

The Reserve Bank of India: Research and Policy Making

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INTRODUCTION

The Reserve Bank of India, like its peer central banks in world is at the centre of economic and financial policy making in India. It has been assigned the responsibility of making the monetary policy of the country, regulation and supervision of the banking system in particular and financial system in general. The Reserve Bank is also entrusted with the responsibility of issuing bank notes and maintaining reserves. The RBI Act, also, allows the Bank to provide facilities for training in banking and for the promotion of research, where, in the opinion of the Bank, such provision may facilitate the exercise by the Bank of its powers and functions, or the discharge of its duties. The central banks around the world choose the stance of monetary policy by assessing the latest data on the direction of the economy and determining how much and how soon to react to these developments. Policy actions are benchmarked against knowledge of the range within which the relevant variables have moved in the past, their historical correlation, and the lags in policy transmission. Research is at the core of policy making of the central banks. It sheds light on the process by which policy is transmitted to the economy, and illuminates the likely impact of policy on money, credit, output, and inflation.

This paper makes an attempt to analyse the pattern of research activities in the Reserve Bank and their relevance for policy making. In the Reserve Bank, models for policy evaluation are produced internally

by staff economists familiar with the policy process, and the relevant institutional knowledge. This also gets validated from outside economists and practitioners through academic debate and various deliberations. The remaining part of the paper is structured in the following pattern: Section II of the article sketches briefly the functions of the Reserve Bank, Section III outlines briefly the governance arrangement of the Reserve Bank, and Section IV illustrates the research infrastructure of the Reserve Bank, while Section V provides a glimpse of the Reserve Bank's collaboration with academia. Section VI has surveyed the select publications of the Reserve Bank and by the Reserve Bank staff. Section VII has shed light on the importance of working group/committees in policy making. Section VIII contains conclusions of paper.

FUNCTIONS OF THE RESERVE BANK

The Preamble of the Reserve Bank of India outlines the basic functions of the Reserve Bank as "...to regulate the issue of Bank Notes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage." As enunciated in various policy documents of the Reserve Bank, inflation control and expansion of bank credit to support economic growth constituted as the dominant objectives of monetary policy in India. Relative emphasis was placed on either of them based on the prevailing economic conditions. With development of a broad-

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based financial market with closer global inter-linkages, 'financial stability' has also been included as another important objective of monetary policy in India in the recent period. Unusually, and unlike most central banks the Reserve Bank was specifically entrusted with an important promotional role since its inception to finance agricultural operations and marketing of crops. In fact, the Agricultural Credit Department was created simultaneously with the establishment of the Reserve Bank in 1935.

The Reserve Bank is also entrusted with responsibility of the management of foreign exchange reserves, which are reflected in its balance sheet. The Reserve Bank exercised a tight regime of exchange control particularly under the Foreign Exchange Regulation Act (FERA), 1973; but a qualitative change was brought about in the legal framework to enable liberalisation by the enactment of the Foreign Exchange Management Act (FEMA) in June 2000 which replaced the FERA. With this, the objectives of foreign exchange regulation have been redefined as the facilitating of external trade and payments as well as the orderly development and functioning of the foreign exchange market in India. While the Reserve Bank is essentially a monetary authority, its founding statute mandates it to be the manager of public debt of the Government of India and the banker to the Government. It has also been entrusted with the work relating to banking regulation and supervision by a separate enactment in 1949, i.e., the Banking Regulation Act. The Reserve Bank also regulates the payment and settlement system of the country through Payment and Settlement Systems Act 2007.

GOVERNANCE ARRANGEMENTS

The "general superintendence and direction of the affairs and business" of the Reserve Bank are "entrusted to the Central Board of Directors". The

Central Board nominated by the Government of India, consists of fourteen eminent persons drawn from different walks of life, who are the non-official Directors. The Secretary dealing with Economic Affairs in the Ministry of Finance is also a Director on the Central Board and has voice but not vote. Further, the Governor, and the Deputy Governors are also appointed by the Government, as the Chairman and non-voting Directors of the Board, respectively.

The Reserve Bank General Regulations, 1949, mandate a Committee of the Central Board (CCB), which is in the nature of an executive board and meets once a week. The CCB quorum demands the presence of at least one non-official Director. Currently, the normal attendance for the weekly meetings is three or four of the five non-official Directors who are residing in Mumbai. The weekly meetings review the economy and the financial market developments, and approve the weekly accounts of the Reserve Bank (which are placed on Reserve Bank website every week soon after their approval) and all other matters relating to the general conduct of Reserve Bank's business. The Governor, and in his absence the senior-most Deputy Governor available, presides over these meetings.

The function of supervision of the banking system, development financial institutions, non-banking finance companies and the primary dealers, is overseen by a separate Board for Financial Supervision (BFS), which has been constituted by the Government through separate regulations formulated under the Reserve Bank Act. The BFS has four non-official Central Board Directors as its Members and meets at least once a month, functioning virtually as an executive board in matters relating to regulation and supervision. While the Governor chairs the BFS where all the Deputy Governors are Members, one of the Deputy Governors is virtually its full time Vice-Chairman.

In addition to issue-based reviews and directions, the BFS reviews the functioning of individual banks and in respect of select cases, there is also a monthly monitoring of individual banks. Thus, in a sense, the supervision function is handled somewhat independently, but within the Reserve Bank.

Another body recently constituted through a separate regulation, by the Government, is the Board for Payment and Settlement Systems (BPSS) which has three non-official Central Board Directors as its members and meets at least once a quarter.

In addition, the Central Board has three standing committees. The Inspection and Audit Sub-Committee has four non-official Central Board Directors. The Building Sub-Committee and the Staff Sub-Committee have at least two non-official Central Board Directors each, and intensely oversee the two important non-financial assets of the Reserve Bank.

There are also four Local Boards of the Reserve Bank for four regions of the country, each of which has five non-official Members, appointed by the Central Government, and a Chairman who is one of the Directors of the Central Board. The Local Boards advise the Central Board on the matters remitted to them and perform the duties delegated to them, currently by a resolution of the Central Board.

Although there is no legal requirement of a Monetary Policy Committee to take appropriate decisions, it was internally decided in 2005 to constitute a Technical Advisory Committee on Monetary Policy (TAC-MP) in view of the increasing complexity and significance of the

monetary policy in the scenario of greater integration of the Indian economy with global economy. Currently, the TAC-MP consists of two non-official Directors of the Central Board and five independent outside experts, apart from the four Deputy Governors and the Governor as Chairman. The TAC-MP meets at least once in a quarter, usually a week ahead of the announcement of the annual policy or the quarterly reviews of the monetary policy.

IN-HOUSE RESEARCH INFRASTRUCTURE OF THE RESERVE BANK

Like its peer central banks, the Reserve Bank is at the forefront in promoting research activities within the Bank and also outside the Bank. All the Departments of the Reserve Bank in general and economics and statistics departments in particular endeavor to meet growing needs of the economic research². Annex 1 has given detailed structure of the DEAP and DSIM. According to its communication policy the Reserve Bank publishes and disseminates plethora of data and information, prepared by the various Departments of the Bank, relating to financial and monetary sector of various frequencies for use of researchers and practitioners. Along with the monetary and financial statistics, the Reserve Bank releases various statutory and non-statutory reports on regular frequencies, *viz.*, Annual Report, Report of Trend and Progress of the Banking in India (RTP), Report on Currency and Finance (RCF), RBI Monthly Bulletin, *etc.* Besides this the Reserve Bank staff also publishes their own views and analysis in the Occasional Papers (Tri-annual), Staff Studies and other national and international journals. A List of the important publications of the Bank is given in the Annex 2.

²The Department of Economic Analysis and Policy (DEAP) is manned by professional economists while the Department of Statistics and Information Management (DSIM) is staffed by professional statisticians.

RESERVE BANK AND COLLABORATION WITH ACADEMIA

The Reserve Bank attaches great value to the interactions with the academia in several ways. The foundation for financial sector reform in the early 1990s, in India, was laid down by earlier Governor Rangarajan, an academician, originally drawn from Professorship of the Indian Institute of Management, Ahmedabad (Reddy, 2008). The Board of the Reserve Bank, generally, has four academicians of eminence, two each from economics and sciences. On an ongoing basis, the Reserve Bank benefits from active inputs from academics. The Bank's standing Technical Advisory Committees on Monetary Policy; on Financial Markets; and on periodical Surveys; benefit immensely through representation of academics on these Committees.

The Reserve Bank also contributes to the requirements of the academic world through its key analytical publications as mentioned in the previous section, for the use of researchers. The Bank also publishes data on banking (Statistical Tables Relating to Banks in India; and Basic Statistical Returns) on an annual basis. It also publishes banking data in its Quarterly Handout on Banking Statistics. The Reserve Bank provides web-based access to the researchers through the Database on Indian Economy (DBIE). Time series data relating to the areas of financial sector, real sector, external sector, financial markets, public finance and corporate finance are made available through the DBIE. The users can navigate from metadata to the related data/reports. They can also navigate from the data/reports to the relevant metadata. The emphasis is to make available the latest information to the researchers through the DBIE. Further, the Bank also compiles and publishes data on important macroeconomic variables from time to time, on an occasional basis. The Handbooks on Monetary Statistics and State Finances are examples of occasional data publications of the Bank.

In order to facilitate research on developmental issues from multi-disciplinary points of view, an advanced research institute - the Indira Gandhi Institute of Development Research (IGIDR) - was established by the Reserve Bank of India in 1986, which receives annual financial support from the Reserve Bank. The Institute is now recognised as a Deemed University by the University Grant Commission.

The Reserve Bank had also established the National Institute of Bank Management (NIBM) in 1969, as an autonomous institution, with the mandate of playing a proactive role of a "think-tank" of the banking system. The NIBM is recognised by the University of Pune as an approved Centre for Post-Graduate Research, and also by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. The Bank has also established the Institute for Development Research in Banking Technology (IDRBT) in Hyderabad in 1996 as an autonomous centre for research in banking technology. The Institute now offers degrees in banking technology (including Ph.D) in collaboration with University of Hyderabad. Joint India-International Monetary Fund (IMF) Training Programme (ITP) has been established recently at the NIBM campus in Pune. The Reserve Bank has sponsored and funded this collaboration. This is the seventh such facility of the IMF Institute in the world. Further, the bank is in the process of upgrading its Bankers' Training College in Mumbai as Centre for Advanced Financial Learning (CAFL).

The Reserve Bank also promotes research by providing financial assistance under a scheme - the Reserve Bank's Endowment Scheme - to various institutions for undertaking research and training in areas of interest to the Reserve Bank. The financial support is generally provided through corpus funds. At present, there are 22 corpus funds established in 21 universities. The Reserve Bank funds several

seminars/lectures by experts, including leading academics, most notable of them being a series of three Memorial Lectures and support to national level academic workshops/conferences. As a continuation of this process, and as a part of its capacity building and knowledge management initiatives, the Reserve Bank has recently signed a Memorandum of Understanding with the London School of Economics and Political Science (LSE), as one of the sponsors, for creating a LSE India Observatory and IG Patel Chair. Currently, the eminent economist, Lord Nicholas Stern, holds the Chair. The LSE India Observatory co-ordinates India related research, policy development and teaching at the LSE and is expected to emerge as a hub for academic collaboration with academic institutions in India, government agencies and corporate bodies.

The Development Research Group (DRG), constituted by the Reserve Bank in 1991, serves as a forum for collaborative research efforts between professional economists and officers of the Bank. Till now, the DRG has published 32 studies on a wide range of subjects relating to real, fiscal, monetary policy, financial and social sectors (Annex 3). The studies are fully funded by the Reserve Bank.

RESEARCH ACTIVITY WITHIN THE RESERVE BANK – A SURVEY

In the following paragraphs, we have analysed select important research publications of the Reserve Bank. In the analysis, only important publications have been included as it is not possible to include every publication here, given that the Bank publishes a large body of literature of interest to researchers. Publications which provide information relating to the current economic scenario *viz.*, Macroeconomic and Monetary Developments have also not been included here though, they provide quite rigorous analysis of the

current economic scenario. For the analysis here, only the “official” research publications such as occasional papers/staff studies, *etc.*, have been included, apart from the Annual Report and Report on Trends and Progress of Banking in India, both of which include comprehensive research findings on the macroeconomy.

Annual Report (AR)

Like any other organisation, the Annual Report of the Reserve Bank is the most important statutory publication released by end of August every year. It is the statement of the Central Board of Directors on the state of the economy, and on the balance sheet of the Reserve Bank. It also presents an assessment of the Indian economy and its prospects in the period ahead. The Annual Report is divided in two parts, while Part I comprises The Economy: Review and Prospects, Part II includes the Working and Operations of the Reserve Bank of India. Over the years Annual Report of the Bank has evolved considerably. In contrast to many other central banks, the Reserve Bank Annual Report gives much wider coverage of the economy. Not only it provides facts but also gives empirical insight relating to many issues of the contemporary relevance. Especially, the Part I of the Report utilises material from comprehensive and rigorous research carried out in the Bank.

Report of Trend and Progress of Banking in India (RTP)

This is also an annual statutory publication prepared and released by the Reserve Bank. This Report reviews the policies for and performance of the financial sector during the year. The publication covers the data from April to March and is generally released around November/December every year. The Report carries a detailed analysis of the operations and performance of the commercial banks, developments in cooperative banking, non-banking financial institutions, financial stability along

with analysis on policy environment and global banking developments. Up to 2002-03, Financial Stability was not included in the Report but in view of the increasing complexity of the financial and monetary system of the India, due to financial reforms and globalisation of the Indian economy, it was found appropriate to include a chapter relating to it. As India still does not publish Financial Stability Report, significance of this chapter increases manifold³.

Report of Currency and Finance (RCF)

This report can be considered as the single most important research publication of the Bank and is prepared in house predominantly by the officers of DEAP, with collaboration from other departments. It is published annually on a specific theme and includes comprehensive and rigorous research findings of the research staff. This report has proved to be very popular among researchers. The Report in its current form came since 1998-99 and dwells on a particular theme and presents a detailed economic analysis of the issues related to that theme. The theme generally relates to the operations of the Reserve Bank. The focus of the Report is on policy approaches, issues and challenges relevant to economic policy making in India. The Reports explore these areas against the current theoretical understandings and the cross-country empirical evidences. The themes of the report are always very relevant to the economy in general but the latest four reports are close to core functions of the Reserve Bank. Following paragraphs have made a conscious effort to briefly deliberate the major conclusions of the RCF 2002-03 to RCF 2006-08.

The theme of RCF 2002-03 was “Management of the External Sector in an Open Economy

Framework”. The Report addressed the theme, against the backdrop of the significant transformation of external sector of the Indian economy and in recognition of the growing importance of the external sector in driving the economy. The focus of the Report was on the changing contours of the management of the external sector in India in a progressively open economy framework. The Report observed that there is a growing recognition that openness matters and globalisation is an irreversible process entailing both opportunities as well as challenges. In view of increased uncertainty, central banks need to take into account developments in the global economic situation, the international inflationary situation, interest rate situation, exchange rate movements and capital movements while formulating policy responses. Further, the maintenance of financial sector stability has assumed greater importance with opening up of the economy to the influence of globalisation. The Monetary policy has to play an important role in this context by ensuring appropriate real interest rates and low and stable inflation. The key challenge for macroeconomic policies would be to ensure that the anticipated expansion in savings is productively utilised within the economy and not exported abroad so that the investment rate rises in close co-movement with the saving rate. The Report concludes that real sector and financial sector policies have to work in close co-ordination for promoting growth.

Theme of the RCF 2003-04 was ‘The Evolution of Monetary Policy’. The report was prepared in the backdrop of the financial liberalisations and opening up of the economy. The conduct of monetary policy during the 1990s in India was shaped by the wide ranging structural reforms, which necessitated significant changes in the monetary policy

³The Reserve Bank of India has constituted the Financial Stability Unit drawing upon inter-disciplinary expertise from supervisory, regulatory, statistics, economics and financial markets departments of the Bank for carrying out periodic stress tests and for preparing financial stability reports. It is expected that first Financial Stability Report of India will be released shortly.

framework in terms of objectives, instruments, and targets. At the heart of the monetary policy reforms lay the containment of the fiscal dominance of the monetary policy. In contrast, with the opening up of the economy, monetary management had to contend increasingly with challenges emanating from the large volume and sudden switches in capital flows and episodes of volatility in the financial markets. In this *milieu*, while price stability and credit availability remained twin objectives of monetary policy, financial stability has gradually emerged as a key consideration in the conduct of monetary policy. The Report addresses the changes in the monetary policy framework in terms of objectives, intermediate targets and operating procedures of monetary policy. This was followed by a discussion on monetary management in an open economy, especially in view of the multiple external shocks impacting the economy during the period of reform. The Report had then attempted an assessment of the effectiveness of monetary policy in achieving its key objectives, *viz.*, inflation and credit availability. Issues relating to the monetary transmission mechanism were also addressed in the context of the financial sector reforms and the concomitant shifts in the operating procedures of monetary policy. The Report had also examined issues related to financial stability. The report concluded that an overall assessment of the conduct of monetary policy in India indicates that the Reserve Bank has been successful in maintaining price and financial stability, even in an environment characterised by repeated shocks, both domestic and external. Efforts of policy to improve credit delivery mechanism have also started yielding dividend in recent years.

The RCF 2004-05 is based on the theme of 'The Evolution of the Central Banking in India'. This report had attempted to trace the organisational evolution and management development of the Reserve Bank of India since its inception. The

functions of the Reserve Bank have emerged out of a diversity of roles entrusted to it. In this context, the key functions that have been examined in this Report are regulation and supervision, development of financial markets, the monetary and fiscal interface and dynamics of its balance sheet. The operations of the Reserve Bank of India have been marked with great flexibility in response to domestic necessities and compulsions, with an endeavour to align regulation and supervision with international best practices with suitable adaptations. The report had pointed out that the Reserve Bank has been constantly refining its operating procedures and instruments in the direction of developing sound financial markets and financial infrastructure. The Reserve Bank has acquired technical expertise over the years in developing the government securities market and in managing government borrowings. This has enabled it to efficiently discharge the twin responsibilities of debt and monetary management, while meeting Government borrowing requirements and market expectations.

The RCF 2005-06 had analysed the theme of 'Development of Financial Markets and Role of the Central Bank'. The Report shed light over the efforts made by the emerging market economies in the last 10 years to strengthen their domestic financial systems, including various segments of the financial market. The Report points about the role of a well-functioning financial market in sustaining economic growth of the country. Financial markets also facilitate effective implementation of monetary policy by serving as a link in the transmission mechanism between monetary policy and the real economy. In India, although financial markets have existed for a long time, they remained relatively underdeveloped *vis-a-vis* some emerging market economies for a variety of reasons. The report had illustrated the efforts to develop the financial markets in India towards global standards which began in the early

1990s as a part of broader financial sector reforms. The reforms in the financial markets encompassed all segments - the money market, the credit market, the government securities market, the foreign exchange market, the equity market and the private corporate debt market. The development of financial markets has been pursued for bringing about a transformation in the structure, efficiency and stability of markets. Some of the important measures that have been initiated to develop the financial markets include, market determined pricing of various financial assets, removal of restrictions on participants, introduction of electronic trading platforms and introduction of new instruments. All these measures have had a significant impact on the structure and efficiency of financial markets. However, the report pointed out that the financial markets in India are not yet fully developed and several issues are still there to be addressed. It pointed out that the need for developed financial markets has never been felt as strong as at this point of time for several reasons such as sustaining the high rate of economic growth; improving transmission mechanism of monetary policy; developing a diversified financial system and maximising gains from globalisation while minimising its costs.

The theme of 2006-08 Report on Currency and Finance was 'The Banking Sector in India: Emerging Issues and Challenges'. The thrust of the Report was on delineating the various existing and emerging challenges faced by the banking sector and to suggest the measures to address them. The Report, wherever was possible, had benchmarked the performance/practices of the Indian banking sector against the international best practices through cross country comparisons. The report was focused on scheduled commercial banks, although other segments of the banking sector such as urban co-operative banks, regional rural banks had also been dealt with, wherever

appropriate and where relevant data were available. The report concluded that 'by all accounts, the performance of the banking sector in India has improved significantly but it is now faced with several newer challenges'. Report has analysed the impact Basel II on the banking system in India in terms of its implementation and capital raising. India is progressively moving towards fuller capital account convertibility which has raised several regulatory and supervisory challenges. The operating environment for banks has changed as a result of which banks are increasingly diversifying. Several financial conglomerates have also emerged, necessitating appropriate regulatory arrangements. Technology has led to innovations of complex financial products posing challenges for the regulators. In backdrop of above, the report had made an in-depth analysis of various aspects of banking operations in India with a view to assessing their strengths and weaknesses, various challenges faced by the banking sector and what needs to be done to deal with them.

State Finances - A Study of State Budgets

This thematic report gives detailed and rigorous analysis of the finances of the state governments in India. Report collects data from state budget documents and analyses it state-wise as well as combined at all India level. Along with giving exhaustive data relating to the state government finances, the report analyses the contemporary policies of state government, Reserve Bank, and government of India relating to the fiscal sector.

Occasional Papers and other Publications by the Reserve Bank Staff in their Individual Capacity

The Reserve Bank staff is encouraged to publish their individual research work in their individual capacity in reputed journals. The Occasional Papers (OP) of the Reserve Bank carries the individual research of the professional staff of the Bank. The

articles published in the OP and other journals do not express official views of the Reserve Bank. However, more often than not, the analytics given in these papers explain the rationality related to the decisions of the Reserve Bank. The Table 1 has provided year wise number of articles published the staff. However, it would be fair to mention that the information relating number of publications in journals other than OP prior to 2007 is not easily available and due that it is not given in the table below. But it can be easily assumed that similar number of articles would have been published in outside journals also.

Table 1: Year-wise Number of Articles Published by the Bank Staff in Journals

Year	Number of the articles
1998	11
1999	5
2000	14
2001	8
2002	NA
2003	15
2004	6
2005	NA
2006	11
2007#	43
2008*	34

NA: Not Available. #: April 2007- August 2008. *: July 2008-June 2009.

Note: Prior to 2007 numbers of articles pertain to OP only. 2007 onward it includes all the articles published by the Reserve Bank staff in journals.

Source: Reserve Bank of India.

The research work of the Bank staff is focused on the areas of very high relevance to the Reserve Bank. As per the information available in the Reserve Bank's Annual Reports regarding the published research work by the staff during April 2007 to June 2009 of the Bank is mainly concentrated in monetary policy, financial crisis,

financial stability, fiscal sector, international trade, money and capital market, banking system, real sector, social sector, *etc* (Table 2).

Table 2: Area-wise classification of the Articles Published in the Occasional Papers during 1998-2008

Areas	Number of Papers
Banking	21
Monetary Policy	14
External Sector	14
Financial Stability	8
Fiscal Policy	4
Financial Markets	16
Infrastructure Sector	3
Real Sector	16
Others	8

Source: Reserve Bank of India.

These publications have followed a very rigorous research methodology. In the Box we have made a very brief attempt to analyse some recently published research of the staff on selective basis. As surveying all articles is not feasible and also is beyond the scope of this paper. It can be observed from the table that a total of 73 papers out of a total of 104 papers (70 per cent) published in the Occasional Papers pertained to areas such as banking, monetary policy, external sector, financial stability and financial markets. This is not surprising, considering that these are the core areas of functioning of the Reserve Bank as the country's central bank. However, a significant number of papers (16) have also been published on real sector, in tune with the high importance of real sector in the economy. Nonetheless, the predominant preoccupation of the Reserve Bank researchers lies in the core functioning of the Bank. Further, as far as the Bank's collaboration for research with outside economists is concerned, it can be observed

from Annex 3 that out of the 32 DRG studies published so far, a total of 20 (62.5 per cent) accounted for the core areas of Bank's functioning, that is, money, banking, external sector and financial markets. However, a significant number (6 each) of studies have also been published in the areas of fiscal and real economy.

A Review of Some Important Papers Published by Reserve Bank Researchers

Jeevan K. Khundrakpam and Rajan Goyal in 'Is Government Deficit in India still Relevant for Stabilisation?' (OP 2008) has reexamined the linkage between real output, money and prices and impact of government deficit in India on money during 1951-52 to 2006-07. They have employed autoregressive distributed lag approach to cointegration analysis. This approach to cointegration analysis, unlike in earlier studies, has addressed the issues such as cognisance of inconclusive stationarity properties, variables with varying degree of integration and small sample size. Reflecting upon the higher degree of openness in the Indian economy, the paper argued that government deficit may now cause reserve money expansion through the incomplete sterilisation of Net Foreign Assets (NFA) accumulation intended to enable adequate market subscription to Government borrowings, replacing the erstwhile channel of 'net RBI credit to the Government'. It found a strong evidence of government deficit leading to reserve money creation with consequent increase in money supply. Further, there is no evidence of money causing changes in real output both in the long-run and short-run. However, money causes inflation both in the long-run and short-run, while real output dampens inflation. There is also some evidence of output and price leading to money creation i.e., bi-directional causality between money and prices rendering money targeting a complicated exercise. Thus, they have concluded that targeting fiscal deficit as tool for stabilization continues to

remain valid. The article 'India's Financial Openness and Integration with Southeast Asian countries: An Analytical Perspective' by Chandan Sinha and Narayan Chandra Pradhan published in the BIS Paper No. 42 October 2008 examines (a) where does India stand in the evolving global trade pattern; and, (b) Does global experience suggest that trade liberalisation/openness move in tandem with financial integration as well as higher growth? The paper also examines the link between international trade and financial openness. In light of above issues the papers has analysed the issues relating to India's financial openness and integration with south-east Asian countries. It concludes that the growth enhancing reforms undertaken by India has resulted in higher trade and investment growth, especially to and from the Asian countries. The growth impulse has emanated from product specialisation and natural comparative advantages arising from various geographical factors. India's FDI openness, despite an increase, is much lower than that of other Asian emerging economies. As India's services exports are increasing at a rapid pace, the country is confronting challenges emanating from the uncertainty of access to cross-border exports of services and barriers to the movement of people. The paper emphasises that new sources of competitive advantage will be in technology and human skills, not necessarily in low wages. It is important for India to forge a closer relationship for mutual trade and investment within the Asian region and also to adopt a proactive role *vis-à-vis* the ASEAN economies. India has already demonstrated its strength in the services sector, especially software. If complemented by the hardware and manufacturing base of East Asia, India and the region can prosper together in the new global scenario. The rapid change that has taken place in Asia provides new opportunities that must be seized by each side. After the Southeast Asian crisis in 1997, there has been increasing recognition in Asia of the importance of regional

economic integration for generating growth impulses from within the region. Substantial complementarities exist among Asian economies that remain to be exploited for their mutual common benefit. For instance, while the region has economies that have surplus capital resources, there are also economies which have inadequate domestic savings for rapid development. The region is similarly characterised by complementarities in the demand and supply of other resources, such as technology and skilled manpower. By generating intraregional demand, regional cooperation could supplement external demand and reduce the region's vulnerability owing to overdependence on outside regions. Regional cooperation could also help in exploiting the existing regional capacities fully. Trade and investment promotion within Asia will also be accelerated by a conscious move towards the adoption of common standards in both goods and delivery of services. In the article 'Integration of India's Stock Market with Global and major Regional Markets' (BIS Papers 2008) Janak Raj and Sarat Dhal have examined the following issues. Whether the Indian stock market is integrated with global and regional markets? What is the extent of such market integration and which regional and global markets have dominant influence on India's stock market? Following the dominant perspective in the applied finance literature, authors used *correlation and the vector error correction and cointegration model (VECM)* to gauge the integration of India's stock market with global markets such as the United States, the United Kingdom and Japan, and with major regional markets such as Singapore and Hong Kong, which are key financial centres in Asia. Empirical analysis of authors support the international integration of India's stock market in terms of stock prices measured in US dollars but not in local currency, a finding attributable to investment decisions of foreign investors. Authors, also, have given some policy prescriptions, *viz.*, co-

integrated stock markets would contribute to financial stability, since they cannot deviate too far from the long-run equilibrium path. From the standpoint of their portfolio diversification objective, investors cannot benefit from arbitrage activities in the long run. However, in the short run, markets would continue to be influenced by the portfolio diversification objective of foreign investors. The lack of evidence of integration of stock markets in terms of local currency gives rise to a concern that India's stock market integration may not be complete, a finding attributable to the inadequate role of domestic investors. Bhupal Singh in 'Corporate Choice for Overseas Borrowings: The Indian Evidence' (OP 2007) examines the macroeconomic factors that drive the Indian corporates' preference for overseas borrowings. He concludes that the foreign borrowings by the Indian corporates are characterised by a large number of companies accessing international capital markets for small size loans. He has also concluded that the policy framework on foreign commercial borrowings has been effective in achieving a balanced maturity profile as also in channelising funds to productive sectors. It is observed that foreign borrowings by the corporates and import of capital goods display a close positive relationship. Since capital goods import is closely related to growth in industrial production, it implies that the demand for foreign borrowings by the corporates is generated by the underlying pace of real activity. The author has implied the *estimated error correction model* which reveals that Indian corporates' long-run demand for overseas commercial borrowings is predominantly influenced by the pace of domestic real activity, followed by the interest rate differentials between the domestic and international markets (indicating arbitrage) and the credit conditions. The real variable dominates the price variable in driving the demand for overseas commercial borrowings. The credit constraint also assumes significance for corporates in their

decisions about overseas borrowings. Financing of infrastructure is a burning issue in India. Policy makers have discussed a number of models to fulfill the huge supply-demand gap of finance for this sector of vital importance to the Indian economy. In the article 'Financing Transport Infrastructure and Services in India' (DRG 2009), S. Sriraman and Sunando Roy have made the following suggestions to mobilise additional resources: (a) Draw on market-based financing as much as possible, while ensuring that sustainable/prudential norms are followed. (b) Promote public-private partnerships. (c) Support private infrastructure through Government guarantees. But the Government must consider the expected value of commitments in issuing guarantees. (d) The financing mechanism chosen for infrastructure support should encourage greater domestic savings for investment rather than diverting resources from other investments. (e) Commercial banks should play the role of "wholesale financing/banking" while the Non Bank Financing Companies (NBFCs) should play the role of "retail financing/banking". (f) Financing agencies should (over a period of time) insist on viability of operations either as a firm or as association/co-operative with a viable fleet and requisite infrastructure as a pre-requisite for lending to truck operators. Financial innovations should be encouraged in the context of transport project financing. (g) Liberalise investment norms of contractual savings instruments. The demand for such funds should be created through a well-planned programme of disinvestment of public sector (especially infrastructure) entities promoting private participation in infrastructure, reducing budgetary and management obligation and promoting competition. Such a supply (of) and demand (for) funds can also contribute to the development of the domestic capital market. The article 'An Index to Assess the Stance of Monetary Policy in India in Post-reform Period' (EPW 2009) by Amaresh Samantaraya explores the possibility of the

constructing of a Monetary Policy Index in India (MPI). The author argues that in view of the apparent inadequacy of traditional monetary policy indicators to capture monetary policy stance appropriately for the post-reform period in India, due to use of multiple indicator approach, a MPI could be a potential alternative. Which author suggests can be constructed in lines of UNDP's human development indicator (HDI). The MPI constructed may be a summary measure encompassing traditional policy indicators like monetary aggregates and overnight money market rate as also used policy signals from documented pronouncements. In the paper the author has used this indicator for a preliminary assessment of the influence of monetary policy on important macroeconomic variables relevant for monetary policy in India. According to him, it was observed that monetary policy has an immediate impact on interest rates, while that on bank credit, industrial production and inflation was realised with some time lag. However, he has suggested that the index developed in the paper need to be used in formal econometric analysis to confirm the monetary policy transmission. In the Bank Penetration and SHG-Bank Linkage Programme: A Critique, Pankaj Kumar and Ramesh Golait (OP 2008) has analysed the outreach of shelf-help groups and bank linkage programme in the back drop of the growing socio-economic divide between the regions in India. Authors have analysed data of the banking statistical returns for the period of 1996 to 2006 and NABARD data for region wise penetration of the SHGs in India. Their analysis indicates that over the years (after 1996) disparity in the density of the banking services in the southern, western, northern, central, eastern and north eastern region has increased. As per theory, SHG-bank linkage should fill the gap in outreach of the banking services in different region. But they found that this programme is more successful in southern region than other. They also concluded

that penetration of the SHGs and presence of the banks in the region has positive correlations. Authors have made a detailed analysis of the causes behind this phenomenon. They have suggested that due to its potential of increasing inclusive growth in the society a number of policy actions are warranted, viz., increasing the penetration formal banking channels in the north-eastern and eastern region, performance linked incentive may be considered, role SHGs should be enhanced in the development of the local infrastructure and they should also concentrate on other financial products like insurance, etc.

WORKING GROUPS/COMMITTEES

According to the information available in the Annual Report 2007-08 and 2008-09 of the Reserve Bank, during the period April 2007 to June 2009, 34 groups/committees submitted their reports to the Reserve Bank of India/Government of India. Terms of references of these groups/committees were very diverse, viz., credit information companies, agricultural credit, payments and settlement system, five year plans, review of legislation of money lending, financial inclusion, risk management, interest rate and currency futures, lending and rehabilitation of SMEs, co-operative banks, financial sector assessment, etc. These working group/committees use in-house as well as the outside expertise as the Chairman and Members. Usually, the Departments of the Reserve Bank provide secretarial assistance along with necessary research and analysis to these groups/committees.

Importance of the group/committees can be assessed through monetary policy documents. Part B of the Monetary Policy Document covers issues related to Development and Regulatory Policies. An overview of the Part B makes it clear that the recommendations of the groups/committees are very important tool of the policy making in the Reserve Bank. These group/committees before

finalising their recommendations usually consult with the experts available in the industry as well as in academics. The Reserve Bank, also, before issuing the final circulars, issues draft circulars for the comments of general citizenry and market participants/experts.

CONCLUSION

The Reserve Bank has its own in-house research infrastructure, which undertakes research activity in areas close to the core functioning of the Bank. As can be seen from the reviews of select papers/reports published by Reserve Bank research staff, these papers have provided significant inputs into the thought process of the Bank's thinking and also at times, to policy making. The research findings (both internal as well as those of external expert groups etc.) have been providing critical inputs to policy making in the Reserve Bank of India. Further, the policy making also makes use of interaction with reputed academicians and market players and stake holders. The papers published by the Reserve Bank staff can be thought of as being those of "independent" researchers, outside the thought process of establishment. Nonetheless, these papers largely are consistent with the official policy stance of the Bank almost always. Further, at times, research is also generated to "estimate" the response of macroeconomic variables to policy decisions. While it can be argued that these papers did not contribute to the "policy pronouncement" under consideration, it is undeniable that "estimates" response of macroeconomic variables to policy does temper further policy announcements to the extent of the efficacy of the first policy pronouncement. Moreover, the current paper concentrates exclusively on "published research" of the research staff of the Bank. However, there is a significant body of research, generated as internal notes, which is outside the public domain. It is the experience of the authors

that these internal notes play a very significant role in policy making. This is especially on account of the fact that a major part of these notes are prepared at the behest of top management. Further, given the nature of sensitiveness of the policy oriented research, much of the research generated prior to policy announcement can also not be published in public domain for obvious reasons. Given these facts, it is concluded that policy making in the Reserve Bank of India does make use of research findings. Before concluding we would like to quote some observations of the former RBI Governor Dr. Y V Reddy about contributions of the Reserve Bank research in fiscal policy formulations.

“the first research and policy paper on pension funds in India was prepared by Dr. Urjit Patel, who used to work with us. In those days, it was so hard to get any data that we had to tap our informal links in the various offices in Delhi, including some of my old colleagues, to give him some access to relevant information. Dr. Urjit Patel did a very good job and then he published an article in the Economic & Political Weekly. Thus, the public policy on pensions was, in a sense, triggered by the work done by a consultant in RBI, at our request. RBI also worked on a Report on Pensions for state government employees. This is another evidence of the collaboration between the RBI and the governments and often our views are accepted. Now, let me come to the fiscal and monetary management issues”.

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Annex 1A: Research Activity in the Reserve Bank - DEAP

Sr. No.	Division	Coordinating Department within the Reserve Bank	Coordination with other Agencies
Real Sector			
1.	Division of Rural Economics	Rural Planning and Credit Department and Regional Offices of DEAP	Government of India
2.	Division of National Income, Savings and Flow of Funds	Department of Statistics and Information Management	CSO and NSSO
3.	Division of Industrial and Services Studies	Department of Statistics and Information Management	Government of India
Money and Banking			
4.	Division of Money and Banking	Monetary Policy Department, Department of Banking Operations and Development, Department of Banking Supervision, and Department of Statistics and Information Management	Government of India
5.	Division of Banking Development	Urban Banks Department, Rural Planning and Credit Department, Department of Banking Operations and Development, Department of Banking Supervision, Department of Statistics and Information Management and Department of Non-Banking Supervision	National Bank for Agriculture and Rural Development
Fiscal			
6.	Division of Central Finances	Internal Debt Management Department	Government of India and Planning Commission
7.	Division of State and Local Finances	Internal Debt Management Department	State Governments and Planning Commission
External Sector			
8.	Division of International Finance	Foreign Exchange Department, Department of External Investments and Operations, and Department of Statistics and Information Management	Government of India
9.	Division of International Trade	Foreign Exchange Department and Department of Statistics and Information Management	Directorate General of Commercial Intelligence and Statistics
10.	Division of International Economic Relations	Department of External Investments and Operations	Government of India, International Monetary Fund and World Bank

Sr. No.	Division	Coordinating Department within the Reserve Bank	Coordination with other Agencies
Capital Market			
11.	Capital Markets Division	Department of Banking Supervision	SEBI, BSE and NSE
Special Purpose Divisions			
12.	Financial Markets Monitoring Unit	Regional Offices of DEAP and Monetary Policy Department	Government of Maharashtra and Goa
13.	Development Research Group	Different Departments depending on the Study Undertaken by the Experts	Select Universities and Research Institutions
14.	Division of Econometrics	Department of Statistics and Information Management	Government of India
15.	Special Studies unit	Based on the Topic of the Study	Based on the Topic of the Study
16.	Division of Reports, Reviews and Publications	Different Departments of the Bank and	Government of India

Source: Reserve Bank of India

Annex 1B: Research Activity in the Reserve Bank - DSIM

Sr. No.	Division	Coordinating Department within the Reserve Bank	Coordination with other Agencies
External Sector			
1.	Balance of Payment Statistics Division	DEAP, Foreign Exchange Department, and Department of External Investments and Operations	Government of India, Directorate General of Commercial Intelligence and Statistics, International Monetary Fund and World Bank
Money and Banking			
2.	Division of Banking Studies	DEAP, Monetary Policy Department, Foreign Exchange Department, and Department of External Investments and Operations, Urban Banks Department, Rural Planning and Credit Department, Department of Banking Operations and Development, and Department of Banking Supervision	Government of India, National Bank for Agriculture and Rural Development

Annex 1B contd.....

The Reserve Bank of India: Research and Policy Making

Annex 1B contd.....

Sr. No.	Division	Coordinating Department within the Reserve Bank	Coordination with other Agencies
3.	Banking Statistics Division	DEAP, Monetary Policy Department, Urban Banks Department, Rural Planning and Credit Department, Department of Banking Operations and Development, and Department of Banking Supervision	Government of India, National Bank for Agriculture and Rural Development, International Monetary Fund, World Bank and Bank for International Settlements
Corporate Sector			
4.	Company Finance Division	DEAP, MPD, DNBS and Regional Offices	Government of India, Ministry of Corporate Affairs, Registrar of Companies, Centre for Monitoring Indian Economy CMIE
5.	Corporate Studies Division	DEAP, MPD	
Survey			
6.	Survey Division	DEAP, MPD, DNBS and Regional Offices	Government of India
Bank Data Warehouse			
7.	Operational Analysis Division	All Departments and Regional Offices	Government of India, National Bank for Agriculture and Rural Development, Bank for International Settlements
Special Purpose Divisions			
8.	Statistical Analysis Division	All Departments and Regional Offices	Government of India, National Bank for Agriculture and Rural Development, Bank for International Settlements select Universities and Research Institutions
9.	Forecasting Division	DEAP, MPD, Department of Currency Management and Regional offices	Government of India, select Universities and Research Institutions
10.	Systems Management Division	All Departments of the Bank	

Source: Reserve Bank of India.

Annex 2: List of Major RESERVE BANK Publications

Particulars	Name of the Publication
Annual Statutory	Annual Report
Annual	Trend and Progress of Banking in India
	Report on Currency and Finance
	State Finances : A Study of Budgets
	Basic Statistical Returns of Scheduled Commercial Banks in India
	Handbook of Statistics on Indian Economy
	Statistical Tables Relating to Banks in India
Tri-annual	A Profile of Banks
	Occasional Papers
Quarterly	Macroeconomic and Monetary Developments
	Quarterly Statistics on Deposits and Credit of Scheduled Commercial Banks
	Survey of Professional Forecasters - Results
Monthly	RESERVE BANK Bulletin
	Monetary and Credit Information Review
Weekly	Weekly Statistical Supplement

Source: Reserve Bank of India.

Annex 3: DRG Studies Series

Sr. No	Title	Date
1.	On the Guidelines Relating to Valuation of Shares	February 19, 1992
2.	Monetary Policy, Inflation and Activity in India	April 07, 1992
3.	Gold Mobilisation as an Instrument of External Adjustment	April 21, 1992
4.	The Changing Monetary Process in the Indian Economy	September 14, 1992
5.	Agricultural Policy in India - Context, Issues and Instruments	February 10, 1993
6.	Social Sector Expenditures and Human Development: A Study of Indian States	May 27, 1993
7.	Bridging the Technology-Gap: How Dynamic and farsighted is the Indian Corporate Sector?	July 23, 1993
8.	Stabilization Policy Option : A Macro - econometric Analysis	April 20, 1994
9.	An Approach to Monetary Targeting in India	October 21, 1994
10.	Analytical Foundations of Financial Programming and Growth Oriented Adjustment	January 18, 1995
11.	The Impact of the Uruguay Round on Growth And Structure of Indian Economy	December 10, 1998
11.	Fiscal Efficiency in the Indian Federation	June 19, 1995
12.	Dynamics of Inflation in India: A Neural Network Approach	April 16, 1998
12.	Inflation, Interest Rates and Index-Linked Bonds	April 18, 1996
13.	EMU, EURO and India	March 12, 1998

Annex 3 contd.....

The Reserve Bank of India: Research and Policy Making

Annex 3 contd.....

Sr. No	Title	Date
13.	Money Demand Stability : Myth or Reality - An Econometric Analysis	July 22, 1996
14.	Foreign Collaboration Under Liberalization Policy: Patterns of FDI and Technology - transfer in Indian Industry since 1991	August 30, 1996
18.	Portfolio Selection for Management of Foreign Exchange Reserves	June 21, 1999
19.	Bond Financing and Debt Stability: Theoretical Issues and Empirical Analysis for India	June 10, 2000
20.	Productivity in Major Manufacturing Industries in India :1973-74 to 1997-98	August 26, 2000
21.	Modernising Indian Agriculture: Priority Tasks and Critical Policies	August 29, 2000
22.	Capital Adequacy Requirements and The Behaviour of Commercial Banks in India: An Analytical and Empirical Study	September 20, 2000
23.	A Leading Index for India's Exports	January 08, 2001
24.	DRG Study on "Interest Rate Modeling and Forecasting in India"	November 20, 2003
25.	Transmission of Monetary Policy and the Bank Lending Channel: Analysis and Evidence for India	January 25, 2006
26.	Municipal Finance in India – An Assessment	December 27, 2007
27.	Agricultural Growth in India since 1991	June 27, 2008
28.	DRG Study on "Financing Transport Infrastructure and Services in India"	March 05, 2009
29.	Strengthening Decentralisation - Augmenting the Consolidated fund of the States by the Thirteenth Finance Commission: A Normative Approach	August 13, 2009
30.	Introducing Expenditure Quality in Intergovernmental Transfers: A triple-E Framework	August 14, 2009
31.	An Outline of Post 2009 FRBM Fiscal Architecture of the Union Government in the Medium Term	August 14, 2009
32.	DRG Study on "Monetary Policy, Forex Markets and Feedback under Uncertainty in An Open Economy"	September 03, 2009

Source: Reserve Bank of India.