdisciplinary branch of mathematics to arrive at optimal decisions to problems in maximising or minimising things like costs or profits. (e) Biomathematics or mathematical biology, also an interdisciplinary field of study that helps in modeling natural and biological processes using mathematical techniques and tools. Results have been applied to areas such as cellular neurobiology, epidemic modeling, and population genetics. (f) Cryptography is the practice and study of hiding information. Cryptography is considered to be a branch of both mathematics and computer science.

24. While applied mathematics is appreciated and understood by many people, pure maths is considered very elitist. Another career and research prospect that has got tremendous boost of late is computation based analysis, which many purists do not accept as mainstream mathematics. Actually, many IT professionals who joined in the big leap of Silicon Valley revolution in the last couple of decades are now increasingly finding this job of analytics more rewarding and challenging.

Where Math can help in Central Banking

25. Two important areas of application of Mathematics, more specifically Statistics, are economic modeling and forecasting, and financial mathematics. Central Banks around the world are engaged in developing a suite of modern macroeconomic/ econometric models of the economy as a basis for informed macroeconomic, monetary, financial sector and fiscal policy decisions. It is now of critical importance, particularly, in light of the current challenges facing the economy. The importance of

modeling macroeconomic variables has become all the more critical because macroeconomic policy formulation needs to anchor its functional role in developing a full understanding of the economy as well as influencing domestic policy formulation in a logical framework.

Let me explain what is modeling and why it is important:

It is trying to study and analyse different phenomena. For this – you have to quantify the phenomenon so as to be able to relate to them. For example, how much space does a box contain?

We know volume = length X width X height and as the length, width and height can be measured, we have a simple model to represent the space inside a box.

26. Financial mathematics is a relatively new discipline, rooted in modern economic thought, yet steeped in the classical intellectual disciplines of chance and uncertainty. Tracing its origins to the early 1970s, and maybe more so, to the introduction of the personal computer, financial engineering's early triumphs include the development of structured mortgage-backed securities (now the biggest bond market) and a rationale for option pricing – the consequences of which are totally pervasive in modern investing, the markets, and finance. Central Banking job has been made much more challenging because it needs to understand, may be ahead of others in a forward looking framework, the finer aspects used to construct and deploy the financial transactions and processes. These are the mechanisms enabling the creation/employment of wealth and for the worldwide distribution of well-being within the constraints and intent of global financial policy.

27. Modeling exercises in macroeconomics have been rendered more complex and arduous because of complexities and nonlinearities displayed by behavioral aspects of economic agents. The traditional economic models depended heavily on linearisation of complex economic behaviour expressed in simple mathematical terms.

28. Like much of engineering, financial mathematics constructively uses fundamental mathematical and scientific principles with professional practices to yield products and processes. Rather than trying to understand the socio-economic interplay of wealth and well-being, financial mathematics considers a flow of cash (the cash-flow): its exchange, its contingency, and its value both in a relative and an absolute sense. These could be from the standpoint of the investor (central bank, insurance company, mutual fund, for example), a Wall Street dealer, a global bank, or a hedge fund. The flow of cash could be packaged as a stock, bond, option, swap, or exchange of currency.

29. Unlike positive sciences like physics and chemistry, one has to take a lot of care when dealing with behavioural sciences like economics and finance. Lots of measurement and benchmarking issues come up, particularly, in the modern complex world of business and commerce that await proper quantifications and standardisation with precision and rigor. Many would have read how floating of risky financial products, not tractable by the established norms of controllable behavioral norms, jeopardised functioning of markets and the global economy. With the expanding scope of business and finance, demand for mathematical acumen and empirical analyses have become ever increasing. However, we need to guard against utter predominance and capture of the finance profession by the students of mathematics.

Problems with numbers – Life in a Central Bank is as challenging as is the real life

30. Now that I have shared with you the uses of mathematics in Central Banking, let me also discuss some challenges/difficulties that the 'use of numbers' pose in our day-to-day office work *vis-à-vis* the general perception prevalent in the public domain due to improper interpretation of maths. Let me give three examples:

a. **Gold Purchases:** You may have come across news reports about the large current account deficit facing the country and the large import of gold being one of the important reasons for this. We often hear the argument that people buy gold as a hedge against inflation or that they are investing in a 'safe asset'. These people use, or should one say, misuse mathematics to buttress their argument by relying on the figure of gold price appreciation in the recent past. However, to me, the data on gold price appreciation is the most convincing argument for why investing in gold is neither a hedge against inflation, nor a safe asset. Let me explain. What is the characteristic of a hedge against inflation? – it should protect your principal by giving a return slightly above the inflation rate. However, the rate of gold price appreciation in the recent past has been far in excess of the inflation rate and, hence, cannot be characterised as a hedge. In contrast, it can be termed as speculation against inflation. Similarly, the fundamental principle of risk-return trade-off states that greater returns can be achieved only by assuming greater risks. The significantly higher returns offered by gold in the past few years only indicates that the risks implicit in investing in gold have also significantly increased. Even if we calculate volatility in the gold prices over a longer time horizon, it would be far in excess of that observed in other financial assets. Hence, the rationale for investing in gold as a 'safe asset' is contrary to conventional wisdom of what constitutes a 'safe investment'. Mathematics disapproves that gold is a hedge against inflation or that it is a safe asset. Unfortunately, this is not fully understood either by investors in gold or even a significant section of opinion makers and policy makers. We have no problem if proponents of gold encourage gold purchases by portraying it as a 'speculation against inflation' or a 'risky investment' (*i.e.,* right use of mathematics) rather than by calling it as a 'hedge against inflation' or a 'safe investment' (improper use of mathematics).

b. **Productivity in Banks:** In banks, one of the most commonly used measures of productivity is Business per Employee. However, any student of mathematics having some basic understanding of the concept of unit and dimension will say that Business per Employee may be a good measure of productivity across space but a very poor measure of productivity over time. If we use this ratio as a measure of productivity over time in banks/financial institutions for deciding manpower issues, *viz.,* recruitment of staff, promotions, *etc.*, consequences would not only be erroneous but can also be dangerous. Even in deciding on the number of General Managers (GMs) or Executive Directors (EDs) to be provided to banks, policy makers are depending on the volume of business. Can we not decide on these issues in a better way by proper use of mathematics, say, based on staff expenses per 100 rupees of asset/business or salary paid to GMs/EDs as a percentage of total assets/business of banks?

c. **Financial inclusion and numbers:** I am sure you have heard of our initiatives towards financial inclusion, the business correspondents, the basic banking accounts, *etc.* Banks often use 'number of accounts' and 'number of transactions' as two indicators for measuring progress in financial inclusion. It is common for banks to claim progress in financial inclusion stating that the number of accounts opened has gone up by 100 per cent over a period. This use of mathematics to

claim progress in financial inclusion can be terribly misleading. On delving deeper, one realises that while 100 accounts in the previous period have, indeed, increased to 200 accounts, there is no substantive progress in terms of banking penetration and financial inclusion in real terms, since the total number of villages covered, number of BCs employed, have also increased manifold during the period. The increase in number of accounts is, thus, merely a reflection of the expanded geographical coverage and not of any improvement in banking penetration in existing locations. Similarly, the number of transactions made per month may have gone up from 50 to 100 but, simultaneously, the total number of accounts may also have gone up from 200 to 1000. Thus, this 100 per cent increase in the number of transactions does not indicate an increase in efficiency or deepening of financial inclusion. Number of accounts per 1000 population and number of transactions per account are better mathematical ratios to judge the progress in financial inclusion.

31. The above three examples that I have given based on my day to day office experience, are only indicative of the irrational choices that could be made, if mathematics, as a decision making tool, is not properly used. The students of mathematics must, therefore, be extremely careful as conclusions based on improper use of numbers can lead to adverse policy decisions.

Conclusion

32. The key message that I want to convey, particularly to the students, is that not only the past, but also the future of mathematics and mathematicians is glorious and bright. While mathematics, in its pure form, is scaling greater heights, the horizons of its applications in various classical and new fields of science are expanding at a fast pace. Besides the physical and biological sciences, new applications are found in economics, finance, banking and many other fields. In view of such diverse applications of mathematics, the whole world needs mathematicians. Internationally, Indian students and scientists are considered to have a reputation in mathematics. There is a need to nurture and sustain this natural advantage which will attract bright students to the field of mathematics and also provide them with numerous career options. However, in view of the numerous applications of mathematics, students have to identify their areas of interest and develop domain knowledge in that particular area. While a career in mathematics research could be pursued by those with a passion for it, others need to focus on building up specialised expertise in their chosen area of application of mathematics.

33. While concluding, I would always want you to be like the mathematician in the story that I am going to tell you:

A mathematician, a physicist, and an engineer were traveling through Scotland when they saw a black sheep through the window of the train. 'Aha,' says the engineer, 'I see that Scottish sheep are black.' 'Hmm,' says the physicist, 'You mean that some Scottish sheep are black.' 'No,' says the mathematician, 'All we know is that there is at least one sheep in Scotland, and that at least one side of that one sheep is black!'

34. I would end by once again thanking the organisers for inviting me to this forum which, I am sure, will generate valuable awareness and insight about the prospects for mathematics and mathematicians. I have told you so much about maths, its applicability in central banking and problems with numbers that I encounter in my day to day work at the RBI, I hope that all of you will study mathematics, make a name and a great career for yourself. I wish you all a bright future and the Conference all success!

Thank You.

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*Financial Inclusion of Urban Poor in India**

K. C. Chakrabarty

Ms. Lata Krishnan, Chair, American India Foundation (AIF); Mr. M. A. Ravi Kumar, CEO, AIF; Prof. Sanghmitra S. Acharya, Jawaharlal Nehru University; Mr. Pradeep Kashyap, Vice Chair, AIF; Mr. Michael Markels from the World Bank; Ms. Kavita N. Ramdas, Ms. Madhu P. Kishwar, Mr. Mathew Titus and Ms. Sujata Lamba, the panelists for today's discussion, Mr. Hanumant Rawat, Director, AIF; delegates at the seminar, ladies and gentlemen. It is a pleasure to be here today at the fifth Annual National Seminar being conducted by the AIF in New Delhi. I am happy to see that Dr. Pradip Sarmah from Guwahati, who is a pioneer in the design of light weight rickshaws and organising Joint Liability Group for rickshaw pullers, is present here today.

2. I am very glad to note that from a very humble beginning in 2001, AIF has emerged as the leading non-profit organisation in the country, involving Indian-Americans, dedicated not only to the task of upliftment of India's poor but also to development of a vibrant social ecosystem. In collaboration with grassroot NGOs and government agencies, AIF has been successfully running several projects related to education, livelihood, and public health, with emphases on elementary education, women's empowerment, and HIV/AIDS, respectively. I understand that AIF has so far reached out to more than 1.7 million of India's less fortunate and successfully transformed their lives by providing them a sustainable means of livelihood. Though on a standalone basis, number of lives touched by AIF is very impressive, it simply dwarfs in comparison to the sheer enormity of the challenge that we, as a nation, face *i.e.,* of reaching out to a population of 1.2 billion. Even to reach remotely close to the target number, we would not only need scaling up of efforts by institutions like AIF, but also the involvement of many more such governmental and non-governmental organisations. Our experience with the Financial Inclusion programs has highlighted that unless the intermediaries involved develop sustainable delivery models and are able to run these activities as a viable business proposition, success would remain elusive. Therefore, apart from a sense of commitment, what we really need for these drives to succeed is a sustainable delivery model, which other institutions could imbibe from AIF and emulate.

3. It is, indeed, very heartening to note that the AIF has chosen to focus on the subject of Financial Inclusion of Urban Poor for its Annual Seminar and I compliment the Foundation for this. As you all know, financial inclusion has been a key area of focus for the Reserve Bank of India and I firmly believe that forums such as this provide us an opportunity to put our minds together to introspect on what more needs to be done to meet the ambitious goals we have set for ourselves. I, therefore, thank the organisers for inviting me and providing me the opportunity to present my views on the topic.

4. Though the Indian economy has witnessed tremendous growth lately, vast sections of our society have remained excluded from the India growth story due to various socio-economic factors. It is ironic that despite our cities seeing widespread affluence, large pockets of financial exclusion should exist right at the very heart of these cities. Every year, a large number of people migrate from villages to cities in search of a better life for themselves and their families. They take up non-contractual and non-permanent jobs of vendors, porters, hawkers, construction workers, domestic workers, rickshaw pullers, *etc.* These people need fast, low cost, convenient and safe avenues of savings, credit and remittances to meet their needs. However, in view of the non-permanent nature of

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their occupations, they frequently shift base within city or even across cities. Bankers are generally found to be shy in providing them banking services, for obvious reasons.

What do we mean by Financial Inclusion?

5. Before I turn to the specifics of Financial Inclusion of urban poor, let us spend a minute in understanding the meaning of the term itself. We have defined Financial Inclusion as '*the process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular, at an affordable cost, in a fair and transparent manner, by regulated, mainstream institutional players*'. Financial Inclusion is important not only from the perspective of the benefit it provides to the poor but also from the perspective of overall stability of the social and economic system of the country. Financial Inclusion of the poor has a multiplier effect on the economy as a whole, through higher savings pooled from the vast segments of the population present at the bottom of the pyramid. There is a potential for transforming the lives of these excluded groups by providing access to formal savings arrangements and extension of credit by banks for emergency and entrepreneurial purposes, thereby enabling the poor to create assets, generate stable income, build resilience to meet macro-economic and livelihood shocks and bring about an improvement in their financial condition and living standards.

Our Strategy for Financial Inclusion

6. Financial Inclusion is an integral part of policy making at Reserve Bank of India. We have taken significant steps in the form of regulatory relaxations, introduction of innovative products, and various supportive measures towards this objective. We have adopted a bank-led approach for financial inclusion in the country and encouraged the leveraging of technology while remaining neutral to the technology choice made by individual banks. The effort made by all stakeholders has resulted in increased reach of banking services to hitherto excluded remote locations. Today, banking connectivity has reached nearly 2,04,800 villages through brick and mortar branches, Business Correspondents (BCs) and other modes. During the last 3 years, 96.25 million Basic Savings Bank Deposit Accounts (including erstwhile No Frill Accounts) have been opened.

Exclusion of the Urban Poor

7. The rural inhabitants have largely remained the focus of our financial inclusion efforts since a large proportion of our villages are still unbanked. This has also been under the premise that the reach of banking network in urban areas is already quite high and, hence, access to banking services should be available to all. The ground reality, however, is quite shocking. The problem of exclusion is widespread even in urban areas, especially, for the disadvantaged and low-income groups, despite there being no dearth of bank branches. As part of the financial inclusion drive, while banks have opened 13,434 BC outlets in urban localities during the last 3 years, the progress is far from what was hoped for. Many of the urban poor still have no access to formal financial products and services like savings, credit, remittance and insurance, forcing them to depend on usurious informal sources to meet their personal, health, and livelihood-related needs. Not surprisingly, they struggle to repay such borrowings, which further impede their ability to escape the vicious circle of poverty.

Migrant Workers

8. One important section of the urban poor, which is adversely impacted by the problem of financial exclusion in urban areas, is the migrant workers' group. Migrant workers in urban areas mostly comprise people from low-income households who generally leave their village homes in search of better income and employment opportunities. Many of these people work and live at their work sites and are paid daily wages. They need a secure place to keep their

savings and the facility to remit small amounts of money at frequent intervals. In most of the migration corridors, the migrants have outstanding loans at their origin points, mainly from informal sources, and the remittances are the major source of loan repayment.

Rickshaw pullers

9. Before we delve into the issues that plague the financial inclusion efforts for the urban poor and the migrant workers, let me spend some time talking about one important sub-section of this population, the rickshaw pullers – a group which is the focus of the initiatives made by the AIF under the Rickshaw Sangh programme. Rickshaw Pullers provide a much needed and valuable public service, especially for the low income groups in cities, at very cheap rates. In areas where lanes and by-lanes are too small for vehicular traffic, cycle rickshaws are the only practical means of transport. In most cities, in the absence of any feeder service between the major transport network stations like railways, metro rail, bus, *etc.*, there is always a demand for cycle-rickshaws.

10. While no pan-India study on rickshaw pullers is available, it is estimated that there are about 8 million rickshaw pullers in the country, with only about 1.1 million being registered at various municipalities. With an average of five persons dependent on each rickshaw puller, close to about 40 million people are dependent on rickshaw pullers for their subsistence, making it an important livelihood source for a sizeable section of our population.

11. Typical of the migrant labour communities, the rickshaw pullers also seldom possess dependable identities, references or contacts. They, usually, do not have access to institutional finance and, hence, find it difficult to raise funds to purchase their own rickshaws. According to available data, 90-95 per cent of rickshaw pullers rent rickshaws on a daily basis and pay rentals as high as ₹25 – 50 per day, which could, thus, add up to ₹1500 per month, for a rickshaw costing ₹10,000 – 12,000. They pay such usurious rents for years but never become owners of the rickshaw. On days when the rickshaw puller does not take up the activity due to illness, social events, or other reasons, he does not have any income. Moreover, during the cropping season, the rickshaw pullers often return to their home towns, resulting in disruption of their regular occupation. All this results in them have irregular and unstable income, which is vulnerable to disruption by a multitude of factors. Having their own rickshaws would encourage them to continue with their occupation all through the year, and help in bringing consistency in their income streams, which is essential for any kind of financial planning.

12. It is, therefore, important that there is an effort to extend support to these groups so as to make their livelihoods sustainable. The initiative taken by the AIF in bringing together various stakeholder groups to improve the economic prospects of the rickshaw pullers is, indeed, commendable and I hope that the Rickshaw Sangh programme is extended all over the country and that it succeeds in bringing about a credible improvement in the quality of lives of this hard working group.

13. Some experiments have already been done by adopting a Joint Liability Group (JLG) model for delivery of rickshaw loans. For instance, under the Punjab National Bank's 'JANMITRA RICKSHAW FINANCING SCHEME', need-based loans are provided to desirous persons on easy terms and conditions so that these people can come out of the clutches of money lenders. The financing is done under tie-up arrangement with NGOs sponsored by American India Foundation Trust (AIFT) as well as other local NGOs. The NGO arranges for completing the formalities like registration with the local Municipal body. The extent of loan includes the cost of the rickshaw, cost of uniform, license fee for two years and three years' premium for life and health insurance of the rickshaw puller. In this instance, a special design of rickshaw was created in association with IIT Guwahati, which resulted in a light weight rickshaw that ensured an all-weather comfortable

seating for passengers and sufficient space for storage of luggage. This also ensured a unique identity of the rickshaw financed under the scheme. The design of the rickshaw had sufficient space for advertisement on the back. The guarantee of partnering NGOs is an assurance to the bank as well as the manufacturers. The banks have lesser risk to deal with; the individuals are supported by the quality check of the rickshaws; and the manufacturers are assured of their payment by the bank.

14. There are scores of success stories under this scheme, which has resulted in providing employment to several poor people and helping them live a dignified life. Their collectivisation and empowerment through the instrument of credit and the consequent means of livelihood – the rickshaw, seems to be a turning point in their lives. In this experiment, change in the income levels is evident, supplemented by the improvement in the perception of self. A large number of homeless and identity-less migrant labourers became rickshaw owners and got integrated with financial services of the banks.

15. The Rickshaw Sangh programme has, currently, been rolled out in 18 cities in 6 states. As per data provided to me, more than 40,000 rickshaws have been covered under the programme with total credit extended being ₹140 million. One important feature of note in the Rickshaw Sangh programme is that it is not just restricted to providing a rickshaw to the target group, but also includes providing necessary municipal permit, insurance (both on the asset and on the life), bank account, photo ID and a uniform. This bundled approach greatly improves the impact the programme is likely to have on the beneficiaries. At this stage of the Rickshaw Sangh programme, it is heartening to note that an assessment of the programme has been carried out with the objective of understanding the impact it has had on the beneficiaries and other stakeholders involved in the programme. Besides, it also seeks to ascertain the non-economic impact that the programme would have had on the beneficiaries. I do hope that the outcome of the study provides valuable guidance on how to take the programme further in terms of both its penetration across the country and the impact it has on the social and economic lives of the beneficiaries.

16. In my opinion, a major issue that projects focusing on the economic upliftment of the poor often face is the lack of adequate emphasis on proper training and capacity building, which seriously debilitates the ability of the beneficiaries to manage their assets and income without adequate handholding. A major challenge to the success of projects focusing on improvement of living standards of the rickshaw pullers is the non-availability of a standardised and comfortable rickshaw model. In a country which has a booming cycle industry with an impressive export pedigree, there are no organised manufacturers of cycle rickshaws. In the absence of standard designs, the local manufactures waste much time and effort in building a rickshaw. I hope AIF would look into this aspect, tie up with some major manufactures, urge them to build on existing research, such as the one carried out by IIT Guwahati, and design standardised, modular, cost-effective machines, which can be easily dismantled and reassembled at locations away from manufacturing bases.

Impediments in Financial Inclusion of Urban Poor

17. Let me now return to the key impediments in achieving Financial Inclusion of the urban poor. Among the factors keeping the urban poor and the migrant workers out of the formal financial system are their low and irregular earnings, migrant nature of the population, inability to produce adequate documentation, bigger family size with single earning member and financial illiteracy leading to poor money management skills. They are also deterred by problems in understanding language, inconveniences related to travelling and waiting time and other conditions that come with the formal financial system. It is, indeed, sad that many migrant workers do not have adequate information about the remittance facilities offered

by banks, and even those who have accounts with banks, do not use them effectively. Furthermore, only a few migrants and their families are insured against the risks they face every day. As a result of lack of financial literacy and general apathy, even those who have money continue to keep their savings either at home or prefer to participate in informal savings schemes like chit fund.

18. There is no denying the fact that the informal sources are attractive and pervasive in cities due to the speed and ease and the multiplicity of services they can give. That is why the poor prefer to borrow from informal sources even at exorbitant interest rates of 5-8 per cent per month as the lender understands their financial situation and constraints. Hence, any time (24x7x365) availability of credit, especially in times of emergency, is preferred by the borrowers despite the exploitative interest rates. The most crucial challenge in case of migrant workers is proof of identity. The migrant nature of their job does not allow them to have dependable identities, references or contacts and, therefore, very often, they are denied the financial access due to lack of adequate KYC documents. Besides, the indifference of the urban poor to the formal sources of finance, despite these being less costly, is also attributable to the attitude and mindset of the service providers, which needs to be facilitating and supportive experience suggests that the financially excluded population is more comfortable tapping the informal sources to finance their needs, which are much more 'flexible' and 'convenient'.

19. The need, therefore, is for the formal financial institutions to adapt their product offerings and delivery platforms to meet the specific needs of the urban poor. The reasons why the informal systems are so popular needs to be studied and their strong points need to be incorporated into the practices of the formal service providers to the extent possible. Besides, in order to meet the remittance requirements of migrants, banks should identify major inter-state migration corridors in the country and explore partnership with NGOs in different sets of origin-destination pairs.

Adopt a Functional Cluster Based Approach

20. The challenge is to convert poverty into prosperity for the people, while at the same time, implementing it as a viable business opportunity for banks. For that purpose, we must adopt a functional cluster based approach, well suited to the specific needs of different segments like Household workers, Construction workers, Weavers, Hawkers, Rickshaw pullers, Auto Drivers, *etc.* There has to be a multi-pronged, holistic approach that could include enhancing financial literacy to build up demand, capacity building and mindset changes of bank staff/BCs, development of need based innovative products, alternate delivery channels through BCs and tie-ups with NGOs to ensure socially responsible delivery of services with consumer protection.

21. In fact, product innovation in financial services, keeping in view the life cycle needs of the urban poor, should form the basis of banks' strategy to bring these groups into the financial system. Banks should innovate to create demand-oriented savings, credit and remittance products that are customised to the lifestyle patterns and income streams of the urban poor. Offering micro-saving products, per se, to meet the savings needs of these groups, might not be enough. Innovative financial products offering possible investment opportunities, besides catering to the savings needs, have to be thought of for bringing the urban poor into the banking system. Insurance offers protection to assets created under credit programmes and protects savings from being wiped out by shocks arising out of sickness, death, accidents or asset loss caused by fire, drought, floods and riots. The section of the urban poor, who are determined to save regularly, even with their low earnings, should be provided an investment option that fetches reasonable rate of return on their savings, without exposing them to significant risks. Mutual funds and pension schemes for the unorganised sector, customised to the financial needs of the poor, have to be developed.

22. As noted above, in case of rickshaw pullers, the organisation of functional clusters into groups is central to their linkage to the banking system. Formation of JLGs of the urban poor for provision of bank credit, with collective obligations for interest and loan repayments, is an option. Banks can also explore avenues for individual loans to select JLG members who establish a good track record through group borrowings, possess the requisite entrepreneurship skills and who want larger loans for productive purposes.

Linking with existing Urban Development Projects: Training and capacity building workshops can be arranged under urban development projects like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). There will be a possibility of growth of more homogenous groups required for forming JLG/SHGs in such areas. NGOs can play a meaningful role in this direction.

23. Today's seminar must result into concrete actions. As an immediate measure, in order to link the urban poor with the formal financial system, it is necessary that the banks take initiatives in close coordination with local NGOs, state government and municipal authorities, to launch campaigns to open bank accounts of urban poor in camp mode.

24. The problem of proof of identity for the migrant workers can be efficiently handled by leveraging technology. Aadhaar cards issued by the UIDAI have the potential to be a game changer. Aadhaar would serve not only as a clean, accessible identification to meet KYC requirements, but would also facilitate Electronic Benefit Transfer of their benefits and entitlements. The recent KYC relaxations permitted by RBI also allow for Aadhaar documents to be accepted as both identity and address proof, provided the address given on the account opening form is the same as the one on the Aadhaar document. Persons with a valid Aadhaar Card would, thus, be able to transact at any bank, at any place. Hence, it is also important to launch a one-time campaign to enroll everyone into Aadhaar, which would remove the major barriers to inclusion of migrant workers.

25. Another major area that needs due attention is the task of making the urban poor creditworthy. We cannot blame the banks alone for lack of credit penetration to this segment of the society. Banks are into the business of lending, but at the same time, they also need to factor in the repayment capacity of the borrower. Unless they firmly believe that the borrower has the ability to build productive assets with the credit received, they would eschew taking that credit risk. The NGOs have a very crucial role to play in this regard. They must lead a mission to impart financial education, training and capacity building for this functional group (rickshaw pullers, vegetable vendors, plumbers, masons, *etc.*) and prepare them to avail of the entire suite of financial products and services *i.e.*, savings, remittance, insurance and pension from the banking sector, in addition to credit.

26. Another linkage for these functional groups with the formal financial system could be through an intermediary who could possibly be a management expert. This person could engage with a group of such individuals on a regular basis and professionally manage their affairs (say for example, arranging for health insurance) for a fee. Accordingly, management institutions could develop basic courses for preparing such managers who truly understand the needs and deeds of these functional groups. All the above issues would require co-ordinated response from all stakeholders.

Way Forward

27. There is a need to create greater awareness about the banking services in order to bring the urban poor under the banking network. Proper management of money by the urban poor is critically important for meeting their life cycle as well as investment needs. There is scope to plug non essential expenses and increase their savings behavior. The key strategies here would be to educate, motivate and encourage.

The Reserve Bank of India, as part of its Financial Literacy programme, is issuing a Financial Literacy Guide which answers basic questions related to managing money. Responses to certain basic queries such as why to save, how to save, why save in banks, when to borrow, where to borrow from, *etc.* have been provided in very simple and lucid language, through pictorial representation. This guide can be used by all stakeholders as a standard curriculum for educating the financially excluded poor people. Along with the guide, we are also coming out with a Financial Diary with basic messages in pictorial form for distribution to the participants in the financial literacy camps so that they can better plan their finances by keeping record of their income and expenses on a regular basis. The easy-to-understand posters, with appealing pictures, explain the importance of savings and the basic banking services. It is time for banks to play a major role in the financial emancipation of the urban poor by conducting financial literacy camps and providing door step user friendly access to services.

28. From the perspective of improving the living standards of the rickshaw pullers, we need many more initiatives like the Rickshaw Sangh programme. The improvement in the financial status of the urban poor, including the rickshaw pullers would be possible only if it is pursued as an integral part of our financial inclusion initiatives. Providing access to finance for the rickshaw pullers to own rickshaws should necessarily be at the core of these initiatives. However, emphasis need also be on providing a holistic package, which supports the rickshaw puller in leveraging his asset (the rickshaw) to pull himself and his dependents out of poverty. Besides, technology needs to be used to facilitate the task of rickshaw pulling, so that it becomes less physically demanding.

29. An appropriate, customised delivery channel is equally crucial in urban areas. South Africa's E-Bank Plan demonstrates how a commercial bank can bundle services for low-income clients. Its uniqueness lies in its focus on sensitivity to the needs of the basic banking customer, which led to creation of a new product providing a cost efficient delivery mechanism. The idea was to offer an integrated combination of product and delivery features, including user friendly, conveniently located branches, by leveraging on technology. E-banks are conveniently located in high-traffic areas in colourful, well-designed, user-friendly kiosks. Instead of relying on traditional advertising methods, E-Bank has used market presence, life insurance and prizes to generate word-of-mouth advertising. The approach is providing product and delivery features that are valuable enough to make the low-income clients willing to pay ATM transaction fees slightly above the market norm and high enough to cover banking costs.

Conclusion

30. Bringing the urban poor into the mainstream of the financial system can act as an important gateway for financial inclusion. Rolling out of an innovative financial product, delivered through a user friendly channel, is central to achieving financial inclusion. This has to be seamlessly integrated with a strategy to improve the financial literacy of the targeted groups. Only then will we be able to avoid the problem of low level of transactions in the newly opened accounts, which we are currently facing in our financial inclusion efforts in the rural areas. As I have always maintained, technology has to be the bulwark around which our financial inclusion efforts have to be developed. Innovative ICT solutions have to be leveraged to provide door step services of specifically designed products at place and time convenient to the targeted population group. Disbursement of bank loans in association with well meaning NGOs and also involving them in proper monitoring/hand holding of beneficiaries can result in poverty alleviation for a large number of people.

31. Most importantly, society has to radically change its attitude towards labour and the people providing us manual services. Every task has its dignity and we must respect the efforts put in by these groups

of people and their contribution in making our lives comfortable and hassle-free. This will encourage us to appreciate the genuine problems of these groups and work towards finding solutions for them. As I mentioned at the beginning, this is required not just for the well-being of these vulnerable groups, but also for the stability and sustainability of the social and economic system. I hope, we are, collectively, able to bring about this change in our attitude, which would be a vital first step in the integration of these marginalised groups.

32. I commend the initiative taken by the AIF along with all other stakeholders including the commercial banks/financial institution and NGOs towards the social and economic emancipation of the rickshaw pullers through the Rickshaw Sangh programme. The task before us is very challenging considering the large number of rickshaw pullers that are yet to be touched by the programme. I hope the inputs from the assessment study help in recalibrating the programme towards better meeting the goals set for it.

33. I once again thank the AIF for providing me the opportunity to present my views in this seminar and do hope that the panel discussion to follow would throw up valuable ideas on how to take the financial inclusion mission forward, particularly for the urban poor. I also congratulate the recipients of the Awards for outstanding contribution to Financial Inclusion, being given today and hope that not only do they continue with their good work, but they also succeed in encouraging others to rededicate themselves to the goal of making our society a truly inclusive one.

Thank you.

*Building Financial Capability**

K. C. Chakrabarty

Introduction

Professor Njuguna Ndungú, Governor, Central Bank of Kenya, representatives from the Capital Market Authority, the Insurance Regulatory Authority and the Retirement Benefits Authority of Kenya, my colleagues from the OECD/INFE, World Bank, distinguished guests, ladies and gentlemen! It gives me immense pleasure to be here amidst you in the beautiful city of Nairobi, the safari capital of the world, to deliver the opening remarks in this OECD-World Bank Regional Dissemination Conference on building financial capability.

2. This is the second in the series of dissemination events of the output of the Russia/World Bank/OECD Financial Literacy and Education Trust Fund following the event in Cartagena, Colombia; with the next event planned in India during the month of March 2013. It is, indeed, heartening to note that the efforts made by the OECD/INFE for promoting and facilitating international co-operation between policy makers and other stakeholders on financial education issues have found massive acceptance, with over 200 public institutions from more than 90 countries having joined the network. The endorsement of the OECD/INFE High-level Principles on National Strategies for Financial Education by the G20 leaders in their meeting in Los Cabos, Mexico not only identifies these principles as the global standard, the rule book, for the financial education initiatives, it also demonstrably proves that promoting financial education and literacy has become a long-term policy priority in most countries across the globe.

3. Building financial capability through financial literacy is a key component of the Financial Inclusion process. While every country has to tread its own path to financial inclusion and literacy depending upon the local factors/indicators like literacy levels, per capita income, poverty levels, levels of financialisation of the economy, *etc.*, expert bodies like INFE, facilitate a cross-country sharing of experiences, thereby helping individual jurisdictions to save time and crucial resources and to avoid mistakes that other countries might have committed. They also provide standard tools/benchmarks for framing national strategies for financial education and provide the framework for policy interventions relating to roll out of these national strategies. The conferences like these also provide a great platform to all of us to meet, exchange notes on what is happening in our respective countries and learn from each other's experiences. For example, I am sure all of us have drawn our lessons from the pioneering effort undertaken by Kenya for Financial Inclusion through the M-PESA model.

Why do we need Financial Literacy?

4. With this brief background, today I would share my perspective on the necessity for promoting financial literacy as a policy tool, its centrality to ensuring inclusive growth and the initiatives we have taken in India for promoting financial literacy. But before I venture any further, let me quickly state what is meant by 'Financial Literacy'. I quite like the definition given by the INFE researchers, Atkinson and Messy, who describe it as 'a combination of financial awareness, knowledge, skills, attitude and behaviours necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.' Thus, an absence of financial literacy can lead individuals to make poor financial decisions that can have adverse effects on their financial well being.

5. A venerable section of commentators analysing the causes of the global financial crisis have identified widespread financial illiteracy as one of the fundamental reasons for its build up. The mortgage market of the USA, wherein lay the genesis of the

* Opening Remarks by Dr. K. C. Chakrabarty, Deputy Governor, Reserve Bank of India at the OECD – World Bank Regional Dissemination Conference on Building Financial Capability at Nairobi, Kenya on January 30, 2013. Assistance provided by Shri Ajay Kumar Misra and Shri Bipin Nair in preparation of this address is gratefully acknowledged.

crisis, was largely built around rampant mis-selling of home loans to a vastly gullible customer group, who had virtually no inkling of what an adjustable rate mortgage meant and how it could hit them once the rate cycle turned around. The extent of financial illiteracy ran really deep, whereby, even the sophisticated investment bankers and bond dealers took huge bets by investing in the safe and the so called 'Triple A' super-senior tranches of CDOs, CDO -squared and CDO-cubed. The customers entering into financial contracts, without understanding the risk import of such transactions, ultimately bore the brunt of unforeseen volatility in financial markets, which quickly spread to the real economy resulting in massive job losses and other long-term ill-effects, which the world economy is still grappling with.

6. Two things emerge very clearly from the above developments – first, financial illiteracy is not limited to only the poor and vulnerable sections of the society and second, it is a problem that is equally endemic in both, the developing as well as the developed nations. To put things in perspective, I would quote the results of a recent study conducted in the US by the Securities and Exchange Commission (SEC) to identify the existing level of financial literacy among retail investors (a study mandated by the Dodd-Frank Act): 'The studies demonstrate that investors have a weak grasp of elementary financial concepts and lack critical knowledge of ways to avoid investment fraud'. In the aftermath of the financial crisis, imparting financial education and creating a financially literate population has been receiving increasing attention of the policy makers in a majority of economies. This has become much more necessary today due to the growing complexity of financial products and services, variety of product and service delivery channels, rising consumer activism and the limited ability of regulation alone to efficiently protect consumers.

Linkages between Financial Inclusion and Financial Literacy

7. We, in India, consider Financial Literacy as an important adjunct for promoting financial inclusion, consumer protection and ultimately, financial stability. We firmly believe that financial inclusion and Financial Literacy need to go hand in hand to enable the common man to understand the needs and benefits of the products and services offered by the formal financial institutions. We have defined financial inclusion as '*ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups, such as weaker sections and low income groups in particular, at an affordable cost, in a fair and transparent manner, by regulated mainstream institutional players.*' So, from the financial inclusion perspective, it essentially involves two elements, one of access and the other of literacy. Financial Literacy helps in creating demand for the financial products that are offered under the financial inclusion initiatives. Our experience with the rollout of a formal financial inclusion programme by commercial banks over the last few years is that while the reach of the formal financial system has significantly expanded, it has not yet had a major impact on the financial behavior of the intended population. The level of transactions in the newly opened bank accounts continue to be very low and this has impacted the viability and scalability of our financial inclusion initiatives. This lack of transactions is, in part, attributable to lack of financial literacy and awareness about the benefits of getting linked to the banking system.

8. The financial well being of individuals is linked inextricably to a nation's economic progress. The economy and our financial institutions would be stronger when more people have jobs, rising incomes and a buildup of wealth. Pointing to the weakening of the economic policy making process in the absence of financial literacy to the citizens, Mr. Alan Blinder, the noted Princeton economist and former vice chairman of the Federal Reserve's Board of Governors, has said that an uneducated citizenry can lead to simplistic policy solutions, and those solutions are usually suboptimal.' The fact that the basic level of economic literacy in the country, indeed in the world, is so low,

is one of the things that leaves the political process so vulnerable to this malady.'

9. Financially strong households tend to have higher levels of confidence about consumption and are more willing to make the major purchases required to support growth in the economy. As more and more financially literate customers join the formal banking system, start saving, start making use of entrepreneurial credit to set up small businesses and begin to use a wider array of financial services, the system benefits overall in the form of greater efficiency, lower fees, better services, and a safer, sounder banking system.

Improved financial literacy results in a higher standard of living for households

10. The most fundamental reason why people should strive to become financially literate is to help them reach their personal financial goals. Whatever the specific goal, the payoff from financial literacy is an improved standard of living and a sense of confidence about the future. Financially literate individuals are more likely to engage in sound financial planning early in their lives. This enables them to plan for retirement, fund the education of their children, and accumulate more assets. From a national perspective, the payoff is large.

Who are the target groups and what messages to deliver?

11. Everyone in the system, be it the users or the providers of financial products/services, need to be financially literate. In the Indian context, the users are broadly categorised as the financially excluded resource-poor, the lower and middle income groups and the high net worth individuals. For the resource-poor population, financial literacy would invariably involve addressing deep entrenched behavioural and psychological factors that are major barriers to participating in the financial system. For the purpose, our financial literacy efforts are primarily directed towards dissemination of simple messages of financial prudence, in vernacular languages, through large awareness campaigns across the country combined with vigorous roll out of financial inclusion plans by banks, insurance and pension funds, and others. However, it is important to note that being literate is not a necessary prerequisite for attaining financial literacy as the basic financial messages can be conveyed through various alternate means without relying on written inputs. Some of the basic messages we seek to deliver through our financial literacy drives are:

- Why save?
- Why save regularly and consistently?
- Why save with banks?
- Why borrow within limits?
- Why borrow from banks?
- Why borrow for income generating purposes?
- Why repay loans?
- Why repay loans in time?
- Why do you need insurance?
- Why you will need regular stream of income post working life –pension?
- Why you should keep money aside regularly and consistently during your earning life for pension in old age?
- What is interest? How moneylenders charge very high interest rates?
- What is the difference between money and credit?

12. One of the primary challenges in improving the effectiveness of financial literacy efforts, is to ensure the standardisation of the basic messages being conveyed to people, especially the illiterate population. This will help in ensuring consistency in messages reaching the target audience from various sources and making it more focused and purposeful.

13. While financial literacy for the users of financial services/products is of paramount importance, literacy is also a must for financial service providers.

Banks, financial institutions and other market players too need to be literate about their risk and return framework. Every bank, in order to expand its customer base, needs to understand the requirements of its customers and the market, credit and operational risks involved in its operations. They need to understand that for their business to survive, their customers must survive and for that, they need to understand the appropriateness of the products themselves to be able to explain it to their customers. In a scenario, where illiteracy level about the financial products/services is very high even among educated elite and policy makers, following key ideas/concepts need to be widely disseminated:

- Differentiation between Money and Credit;
- Differentiation between Expenses and Investment;
- Need for credit to be utilised for productive purposes and not for consumption at the initial stage of financial inclusion;
- Higher the return, higher the risk assumed (Risk-return trade off);
- Transition path:
  - Financial Exclusion
  - Money (Subsidy, Charity, Wage, Employment, Savings)
  - Productive Credit (Income Generation)
  - Consumption Credit (Income Smoothening and Asset Acquisition)
  - Speculative Credit
- Understanding the Risk-return trade off associated with each stage of the above transition path.

If we can develop adequate appreciation and education about the above issues across the entire cross-section of the society including policy makers and financial market players across the globe, the world financial markets and the people would be much less vulnerable to financial crisis, such as the one we are facing today. That is the ultimate goal for building financial capability in a society.

14. The providers of financial services have a vested interest in the spread of financial inclusion and financial literacy, as it will help them in expanding their business operations to newer segments of the population. Globally, it is observed that commerce for the poor is more viable than commerce for the rich. The commercial viability of financial inclusion efforts is essential for ensuring long-term sustainability and scaling up of this business. This is possible only if the entire suite of products including credit products, remittance services and deposit products are offered to customers. The failure of financial intermediaries in effective implementation of financial inclusion plans as a viable business model, indicates a lack of basic financial literacy on the part of these financial intermediaries.

Institutional framework in India

15. The institutional mechanism for promoting Financial Literacy efforts in India is in the form of the Financial Stability & Development Council (FSDC) headed by the Union Finance Minister which, *inter alia,* is mandated to look after Financial Inclusion and Literacy efforts. The FSDC has the heads of all financial sector regulatory authorities as its members. The FSDC has constituted a Sub-Committee to focus solely on Financial Inclusion and Financial Literacy.

16. One of the important tasks that the FSDC Sub-committee has taken up is to formulate the National Financial Literacy Strategy document with the following objectives:

i. Create awareness and educate consumers on access to financial services, availability of various types of products and their features

ii. Change attitudes to translate knowledge into behaviour

iii. Make consumers of financial services understand their rights and obligations

Financial Literacy – Ideally start early in Schools, but do not neglect adults

17. It is well recognised that to be effective, financial literacy initiatives should ideally commence at school level, although, adult education would also provide substantial benefits. Financial education at the school level would involve teaching the basic concepts for laying a strong foundation. The groundwork for this sort of conceptual understanding is best laid in a formal educational setting. The reason why it is important to teach financial education in schools is also due to its multiplier effect on the society as the financially literate students would be in the best position to act as ambassadors for the spread of financial education in their surrounding environment. In India, therefore, we are engaging with the curriculum setting bodies like National Council of Educational Research and Training (NCERT), Education Boards like Central Board for Secondary Education (CBSE), Central and State Governments to try and embed such concepts in the school curriculum.

18. Our National Strategy also aims at establishing initial contact with 500 million adults, educating them on key saving, protection and investment related products so that they are empowered to take prudent financial decisions. It also seeks to create awareness about the consumer protection and grievances redressal machinery available in the country.

Channels of Financial Literacy

19. Taking into consideration different cultures and market development needs, we are adopting a multi-channel approach to cover different financial and education levels in various age groups. We have a link on Financial Education on the RBI website for the common man, containing material in 13 regional languages, which includes comic books on money and banking for children, puzzles, competitions, *etc.* Top Executives of Reserve Bank of India undertake outreach visits to remote villages on a continuous basis to spread the message of financial awareness and literacy. A Young Scholars Scheme has been instituted wherein, around 150 graduate students are selected each year from across the country, who are provided summer internship in various offices of the Reserve Bank and are expected to submit small project reports relevant to the Bank's functioning. Moreover, these young scholars are required to visit some schools in their region and explain their project to school students, so as to create greater awareness among the school students regarding the functioning of the Reserve Bank. Besides, town hall meetings, participation in information/literacy programmes organised by Press, enacting plays and skits, arranging stalls in local fairs/exhibitions, *etc.* are some other initiatives towards this objective. In addition, to create awareness and interest about the history and role of the Reserve Bank, about banking and finance, other banking institutions, economics, current affairs, personalities and events that have contributed to the growth and progress of India over the years and to build a 'connect' between the Reserve Bank and the young student community enrolled in schools across the country, RBI has launched an all-India RBI Inter-School Quiz Competition for promoting financial literacy at the school level.

Who all are partnering in this initiative?

20. In India, a large number of stakeholders including the Central and State Governments, financial regulators and players, civil society, educationists and others are involved in spreading financial literacy. As we have adopted a bank – led model for financial inclusion, banks are actively contributing to our financial literacy initiatives by setting up Financial Literacy Centres (FLCs) with focus on educating people on availability of various deposit, credit and remittance products and create demand for the same and also for attaining Financial Inclusion. As on September 30, 2012, there were 575 such FLCs functioning in India.

Consumer Protection through Literacy

21. For all users of financial services, an important component of financial literacy is the provision of a grievance redressal mechanism, which they can access in case of complaints and frauds by/against

financial service providers. The availability of an effective grievance redressal mechanism is essential as its absence could lead to loss of confidence in the financial system, prompting people to move away from it. This could be a serious setback to the financial inclusion initiatives. For cost-effective, quick grievance redressal related to banking sector, the Reserve Bank has instituted Banking Ombudsmen in each of our Regional Offices. Other regulators have also set up ombudsman in their respective areas. However, banks/financial institutions should realise that improved customer awareness/service and effective grievance redressal mechanisms at the institution level can substantially reduce the number of complaints flowing to Ombudsmen.

22. In addition to the obvious benefits of financial literacy at the individual level, it has major macro-economic benefits as well. If we can bring the excluded population into the purview of banking services, we could raise household and overall domestic savings further, and can, thus, fulfill one of the necessary conditions for achieving double-digit growth.

Conclusion

23. I must compliment OECD/INFE, World Bank and the others for the plethora of publications, studies and research work they have undertaken in the field of financial education, for it gives us a ready and right amalgam of inputs needed to push financial education efforts in various countries. For example, in India, we have a mix of large sections of low income, less literate population living together with a large and upwardly mobile starry eyed middle class and a significant number of globally oriented professionals and businessmen. When we sat down to write our national strategy for financial education, we really had to plan for all the three broad groups. The standard guidelines of INFE were very useful, so were the national strategies of other similarly placed countries like Brazil, South Africa and others. The flavor of what we have prepared as our national strategy is Indian, but the content is in line with global standards. The INFE documents were also useful in one other way *i.e.* in making our strategy acceptable to a large number of stake holders.

24. I understand that the Central Bank of Kenya is developing Kenya's National Strategy for Financial Education, in partnership with various stakeholders including the Government Ministries, the Financial Sector Deepening (FSD) Trust, NGOs, financial institutions, and other private sector companies. I am also informed that other regulatory bodies/agencies are also involved in carrying out financial education campaigns and in development of financial literacy curriculum for schools. I wish them all the best in their endeavour.

25. While a number of measures have and are being taken for spreading financial education and promoting financial literacy, given the enormity of the task, we still have a lot of ground to cover. Here, I would like to emphasise the need for a collaborative partnership involving all stakeholders. However, like the proverbial 'horse and carriage', efforts to improve financial capacity and to promote financial literacy best go together; it makes for an easier and more successful journey.

26. In conclusion, I wish to thank the OECD, World Bank and other organisers of the Conference for their continued commitment and involvement in financial literacy. We in RBI believe that such programmes offer an opportunity to learn from mutual experience and help us in designing appropriate solutions best suited to our jurisdiction. I sincerely hope that with our collective efforts would financial literacy permeate to all and sundry, the common man would be empowered to take informed financial decisions and in the process, the global financial marketplace would become a more stable arena. With these words, I close my address and wish the Conference all success.

Thank you !

*Financial Inclusion & Payment Systems: Recent Trends, Current Challenges and Emerging Issues**

Harun R. Khan

Shri. Narendra Singh, CMD, Bank of Maharashtra, Shri. K R Kamath, CMD, Punjab National Bank & Chairman, Indian Banks' Association, Shri Raghuvir Singh, Executive Director, Bank of Maharashtra and Chairmen-Managing Directors & Executive Directors of banks, distinguished delegates, ladies and gentlemen. It is indeed a pleasure to be here in BANCON 2012 organised by the Indian Banks' Association. I am especially happy to share my thoughts on financial inclusion & payment systems in this conference hosted by the Bank of Maharashtra which has been a pioneer in implementing Information Communication and Technology (ICT) based financial inclusion. I am particularly reminded of a reference made by the bank to the Reserve Bank of India way back in late 60s' seeking permission to use agents for providing banking services & the opinion given by the Legal Department of the Reserve Bank of India which formed the basis for allowing Business Correspondents to expand banking outreach with ICT support in 2006 as recommended by the Internal Group on Rural Credit & Microfinance set by the Reserve Bank of India in 2006.

2. Financial inclusion as a concept, process and business proposition is not new for the banking sector of India and, in fact, it dates back to the phase of nationalisation of banks and even beyond that when the Imperial Bank was nationalised to become the State Bank of India in 1955 and its subsidiaries were formed following the recommendations of the All India Rural Credit Survey Committee (AIRCS) in 1954. One of the objectives of nationalisation was aimed at taking banking to the masses. Financial inclusion, thus, has been and continues to be at the centre of the policy priority of the country. With passage of time the means of achieving deeper and sustainable financial inclusion has shifted towards innovative methods and adoption of technology-led products. In this changed environment, Payment Systems (PS) have become a critical component of financial inclusion for bringing the unbanked into the formal banking channels, particularly as we move towards the second phase of financial inclusion that aims to cover the villages with population of less than 2000. I am therefore very happy to have got this opportunity to speak on the payment system and financial inclusion in this conference which is focused on '*innovating to unlock the next decade of banking*'. I intend to highlight the recent trends, the current challenges and the emerging issues in fostering new payment methods and instruments with focus on the inter-linkages between a robust payment system and a sustainable financial inclusion.

Role of Payment Systems in Financial Inclusion

3. Global Partnership for Financial Inclusion (GPFI), a forum of G-20, defined financial inclusion as '*a state in which all working age adults have effective access to credit, savings, payments and insurance from formal service providers.*' 'Effective access' involves convenient and responsible product and service delivery channels at a cost affordable to the customer and sustainable for the service provider so that the financially excluded population uses the formal financial services rather than the informal channels that provide convenient but costly services on near 24x7 basis. An efficient and ready-for-future payment and settlement system is expected to act as a catalyst to ensure this effective access and increase the pace of financial inclusion.

Payment System Vision 2012-15

4. The Payment system Vision Document: 2012-15 of the Reserve Bank envisages to proactively encourage

* Detailed version of the presentation made by Harun R. Khan, Deputy Governor, Reserve Bank of India at BANCON 2012 organised by the Bank of Maharashtra and the Indian Banks' Association on November 25, 2012 at Pune. The speaker acknowledges with thanks the contributions of Shri Simanchala Sahu, Shri G Srinivas and Shri Surajit Bose of the Reserve Bank of India.

electronic payment systems for ushering in a less-cash society in India. The vision is to ensure payment and settlement systems in the country are safe, efficient, interoperable, authorised, accessible, inclusive and compliant with the international standards. Payment systems would be driven by customer demands for convenience, ease-of-use and access that will propel the necessary convergence in innovative e-payment products and capabilities. Integration of various systems through unified solution architecture and current technology would lead to adoption and usage of resilient payment systems. Regulations would enable channelising innovations and competition to meet these demands consistent with international standards and best practices. The overall regulatory policy stance would be oriented towards promoting a less-cash/less-paper society, in a way a '*green*' initiative. The emphasis would be on the use of electronic payment products and services that can be accessed anywhere and anytime by anyone at affordable prices. Thus, the seven cornerstones of financial inclusion, *i.e.*, **A**ccessibility, **A**vailability, **A**ffordability, **A**wareness, **A**cceptability, **A**ssurance and **A**ppropriateness have been incorporated as basic principles to enable payment system to play a role of catalyst in furthering financial inclusion.

Payment System as Catalyst and Enabler for Financial Inclusion

5. The process of financial inclusion is influenced by both demand and supply side factors. Demand side factors include financial literacy and awareness, felt need for the products, credit absorption capacity, *etc.* On the other hand factors, such as, product availability, delivery methods, service providers, *etc.* influence the supply side. Payment systems have the potential of acting as a catalyst on the supply side of financial inclusion by way of appropriate designing and efficient delivery of products, processes and systems. In one of the recent surveys of the World Bank[1], more than 100 countries reported nearly 170 plus innovative retail payment instruments and methods being used for enhancing financial inclusion. Some of the common products involved Person to Business (P2B), Person to Person (P2P) and utility bill payments and a small proportion also reported tapping the payment system for transfer of government benefits. It was observed that innovative payment instruments & methods were drivers of financial inclusion in nearly 14 per cent of the countries surveyed.

6. In sync with the international developments, India has also been witness to some efficient and effective innovations – both in the field of access channels and products. In the payment system landscape of the country, the Reserve Bank of India acts as regulator, supervisor and, also at times, as a service provider. Certain major payment systems initiatives, such as, ECS, NEFT and RTGS have been game changers that have helped millions of people to use electronic medium for faster transfer of money from one place to another, and, to a large extent, the Reserve Bank played a critical role in the development of these products. It has, however, been observed that benefits of these facilities have not yet reached the vast segments of the population who are unable to access formal banking channels. The Business Correspondent (BC) based business model using low cost ICT has opened up an opportunity for the banking sector to provide appropriate payment system products at affordable cost. The continuous shrinking of prices of ICT based solutions can be used to provide the financial services using multiple delivery channels, such as, ATMs, kiosks, mobile phones, internet and contact and contactless cards through PoS. Innovations in product design and delivery channels have provided a fillip to the process of financial inclusion and the need for deeper and search for sustainable financial inclusion has paved way for many innovations. Traditional payment services no longer make a business case for large volume of small ticket transactions. This has led to many innovations, such as, special bank accounts or pre-paid accounts,

[1] World Bank Global Payments Survey, 2010

use of BCs, use of technology for initiating and authenticating transaction, *etc.* At the same time, it is important to realise that innovations have taken place and have been successful due to initiatives of all the stakeholders, partnerships of banks and non-banks and creation of an enabling business environment by the regulator and in the process have opened up new avenues for tapping the unreached markets.

International Approach

7. Some of the international experiences in this regard are worth mentioning to draw useful lessons that can be implemented in our country in the existing policy environment for financial inclusion. Countries like China, Brazil, South Africa, Mexico, Kenya and Philippines have implemented various technology-based financial inclusion programmes and their success stories have been replicated in various countries albeit with modifications based on local needs. Internationally, there are different approaches towards delivery of payment services to the unbanked and under-banked customers using innovative methods. For example, the BC model with traditional PoS devices and cards is used in Brazil and China. The Mobile based payments are extensively used in Kenya, South Africa, Philippines and Mexico. A few countries like the USA and China use pre-paid payment cards as an instrument to provide payment and banking services to the unbanked population. Broadly there are three models: (i) bank-led model (*e.g.,* Brazil/South Africa), (ii) non-bank led model (*e.g.,* Kenya), and (iii) hybrid model (*e.g.* Philippines). These models have evolved taking into account the factors like banking penetration in a country, levels of literacy, availability of necessary eco-system, *etc.* In the context of technology-enabled financial inclusion the success stories of Brazil, Kenya and Philippines are often quoted. Let me briefly mention about their business models.

Brazilian Banking Correspondent Model

8. Brazil adopted a 'correspondent' banking model to expand the reach of banking services to its remote areas. The success of this model can be gauged by the fact that while there were 63,509 agents in 2000, their number had grown to 132, 757 by January 2010. This enabled the spread of banking and financial services to even the far-flung areas of Brazil. The PoS devices with cards are used for providing a wide range of services from deposit taking, money transfers, opening accounts, bill payments, verifying and forwarding documentation to provide credit, *etc.* This wide network has also helped in the delivery of government benefits to families covered under the *Bolsa Família* programme. It enables the beneficiaries to withdraw their benefits locally, without having to travel long distances and has resulted in reducing the transaction costs to the government in providing social payments.

Kenyan Non-bank MNO Model

9. In 2006 one of the leading mobile operators of Kenya launched M-Pesa, an m-commerce payment service, aimed at the unbanked. M-Pesa enables customers to exchange cash in return for an e-money account which is stored on the server of a non-bank, such as, a mobile operator or an issuer of stored-value cards. The balance can be used for making payments, storing funds for future use, transferring funds or converting back to cash, *etc.* In Kenya, the latest available data shows that the number of M-Pesa mobile phone money transfer service users is around 14 million. Its agent network has also increased to close to 28,000 outlets. The M-Pesa model has been a major success in providing mobile payment services, especially for remittances to the Kenyan citizens. In neighbouring countries, however, the quest to replicate the model has proved to be quite challenging and has not been as successful. One of the primary reasons attributed to the difference in the levels of success in Kenya as compared to other neighbouring countries is the existence of only one dominant Mobile Network Operator (MNO) in the country.

Philippines Hybrid Model

10. SmartMoney was launched as a remittance product by an MNO (*viz.,* Smart) in partnership with a commercial bank (*viz.,* Banco d'Oro). While the MNO managed the brand and execution of the service, the underlying product was akin to a pre-paid account of the bank. This was a classic example of bank-supported model where the MNO assumed product and marketing leadership. Unlike SmartMoney, the fundamental difference in G-Cash, another product launched in Philippines, was that the G-Cash model did not have a bank to assume direct liability for the deposits of customers. This was due to the fact that G-Cash was itself the issuer of the mobile money account. In other words, this was a non-bank led model. The retail accounts were actually held by a wholly owned subsidiary of the MNO, and, therefore, somewhat ring-fenced from the operational cash flows of the MNO although in reality the MNO was assuming liability for a type of deposit. The aggregate balances of G-Cash would however be held as deposits in banks that are regulated by the central bank of the country.

11. The above examples illustrate the use of different methods to further the goals of financial inclusion. While in the case of the Brazil it is the PoS device along with the card (a somewhat traditional mode) with the business correspondent which is enabling financial inclusion in Kenya and Philippines, it is the mobile technology which is driving this effort. As can be seen from these examples, policymakers and regulators, especially in developing countries and emerging markets, are adopting different models to reach to unbanked and under banked customers taking into account the regulatory comforts based on financial sector eco system and security in providing safe payment systems using different technologies.

The Indian Reality and the Policy Approaches

12. If we consider our own banking eco-system, it has about 95,000 branches, about equal number of ATMs across the country and 278 million debit cards. Yet a large proportion of our population remains financially excluded. Data indicates that only about 40 percent of the adult population in the country has a bank account; only 25,000 plus villages have a bank branch out of the 600,000 villages in the country. Only 13 percent of the people have a debit card and only two percent have a credit card. The same low level of penetration is seen for both life and non-life insurance products. The select indicators of financial inclusion (Table) also prove that India has a long way to go in achieving the desired levels of financial inclusion.

Table: Select indicators of FI: cross-country comparison

Country	Number of branches (per 0.1 million adults)	Number of ATMs (per 0.1 million adults)	Bank loan as per cent of GDP	Bank deposits as per cent of GDP
India	10.64	8.90	51.75	68.43
Australia	29.61	166.92	128.75	107.10
Brazil	46.15	119.63	40.28	53.26
France	41.58	109.80	42.85	34.77
Mexico	14.86	45.77	18.81	22.65
United States	35.43	-	46.83	57.78
Korea	18.80	-	90.65	80.82
Philippines	8.07	17.70	21.39	41.93

Source: Report on Trend & Progress of Banking in India, Reserve Bank of India 2011-12

13. As the Indian financial system is pre-dominantly led by banks, the financial inclusion policy orientation has naturally been biased towards the bank-led model. The non-bank entities, however, play an important role in providing necessary support to expand the reach particularly for the banks, crossing the proverbial last mile. The issue is given the geographic spread of the unbanked and the low level of financial literacy, how do we step up the public policy objective of financial inclusion? One eminently feasible way to overcome the challenge is by tapping existing and innovative technologies, especially in the realm of payment systems. This can be accomplished by providing access to the formal banking channel for activities,

such as, remittances. Another method could be to provide alternate payment instruments, other than cash, for both P2P and P2B payments, such as, prepaid payment instruments (PPI). The payment systems, thus, can be considered as effective tools working on the supply side of financial inclusion by providing products and systems for fulfilling the payment needs of the financially excluded while the demand side is propelled by the desire of the excluded segment to make use of formal banking channel for their banking and payment needs. The Reserve Bank of India and the Government has been working to create an enabling environment for providing payment system infrastructure and services as supply side response to emerging demands for deeper financial inclusion arising out of heightened awareness, requirement of the Financial Inclusion Plans (FIP) being implemented by banks and the moves of the Government to electronically transfer large number of benefits/ entitlements to the citizens.

Use of Business Correspondents (BCs)

14. One of the major experiment as the supply-side enabler for financial inclusion has been the Business Correspondent (BC) model. The BC model is meant to be a low cost alternate to the brick and mortar banking network with an ability to reach the unbanked/under-banked population. In spite of the difficulties faced while implementing the first phase of FIP, as on September 30, 2012 banks could open 1,58,159 BC outlets providing access to financial services in 1,99,702 villages in the country. This initial period of test and learn phase has made the stakeholders understand the issues involved. The experience, thus, gained has enabled evolution and further rationalisation of the policy framework. There are, however, constraints which have to be addressed effectively for the successful implementation of the BC model. I would not dwell on them here except to state that all the stakeholders are determined to overcome them as they gear up to meet the challenge as we embark on second phase of financial inclusion under which all villages with the population of less than 2000 would be covered. Going forward, the challenges would be leveraging the products & processes now available or on the anvil (*e.g.* integration of financial inclusion server with CBS server, implementation of inter-operable micro ATMs, resource sharing with other banks and non-banks, use of RFID technology, expanded usage of Aadhaar enabled infrastructure, *etc.*) and adapting the innovations that can not only enhance the FIP but also prove to be a sustainable business model. This would require answers to questions, such as, whether banks need to innovate by tapping their own infrastructure and resources or is there a business case in setting up shared infrastructure. I am sure that innovations through such collaborations would definitely unlock the immense business potential that the Bottom of the Pyramid (BoP) customers offer through the ICT based BC model.

Aadhaar-enabled unified payment infrastructure

15. Here I would like to specifically touch upon the Aadhaar-enabled unified payment infrastructure. The issue of direct transfer of subsidies (DTS) and electronic benefit transfer (EBT) from the Government to the intended beneficiaries has been in focus of the policymakers in the recent times. Both the schemes are based on an innovative approach of using Aadhaar based platform as a unique financial address for transferring financial benefits to the accounts of beneficiaries and helping them to withdraw/use such benefits as per their convenience. The mechanism involves tapping the existing banking channels including the BC network to route all payments electronically to the accounts of the beneficiaries using Aadhaar as an authentication mechanism. BCs would be equipped with micro-ATMs and undertake transactions on the basis of Aadhaar number and bio-metric authentication. The financial transactions are routed through the Aadhaar Payments Bridge. The Aadhaar-enabled Payments System (AEPS) using micro-ATMs enables the beneficiaries to operate these accounts for withdrawal, deposit and remittance

purposes. The volume of transactions that are likely to be routed through the AEPS is expected to register an exponential growth. The report of the Task Force on Direct Transfer of Subsidies (DTS) (Chairman: Shri Nandan Nilekani) highlights the huge business potential this eco-system presents to the stakeholders with electronic benefit transfer/DTS payments adding upto roughly 3.5 per cent of the GDP and another ₹ one trillion estimated as business opportunities in the form of domestic remittances. Given such large numbers, we are looking at huge transaction volumes. The issue, however, is whether the industry is geared for this expected surge in volumes by pro-actively taking measures to upgrade the processing capacities, mapping Aadhar with beneficiary account numbers and working in collaboration with Central and State Governments to digitise the data bases in quickest possible time.

Mobile penetration

16. Given the high level of acceptance and penetration of the mobile telephone in India, there is a case to further leverage this for providing banking services to the people at the bottom of the pyramid. Worldwide it has been recognised that the mobile telephony has the potential to universalise access to banking and payment services in a low-cost and seamless manner to the existing and potential customers. Latest data released by the Telecom Regulatory Authority of India (TRAI), the mobile subscriber base of the country as at end-October 2012 is 904.23 million with the urban subscribers accounting for 62.68 percent (566.81 million) and the rural subscribers for 37.32 percent (337.42 million). Available data indicates that the use of mobile banking services amongst this huge base of subscribers is, however, very low. Even amongst the existing bank customers, less than one per cent are covered under the mobile banking services. Notwithstanding the existing low base of customers, the growth in mobile banking transactions has shown an increasing trend. For example, in the month of October 2012, 4.44 million transactions amounting to ₹4.97 billion were processed as compared to 2.25 million transactions amounting to ₹1.61 billion processed in October 2011 – an increase of about 197 per cent in volume and approximately 308 per cent in value terms. It is, however, evident that the potential of mobile banking technology is yet to be fully exploited, even though the numbers may look impressive. It is also evident that mobile banking is yet to gain the critical take-off stage that would propel it to provide banking/payment services at a cheaper, secure and seamless manner to the existing and potential customers.

Interbank Mobile Payment Systems

17. The Interbank Mobile Payment Systems (IMPS) is a mobile based payments system and is owned and operated by the National Payment Corporation of India (NPCI). The IMPS facilitates access to bank accounts and transfer of funds through mobile phones. The system, launched in November 2010, provides real time transfer of funds between the customers of different banks on 24x7 basis. Initially enabled only for P2P remittance, NPCI has been given approval to use this innovative payment system for Person-to-Merchant (P2M) payments as well. This is expected to give a fillip for IMPS usage. Pilots are on to use IFSC code and bank account number or the Aadhaar number of the beneficiary for money transfer using IMPS. This important development is expected to make it easier for the customers to use IMPS as it is no longer a requirement that the beneficiary mobile number is registered with the destination bank and there is no requirement for a Mobile Money Identifier (MMID) for the beneficiary customer. IMPS has also been enabled for usage over ATM and internet banking. The existing two factor authentication for both these channels have to invoked while making payments through IMPS, *viz.,* card plus PIN for ATM and user ID plus net banking/transaction password for internet banking. In view of its multi-channel capabilities it has now been rechristened as **IM**mediate **P**ayment **S**ervice. NPCI is now attempting to provide frontend

consolidation to banks in the form of common Unstructured Supplementary Service Data (USSD) platform to enable the users to use low end mobile handsets that do not require any specific application to do mobile payments/banking. These innovations in IMPS are expected to promote mobile banking transactions in the country in a big way.

Electronification of KCCs

18. The smart card linked, mobile based and Aadhar enabled KCC, popularly known as m-KCC, was launched in July 2012 and is seen as a great example of harnessing the latest technology for user friendly applications for financial inclusion of farmers. Anecdotal evidence, however, indicates that banks are yet to launch the product in a big way. Another similar experiment relates to the *Rupay Kisan Credit Card* launched by the NPCI. The banks certified to issue such cards are found to be issuing only ATM cards and not *Rupay* debit cards. The PoS terminal network which has crossed 0.6 million has low acceptance of *Rupay* cards. The lack of infrastructure is causing limited use and acceptability of *Rupay* cards. It is rather surprising to note the lackluster response of the banks and their inability to identify the business potential in such innovative products.

Access Criteria

19. To facilitate wider access to payment systems both centralised (*viz.,* NECS, NEFT and RTGS) and decentralised (*viz.,* MICR, ECS, RECS), membership criteria have been rationalised and made open to all licensed banks. An alternate mechanism of sub-membership has also been opened for accessing centralised payment systems for all licenced banks like the Regional Rural Banks and Co-operative banks which have the capabilities but are not participating in centralised payment systems on account of either not meeting the access criteria or because of cost considerations. The sub-membership route has been provided to expand the reach to all banks even those located in smaller centres. This is expected to deepen the reach of the electronic payment systems and provide the benefit of modern electronic payments to people in smaller centres as well.

Domestic Money Transfer

20. Relaxations in domestic money transfer guidelines have been made to provide remittance facilities in a safe, secure and efficient manner targeting particularly the large migrant population. Three schemes involving cash pay-out/cash pay-in and card-to-card transfers have now been made available. These schemes are; (a) cash pay-out arrangement for amounts being transferred out of bank accounts to beneficiaries not having a bank account with a transaction cap of ₹10,000 subject to an overall monthly cap of ₹25,000 per beneficiary; (b) facility for walk-in customers not having bank account (*e.g.,* migrant workers) to transfer funds to bank accounts (of say, family members or others) subject to a transaction limit of ₹5,000 and a monthly cap of ₹25,000 per remitter; and (c) facility of transfer of funds among domestic debit/credit/pre-paid cards subject to the same transaction/monthly cap as at (b). The first two schemes involve a bank account at one end of the transaction for facilitating fund transfers. Simultaneously, the customer charges have been rationalised, especially for amounts upto ₹10,000 in NEFT & the same has been now capped at ₹2.50. Taking advantage of these policy measures, one of the banks has implemented a '*green channel card*' for walk-in customers who regularly send money to a particular account. Under the scheme, details of name and address of a walk-in customer alongwith the beneficiary's name, account number and the IFSC code of the beneficiary's branch are captured on a mag-stripe card. The cardholder can swipe the card at a branch/ATM/kiosk of the bank and remit money to an account holder of any other branch of the bank. This mechanism helps in avoiding repetitive filling up of forms by a walk-in customer & lowering the operational risk involving transactions based on inaccurate data in a cost effective manner.

Rationalisation of Merchant Discount Rate (MDR) for Debit Cards

21. Debit cards in India far outnumber the number of credit cards in India. Their usage, however, reflects that they are predominantly used at ATMs to withdraw cash and not used at merchant establishments probably due to the lack of depth of penetration of PoS, terminals, especially at smaller merchant locations. This is on account of the fact that the MDRs for debit and credit cards were uniform and acted as a disincentive. This was somewhat strange given that a debit card is a secured product while a credit card is part of the unsecured credit product portfolio of the banks. To encourage the acceptance of debit cards at smaller merchant terminals, Reserve Bank has introduced a differential MDR for debit card transactions. A lower MDR is expected to act as an incentive to even the smaller merchants to accept card payments as the fee payable by them to the acquiring bank would be relatively small. As the policy measure has been recently unveiled, the Reserve Bank is keenly watching the market for further developments.

Rationalisation of PPI Guidelines

22. To provide a boost to cash-less transactions and bolster the issuance of semi-closed PPIs, the five categories of semi-closed PPIs have been replaced with three broad categories. The first category of instruments up to ₹10,000 can be issued in electronic form with minimum details of the customer. Total outstanding at any point of time and total value of reloads in a month cannot exceed ₹10,000, the second category of instruments, which can vary from ₹10,001 to ₹50,000, can be issued in electronic but non-reloadable form by accepting any 'officially valid document' defined under Rule 2(d) of the Prevention of Money Laundering Act and in the third category instruments upto ₹50,000 can be issued with full KYC and can be reloadable in nature. We have taken these measures in order to deepen the semi-closed PPI market in the country and facilitate small value transactions without involving bank accounts. Consequent upon such relaxations, all the three categories of PPIs can be used for domestic money transfers. There is thus tremendous scope for the non-bank PPI issuers and banks to work together to facilitate domestic funds transfer. The issue, however, is if the banks and non-bank issuers of PPIs are in a position to forge meaningful partnerships. Without such partnerships taking root, domestic remittances through this channel will not materialise to the extent that they should. In such a scenario, the PPIs will continue to be used for the limited purposes that they are being used today and would not really aid in financial inclusion.

Role of Non-banks

23. Subsequent to the enactment of the Payment and Settlement Systems Act, 2007 the Reserve Bank has authorised non-banks to enter the retail payment space. The non-banks have pre-dominantly gravitated towards PPI issuance and it is hoped that the recent rationalisation of the PPI guidelines, as mentioned earlier, will spur their efforts in increasing non-cash transactions in the economy. Given that semi-closed PPIs can be used for funds transfer, we are keenly awaiting the developments in this area. Non-banks have now been allowed to set-up and operate ATMs under the scheme of White Label ATMs (WLAs). This has been done to increase the penetration and deployment of ATMs, especially in the smaller Tier III to Tier VI centres, thereby extending anytime, anywhere banking facility to a wider segment of population. But for this venture to succeed there has to be a complementarity between the banks and non-banks. Unless the financially excluded are brought into the ambit of banking and cards are issued the infrastructure in the form of ATMs will remain unutilised. Further, the ATMs, existing & those in the pipeline, need to have the facilities for multiple utilities so as to reduce the demand for cash & provide value added & cost effective services to the customers.

Policy Measures on the anvil

24. I shall now briefly touch upon some of the policy measures which are on the anvil to fasten the process of financial inclusion through supply side payment system enablers. As I have mentioned earlier, one of the key variables as one can notice in our Payment System Vision document is the emphasis on promoting access and inclusion. To this end, the Reserve Bank has indicated an intention to provide a regulatory framework for the introduction of technology based innovative products for the use of all. Reserve Bank has also noted the need for ensuring the availability of low-cost and safe domestic remittances to large number of unbanked population and migrants through appropriate technology and affordable cost has also been emphasised.

25. The proposed introduction of International Bank account Number (IBAN)/Basic Bank Account Number (BBAN) is expected to result in efficiency in the system through introduction of a single parameter (*i.e.*, the account number) that would replace different types of bank/branch codes (*e.g.*, IFSC, BSR code, MICR code, SWIFT BIC code, *etc.*). IBAN's primary purpose would be to facilitate (i) domestic/ cross-border inter-bank electronic payment, (ii) avoid routing errors in domestic/cross-border payments, (iii) facilitate straight through processing and (iv) enable making payment in a reliable manner as remitter can validate the beneficiary account number. This is being studied by a committee (Chairman: Shri Vijaya Chugh) which is looking at the entire gamut of bank account number system. A committee has also been constituted (Chairman: Shri. G. Padmanabhan) to recommend feasibility of paper based and electronic GIRO payment system, dove-tailing the existing payment system infrastructure. The GIRO is a payment instruction effected by a payer for credit to payees account through any bank branch. It is akin to anytime anywhere payment. In the case of cheque GIRO, the model is essentially to facilitate customer of one bank to deposit cheques drawn on another bank at the counters of the branch of a third bank for collection/realisation of proceeds through the existing clearing infrastructure. Providing an organisational framework for proliferation of PoS so as to expand the card acceptance infrastructure is another priority area of the Reserve Bank of India. The regulatory stance thus would continue to facilitate innovations to achieve the goals of inclusion, accessibility and affordability while remaining technology neutral. Convergence in innovation would, however, be the key area of focus.

Emerging Issues for the Banks: The 7'C Framework

26. Having highlighted some of the current challenges in tapping the payment systems for deeper and sustainable financial inclusion, I shall now highlight a few issues that need to be addressed by banks if they have to unlock the potential of an efficient business model for meaningful financial inclusion. I shall now use a 7'C framework to put forth my views. The 7'C framework comprises: *Cost*, *Convenience*, *Confidence*, *Convergence*, *Commitment*, *Consumer Protection* and *Communication* – all of them critical for both the payment system and the financial inclusion.

Cost

27. Cost is an important component to ensure affordability of modern electronic payment systems to the financially excluded. Stakeholders need to leverage technology to create efficient systems and processes to reduce transaction costs so that the products can be accepted and accessed by more number of people creating volume. The cost of transactions needs to be based on trade-off between affordability for the user and sustainability for the provider. The benefit of reduction in transaction costs should be passed on to the customers, especially at the BC outlets. The corollary to the increase in the number of transactions is that it would make the BC outlets viable. It is, therefore, necessary that appropriate plans are put in place for effective technology deployment in payment systems and products to reduce costs.

Convenience

28. It is important to ensure the convenience and comfort of the customers when they are offered payment products. For reaching the unbanked people, simple innovative solutions, such as, providing text and voice facility in local languages, standardised coloured icons of ATMs for easy recognition, standardised layout of ATM screens, biometric authentication, *etc.* would enable greater acceptability. Further, the number of BC outlets needs to be increased to provide easy access to people. Banks may consider having exclusive BCs to handle remittance by appointing more number of merchant establishments in urban areas where migrants can avail of remittance service facilities. One of the difficulties faced by migrants undertaking a remittance transaction is providing/ writing the IFSC code. Banks and BC outlets should proactively help the customer in getting and filling up the code, particularly for the less educated customers.

Confidence

29. The primary component of acceptability of any financial product, particularly when it is an ICT based product, is the level of confidence of the user. Confidence is built by providing a secure and robust banking and payment system with very high standards of integrity. Zero liability to inculcate confidence in electronic transactions is an option which should be explored and implemented early. Robustness of the system can be ensured through regular Business Continuity Plan (BCP) and Disaster Recovery (DR) exercises. Systems should be put in place to arrest number of phishing and identity theft cases pertaining to card, mobile and internet banking. IT security systems like redundancy, firewalls, anti-virus updation, role-based access system should be reviewed at frequent intervals to fight the attacks. Banks may tap the services of Mobile Banking Security Lab (MBSL) set up by Institute of Development & Research for Banking Technology (IDRBT) to test security of mobile banking platform and products. Some banks have implemented the system of sending alerts and confirmations using SMS on the status of the payment processing during the transaction life-cycle of an electronic payment initiated by a customer. This has been very well appreciated by the customers. In short, technology alongwith appropriate simplified processes would help people to repose confidence in electronic payment system.

Convergence

30. Convergence is the key to provide payment system and banking services through different delivery channels. Collaboration between the MNOs and the banks would enable leveraging strength of each other in facilitating financial inclusion at less cost. Convergence of technologies like interoperability of various delivery channels and processes would result in reduction in costs in providing services and would provide wider choices to the users. The usage of shared infrastructure like cloud computing in some of the low ticket size but high volume transaction handling areas would help banks to stay competitive. Congruence in products and processes shall bring in uniformity across the banks and help in creating standardised products that can be easily understood by the consumers. Convergence among banks in the processes and technology would provide facilities to customers to do transaction at any branch of any bank irrespective where a person maintains the account, leading to universal banking experience.

Commitment

31. Although technologies, products, policies and processes help in creating enabling eco systems for financial inclusion, commitment at the top to take the process forward is the need of the hour. The commitment at the top should be reflected in growth of business volume from the targeted group and increase in accessibility to the banking and payment system services to the hitherto financial excluded groups. The ICT based BC model as a delivery channel stands on three pillars, *e.g.,* branch manager/BC/CSP and the technology service provider. Lack of commitment at

any one level will not sustain the delivery channel. Therefore, the Top Management of the banks have to continuously review systems and processes to ensure the three pillars are in alignment with each other. The persons who provide services at the last mile (*viz.,* BC/CSP) matter a lot in the entire business chain. They are to be, therefore, taken on board by providing adequate remuneration and incentives to motivate them to deliver the services at the doorsteps of the customers besides appropriate training on products, processes and customer service.

Consumer Protection

32. With increasing complexities of technologies, products and processes that are being offered to the consumers, consumer protection has assumed critical importance. Apart from the creating environment for informed decision making, the consumer protection policies need to provide protection against unfair and deceptive practices, enable consumers to easily access the recourse mechanisms to resolve disputes, and ensure maintenance of privacy/secrecy of personal information by the service providers. Therefore, a cost effective and accessible consumer grievances redressal mechanism particularly as we add more & more less informed BOP customers to our fold needs to be integrated into all products, processes and business models of the banks instead of leaving it to the regulators alone. People should feel assured of getting timely redressal of their grievances without much of a hassle. Simultaneously, technology should be used extensively for resolving and monitoring grievances without waiting for getting a complaint from customer.

Communication

33. Establishing communication channel with the targeted people on products and services plays an important role in advancing financial inclusion. Consumer awareness on risks and reward attached to various banking and payment system products including its proper usage has to reach to the people in the language which they can relate to and understand. Banks need to build skill sets of their employees and BCs on matters like convincing people to use ICT based banking services and subscribe to different payment system products to make the financial inclusion a viable proposition. The security aspects and the responsibility of the users in respect to each product should form a part of the consumer communication programme. The financial outreach, town hall events and roadshows organised by various entities including the Reserve Bank are positive steps in this direction. The mass media should also be suitably exploited to create consumer awareness. To popularise the electronic payment products among the stakeholders like merchants and consumers, Electronic Banking Awareness and Training (e-BAAT) programmes are being planned by the Reserve Bank along with the banks. Banks have to very clearly focus on the communication aspect if they have to reap the benefit of modern payment system products & processes which have to be understood & then used by the wider segments of the population.

Concluding Thoughts

34. Given the extent of financial exclusion in our country, both in terms of quality & quantity aspects, financial inclusion efforts have to be vigorously pursued by all the stakeholders. Many challenges, however, still remain. Banks need to think differently to bring more innovations to realise the aim of a financially inclusive society. Payment systems being one of the main building blocks of the financial inclusion all the stakeholders need to work on technologies, processes and products to achieve the desired goal of providing access to formal financial services to the unbanked/under-banked population in a time bound manner to match the growing aspiration of people. Simultaneously, it is critical to recognise that financial services provided under financial inclusion plans do not jeopardise the stability to the financial sector, ensure integrity in transactions and provide adequate consumer protection. Reaching the unbanked areas through agents like BCs using

technology and by offering suitable payment products to keep the business model sustainable is a challenge. This challenge has to be squarely met to further the public policy goal of sustainable and meaningful financial inclusion through constant endeavours to address the emerging issues of **C**ost, **C**onvenience, **C**onfidence, **C**onvergence, **C**ommitment, **C**onsumer Protection and **C**ommunication.

35. The greatest challenge that beckons the banks is how do they bring out innovations in processes & products that are people friendly, in other words, focus has to be on 'grounded innovation'. Lars Erik Holquist, Principal Research Scientist at Yahoo Labs Eco says '*An innovation is more than just a great idea…. Innovation requires attention to other people: what they value and what they will adopt. It must contribute to transformation in a society and be adopted by users.*' Grounded innovation '*is an approach that aims to balance the two axes of inquiry: understanding how the world works and invention. Today we are living in a world where we have to consider both technology and users as drivers of innovation. Simply put, grounded innovation is when your technology meets utility*'. In today's context, we are probably at the inflexion point of grounded innovation as far as financial inclusion and payment systems are concerned. The need of the hour is to unlock the next decade for people at the bottom of the pyramid waiting to be financially included. All the stakeholders, therefore, need to think differently to bring more innovations for universal financial inclusion by harnessing the developments in the payment system.

Thank you all for patient hearing.

*Promoting Retail Investor Participation in Government Bonds**

Harun R Khan

I am extremely happy to be invited for this important conference on capital markets organised by the ASSOCHAM, I am particularly pleased as the focus of the conference is on Investors who alongwith Issuers, Instruments, Intermediaries, (market) Infrastructure, Incentives & Innovation constitute, what I call, the 7' I critical pillars of a robust and resilient debt market. Given the low level of participation of retail investors in equity and more so in debt markets, the specific theme of the conference aimed at the retail investors is most appropriate. Retail participation in financial instruments has assumed critical importance as the overall savings rate, which has been one of the strong points of our economy, has declined from the high of about 37 per cent to about 32 per cent of the GDP and the share of household financial savings as percentage of GDP has also declined from about 12 per cent to eight per cent last year.

2. As the conference schedule indicates that different aspects relating to upscaling of retail participation in the financial markets have been discussed, I have chosen to share my thoughts primarily on one very important segment of the financial market – that of Government securities (G-sec) where retail participation has been unsatisfactorily non-existent. I would briefly look upon the importance of the G-sec market and the need for participation of the retail investor in this market, motivations for such investors for choosing G-sec, measures taken by the Reserve Bank of India to encourage participation of retail/mid-segment investors, constraints on their participation in this market and some thoughts on measures that could be taken to fast-track the retail/mid-segment participation in G-sec market.

3. Over the past two decades since we began the financial sector reforms, Indian government bond markets have come a long way. The annual gross market borrowing of the Government of India and the State Governments increased from ₹122.83 billion in 1991-92 to ₹6686.32 billion in 2011-12. The amount of outstanding Government of India securities increased from ₹780.23 billion in 1991-92 to ₹27,881.56 billion in 2011-12. The monthly volume in secondary market on the electronic trading platform – Negotiated Dealing System-Order Matching (NDS-OM), which accounts for about 90 per cent of the trading, has increased from ₹314.30 billion in August 2005 to ₹2650.17 billion in November 2012. Over the years the G-sec market has become broad-based, with yield curve spanning upto 30 years. The infrastructure for trading, clearing and settlement in the form of trading platform of NDS-OM with the Clearing Corporation of India Limited (CCIL) acting as the Central Counter Party (CCP) can be considered as world class, making it one of the safest financial markets to transact. The fact, however, remains that the market is predominantly institutional.

Need for retail investors

4. The traditional investor base for G-sec in India comprised banks, provident funds, and insurance companies. With the entry of co-operative banks, regional rural banks, pension funds, mutual funds

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and non-banking finance companies, the institutional investor base has been reasonably diversified. There is, however, very little retail participation in the G-sec market.

5. Catering to the needs of retail investors is often an essential part of the overall strategy to develop a more diversified investor base for government securities. Reliance by governments on captive sources of funding whereby financial institutions are required to purchase and hold government securities is diminishing in many countries. Instead countries are developing a diversified investor base for their G-sec. In Indian context, the Statutory Liquidity Ratio (SLR) prescription in terms of which banks are required to hold certain percentage of net demand and time liabilities (NDTL) has also been declining.

6. Retail investors will contribute to a stable demand for G-sec, which, in times of volatility, can cushion the impact of sales from institutional and foreign investors. Retail demand has been developed in many countries through special non-tradable instruments although this strategy will not contribute to development of the G-sec market. In India, retail investors invest in small saving instruments issued by government some of which (*e.g.*, National Saving Certificate VIII issue) entail tax benefits enhancing their attractiveness. These instruments, however, do not have a secondary market thereby limiting liquidity and have no possibility of capital appreciation.

7. Promoting retail and mid-segment participation in G-sec market is beneficial to both the issuer and the investor. From the issuer's perspective, a diversified investor base for government bonds is important for ensuring stable demand in the market. A heterogeneous investor base with different time horizons, risk preferences, and trading motives ensures active trading, creating liquidity and allows borrowings at reasonable cost. From the investors' perspective, there is a need for investment options that provide decent returns and protect the capital. G-sec are apt investment products that would cater to these needs. In spite of such features, there is low retail interest in the government bonds and this investor apathy needs to be tackled by the regulators and market bodies.

Advantages for retail investors

8. For the retail investor, G-sec offer one of the better options for investment. The advantages for retail investors can be listed as under:

a. *G-sec are risk free*

G-sec in domestic market context are risk free and carry no credit risk. Though this assertion is being widely debated in wake of the events unfolding in the Eurozone sovereign debt crisis, the fact remains that G-sec in the Indian context are risk free.

b. *G-sec offer decent yields for longer duration*

Currently, G-sec offer yields ranging from 8.00 per cent to 8.30 per cent and the tenor of securities extend up to thirty years. With government issuing securities at different points on the yield curve, G-sec offer an attractive option for savers who need low risk investment options for longer durations.

c. *G-sec offer prospect of capital gains*

As there is an inverse relationship between bond price and interest rate, there is a prospect of capital gains when the interest rates moderate. One, however, must be conscious of market risks that could result in losses in case the interest rate cycle reverses.

d. *G-sec have reasonable liquidity*

G-sec have reasonable liquidity and can be transacted on NDS-OM. Retail investors can trade easily through banks and primary dealers with an SGL account in RBI.

e. *G-sec help to diversify portfolio*

Investments in government securities would help in portfolio diversification and consequently reduce risk for retail investors.

Drivers of retail participation

9. The low retail interest in government securities stems from reasons, such as, low awareness and understanding regarding the market; availability of competing financial instruments of broadly similar characteristics; high transactions costs for intermediaries and lack of convenient access to the market. For market development, it is necessary to develop efficient mechanism for delivering simple products to retail clients. In many emerging markets, the administrative and information technology costs of going straight to retail investors have been prohibitive. With advent of internet and wireless communication systems gaining wide acceptability, this situation is, however, rapidly changing, and possibilities for cost-efficient sale and distribution of government securities are increasing. Leveraging such new technology to access a broader set of potential investors could also have implications for the design and functioning of the market and could change investor profiles.

10. In order to promote retail participation, it is essential to promote financial literacy and investor education, ease access to the G-sec market by leveraging technology and incentivising intermediaries including use of obligation in primary dealers/banks, *etc.* to place securities with end investors; incentivising Collective investment vehicles, such as, mutual funds, to cater to investment needs of the retail investors in G-sec market.

11. They can also serve as an alternative placement for funds other than bank deposits, inducing more competition in this part of the financial sector, and can be a cost-effective way for the government to reach retail investors.

Measures taken by the Reserve Bank of India

12. Notwithstanding the predominantly institutional character of the G-sec market, Reserve Bank of India has recognised merit in promoting retail participation and has initiated several policy measures to this end (Box 1).

Box 1: Initiatives taken by Government and the Reserve Bank of India to develop retailing of G-sec

The Government Securities Act, 2006: The Act has several features, such as, allowing pledging the Government securities for availing loans, legal recognition of ownership to holdings in gilt accounts, introduction of nomination facility, *etc.* to facilitate retail investors holding G-sec.

Non-competitive bidding in primary auctions: Non-competitive bidding facility has been allowed in the auction of dated Central Government securities. This facility is open to any person including firms, companies, corporate bodies, institutions, provident funds and trusts not maintaining a current account or an SGL account with the Reserve Bank.

Introduction of odd lot: A separate odd-lot segment has been created for the purpose of retail participation wherein the minimum market lot size has been kept at ₹10,000 for G-sec and ₹25,000 for T-bills. Odd lot segment has trades below ₹50 million.

(Contd...)

(...Concld.)

Improvement in settlement mechanism: A new settlement mechanism (Multi Modal Settlement) through commercial banks has been put in place for entities not maintaining a current account with the Reserve Bank and not regulated by Reserve Bank.

Retail debt segment on stock exchange: Reserve Bank has permitted trading of G-sec on stock exchanges in 2003. NSE had launched a retail debt segment to encourage wider participation of all classes of investors across the country (including retail investors) in G-sec. In order to attract retail investors, minimum lot size has been kept low at ₹1,000 (face value).

Investor education: With a view to bringing about awareness among the smaller players, such as, co-operative banks, provident funds, trusts, *etc.*, the Reserve Bank has been organising workshops in major towns. Reserve Bank has also prepared a primer on G-sec market which is available on the Reserve Bank website (http://www.rbi.org.in/commonman/English/scripts/FAQs.aspx?SID=7).

Web based access to Gilt account holders: Reserve Bank has introduced a web-based facility wherein gilt account holders can participate in primary and secondary G-sec market using internet.

Incentives to financial institutions and intermediaries: PDs have been allowed to take into account non-competitive bids for fulfilment of bidding commitment and prescribed success ratio. Similarly, banks have been allowed for undertaking retailing in G-sec with non-bank clients on outright basis and there is no restriction on the period between sale and purchase. A scheme of liquidity support to the gilt funds has been put in place, under which Reserve Bank provides collateralised liquidity support up to 20 per cent of holdings in G-sec for a maximum period of 14 days.

Widening NDS-OM membership: With a view to widening the secondary market in G-sec to mid-segment investors, well-managed and financially sound Urban Cooperative Banks (UCBs) have been permitted to become direct members of NDS-OM.

Retailing by PDs: In order to bring more retail and mid segment investors in Government securities market, under new authorisation policy for PDs (2011), Reserve Bank of India has mandated primary dealers to achieve an annual turnover target on behalf of mid-segment and retail investors that should not be less than 75 per cent of minimum NOF.

DVP-III facility to gilt account holders: To enable the gilt account holders to get the benefit of efficient use of funds and securities, Reserve Bank has extended the DvP – III facility to all transactions undertaken by the Gilt Account Holders except transactions undertaken between Gilt Account Holders of the same custodian.

13. To ease the process of investment by retail/mid-segment investors, a web-enabled platform which would seamlessly integrate their funds and securities accounts has been planned by the Reserve Bank of India. Some major banks have also initiated measures like on-line trading portal for the retail investors. Recently, the Reserve Bank has introduced a web-based solution for direct participation of all gilt account holders in the primary auction for G-sec as well as the secondary market transactions (Box 2).

14. Considering wide reach of exchanges, approach of allowing retail investors to access the G-sec market through stock exchanges can be one of the most feasible options. The Reserve Bank had also allowed buying and selling of government securities through stock exchanges since 2003 to facilitate easier access and wider participation. Trading volumes, however, continue to be very low in the exchanges. The Working Group on Enhancing Liquidity in the Government Securities and Interest Rate Derivatives Markets

Box 2: Web-based access to retail and mid-segment investors in G-sec

In order to facilitate direct participation of retail and mid-segment investors in the secondary market for G-sec, a web-based secondary market module was launched in NDS-OM in June 2012. The web-based system is in addition to the existing voice market. Before the launch of this facility, various non-NDS members {Gilt Account Holders (GAH)} were placing their bids through Primary Member (PM), *i.e.,* the NDS Member with whom GAHs have gilt account and current account. In the web-based system, PMs continue to be responsible for settlement of both the fund and security leg of the G-sec transactions of GAHs. In the web-based system, the GAHs are in a better position to control their orders and have access to real time live quotes in the market which enhances transparency. Further, they are better placed to manage their position since notifications of orders executed as well as various queries are available online. The GAHs have shown a reasonable interest in web-based secondary market platform.

To further enhance the access of GAHs to Primary Auction system, the Reserve Bank has also introduced an internet based solution wherein GAHs were given direct access for participating in primary auctions. With the introduction of this facility, GAHs have better control over their bids and can participate more effectively in the primary auction process. PMs continue to be responsible for the settlement of such bids placed by their GAH as earlier.

As the Core Banking Solution (E-Kuber system) of the Reserve Bank of India replaced Primary Auction module, Reserve Bank is in the process of providing similar features (as in web-based system) in CBS E-Kuber system.

(Chairman: R. Gandhi) [Gandhi Committee] had examined this aspect and had made recommendations to simplify operational procedures for seamless movement of securities from SGL form to demat form and *vice versa* and permit banks and PDs to obtain limited membership of stock exchanges for undertaking proprietary trades in G-sec on the exchanges to promote trading of G-sec on stock exchanges. The Reserve Bank is examining the recommendations in consultation with all the stakeholders. It would be interesting to note that Australia recently passed legislation to enable retail trading of Australian government securities on the Australian Stock Exchange. The Australian government has put a mid-2013 timeframe for trading to commence. All benchmark bonds issued by the Australian government, including Treasury bonds and Treasury indexed bonds will be available for trading. In India, by improving access to order matching platforms and promoting safe clearing and settlement systems, widening access to retail investors is being pursued with vigour.

Factors inhibiting retailing of G-sec in the Indian context

15. Penetration of G-sec to individuals could not be achieved mainly on account of the competition from other instruments, many of them having tax benefits, such as, small savings schemes from the Government like Savings bonds and National Savings Certificates (NSCs). These instruments are targeted at the retail investors and the effective return on these instruments work out to be higher than the yield on marketable securities which have no tax concessions.

16. The predominance of institutional investors and large borrowing needs of the issuer, *i.e.,* 'the sovereign' resulted in market is characterised by very large transaction size. Though we have provided odd lot segment in NDS-OM for trading in small lot size, there

are not many quotes available, thereby discouraging small investors. Thus, the present market for G-sec is not well suited to retail/individual investors who trade in small amounts and are generally buy-and-hold investors. Moreover, G-sec are not actively traded on stock exchanges.

17. Since volatility in prices of fixed-income securities is low *vis-à-vis* equity, investors generally gain through small changes in prices of debt instruments by committing large amounts. While institutional investors, by nature, are big players who transact in large amounts and also have access to funding markets both collateralised and un-collateralised, they are in a better position to transact in this market. Due to a lack of similar facility to individual investors, they are not in a position to trade in these instruments. Thus, speculative interest of retail investors is minimal in G-sec.

18. Normally, retail investors participate in sovereign debt market through mutual funds (MF). G-sec holdings of the mutual funds, however, are also very low and as per latest information available, their holding is around 0.5 per cent of total outstanding G-sec. Of course in the recent times, thanks to huge spurt in market volumes due to transient as well as structural factors providing huge potential for capital gains, G-sec has received greater attraction of the MFs including the gilt funds. One of the reasons for lack of adequate participation of MFs in G-sec is lack of tax concessions on income from debt oriented MFs on lines similar to tax concessions already in place for investment in equity oriented MFs. It may be noted that dividend received by unit holders, dividend distribution tax payable by mutual funds, long-term capital gain are exempted from tax in case of equity oriented mutual funds. Unlike equity oriented MFs, debt MFs are subject to dividend distribution tax at the rate of 12.5 per cent. Besides they are subject to tax on long-term capital gains at 20 per cent of capital gain after allowing indexation benefit or at 10 per cent flat without indexation benefit, whichever is less and short-term capital gains are subject to tax as per the tax bracket applicable to the investor. Such differential taxation acts as a disincentive for mutual funds investments.

19. Lack of investor awareness is another factor impacting retail interest in G-sec market. The market is complex and awareness of the risks and rewards relating to investment opportunities is limited. The terminology like yield curve, yield to maturity, *etc.* may not be easily comprehensible for a common investor. The market participants/intermediaries have not been proactive in providing adequate information/ investor education.

The way forward

20. In India, the need to convert savers into investors is paramount. As described in the draft National Strategy for Financial Education, large participation of domestic retail investors in securities market will reap dividends by increasing depth of securities market, reducing dependence on foreign investors and domestic savers reaping benefits of economic growth. In this regard, all stakeholders including Government, the Reserve Bank and financial institutions must treat promoting retail participation in G-sec market as a priority. I will detail few thoughts on the steps we need to take to revitalise the retail/mid-segment participation.

Improving investor awareness & education

21. Knowledge empowers investors. In case of G-sec market, the investor awareness is low. The national

focus on inclusive growth recognises that financial literacy and education play a crucial role in financial inclusion. Draft National Strategy for Financial Education (NSFE) for India has been prepared under the aegis of FSDC and is in public domain. This document clearly articulates the future vision relating to financial literacy and empowerment leading to inclusive growth. The draft Strategy seeks to create a financially aware and empowered India. There is a need to encourage awareness among retail investor class to promote G-sec as an alternate investment instrument. In pursuit of this objective, stakeholders must make concerted efforts for investor education with regard to G-sec market. Given their reach, media, both print and electronic, have also very important role to play here. Banks, PDs, financial institutions and stock exchanges may take lead in this endeavour by creating awareness about the products, risks and rewards associated with G-sec market. The Reserve Bank has been spreading awareness to mid-segment investors by conducting training sessions/seminars on regular basis.

Launching of new products

22. There is merit in the issuer focusing on products catering to the retail investors. For instance, special bonds called *Obligasi Ritel Indonesia* (ORIs) are issued by the Government of Indonesia, especially for retail investors. These bonds carry higher yields compared to other fixed income options including time deposits and provide monthly coupon payments. These bonds are issued in denomination of Rupiah 5 million and can be purchased by only retail investors in the primary market but they can be traded in the secondary market by both retail as well as institutional investors. In Indian context, one product that could generate significant retail interest is the 'inflation linked bond' for retail investors. The Gandhi Committee has recommended Government of India can consider issuing inflation-indexed bonds (IIBs) specifically for retail/individual investors since inflation affects the poor and middle class significantly. The retail investors generally look for asset class which could provide clean real return, *i.e.*, an instrument which provide complete hedge against inflation. Furthermore, in view of retail investors not having complete information and technical knowhow and thus, lacking expertise in pricing, greater use of non-competitive route could be explored for generating retail demand for IIBs. Towards this end, we are considering increasing the non-competitive portion from five per cent of the notified amount as applicable to the primary auctions of the Central Government dated securities to 10 per cent while launching IIBs. We are in discussion with the Government with regard to issuance of IIBs as part of normal market borrowing program and special bonds linked to inflation could be a medium term target. Similarly mutual funds could design products based on G-sec to capture investor interests. The Reserve Bank provides liquidity support on any day up to 20 per cent of the outstanding stock of government securities, including treasury bills, held by the gilt funds as at the end of the previous working day, to gilt funds to encourage such funds to create a wider investor base for government securities market.

Improving access to the market

23. The existing infrastructure for G-sec *viz.*, depository, intermediaries, trading infrastructure is concentrated in Mumbai. This has led to the concentration of treasury activities of banks and PDs in Mumbai. Catering to retail investors located across the country, requires establishment and maintenance

of a wide distribution network. Banks, by having an existing network of branches spread across the country and on a CBS platform, and Post Offices with a wide geographical presence are well placed to offer investment services to retail investors in the G-sec. This potential must be tapped and leveraged as a distribution channel to cater to retail investors. Banks/ PDs can create designated desks to focus on retail trades.

Leveraging technology for promoting retail trades

24. With new technologies like internet and wireless communication systems, possibilities for cost-efficient sale and distribution of G-sec are increasing. As such, there is an urgent need to leverage upon technology to provide easy and operationally convenient access to the retail investors. New distribution channels can be contemplated. For example, in Singapore bank networks/ATMs are being used to distribute G-sec. In India, some banks have started on-line trading portals for G-sec. One bank has infact vigorously marketing their product which provides wide accessibility to retail investors in G-sec. The bank is also integrating its portal with the mobile banking platform. Other banks/primary dealers may consider similar initiatives for market development.

Improving liquidity in G-sec market

25. Secondary market liquidity in G-sec is limited to a few securities and hence it is difficult to find a market quotes for a large number of G-sec. Due to the lack of secondary market liquidity, investors, especially retail/individual investors end up paying large illiquidity premium when they try selling the illiquid (off-the-run) securities. Lack of liquidity is a critical factor that needs to be addressed for ensuring participation by retail investors in the G-sec market. Gandhi Committee has examined the liquidity problem in G-sec in detail and had made recommendations like consolidation of outstanding G-sec, allocation of specific securities to each PD for market making in them; gradual increase in the investment limit for FIIs in Government securities, prepare a roadmap to gradually bring down the upper-limit on the HTM portfolio in a calibrated manner to make it non-disruptive to the entities and other stakeholders; and promotion of the term-repo market with suitable restrictions on 'leverage' and introduction of tripartite repo in Government Securities. Further, Gandhi Committee also suggested a suitable mechanism for market-making by PDs in the odd-lot segment. The Reserve Bank is in consultation with the stakeholders on the modalities of implementation of these recommendations. There is also merit in the long-term, to establish, a centralised market maker for retail participants in G-sec who would quote two-way prices of G-sec for retail/ individual investors and leverage on existing and possible infrastructure for reaching retail/individual investors.

Reduction in transaction costs

26. Transaction costs for trading and maintaining gilt accounts are high for retail investors. Charges, such as, account-opening fee, which are high and not standardised, need review. A regime of reasonable and uniform charges is customer friendly and can lead to tangible benefits in promoting retail investments since such a move would bring in much needed transparency and induce competition among bank/ PDs, which will be beneficial to the retail investors in the long run. FIMMDA/PDAI may work towards this objective. In order to popularise opening of gilt accounts, the Reserve Bank of India could consider remunerating banks and PDs based on performance of opening gilt accounts in order to incentivise them to

cater to retail customers. Banks/PDs/depositories could also think of some type of basic gilt/demat accounts for limited number of transactions upto certain amount of holdings with reduced charges for the retail investors in debt segment.

Trading in stock exchanges

27. Considering the reach and familiarity of the exchange platforms, promotion of trading in G-sec on the exchanges can be an another means of activating retail interest in G-sec. The Reserve Bank is considering allowing banks and PDs to become members of exchanges to undertake proprietary trades in G-sec. The Reserve Bank is also in consultation with stakeholders to simplify operational procedures for seamless movement of securities from SGL form to de-mat form and vice versa to promote trading of G-sec on stock exchanges. It would be beneficial in this regard if the stock exchanges focus on investor awareness to encourage retail investors.

Incentives for G-sec trading

28. Government may consider providing tax concession on income from debt oriented mutual funds can be a measure aimed towards bringing in new classes of investors as well as encourage further investments in G-sec by existing investors. Providing such concession would incentivise mutual funds and investors to increase participation in the G-sec market. This would also remove the differential tax treatment between debt and equity oriented MFs. Though there is a possibility of loss of revenue, there is high probability that enhanced activity could neutralise the revenue loss.

Summing up

29. Though internationally and in India, G-sec market is predominantly institutional, it is in the interest of both the issuer and investor, that retail participation in G-sec market is encouraged. It would provide a stable source of demand for government securities and this in times of volatility, can cushion the impact of concerted sales by sections of institutional investors. Such demand is essential for financial stability and orderly functioning of the markets. The Reserve Bank has recognised the importance of retail and mid-segment investors many of whom are statutorily required to invest in G-sec and has taken several steps to promote the same. Improving access to both primary and secondary market, providing safe trading and settlement process has made G-sec market more efficient. The working Group (Gandhi Committee) constituted to examine enhancing liquidity in the government securities and interest rate derivatives markets has extensively studied issues pertaining to retail participation and made several useful recommendations. The Reserve bank is evaluating these recommendations in consultation with the market players for their speedy implementation. Certain factors, such as, lack of investor awareness/ education; competing instruments and high transaction costs discourage retail investors from participating in bond market in India. These factors could be addressed by taking steps, such as, improving awareness of investors, introducing new products, such as, the issuance of inflation linked securities would protect retail investor from effects of inflation, thereby preventing loss of purchasing power, improving access through leveraging technology and reducing transaction costs. The Reserve Bank is committed to encourage diversification of the investor base to further deepen and widen the G-sec market. It is also necessary that all other stakeholders like banks, primary dealers as also the media work in earnest to promote retail

participation by actively engaging with the investors and focusing on providing high standard of customer service and hassle-free transaction experience. This has become a very important imperative for our economy given the declining share of household financial savings.

30. I thank ASSOCHAM, in particular, Shri Raj Kumar Dhoot, President, ASSOCHAM and Shri Prithvi Haldea, Chairman, Capital Markets Committee of ASSOCHAM for organising this conference and taking this national mission forward.

Thank you.

*Market Risk Analysis**

G. Gopalakrishna

I extend a warm welcome to the faculty from the Federal Reserve and all the participants of this programme. I am happy to inaugurate the Market Risk Analysis Programme. The periodic programmes involving the Fed Reserve experts have been welcomed wholeheartedly by the participants and we are glad to have another edition of the training programme, with focus on market risk. I hope the participants would be immensely benefited by this programme, just like the participants in the earlier programmes. The programme also comes in the context of the proposed seminal change in the RBI's banking supervision methodology and process this year. I refer to the introduction of the risk based supervision covering nearly half of the commercial banks in the first phase from the ensuing cycle onwards. Focus on risks and tailoring our supervisory stance based on the specific risks in a financial institution would be the cornerstone of the new approach towards banking supervision. In this milieu, there is a need for an enhanced understanding of the major risk categories individually as well from a collective perspective in terms of the interactions among the major risks.

2. It has now come to be accepted that the inter-connected world has ensured that the uncertainties in the advanced economies find their way to developing nations through various channels like the trade, finance, commodity price and confidence channels. Critically, the uncertainties are reflected in the volatility of capital flows to emerging market which in turn reflects on the volatility of domestic financial market variables. To understand some indicators of the linkages, we can see that the ratio of India's external trade to GDP has increased four-fold – from 8 per cent of GDP in 1972 to nearly 40 per cent now while the ratio of two- way flow of goods and finance in and out of India to its GDP which incorporates non trade related flows, has increased eight fold over last four decades, from 14 per cent in 1972 to well over 100 per cent now. Apart from linkages with the global developments, there are several domestic factors which are also important in the context of increasing trend of volatility in domestic financial markets such as widening current account deficit, growth slowdown, growing fiscal deficit and sticky inflation, to name just a few. The uncertainty and volatility associated with the financial markets are expected to continue at least for the foreseeable future, as the 'new normal'. Managing the market risks in this context is a major challenge for the corporates and the banks alike.

3. Market risk is the most dynamic among the major risks, positions and hence the risks can change much more frequently in quick time in comparison to other risks. The Financial Stability Reports of the Reserve Bank have been presented the results of coordinated stress tests of scheduled commercial banks in respect of, *inter alia,* market risk. These tests conducted on balance sheet and off balance sheet positions show that banks are indeed vulnerable to sharp movements in market prices. Market risk is a risk practitioners delight at least from the perspective of quantifying them while it is not so straightforward for credit risk and would border on the difficult in respect of operational risk. Of course, there are major issues in respect of statistical methodologies in measuring market risk and VaR based measures have been derided for underestimating risks. The issue is about the lack of having acceptable alternatives *vis-à-vis* accepting the imperfections and supplementing with other measures. I will further elaborate later in my speech.

4. With a view to adopting the Basel Committee on Banking Supervision (BCBS) framework on capital adequacy which takes into account the elements of

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credit risk in various types of assets in the balance sheet as well as off-balance sheet business and also to strengthen the capital base of banks, Reserve Bank of India decided in April 1992 to introduce a risk asset ratio system for banks (including foreign banks) in India as a capital adequacy measure. The Reserve Bank had issued guidelines to banks in June 2004 on maintenance of capital charge for market risks on the lines of 'Amendment to the Capital Accord to incorporate market risks' issued by the BCBS in 1996. The market risk positions subject to capital charge requirement are: (i) The risks pertaining to interest rate related instruments and equities in the trading book; and (ii) Foreign exchange risk (including open position in precious metals) throughout the bank (both banking and trading books). With the introduction of CDS, calculation of capital charge has been specified for banks using CDS as a protection buyer or seller.

5. A major action as part of Basel III framework is the introduction of the incremental risk charge for the trading book. In 2005, the Basel Committee became concerned that banks were reducing their capital requirements by shifting exposures from the banking book to the trading book. Structured products whose values depended on the credit worthiness of companies were increasingly put under trading book. The products were less liquid than other instruments in the trading book. Regulators had proposed an 'incremental default risk capital charge' (IDRC) that would be calculated with a 99.9 per cent confidence level and a one year time horizon for instruments in the trading book that were sensitive to default risk. These instruments would therefore be treated in much the same way as similar instruments in the banking book. In 2008, the Basel Committee recognised that most of the losses sustained in the credit market turmoil of 2007 and 2008 were from changes in credit ratings, widening of credit spreads and loss of liquidity, rather than solely as a result of defaults. It therefore amended its previous proposals so that these risks were included. The IDRC became generalised as 'Incremental Capital Charge'(ICC). These measures are expected to reduce the incentive for regulatory arbitrage between the banking and trading books.

6. An additional response to the crisis is the introduction of a stressed value-at-risk requirement. Losses in most banks' trading books during the financial crisis have been significantly higher than the minimum capital requirements under the former Pillar 1 market risk rules. The Committee therefore requires banks to calculate a stressed value-at-risk taking into account a one-year observation period relating to significant losses, which must be calculated in addition to the value-at-risk based on the most recent one-year observation period. The additional stressed value-at-risk requirement will also help reduce the procyclicality of the minimum capital requirements for market risk. This is expected to possibly double or triple the capital that banks would have to keep for market risks, particularly for international banks. Perhaps this is the main reason for lukewarm response in applying for advanced Internal Models Approach for calculating market risk capital in India. As the recent Financial Stability Report of RBI issued last month points out, only three commercial banks have applied for the advanced approach for market risk as opposed to 15 banks who have applied for migrating to IRB approach for calculation of credit risk capital and 9 banks for migrating to AMA for calculation of operational risk capital charge. Under Basel III, even under Standardised approach banks are required to specifically consider the various valuation adjustments while valuing their derivatives portfolios like – (i) incurred CVA losses, (ii) closeout costs, (iii) operational risks, (iv) early termination, investing and funding costs, and (v) future administrative costs and where appropriate, model risk.

7. The RBI has indicated that the capital requirement under IMA would be a function of three components:

(i) Normal VaR Measure (for general market risk and specific risk) (ii) Stressed VaR Measure (for general market risk and specific risk) (iii) Incremental Risk Charge (IRC) (for positions subject to interest rate specific-risk capital charge). General market risk and specific risk can be modelled together or separately for normal VaR measure and stressed VaR measure. In other words, a bank could calculate either a combined VaR measure for the two risk categories (general market risk and specific risk) or separate VaR measures for each of them. For example, the most extensive approach to model equity risk would be having risk factors corresponding to the volatility of individual equity issues. In such a case, bank would have modelled both general market risk and specific risk together. However, in cases where a bank calculates a combined VaR measure, it should be able to isolate the VaR for each component so as to enable its backtesting and use in the day-to-day risk management. In addition, in the case of interest rate-sensitive positions, which have credit risk, the banks will also have to compute incremental risk charge for default and migration risks, which are generally not captured by the VaR model. To start with, banks in India are required to model general market risk and use the present Standardised Measurement Method for specific risk.

8. On measurement of market risks, VaR methodology has proved to be the main method of assessing the overall market risk of trading positions over a short horizon, such as a 10 day period, and under 'normal' market conditions. The mechanics of VaR has been variously described at one end of spectrum as 'a new benchmark for managing financial risk' and at the other end of the spectrum as an 'intellectual fraud' along with various shades of opinions in between the two extremes. In effect, the methodology allows us to capture in a single number the multiple components of market risk such as curve risk, basis risk and volatility risk. However, each time there is a turmoil in the worlds markets, the limitations of it as a market risk measure are revealed.

9. VaR has proved unreliable as a measure of risk over long time periods or under abnormal market conditions. The danger posed by exceptional market shocks such as the 2007-08 financial crisis or the LTCM crisis in the world markets in 1998 – shocks that are often accompanied by a drying up of market liquidity-can be captured only by means of supplemental methodologies. The potential of VaR to exacerbate market volatility has also been acknowledged. The herd mentality that is so typical of the financial industry means that market sensitive risk management systems, such as VaR, actually make markets less stable and more prone to crisis. This is because financial institutions may have to sell assets in the affected classes when markets become volatile in order to keep within the VaR limits set by senior management; this depresses market prices even further and increases the volatility and correlation of the risk factors for these assets. This in turn might cause another set of financial institutions to exceed their VaR limits, forcing them to reduce their exposure by selling still more of the same assets – perpetuating a vicious cycle.

10. Thus the VaR measure works well as a risk measure only for markets operating under normal conditions and only over a short period, such as one trading day. Potentially, it's a very poor and misleading measure of risk in abnormal markets, over longer time periods, or for illiquid portfolios. Also, VaR, like all risk measures, depends for its integrity on a robust control environment. In many instances of rogue-trading cases, hundreds of millions of dollars of losses have been suffered by trading desks that had orders not to assume VaR exposures of more than a few million dollars. The reason for the discrepancy is reportedly due to trading desks finding some way of circumventing trading controls and suppressing risk measures. For example, a trader might falsify transaction details entered into the trade reporting systems, by using fictitious trades to balance out the

risk of real trades, or by tampering with the inputs to risk models, such as volatility estimates that determine the valuation and risk estimation for an options portfolio. As you would agree, opportunity to carry out such tasks is facilitated by inadequate management oversight arising from lack of appreciation of the importance of the internal controls in trading environment. Further, there were instances reported in recent years about management deliberately turning a blind eye to risk measures or to the apprehension of the risk managers.

11. For a good risk measure, some properties have been propounded. These include monotonicity, translation invariance, homogeneity and sub-additivity. The risk measures satisfying all the conditions are referred to as coherent. It has been observed that while VaR satisfies the first three conditions, it does not always satisfy the fourth condition of 'sub additivity' which requires that the risk measure of two portfolios after they have been merged should be no greater than the sum of the their risk measure before they were merged. However, given the simplicity and want of better alternative, VaR continues to be used supplemented with many other aspects like back testing to check the accuracy of the VaR model, stress testing and scenario analysis to assess the potential impact of plausible adverse market conditions among other measures.

12. For the advanced market risk approach, a bank will need to classify its back-testing outcomes into three zones depending on the number of exceptions arising from back-testing. The extreme zone is the red zone if the back-testing results produce ten or more exceptions in which case the multiplication factors for both VaR and stressed VaR will be increased from three to four. The RBI will allow 10 or more exceptions under the most extraordinary circumstances. RBI may require banks whose model for market risk fall in Red Zone to either discontinue the model or begin work on improving the model immediately. The RBI may also consider further increase in the capital requirements if the bank is not able to demonstrate that its models are capturing all market (general market risk and specific risk, if any) risks it is exposed to.

13. Banks that use the internal models approach for meeting market risk capital requirements must have in place a rigorous and comprehensive stress testing programme to capture such potential stresses. The stress testing programme must particularly address: (i) concentration risk; (ii) illiquidity of markets in stressed market conditions; (iii) one way markets; (iv) event and jump to default risks; (v) non linearity of products; (vi) deep out of the money positions; (vii) positions subject to the gapping of prices; and (viii) other risks that may not be captured appropriately in the VaR model (for example, recovery rate uncertainty, implied correlations and skew risk).

14. In the aftermath of the financial crisis, model risk has come under intense scrutiny, and the governance of risk model supervision, assessment and validation has taken on ever greater importance for the risk function and the financial industry as a whole. A bank is required to have a model validation process which addresses three components of the model: (a) a model inputs component, which delivers data and assumptions to the model; (b) a model processing component, which encompasses the theoretical model and the computer codes which transform the model inputs into mathematical estimates; and (c) a reporting component, which translates the mathematical estimates into useful business information.

15. An interesting perspective is the interaction between credit risks and market risks. For many reasons, both historical and practical, market and credit risk have often been treated as if they are unrelated sources of risk: the risk types have been measured separately, managed separately, and economic capital against each risk type has been assessed separately. The development of credit risk transfer markets and the moves to mark-to-market

accounting for portions of held-to-maturity banking book positions, however, have blurred distinctions between them and raise questions regarding approaches that treat the two types of risks separately. Market participants have argued that there are significant diversification benefits to be reaped from the integrated measurement and management of market and credit risks. The recent financial crisis, however, has illustrated how the two risks may reinforce each other and that in such stress situations illiquidity can worsen losses further.

16. Market risk and credit risk are often distinguished by identifying the latter with (actual or expected) default. We define default as the failure to meet a contractually pre-determined obligation. As the same economic factors tend to affect both types of risk, drawing a clear distinction between them in practical risk measurement and management is, however, very difficult. Even if distinct factors could be separately associated with the two types of risk, the factors often interact significantly in determining asset values, and therefore risk measurement and management needs to explicitly account for their joint influence. In practice, market and credit risk are often distinguished in relatively simple ways on the basis of instruments, market liquidity, accounting treatments or holding periods. It is being increasingly acknowledged that care should be exercised to ensure that such pragmatic distinctions do not lead risk managers to ignore important risks that emanate from the interactions between market and credit risk. Examples of positions in which such compounding effects may be present include foreign currency loans, floating rate loans (including sub-prime mortgage loans) or matching long and short positions in OTC derivatives.

17. As a BIS study states, non-linear interaction emerges when losses from default on an instrument depend on movements in market risk factors, or conversely, when changes in the values of instruments due to movements of market risk factors depend on whether there is a default or rating migration. In these circumstances, the two types of risk are inextricably linked, and attempts to measure them separately and then combine them can lead to substantial biases.In fact, research shows cases in which the combined risk is actually higher than the sum of the components leading to 'compounding effects' as opposed to diversification effects. A particularly clear example is foreign currency loans, which constitute a sizable part of lending in certain countries. Consider a bank lending in foreign currency to domestic borrowers. These positions contain market risk (exchange rate risk) and credit risk (default risk of borrowers). Now assess the two risks separately. When for example the domestic economy slows, *ceteris paribus,* the probability of domestic borrowers defaulting increases. When the domestic currency depreciates, *ceteris paribus,* the value of the loan in domestic currency increases as it is denominated in foreign currency. So, on the surface one could think that the two effects offset each other. But this reasoning would neglect the strong relationship between exchange rate changes and default risk in this type of contract. The ability of a domestic borrower to repay a loan in foreign currency depends in a non-linear way on fluctuations in the exchange rate (unless the domestic borrower has other revenues in the foreign currency in which the loan is denominated). A home currency depreciation has a particularly major effect on the repayment amount and therefore repayment probability of a foreign currency loan by an unhedged domestic borrower, which tends to be stronger than the valuation effect mentioned above.

18. Similarly, floating or adjustable rate loans have coupons that change as interest rates change. Therefore, if the coupons on the loans adjust frequently (or in the limit continuously), then the interest rate risk of the loan is passed on to borrowers, and therefore, assuming the loans do not default, they have no market risk for the bank. If credit risk is computed separately from market risk, then the credit risk of the loans is computed while holding interest

rates constant. This treatment of credit risk can miss an important interaction between market and credit risk. For example, if probabilities of default are increasing in interest rates, then holding rates constant can easily lead to an understatement of the true probability of default and hence the sum of market and credit risk, when computed separately, would lead to an understatement of total risk. The same is the case with matching long and short positions in OTC derivatives . The practical challenges of moving to a fully integrated measurement and management of economic risk, however, are currently substantial. A first major obstacle to integrating market and credit risk measurement and management is that the metrics typically used for each of them are not fully comparable, with market risk models capturing a full distribution of returns and credit risk models focusing on losses from default and neglecting gains.

19. Successful management of market and credit risk often relies on liquid markets to hedge risks and unwind positions, as the ongoing financial crisis has abundantly illustrated. Liquidity conditions interact with market risk and credit risk through the horizon over which assets can be liquidated. In particular, deteriorating market liquidity often forces banks to lengthen the horizon over which they can execute their risk management strategies. As this time horizon lengthens, overall risk exposures increase, as does the contribution of credit risk relative to market risk. The liquidity of traded products can vary substantially over time and in unpredictable ways. Theoretical research indicates that such liquidity fluctuations, all else equal, should have a larger impact on prices of products with greater credit risk. Conversely, as the current financial crisis illustrates, valuation uncertainties or other shocks that enhance actual or perceived credit risks can have adverse effects on liquidity and put in motion a downward spiral between market prices and liquidity of traded credit products (see for example the case of tranches from collateralised debt obligations based on sub-prime loans).

20. As regards securitisation, the securitisation market is primarily intended to redistribute the credit risk away from the originators to a wide spectrum of investors who can bear the risk, thus aiding financial stability and provide an additional source of funding. The recent crisis in the credit markets has called into question the desirability of certain aspects of securitisation activity as well as of many elements of the 'originate to distribute' business model, because of their possible influence on originators' incentives and the potential misalignment of interests of the originators and investors. For example, if the incentives of originators are not sufficiently aligned with those of the holders of risk then banks' intermediation function, including screening and monitoring of borrowers, can be severely impaired. Once these problems become apparent to the wider market, risk sharing markets become dysfunctional or even disappear. If securitisation markets become illiquid, banks can be exposed to heightened risk from exposures to both credit risk (defaults), for example as loans can no longer be securitised, and to market risk from changes in the mark-to-market value of the securitised assets. In addition, when risk-sharing markets become illiquid, the signals from prices can become distorted or even disappear, rendering risk measurement especially challenging. A further requirement for well-functioning markets is that investors in securitisation instruments should have a firm understanding of the associated risks. Recent events exposed deficits in this understanding that were partly related to problems with the availability of information and to the complexity of certain securitisation structures that obscured the links between the performance of the underlying assets and the price of the instruments.

21. While the securitisation framework in India has been reasonably prudent, certain imprudent practices have reportedly developed like origination of loans with the sole intention of immediate securitisation and securitisation of tranches of project loans even

before the total disbursement is complete, thereby passing on the project implementation risk to investors.With a view to developing an orderly and healthy securitisation market, to ensure greater alignment of the interests of the originators and the investors as also to encourage the development of the securitisation activity in a manner consistent with the aforesaid objectives, several proposals for post-crisis reform were being considered internationally. Central to this is the idea that originators should retain a portion of each securitisation originated, as a mechanism to better align incentives and ensure more effective screening of loans. In addition, a minimum period of retention of loans prior to securitisation is also considered desirable, to give comfort to the investors regarding the due diligence exercised by the originators. Keeping in view the above objectives and the international work, the RBI had framed guidelines regarding the Minimum Holding Period and Minimum Retention Requirement among other measures and the revision in its securitisation guidelines was issued in May, 2012.

22. In the context of banks applying for moving over to advanced approaches, there is a need to clearly distinguish between different Pillar I risks. For example, we need to be clear as to under which risk category the following events would be classified – under market risk or under operational risk? – (i) Incorrect mark-to-market valuations and VaR, due to, for instance, erroneous booking of a trade into the trading system and the market moves in negative direction resulting in losses (ii) incorrect specification of deals in the term-sheet (errors related to the transaction amount, maturities and financial features) (iii) unauthorised trading in excess of risk limits (iv) failures in properly executing a stop loss . Those of you who have answered as operational risk perhaps could be proud of having some level of detailed understanding of the major risk categories. It is important to remember that with reference to the interaction between operational risk and the other Pillar 1 risk types, for banks intending to follow AMA for operational risk, the boundaries between operational risk and credit and market risks involve different treatments. While credit-related operational risk losses are excluded from the operational risk capital requirement (as long as they continue to be treated as credit risk for the purpose of calculating minimum regulatory capital), operational risk/market risk boundary events are included in the scope of operational risk rather than under market risk for regulatory capital calculation.

23. When distinguishing between operational risk (events or losses) and market risk (events or losses) the following criteria should be applied: the events (and the related losses) which should be included in the 'scope of operational risk' are: (a) Events due to operational errors; (b) Events due to failures in internal controls; (c) Events due to wrong selection of the model, made outside a defined business process/ formalised procedure and without a formalised, conscious risk-taking process; and (d) Events due to wrong implementation of the model. In all these cases, the whole amount of the loss incurred should be included in the 'scope of operational risk loss', unless the position is intentionally kept open after the operational risk event is recognised. In the latter case any portion of the loss due to adverse market conditions after the decision to keep the position open should be ascribed to market risk. The events (and the related losses) which should be excluded from the 'scope of operational risk' include those arising from wrong selection of a model, made through a formalised corporate process where the pros and cons of the model itself are carefully weighed up.

24. Participants would recall that a few days back the FED and OCC applied enforcement action against JP Morgan after they found weaknesses in internal controls in its London office which lost about $6 billion in early 2012 on derivatives bets through synthetic credit portfolio which looked more like speculation than hedging. Some of the key

requirements forming part of the enforcement order included implementing risk management programme effectively and consistently across the firms with respect to trading activities, measures to ensure that controls for trading activities across lines of business are consistent, enhanced model risk governance, measures to ensure that material risk management issues relating to trading activities are escalated in a timely manner to senior management and the BoD or a committee thereof, as appropriate. In respect of internal audit, the requirements included enhanced escalation procedures for timely resolution if material audit exceptions and recommendations and measures to strengthen the ongoing quality assurance review of audit practices. Similarly, in respect to a $2 billion loss at UBS, FSA while penalising the bank last year had observed that risk management of the desk was not effective in controlling the risk of unauthorised trading. The trade capture and processing system also had weakness which were exploited in order to conceal unauthorised trading. The system allowed trades to be booked to an internal counterparty without sufficient details, there were no effective methods in place to detect trades at material off-market prices and there was a lack of integration between systems. There was an understanding among personnel supporting the desk that the operation divisions main role was that of facilitation. Their main focus was on efficiency as opposed to risk control and they did not adequately challenge the front-office. All these are instances are indicative of what is missing in terms of management and control processes that lead to such instances and are instructive to us. However, notwithstanding plethora of similar historical cases with perhaps slightly different modus operandi, new cases keep coming now and then. Perhaps, the underlying causative factors arise from the system of incentives and disincentives, which have also been factored in as part of measures to address the issues causing the financial crisis of 2007-08.

25. I am happy to note that the course coverage is comprehensive covering various areas like sound internal controls and risk management systems for a bank's trading book, tools to measure, monitor and control market risks, discussion on emerging issues in derivatives markets, discussion on securitisation and basic accounting aspects relating to derivatives. I hope the participants use the opportunity to further clarify their doubts relating to the subject area of this programme from the Fed Reserve experts. I thank the Federal Reserve System for their continuing support in training our officials on various supervisory areas. I am certain that the inputs received from this programme would assist in improving knowledge and understanding of the relevant subject areas both for the relatively new as well as experienced inspecting officials who have gathered here, which is of particular significance in the present context of moving to a risk based approach to supervision coupled with proposed migration of some of the banks to advanced approaches for computation of capital in the near future. I wish the programme a great success and wish the participants a fruitful learning experience.

*Indian Inflation Puzzle**

Deepak Mohanty

Respected dignitaries on the dais: Advocate V. R. Parnerkar, Advocate Laxmikant Parnerkar, Shri Pradip Palnitkar, Shri Mohan Tanksale, Justice Mhase, Dr. S. N. Pathan and Dr. Ashutosh Raravikar; Ladies and Gentlemen.

It is indeed my honour that Late Dr. Ramchandra Parnerkar Outstanding Economist Award for 2013 has been bestowed upon me. I thank the Poornawad Charitable Trust and its Life Management Institute for this recognition. It is heartening to see that over the last so many years, the Trust has taken up the mission of people's welfare and is working towards enrichment of our life through various social service activities, inspired by the life and mission of Dr. Parnerkar.

Vidvat Ratna Dr. R. P. Parnerkar (1916-1980) was a great philosopher and thinker. He recognised that human beings require incentive for action. At the same time, they need emotional support to tie over adversities and sustain their effort. He was a *Karma Yogi*. He used to say, "Only singing the praise of the God without putting in efforts would not lead you anywhere. Master is like electricity and disciple is like a bulb. A bulb with broken filament cannot experience the illumination from electricity."

Dr. Parnerkar put forth his economic and philosophical thought, which he termed Poornawad. It says that matter and the mind are manifestations of only one and the same reality which he called *Poorna*. The economic doctrine revolves around the central idea of food as a fundamental human right. He believed that as long as a person has to earn his food at somebody else's wishes, humanity would always remain in doldrums. He believed that free food will not make people indolent as multiple other needs would make him toil.

The problems of food security, poverty and unemployment, which were close to his heart, are the burning issues even today. The Food Security Bill as introduced in the Parliament by the Government in a way comes close to that dream of Dr. Parnerkar. His economic insight blended with humanism will always remain a beacon for generations. I was wondering how best to honour Dr. Parnerkar's contribution? Given his deep commitment to social welfare, I thought he would have been concerned as we have been in the Reserve Bank of India about the current state of inflation, particularly food inflation. We have been grappling with this for some time now.

I take this opportunity to share my thoughts on the topic of inflation which affects one and all. Over the last three years the persistence of inflation in an environment of falling economic growth has come out as a 'puzzle'. In my presentation I propose to address the following questions: What do I mean by a 'puzzle'? Why do we need to worry about inflation? What is the nature of the current inflation process? How did monetary policy respond to the recent bout of inflation? I conclude with some thoughts on the way forward to achieve price stability.

Current inflation puzzle?

First, let me begin by giving the context. India is a moderate inflation country. For example, in the 62 years since 1950-51 average annual inflation rate as measured by changes in the wholesale price index (WPI) increased at a rate of 6.7 per cent per annum. That is not a very high rate considering that many countries, both developed and developing, experienced very high inflation in their modern development history. In fact, more recently in the 1980s and 1990s the world inflation averaged around 17 per cent per annum. In the 2000s there was a sharp all round moderation in global inflation.

* Acceptance Speech by Shri Deepak Mohanty, Executive Director, Reserve Bank of India, in the function of Late Dr. Ramchandra Parnerkar Outstanding Economist Award 2013 at Mumbai on January 31, 2013. The assistance provided by Dr. Praggya Das and Dr. Abhiman Das in preparation of the speech is acknowledged.

In the eight year period from 2000 to 2007, the world inflation averaged 3.9 per cent per annum. Even the emerging and developing economies (EDEs) which traditionally had very high inflation showed an average annual inflation at 6.7 per cent. India's inflation performance was even better at 5.2 per cent as measured by WPI and 4.6 per cent measured by the consumer price index (CPI-IW). In 2008 the global financial crisis struck following which inflation rose sharply both in advanced countries and EDEs as commodity and oil prices rebounded ahead of a sharp 'V' shaped recovery. Thereafter, inflation rate moderated both in advanced economies and EDEs. In India too the inflation rate rose from 4.7 per cent in 2007-08 to 8.1 per cent in 2008-09 and fell to 3.8 per cent in 2009-10 (Table 1). However, the inflation rate backed up and stayed near double digits during 2010-11 and 2011-12 before showing some moderation in 2012-13. Given India's good track record of inflation management, the persistence of elevated inflation for over two years is apparently puzzling.

Second, the deceleration of growth and emergence of a significant negative output gap has failed to contain inflation. It is understandable if inflation goes up in an environment of accelerating economic growth. There could be a situation when the real economy is growing above its potential growth that could trigger inflation what economists call an overheating situation. It is like an electric cable exploding if we overload it with appliances beyond its capacity. But, that is not the case. The Reserve Bank estimates suggest that the potential output growth of the Indian economy dropped from 8.5 per cent pre-crisis to 8.0 per cent post-crisis and it may have further fallen to around 7.0 per cent in the recent period. Even against this scaled down estimate of potential growth, actual year-on-year GDP growth has decelerated significantly from 9.2 per cent in the fourth quarter of 2010-11 to 5.3 per cent in the second quarter of 2012-13. The loss of growth momentum that started in 2011-12 got extended into 2012-13.

Table 1: In recent years India's inflation rate has been higher than world average

(Year-on-year in per cent)

	2000-07 Average	2008	2009	2010	2011	2012	2008-12 Average
		Annual					
Global Inflation							
World	3.9	6.0	2.4	3.7	4.9	4.0	4.2
EDEs	6.7	9.3	5.1	6.1	7.2	6.1	6.8
Inflation in India							
WPI	5.2	8.1	3.8	9.6	8.9	7.6	7.6
WPI-Food	3.8	8.9	14.6	11.1	7.2	9.1	10.2
WPI-NFMP	4.3	5.7	0.2	6.1	7.3	5.2	4.9
CPI-IW	4.6	9.1	12.2	10.5	8.4	9.9	10.0

Indian inflation data pertains to financial year, EDEs: Emerging and Developing Economies, WPI: Wholesale Price Index, NFMP: Non-food manufactured products, CPI-IW: Consumer Price Index for Industrial Workers.

During a boom, economic activity may for a time rise above this potential level and the output gap becomes positive. During economic slowdown, the economy drops below its potential level and the output gap is negative. Economic theory puts a lot of emphasis on understanding the relationship between output gap and inflation. A negative output gap implies a slack in the economy and hence a downward pressure on inflation. So, India's current low growth-high inflation dynamics has been in contrast to this conventional economic theory. Real GDP growth has moderated significantly below its potential. Yet inflation did not cool off.

Third, the Reserve Bank raised its policy repo rate 13 times between March 2010 and October 2011 by a cumulative 375 basis points. The policy repo rate increased from a low of 4.75 per cent to 8.5 per cent. Still it did not help contain inflation. The critics of the Reserve Bank argue that monetary tightening rather than lowering inflation has slowed growth. Interest rate is a blunt instrument. It first slows growth and then inflation. But the growth slowdown has not been commensurate with inflation control.

The above three considerations will suggest that the recent persistence of inflation is a puzzle. I will come back to the causes of the recent bout of inflation;

but before that, let me address the question as to why do we need to worry about high inflation?

Costs of inflation

Inflation, though a nominal variable, imposes real costs on the economy. Let me elaborate.

First, inflation erodes the value of money. As I mentioned earlier, India is a moderate inflation country with the 62-year long-term average inflation rate being 6.7 per cent, notwithstanding occasional spikes in inflation. Yet during this period the overall price level has multiplied 45 times. This means that ₹100 now is worth only ₹2.2 at 1950-51 prices. Since price stability is a key objective of monetary policy, central banks are obviously concerned with inflation.

Second, high and persistent inflation imposes significant socio-economic costs. Given that the burden of inflation is disproportionately large on the poor, and considering that India has a large informal sector, high inflation by itself can lead to distributional inequality. Therefore, for a welfare-oriented public policy, low inflation becomes a critical element for ensuring a balanced progress.

Third, high inflation distorts economic incentives by diverting resources away from productive investment to speculative activities. Fixed-income earners and pensioners see a decline in their disposable income and standard of living. Inflation reduces households' savings as they try to maintain the real value of their consumption. Consequent fall in overall investment in the economy reduces its potential growth. With a high inflation of over two years we are already seeing a fall in household savings in financial assets, particularly in bank deposits. At the same time households' preference for gold has increased. This is putting additional pressure on our balance of payments.

Fourth, economic agents base their consumption and investment decisions on their current and expected future income as well as their expectations on future inflation rates. Persistent high inflation alters inflationary expectations and apprehension arising from price uncertainty does lead to cut in spending by individuals and slowdown in investment by corporates which hurts economic growth in the long-run.

Fifth, as inflation rises and turns volatile, it raises the inflation risk premia in financial transactions. Hence, nominal interest rates tend to be higher than they would have been under low and stable inflation.

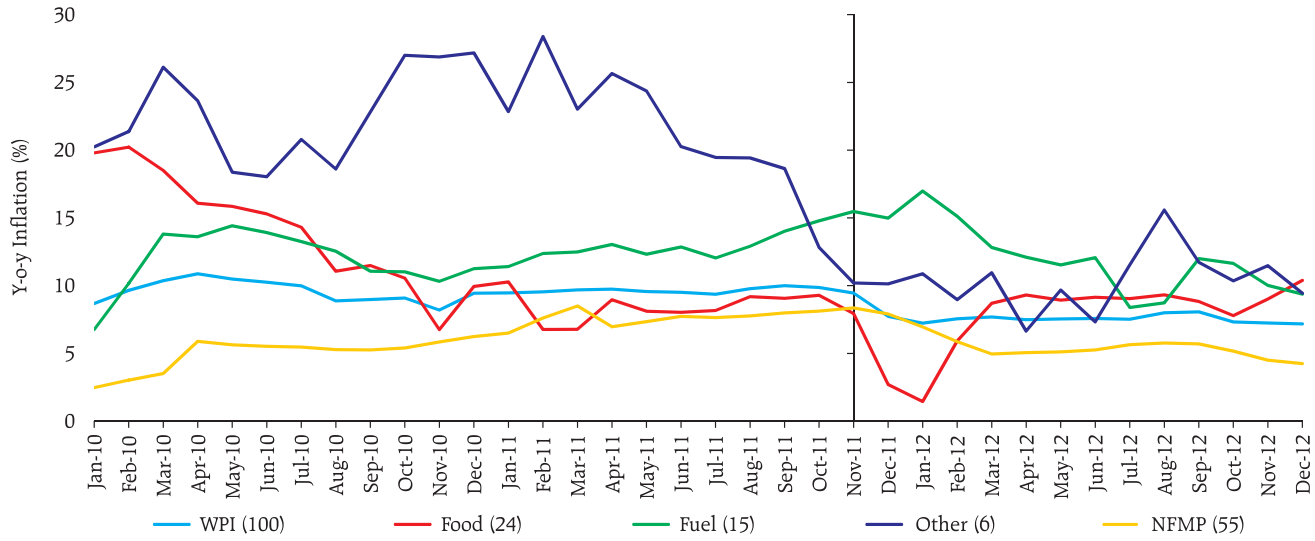
Sixth, if domestic inflation remains persistently higher than those of the trading partners, it affects external competitiveness through appreciation of the real exchange rate.

Finally, as inflation rises beyond a threshold, it has an adverse impact on overall growth. The Reserve Bank's technical assessment suggests that the threshold level of inflation for India is in the range of 4 to 6 per cent. If inflation persists beyond this level, it could lower economic growth over the medium-term.

Causes of recent inflation spike

Let me first identify the high inflation period. The WPI inflation rate accelerated from 7.1 per cent in December 2009 to a peak of 10.9 per cent by April 2010, thereafter it remained stubbornly close to double digits till November 2011. Thus, we experienced two years of high inflation between January 2010 to December 2011. During this two-year period, WPI inflation averaged 9.5 per cent per annum. All the major components of inflation contributed to this surge. The trigger for inflation first emanated from the failure of South-West monsoon of 2009, following which food prices rose sharply. Concurrently, the global economy made a sharp recovery from the recession of 2009. As a result, global commodity prices including oil rose substantially. India being a net commodity importer, particularly oil, the intermediate prices rose. This quickly spilled over to non-food manufactured products inflation, making the inflation process fairly generalised. In the subsequent one year between January 2012 to December 2012 the average

Chart 1: WPI Inflation has moderated since December 2011



Figures in brackets are the weights

WPI inflation moderated to 7.5 per cent led by all its major components except fuel and power (Chart 1).

The high inflation during 2010 and 2011 was a combination of both adverse global and domestic factors as well as supply and demand factors.

First, crude oil and other global commodity price trends as well as exchange rate movements are increasingly playing an important role in defining domestic prices. With the gradual external liberalisation, the Indian economy is much more open and globalised now than ever before. Currently, over 85 per cent of demand for crude oil in India is met by imports. The imported Indian basket of crude oil price rose from US$ 49 per barrel in April 2009 to an average of US$ 79 per barrel in 2010 and further to US$ 108 per barrel in 2011 and remained high at US$ 110 per barrel in 2012. Global metal prices, reflected in the IMF index, rose by 48 per cent in 2010 and again by 14 per cent in 2011 before moderating by 17 per cent in 2012.

Moreover, the Rupee depreciated from an average of 45.7 per US dollar in 2010 to 46.7 in 2011. The depreciation of the Rupee was particularly sharp in 2012 as the Rupee averaged 53.4 per US dollar. Empirical evidence suggests that one percentage point change in the Rupee-dollar exchange rate has 10 basis points impact on inflation. While, during 2010 and 2011, global commodity prices had an adverse impact on domestic inflation, the depreciation of the Rupee more than offset the beneficial impact of modest softening of global commodity prices on domestic inflation in 2012.

There is another important dimension of India's external sector linkage, particularly towards explaining high non-food manufactured product inflation. Analysis suggests that the pass-through from non-food international commodity prices to domestic raw material prices has increased in the recent years reflecting growing interconnectedness of domestic and global commodity markets. This trend is also corroborated by corporate finance data which show that the share of raw material costs as a percentage of both expenditure and sales has been rising. Therefore, as the economy is increasingly getting integrated, external sector developments are progressively becoming important for domestic price behaviour.

Second, while the growth in domestic agricultural production has stagnated around 3 per cent per

annum, the demand for food has increased. Although the country currently has sufficient foodgrains stocks, it is not yet self-sufficient in pulses and oilseeds. Further, demand for protein based products like meat, eggs, milk and fish as well as fruits and vegetables has increased substantially with rising per capita income. The protein inflation has assumed a structural character. This has also resulted in substantial divergence between WPI and CPI as food has a larger share in the consumer price index basket.

Further, with the increase in income, real consumption expenditure has grown significantly. Recently released key results of the NSSO 68th round survey (2011-12) on household consumption expenditure indicate that real per capita consumption expenditure in rural areas increased at an average rate of 8.7 per cent during 2009-12 as compared with 1.4 per cent during 2004-09. Similarly, urban real per capita consumption increased by 6.7 per cent as against 2.4 per cent in the corresponding period. The fact that real consumption expenditure expanded during a period of high food inflation indicates that the demand remains strong, feeding into higher price levels as supply elasticities remain low.

The high food prices are supported by increase in wages. The average nominal rural wage increase was of the order of 17 per cent during 2008-09 to 2012-13 so far. Even after adjusting for high rural consumer inflation, real wage increase over 6 per cent per annum was significant (Table 2). In the formal sector, company finance data suggest that the wage bill has risen at a faster rate since the middle of 2009-10. As wages increase, entitlement goes up, and consequently demand and preference for essential commodities increases.

Third, with the persistence of near double-digit inflation in 2010 and 2011, the medium- to long-term inflation expectations in the economy have risen, underscoring the role of higher food prices in expectations formation. If inflation is expected to be persistently high, workers bargain for higher nominal wages to protect their real income. This creates a pressure on firms' costs and they may in turn increase prices to maintain their profits. Independently, the producers' own inflation expectations also affect inflation directly by influencing their pricing behaviour. If companies expect general inflation to be higher in the future, they may believe that they can increase their prices without suffering a drop in demand for their output.

Fourth, there has also been added stimulus from the crisis driven fiscal and monetary policy. Fiscal

Table 2: In recent years both fiscal deficit and current account deficit have increased; while agricultural growth stagnated, real rural wages increased sharply

(In per cent)

	2000-08 Average	08-09	09-10	10-11	11-12	12-13	2008-13 Average
		Annual					
Fiscal/External							
GFD/GDP	4.4	6.0	6.5	4.8	5.7	5.1	5.6
CAD/GDP	-0.04	-2.3	-2.8	-2.8	-4.2	-4.6	-3.3
Growth							
GDP	7.2	6.7	8.6	9.3	6.2	-	7.7
Agricultural GDP	3.0	0.1	0.8	7.9	3.6	-	3.1
Rural Wages							
Nominal	3.3	10.7	15.8	18.3	19.8	18.4	16.6
Real @	-0.4	0.6	2.1	8.3	11.5	9.2	6.3

- Not available, @ Nominal wages adjusted for consumer price index for agricultural labourers,
GFD: Gross fiscal deficit of the centre, GDP: Gross domestic product, CAD: Current account deficit.

consolidation process was reversed in 2008-09 which impacted the macroeconomic conditions (Chart 2). Higher fiscal expansion also impedes efficacy of monetary policy transmission. The moderation in private demand resulting from anti-inflationary monetary policy stance is partly offset by the fiscal expansion. Let me now turn to the role of monetary policy in a little more detail.

Role of monetary policy

The current phase of high inflation followed the global financial crisis, which affected India's economy, though not with the same intensity as advanced countries. India, though initially somewhat insulated from the global developments, was eventually impacted significantly by the global shocks through all the channels – trade, finance and expectations channels. The Reserve Bank, like most central banks, took a number of conventional and unconventional measures to augment domestic and foreign currency liquidity, and sharply reduced the policy rates. In a span of seven months between October 2008 and April 2009, there was an unprecedented policy activism. For example: (i) the repo rate was reduced by 425 basis points to 4.75 per cent, (ii) the reverse repo rate was reduced by 275 basis points to 3.25 per cent, (iii) cash reserve ratio (CRR) of banks was reduced by a cumulative 400 basis points of their net demand and time liabilities (NDTL) to 5.0 per cent, and (iv) the total amount of primary liquidity potentially made available to the financial system was over ₹5.6 trillion or over 10 per cent of GDP. The Government also came up with various fiscal stimulus measures.

The Reserve Bank, in October 2009, highlighted the need for exit from crisis-time monetary policy stimulus. But it was not easy to exit from the excessively accommodative monetary policy stance for two main reasons. First, the year-on-year headline WPI inflation had just barely turned positive and was entirely driven by food inflation (Chart 3). Industrial production had started to pick up but exports were still declining. Hence, recovery was not assured. Second, globally, most central banks were in favour of continuing stimulus. On the other hand, domestically, consumer price inflation was high, households' inflation expectations were rising and surplus liquidity was substantial. These developments had inflationary consequences.

Chart 2: Fiscal Deficits have overshot their budget estimate in recent year

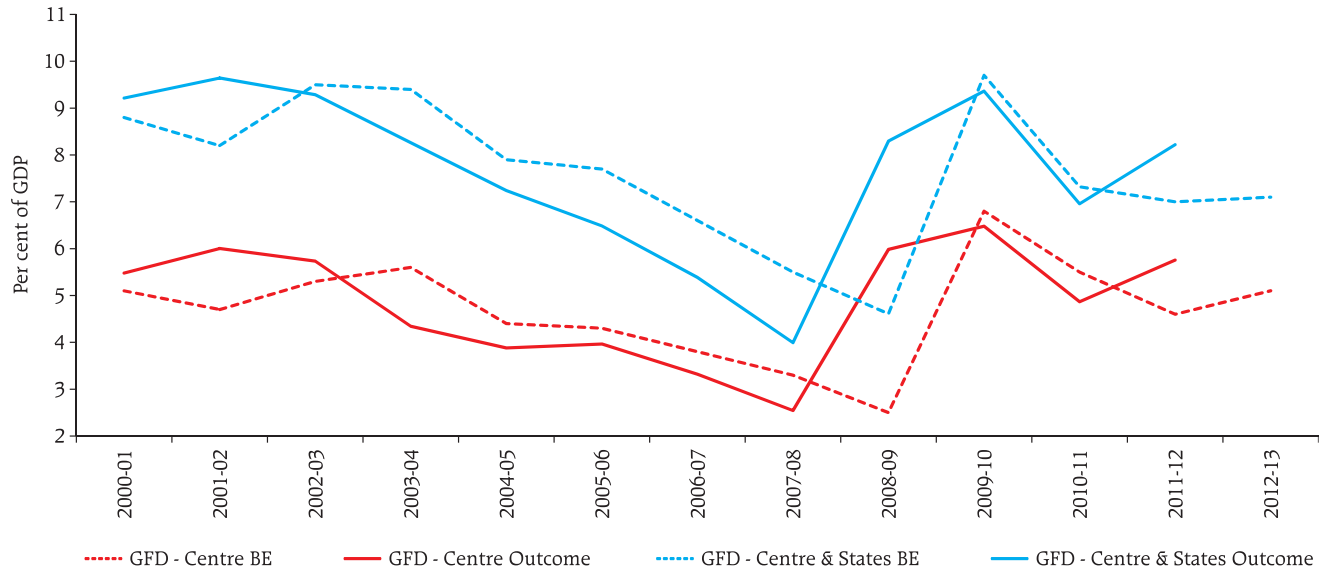
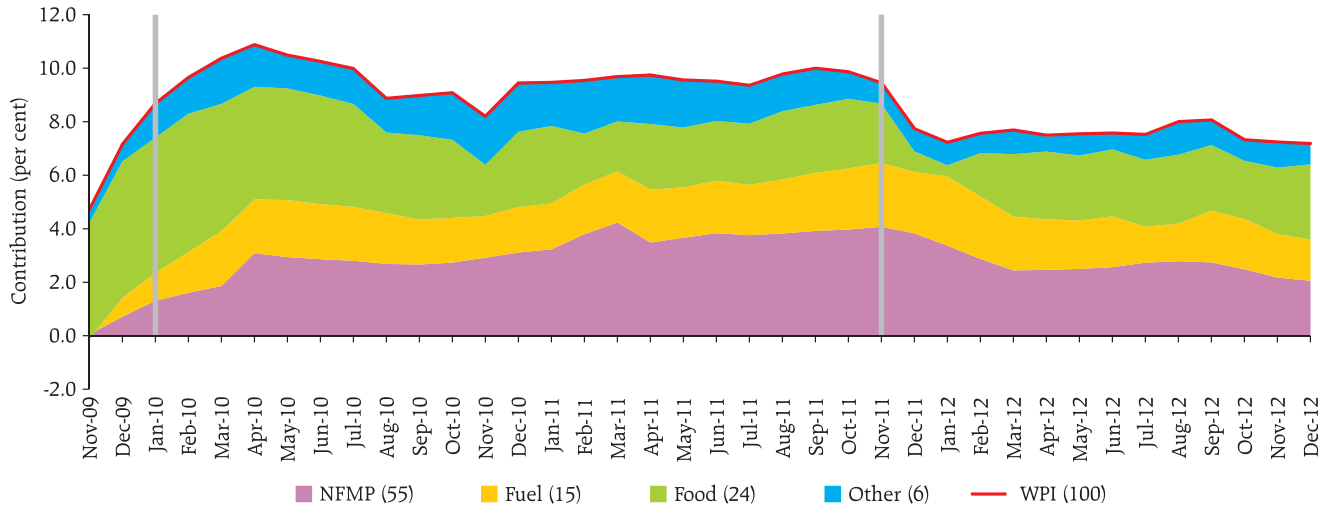


Chart 3: Inflation moderation since November 2011 is accompanied by easing of non-food maufactured products inflation



Figures in brackets are the weights

Nevertheless, the Reserve Bank withdrew the unconventional liquidity support measures and restored the statutory liquidity ratio (SLR) of banks to its pre-crisis level. At the same time, monetary policy had to recognise that the economic growth was recovering from the crisis time slowdown and any aggressive monetary tightening at that point would have affected the recovery. Subsequently, in January 2010, the CRR was raised by 75 basis points of banks' net demand and time liabilities (NDTL), and policy rate was increased for the first time in March 2010 by 25 basis points. Between March 2010 and October 2011 the policy repo rate was raised by 375 basis points to contain inflation and anchor inflationary expectations. It may, however be emphasised that policy rate was raised from a historically low level of 4.75 per cent. As inflation had already risen sharply, the real policy rate during this period was negative. Thus, monetary policy was still accommodative though the extent of accommodation was gradually closing (Chart 4 & Table 3).

Table 3: In recent years while the real bank lending rates remained relatively low, the real policy rate turned mildly negative

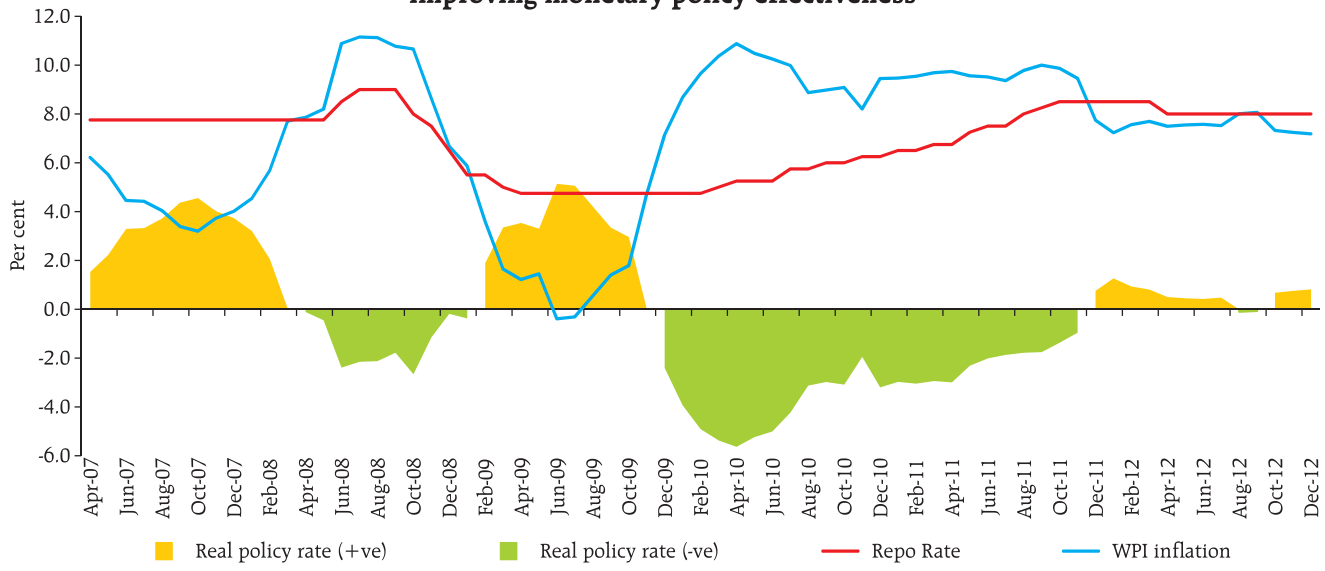
(Year-on-year in per cent)

	2000-08 Average	08-09	09-10	10-11	11-12	12-13	2009-13 Average
		Annual					
Monetary Block							
Money Supply *	16.6	20.5	19.3	16.0	16.1	13.3	17.0
Non-food Credit*	23.8	24.5	14.6	21.2	18.7	16.5	19.1
Weighted Average Bank lending rate	12.9	11.5	10.5	11.4	12.6	-	11.5
Real Weighted Average lending rate @	7.7	3.4	6.7	1.8	3.7	-	3.9
Policy repo rate	7.0	7.4	4.8	5.9	8.1	8.0	6.8
Real Policy Rate @	1.7	-0.7	0.9	-3.6	-0.8	0.4	-0.8

* Data for 2012-13 up to 11 January 2013, - Not available.

@ Nominal rate adjusted for average WPI inflation.

Chart 4: Real policy rate has turned mildly positive since November 2011 improving monetary policy effectiveness



The policy rate was left unchanged at 8.5 per cent between October 2011 and March 2012. Consequently, the inflation rate started trending down from October 2011 and the real policy rate tuned positive since January 2012. This enhanced the efficiency of monetary policy which was reflected in easing of the inflation rate. Accordingly, the Reserve Bank reduced the policy rate by 50 basis points in April 2012 and again by 25 basis points in the last monetary policy review on 29th January 2013. Currently the CRR stands at a historically low level of 4 per cent of NDTL of banks and policy repo rate is at 7.75 per cent.

Conclusion

While I have tried to unravel the inflation puzzle and provide some explanation why inflation remained entrenched despite output gap being negative, we know that sustained level of high inflation is bad for the economy as it imposes real costs which are borne disproportionately by the different segments of the economy. In order to bring inflation down on an enduring basis and anchor inflation expectations there is a need for policy action on several fronts.

First, it is important to aim for nutritional security not only to harness the demographic dividend stemming from our sizeable young population but also to contain food prices. This will require addressing the supply-demand imbalance in the agricultural sector and modernising the supply chain.

Second, concerted efforts are required to secure energy security for the country. The bulk of our fossil fuel requirement is met by imports. A necessary step in this direction is market related pricing of petroleum products to economise consumption and reduce the subsidy burden. This should be supplemented by step up in electricity generation so as to minimise fall back option of diesel generation of power.

Third, in a supply constrained economy, potential output is not a reliable gauge for inflation threshold as firms operate below capacity and yet retain the pricing power. Hence, reliability of power supply and availability of necessary industrial raw materials are important for industrial capacity utilisation and improvement in productivity. Besides moderating inflation, this will also reduce reliance on imports of products for which domestic capacity exists.

Fourth, it is imperative to maintain exchange rate stability to cushion transmission of international price pressures in commodities, particularly crude oil.

This will require management of the current account in our balance of payments with the rest of the world at sustainable levels.

Fifth, fiscal consolidation is important for maintaining both domestic and external balance so that we avoid the risks of twin deficits. As our own high growth experience of 2003-08 suggests, lower fiscal deficit not only encourages private investment but also helps in maintaining price stability.

Finally, while persevering with the steps to increase the depth of the financial market and addressing credit constraints, monetary policy needs to be calibrated to the evolving growth-inflation dynamics so that we move towards our potential growth in a non-inflationary manner. For a country at our stage of development with a vast labour supply, potential growth is not a constant. Only in an environment of price stability, a step up in investment accompanied by productivity improvements could bolster potential growth. Even when the supply side factors dominate the inflationary pressures, given the risks of spillover into a wider inflationary process, there is need for policy response. While monetary policy action addresses the risk of unhinging of inflation expectations, attending to the structural supply constraints becomes important to ensure that these do not become a binding constraint in the long-run, making the task of inflation management more difficult. By ensuring a low and stable inflation, the Reserve Bank could best contribute to social welfare.

I once again express my best wishes to the precious social welfare endeavours of Poornawad Charitable Trust and its Life Management Institute and accept the honour conferred on me with utmost humility.

Thank You.

*Random Payment System: Issues of Systemic Relevance for the New Year**

G. Padmanabhan

It is always a pleasure to be in God's own country to welcome the New Year. I am thankful to the Bankers Club of Thiruvanathapuram for affording this opportunity by inviting me over. I also deem it a privilege to be addressing the Bankers of the state which recently captured the imagination of the nation when one of the districts -Ernakulam- was declared as the first financially included district in the country. I am aware of the enormous efforts put in by the bankers in the State under the stewardship of our Regional Director Shri. Salim Gangadharan. Congratulations to the entire banking community of the State.

2. The year that went by was quite challenging for the financial sector. The worsening of the sovereign debt crisis in Europe and the unsteady recovery in the USA had posed significant risks to emerging markets like India, with domestic factors playing a major role-perhaps in balance a more decisive role in shaping the course of Indian financial markets which remained volatile. As current account deficit burgeoned and reached a record high, debate on the contributory role of gold imports intensified. Without getting into the thick of the debate, let me state two things. First, the argument that a central bank which had diversified its own assets into gold has no moral right to preach against investment/import of gold is missing an important point. A central bank diversifying its dollar reserves into gold is entirely different from private agents in a country having capital controls investing in gold as it has the same effect of allowing such assets to be held in foreign currency! It has to be clearly recognised that the Central bank undertakes the onerous responsibility of managing the forex reserves of the country with the objectives of safety, liquidity and return in that order and investment in gold is in pursuit of these objectives! In the case of private savers, by stashing away his savings in gold, the economy stands to lose the benefit of accumulated savings which can go a long way in adding to the GDP of the country. Second, given the insatiable lure for gold in the country, it is imperative that we introduce gold linked products which results in the existing gold in bank lockers getting converted as financial products rather than unabated import of gold, if we are to find a sustainable solution for our current account problems.

3. Moving on, as we welcome what appears to be another year of turbulence for the markets, and when the Indian banking system is readying to adopt Basel III norms even in the face of growing NPAs, I thought it fit to discuss certain important issues relating to payment systems. You will appreciate that the payment systems all over the world including in our country functioned efficiently even while the crisis was crippling the markets. The issues that I propose to flag are of relevance to all stake holders using the Indian payment system.

Decline of cheques – a myth or a must?

4. The growth in electronic payments (in volume terms), in recent years is quite heartening when one sees that the share of electronic payments as a percentage of total payments have grown from 15 per cent in 2003-04 to 48 per cent in 2011-12. Despite this, in absolute terms cheque volume continues to be high (52 per cent of total payments), even though the growth is showing a declining trend. While this high cheque volume could be attributed to overall growth in the economy and the consequent growth in financial transactions, it is nonetheless desirable that transactions in electronic form increases at an increasing rate rather than being contended

* Keynote address by Shri G. Padmanabhan, Executive Director, Reserve Bank of India, to the Bankers' Club, Thiruvanathapuram on January 2, 2013. Assistance provided by Smt. C. S. Kar and Saswat Mahapatra in the preparation of the address and the comments/suggestions on the draft by S/Shri G. Mahalingam, S. Ganeshkumar, A. Madhavan and Smt. Radha Somakumar gratefully acknowledged.

with transactions through cheques increasing at a decreasing rate. It would also be desirable to migrate the existing cheque usage to an electronic form in view of the benefit which would accrue to both the payer and payee of the cheque which in turn has a positive impact on the economy as a whole.

5. In fact, the 'Payment Systems in India – Vision 2012-15' talks about drawing up a strategy for disincentivising usage of cheques above a certain threshold limit by customers and corporates which may include prescribing a cut off limit for cheques cleared through clearing house arrangements. As announced in the 'Second Quarter Review of Monetary Policy' we are in the process of preparing a Discussion Paper on the methods aimed at disincentivising the issuance and usage of cheques in India and placing this paper in the public domain for comments.

6. Before coming to the challenges and strategies for moving paper based transactions to electronic mode, let me touch upon the need for doing so. As we all know, cheques when compared to electronic payments are less efficient for various reasons – it has high printing and processing costs, requires manual interventions in the form of encoding and keying in cheque details, poses significant reconciliation challenges in terms of payables and receivables, needs to be preserved for longer period as per legal and regulatory requirements, has longer clearing and processing cycle *etc.*, in addition to having inherent liquidity and credit risks. In contrast, electronic payments eliminate these inefficiencies and provide a faster, efficient, secured mode of transactions at a fraction of the cost. Electronic payments, where they are 'credit-push' based imply that credit, liquidity and systemic risks are substantially reduced, and there is also adequate certainty on funds availability to the beneficiary. Despite these perceived virtues, physical instruments are still preferred by people as they can be 'seen' and therefore more 'trustworthy' as compared to unseen electronic transactions happening in seconds! Here the challenge for the bankers is to change this mindset through training and education of customers.

7. Several studies have been undertaken on the cost and benefits of cheques *vis-à-vis* electronic payments. A study undertaken by the Reserve Bank of Australia in 2007-08 pegged the average payment cost of cheques (for consumers, merchants and financial institutions) at AUD7.69, as compared to AUD1.21 for credit cards and AUD 0.67 for EFTPOS.[1] The UK Payment Council in its report 'The Future of Cheques in UK' (2009) has indicated that the costs of electronic alternatives are at least one third lower than the cost of cheques. The report also estimates that the closure of the cheque clearing could lead to cost savings for the UK (for financial institutions and corporates) up to £1 billion per annum by 2018. Studies by Humphrey, Willesson, Bergandahl & Lindblom (2003)[2] found that migration away from paper-based payment methods was one of the key factor that contributed towards reduction in bank operating costs (a 24 per cent reduction, accounting for $32 bn) across Europe from 1987 -1999. Back home, studies by the Indian Banks' Association have also revealed that the costs relating to paper based instruments are relatively higher than electronic modes although the former is less efficient as well. To summarise, the key conclusion from several studies[3] is that there is a social business case for moving away from paper based instruments. That's why several jurisdictions such as UK, Canada, Ireland and Australia have drawn or are in the process of drawing the roadmaps for managing declining cheque usage in their jurisdictions.

8. However, this is easier said than done. Consumer habits which have been ingrained over the years do not change as quickly as changes in technology take place. So, even if newer electronic forms of payments are

1 Reserve Bank of Australia- 'Payments Costs In Australia'(page 117).

2 Quoted in 'Cheques Working Group Report' November 2006, Office of Fair Trading, UK.

3 Some of the studies have been quoted in the report 'Target 2013: Modernising Payments in Ireland' prepared by National Irish Bank.

introduced, widespread adoption of such modes takes time. Many users – including the Government – may also be apprehensive of using a 'new' mode of payment and as such may resist the movement from their 'comfort zone' (of using cheques).Issuing of cheques does not cost money (most banks offer some number of cheques leaves free of cost), whereas some charges have to be paid for initiating electronic payments. Given the lack of awareness, cost considerations may override safety and speed considerations.

9. Recognising the complexity of the challenge, any strategy to discourage the use of cheques by individuals as well as institutional users has to have a multi-pronged approach encompassing cost and time considerations, incentives for use of electronic modes of transactions and disincentives for the use of paper-based instruments. However, the decline of cheque usage has to be carefully managed so that the unwarranted ramifications such as slippage to cash based transactions and inconvenience to vulnerable segments of the customers having no access to alternative electronic modes of payments are avoided.

Why expand CTS if cheques are to be discontinued?

10. As you may be aware, gird CTS in Chennai now covers 43 clearing locations encompassing the states of Tamilnadu, Kerala, Karnataka, Andhra Pradesh, West Bengal and the Union Territories of Puducherry and Chandigarh. Pan-India roll out of CTS is expected to be completed by December 2013. Questions are being raised on the need for expansion of grid CTS for improving the efficiency of paper based clearing given the focus of the Vision Document towards electronic payments. Let me try to address these questions.

11. First, the paper-based clearing continues to be the dominant mode of retail payments in the country constituting 52 per cent in terms of volume. It is also widely accepted that consumer behaviour does not change as quickly as changes in technology. This being the case, despite our objective of electronification of payments, requirements for safety and efficiency enhancements in paper-based clearing cannot be ignored.

12. Second, even though Speed clearing hastens the process of cheque collection as compared to outstation cheque collection, it pre-supposes the presence of the drawee bank (at least one branch) in the clearing house location which could be a limitation. In comparison, grid-based CTS, is a superior system as it encompasses a larger geographical area and the chances of drawee bank not having presence in the grid location is significantly reduced.

13. Third, grid CTS would provide significant cost savings both to the system operators as well as the system participants. From a systemic perspective consolidation of clearing locations into a few grids would minimise the cost of replacement of aging MICR machines and the related AMC costs. Banks will benefit from economies of scale as the grid CTS obviates the need for establishing inward cheque processing infrastructure at various clearing locations. Further, once local clearing houses are subsumed into the grid, the settlements which are now spread across clearing locations would be subsumed into a single settlement, thereby significantly reducing the liquidity requirements (opportunity cost included) for the banks. The CTS will also result in other benefits in terms of reduction in the cheque processing fee, reduction in operational overhead, elimination of clearing differences and reconciliation issues *etc.*

14. Fourth, as long as physical instruments cannot be realistically wished away even in the medium-term scenario, it is economically sensible to leverage on technology to reduce the recurring processing costs, though it might involve a onetime capital expenditure.

15. There are a few challenges as well. The CTS implementation and the model adopted in India do not have a parallel elsewhere in the world and the features aimed at security and safety need to be addressed optimally. This is the reason behind the directive to all banks to migrate to the use of a

uniform standard for the CTS cheques. Further, there is an increase in the responsibilities of the collecting banker when compared to the non-CTS scenario. A change in the mindset of the staff of banks is also a vital necessity, and this would transcend to the ultimate customer too. While it is heartening to note the positive outcomes in all these areas, we must recognise that full scale achievement of these would take time.

Entry of non-banks in payment system – A mirage or a threat?

16. It is quite discernible in many payment services that non-banks have made in-roads into an area that was once considered the exclusive domain of banks. Traditionally, banks alone played an important role in holding deposit funds (store of value) and providing payment services (medium of exchange). With significant developments in technology going hand-in-hand with the growing demand for faster and more efficient payment services by users, banks no longer find it possible, viable or even necessary to offer the whole range of payment services (end-to-end) by themselves, when the same could be outsourced and offered more cost-effectively. These reasons coupled with the growth potential have led to the entry of non-banks into the payment services area.

17. Some of the reasons for the almost ubiquitous presence of non-banks in the payment services area could be (a) the changing consumer behaviour with increasing demand for more efficient and faster systems (b) advancements in technology which has greatly facilitated innovations in payment services (c) trend for out-sourcing – possibly due to objectives of reduction in capital investment by banks when the same task can be outsourced on a fee-basis (d) financial inclusion drives where non-banks are also playing a significant role especially in the field of mobile banking *etc.*

18. Given the fact that this trend is gaining strength, particularly in retail payments, the role of banks *vis-à-vis* non-banks merits some closer examination. Especially, the aspect of cooperation between the two or the lack of it needs some introspection. In India, despite the poster-product of M-pesa in Kenya and other African country models led by MNOs, we have consciously chosen the path of a bank-led model. Further, it would also be interesting to debate whether outsourcing is in itself a type of cooperation or is it just a paid service? Is there a level-playing field or is one partner the dominant one? And how would systemic risk be addressed when there are players whose core business may only be relating to the payment system offered by them and any misdemeanor in this area may well affect the entire customer base of the entity concerned?

19. I am raising these issues here because they are very pertinent for the future and also raise concerns for regulation. While healthy competition between banks and non-banks could have positive repercussions on the provision of cost-effective and efficient payment services to users, it could also have negative impact in case of non-transparent processes and charges structure as well as issues pertaining to the continued sustenance of the services offered. Further, increased risks, if any, due to presence of non-banks in payments area also needs to be better understood and managed.

Is the time ripe to review the role of the payment intermediaries?

20. RBI has been aware of the critical role played by the 'intermediaries' in the e-commerce arena. The intermediaries provide 'platform' for acceptance and processing of payments across multiple electronic payment channels. They offer payment aggregation services to a large number of businesses (small to large), governments, utilities, banks, insurance companies, *etc.* They act as payment aggregators by obviating the need for a merchant/organisation to set-up and manage a multiplicity of relationships with different financial institutions – *viz.,* banks, networks, wallets, prepaid issuers, *etc.* for accepting payments. Over the years the volume and value of transactions

handled by the intermediaries have grown manifold. Reportedly, there are the intermediaries who handle daily volumes of 6-7 lakh transactions for values ₹150 to ₹200 crore.

21. Though these entities at present are not authorised, they have been advised to follow directions on protection of customer funds. The growing importance of intermediaries warrants a review of the extant oversight mechanism. Some of the areas which need attention are the need for intermediaries to provide complete and transparent information to the customers on the success/failure of transactions; uniform and standard practice for refunds to the customers for failed/cancelled transactions and related customer service issues. Another area of concern is the operational risk that such entities may pose. As the customers, merchants and financial institutions depend on the intermediaries for payments/collections any disruption can negatively impact the payment system. While some of the big merchants have 'substitutability' or 'interoperability' arrangement in the form of payment gateway switching system, others fully depend on one intermediary. This underscores the importance of the operational risk being effectively addressed by the intermediaries.

22. Given the above, the need to continue with the existing light touch regulations *vis-à-vis* a focused oversight including authorisation for such of those entities which have a significant presence in the market would need to be explored. Further, the intermediaries perform certain niche functions which may not qualify to be part of the core businesses of banks. When specialisation and efficiency are existent, it would be appropriate to allow such intermediaries to play their roles, but with the added covenants relating to safety, business continuity, risk reduction and sustenance.

Do we need a Payment Industry Council/Association encompassing all stakeholders?

23. The payment landscape in India was for long primarily dominated by banks. Legislation of Payment and Settlement Systems Act, 2007 paved the way for entry of non-bank payment system operators. The payment system milieu covers an entire gamut of stakeholders like banks, non-bank payment system operators, technology providers, outsourcing agencies, network providers, intermediaries, customers, government *etc.* The increasing complexities in payment system demands that all the stakeholders work in tandem and collaborate. In the Indian scenario, the co-operation and co-ordination among stakeholders is more critical considering the fact that a significant section of the society is under-banked or unbanked. For example for mobile banking to leapfrog it is essential that banks and MNOs co-operate. Similarly, growth of PoS transactions would require co-ordination among merchants, banks, card networks *etc.*

24. Against this backdrop the need for an industry-level association open to all stakeholders needs to be evaluated. There are several such association/ payment councils like European Payment Council (EPC), UK Payment Council, Australian Payments Clearing Association (APCA) Payments Association of South Africa (PASA), to name a few, which provide the necessary platform for partnerships, collaboration, advocacy, and awareness around payments eco-system in their respective domains. In the Indian context, the Indian Banks Association represents the banks but does not have representations from non-banks and other stakeholders. It is true that there are small associations such as in the cards sector, but these are not all-pervasive across payment systems as a whole.

25. Industry-wide payments council/association will provide an excellent platform to brainstorm, collaborate and drive new technology proliferation, and thereby bring forth innovative solutions to create a robust payments infrastructure. The need for such a co-operative platform was touched upon in the 'Payment Systems Vision 2012-15' which stated that the feasibility of forming a standard setting body under the overall guidance of RBI with representation

from IBA, IDRBT and other stakeholders would be examined and taken forward.

How will the White Label ATM (WLA) scheme help expand ATM network in India?

26. Deployment of ATMs in India is witnessing a 30 per cent y-on-y growth in the last few years. However, the deployment is largely restricted to the urban/ metro areas while locations in Tier III to VI areas have not witnessed much ATM presence. Further, when compared to other countries the per capita ATM deployment in India continues to lag. Given the recent policy initiatives in Financial Inclusion, it is expected that a large number of bank accounts would be opened in Tier III to VI centres triggering a demand for basic banking services including convenience banking through ATMs. Thus, there is a need for expanding deployment of ATMs to increase availability and access especially in the rural areas.

27. Some of the reasons that were being attributed to the low deployment as indicated above were high cost of deployment and operation, inadequate support infrastructure, large requirement of human resources *etc.* The WLA concept exemplifies the benefits of partnership between banks and non-banks in building the payment infrastructure. The banks need not lock their funds since the capital investment is undertaken by the WLA operator and the operator gets a fee plus other charges for every transaction from the bank which has issued the card. RBI is in the process of authorising the first set of non-bank entities for operating WLAs.

28. WLA scheme is a watershed initiative for bank and non-bank partnership in payment space. However, the success would depend on how well the banks and non-bank entities complement each other. The efforts of non-banks to create ATM infrastructures need to be complemented by banks by bringing the financially excluded into the ambit of banking and issuing them cards, besides providing a mutually beneficial cash management and settlement of transactions services. Further, banks and non-banks need to act in tandem in redressing customer grievances relating to failed transactions. RBI would be closely monitoring the progress and proactively intervening when warranted.

Consumer protection in electronic payments – a peek through the looking glass or a Pandora's Box?

29. Having raised the issues of discouraging the use of cheques, moving to electronic platforms of payments, and the entry of non-banks into the payment domain, I also need to discuss one other important issue regarding 'consumer protection and rights' in payments. Just as it is well-understood that consumer behaviour does not change easily or quickly, it is also a moot point that some of the main underlying factors influencing customer choice relates to how transparent and secure the system is and how confident the customer is about getting a fair treatment in case of complaints/grievances. Often, the doubts the customer has about getting a 'raw deal' tilts the scale towards traditional payments – cash or cheque – just so that the customer wants to 'avoid the hassles' about failed transactions occurring in a media (online, electronic) that is unfamiliar to him/her.

30. Consumer protection issues mainly revolve around fraudulent and/or unauthorised transactions, unauthorised or excessive charges, failed transactions – non-delivery and rejections, late delivery of transactions, and disputes arising out of any or all of the above and complaint redressal. The catch is, as any banker would vouch for, while good consumer experience may not necessarily make for a second or repetitive use of the medium, bad consumer experience certainly creates a bitter feeling.

31. Even globally, it can be said that the need for and the discussion about consumer protection in electronic payments is a relatively new phenomenon as compared to cheques. Under cheques, consumer protection is provided by the nature of the banker-customer contract, which is not imposed by either of the parties but has been historically defined by

'practice' as a series of common law cases (which is true in most countries). However, with the introduction of electronic funds transfer systems and also the entry of non-bank entities, many contractual terms and conditions began to be imposed on consumers who often ended up bearing all the losses for unauthorised transactions. Gradually, many regulatory developments have taken place with the objective of enhancing consumer trust in online payments including addressing the issue of disproportionate charges for services rendered, limiting consumer liability *etc.* For instance, the Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010 requires the Federal Reserve to establish standards for interchange fees that are reasonable and proportional to the cost of processing debit card transactions, the EU Directive on Payment services in the internal market (Directive 2007) provides rules on transparency, timing of payments and information requirements (including rights and obligations of users and providers of payment services, liability rules *etc.*), EU Directive on Consumer Rights 2011 (to be implemented by December 2013 by all member states) aims to harmonise consumer protection in particular relating to purchase of digital content products and in cross border transactions.

32. How are we placed in terms of consumer protection and responsibilities of banks and customers in an electronic banking environment where physical transaction is replaced by electronic transaction, physical trail is replaced by electronic trail, and a physical signature is replaced with a digital one? How can we define the roles and responsibilities of banks and customers in such an environment to achieve a win-win situation for all? Is the customer really aware of his/her rights and responsibilities, or does the 'fine print' put all the liability on the customer? Does the regulatory requirement of 'authorisation' provide a sufficient safeguard for users of electronic payments? Are the existing Consumer Protection Act, Banking Ombudsman Act, and other grievance redressal mechanisms really up to handling issues arising out of payments systems arena which is increasingly getting electronic? Or does the law need to be strengthened further while focussing exclusively on consumer protection issues arising out of electronic transactions? Is there a need to dovetail Consumer protection with Consumer awareness as well since there is a lot of synergy between these two requirements? For instance, even as the RBI is taking steps to make Card Present transactions more secure, customer awareness can go a long way in enhancing customer protection while using Magstripe cards at a POS terminal. A simple case in point is how many of us really pay attention to the fact whether the merchant is checking the signature on the card during a transaction at the POS terminal? Today, matching the signature on charge-slip with that on the card is perfunctory. Should not this become a more serious exercise? I would encourage the Bankers' Club to arrange a Round Table to debate on these issues and come up with a technical paper.

33. As I conclude, let me also take this opportunity to provide some inputs on two other areas which will see vast improvements in large value payments as well as bring in additional messaging avenues – I am referring to the Next-Gen RTGS and the proposed entry of SWIFT for domestic messaging in India.

34. The existing RTGS system was commissioned in 2004. The volume of RTGS transactions have grown over the years and currently settles approximately a volume of around 3 lakh transactions a day. This raised issues of scalability of the existing RTGS system which was developed to handle a volume of 50,000 per day. Further, it is a well known fact that RTGS, being a gross settlement system, is liquidity intensive system.

35. The next generation RTGS (NG-RTGS) is structured to be equipped with liquidity saving features, an advanced gridlock resolution mechanism, increased security measures, operational reliability, business continuity and be compliant with international

standards. It would encourage inter-operability with alternative systems. The new system would endorse (a) the latest technology; (b) high scalability and flexibility to adapt to changes in the financial environment and other requirements; and (c) enhance accessibility to cope with changes in the financial environment, such as globalisation of financial transactions and networking of settlement infrastructures. It has been decided to adopt ISO 20022 message formats in the NG-RTGS system.

36. Currently, there is only one messaging solution – SFMS available for domestic messaging. In order to have an alternate messaging infrastructure, SWIFT has been accorded an in-principle approval for domestic messaging with specific terms and conditions. The participants would have the option to choose multiple channels to route the transactions to the central server in the Bank. The multiple channels are INFINET/ SFMS, SWIFT and the Internet.

37. One must recognise that payment systems have become a dominant factor affecting our day to day lives and has the potential to spur economic growth as well. Coupled with its capability to be omnipresent and have a plethora of players with varied backgrounds and interests, the need to ensure safe, secure and efficient payment systems gains importance. It is this task which the Reserve Bank is now concentrating upon. Like effective teams which achieve success in their efforts, the various players in the payment systems space also need to work in unison, with the ultimate objective of ensuring customer satisfaction. It may be good to pause and examine in an unbiased manner whether this has been achieved or not. If the level of achievement is not substantial enough, then we need to work out strategies for ensuring that they are achieved. For instance, how do we move away from cash transactions? Can we for instance try this at petrol bunks across the country? Can we implement wireless POS/mobile POS across the country for replacing all cash-on-delivery payments to electronic payments, be it cooking gas or pizza delivery? I recall that more than two decades ago, it was this state which witnessed the introduction of new players in transferring payments from the Gulf – the private exchange houses which played a very specific role which was required at that point of time. Today, as the country is looking with great expectations for innovations in payment systems, can we look forward to an encore from the southernmost state of the country? Can the payment system operations in the God's own country function qualitatively and in terms of customer delight invoke even God's envy?

Thank you for your attention. Once again, wish you all a wonderful New Year.

CURRENT STATISTICS

Select Economic Indicators

Reserve Bank of India

Money and Banking

Prices and Production

Government Accounts and Treasury Bills

Financial Markets

External Sector

Payment and Settlement Systems

Occasional Series

Contents

Notes: .. = Not available.
– = Nil/Negligible.
P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2011-12	2011-12		2012-13	
		Q1	Q2	Q1	Q2
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GDP	6.5	8.0	6.7	5.5	5.3
1.1.1 Agriculture	2.8	3.7	3.1	2.9	1.2
1.1.2 Industry	2.6	6.5	2.7	0.8	1.2
1.1.3 Services	8.5	9.3	8.5	7.4	7.1
1.1a Final Consumption Expenditure	5.5	4.9	4.9	4.7	4.4
1.1b Gross Fixed Capital Formation	5.5	14.7	5.0	0.7	4.1
	2011-12	**2011**		**2012**	
		Nov	**Dec**	**Nov**	**Dec**
	1	2	3	4	5
1.2 Index of Industrial Production	2.9	6.0	2.7	-0.1	..
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	13.5	16.5	17.0	13.9	11.1
2.1.2 Credit	17.0	17.7	16.0	18.4	15.2
2.1.2.1 Non-food Credit	16.8	11.2	17.1	18.0	14.9
2.1.3 Investment in Govt. Securities	15.9	16.1	17.2	14.9	14.5
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	3.7	13.7	12.2	2.9	4.6
2.2.2 Broad Money (M3)	13.2	15.5	16.0	13.7	11.2
3 Ratios (%)					
3.1 Cash Reserve Ratio	4.75	6.00	6.00	4.25	4.25
3.2 Statutory Liquidity Ratio	24.0	24.0	24.0	23.0	23.0
3.3 Cash-Deposit Ratio	6.1	7.0	6.7	5.1	5.3
3.4 Credit-Deposit Ratio	76.5	74.1	74.9	77.1	77.6
3.5 Incremental Credit-Deposit Ratio	78.1	56.5	68.4	65.9	73.2
3.6 Investment-Deposit Ratio	29.4	30.3	29.1	30.5	29.9
3.7 Incremental Investment-Deposit Ratio	29.4	47.5	30.9	43.2	35.5
4 Interest Rates (%)					
4.1 Policy Repo Rate	8.5	8.5	8.5	8.0	8.0
4.2 Reverse Repo Rate	7.5	7.5	7.5	7.0	7.0
4.3 Marginal Standing Facility (MSF) Rate	9.5	9.5	9.5	9.0	9.0
4.4 Bank Rate	9.5	6.0	6.0	9.0	9.0
4.5 Base Rate	10.00/10.75	10.00/10.75	10.00/10.75	9.75/10.50	9.75/10.50
4.6 Term Deposit Rate >1 Year	8.50/9.25	8.25/9.25	8.25/9.25	8.50/9.00	8.50/9.00
4.7 Savings Deposit Rate	4.00	4.00	4.00	4.00	4.00
4.8 Call Money Rate (Weighted Average)	8.22	8.56	8.83	8.02	8.31
4.9 91-Day Treasury Bill (Primary) Yield	9.02	8.81	8.48	8.19	8.19
4.10 182-Day Treasury Bill (Primary) Yield	8.66	8.84	8.27	8.16	8.14
4.11 364-Day Treasury Bill (Primary) Yield	8.40	8.45	8.35	8.11	8.01
4.12 10-Year Government Securities Yield	8.62	8.21	8.56	8.18	8.11
5 RBI Reference Rate and Forward Premia					
5.1 INR-US$ Spot Rate (₹ Per Foreign Currency)	51.16	52.17	53.27	54.53	54.78
5.2 INR-Euro Spot Rate (₹ Per Foreign Currency)	68.34	69.47	68.90	70.89	72.26
5.3 Forward Premia of US$ 1-month (%)	8.68	6.90	8.11	7.26	7.78
3-month (%)	7.66	4.98	6.76	6.42	6.79
6-month (%)	6.80	4.14	6.23	6.24	6.43
6 Inflation (%)					
6.1 Wholesale Price Index	9.0	9.5	7.7	7.2	7.2
6.1.1 Primary Articles	9.8	8.9	3.6	9.4	10.6
6.1.2 Fuel and Power	14.0	15.5	15.0	10.0	9.4
6.1.3 Manufactured Products	7.2	8.2	7.6	5.4	5.0
6.2 All India Consumer Price Index	..	..	..	9.9	10.6
6.3 Consumer Price Index for Industrial Workers	8.3	9.3	6.5	9.5	11.2
7 Foreign Trade (% Change)					
7.1 Imports	32.3	35.6	27.1	6.1	6.3
7.2 Exports	21.8	3.1	8.6	-6.4	-1.9

Reserve Bank of India

No. 2: RBI - Liabilities and Assets

(₹ Billion)

Item	As on the Last Friday/ Friday						
	2011-12	2012		2013			
		Jan.	Dec. 28	Jan. 4	Jan. 11	Jan. 18	Jan. 25
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	10,558.28	10,245.75	11,272.62	11,273.94	11,406.21	11,467.22	11,436.53
1.1.2 Notes held in Banking Department	0.12	0.15	0.08	0.11	0.13	0.14	0.14
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	**10,558.40**	**10,245.90**	**11,272.70**	**11,274.05**	**11,406.35**	**11,467.36**	**11,436.67**
1.2 Assets							
1.2.1 Gold Coin and Bullion	724.43	743.07	794.39	781.30	781.30	781.30	781.30
1.2.2 Foreign Securities	9,822.63	9,490.63	10,466.97	10,479.74	10,612.46	10,673.84	10,643.50
1.2.3 Rupee Coin	0.88	1.73	0.87	2.54	2.12	1.75	1.40
1.2.4 Government of India Rupee Securities	10.46	10.46	10.46	10.46	10.46	10.46	10.46
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	4,255.36	4,014.75	4,089.55	3,337.23	3,577.73	3,407.81	3,817.56
2.1.1.1 Central Government	489.51	1.01	825.60	197.26	306.19	122.37	405.39
2.1.1.2 Market Stabilisation Scheme	–	–	–	–	–	–	–
2.1.1.3 State Governments	0.42	0.42	0.42	0.42	0.42	0.42	1.07
2.1.1.4 Scheduled Commercial Banks	3,465.45	3,683.65	2,972.61	2,847.48	2,980.48	2,989.98	3,118.06
2.1.1.5 Scheduled State Co-operative Banks	34.46	38.41	30.88	30.27	29.58	32.29	30.76
2.1.1.6 Non-Scheduled State Co-operative Banks	0.87	0.59	1.65	1.89	1.88	1.93	2.13
2.1.1.7 Other Banks	147.56	169.82	138.82	140.82	140.60	141.91	141.34
2.1.1.8 Others	117.08	120.84	119.56	119.09	118.58	118.90	118.80
2.1.2 Other Liabilities	5,990.18	5,462.25	7,230.79	7,142.01	7,151.37	6,971.18	6,963.40
2.1/2.2 Total Liabilities or Assets	**10,245.54**	**9,477.00**	**11,320.35**	**10,479.24**	**10,729.11**	**10,378.99**	**10,780.96**
2.2 Assets							
2.2.1 Notes and Coins	0.12	0.15	0.08	0.11	0.13	0.14	0.14
2.2.2 Balances held Abroad	3,514.56	3,440.89	3,944.59	3,879.26	3,732.41	3,480.30	3,489.98
2.2.3 Loans and Advances							
2.2.3.1 Central Government	–	–	–	–	–	–	–
2.2.3.2 State Governments	2.28	0.87	7.10	–	0.55	1.55	2.03
2.2.3.3 Scheduled Commercial Banks	63.25	92.62	244.25	233.06	216.95	243.94	246.80
2.2.3.4 Scheduled State Co-op.Banks	–	–	–	–	–	–	–
2.2.3.5 Industrial Dev. Bank of India	–	–	–	–	–	–	–
2.2.3.6 NABARD	–	–	–	–	–	–	–
2.2.3.7 EXIM Bank	–	–	–	–	–	–	–
2.2.3.8 Others	26.93	19.88	25.42	29.63	29.61	22.92	18.76
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	–	–	–	–	–	–	–
2.2.4.2 Government Treasury Bills	–	–	–	–	–	–	–
2.2.5 Investments	5,904.72	5,187.82	6,327.96	5,576.66	5,987.32	5,867.41	6,259.46
2.2.6 Other Assets	733.68	734.77	770.94	760.52	762.12	762.73	763.79
2.2.6.1 Gold	658.07	674.99	721.61	709.73	709.73	709.73	709.73

No. 3: Liquidity Operations by RBI

(₹ Billion)

Date	Liquidity Adjustment Facility		MSF	Standing Liquidity Facilities	OMO (Outright)		Net Injection (+)/ Absorption (-) (1+3+4+6-2-5)
	Repo	Reverse Repo			Sale	Purchase	
	1	2	3	4	5	6	7
Dec. 1, 2012	869.25	2.50	–	–	–	–	866.75
Dec. 3, 2012	1,133.90	0.00	–	30.30	–	–	1,164.20
Dec. 4, 2012	944.15	0.00	–	–4.60	–	–	939.55
Dec. 5, 2012	796.25	0.00	–	0.40	–	116.43	913.08
Dec. 6, 2012	732.05	0.00	–	16.60	–	–	748.65
Dec. 7, 2012	1,028.20	18.20	–	–26.33	–	–	983.67
Dec. 8, 2012	1,028.20	18.20	–	–	–	–	1,010.00
Dec. 10, 2012	907.90	10.00	–	1.40	–	–	899.30
Dec. 11, 2012	828.05	20.00	–	0.60	–	–	808.65
Dec. 12, 2012	733.35	1.00	–	0.00	–	116.03	848.38
Dec. 13, 2012	811.55	0.05	–	7.90	–	–	819.40
Dec. 14, 2012	1,298.85	5.00	–	–96.00	–	–	1,197.86
Dec. 15, 2012	1,298.85	5.00	–	–	–	–	1,293.85
Dec. 17, 2012	1,463.00	0.10	–	111.70	–	–	1,574.60
Dec. 18, 2012	1,517.70	0.00	–	–5.00	–	–	1,512.70
Dec. 19, 2012	1,646.15	0.00	–	13.00	–	–	1,659.15
Dec. 20, 2012	1,701.40	0.00	–	5.49	–	–	1,706.89
Dec. 21, 2012	1,632.25	0.50	–	–14.67	–	–	1,617.08
Dec. 22, 2012	1,632.25	0.50	–	–	–	–	1,631.75
Dec. 24, 2012	1,503.90	0.00	–	–29.40	–	79.12	1,553.62
Dec. 26, 2012	1,355.35	1.55	–	–3.50	–	–	1,350.31
Dec. 27, 2012	1,309.80	2.45	–	–3.07	–	–	1,304.28
Dec. 28, 2012	1,412.80	22.45	–	–6.40	–	–	1,383.95
Dec. 31, 2012	1,565.45	0.50	17.00	43.70	–	78.99	1,704.64

No. 4: Sale/ Purchase of U.S. Dollar by the RBI

Item	2011-12	2011	2012	
		Dec.	Nov.	Dec.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US$ Million) (1.1–1.2)	–20,138.00	–7,809.00	–921.00	–50.00
1.1 Purchase (+)	1,665.00	–	855.00	1,685.00
1.2 Sale (–)	21,803.00	7,809.00	1,776.00	1,735.00
2 ₹ equivalent at contract rate (₹ Billion)	–1,044.98	–413.29	–50.52	–3.73
3 Cumulative (over end-March 2012) (US $ Million)	–20,138.00	–12,515.00	–3,073.00	–3,123.00
(₹ Billion)	–1,044.98	–650.18	–165.88	–169.61
4 Outstanding Net Forward Sales (–)/ Purchase (+) at the end of month (US$ Million)	–3,233.00	–1,370.00	–13,537.00	–13,487.00

No. 5: RBI's Standing Facilities

(₹ Billion)

Item	As on the Last Reporting Friday							
	2011-12	2011	2012					
		Dec. 30	Jul. 27	Aug. 24	Sep. 21	Oct. 19	Nov. 30	Dec. 28
	1	2	3	4	5	6	7	8
1 MSF	–	–	–	–	–	–	–	–
2 Export Credit Refinance for Scheduled Banks								
2.1 Limit	131.5	119.8	424.6	391.8	381.1	376.9	377.3	383.5
2.2 Outstanding	87.9	59.1	110.5	69.1	166.0	166.1	229.7	245.4
3 Liquidity Facility for PDs								
3.1 Limit	26.7	26.7	28.0	28.0	28.0	28.0	28.0	28.0
3.2 Outstanding	13.1	6.1	3.4	5.9	3.2	3.2	8.7	7.7
4 Others								
4.1 Limit	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
4.2 Outstanding	13.3	5.3	31.1	25.4	19.7	5.3	32.7	16.4
5 Total Outstanding (1+2.2+3.2+4.2)	114.3	70.5	145.0	100.4	188.9	174.6	271.1	269.5

Money and Banking

No. 6: Money Stock Measures

(₹ Billion)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2011-12	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	10,256.7	9,766.1	10,880.2	11,039.5	10,920.5
1.1 Notes in Circulation	10,537.9	10,067.6	11,258.4	11,370.7	11,272.6
1.2 Circulation of Rupee Coin	127.1	123.1	139.8	139.8	139.8
1.3 Circulation of Small Coins	7.4	7.4	7.4	7.4	7.4
1.4 Cash on Hand with Banks	415.6	431.9	525.4	478.4	499.3
2 Deposit Money of the Public	7,077.4	7,212.1	7,101.6	6,984.4	7,223.6
2.1 Demand Deposits with Banks	7,049.1	7,189.8	7,077.9	6,959.5	7,208.2
2.2 'Other' Deposits with Reserve Bank	28.2	22.3	23.8	24.9	15.4
3 M_1 (1 + 2)	17,334.0	16,978.1	17,981.9	18,023.9	18,144.1
4 Post Office Saving Bank Deposits	50.4	50.4	50.4	50.4	50.4
5 M_2 (3 + 4)	17,384.4	17,028.6	18,032.3	18,074.3	18,194.5
6 Time Deposits with Banks	56,243.5	55,235.3	61,953.7	61,987.5	62,175.1
7 M_3 (3 + 6)	73,577.5	72,213.4	79,935.6	80,011.4	80,319.2
8 Total Post Office Deposits	259.7	259.7	259.7	259.7	259.7
9 M_4 (7 + 8)	73,837.2	72,473.1	80,195.3	80,271.1	80,578.9

No. 7: Sources of Money Stock (M_3)

(₹ Billion)

Sources	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2011-12	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 Net Bank Credit to Government	**23,716.1**	**22,409.5**	**26,088.6**	**26,589.0**	**25,957.7**
1.1 RBI's net credit to Government (1.1.1–1.1.2)	5,357.4	4,500.6	5,358.4	5,972.4	5,504.7
1.1.1 Claims on Government	5,542.0	4,502.0	5,465.7	6,156.4	6,330.7
1.1.1.1 Central Government	5,528.3	4,501.6	5,463.7	6,143.3	6,323.6
1.1.1.2 State Governments	13.7	0.4	2.0	13.1	7.1
1.1.2 Government deposits with RBI	184.6	1.4	107.3	184.0	826.0
1.1.2.1 Central Government	184.2	1.0	106.8	183.5	825.6
1.1.2.2 State Governments	0.4	0.4	0.4	0.4	0.4
1.2 Other Banks' Credit to Government	18,358.8	17,908.9	20,730.2	20,616.6	20,453.1
2 Bank Credit to Commercial Sector	**49,605.3**	**47,047.6**	**53,426.0**	**53,445.2**	**54,105.1**
2.1 RBI's credit to commercial sector	39.6	32.7	54.5	43.5	37.3
2.2 Other banks' credit to commercial sector	49,565.7	47,014.9	53,371.4	53,401.7	54,067.8
2.2.1 Bank credit by commercial banks	46,118.5	43,668.8	49,590.7	49,626.5	50,272.2
2.2.2 Bank credit by co-operative banks	3,382.2	3,275.3	3,731.9	3,724.1	3,746.5
2.2.3 Investments by commercial and co-operative banks in other securities	65.0	70.8	48.9	51.1	49.1
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	**15,437.8**	**15,959.3**	**16,191.7**	**16,270.2**	**16,385.1**
3.1 RBI's net foreign exchange assets (3.1.1–3.1.2)	14,722.0	15,444.6	15,736.4	15,814.9	15,929.8
3.1.1 Gross foreign assets	14,722.0	15,444.8	15,736.7	15,815.1	15,930.1
3.1.2 Foreign liabilities	0.1	0.2	0.2	0.2	0.3
3.2 Other banks' net foreign exchange assets	715.8	514.7	455.3	455.3	455.3
4 Government's Currency Liabilities to the Public	**134.4**	**130.4**	**147.2**	**147.2**	**147.2**
5 Banking Sector's Net Non-monetary Liabilities	**15,316.2**	**13,333.3**	**15,918.0**	**16,440.2**	**16,276.0**
5.1 Net non-monetary liabilities of RBI	6,038.4	6,233.0	7,111.8	7,178.6	7,285.1
5.2 Net non-monetary liabilities of other banks (residual)	9,277.8	7,100.3	8,806.2	9,261.6	8,990.9
M_3 (1+2+3+4–5)	**73,577.5**	**72,213.4**	**79,935.6**	**80,011.4**	**80,319.2**

No. 8: Monetary Survey

(₹ Billion)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2011-12	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
Monetary Aggregates					
M_1 (1.1 + 1.2.1+1.3)	17,238.0	16,890.6	17,882.7	17,925.7	18,046.1
NM_2 (M_1 + 1.2.2.1)	41,688.4	40,890.3	44,772.6	44,830.0	45,032.4
NM_3 (NM_2 + 1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	73,636.7	71,799.6	79,661.7	79,696.1	80,057.4
1 Components					
1.1 Currency with the Public	10,266.0	9,774.6	10,892.9	11,051.7	10,931.5
1.2 Aggregate Deposits of Residents	61,277.9	60,426.4	66,721.5	66,636.4	67,068.8
1.2.1 Demand Deposits	6,943.7	7,093.7	6,966.1	6,849.2	7,099.1
1.2.2 Time Deposits of Residents	54,334.2	53,332.6	59,755.4	59,787.2	59,969.6
1.2.2.1 Short-term Time Deposits	24,450.4	23,999.7	26,889.9	26,904.3	26,986.3
1.2.2.1.1 Certificates of Deposit (CDs)	4,539.0	4,093.0	3,097.4	3,047.1	3,343.9
1.2.2.2 Long-term Time Deposits	29,883.8	29,333.0	32,865.5	32,883.0	32,983.3
1.3 'Other' Deposits with RBI	28.2	22.3	23.8	24.9	15.4
1.4 Call/Term Funding from Financial Institutions	2,064.5	1,576.4	2,023.6	1,983.2	2,041.7
2 Sources					
2.1 Domestic Credit	74,800.1	71,101.4	81,361.9	81,904.2	81,936.4
2.1.1 Net Bank Credit to the Government	23,339.3	22,046.1	25,629.2	26,130.4	25,495.9
2.1.1.1 Net RBI credit to the Government	5,357.4	4,500.6	5,358.4	5,972.4	5,504.7
2.1.1.2 Credit to the Government by the Banking System	17,981.9	17,545.5	20,270.8	20,158.0	19,991.2
2.1.2 Bank Credit to the Commercial Sector	51,460.8	49,055.2	55,732.7	55,773.8	56,440.5
2.1.2.1 RBI Credit to the Commercial Sector	39.6	32.7	54.5	43.5	37.3
2.1.2.2 Credit to the Commercial Sector by the Banking System	51,421.2	49,022.6	55,678.2	55,730.2	56,403.2
2.1.2.2.1 Other Investments (Non-SLR Securities)	2,719.7	2,810.3	3,288.2	3,295.5	3,310.8
2.2 Government's Currency Liabilities to the Public	134.4	130.4	147.2	147.2	147.2
2.3 Net Foreign Exchange Assets of the Banking Sector	13,950.1	14,374.4	14,489.9	14,610.7	14,646.3
2.3.1 Net Foreign Exchange Assets of the RBI	14,722.0	15,444.6	15,736.4	15,814.9	15,929.8
2.3.2 Net Foreign Currency Assets of the Banking System	–771.8	–1,070.2	–1,246.6	–1,204.2	–1,283.5
2.4 Capital Account	11,094.1	11,429.5	13,021.1	13,061.7	13,179.0
2.5 Other items (net)	4,154.0	2,377.0	3,316.3	3,904.3	3,493.5

No. 9: Liquidity Aggregates

(₹ Billion)

Aggregates	2011-12	2011	2012		
		Dec.	Oct.	Nov.	Dec.
	1	2	3	4	5
1 NM_3	73,636.7	71,799.6	78,787.8	79,661.7	80,057.4
2 Postal Deposits	1,241.5	1,213.4	1,337.1	1,349.9	1,349.9
3 L_1 (1 + 2)	74,878.2	73,013.0	80,124.9	81,011.6	81,407.3
4 Liabilities of Financial Institutions	29.3	29.3	29.3	29.3	29.3
4.1 Term Money Borrowings	26.6	26.6	26.6	26.6	26.6
4.2 Certificates of Deposit	0.3	0.3	0.3	0.3	0.3
4.3 Term Deposits	2.5	2.5	2.5	2.5	2.5
5 L_2 (3 + 4)	74,907.5	73,042.3	80,154.2	81,040.9	81,436.7
6 Public Deposits with Non-Banking Financial Companies	101.1	103.4	–	–	99.4
7 L_3 (5 + 6)	75,008.6	73,145.7	–	–	81,536.1

No. 10: Reserve Bank of India Survey

(₹ Billion)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2011-12	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	10,672.3	10,198.0	11,405.6	11,517.9	11,419.8
1.2 Bankers' Deposits with the RBI	3,562.9	3,714.0	2,985.2	3,427.7	3,144.0
1.2.1 Scheduled Commercial Banks	3,373.6	3,506.1	2,812.8	3,255.9	2,972.6
1.3 'Other' Deposits with the RBI	28.2	22.3	23.8	24.9	15.4
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	14,263.4	13,934.3	14,414.6	14,970.5	14,579.3
2 Sources					
2.1 RBI's Domestic Credit	5,445.5	4,592.4	5,642.7	6,187.0	5,787.3
2.1.1 Net RBI credit to the Government	5,357.4	4,500.6	5,358.4	5,972.4	5,504.7
2.1.1.1 Net RBI credit to the Central Government (2.1.1.1.1 + 2.1.1.1.2 + 2.1.1.1.3 + 2.1.1.1.4 – 2.1.1.1.5)	5,344.1	4,500.6	5,356.9	5,959.8	5,498.0
2.1.1.1.1 Loans and Advances to the Central Government	–	109.9	–	–	–
2.1.1.1.2 Investments in Treasury Bills	–	–	–	–	–
2.1.1.1.3 Investments in dated Government Securities	5,527.5	4,388.9	5,461.6	6,141.9	6,322.7
2.1.1.1.3.1 Central Government Securities	5,517.0	4,378.4	5,451.2	6,131.4	6,312.3
2.1.1.1.4 Rupee Coins	0.8	2.9	2.1	1.5	0.9
2.1.1.1.5 Deposits of the Central Government	184.2	1.0	106.8	183.5	825.6
2.1.1.2 Net RBI credit to State Governments	13.2	0.0	1.5	12.7	6.7
2.1.2 RBI's Claims on Banks	48.5	59.1	229.7	171.0	245.4
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	48.5	58.8	228.5	169.9	244.3
2.1.3 RBI's Credit to Commercial Sector	39.6	32.7	54.5	43.5	37.3
2.1.3.1 Loans and Advances to Primary Dealers	13.6	6.8	8.7	8.6	8.6
2.1.3.2 Loans and Advances to NABARD	–	–	–	–	–
2.2 Government's Currency Liabilities to the Public	134.4	130.4	147.2	147.2	147.2
2.3 Net Foreign Exchange Assets of the RBI	14,722.0	15,444.6	15,736.4	15,814.9	15,929.8
2.3.1 Gold	1,382.5	1,418.1	1,516.0	1,516.0	1,516.0
2.3.2 Foreign Currency Assets	13,339.6	14,026.7	14,220.6	14,299.1	14,414.0
2.4 Capital Account	5,490.0	5,904.9	6,686.7	6,725.9	6,818.1
2.5 Other Items (net)	548.4	328.1	425.0	452.7	467.0

No. 11: Reserve Money - Components and Sources

(₹ Billion)

Item	Outstanding as on March 31/ last Fridays of the month/ Fridays						
	2011-12	2011	2012				
		Dec. 30	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28
	1	2	3	4	5	6	7
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 + 2.4 + 2.5 – 2.6)	14,263.4	13,934.3	14,414.6	14,741.4	14,970.5	14,703.5	14,579.3
1 Components							
1.1 Currency in Circulation	10,672.3	10,198.0	11,405.6	11,491.5	11,517.9	11,485.5	11,419.8
1.2 Bankers' Deposits with RBI	3,562.9	3,714.0	2,985.2	3,222.0	3,427.7	3,201.8	3,144.0
1.3 'Other' Deposits with RBI	28.2	22.3	23.8	28.0	24.9	16.2	15.4
2 Sources							
2.1 Net Reserve Bank Credit to Government	5,357.4	4,500.6	5,358.4	5,651.5	5,972.4	5,604.4	5,504.7
2.2 Reserve Bank Credit to Banks	48.5	59.1	229.7	251.6	171.0	288.0	245.4
2.3 Reserve Bank Credit to Commercial Sector	39.6	32.7	54.5	49.0	43.5	37.1	37.3
2.4 Net Foreign Exchange Assets of RBI	14,722.0	15,444.6	15,736.4	15,678.5	15,814.9	15,989.0	15,929.8
2.5 Government's Currency Liabilities to the Public	134.4	130.4	147.2	147.2	147.2	147.2	147.2
2.6 Net Non- Monetary Liabilities of RBI	6,038.4	6,233.0	7,111.8	7,036.3	7,178.6	7,362.2	7,285.1

No. 12: Commercial Bank Survey

(₹ Billion)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2011-12	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	58,309.6	57,499.2	63,614.3	63,525.1	63,956.2
1.1.1 Demand Deposits	6,253.3	6,410.0	6,249.1	6,131.1	6,380.9
1.1.2 Time Deposits of Residents	52,056.3	51,089.2	57,365.2	57,394.0	57,575.4
1.1.2.1 Short-term Time Deposits	23,425.3	22,990.1	25,814.3	25,827.3	25,908.9
1.1.2.1.1 Certificates of Deposits (CDs)	4,247.0	4,093.0	3,097.4	3,047.1	3,343.9
1.1.2.2 Long-term Time Deposit	28,631.0	28,099.0	31,550.8	31,566.7	31,666.4
1.2 Call/Term Funding from Financial Institutions	2,064.5	1,576.4	2,023.6	1,983.2	2,041.7
2 Sources					
2.1 Domestic Credit	66,236.7	63,382.6	72,510.8	72,443.2	72,947.0
2.1.1 Credit to the Government	17,350.2	16,914.8	19,652.0	19,533.0	19,365.4
2.1.2 Credit to the Commercial Sector	48,886.5	46,467.7	52,858.7	52,910.2	53,581.6
2.1.2.1 Bank Credit	46,118.5	43,668.8	49,590.7	49,626.5	50,272.2
2.1.2.1.1 Non-food Credit	45,305.5	42,823.3	48,512.7	48,539.7	49,196.5
2.1.2.2 Net Credit to Primary Dealers	30.0	45.0	39.3	45.5	57.9
2.1.2.3 Investments in Other Approved Securities	27.7	33.2	30.1	32.3	30.4
2.1.2.4 Other Investments (in non-SLR Securities)	2,710.2	2,720.7	3,198.6	3,205.9	3,221.2
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1–2.2.2–2.2.3)	–801.9	–1,070.2	–1,246.6	–1,204.2	–1,283.5
2.2.1 Foreign Currency Assets	732.7	512.8	382.5	427.8	421.1
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	781.2	825.9	814.1	814.3	816.2
2.2.3 Overseas Foreign Currency Borrowings	753.4	757.1	814.9	817.7	888.4
2.3 Net Bank Reserves (2.3.1+2.3.2–2.3.3)	3,506.5	3,825.9	3,054.2	3,509.3	3,173.6
2.3.1 Balances with the RBI	3,232.7	3,506.1	2,812.8	3,255.9	2,972.6
2.3.2 Cash in Hand	361.3	378.6	470.0	423.4	445.3
2.3.3 Loans and Advances from the RBI	87.5	58.8	228.5	169.9	244.3
2.4 Capital Account	5,291.5	5,282.9	6,092.7	6,094.1	6,119.2
2.5 Other items (net) (2.1+2.2+2.3–2.4–1.1–1.2)	3,275.5	1,779.7	2,587.9	3,146.0	2,719.9
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	2,980.5	2,952.2	3,052.9	3,244.7	3,049.5
2.5.2 Net Inter-Bank Liabilities (other than to PDs)	–525.9	–651.6	–516.7	–585.5	–648.9

No. 13: Scheduled Commercial Banks' Investments

(₹ Billion)

Item	As on March 23, 2012	2011	2012		
		Dec. 30	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 SLR Securities	17,377.9	16,948.1	19,656.5	19,565.3	19,395.7
2 Commercial Paper	196.0	214.9	322.1	311.9	402.8
3 Shares issued by					
3.1 PSUs	72.0	75.1	78.2	79.0	79.1
3.2 Private Corporate Sector	301.1	294.4	318.5	315.1	320.5
3.3 Others	5.2	5.1	5.9	6.1	8.8
4 Bonds/Debentures issued by					
4.1 PSUs	412.1	330.7	339.6	319.9	354.5
4.2 Private Corporate Sector	740.5	780.7	942.1	944.8	972.6
4.3 Others	349.3	385.2	414.3	396.9	407.0
5 Instruments issued by					
5.1 Mutual funds	251.4	270.5	455.9	467.7	278.6
5.2 Financial institutions	382.5	364.1	373.0	364.5	397.3

No. 14: Business in India - All Scheduled Banks and All Scheduled Commercial Banks

(₹ Billion)

Item	As on the Last Reporting Friday (in case of March)/ Last Friday							
	All Scheduled Banks				All Scheduled Commercial Banks			
	2011-12	2011	2012	2012	2011-12	2011	2012	2012
		Dec.	Nov.	Dec.		Dec.	Nov.	Dec.
	1	2	3	4	5	6	7	8
Number of Reporting Banks	237	234	225	232	169	166	158	165
1 Liabilities to the Banking System	1,256.1	1,221.1	1,209.9	1,247.2	1,223.2	1,189.9	1,177.1	1,212.7
1.1 Demand and Time Deposits from Banks	874.5	774.1	816.5	828.0	842.5	744.9	786.6	798.0
1.2 Borrowings from Banks	320.1	327.3	309.6	346.8	319.2	325.4	306.8	342.3
1.3 Other Demand and Time Liabilities	61.5	119.6	83.8	72.5	61.4	119.5	83.7	72.4
2 Liabilities to Others	66,655.8	65,295.9	72,137.8	72,677.4	64,889.2	63,610.8	70,227.1	70,752.1
2.1 Aggregate Deposits	60,777.9	59,940.3	66,205.6	66,629.8	59,090.8	58,325.1	64,363.6	64,772.5
2.1.1 Demand	6,401.7	6,553.9	6,381.1	6,543.0	6,253.3	6,410.0	6,219.5	6,380.9
2.1.2 Time	54,376.3	53,386.3	59,824.5	60,086.8	52,837.5	51,915.1	58,144.1	58,391.5
2.2 Borrowings	2,083.3	1,589.3	2,031.5	2,054.0	2,064.5	1,576.4	2,017.7	2,041.7
2.3 Other Demand and Time Liabilities	3,794.6	3,766.3	3,900.6	3,993.7	3,733.9	3,709.3	3,845.8	3,937.9
3 Borrowings from Reserve Bank	87.9	59.1	229.7	245.4	87.5	58.8	228.5	244.3
3.1 Against Usance Bills /Promissory Notes	–	–	–	–	–	–	–	–
3.2 Others	87.9	59.1	229.7	245.4	87.5	58.8	228.5	244.3
4 Cash in Hand and Balances with Reserve Bank	3,687.0	3,993.2	3,376.1	3,509.0	3,594.0	3,884.7	3,283.1	3,417.9
4.1 Cash in Hand	369.7	387.6	481.4	455.2	361.3	378.6	470.3	445.3
4.2 Balances with Reserve Bank	3,317.3	3,605.5	2,894.6	3,053.8	3,232.7	3,506.1	2,812.8	2,972.6
5 Assets with the Banking System	2,040.1	2,117.4	1,977.9	2,190.2	1,779.1	1,886.5	1,724.0	1,919.5
5.1 Balances with Other Banks	792.1	733.7	838.4	932.4	706.5	656.5	739.2	839.0
5.1.1 In Current Account	117.8	115.9	113.5	121.6	103.2	99.1	97.0	106.7
5.1.2 In Other Accounts	674.3	617.8	724.9	810.8	603.3	557.4	642.2	732.3
5.2 Money at Call and Short Notice	356.9	354.8	324.4	398.6	232.8	248.6	235.0	284.0
5.3 Advances to Banks	139.6	97.8	91.2	115.7	135.8	94.2	74.7	109.1
5.4 Other Assets	751.6	931.0	723.9	743.5	703.9	887.2	675.2	687.5
6 Investment	17,912.9	17,471.7	20,243.8	19,993.0	17,377.9	16,948.1	19,656.5	19,395.7
6.1 Government Securities	17,882.7	17,435.4	20,219.6	19,960.5	17,350.2	16,914.8	19,634.4	19,365.4
6.2 Other Approved Securities	30.2	36.3	24.2	32.6	27.7	33.2	22.1	30.4
7 Bank Credit	47,537.8	45,007.4	51,131.6	51,873.1	46,118.5	43,668.8	49,567.0	50,272.2
7a Food Credit	876.3	908.7	1,159.2	1,156.9	813.0	845.5	1,077.9	1,075.6
7.1 Loans, Cash-credits and Overdrafts	45,760.4	43,352.5	49,353.5	49,979.8	44,359.8	42,032.8	47,808.5	48,402.1
7.2 Inland Bills-Purchased	168.3	164.0	232.2	233.4	163.4	159.6	226.7	228.0
7.3 Inland Bills-Discounted	989.6	862.2	951.2	1,002.5	979.8	850.8	940.3	988.6
7.4 Foreign Bills-Purchased	212.7	215.8	176.7	207.1	211.7	215.5	176.3	206.1
7.5 Foreign Bills-Discounted	406.7	412.8	417.9	450.3	403.8	410.0	415.1	447.5

No. 15: Deployment of Gross Bank Credit by Major Sectors

(₹ Billion)

Item	Outstanding as on				Growth (%)	
	Mar. 23, 2012	2011	2012		Financial year so far	Y-o-Y
		Dec. 30	Nov. 30	Dec. 28	2012-13	2012
	1	2	3	4	5	6
1 Gross Bank Credit	**43,714**	**41,305**	**46,610**	**47,288**	**8.2**	**14.5**
1.1 Food Credit	**816**	**847**	**1,058**	**1,057**	**29.5**	**24.8**
1.2 Non-food Credit	**42,897**	**40,458**	**45,552**	**46,231**	**7.8**	**14.3**
1.2.1 Agriculture & Allied Activities	**5,225**	**4,606**	**5,495**	**5,590**	**7.0**	**21.4**
1.2.2 Industry	**19,675**	**18,582**	**20,853**	**21,140**	**7.5**	**13.8**
1.2.2.1 Micro & Small	2,592	2,468	2,685	2,717	4.8	10.1
1.2.2.2 Medium	2,056	1,986	2,031	2,019	–1.8	1.7
1.2.2.3 Large	15,026	14,129	16,137	16,405	9.2	16.1
1.2.3 Services	**10,168**	**9,670**	**10,625**	**10,858**	**6.8**	**12.3**
1.2.3.1 Transport Operators	713	671	790	730	2.4	8.9
1.2.3.2 Computer Software	154	151	164	161	4.7	7.1
1.2.3.3 Tourism, Hotels & Restaurants	313	315	342	351	12.2	11.5
1.2.3.4 Shipping	89	100	81	80	–9.8	–19.6
1.2.3.5 Professional Services	639	555	511	527	–17.4	–4.9
1.2.3.6 Trade	2,209	2,125	2,538	2,558	15.8	20.4
1.2.3.6.1 Wholesale Trade	1,280	1,203	1,389	1,400	9.4	16.4
1.2.3.6.2 Retail Trade	929	922	1,148	1,158	24.6	25.6
1.2.3.7 Commercial Real Estate	1,205	1,162	1,201	1,308	8.5	12.6
1.2.3.8 Non-Banking Financial Companies (NBFCs)	2,218	2,114	2,439	2,523	13.8	19.3
1.2.3.9 Other Services	2,628	2,477	2,558	2,619	–0.3	5.7
1.2.4 Personal Loans	**7,830**	**7,600**	**8,580**	**8,643**	**10.4**	**13.7**
1.2.4.1 Consumer Durables	88	120	75	77	–12.5	–36.1
1.2.4.2 Housing	4,027	3,917	4,372	4,408	9.5	12.5
1.2.4.3 Advances against Fixed Deposits	685	537	615	610	–10.9	13.7
1.2.4.4 Advances to Individuals against share & bonds	38	51	31	33	–14.9	–35.6
1.2.4.5 Credit Card Outstanding	204	195	247	248	21.2	27.1
1.2.4.6 Education	502	492	543	542	7.9	10.1
1.2.4.7 Vehicle Loans	949	906	1,093	1,107	16.6	22.2
1.2.4.8 Other Personal Loans	1,336	1,382	1,604	1,619	21.1	17.1
1.2A Priority Sector	**14,122**	**13,007**	**14,617**	**14,886**	**5.4**	**14.4**
1.2A.1 Agriculture & Allied Activities	5,225	4,606	5,495	5,590	7.0	21.4
1.2A.2 Micro & Small Enterprises	5,191	4,825	5,262	5,397	4.0	11.9
1.2A.2.1 Manufacturing	2,592	2,468	2,685	2,717	4.8	10.1
1.2A.2.2 Services	2,599	2,358	2,576	2,681	3.2	13.7
1.2A.3 Housing	2,654	2,516	2,667	2,678	0.9	6.4
1.2A.4 Micro-Credit	231	210	219	241	4.3	14.8
1.2A.5 Education Loans	483	483	523	521	8.0	8.0
1.2A.6 State-Sponsored Orgs. for SC/ST	26	27	20	28	7.7	3.7
1.2A.7 Weaker Sections	2,563	2,326	2,725	2,795	9.1	20.2
1.2A.8 Export Credit	377	404	401	429	13.8	6.2

No. 16: Industry-wise Deployment of Gross Bank Credit

(₹ Billion)

Industry	Outstanding as on				Growth (%)	
	Mar. 23, 2012	2011	2012		Financial year so far	Y-o-Y
		Dec. 30	Nov. 30	Dec. 28	2012-13	2012
	1	2	3	4	5	6
1 Industry	**19,675**	**18,582**	**20,853**	**21,140**	**7.5**	**13.8**
1.1 Mining & Quarrying (incl. Coal)	**325**	**295**	**396**	**406**	**25.0**	**37.6**
1.2 Food Processing	**1,024**	**923**	**1,071**	**1,099**	**7.3**	**19.1**
1.2.1 Sugar	312	259	266	267	–14.3	2.9
1.2.2 Edible Oils & Vanaspati	144	142	154	161	11.9	13.2
1.2.3 Tea	23	24	30	26	12.9	8.6
1.2.4 Others	546	497	621	645	18.1	29.7
1.3 Beverage & Tobacco	**135**	**138**	**163**	**165**	**22.1**	**19.4**
1.4 Textiles	**1,599**	**1,536**	**1,622**	**1,654**	**3.5**	**7.7**
1.4.1 Cotton Textiles	810	772	818	830	2.4	7.4
1.4.2 Jute Textiles	14	14	18	18	31.5	27.0
1.4.3 Man-Made Textiles	114	119	114	118	3.6	–1.4
1.4.4 Other Textiles	661	630	673	689	4.3	9.3
1.5 Leather & Leather Products	**74**	**78**	**83**	**86**	**14.8**	**9.9**
1.6 Wood & Wood Products	**63**	**62**	**75**	**77**	**21.0**	**24.3**
1.7 Paper & Paper Products	**251**	**247**	**288**	**284**	**13.0**	**14.6**
1.8 Petroleum, Coal Products & Nuclear Fuels	**701**	**665**	**673**	**698**	**–0.3**	**5.0**
1.9 Chemicals & Chemical Products	**1,125**	**1,046**	**1,214**	**1,246**	**10.8**	**19.2**
1.9.1 Fertiliser	152	117	179	192	26.2	63.3
1.9.2 Drugs & Pharmaceuticals	472	462	484	488	3.3	5.7
1.9.3 Petro Chemicals	184	150	151	161	–12.8	7.0
1.9.4 Others	317	316	400	406	28.3	28.4
1.10 Rubber, Plastic & their Products	**258**	**247**	**302**	**303**	**17.6**	**22.7**
1.11 Glass & Glassware	**60**	**60**	**65**	**65**	**9.4**	**9.0**
1.12 Cement & Cement Products	**372**	**366**	**425**	**432**	**16.2**	**18.2**
1.13 Basic Metal & Metal Product	**2,556**	**2,477**	**2,971**	**2,964**	**16.0**	**19.7**
1.13.1 Iron & Steel	1,927	1,878	2,221	2,230	15.7	18.7
1.13.2 Other Metal & Metal Product	629	600	749	735	16.9	22.6
1.14 All Engineering	**1,136**	**1,086**	**1,241**	**1,246**	**9.7**	**14.8**
1.14.1 Electronics	320	312	326	330	3.1	5.7
1.14.2 Others	816	773	914	916	12.3	18.5
1.15 Vehicles, Vehicle Parts & Transport Equipment	**516**	**529**	**586**	**589**	**14.0**	**11.3**
1.16 Gems & Jewellery	**504**	**483**	**551**	**573**	**13.7**	**18.6**
1.17 Construction	**567**	**544**	**561**	**572**	**0.8**	**5.1**
1.18 Infrastructure	**6,191**	**5,968**	**6,887**	**6,925**	**11.9**	**16.0**
1.18.1 Power	3,289	3,154	3,786	3,874	17.8	22.8
1.18.2 Telecommunications	936	910	929	930	–0.6	2.3
1.18.3 Roads	1,144	1,091	1,270	1,265	10.6	16.0
1.18.4 Other Infrastructure	822	813	903	855	4.0	5.2
1.19 Other Industries	**2,219**	**1,834**	**1,679**	**1,758**	**–20.8**	**–4.2**

No. 17: State Co-operative Banks Maintaining Accounts with the Reserve Bank of India

(₹ Billion)

Item	Last Reporting Friday (in case of March)/Last Friday/ Reporting Friday					
	2011-12	2011	2012			
		Sep. 30	Aug. 31	Sep. 7	Sep. 21	Sep. 28
	1	2	3	4	5	6
Number of Reporting Banks	31	31	31	31	31	31
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	315.3	288.5	339.6	337.5	337.7	328.6
2 Demand and Time Liabilities						
2.1 Demand Liabilities	126.1	118.4	118.6	115.8	114.8	115.9
2.1.1 Deposits						
2.1.1.1 Inter-Bank	19.6	17.7	17.1	17.1	18.1	19.2
2.1.1.2 Others	66.4	62.3	71.3	69.4	68.7	69.0
2.1.2 Borrowings from Banks	12.3	14.8	8.9	8.7	8.8	8.7
2.1.3 Other Demand Liabilities	27.8	23.7	21.3	20.6	19.3	19.1
2.2 Time Liabilities	715.1	662.1	748.1	746.8	744.4	748.6
2.2.1 Deposits						
2.2.1.1 Inter-Bank	455.4	430.2	469.7	469.2	468.9	481.2
2.2.1.2 Others	248.9	226.2	268.3	268.1	269.1	259.6
2.2.2 Borrowings from Banks	3.6	0.0	3.0	3.0	0.0	0.2
2.2.3 Other Time Liabilities	7.2	5.6	7.1	6.5	6.4	7.5
3 Borrowing from Reserve Bank	–	–	–	–	–	0.4
4 Borrowings from a notified bank / State Government	275.9	173.7	296.9	294.7	308.6	316.0
4.1 Demand	106.9	78.7	128.0	125.0	132.9	140.4
4.2 Time	169.0	95.0	169.0	169.7	175.7	175.6
5 Cash in Hand and Balances with Reserve Bank	37.1	40.4	41.5	34.5	36.0	36.9
5.1 Cash in Hand	1.9	1.8	2.2	2.0	2.1	1.8
5.2 Balance with Reserve Bank	35.2	38.6	39.3	32.5	34.0	35.0
6 Balances with Other Banks in Current Account	6.5	6.4	5.2	6.5	5.5	5.9
7 Investments in Government Securities	251.8	248.7	257.0	258.5	256.1	257.2
8 Money at Call and Short Notice	159.1	144.3	137.0	136.6	143.2	139.0
9 Bank Credit (10.1+11)	310.3	241.7	335.0	333.4	331.8	335.3
10 Advances						
10.1 Loans, Cash-Credits and Overdrafts	310.1	241.5	334.8	333.3	331.7	335.2
10.2 Due from Banks	461.6	457.4	518.1	519.3	527.9	528.9
11 Bills Purchased and Discounted	0.1	0.1	0.1	0.1	0.1	0.1

Prices and Production

No. 18: Consumer Price Index (Base: 2010=100)

Group/Sub group	2011-12			Rural			Urban			Combined		
	Rural	Urban	Combined	Dec. 11	Nov. 12	Dec. 12	Dec. 11	Nov. 12	Dec. 12	Dec. 11	Nov. 12	Dec. 12
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food, beverages and tobacco	**111.9**	**110.9**	**111.6**	**112.8**	**127.8**	**127.4**	**111.6**	**126.2**	**126.2**	**112.4**	**127.3**	**127.0**
1.1 Cereals and products	107.3	102.1	106.0	108.0	120.7	121.6	102.3	118.3	119.9	106.6	120.1	121.2
1.2 Pulses and products	100.9	98.9	100.3	103.1	115.3	115.2	101.3	119.5	118.8	102.5	116.6	116.3
1.3 Oils and fats	118.5	125.4	120.7	121.2	141.5	142.0	127.0	146.6	147.2	123.1	143.1	143.7
1.4 Egg, fish and meat	115.6	113.3	114.8	117.6	130.2	130.6	115.3	128.4	130.0	116.8	129.6	130.4
1.5 Milk and products	119.1	117.6	118.5	123.2	134.3	134.4	121.7	129.5	129.9	122.6	132.5	132.7
1.6 Condiments and spices	120.9	121.7	121.1	123.0	128.2	128.1	124.7	123.0	123.2	123.5	126.7	126.7
1.7 Vegetables	107.2	101.8	105.5	101.4	135.4	128.4	93.1	121.4	115.1	98.8	131.0	124.2
1.8 Fruits	127.6	126.8	127.2	122.1	138.2	136.5	122.4	133.0	132.7	122.2	136.0	134.9
1.9 Sugar etc	97.1	96.4	96.9	100.2	114.6	113.8	100.8	116.4	114.6	100.4	115.1	114.0
1.10 Non-alcoholic beverages	114.0	112.4	113.3	116.3	126.6	127.2	115.4	126.2	127.5	115.9	126.4	127.3
1.11 Prepared meals etc	114.7	113.0	113.9	117.1	126.1	126.5	115.6	127.4	128.5	116.4	126.7	127.5
1.12 Pan, tobacco and intoxicants	120.0	118.5	119.6	121.2	134.2	134.7	121.5	135.1	135.8	121.3	134.4	135.0
2 Fuel and light	**118.1**	**113.8**	**116.5**	**120.3**	**129.2**	**129.5**	**117.1**	**127.3**	**127.8**	**119.1**	**128.5**	**128.9**
3 Housing	**--**	**108.7**	**108.7**	**--**	**--**	**--**	**112.2**	**122.4**	**123.8**	**112.2**	**122.4**	**123.8**
4 Clothing, bedding and footwear	**118.7**	**119.4**	**118.9**	**121.5**	**134.1**	**134.9**	**122.8**	**134.6**	**135.5**	**122.0**	**134.3**	**135.1**
4.1 Clothing and bedding	119.0	120.4	119.5	121.9	134.7	135.6	123.8	136.0	136.9	122.6	135.2	136.1
4.2 Footwear	116.6	113.8	115.6	119.0	130.6	131.1	116.9	126.8	127.3	118.2	129.2	129.7
5 Miscellaneous	**112.6**	**108.7**	**110.8**	**114.8**	**122.3**	**122.4**	**110.6**	**118.0**	**118.5**	**112.9**	**120.3**	**120.6**
5.1 Medical care	110.0	107.3	109.1	111.9	118.0	118.1	109.1	116.4	117.0	111.0	117.5	117.7
5.2 Education, stationery etc	110.6	107.7	109.0	111.9	118.6	118.8	109.0	117.9	118.2	110.3	118.2	118.5
5.3 Recreation and amusement	108.5	103.2	105.3	109.6	115.4	115.4	103.3	107.8	108.1	105.8	110.8	111.0
5.4 Transport and communication	113.7	110.2	111.7	116.2	123.5	123.7	112.3	118.2	118.6	114.0	120.5	120.8
5.5 Personal care and effects	110.0	106.7	108.6	111.3	119.4	119.7	108.4	116.1	116.7	110.1	118.1	118.5
5.6 Household requisites	117.4	109.8	114.4	120.9	130.2	130.1	112.3	121.8	122.4	117.4	126.8	127.0
5.7 Others	119.2	117.0	118.3	121.7	133.3	133.3	120.5	134.6	136.0	121.2	133.8	134.4
General Index (All Groups)	**113.1**	**110.4**	**111.9**	**114.5**	**126.9**	**126.8**	**112.3**	**123.4**	**124.0**	**113.6**	**125.4**	**125.6**

Source: Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India.

No. 19: Other Consumer Price Indices

Item	Base Year	Linking Factor	2011-12	Dec. 11	Nov. 12	Dec. 12
	1	2	3	4	5	6
1 Consumer Price Index for Industrial Workers	2001	4.63	195	197	218	219
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	611	618	685	688
3 Consumer Price Index for Rural Labourers	1986-87	5.89	611	619	686	689

Source: Labour Bureau, Ministry of Labour and Employment, Government of India.

No. 20: Monthly Average Price of Gold and Silver in Mumbai

Item	2011-12	2011	2012	
		Dec.	Nov.	Dec.
	1	2	3	4
1 Standard Gold (₹ per 10 grams)	25,722	28,063	31,548	30,833
2 Silver (₹ per kilogram)	57,311	53,998	61,848	60,634

Source: Bombay Bullion Association Ltd.

No. 21: Wholesale Price Index

(Base: 2004-05 = 100)

Commodities	Weight	2011-12	2011	2012		
			Dec.	Oct.	Nov. (P)	Dec. (P)
	1	2	3	4	5	6
1 ALL COMMODITIES	**100.000**	**156.1**	**157.3**	**168.5**	**168.8**	**168.6**
1.1 PRIMARY ARTICLES	**20.118**	**200.3**	**198.9**	**219.4**	**220.8**	**220.0**
1.1.1 Food articles	**14.337**	**192.7**	**190.9**	**212.7**	**213.2**	**212.2**
1.1.1.1 Food Grains	4.090	180.7	182.1	214.1	212.5	216.2
1.1.1.1.1 Cereals	3.373	176.2	175.6	205.0	203.2	209.0
1.1.1.1.2 Pulses	0.717	201.8	212.9	256.5	256.3	250.3
1.1.1.2 Fruits & Vegetables	3.843	183.2	166.2	192.9	195.7	188.2
1.1.1.2.1 Vegetables	1.736	179.3	157.4	204.0	206.9	194.0
1.1.1.2.2 Fruits	2.107	186.4	173.5	183.8	186.3	183.5
1.1.1.3 Milk	3.238	194.0	198.4	209.4	209.5	210.0
1.1.1.4 Eggs, Meat & Fish	2.414	214.3	221.9	244.4	245.4	244.5
1.1.1.5 Condiments & Spices	0.569	237.5	237.6	208.8	208.1	209.2
1.1.1.6 Other Food Articles	0.183	216.5	218.2	248.8	251.8	248.8
1.1.2 Non-Food Articles	**4.258**	**182.7**	**179.2**	**198.8**	**201.3**	**202.9**
1.1.2.1 Fibres	0.877	218.4	203.8	205.0	205.8	205.7
1.1.2.2 Oil Seeds	1.781	158.8	156.9	196.6	203.1	202.3
1.1.2.3 Other Non-Food Articles	1.386	195.3	195.4	206.4	201.7	206.0
1.1.2.4 Flowers	0.213	153.9	159.0	141.5	164.6	175.8
1.1.3 Minerals	**1.524**	**320.7**	**328.7**	**339.8**	**347.1**	**340.8**
1.1.3.1 Metallic Minerals	0.489	411.5	417.6	426.8	436.6	426.0
1.1.3.2 Other Minerals	0.135	165.9	168.1	210.7	209.6	210.7
1.1.3.3 Crude Petroleum	0.900	294.5	304.5	311.9	319.3	314.1
1.2 FUEL & POWER	**14.910**	**169.0**	**172.7**	**189.8**	**188.8**	**188.9**
1.2.1 Coal	2.094	191.0	184.6	210.3	210.3	210.3
1.2.2 Mineral Oils	9.364	184.0	190.6	206.4	204.9	205.0
1.2.3 Electricity	3.452	115.0	117.0	132.4	132.4	132.4
1.3 MANUFACTURED PRODUCTS	**64.972**	**139.5**	**140.9**	**147.9**	**148.0**	**148.0**
1.3.1 Food Products	**9.974**	**151.2**	**153.3**	**166.7**	**167.7**	**167.1**
1.3.1.1 Dairy Products	0.568	171.6	178.1	175.7	175.7	175.7
1.3.1.2 Canning, Preserving & Processing of Food	0.358	139.6	144.0	143.5	143.7	144.3
1.3.1.3 Grain Mill Products	1.340	146.2	145.5	157.4	161.1	160.6
1.3.1.4 Bakery Products	0.444	127.2	128.2	131.9	132.3	134.0
1.3.1.5 Sugar, Khandsari & Gur	2.089	167.7	173.8	197.4	194.7	194.0
1.3.1.6 Edible Oils	3.043	135.7	137.0	148.1	148.7	150.0
1.3.1.7 Oil Cakes	0.494	175.3	175.9	222.5	229.7	218.1
1.3.1.8 Tea & Coffee Proccessing	0.711	156.6	152.6	162.3	168.3	164.8
1.3.1.9 Manufacture of Salt	0.048	176.2	180.6	181.8	181.8	181.8
1.3.1.10 Other Food Products	0.879	157.4	159.6	164.5	165.3	165.7
1.3.2 Beverages, Tobacco & Tobacco Products	**1.762**	**163.3**	**165.3**	**177.2**	**176.7**	**176.6**
1.3.2.1 Wine Industries	0.385	122.6	123.7	125.4	125.4	124.9
1.3.2.2 Malt Liquor	0.153	170.0	170.0	173.6	173.6	171.6
1.3.2.3 Soft Drinks & Carbonated Water	0.241	148.5	148.3	151.3	151.2	151.6
1.3.2.4 Manufacture of Bidi, Cigarettes, Tobacco & Zarda	0.983	181.8	185.1	204.4	203.6	203.7
1.3.3 Textiles	**7.326**	**128.5**	**126.3**	**131.8**	**131.8**	**132.2**
1.3.3.1 Cotton Textiles	2.605	143.8	139.2	146.8	147.1	147.0
1.3.3.1.1 Cotton Yarn	1.377	154.7	146.8	158.2	158.2	157.9
1.3.3.1.2 Cotton Fabric	1.228	131.6	130.8	134.0	134.6	134.6
1.3.3.2 Man-Made Textiles	2.206	120.0	119.0	124.0	124.0	124.3
1.3.3.2.1 Man-Made Fibre	1.672	120.1	118.7	123.6	123.6	124.1
1.3.3.2.2 Man-Made Fabric	0.533	119.7	119.9	125.0	125.3	125.0
1.3.3.3 Woollen Textiles	0.294	132.6	134.6	143.1	146.3	146.4
1.3.3.4 Jute, Hemp & Mesta Textiles	0.261	176.3	171.5	179.9	179.4	179.5
1.3.3.5 Other Misc. Textiles	1.960	110.9	110.1	112.6	111.6	112.8
1.3.4 Wood & Wood Products	**0.587**	**161.0**	**162.3**	**171.2**	**172.1**	**172.3**
1.3.4.1 Timber/Wooden Planks	0.181	136.0	136.6	140.6	140.9	140.9
1.3.4.2 Processed Wood	0.128	170.8	171.5	180.4	180.7	180.6
1.3.4.3 Plywood & Fibre Board	0.241	179.3	181.1	193.2	194.7	195.6
1.3.4.4 Others	0.038	131.5	134.5	147.5	148.5	146.7

No. 21: Wholesale Price Index (Concld.)

(Base: 2004-05 = 100)

Commodities	Weight	2011-12	2011	2012		
			Dec.	Oct.	Nov. (P)	Dec. (P)
	1	2	3	4	5	6
1.3.5 Paper & Paper Products	**2.034**	**131.9**	**132.3**	**136.5**	**136.7**	**137.2**
1.3.5.1 Paper & Pulp	1.019	133.0	133.1	135.6	135.6	135.8
1.3.5.2 Manufacture of boards	0.550	124.9	123.9	128.2	128.0	128.8
1.3.5.3 Printing & Publishing	0.465	137.9	140.5	148.5	149.6	150.0
1.3.6 Leather & Leather Products	**0.835**	**130.0**	**131.6**	**134.3**	**133.5**	**135.0**
1.3.6.1 Leathers	0.223	110.9	111.0	112.2	111.9	113.0
1.3.6.2 Leather Footwear	0.409	143.8	145.2	149.9	148.6	151.1
1.3.6.3 Other Leather Products	0.203	123.2	126.8	126.9	126.7	126.9
1.3.7 Rubber & Plastic Products	**2.987**	**133.6**	**133.9**	**137.7**	**138.0**	**138.1**
1.3.7.1 Tyres & Tubes	0.541	161.2	161.8	163.4	163.5	163.9
1.3.7.1.1 Tyres	0.488	160.9	161.5	163.2	163.3	163.8
1.3.7.1.2 Tubes	0.053	163.0	164.3	165.1	165.2	165.2
1.3.7.2 Plastic Products	1.861	122.5	122.3	127.1	127.6	127.5
1.3.7.3 Rubber Products	0.584	143.6	145.2	147.6	147.7	148.2
1.3.8 Chemicals & Chemical Products	**12.018**	**134.7**	**136.5**	**144.2**	**143.9**	**144.0**
1.3.8.1 Basic Inorganic Chemicals	1.187	138.2	139.5	149.2	149.3	149.6
1.3.8.2 Basic Organic Chemicals	1.952	135.0	132.6	139.7	139.3	139.3
1.3.8.3 Fertilisers & Pesticides	3.145	129.8	135.1	146.3	146.5	146.5
1.3.8.3.1 Fertilisers	2.661	132.6	138.7	150.7	151.1	150.9
1.3.8.3.2 Pesticides	0.483	114.9	115.3	122.1	121.5	122.1
1.3.8.4 Paints, Varnishes & Lacquers	0.529	128.5	132.2	144.1	144.2	144.2
1.3.8.5 Dyestuffs & Indigo	0.563	122.5	124.0	127.3	127.1	127.1
1.3.8.6 Drugs & Medicines	0.456	119.6	121.1	124.4	124.4	124.5
1.3.8.7 Perfumes, Cosmetics, Toiletries etc.	1.130	145.3	146.1	152.2	152.3	152.4
1.3.8.8 Turpentine, Plastic Chemicals	0.586	136.1	140.0	139.8	139.5	139.0
1.3.8.9 Polymers including Synthetic Rubber	0.970	130.4	130.7	134.1	133.7	134.0
1.3.8.10 Petrochemical Intermediates	0.869	156.2	156.5	165.8	163.6	164.4
1.3.8.11 Matches, Explosives & other Chemicals	0.629	135.5	136.4	142.1	141.8	142.1
1.3.9 Non-Metallic Mineral Products	**2.556**	**152.9**	**156.0**	**164.0**	**163.5**	**163.3**
1.3.9.1 Structural Clay Products	0.658	155.3	157.9	164.4	164.2	165.0
1.3.9.2 Glass, Earthenware, Chinaware & their Products	0.256	127.0	127.6	131.3	131.7	131.9
1.3.9.3 Cement & Lime	1.386	157.0	161.3	170.3	169.3	168.5
1.3.9.4 Cement, Slate & Graphite Products	0.256	150.8	150.9	161.8	161.7	161.9
1.3.10 Basic Metals, Alloys & Metal Products	**10.748**	**156.3**	**160.3**	**166.6**	**166.4**	**165.7**
1.3.10.1 Ferrous Metals	8.064	147.7	151.1	156.3	156.1	155.1
1.3.10.1.1 Iron & Semis	1.563	152.7	156.9	162.2	162.0	158.4
1.3.10.1.2 Steel: Long	1.630	158.5	161.2	169.6	168.9	168.1
1.3.10.1.3 Steel: Flat	2.611	146.0	150.2	154.3	154.2	153.5
1.3.10.1.4 Steel: Pipes & Tubes	0.314	125.2	124.9	127.8	126.9	127.8
1.3.10.1.5 Stainless Steel & alloys	0.938	145.9	149.8	156.3	156.4	156.6
1.3.10.1.6 Castings & Forgings	0.871	133.5	136.3	138.0	137.9	138.6
1.3.10.1.7 Ferro alloys	0.137	146.8	145.3	150.7	151.2	150.3
1.3.10.2 Non-Ferrous Metals	1.004	157.1	157.5	161.2	160.8	161.7
1.3.10.2.1 Aluminium	0.489	128.1	128.0	135.0	134.2	135.3
1.3.10.2.2 Other Non-Ferrous Metals	0.515	184.7	185.4	186.1	186.1	186.8
1.3.10.3 Metal Products	1.680	197.2	206.5	219.3	219.3	219.0
1.3.11 Machinery & Machine Tools	**8.931**	**125.1**	**125.7**	**128.6**	**128.5**	**128.9**
1.3.11.1 Agricultural Machinery & Implements	0.139	133.9	134.6	137.4	137.2	137.2
1.3.11.2 Industrial Machinery	1.838	142.3	142.4	146.0	145.9	146.6
1.3.11.3 Construction Machinery	0.045	131.7	131.8	136.3	136.3	136.3
1.3.11.4 Machine Tools	0.367	145.0	145.4	156.4	156.4	156.4
1.3.11.5 Air Conditioner & Refrigerators	0.429	109.8	109.8	113.0	113.0	112.9
1.3.11.6 Non-Electrical Machinery	1.026	121.6	122.0	123.0	123.0	123.2
1.3.11.7 Electrical Machinery, Equipment & Batteries	2.343	129.7	131.0	133.1	133.0	133.6
1.3.11.8 Electrical Accessories, Wires, Cables etc.	1.063	138.0	138.7	143.8	143.8	144.0
1.3.11.9 Electrical Apparatus & Appliances	0.337	116.3	116.5	117.5	117.2	117.7
1.3.11.10 Electronics Items	0.961	84.8	85.2	87.1	87.1	87.1
1.3.11.11 IT Hardware	0.267	88.5	89.1	89.2	89.2	89.2
1.3.11.12 Communication Equipments	0.118	94.2	94.2	93.7	93.7	93.7
1.3.12 Transport, Equipment & Parts	**5.213**	**124.6**	**125.3**	**130.3**	**130.5**	**131.0**
1.3.12.1 Automotives	4.231	123.8	124.5	129.5	129.8	130.1
1.3.12.2 Auto Parts	0.804	125.3	126.0	130.7	130.8	131.0
1.3.12.3 Other Transport Equipments	0.178	140.3	141.8	146.6	146.6	149.7

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India.

No. 22: Index of Industrial Production (Base:2004-05=100)

Industry	Weight	2010-11	2011-12	April-November		November	
				2011-12	2012-13	2011	2012
	1	2	3	4	5	6	7
General Index	**100.00**	**165.5**	**170.3**	**165.3**	**167.0**	**167.5**	**167.3**
1 Sectoral Classification							
1.1 Mining and Quarrying	14.16	131.0	128.5	122.8	120.9	128.8	121.7
1.2 Manufacturing	75.53	175.7	181.0	175.6	177.3	177.8	178.3
1.3 Electricity	10.32	138.0	149.3	148.4	155.0	145.6	149.1
2 Use-Based Classification							
2.1 Basic Goods	45.68	142.2	150.0	146.2	150.3	148.0	150.5
2.2 Capital Goods	8.83	278.9	267.8	264.8	235.5	257.3	237.6
2.3 Intermediate Goods	15.69	145.3	144.4	142.0	144.6	141.4	139.9
2.4 Consumer Goods	29.81	178.3	186.1	177.4	184.1	184.7	186.6
2.4.1 Consumer Durables	8.46	287.7	295.1	291.5	306.8	297.8	303.4
2.4.2 Consumer Non-Durables	21.35	135.0	142.9	132.2	135.5	139.9	140.3

Source : Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India.

Government Accounts and Treasury Bills

No. 23: Union Government Accounts at a Glance

(Amount in ₹ Billion)

Item	Financial Year	April–December			
	2012-13 (Budget Estimates)	2011-12 (Actuals)	2012-13 (Actuals)	Percentage to Budget Estimates	
				2011-12	2012-13
	1	2	3	4	5
1 Revenue Receipts	9,356.9	4,984.9	5,705.4	63.1	61.0
1.1 Tax Revenue (Net)	7,710.7	4,204.1	4,841.6	63.3	62.8
1.2 Non-Tax Revenue	1,646.1	780.8	863.8	62.2	52.5
2 Capital Receipts	5,552.4	3,978.7	4,205.9	85.0	75.7
2.1 Recovery of Loans	116.5	141.2	77.1	94.0	66.2
2.2 Other Receipts	300.0	27.4	81.8	6.9	27.3
2.3 Borrowings and Other Liabilities	5,135.9	3,810.1	4,047.0	92.3	78.8
3 Total Receipts (1+2)	14,909.3	8,963.6	9,911.2	71.3	66.5
4 Non-Plan Expenditure	9,699.0	6,194.6	6,952.3	75.9	71.7
4.1 On Revenue Account	8,656.0	5,506.9	6,256.0	75.1	72.3
4.1.1 Interest Payments	3,197.6	1,794.3	2,019.6	67.0	63.2
4.2 On Capital Account	1,043.0	687.7	696.4	83.2	66.8
5 Plan Expenditure	5,210.3	2,769.0	2,958.9	62.7	56.8
5.1 On Revenue Account	4,205.1	2,339.0	2,429.8	64.3	57.8
5.2 On Capital Account	1,005.1	430.0	529.2	55.2	52.6
6 Total Expenditure (4+5)	14,909.3	8,963.6	9,911.2	71.3	66.5
7 Revenue Expenditure (4.1+5.1)	12,861.1	7,846.0	8,685.7	71.5	67.5
8 Capital Expenditure (4.2+5.2)	2,048.2	1,117.7	1,225.5	69.6	59.8
9 Revenue Deficit (7-1)	3,504.2	2,861.0	2,980.4	93.1	85.1
10 Fiscal Deficit {6-(1+2.1+2.2)}	5,135.9	3,810.1	4,047.0	92.3	78.8
11 Gross Primary Deficit [10-4.1.1]	1,938.3	2,015.8	2,027.4	139.2	104.6

Source: Controller General of Accounts, Ministry of Finance, Government of India.

No. 24: Treasury Bills – Ownership Pattern

(₹ Billion)

Item	2011-12	2011	2012					
		Dec. 30	Nov. 23	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28
	1	2	3	4	5	6	7	8
1 14-day								
1.1 Banks	–	–	–	–	–	–	–	–
1.2 Primary Dealers	–	–	–	–	–	–	–	–
1.3 State Governments	1,183.7	721.3	920.7	860.3	902.7	821.9	978.9	872.9
1.4 Others	12.8	23.1	6.6	5.3	5.2	7.8	6.8	6.0
2 91-day								
2.1 Banks	488.2	190.1	480.8	440.7	457.1	434.6	430.1	404.7
2.2 Primary Dealers	354.6	287.9	213.2	204.2	192.1	190.0	189.9	188.0
2.3 State Governments	215.9	320.6	490.8	490.8	472.8	527.8	517.0	559.2
2.4 Others	187.4	72.6	78.4	134.1	109.0	104.2	99.0	106.3
3 182-day								
3.1 Banks	137.5	136.6	290.4	262.3	287.9	298.5	292.2	296.4
3.2 Primary Dealers	213.8	231.5	221.6	220.2	223.3	218.5	243.4	232.7
3.3 State Governments	–	4.0	2.4	2.4	2.4	2.4	2.4	2.4
3.4 Others	168.7	81.4	138.1	167.6	138.8	133.0	114.4	120.9
4 364-day								
4.1 Banks	210.7	225.3	215.0	208.9	204.9	207.6	227.0	221.7
4.2 Primary Dealers	443.2	383.5	637.0	630.0	637.9	601.3	596.8	608.3
4.3 State Governments	4.2	4.2	3.8	3.8	3.8	3.8	3.8	3.8
4.4 Others	245.7	190.8	358.3	382.0	378.1	422.0	407.1	410.9
5 Total	3,866.4	2,872.8	4,056.9	4,012.4	4,016.0	3,973.4	4,108.8	4,034.2

No. 25: Auctions of Treasury Bills

(Amount in ₹ Billion)

Date of Auction	Notified Amount	Bids Received			Bids Accepted			Total Issue (6+7)	Cut-off Price	Implicit Yield at Cut-off Price (per cent)
		Number	Total Face Value		Number	Total Face Value				
			Competitive	Non-Competitive		Competitive	Non-Competitive			
	1	2	3	4	5	6	7	8	9	10
91-day Treasury Bills										
2012-13										
Nov. 27	50	53	241.00	51.65	35	50.00	51.65	101.65	98.00	8.1857
Dec. 5	50	53	273.00	60.21	43	50.00	60.21	110.21	98.00	8.1857
Dec. 12	50	49	247.00	70.93	39	50.00	70.93	120.93	98.00	8.1857
Dec. 19	50	55	231.40	42.72	21	50.00	42.72	92.72	98.01	8.1439
Dec. 26	50	46	121.85	49.76	32	50.00	49.76	99.76	98.00	8.1857
182-day Treasury Bills										
2012-13										
Nov. 21	50	52	210.78	–	12	50.00	–	50.00	96.09	8.1606
Dec. 5	50	46	189.00	–	8	50.00	–	50.00	96.10	8.1388
Dec. 19	50	42	123.90	–	15	50.00	–	50.00	96.10	8.1388
364-day Treasury Bills										
2012-13										
Nov. 12	50	81	158.33	–	23	50.00	–	50.00	92.52	8.1069
Nov. 27	50	64	152.00	0.53	24	50.00	0.53	50.53	92.52	8.1069
Dec. 12	50	80	219.00	0.07	17	50.00	0.07	50.07	92.57	8.0484
Dec. 26	50	61	156.46	–	17	50.00	–	50.00	92.60	8.0133

Financial Markets

No. 26: Daily Call Money Rates

(Per cent per annum)

As on	Range of Rates	Weighted Average Rates
	Borrowings/ Lendings	Borrowings/ Lendings
	1	2
December 1, 2012	7.00-8.13	8.01
December 3, 2012	7.00-8.15	8.04
December 4, 2012	7.00-8.15	8.05
December 5, 2012	7.00-8.10	8.01
December 6, 2012	7.00-8.30	8.04
December 7, 2012	7.00-8.10	8.01
December 8, 2012	6.50-7.90	7.60
December 10, 2012	7.00-8.10	8.01
December 11, 2012	6.90-8.10	8.01
December 12, 2012	7.00-8.10	7.99
December 13, 2012	7.00-8.10	7.99
December 14, 2012	6.50-8.10	7.96
December 15, 2012	7.00-8.15	7.57
December 17, 2012	6.25-8.15	8.05
December 18, 2012	7.00-8.15	8.04
December 19, 2012	7.00-8.30	8.05
December 20, 2012	6.80-8.20	8.09
December 21, 2012	6.95-8.20	8.09
December 22, 2012	7.00-8.10	7.78
December 24, 2012	6.90-8.15	8.08
December 26, 2012	6.90-8.15	8.07
December 27, 2012	6.90-8.20	8.06
December 28, 2012	6.90-8.40	8.08
December 29, 2012	7.00-8.15	8.03
December 31, 2012	7.00-10.00	8.31
January 1, 2013	6.50-8.25	8.13
January 2, 2013	6.90-8.20	8.07
January 3, 2013	6.90-8.15	8.07
January 4, 2013	6.80-8.15	8.04
January 5, 2013	6.80-8.10	7.64
January 7, 2013	6.80-8.15	8.00
January 8, 2013	6.80-8.15	8.02
January 9, 2013	6.80-8.15	7.99
January 10, 2013	6.80-8.15	8.04
January 11, 2013	6.70-8.10	7.96
January 12, 2013	7.20-8.00	7.84
January 14, 2013	6.80-8.15	8.03
January 15, 2013	6.75-8.15	8.03

No. 27: Certificates of Deposit

Item	2011	2012			
	Dec. 30	Nov. 16	Nov. 30	Dec. 14	Dec. 28
	1	2	3	4	5
1 Amount Outstanding (₹ Billion)	4,030.0	3,408.5	3,066.1	3,030.9	3,327.7
1.1 Issued during the fortnight (₹ Billion)	911.1	101.7	429.6	408.8	540.1
2 Rate of Interest (per cent)	9.16-10.50	8.30-8.70	8.29-8.90	8.25-9.20	8.38-9.00

No. 28: Commercial Paper

Item	2011	2012			
	Dec. 31	Nov. 15	Nov. 30	Dec. 15	Dec. 31
	1	2	3	4	5
1 Amount Outstanding (₹ Billion)	1,341.5	2,040.1	1,994.3	2,152.4	1,817.7
1.1 Reported during the fortnight (₹ Billion)	224.4	268.5	423.6	548.3	278.9
2 Rate of Interest (per cent)	8.38-14.00	7.64-12.67	7.92-14.00	8.05-14.46	8.36-14.60

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Billion)

Item	2011-12	2011	2012					
		Dec. 30	Nov. 23	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28
	1	2	3	4	5	6	7	8
1 Call Money	217.0	290.8	234.7	207.1	217.3	176.2	220.9	251.8
2 Notice Money	59.8	72.6	51.5	94.4	59.3	47.8	78.9	112.9
3 Term Money	4.9	6.5	7.1	8.8	16.8	8.5	6.9	6.7
4 CBLO	769.3	555.7	769.7	709.6	1,031.2	973.3	678.9	627.2
5 Market Repo	519.2	311.3	665.8	910.1	580.4	657.3	490.2	694.1
6 Repo in Corporate Bond	0.1	–	–	–	–	0.5	0.5	–
7 Forex (US $ million)	57,103	39,837	41,682	62,393	46,600	47,413	48,220	53,603
8 Govt. of India Dated Securities	264.4	298.9	261.4	325.0	378.8	277.2	416.6	477.2
9 State Govt. Securities	4.4	2.4	16.1	5.7	9.5	5.4	14.8	7.3
10 Treasury Bills								
10.1 91-Day	15.9	8.7	12.3	11.2	9.6	16.9	17.7	18.9
10.2 182-Day	4.5	6.9	11.8	19.2	16.6	8.8	8.4	4.7
10.3 364-Day	7.8	10.3	13.2	22.4	9.9	24.1	22.3	18.6
10.4 Cash Management Bills	3.5	–	–	–	–	–	–	–
11 Total Govt. Securities (8+9+10)	300.6	327.3	314.8	383.5	424.4	332.5	479.9	526.8
11.1 RBI	6.3	19.7	–	0.3	23.4	23.2	0.4	19.8

No. 30: New Capital Issues By Non-Government Public Limited Companies

(Amount in ₹ Billion)

Security & Type of Issue	2011-12		2011-12 (Apr.-Nov.)		2012-13 (Apr.-Nov.)		Nov. 2011		Nov. 2012	
	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount
	1	2	3	4	5	6	7	8	9	10
1 Equity Shares	49	81.5	39	70.7	25	73.8	–	–	1	1.1
1A Premium	47	65.6	38	55.6	22	65.1	–	–	1	1.0
1.1 Prospectus	34	57.8	29	49.8	15	6.3	–	–	1	1.1
1.1.1 Premium	33	44.3	29	36.6	13	5.5	–	–	1	1.0
1.2 Rights	15	23.7	10	20.9	10	67.5	–	–	–	–
1.2.1 Premium	14	21.3	9	19.0	9	59.6	–	–	–	–
2 Preference Shares	–	–	–	–	–	–	–	–	–	–
2.1 Prospectus	–	–	–	–	–	–	–	–	–	–
2.2 Rights	–	–	–	–	–	–	–	–	–	–
3 Debentures	–	–	–	–	–	–	–	–	–	–
3.1 Prospectus	–	–	–	–	–	–	–	–	–	–
3.2 Rights	–	–	–	–	–	–	–	–	–	–
3.2.1 Convertible	–	–	–	–	–	–	–	–	–	–
3.2.1.1 Prospectus	–	–	–	–	–	–	–	–	–	–
3.2.1.2 Rights	–	–	–	–	–	–	–	–	–	–
3.2.2 Non-Convertible	–	–	–	–	–	–	–	–	–	–
3.2.2.1 Prospectus	–	–	–	–	–	–	–	–	–	–
3.2.2.2 Rights	–	–	–	–	–	–	–	–	–	–
4 Bonds	–	–	–	–	–	–	–	–	–	–
4.1 Prospectus	–	–	–	–	–	–	–	–	–	–
4.2 Rights	–	–	–	–	–	–	–	–	–	–
5 Total (1+2+3+4)	49	81.5	39	70.7	25	73.8	–	–	1	1.1
5.1 Prospectus	34	57.8	29	49.8	15	6.3	–	–	1	1.1
5.2 Rights	15	23.7	10	20.9	10	67.5	–	–	–	–

Source: Based on prospectus/advertisements issued by companies, replies to Reserve Bank's questionnaire and information received from SEBI, stock exchanges, press reports, etc.

External Sector

No. 31: Foreign Trade

Item	Unit	2011-12	2011	2012				
			Dec.	Aug.	Sep.	Oct.	Nov.	Dec.
		1	2	3	4	5	6	7
1 Exports	₹ Billion	14,659.6	1,336.2	1,223.4	1,317.8	1,219.4	1,192.7	1,359.5
	US $ Million	305,963.9	25,365.7	22,017.9	24,132.8	22,998.0	21,774.7	24,877.6
1.1 Oil	₹ Billion	2,679.1	232.6	225.0	256.3	288.8	249.1	..
	US $ Million	56,038.1	4,415.9	4,048.9	4,694.3	5,446.0	4,547.7	..
1.2 Non-oil	₹ Billion	11,980.4	1,103.6	998.5	1,061.4	930.7	943.6	..
	US $ Million	249,925.9	20,949.7	17,968.9	19,438.5	17,551.9	17,227.1	..
2 Imports	₹ Billion	23,454.6	2,109.4	2,075.5	2,277.0	2,379.1	2,273.4	2,325.2
	US $ Million	489,319.5	40,044.1	37,356.0	41,698.3	44,868.4	41,503.2	42,549.5
2.1 Oil	₹ Billion	7,430.7	615.1	716.0	774.9	854.9	798.7	788.5
	US $ Million	154,967.6	11,678.7	12,886.9	14,190.0	16,122.9	14,580.8	14,429.7
2.2 Non-oil	₹ Billion	16,023.9	1,494.3	1,359.5	1,502.1	1,524.2	1,474.7	1,536.7
	US $ Million	334,351.9	28,365.4	24,469.0	27,508.3	28,745.4	26,922.3	28,119.8
3 Trade Balance	₹ Billion	–8,795.0	–773.2	–852.0	–959.2	–1,159.7	–1,080.6	–965.7
	US $ Million	–183,355.6	–14,678.4	–15,338.1	–17,565.5	–21,870.4	–19,728.4	–17,671.9
3.1 Oil	₹ Billion	–4,751.6	–382.5	–491.0	–518.5	–566.1	–549.6	..
	US $ Million	–98,929.6	–7,262.8	–8,838.0	–9,495.7	–10,676.9	–10,033.2	..
3.2 Non-oil	₹ Billion	–4,043.4	–390.7	–361.0	–440.7	–593.5	–531.1	..
	US $ Million	–84,426.0	–7,415.6	–6,500.1	–8,069.8	–11,193.5	–9,695.3	..

Source: DGCI & S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2012				2013		
		Jan. 20	Dec. 14	Dec. 21	Dec. 28	Jan. 4	Jan. 11	Jan. 18
		1	2	3	4	5	6	7
1 Total Reseves	**₹ Billion**	**14,838**	**16,137**	**16,320**	**16,258**	**16,177**	**16,164**	**15,973**
	US $ Million	**293,257**	**296,632**	**296,539**	**296,578**	**294,991**	**296,252**	**295,672**
1.1 Foreign Currency Assets	₹ Billion	13,061	14,256	14,430	14,371	14,318	14,304	14,114
	US $ Million	259,506	262,120	261,950	262,014	261,062	262,276	261,629
1.2 Gold	₹ Billion	1,418	1,516	1,516	1,516	1,491	1,491	1,491
	US $ Million	26,620	27,803	27,803	27,803	27,220	27,220	27,220
1.3 SDRs	SDRs Million	2,885	2,886	2,886	2,886	2,886	2,886	2,886
	₹ Billion	223	241	245	243	241	242	239
	US $ Million	4,426	4,436	4,452	4,436	4,401	4,433	4,435
1.4 Reserve Tranche Position in IMF	₹ Billion	136	124	129	128	127	127	129
	US $ Million	2,705	2,273	2,334	2,326	2,307	2,324	2,388

No. 33: NRI Deposits

(US$ Million)

Scheme	Outstanding				Flows	
	2011-12	2011	2012		2011-12	2012-13
		Dec.	Nov.	Dec.	Apr.-Dec.	Apr.-Dec.
	1	2	3	4	5	6
1 NRI Deposits	**58,608**	**52,497**	**67,180**	**67,576**	**7,263**	**12,033**
1.1 FCNR(B)	14,968	15,376	14,855	14,807	–222	–161
1.2 NR(E)RA	31,408	25,430	42,303	42,920	3,535	13,747
1.3 NRO	12,232	11,691	10,022	9,849	3,950	–1,553

No. 34: Foreign Investment Inflows

(US$ Million)

Item	2011-12	2011-12	2012-13	2011	2012	
		Apr.-Dec.	Apr.-Dec.	Dec.	Nov.	Dec.
	1	2	3	4	5	6
1 Foreign Investment Inflows	**39,177**	**23,654**	**31,970**	**3,066**	**3,434**	**6,399**
1.1 Net Foreign Direct Investment (1.1.1–1.1.2)	**22,006**	**20,408**	**16,340**	**780**	**1,424**	**1,533**
1.1.1 Direct Investment to India (1.1.1.1–1. 1.1.2)	**32,955**	**28,477**	**22,158**	**1,385**	**2,011**	**2,186**
1.1.1.1 Gross Inflows/Gross Investments	**46,553**	**37,733**	**27,197**	**2,238**	**2,431**	**2,606**
1.1.1.1.1 Equity	35,854	29,727	17,134	1,443	1,149	1,191
1.1.1.1.1.1 Government (SIA/FIPB)	3,046	2,710	2,030	121	39	248
1.1.1.1.1.2 RBI	20,427	16,492	11,890	1,142	892	690
1.1.1.1.1.3 Acquisition of shares	11,360	9,788	2,428	90	128	162
1.1.1.1.1.4 Equity capital of unincorporated bodies	1,021	737	786	90	91	91
1.1.1.1.2 Reinvested earnings	8,205	5,919	8,217	718	936	936
1.1.1.1.3 Other capital	2,494	2,087	1,846	77	346	479
1.1.1.2 Repatriation/Disinvestment	**13,598**	**9,256**	**5,039**	**853**	**420**	**420**
1.1.1.2.1 Equity	13,018	8,757	4,024	838	94	94
1.1.1.2.2 Other capital	580	499	1,015	15	326	326
1.1.2 Foreign Direct Investment by India (1.1.2.1+1.1.2.2+1.1.2.3–1.1.2.4)	**10,949**	**8,069**	**5,817**	**605**	**588**	**653**
1.1.2.1 Equity capital	6,388	4,599	5,081	474	645	680
1.1.2.2 Reinvested Earnings	1,208	907	891	101	99	99
1.1.2.3 Other Capital	5,808	4,335	3,548	364	440	470
1.1.2.4 Repatriation/Disinvestment	2,455	1,772	3,703	334	596	596
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3–1.2.4)	**17,171**	**3,246**	**15,629**	**2,286**	**2,010**	**4,866**
1.2.1 GDRs/ADRs	597	567	187	0	0	0
1.2.2 FIIs	16,813	2,745	16,043	2,302	2,026	4,882
1.2.3 Offshore funds and others	0	0	0	0	0	0
1.2.4 Portfolio investment by India	239	66	601	16	16	16

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US$ Million)

Item	2011-12	2011	2012		
		Nov.	Sep.	Oct.	Nov.
	1	2	3	4	5
1 Outward Remittances under the LRS	**1,001.6**	**65.5**	**108.8**	**87.7**	**77.4**
1.1 Deposit	26.6	1.2	0.5	0.5	1.0
1.2 Purchase of immovable property	62.2	5.1	6.8	5.0	6.3
1.3 Investment in equity/debt	239.5	12.6	20.1	17.8	11.8
1.4 Gift	244.6	12.9	19.4	20.1	16.9
1.5 Donations	3.5	0.1	0.6	0.5	1.0
1.6 Travel	34.9	3.4	4.4	4.0	5.0
1.7 Maintenance of close relatives	165.2	14.3	20.8	15.6	14.5
1.8 Medical Treatment	3.6	0.2	0.4	0.6	0.3
1.9 Studies Abroad	114.3	8.8	15.4	8.5	8.0
1.10 Others	107.2	6.8	20.3	15.2	12.6

No. 36: Indices of Real Effective Exchange Rate (REER) and Nominal Effective Exchange Rate (NEER) of the Indian Rupee

Item	2010-11	2011-12	2012		2013
			January	December	January
	1	2	3	4	5
36-Currency Export and Trade Based Weights (Base: 2004-05=100)					
1 Trade-Based Weights					
1.1 NEER	93.66	87.61	83.24	77.58	78.08
1.2 REER	102.34	99.15	94.73	91.96	92.55
2 Export-Based Weights					
2.1 NEER	94.74	89.06	84.65	79.30	79.78
2.2 REER	103.52	100.68	96.21	94.05	94.61
6-Currency Trade Based Weights					
1 Base: 2004-05 (April-March) =100					
1.1 NEER	91.83	84.86	80.49	75.05	75.41
1.2 REER	114.91	111.86	106.93	104.56	105.04
2 Base: 2010-11 (April-March) =100					
2.1 NEER	100.00	92.41	87.64	81.72	82.12
2.2 REER	100.00	97.35	93.05	90.99	91.40

No. 37: External Commercial Borrowings (ECBs)

(Amount in US$ Million)

Item	2011-12	2011	2012	
		Dec.	Nov.	Dec.
	1	2	3	4
1 Automatic Route				
1.1 Number	999	96	57	45
1.2 Amount	27,849	4,370	1,106	825
2 Approval Route				
2.1 Number	68	1	8	7
2.2 Amount	7,861	1	241	321
3 Total (1+2)				
3.1 Number	1,067	97	65	52
3.2 Amount	35,710	4,371	1,347	1,146
4 Weighted Average Maturity (in years)	5.78	6.56	4.98	5.37
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over 6-month LIBOR or reference rate for Floating Rate Loans	2.89	3.25	3.68	3.33
5.2 Interest rate range for Fixed Rate Loans	0.00-8.00	0.00-6.60	0.00-4.15	0.00-11.75

No. 38: India's Overall Balance of Payments

(US $ Million)

Item	Jul-Sep 2011 (PR)			Jul-Sep 2012 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	**249,370**	**249,094**	**276**	**234,304**	**234,462**	**–158**
1 CURRENT ACCOUNT	**131,667**	**150,558**	**–18,892**	**124,467**	**146,866**	**–22,398**
1.1 MERCHANDISE	**79,560**	**124,088**	**–44,528**	**69,841**	**118,181**	**–48,339**
1.2 INVISIBLES	**52,107**	**26,471**	**25,636**	**54,626**	**28,685**	**25,941**
1.2.1 Services	32,643	18,651	13,992	34,795	19,234	15,562
1.2.1.1 Travel	4,235	3,534	701	3,954	2,993	961
1.2.1.2 Transportation	4,499	3,624	875	4,176	3,892	284
1.2.1.3 Insurance	629	423	206	555	304	251
1.2.1.4 G.n.i.e.	147	179	–32	149	174	–25
1.2.1.5 Miscellaneous	23,134	10,891	12,242	25,962	11,871	14,090
1.2.1.5.1 Software Services	13,940	307	13,633	16,078	523	15,556
1.2.1.5.2 Business Services	6,120	6,352	–232	7,132	6,755	377
1.2.1.5.3 Financial Services	1,577	2,130	–553	1,355	1,107	248
1.2.1.5.4 Communication Services	390	309	80	455	141	314
1.2.2 Transfers	16,376	775	15,601	16,994	1,011	15,983
1.2.2.1 Official	136	152	–16	110	203	–93
1.2.2.2 Private	16,240	622	15,618	16,883	808	16,076
1.2.3 Income	3,088	7,045	–3,958	2,837	8,441	–5,604
1.2.3.1 Investment Income	2,377	6,578	–4,201	2,028	7,907	–5,879
1.2.3.2 Compensation of Employees	711	467	244	809	534	276
2 CAPITAL ACCOUNT	**117,704**	**98,137**	**19,567**	**109,837**	**85,972**	**23,864**
2.1 Foreign Investment	**55,208**	**49,918**	**5,289**	**52,661**	**36,059**	**16,602**
2.1.1 Foreign Direct Investment	11,981	5,496	6,485	13,093	4,208	8,885
2.1.1.1 In India	11,615	2,137	9,478	11,657	1,342	10,315
2.1.1.1.1 Equity	9,161	2,015	7,145	8,078	1,340	6,739
2.1.1.1.2 Reinvested Earnings	2,051	–	2,051	3,125	–	3,125
2.1.1.1.3 Other Capital	403	122	282	454	2	452
2.1.1.2 Abroad	366	3,359	–2,993	1,436	2,866	–1,431
2.1.1.2.1 Equity	366	1,631	–1,265	1,436	1,606	–170
2.1.1.2.2 Reinvested Earnings	–	302	–302	–	297	–297
2.1.1.2.3 Other Capital	–	1,426	–1,426	–	963	–963
2.1.2 Portfolio Investment	43,227	44,422	–1,196	39,569	31,851	7,718
2.1.2.1 In India	42,769	44,152	–1,384	38,946	30,957	7,988
2.1.2.1.1 FIIs	42,564	44,152	–1,589	38,861	30,957	7,904
2.1.2.1.2 ADR/GDRs	205	–	205	85	–	85
2.1.2.2 Abroad	458	270	188	623	894	–271
2.2 Loans	**37,270**	**28,772**	**8,498**	**34,035**	**28,648**	**5,387**
2.2.1 External Assistance	1,081	790	291	1,028	972	57
2.2.1.1 By India	17	57	–39	14	78	–64
2.2.1.2 To India	1,063	734	330	1,014	894	120
2.2.2 Commercial Borrowings	9,785	4,449	5,336	5,616	4,418	1,198
2.2.2.1 By India	1,118	469	649	379	629	–250
2.2.2.2 To India	8,667	3,980	4,687	5,237	3,790	1,447
2.2.3 Short Term to India	26,405	23,534	2,871	27,390	23,258	4,133
2.2.3.1 Suppliers' Credit > 180 days & Buyers' Credit	25,130	23,534	1,596	27,390	22,238	5,153
2.2.3.2 Suppliers' Credit up to 180 days	1,275	–	1,275	–	1,020	–1,020
2.3 Banking Capital	**20,488**	**13,439**	**7,049**	**19,770**	**14,279**	**5,491**
2.3.1 Commercial Banks	20,144	13,439	6,705	19,128	14,279	4,849
2.3.1.1 Assets	2,223	1,006	1,217	2,705	1,214	1,491
2.3.1.2 Liabilities	17,921	12,433	5,488	16,423	13,065	3,358
2.3.1.2.1 Non-Resident Deposits	15,088	12,302	2,786	15,043	12,197	2,846
2.3.2 Others	344	–	344	641	–	641
2.4 Rupee Debt Service	**–**	**1**	**–1**	**–**	**1**	**–1**
2.5 Other Capital	**4,737**	**6,006**	**–1,269**	**3,371**	**6,986**	**–3,615**
3 Errors & Omissions	**–**	**399**	**–399**	**–**	**1,624**	**–1,624**
4 Monetary Movements	**–**	**276**	**–276**	**158**	**–**	**158**
4.1 I.M.F.	–	–	–	–	–	–
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	–	276	–276	158	–	158

No. 39: India's Overall Balance of Payments

(₹ Billion)

Item	Jul-Sep 2011 (PR)			Jul-Sep 2012 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	**11,415**	**11,403**	**13**	**12,938**	**12,947**	**–9**
1 CURRENT ACCOUNT	**6,027**	**6,892**	**–865**	**6,873**	**8,110**	**–1,237**
1.1 MERCHANDISE	**3,642**	**5,680**	**–2,038**	**3,857**	**6,526**	**–2,669**
1.2 INVISIBLES	**2,385**	**1,212**	**1,174**	**3,016**	**1,584**	**1,432**
1.2.1 Services	1,494	854	641	1,921	1,062	859
1.2.1.1 Travel	194	162	32	218	165	53
1.2.1.2 Transportation	206	166	40	231	215	16
1.2.1.3 Insurance	29	19	9	31	17	14
1.2.1.4 G.n.i.e.	7	8	–1	8	10	–2
1.2.1.5 Miscellaneous	1,059	499	560	1,434	656	778
1.2.1.5.1 Software Services	638	14	624	888	29	859
1.2.1.5.2 Business Services	280	291	–11	394	373	21
1.2.1.5.3 Financial Services	72	97	–25	75	61	14
1.2.1.5.4 Communication Services	18	14	4	25	8	17
1.2.2 Transfers	750	35	714	938	56	883
1.2.2.1 Official	6	7	–1	6	11	–5
1.2.2.2 Private	743	28	715	932	45	888
1.2.3 Income	141	323	–181	157	466	–309
1.2.3.1 Investment Income	109	301	–192	112	437	–325
1.2.3.2 Compensation of Employees	33	21	11	45	29	15
2 CAPITAL ACCOUNT	**5,388**	**4,492**	**896**	**6,065**	**4,747**	**1,318**
2.1 Foreign Investment	**2,527**	**2,285**	**242**	**2,908**	**1,991**	**917**
2.1.1 Foreign Direct Investment	548	252	297	723	232	491
2.1.1.1 In India	532	98	434	644	74	570
2.1.1.1.1 Equity	419	92	327	446	74	372
2.1.1.1.2 Reinvested Earnings	94	–	94	173	–	173
2.1.1.1.3 Other Capital	18	6	12	25	–	25
2.1.1.2 Abroad	17	154	–137	79	158	–79
2.1.1.2.1 Equity	17	75	–58	79	89	–9
2.1.1.2.2 Reinvested Earnings	–	14	–14	–	16	–16
2.1.1.2.3 Other Capital	–	65	–65	–	53	–53
2.1.2 Portfolio Investment	1,979	2,034	–55	2,185	1,759	426
2.1.2.1 In India	1,958	2,021	–63	2,151	1,709	441
2.1.2.1.1 FIIs	1,948	2,021	–73	2,146	1,709	436
2.1.2.1.2 ADR/GDRs	9	–	9	5	–	5
2.1.2.2 Abroad	21	12	9	34	49	–15
2.2 Loans	**1,706**	**1,317**	**389**	**1,879**	**1,582**	**297**
2.2.1 External Assistance	49	36	13	57	54	3
2.2.1.1 By India	1	3	–2	–	4	–4
2.2.1.2 To India	49	34	15	56	49	7
2.2.2 Commercial Borrowings	448	204	244	310	244	66
2.2.2.1 By India	51	21	30	21	35	–14
2.2.2.2 To India	397	182	215	289	209	80
2.2.3 Short Term to India	1,209	1,077	131	1,513	1,284	228
2.2.3.1 Suppliers' Credit > 180 days & Buyers' Credit	1,150	1,077	73	1,513	1,228	285
2.2.3.2 Suppliers' Credit up to 180 days	58	–	58	–	56	–56
2.3 Banking Capital	**938**	**615**	**323**	**1,092**	**788**	**303**
2.3.1 Commercial Banks	922	615	307	1,056	788	268
2.3.1.1 Assets	102	46	56	149	67	82
2.3.1.2 Liabilities	820	569	251	907	721	185
2.3.1.2.1 Non-Resident Deposits	691	563	128	831	674	157
2.3.2 Others	16	–	16	35	–	35
2.4 Rupee Debt Service	–	–	–	–	–	–
2.5 Other Capital	**217**	**275**	**–58**	**186**	**386**	**–200**
3 Errors & Omissions	–	**18**	**–18**	–	**90**	**–90**
4 Monetary Movements	–	**13**	**–13**	**9**	–	**9**
4.1 I.M.F.	–	–	–	–	–	–
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	–	13	–13	9	–	9

No. 40: Standard Presentation of BoP in India as per BPM6

(US $ Million)

Item	Jul-Sep 2011 (PR)			Jul-Sep 2012 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account	**131,199**	**150,075**	**–18,876**	**124,368**	**146,680**	**–22,311**
1.A Goods and Services	**111,871**	**142,407**	**–30,536**	**104,636**	**137,414**	**–32,778**
1.A.a Goods	**79,577**	**124,088**	**–44,511**	**69,841**	**118,181**	**–48,339**
1.A.a.1 General merchandise on a BOP basis	79,560	111,206	–31,646	67,991	106,545	–38,553
1.A.a.2 Net exports of goods under merchanting	17	–	17	1,850	1,172	678
1.A.a.3 Non-monetary gold	–	12,882	–12,882	–	10,464	–10,464
1.A.b Services	**32,295**	**18,320**	**13,975**	**34,795**	**19,234**	**15,562**
1.A.b.1 Manufacturing services on physical inputs owned by others	–	–	–	20	14	6
1.A.b.2 Maintenance and repair services n.i.e.	–	–	–	21	121	–100
1.A.b.3 Transport	4,503	3,651	852	4,176	3,892	284
1.A.b.4 Travel	4,235	3,534	701	3,954	2,993	961
1.A.b.5 Construction	128	315	–187	240	250	–10
1.A.b.6 Insurance and pension services	629	423	206	555	304	251
1.A.b.7 Financial services	1,577	2,130	–553	1,355	1,107	248
1.A.b.8 Charges for the use of intellectual property n.i.e.	78	693	–615	67	1,116	–1,050
1.A.b.9 Telecommunications, computer, and information services	14,417	676	13,741	16,557	746	15,811
1.A.b.10 Other business services	5,772	6,020	–248	7,132	6,755	377
1.A.b.11 Personal, cultural, and recreational services	121	79	42	222	160	63
1.A.b.12 Government goods and services n.i.e.	147	179	–32	149	174	–25
1.A.b.13 Others n.i.e.	689	619	70	348	1,602	–1,254
1.B Primary Income	**3,088**	**7,045**	**–3,958**	**2,837**	**8,441**	**–5,604**
1.B.1 Compensation of employees	711	467	244	809	534	276
1.B.2 Investment income	2,084	6,497	–4,414	1,806	7,822	–6,016
1.B.2.1 Direct investment	769	6,440	–5,671	604	3,826	–3,222
1.B.2.2 Portfolio investment	–	–	–	17	1,391	–1,373
1.B.2.3 Other investment	–	54	–54	79	2,604	–2,525
1.B.2.4 Reserve assets	1,315	4	1,311	1,107	2	1,105
1.B.3 Other primary income	293	81	212	222	85	136
1.C Secondary Income	**16,240**	**622**	**15,618**	**16,895**	**825**	**16,070**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	16,240	622	15,618	16,883	808	16,076
1.C.1.1 Personal transfers (Current transfers between resident and/ non-resident households)	15,648	530	15,119	16,288	743	15,545
1.C.1.2 Other current transfers	592	93	499	595	65	530
1.C.2 General Government	–	–	–	11	17	–6
2 Capital Account	**407**	**163**	**244**	**163**	**470**	**–307**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	271	11	260	51	27	24
2.2 Capital transfers	136	152	–16	112	442	–331
3 Financial Account	**117,432**	**98,402**	**19,030**	**109,952**	**85,709**	**24,243**
3.1 Direct Investment	**11,981**	**5,496**	**6,485**	**13,093**	**4,208**	**8,885**
3.1.A Direct Investment in India	11,615	2,137	9,478	11,657	1,342	10,315
3.1.A.1 Equity and investment fund shares	11,212	2,015	9,197	11,203	1,340	9,864
3.1.A.1.1 Equity other than reinvestment of earnings	9,161	2,015	7,145	8,078	1,340	6,739
3.1.A.1.2 Reinvestment of earnings	2,051	–	2,051	3,125	–	3,125
3.1.A.2 Debt instruments	403	122	282	454	2	452
3.1.A.2.1 Direct investor in direct investment enterprises	403	122	282	454	2	452
3.1.B Direct Investment by India	366	3,359	–2,993	1,436	2,866	–1,431
3.1.B.1 Equity and investment fund shares	366	1,933	–1,567	1,436	1,903	–467
3.1.B.1.1 Equity other than reinvestment of earnings	366	1,631	–1,265	1,436	1,606	–170
3.1.B.1.2 Reinvestment of earnings	–	302	–302	–	297	–297
3.1.B.2 Debt instruments	–	1,426	–1,426	–	963	–963
3.1.B.2.1 Direct investor in direct investment enterprises	–	1,426	–1,426	–	963	–963
3.2 Portfolio Investment	**43,022**	**44,422**	**–1,401**	**39,484**	**31,851**	**7,633**
3.2A Portfolio Investment in India	42,564	44,152	–1,589	38,861	30,957	7,904
3.2A.1 Equity and investment fund shares	30,233	32,345	–2,112	30,426	23,264	7,162
3.2A.2 Debt securities	12,331	11,807	524	8,435	7,693	741
3.2.B Portfolio Investment by India	458	270	188	623	894	–271
3.3 Financial derivatives (other than reserves) and employee stock options	–	–	–	**804**	**1,093**	**–289**
3.4 Other investment	**62,429**	**48,207**	**14,222**	**56,405**	**48,466**	**7,939**
3.4.1 Other equity (ADRs/GDRs)	205	–	205	85	–	85
3.4.2 Currency and deposits	15,433	12,302	3,130	15,685	12,197	3,488
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	344	–	344	641	–	641
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	15,088	12,302	2,786	15,043	12,197	2,846
3.4.2.3 General government	–	–	–	–	–	–
3.4.2.4 Other sectors	–	–	–	–	–	–
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	15,922	6,376	9,546	10,730	7,472	3,257
3.4.3A Loans to India	14,786	5,850	8,936	10,336	6,765	3,571
3.4.3B Loans by India	1,136	526	610	393	707	–313
3.4.4 Insurance, pension, and standardized guarantee schemes	–	–	–	8	91	–82
3.4.5 Trade credit and advances	26,405	23,534	2,871	27,390	23,258	4,133
3.4.6 Other accounts receivable/payable - other	4,466	5,996	–1,530	2,515	5,539	–3,024
3.4.7 Special drawing rights	–	–	–	–	–	–
3.5 Reserve assets	–	**276**	**–276**	**158**	–	**158**
3.5.1 Monetary gold	–	–	–	–	–	–
3.5.2 Special drawing rights n.a.	–	–	–	–	–	–
3.5.3 Reserve position in the IMF n.a.	–	–	–	–	–	–
3.5.4 Other reserve assets (Foreign Currency Assets)	–	276	–276	158	–	158
3 Total assets/liabilities (Instrument wise)	**117,432**	**98,402**	**19,030**	**109,952**	**85,709**	**24,243**
3.0.1 Equity and investment fund shares	42,269	36,564	5,705	44,500	28,584	15,916
3.0.2 Debt instruments	70,492	55,566	14,926	62,693	51,586	11,107
3.0.3 Other financial assets and liabilities	4,671	6,272	–1,601	2,758	5,539	–2,781
4 Net errors and omissions	–	**399**	**–399**	–	**1,624**	**–1,624**

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Billion)

Item	Jul-Sep 2011 (PR)			Jul-Sep 2012 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account	**6,006**	**6,870**	**–864**	**6,868**	**8,100**	**–1,232**
1.A Goods and Services	**5,121**	**6,519**	**–1,398**	**5,778**	**7,588**	**–1,810**
1.A.a Goods	**3,643**	**5,680**	**–2,038**	**3,857**	**6,526**	**–2,669**
1.A.a.1 General merchandise on a BOP basis	3,642	5,091	–1,449	3,754	5,883	–2,129
1.A.a.2 Net exports of goods under merchanting	1	–	1	102	65	37
1.A.a.3 Non-monetary gold	–	590	–590	–	578	–578
1.A.b Services	**1,478**	**839**	**640**	**1,921**	**1,062**	**859**
1.A.b.1 Manufacturing services on physical inputs owned by others	–	–	–	1	1	–
1.A.b.2 Maintenance and repair services n.i.e.	–	–	–	1	7	–6
1.A.b.3 Transport	206	167	39	231	215	16
1.A.b.4 Travel	194	162	32	218	165	53
1.A.b.5 Construction	6	14	–9	13	14	–1
1.A.b.6 Insurance and pension services	29	19	9	31	17	14
1.A.b.7 Financial services	72	97	–25	75	61	14
1.A.b.8 Charges for the use of intellectual property n.i.e.	4	32	–28	4	62	–58
1.A.b.9 Telecommunications, computer, and information services	660	31	629	914	41	873
1.A.b.10 Other business services	264	276	–11	394	373	21
1.A.b.11 Personal, cultural, and recreational services	6	4	2	12	9	3
1.A.b.12 Government goods and services n.i.e.	7	8	–1	8	10	–1
1.A.b.13 Others n.i.e.	32	28	3	19	88	–69
1.B Primary Income	**141**	**323**	**–181**	**157**	**466**	**–309**
1.B.1 Compensation of employees	33	21	11	45	29	15
1.B.2 Investment income	95	297	–202	100	432	–332
1.B.2.1 Direct investment	35	295	–260	33	211	–178
1.B.2.2 Portfolio investment	–	–	–	1	77	–76
1.B.2.3 Other investment	–	2	–2	4	144	–139
1.B.2.4 Reserve assets	60	–	60	61	–	61
1.B.3 Other primary income	13	4	10	12	5	8
1.C Secondary Income	**743**	**28**	**715**	**933**	**46**	**887**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	743	28	715	932	45	888
1.C.1.1 Personal transfers (Current transfers between resident and/ non-resident households)	716	24	692	899	41	858
1.C.1.2 Other current transfers	27	4	23	33	4	29
1.C.2 General Government	–	–	–	1	1	–
2 Capital Account	**19**	**7**	**11**	**9**	**26**	**–17**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	12	0	12	3	2	1
2.2 Capital transfers	6	7	–1	6	24	–18
3 Financial Account	**5,376**	**4,505**	**871**	**6,072**	**4,733**	**1,339**
3.1 Direct Investment	**548**	**252**	**297**	**723**	**232**	**491**
3.1.A Direct Investment in India	532	98	434	644	74	570
3.1.A.1 Equity and investment fund shares	513	92	421	619	74	545
3.1.A.1.1 Equity other than reinvestment of earnings	419	92	327	446	74	372
3.1.A.1.2 Reinvestment of earnings	94	–	94	173	–	173
3.1.A.2 Debt instruments	18	6	12	25	–	25
3.1.A.2.1 Direct investor in direct investment enterprises	18	6	12	25	–	25
3.1.B Direct Investment by India	17	154	–137	79	158	–79
3.1.B.1 Equity and investment fund shares	17	88	–72	79	105	–26
3.1.B.1.1 Equity other than reinvestment of earnings	17	75	–58	79	89	–9
3.1.B.1.2 Reinvestment of earnings	–	14	–14	–	16	–16
3.1.B.2 Debt instruments	–	65	–65	–	53	–53
3.1.B.2.1 Direct investor in direct investment enterprises	–	65	–65	–	53	–53
3.2 Portfolio Investment	**1,969**	**2,034**	**–64**	**2,180**	**1,759**	**421**
3.2A Portfolio Investment in India	1,948	2,021	–73	2,146	1,709	436
3.2A.1 Equity and investment fund shares	1,384	1,481	–97	1,680	1,285	396
3.2A.2 Debt securities	564	540	24	466	425	41
3.2.B Portfolio Investment by India	21	12	9	34	49	–15
3.3 Financial derivatives (other than reserves) and employee stock options	–	–	–	**44**	**60**	**–16**
3.4 Other investment	**2,858**	**2,207**	**651**	**3,115**	**2,676**	**438**
3.4.1 Other equity (ADRs/GDRs)	9	–	9	5	–	5
3.4.2 Currency and deposits	706	563	143	866	674	193
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	16	–	16	35	–	35
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	691	563	128	831	674	157
3.4.2.3 General government	–	–	–	–	–	–
3.4.2.4 Other sectors	–	–	–	–	–	–
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	729	292	437	592	413	180
3.4.3A Loans to India	677	268	409	571	374	197
3.4.3B Loans by India	52	24	28	22	39	–17
3.4.4 Insurance, pension, and standardized guarantee schemes	–	–	–	–	5	–5
3.4.5 Trade credit and advances	1,209	1,077	131	1,513	1,284	228
3.4.6 Other accounts receivable/payable - other	204	274	–70	139	306	–167
3.4.7 Special drawing rights	–	–	–	–	–	–
3.5 Reserve assets	–	**13**	**–13**	**9**	–	**9**
3.5.1 Monetary gold	–	–	–	–	–	–
3.5.2 Special drawing rights n.a.	–	–	–	–	–	–
3.5.3 Reserve position in the IMF n.a.	–	–	–	–	–	–
3.5.4 Other reserve assets (Foreign Currency Assets)	–	13	–13	9	–	9
3 Total assets/liabilities (Instrument wise)	**5,376**	**4,505**	**871**	**6,072**	**4,733**	**1,339**
3.0.1 Equity and investment fund shares	1,935	1,674	261	2,457	1,578	879
3.0.2 Debt instruments	3,227	2,544	683	3,462	2,849	613
3.0.3 Other financial assets and liabilities	214	287	–73	152	306	–154
4 Net errors and omissions	–	**18**	**–18**	–	**90**	**–90**

No. 42: International Investment Position

(US$ Million)

Item	As on Financial Year /Quarter End							
	2011-12		2011		2012			
			Sep.		Jun.		Sep.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1	2	3	4	5	6	7	8
1 Direct Investment Abroad/in India	112,376	222,330	107,610	216,918	114,379	205,643	115,810	229,970
1.1 Equity Capital and Reinvested Earnings	82,048	213,119	79,979	208,290	82,816	196,158	83,283	219,939
1.2 Other Capital	30,329	9,211	27,631	8,628	31,564	9,485	32,527	10,031
2 Portfolio Investment	1,472	165,797	1,488	155,756	1,447	148,211	1,447	165,325
2.1 Equity	1,455	125,330	1,463	121,180	1,430	110,506	1,430	125,674
2.2 Debt	17	40,468	25	34,576	17	37,706	17	39,651
3 Other Investment	29,524	298,061	32,116	282,398	28,156	303,701	29,662	317,908
3.1 Trade Credit	–39	67,325	10,421	66,691	4,915	72,729	5,606	76,775
3.2 Loan	6,067	159,993	4,367	153,995	3,782	160,313	3,761	163,965
3.3 Currency and Deposits	11,764	58,778	7,706	52,427	7,490	61,048	8,418	67,207
3.4 Other Assets/Liabilities	11,732	11,965	9,622	9,284	11,970	9,611	11,877	9,961
4 Reserves	294,397	–	311,482	–	289,737	–	294,812	–
5 Total Assets/ Liabilities	437,770	686,188	452,696	655,072	433,719	657,555	441,731	713,203
6 IIP (Assets - Liabilities)		–248,418		–202,376		–223,835		–271,472

Payment and Settlement Systems

No. 43: Payment System Indicators

System	Volume (Million)				Value (₹ Billion)			
	2011-12	2012			2011-12	2012		
		Oct.	Nov.	Dec.		Oct.	Nov.	Dec.
	1	2	3	4	5	6	7	8
1 RTGS	**55.05**	**5.83**	**5.55**	**6.03**	**1,079,790.59**	**92,276.40**	**56,115.59**	**68,729.93**
1.1 Customer Transactions	51.02	5.46	5.19	5.65	395,244.50	41,925.26	35,717.32	44,120.23
1.2 Interbank Transactions	4.00	0.38	0.36	0.38	144,062.98	12,533.53	11,057.25	13,157.67
1.3 Interbank Clearing	0.012	0.001	0.001	0.001	540,483.14	37,817.61	9,341.03	11,452.02
2 CCIL Operated Systems	**1.88**	**0.19**	**0.16**	**0.18**	**406,071.18**	**42,638.86**	**35,725.63**	**39,703.59**
2.1 CBLO	0.13	0.01	0.01	0.01	111,554.28	10,468.92	8,466.94	9,956.70
2.2 Govt. Securities Clearing	0.43	0.06	0.04	0.05	72,520.79	10,346.64	8,184.74	8,308.66
2.2.1 Outright	0.41	0.05	0.04	0.04	34,882.04	5,112.53	3,425.52	4,638.12
2.2.2 Repo	0.028	0.004	0.004	0.003	37,638.75	5,234.11	4,759.22	3,670.54
2.3 Forex Clearing	1.29	0.12	0.11	0.12	221,996.11	21,823.30	19,073.95	21,438.23
3 Paper Clearing	**1,341.88**	**118.76**	**103.01**	**108.48**	**99,012.15**	**8,860.42**	**7,646.24**	**7,836.75**
3.1 Cheque Truncation System (CTS)	180.04	24.55	22.34	25.03	15,103.74	1,863.26	1,722.05	1,913.13
3.2 MICR Clearing	934.89	75.93	63.31	64.71	65,093.25	4,976.43	4,369.40	4,475.09
3.2.1 RBI Centres	605.01	44.44	38.81	40.16	44,225.00	3,043.81	2,760.56	2,852.80
3.2.2 Other Centres	329.89	31.48	24.50	24.55	20,868.24	1,932.62	1,608.84	1,622.29
3.3 Non-MICR Clearing	226.96	18.29	17.37	18.74	18,815.16	2,020.73	1,554.79	1,448.53
4 Retail Electronic Clearing	**512.45**	**64.04**	**57.61**	**57.54**	**20,575.61**	**2,786.09**	**2,539.82**	**2,887.24**
4.1 ECS DR	164.74	15.07	14.98	15.00	833.84	88.51	91.39	90.10
4.2 ECS CR (includes NECS)	121.50	14.07	8.87	6.89	1,837.84	163.17	146.61	129.06
4.3 EFT/NEFT	226.10	34.84	33.71	35.54	17,903.49	2,534.20	2,301.55	2,667.68
4.4 Interbank Mobile Payment Service (IMPS)	0.07	0.05	0.05	0.11	0.32	0.21	0.26	0.39
5 Cards	**5,731.59**	**543.54**	**533.47**	**553.46**	**15,510.78**	**1,594.08**	**1,636.40**	**1,642.90**
5.1 Credit Cards	322.15	35.84	34.20	36.32	978.73	109.93	112.12	112.56
5.1.1 Usage at ATMs	1.84	0.26	0.21	0.22	10.64	1.28	1.21	1.24
5.1.2 Usage at POS	319.96	35.58	34.00	36.10	966.14	108.64	110.91	111.32
5.2 Debit Cards	5,409.45	507.70	499.27	517.14	14,532.04	1,484.15	1,524.28	1,530.34
5.2.1 Usage at ATMs	5,081.91	467.81	452.15	473.75	13,997.73	1,416.36	1,452.07	1,461.25
5.2.2 Usage at POS	327.52	39.89	47.12	43.39	534.33	67.79	72.20	69.09
6 Prepaid Payment Instruments (PPIs)	**30.60**	**5.70**	**6.18**	**7.18**	**62.01**	**7.22**	**8.23**	**8.18**
6.1 m-Wallet	–	2.68	3.13	4.17	–	0.65	0.96	1.52
6.2 PPI Cards	–	2.98	3.01	2.96	–	4.84	5.25	4.58
6.3 Paper Vouchers	–	0.04	0.04	0.05	–	1.73	2.02	2.08
7 Mobile Banking	**25.56**	**4.44**	**4.72**	**5.22**	**18.20**	**4.98**	**5.39**	**5.98**
8 Cards Outstanding	**295.94**	**325.37**	**328.15**	**333.31**	–	–	–	–
8.1 Credit Card	17.65	18.53	18.67	18.87	–	–	–	–
8.2 Debit Card	278.28	306.83	309.48	314.44	–	–	–	–
9 Number of ATMs (in actuals)	**95686**	**102542**	**103968**	**105784**	–	–	–	–
10 Number of POS (in actuals)	**660920**	**764674**	**784642**	**799702**	–	–	–	–
11 Grand Total (1.1+1.2+2+3+4+5+6)	**7,673.40**	**738.06**	**705.99**	**732.87**	**1,080,539.17**	**110,345.46**	**94,330.89**	**109,356.56**

Explanatory Notes to the Current Statistics

Table No. 1

1.2 & 6: Annual data are averages of months.

3.5 & 3.7: Relate to ratios of increments over financial year so far.

4.1 to 4.4, 4.8, 4.12 & 5: Relate to the last day of the month/financial year.

4.5, 4.6 & 4.7: Relate to five major banks on the last Friday of the month/financial year.

4.9 to 4.11: Relate to the last auction day of the month/financial year.

Table No. 2

2.1.2: Include paid-up capital, reserve fund and Long-Term Operations Funds.

2.2.2: Include cash, fixed deposits and short-term securities/bonds, e.g., issued by IIFC (UK).

Table No. 6

For scheduled banks, March-end data pertain to the last reporting Friday.

2.2: Exclude balances held in IMF Account No.1, RBI employees' provident fund, pension fund, gratuity and superannuation fund.

Table Nos. 7 & 11

3.1 in Table 7 and 2.4 in Table 11: Include foreign currency denominated bonds issued by IIFC (UK).

Table No. 8

NM_2 and NM_3 do not include FCNR (B) deposits.

2.4: Consist of paid-up capital and reserves.

2.5: includes other demand and time liabilities of the banking system.

Table No. 9

Financial institutions comprise EXIM Bank, SIDBI, NABARD and NHB.

L_1 and L_2 are compiled monthly and L_3 quarterly.

Wherever data are not available, the last available data have been repeated.

Table No. 17

2.1.1: Exclude reserve fund maintained by co-operative societies with State Co-operative Banks

2.1.2: Exclude borrowings from RBI, SBI, IDBI, NABARD, notified banks and State Governments.

4: Include borrowings from IDBI and NABARD.

Table No. 24

Primary Dealers (PDs) include banks undertaking PD business.

Table No. 30

Exclude private placement and offer for sale.

1: Exclude bonus shares.

2: Include cumulative convertible preference shares and equi-preference shares.

Table No. 32

Exclude investment in foreign currency denominated bonds issued by IIFC (UK). Foreign currency assets in US dollar take into account appreciation/depreciation of non-US currencies (such as Euro, Sterling and Yen) held in reserves. Foreign exchange holdings are converted into rupees at rupee-US dollar RBI holding rates.

Table No. 34

1.1.1.1.2 & 1.1.1.1.1.4: Estimates.

1.1.1.2: Estimates for latest months.

'Other capital' pertains to debt transactions between parent and subsidiaries/branches of FDI enterprises.

Data may not tally with the BoP data due to lag in reporting.

Table No. 35

1.10: Include items such as subscription to journals, maintenance of investment abroad, student loan repayments and credit card payments.

Table No. 36

Increase in indices indicates appreciation of rupee and vice versa. For 6-Currency index, base year 2010-11 is a moving one, which gets updated every year. Methodological details are available in December 2005 issue of the Bulletin.

Table No. 37

Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

Table Nos. 38, 39, 40 & 41

Explanatory notes on these tables are available in December issue of RBI Bulletin, 2012.

Table No. 43

1.3: Pertain to multilateral net settlement batches.

3.1: Pertain to two centres - New Delhi and Chennai.

3.3: Pertain to clearing houses managed by 21 banks.

6: Available from December 2010.

7: Include IMPS transactions.

Detailed explanatory notes are available in the relevant press releases issued by RBI and other publications/releases of the Bank such as **Handbook of Statistics on the Indian Economy**.

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Name of Publication	Price	
	India	Abroad
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27. Computer Paribhasha Kosh (Hindi)	₹ 100 per copy (over the counter)	
28. Banking Glossary (2012)	₹ 80 (normal) (postage extra)	

Notes

1. Many of the above publications are available at the RBI website (www.rbi.org.in).
2. Time Series data are available at the Database on Indian Economy (http://dbie.rbi.org.in).
3. The Reserve Bank of India History 1935-1981 (3 Volumes), Challenges to Central Banking in the Context of Financial Crisis and the Regional Economy of India: Growth and Finance are available at leading book stores in India.

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