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Central Bank Strategies, Credibility and Independence: Global Evolution and the Indian Experience

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The present paper aims at offering a comprehensive perspective on central banking in India. To place the issue in context, it begins by tracing the evolution of central banking, against the backdrop of the debates in the much-contested field of monetary economics. This sets the stage for the genesis, evolution and development of the Reserve Bank of India since Independence in 1947, responding to domestic compulsions on the one hand, and the evolving international best practices, on the other. Against this historical background, the paper turns to three contemporary issues in central banking: formulation and conduct of monetory policy, strengthening financial stability and management of the changes in the payments and settlement system. The emphasis is not only on identifying the contours of the contemporary debates in the international financial community but also on highlighting the challenges and policy dilemmas facing the central bankers in India and abroad today.

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" How puzzling all these changes are !
I m never sure what I'm going to be,
from one minute to another ! " . . .
For, you see, so many out-of-the way things had happened lately,
that Alice had begun to think that very few things
indeed were really impossible!

Lewis Carroll, in Alice's Adventures in Wonderland

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Central banks are evolving entities which respond to political and economic forces around them. In that sense, central banks are not 'natural products' but products of history, it has been said (Lastra, 1996).

Today, central banks are perceived as multi-function entities performing a wide range of specialised activities. These generally include conducting banking operations for national governments, supervising and regulating banking institutions, managing the payments and settlement system and formulating monetary policy for the economy. Interestingly, the early central banks founded in Europe - the Swedish Riksbank in 1668 and the Bank of England in 1694 - were not intended to undertake these functions of a modern central bank. Instead, the initial impetus for these 'government -sponsored' banks was much more basic, relating generally to the financial advantages that governments felt they would obtain from the support of such banks. This involved some favoured treatment, often supported by legislation, especially granting monopoly rights over the note issue. In the course of time, the privileged legal position of these banks in note issue and as banker to the government, naturally led to a degree of centralisation of reserves within the banking system in their hands, thus making them bankers' banks. It was the responsibility that this position was found to entail, in the process of historical experience, which led these banks to develop discretionary monetary management, and assume overall support and responsibility for the health of the banking system at large (Goodhart, 1996). Early central banks were, thus, characterised by evolutionary development rather than being programmed to undertake from the start what they subsequently did. In other words, central banking functions developed naturally from the context of evolving relationships within the system.

Until 1800, the Riksbank and Bank of England were the only central banks. The total number of central banks worldwide remained in a single digit as late as 1873. Considerable expansion in the number of central banks occurred in the latter part of the 19th century as the concept of central banking crystallised. Several nations that had previously conducted their monetary and financial operations without central banks decided that it was in their best

interests to establish central banks. Subsequently, the expansion of central banks became especially pronounced in the second half of the 20th century with the establishment of central banks by former colonies that achieved independence, finally leading to a situation today wherein nearly every sovereign nation has established its own central bank.

Each central bank has a distinctive historical origin. Illustratively, the Bank of England was established to lend money to the Government whereas, the Federal Reserve Board came into being in 1914 for the provision of a nation-wise payment and depository system. On the other hand, the German central bank was set up in 1875 against the backdrop of the need to restore and maintain a stable currency. These differing historical origins have influenced not only the tasks that these central banks perform today, but also the way in which they operate.

The Reserve Bank of India was set up in 1935. The legislation to set up the Reserve Bank was first introduced in January 1927. It was seven years later, in March 1934, that the relevant enactment was made in the form of the Reserve Bank of India Act, 1934. The Reserve Bank started functioning with effect from April 1, 1935. While there is no specific provision in the Act laying down the objectives, the Preamble to the Act does say that the Bank has been constituted,

> "to regulate the issue of bank notes and keeping of reserve with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage……."

Set up as a private shareholders' bank, the Reserve Bank was nationalised in 1948. The evolution of the Reserve Bank over the last fifty five years has been influenced by both, the evolution of ideas on central banking practiced elsewhere in the world as also imperatives of the domestic economy.

recounts the developments of central banking in India and delineates various broad phases of financial sector development. An attempt is made to relate the development of central banking in India with the global thinking on central banking on the one hand, and the domestic macroeconomic compulsions, on the other. Against that historical backdrop, finally, Section III presents a range of contemporary issues in central banking, in the context of three main areas: formulation and conduct of monetary policy, strengthening of financial stability and the management of the payments and settlement system. The accent is especially on issues relating to the central bank strategies, credibility and independence. This discussion aims not only at identifying the main issues being debated by the central banking community, but also at highlighting the challenges and policy dilemmas facing the central bankers in India and abroad today.

Section I

Central Banking : Global Evolution

"Monetary policy has relevance…", pointed out Dr. Bimal Jalan, former Governor of the Reserve Bank, recently, "as long as there is money".[3] As a matter of fact, global thinking on monetary policy, and by implication, that on central banking, has evolved over time in accordance with the changing perceptions regarding the role of money in economic activity. Indeed, central banking has come a long way since the publication of Bagehot's "Lombard Street" in 1873.[4]

In the 18th and early 19th centuries, the thinkers who had the most influence on the subsequent development of monetary theory, *i.e.,* David Hume, Adam Smith and David Ricardo, placed emphasis on money as a reflector rather than regulator, of levels of economic activity which in turn, were deemed to be determined by non-monetary factors.

Among the classical economists, Adam Smith emphasised the role of a 'properly regulated' banking system, which in his view would provide the appropriate amount of money endogenously through the expansion and contraction of credit. According to Smith, the introduction of banks and credit

money would have a once and for all effect on economic activity by releasing for production, social capital previously tied up in stocks of money commodity. However, once the banking system was in place and functioning according to rules, the quantity of money, now endogenous to the system, would have no independent effect on the level of economic activity.

Both Smith and Hume argued that the quantity of money does not influence the level of interest rates, which according to them, was determined by the level of profit rates in the economy, and *not* by an abundance of the money commodity. Ricardo believed that the only rational end of economic activity was consumption. Following Say, he argued that every commodity offered for sale represents a demand for some other commodity, and thus, in the aggregate, the value of commodities offered on the market equalled the demand. In other words, money is purely a medium for the exchange of commodities against each other, and thus, has no independent role in determining economic activity: money is a *veil.*

In the early part of the 20th century, Irving Fisher took this line of thinking further. Fisher assumed the existence of a given amount of money, exogenously determined in the economic system. He also assumed that there was a single exogenously determined rate at which the total quantity of money would circulate (*i.e.,* the velocity of money). Accordingly, he argued that the total monetary value of the transactions in an economy is determined independent of the level of economic activity. Fisher believed that the market system would lead to a given level of production of commodities determined by available resources and technological possibilities. As a result, the only variable free to adjust was the level of commodity prices. Thus, while in the short run a change in the quantity of money or velocity might have some impact on the level of economic activity in the society, in the long run the whole adjustment would be made in the prices of commodities. This thinking dominated the focus of central banking for quite some time.

John Maynard Keynes (1936) revolutionalised macroeconomic thinking, *inter alia,* by constructing a monetary theory that conformed to the realities of fully developed financial system with the central bank at its centre. The

Keynesian vision of the economic system was not that of a self-regulating entity, but of a complex set of causal linkages that a policy maker seeks to guide.

Keynes emphasised that the liabilities of the central bank may or may not be convertible into a money commodity. Deviating from the classical economists, Keynes thus deemphasised convertibility as a limit on the operations of the central bank. He explicitly introduced bonds and equities as competing monetary assets and argued that the rates of return on bonds and equities must adjust until wealth holders are content to hold them and deposits in the proportions in which they are being supplied to the public. In other words, a change in the reserve creation by the central bank forces a change in the rate of return to bonds and equities, which in turn, alter the incentives for firms to make long term investments, and therefore influence the level of economic activity. Furthermore, Keynes suggested that the relationship between money demand, interest rates and the level of economic activity was volatile, subject to sharp changes depending on the mood of wealth holders and their expectation and fears about the future.

In the first two decades after the Second World War, the Keynesian orthodoxy took the position that 'money does not matter', *i.e.*, spending decisions of consumers and firms move largely independent of asset rates of return and are more responsive to expectational variables. Any attempt to restrict economic activity by limiting the expansion of bank reserves, it was argued, could be circumvented by the substitution of other liabilities. This extreme non-monetary interpretation of Keynes became the conventional wisdom for central bankers.

Not surprisingly, in the first two decades after the Second World War, the fiscal policy came to the centrestage of policy affairs while monetary policy was relegated to the backstage. The ascendancy of fiscal policy during this period was due, in part, to the Depression of 1930s and the process of post-World War II reconstruction besides of course, the acceptance of the Keynesian dictum that fiscal action was necessary to prevent deficiency in the aggregate demand. Keynes dispelled the resolute faith of classical economists in market

forces and legitimacy of the *laissez faire*. Neo-Keynesians took the same argument further and proclaimed that government intervention could remedy market failures. Problems associated with deficiency of aggregate demand, it was argued, could be resolved by expansionary fiscal policies. In the 1960s, neo-Keynesians added the so-called Phillips curve to their kit of analytical tools. The Phillips curve depicted an inverse relationship between inflation and unemployment, *i.e.*, lower unemployment was seen to be consistent with higher inflation - a trade-off. A logical corollary of this relationship was that higher economic growth could be achieved only at the cost of acceleration of inflation.

Policy implications of the Keynesian and neo-Keynesian thinking were clear. Neo-Keynesians regarded the Phillips curve relationship as stable and asserted its usefulness for demand management policies. Fiscal measures were especially deemed to be effective in moving the economy along the Phillips curve - setting it at a preferred combination of inflation and unemployment. These policy prescriptions were widely accepted. Accordingly, by the 1960s, the central banker had come to be regarded as a "*demiurg* able to choose between inflation and unemployment, and to do so almost on a quarter-by-quarter basis".[5] Even the events contrary to this belief did not shake the conviction in the abilities of the central bankers in containing inflationary pressures. For example, in the 1950s and early 1960s, there were brief bouts of inflation in USA that did cause some concern, but only momentarily. The faith in the ability of the system in arresting inflationary tendencies remained firm as was reflected in the low inflation premium then embedded in long-term bonds.[6]

The neo-Keynesian hegemony was called into question by a chain of traumatic events in the early 1970s: breakdown of the fixed exchange rate system, the first OPEC oil shock, and bad harvests combined with the aftermath of the Vietnam War led to acceleration in inflation rates and high unemployment rates in the USA. The economies of several other countries also faltered simultaneously. The phenomenon of 'stagflation' became commonplace. The incidence of a high inflation rate contemporaneous with a high unemployment rate and stagnating (or even faltering) output seemed at odds with the neo-Keynesian Phillips curve. This, more than anything else,

challenged the foundations of the earlier confidence in the maintenance of full employment and the existence of an exploitable trade-off between inflation and unemployment that was suggested by the Phillips curve. The typical policy response to the oil shock of 1973-74 comprising expansionary fiscal policies coupled with accommodating monetary policy stance could not generate lasting gains in terms of economic growth. Subsequent analysis showed that the Phillips curve actually provided at best a *temporary* trade-off between inflation and unemployment when the economy was adjusting to shocks to aggregate demand and that too as long as expected inflation was lower than actual inflation. It was recognised that there is essentially no *long-run* trade-off between inflation and unemployment since anticipated inflation adjusts fully to actual inflation, with the long-run Phillips curve becoming almost vertical at the 'natural' rate of unemployment. In any event, recurrence of high inflation and the cumulative worsening of government finances brought into sharp focus both, the limitations of fiscal activism and the heavy costs of monetary instability. These developments paved the way for a more determined fight against inflation.

Professional response to these developments was characterised by a significant polarisation in favour of the so-called monetarism. During the 1950s and 1960s, the influence of monetarism was minimal. Indeed, Milton Friedman, the eloquent champion of monetarism, was deemed to be a heretic then. The events of the early 1970s brought forth monetarism as a paradigm to reckon with.

The debate between monetarists and neo-Keynesians had major implications. Neo-Keynesians, in general, diluted their earlier position that money does not matter at all. Monetarists, on the other hand, went to the extreme of suggesting that "inflation is always and everywhere a monetary phenomenon." While neo-Keynesians conceded the inappropriateness of the position that money does not matter, they did not accept the monetarist view that money is *all* that matters.[7] The neo-Keynesians conceded that money is important but stressed that fiscal policy as well as 'animal spirits' also contribute to fluctuations in aggregate demand.

Monetarists and neo-Keynesians both agreed subsequently that monetary policy actions will have a substantial effect on output and prices. The difference between them concerned *not* whether monetary policy can affect output and prices but regarding how it should be used for economic stabilisation. In the academic literature, this debate is referred to as the controversy involving 'rules *versus* discretion'.

Monetarists are non-interventionists; they favour a constant money growth rate which they believe would create an environment in which the inherently stable private sector can function effectively. On the other hand, neo-Keynesians are interventionists. They see the need for discretionary monetary and fiscal policies to keep an unstable private economy on track.

According to monetarists, since money is the dominant influence on nominal income and in the short run, on output as well, stabilising the money growth rate will eliminate the major source of instability in income determination. In any case, discretionary policies are beset with several lags, such as the data lag (*i.e.*, the time it takes for policy-makers to obtain data that tell them what is happening in the economy), the recognition lag (*i.e.*, the time it takes for policy-makers to be sure that the data signals impending problems), the *implementation lag,* (*i.e.*, the time it takes for policy makers to change the relevant policy instruments) and the effectiveness lag (*i.e.*, the time it takes for policy actions to actually have an impact on the economy). In view of these lags, according to monetarists, discretionary policies are, at best, useless and at worst, maladjusted and destabilising.

Neo-Keynesians, on the other hand, ridicule the constant money growth rule advocated by monetarists. According to them, policy makers can anticipate shocks and design policies to combat them. No doubt, there will be errors of judgement but, on the whole, such policies will result in a more stable economic performance than would be the case with set policy rules.

These developments profoundly affected the course of monetary policy in the 1970s and the 1980s. The case against policy activism was reinforced by parallel literature, which emphasised the need to ensure policy makers' accountability. Elected regimes, by their very nature, were seen to be largely

susceptible to generating political business cycles.[8] As such, the central bank, given its technocratic character, emerged as an ideal mode of ensuring accountability. Central banks, thus, shifted to the very centre of the economic policy apparatus in most economies. The received wisdom then was to assign the central banks a simple monetary policy rule consistent with price stability and a stated growth objective. To the extent there existed a stable relationship between money, output and prices, monetary management entailed prescription of a simple monetary target consistent with the macroeconomic objectives. Central banks could announce their commitment to a pre-announced monetary target (and by corollary, a certain level of the inflation rate), which could then guide business decisions throughout the economy. A number of central banks including Germany (1975), Japan (1975-94), UK (1976-94) and USA (1975-94) began to set monetary targets with varying degrees of commitment.

Around the late 1970s when the debate between monetarists and neo-Keynesians stalemated, a new paradigm emerged on the macroeconomic landscape - the so-called new classical economics, which has had a pervasive influence on macroeconomic thinking. Leading protagonists of new classical economics included Robert Lucas, Jr., Tom Sargent, Neil Wallace, Bennett McCallum and Robert Barro.

The new classical economics was based on three principal tenets:

- Real economic decisions by economic agents - *i.e.*, those about saving, consumption or investment, are based entirely on real, *not* nominal or monetary factors.
- Economic agents are consistently successful optimisers within the bounds of their information and are, therefore, continuously in equilibrium.
- Economic agents hold rational expectations - *i.e.*, they do not make any *systematic* errors in evaluating the economic environment.

The Rational Expectations Hypothesis (REH) is perhaps the most striking feature of new classical economics, so much so that early new classical economists were also called the 'rational expectationists'. This perception, however, changed in the 1980s with the realisation that the REH is a necessary but *not* a sufficient condition for new classical economics, *i.e.*, every new

classical economist necessarily believes in the REH but *not* every economist using the REH is new classical economist. Several eclectic economists like Fischer, Mishkin and others, sometimes called the non-Classical rational expectationists, accept the rational expectations but do *not* subscribe to other tenets of the new classical thinking.

The REH has had several interpretations. The common sense interpretation of the REH is that economic agents use *all* available information and their knowledge of the way economy works to form their expectations. In the monetarist approach, expectations are formed adaptively, *i.e.*, economic agents adjust their current expectations to correct expectational errors made in previous periods. In this approach, current expectations are determined, *in entirety,* by past observations. Adaptive expectations are *not* rational in the sense that such expectations could be left unaffected by changes in government policies even when economic agents actually know that those changes influence the variable under consideration. The REH, in contrast, argued that economic agents do the best they can with the information that they have. For example, if people have information that money supply will increase and know that this will result in higher prices, then under the REH they will raise their price expectations and alter their behaviour with regard to consumption, savings and investment.

Policy implications of the new classical economics were devastating. Notably, there was some divergence of views within the adherents of the new classical doctrine. Yet, all their models gravitated towards the conclusion that the government should abstain from active demand management policies. This characteristic feature of the new classical school is referred to as the 'policy-ineffectiveness proposition'.

New classical economists contended that monetarists like Friedman are too generous in ascribing power to demand management policies (especially the monetary policy) over output and employment *even* in the short run. Illustratively, in the monetarist framework, an initial price rise in the wake of an expansionary policy is deemed to be temporary by workers and given the adaptive nature of their expectations, it does not get immediately translated into

an upward revision of price expectations. Consequently, output and employment expand until the price expectations catch up with the actual inflation rate, thus making the expansionary policy potent in the short run. New classical economists argued on the other hand, that expansionary policies operate essentially by inducing expectational errors. With adaptive expectations, such errors might persist for some time but with rational expectations they cannot persist beyond an initial surprise. If economic agents have rational expectations, they use their knowledge of the monetary authority's policy rule to form their expectations of prices. As a result, the authorities cannot trick economic agents into incorrectly forecasting prices and since there are no systematic expectational errors, there is no systematic effect on output and employment. The demand management policies are, thus, ineffective.

These recent developments in macroeconomic thinking have had a profound impact on the way most economists now think about the conduct of economic policies including the monetary policy. The rational expectations hypothesis and new classical economics seemed to have cast a shadow of doubt on the efficacy of monetary policy. A relevant question then is whether it has totally debunked the earlier thinking. From the viewpoint of central bankers, an even more pertinent question is whether new classical economics has irreparably discredited the rationale of monetary policy. Has it seriously undermined its efficacy such that there is no scope for any meaningful monetary policy? Contrary to the widespread belief, this does not seem to be the case.

New classical economists are not always anti-policy. A case to the point is Sargent's historical analysis (1982) of the 'ends of four big inflations'. Sargent has documented that these four hyperinflations were halted by (i) the creation of an independent central bank legally committed to resisting government attempts to finance deficits by printing money; and (ii) substantial reduction in the government deficit, by cuts in government spending and increase in taxes. Given the conventional Phillips curve trade-off between inflation and output, this should have meant a formidable loss of output. Yet,

the German hyperinflation was stopped in its tracks within two months in late 1923 with a loss of only 10 per cent of GNP. Sargent attributed this achievement to the rational expectations on the part of the public and credibility of the announced policy actions.

The new classical contributions demonstrate that the effect of a particular policy depends critically on the expectations of economic agents about the policy. Policy makers cannot be overly confident about efficacy of policy actions if they are anticipated successfully by economic agents and countervailing measures are possible. The rational expectations revolution has also highlighted the importance of credibility to the success of anti-inflation policies. If an anti-inflation policy is not believed by the public, it may be less effective in reducing the inflation rate when implemented and may also lead to a larger loss of output than would otherwise be the case. Achieving credibility should then be an important goal for policy makers. In order to achieve credibility, policy makers would have to pursue consistency in their policy actions.

The case against the destabilising effects of bad monetary policy is clear by now. The question is, could systematic monetary policy stabilise the economy? The case for non-neutrality of money essentially rests on the degree and length of time during which people suffer from money illusion. The issue began to attract more attention after Paul Volcker's monetary tightening in the early 1980s, which not only cut inflation but also produced a deep recession. The challenge was to show that even rational agents, who would usually not let dollar bills lie on the sidewalk, to use Lucas' felicitous phrase, could still take time to adjust to prices. The New Keynesians,[9] on their part, did recognise the role of rational expectations. In their response to the New Classicals, they explained how the markets could fail to clear even in the presence of rational agents because of inherent rigidities. These rigidities emanated from long-term contracts, imperfect competition, price adjustment (or menu) costs and coordination failures. Out of such stickiness of prices arose a micro-theoretic rationale for the real effects of monetary policy.[10]

In the contemporary macroeconomic thinking, there is no clear winner. No doctrine can claim universal dominance once enjoyed by the Classicals, Keynesians or Monetarists by turn. Adherents to monetarism as well as the Keynesian school continue to hold their beliefs though neo-Keynesians are now less sanguine about the policy makers' abilities to fine tune the economy and monetarists are now somewhat sceptical about the length of the short run. Besides, it appears that the policy-ineffectiveness stance of the new classical economics should not be taken too literally - certainly not without proper understanding and appreciation of the underlying assumptions. Of course, this does not mean that the contributions of new classical economics need to be denigrated. It is just that their conclusions need not be exaggerated out of context. The new classical school demonstrated that 'extreme' conclusions could be derived under a set of 'extreme' assumptions. In that process, they brought out several constraints on the meaningful conduct of monetary policy.

Besides the intellectual flux, the central banking community has had to contend with a radical transformation of the financial environment emanating from the impact of liberalisation and financial innovations. Salient features of this metamorphosis, which matured in the 1990s, included: wide-ranging deregulation, globalisation of finance and acceleration of competitive pressures leading to a mind-boggling variety of financial instruments and a spectacular rise in the volume and value of transactions. This has been accompanied inevitably by substantial financial deepening and widening as well as blurring of distinction between different types of financial institutions.

Financial innovations are, in a sense, a natural corollary of the process of financial liberalisation. These cover essentially three types of developments,[11] all of which enhance economic efficiency but impinge on the traditional monetary policy framework:

- Investment products, of finer risk and tenor, which could be traded directly between the issuer and the saver, thereby sparking off a process of financial disintermediation,
- Futures products, which gave a business shape to the diverse expectations of the agents in the economy, and

- Improvements in transactions, arising out of developments in information technology, with implications for market liquidity.

The first burst of financial innovations, especially during the 1970s and 1980s, concentrated on instruments, such as commercial paper, which could cater to the requirements of both the issuer and the investor more fully. Their impact on the money targeting framework, then in vogue in many economies, varied depending on the system - bank-based or market-based - and the degree of financial maturity of the economy. In case of market-based economies, such as the USA, the resultant process of financial disintermediation effectively meant that the existing stock of money could support a higher volume of output by churning that many times more.[12] Technically speaking, this implied that the relationship between money, output and prices broke down because the underlying assumption of a stable income velocity no longer held good. It is in this context that a number of central banks had to abandon money targeting. In case of bank-based systems, in continental Europe, innovations were often bank-driven so that the central banks, such as those of France and Germany (and now the European Central Bank), can still persist with a variant of money targeting. In case of developing countries, the relationship is even more complex. The velocity of money typically falls in developing economies in the early stage of development, with the monetisation of the economy and then begins to rise, as financial deepening results in disintermediation. The rapid diffusion of financial innovations in the 1990s implied that financial innovations could arrest the decline in the income velocity.

The implications of the other types of financial innovations for the conduct of monetary policy are very different. In case of derivatives, originally instruments of hedging risks, the challenge of monetary policy arises out of the possibility of speculation by leveraging, *i.e.*, taking on a large notional burden for a nominal payment. The implications of failure, exemplified by the Barings case, requires central banks to put in place various mechanisms of risk management, while also adapting themselves to developments in information technology. While financial innovations are often pioneered by the market in advanced financial systems, they are often introduced by central banks

themselves in emerging market economies. From the narrow angle of financial stability, there is often a first mover disadvantage, because the regulatory implications of the new products are not fully understood.

Taken together, these developments have influenced the central banking in industrially advanced economies in more ways than one and profoundly so. First, in view of the consensus that the dominant objective of monetary policy should be price stability, the policy environment is increasingly shifting in favour of endowing central banks with a greater degree of autonomy. Several countries have, in fact, formally adopted inflation targeting, often with price stability as a legislated mandate, as a strategy of monetary policy. Monetary policy has re-affirmed itself as an instrument of economic policy particularly in the fight against inflation. Secondly, issues relating to the conduct of monetary policy have come to the forefront of policy debates. With financial liberalisation and globalisation, the relationship between money, output and prices has turned increasingly unstable and unpredictable. Long and variable lags in monetary policy and uncertain transmission channels have posed a considerable challenge for the conduct of monetary policy. As a result, several central banks have abandoned monetary targeting and experimented with a number of other nominal anchors, such as interest rates and the exchange rate, which could provide a fix on inflation - a sort of monetarism without money. Thirdly, with the growing concern for preventing financial crises, safeguarding the stability of the financial system has gained renewed prominence on the agenda of central bankers. Fourthly, the enormous growth in settlement volumes have highlighted the imperative need to address the liquidity and credit risks that arise in the process of executing transactions. Accordingly, prescription of prudential norms and effectiveness of supervision have emerged as major policy concerns. Fifthly, financial markets have emerged as a powerful force and, potentially a valuable source of discipline on overly ambitious policies. As a corollary, there is a growing recognition that successful pursuit of both monetary and financial stability ought to rely on mechanisms that worked with, rather than against, the spirit of market forces. Finally, with the rising volumes of cross-border transactions and the growing

interdependence across countries, the need for co-ordination in policy actions has been heightened. Along with the exchange rate regime, the degree of openness has a stronger influence now on the choice of the monetary policy strategy than ever before.

In sum, these broad developments are at work today in the industrially advanced economies in shaping the evolving relationship between central banks, governments and financial markets and as such, have had an inevitable bearing on the evolution of central banking in developing economies like India.

Section II

Central Banking in India

The role of the Reserve Bank of India in the process of economic growth and development was recognised at an early stage. In fact, the First Five-Year Plan (1951) stated that:

> "Central banking in a planned economy can hardly be confined to the regulation of overall supply of credit or to a somewhat negative regulation of the flow of bank credit. It would have to take on a direct and active role, firstly in creating or helping to create the machinery needed for financing developmental activities all over the country and secondly, ensuring that the finances available flow in the directions intended."

Following this imperative, the evolution of central bank thinking in India is mirrored in the actual evolution of the Indian financial system. Over the 55 years of central banking, the financial system in India has evolved in four distinct phases:

a) Foundation Phase;
b) Expansionary Phase;
c) Consolidation and Diversification Phase; and
d) Financial Sector Liberalisation Phase.

A. Foundation Phase

In the early 1950s, development economics was itself at its nascent experimental stage. The Keynesian analysis, as extended by Harrod-Domar models, was the cornerstone of thinking about economic growth.

Underdevelopment was seen as the result of deficiency of capital. Accordingly, with the heavy emphasis on the increase in capital stock as the key determinant of economic growth, it was widely believed that the Government should promote capital formation and allocate it according to priorities. Another strand of professional thinking at that time centred around the so-called "export pessimism", given the inelastic demand for the then exports from developing economies. Under these circumstances, the notions of "Big Push" and "Balanced Growth" held the sway underscoring the need for planning an investment program in a closed economy framework. This was the underlying rationale for the strategy of planned economic growth and development during the 1950s and early 1960s.

During the foundation phase for the Indian financial system, covering the 1950s and much of the 1960s, the accent of the central bank strategy was on development of the necessary legislative framework for facilitating reorganisation and consolidation of the banking system. Importantly, the Banking Regulation Act, 1949 provided powers to the Reserve Bank to issue directions to banking companies generally or to any banking company in particular when it was satisfied that it was in the public interest to do so or in the interest of banking policy or to protect the interests of the depositors or to secure better management of the banking company. During this period, the co-operative credit structure was strengthened and institutional framework for providing long-term finance to agriculture and industry was set up. The Industrial Development Bank of India (IDBI) and the Unit Trust of India (UTI) were established during this period.

The need for co-ordination between monetary and fiscal policy was recognised early on. The late Dr. C.D. Deshmukh, the first Indian Governor of the Reserve Bank, stated that:

> "After all, it is not the theoretical constitution of the Institution that matters, but the spirit in which the partnership between the Ministry of Finance and the Bank is worked. The success of the partnership will, in the ultimate analysis, depend on the manner in which Government desires to be served and provides opportunities accordingly" (March 1948).

The role of banks in the process of economic development was well recognised by the Indian central bankers. For example, Governor H.V.R. Iengar stated:

> "Banks could take a share in the vast enterprise of development to the extent of a modest proportion of these recourses, and without any jeopardy to their liquidity position" (August 1959).

More specifically, Governor B. Rama Rau observed :

> "Reserve Bank could not have justified its existence in India, if it confined its activities to the industrial sector and completely ignored the agricultural sector, on the prosperity of which industrial development, to a large extent, depended. No apology is, therefore, needed for the enormous interest which has been taken by the Reserve Bank in rural finance and co-operatives during the last two decades" (April 1960).

Given the reasonable degree of price stability which prevailed in India until the mid-1960s, the central bank thinking during the foundation phase was confined to making road observations and assessments. Such statements clearly lacked the sharpness, which became discernible only later.

Governor H.V.R. Iengar, for example, observed :

> "A fundamental question in any developing economy is the degree to which stability is maintained during the development process" (August 1959).

In the same spirit, Governor B. Rama Rau pointed out the perils of the fiscal-monetary nexus:

> "There seems to be an impression in certain sections that deficit financing is a pernicious system in all cases and circumstances. It is certainly an unmitigated, though very necessary, evil during war time, when it is utilised for financing defence expenditure, which, of course, must necessarily be unproductive. Even in peace time, it should be condemned as a means of raising money for unproductive schemes. It can, however, be justified in the case of schemes which are productive within a short period" (April 1960).

The Indian economy came under strain around mid-1960s. The levelling- off of foreign aid and the increase in defence expenditure in the wake of conflicts with China (1962) and Pakistan (1965) were followed by serious droughts in two consecutive years in 1966 and 1967. The sharp deterioration of

the economic situation called for adjustment in macroeconomic policy, which led, *inter alia,* to the devaluation of the Indian rupee in 1966.

With the emergence of persistent double-digit inflation rates in the second half of 1960s, the monetary policy came into a sharp focus. For example, Governor P.C. Bhattacharyya stated:

> "Monetary policy has to be used in such a way that it brings about conditions in which funds required for the growth of the economy are available to the various sectors in the right magnitude and composition and at the right time"(February 1966).

In the context of the devaluation of the rupee, Governor Bhattacharyya observed:

> "The challenge of devaluation, in short, is a challenge to our ability to stand on our feet. The success with which we are able to contain inflation, increase exports and reduce dependence on others for imports will determine how soon we can do so" (August 1966).

The perils of inflation were aptly described by Governor L.K. Jha when he stated:

> "Inflation is not only an inefficient means of financing investment expenditure; it is also inequitious because it imposes a greater burden on the fixed income earner than on the more prosperous section of society" (April 1968).

On the whole, and for most part of the foundation phase, however, price stability was not a major area of concern. This phase was characterised instead mainly by the vision to build for the financial system, the potential for the future. This spirit of the foundation phase was succinctly captured by Governor Jha, when he said:

> "Unlike developed countries, developing countries have to concentrate not only on growth but also on building up the potential for growth" (July 1968).

B. Expansionary Phase

The economic and political fall out of the 1966 devaluation cast a long shadow on economic policy making in the country. The Five-Yearly Plan exercise was suspended for three years and was supplanted by annual plans,

before resuming in 1969. The earlier consensus on the long-term management of the economy broke down under the pressure of heightened political uncertainties following the general elections in 1967 and the split of the ruling party in 1969. These upheavals gave a major turn to the economic policies towards nationalisation.

The year 1969 was a major turning point in the Indian financial system when 14 large commercial banks were nationalised. The main objectives of bank nationalisation were:

(i) Greater mobilisation of savings through bank deposits;

(ii) Widening of branch network of banks, especially in the rural and semi-urban areas; and

(iii) Re-orientation of credit flows so as to benefit the hitherto neglected sectors such as agriculture, small scale industries and small borrowers.

Following bank nationalisation, several important steps were taken including nationalisation of six more banks in 1980. A priority sector target of 33.3 per cent was prescribed for public sector banks in 1974, revised further to 40 per cent in 1980. Special schemes were introduced for the weaker sections, such as the Differential Rate of Interest (DRI) scheme in 1972 and Integrated Rural Development Programme (IRDP) in 1980. A comprehensive branch licensing policy was announced for 1978-81 and subsequently for 1982-83 to 1984-85. New specialised institutions were created including Regional Rural Banks (RRBs) in 1975, National Bank for Agriculture and Rural Development (NABARD) and Export and Import Bank of India (EXIM Bank) in 1982.

The decade and a half following the bank nationalisation in 1969 was marked by a rapid expansion of the banking system. A distinct transformation of far-reaching significance occurred in the banking system. By and large, the major objectives of bank nationalisation were fulfilled. Banking in India acquired a broad mass base and emerged as an important instrument of socio-economic change.

The central bank thinking during the expansionary phase was well reflected in the statements of the then Governors. For instance, Governor S. Jagannathan observed:

> "Commercial banks should certainly move away from their traditional security orientation in favour of an evolution based on repayment potential and anticipated income but they must also make sure that such income is, in fact, forthcoming" (November 1970).

This was reiterated further by Governor M. Narasimham when he observed:

> "Banking has thus been moving away from a security-oriented approach to a purpose-oriented operation and the question bankers increasingly should be asking themselves is not what they are lending against but what they are lending for" (May 1977).

The rationale for the emergence of the priority sector lending, which emerged during this phase, was illustrated by Governor I.G. Patel when he said:

> "The accent of our policy has to be not only on growth but also on greater equality, on the poorest and the hitherto neglected receiving the highest priority, on *Antyodaya*, on Unto the last, if you like" (February 1979).

With the drought of 1972 and the oil price shock in 1973 (and again towards the end of the decade), inflationary pressures in the economy remained acute while the balance of payments situation deteriorated significantly. (Indeed, inflation reached an annual rate of as much as 23 per cent in 1973-74, which was unacceptable.) In this regard, Governor Patel clarified:

> "While it is not true to say that if we take care of our balance of payments we take care of the economy, it is certainly right to assert that if we take care of the economy, the balance of payments will take care of itself" (August 1980).

On the inflation front, given the then debate on whether or not inflation was a monetary phenomenon, Governor Patel came out sharply and stated:

> "I am afraid this country of ours, great and blessed as it is, enjoys no such divine dispensation of immunity from monetary laws - which are after all, only reasonable approximations to the laws of supply and demand which at least business men should not belittle or deride" (February 1979).

This was echoed further by Governor Manmohan Singh when he observed:

> "Economic policies must have a strong systematic bias in favour of minimizing inflationary pressure. By now, there is a convincing amount of evidence that inflation distorts Plan priorities, can play havoc with the balance of payments and brings about highly arbitrary shifts in income distributions leading to disruptive social tensions" (November 1982).

Notwithstanding the notable achievements of the expansionary phase one cannot deny, with the benefit of hindsight, however, that competitive efficiency deteriorated. In the banking sector, with wider geographical coverage, lines of supervision and control lengthened. Retail lending to more risk-prone areas at concessional interest rates raised costs, affected the quality of assets of banks and strained banks' profitability. In response to these developments, the financial system entered the next phase - the phase of consolidation and diversification, beginning the mid-1980s.

C. Consolidation and Diversification Phase

A series of policy initiatives were taken in this phase aimed mainly at consolidation and diversification and to an extent, at deregulation.

The consolidation measures included:

(i) a significant slowdown in branch expansion while emphasising coverage of spatial gaps in rural areas,

(ii) comprehensive action plans of individual banks covering organisation and structure, training, house-keeping, customer service, credit management, recovery of dues, staff productivity, profitability and computerisation, and

(iii) introduction of Health Code System for banks in 1985.

Greater flexibility of operations was provided to banks by withdrawing restrictions on transfer of borrowal accounts from one bank to another, by abolishing the requirement of prior authorisation under the Credit Authorisation Scheme (CAS) in 1988, and by allowing banks to enter business of equipment leasing (1984), and mutual funds (1987).

Policy-related constraints on bank profitability were relieved to an extent by phased rationalisation of bank deposit and lending rates, by raising coupon rates on government securities, and by removing the ceiling of 10 per cent of call/notice money fixed by the IBA (in 1989).

Structural constrains were relaxed by pursuing development of the money market - widening its scope, introducing new instruments and strengthening the existing ones. New instruments included 182-day Treasury Bills (1986), inter-bank participation certificates (IBPCs) (1988) and certificates of deposit (CD) and commercial paper (CP) (both 1989). Additionally, during this phase, new institutions were established, such as the Discount and Finance House of India (DFHI) in 1988 and Small Industries Development Bank of India (SIDBI) in 1990. Moreover, priority-sector lending was made obligatory for foreign banks in India (1989).

The consolidation phase broadly coincided with the tenure of Governor R.N. Malhotra who offered the following assessment:

> "It would thus be clear that banking is no longer confined to the more affluent sections of population. It has acquired a broad base and has also emerged as an agent of development in the rural sector… Having achieved adequate geographical spread, the banking industry has entered a new phase. In this new phase, the key aim would be to consolidate the gain made so far. Consolidation would imply strengthening of banks' structures, training, house keeping, internal procedures and systems, improvement in the quality of loan appraisals and loan asset, and better customer service and profitability… Banks need to make special efforts to improve their profitability. They must enhance cost consciousness at all levels and raise productivity substantially"(May 1986).

Governor Malhotra brought the issue of monetary-fiscal policy co-ordination back on the policy agenda when he stated:

> "Though inflation rates in India have been comparatively moderate, they have caused widespread concern and affected the levels of interest rates and exchange rates. This calls for better coordination between fiscal and monetary policy" (September 1990).

Governor Malhotra also warned that:

> "While pursuing their promotional role, central banks in developing countries cannot ignore their primary function as regulators of the overall volume of money and credit in the economy with a view to ensuring a reasonable degree of price stability" (September 1990).

Although the Reserve Bank attempted to rejuvenate a degree of market-based resource allocation, fiscal dominance continued to constrain the manoeuvrability of monetary policy. High fiscal deficits - at an average of 7.7

per cent of GDP during 1985-90 -began to sear the macroeconomic balance. The current account deficit began to widen reaching an unsustainable 2.3 per cent during the latter half of the 1980s. The sudden hike in the oil import bill after the Gulf war enlarged the current account deficit to 3.2 per cent of GDP in 1990-91. As investor confidence waned, the economy was pushed into an unprecedented balance of payments crisis in 1991. Since the fiscal policy was immobilised by high deficits, the Reserve Bank had to restore macroeconomic stability with measures aimed at demand containment and import compression. The process of structural adjustment was gradually dovetailed into a broader process of economic reforms in order to enhance growth through higher productivity and macroeconomic stability. In this connection, Governor Venkitaramanan pointed out that:

> "Sharp reduction of fiscal deficit, removal of restrictions on industrial investment, trade policy changes, liberalisation of the financial sector and opening of the economy to foreign investment in a manner and at a speed which will not be disruptive are the building blocks of the reform process in India" (September 1992).

The comprehensive package of structural reforms in the wake of the macroeconomic crisis of 1991 paved the way for the current phase of financial sector liberalisation.

D. Financial Sector Liberalisation Phase

The financial sector reform programme underway since 1992-93 aims at promoting a diversified, efficient and competitive financial sector with the ultimate objective of improving the allocative efficiency of available savings, increasing the return on investments and promoting an accelerated growth of the real sector of the economy.

The reform package has had three broad components:

(a) improvement in the overall monetary policy framework;

(b) strengthening of financial institutions; and

(c) gradual integration of the domestic financial system into the global economy.

More specifically, the on-going financial sector reform programme seeks to achieve the following:

(i) Suitable modifications in the policy framework within which banks operate, such as rationalisation of interest rates, reduction in the levels of resource pre-emptions and re-structuring of directed credit programmes.

(ii) Improvement in the financial health and competitive capabilities of banks by means of prescription of prudential norms, recapitalisation of banks, restructuring of weaker banks, allowing freer entry of new banks and generally improving the incentive system under which banks function.

(iii) Building financial infrastructure relating to supervision, audit technology and legal framework.

(iv) Upgradation of the level of managerial competence and the quality of human resources by reviewing the policies relating to recruitment, training, placement and so on.

In conformity with these objectives, the measures that have been taken under the current phase are highly significant.

At the heart of monetary reforms lay the limiting of the draft of resources by the fisc from the banking system by *fiat*. The system of automatic monetisation of Government deficit has been replaced by a system of Ways and Means advances (WMA). With the Reserve Bank gradually regaining control of its balance sheet, it was possible to drastically reduce reserve requirements and gradually shift to other instruments of monetary control, such as open market operations and changes in the Bank Rate consistent with a market-based process of resource allocation. This also enabled a significant deregulation of interest rates, initially on the lending side and subsequently on the deposit side.

The Reserve Bank, like central banks in most emerging market economies, took major initiatives in terms of market and product development with a view to rejuvenating the process of price discovery. The Government borrowing programme was put through the auction process in 1992. As interest rates on government paper became increasingly market-related, it was possible to cut statutory liquidity requirements (SLR) to the statutory minimum of 25.0 per cent. This was well supported by the development of a gilts market through a number of significant steps: First, the development of new instruments, such

as, Treasury Bills of varying tenor, zero coupon bonds, floating rate bonds, partly paid stock and government paper with options. This was meant for reconciling different objectives of managing the maturity profile, for meeting requirements of investor groups (for example, insurance companies with a demand for long-term paper) and for creating liquidity in scrips through reissuance while at the same time avoiding bunching of repayments; secondly, introduction of a primary dealer network to act as market makers; thirdly, institution of a system of Delivery *versus* Payment in which the transfer of securities synchronises with the cash payment reducing settlement risk in securities transactions; and finally, setting up a National Dealing System (NDS), providing on-line dealing and reporting of transactions in money market instruments and government paper as well as the Clearing Corporation of India Limited (CCIL), an industry service organisation for clearing and settlement of trades in foreign exchange, government securities and other debt instruments.

The implications have been many:

- The markets for short-term funds received a boost after restrictions on the cash credit system put the onus of short-term cash management on the borrowers.
- The phasing out of on-tap 4.6 per cent Treasury Bills (April 1997), which could be purchased and later discounted by banks on the basis of their liquidity position, also helped to deepen money markets.
- The withdrawal of CRR stipulations on inter-bank liabilities, because of which the inter-bank market used to almost vanish
- on reporting Fridays and distort the pricing of 14-day money, facilitated the emergence of a yield curve.
- The call money market was initially widened by introducing non-bank participants. In tandem with the parallel development of a repo market outside the Reserve Bank, non-banks are being phased out of the call money market, which would now operate as a purely inter-bank market.

On the institutional side, financial sector reforms have attempted to inject competitive pressures in the banking system by allowing new private sector banks and by withdrawing balance sheet restrictions so as to enable banks to optimise their portfolios across credit, foreign exchange, gilts and

capital markets. The greater freedom of operation has been accompanied by safeguards to ensure financial stability, essentially under the ***aegis*** of the Board for Financial Supervision (BFS). In consonance with the need to foster market forces, the strategy of supervision has shifted from micro-regulation to macroeconomic incentive-based management through the prescription of prudential norms relating to income recognition, asset classification and provisioning requirements and capital adequacy. This has been supplemented by the guidelines in respect of asset-liability management and risk management systems.

It is necessary to appreciate that just as the conduct of monetary policy shaped the process of financial sector reforms, financial liberalisation itself posed fresh challenges to the conduct of monetary management. In view of strong capital flows, which followed macroeconomic stabilisation, the Reserve Bank absorbed the surplus in its balance sheet in order to maintain export competitiveness of the economy and at the same time, sterilise the monetary impact to rein in inflation which was spilling into double digits. Although the battle against inflation was won by the latter half of the 1990s, domestic growth decelerated to 5.0 per cent levels during 1996-97 to 2001-02 from 7.0 per cent levels during 1993-94 to 1995-96. This necessitated the institution of an easy liquidity regime to spur investment demand. Contemporaneously, frequent switches in capital flows necessitated swift policy action to maintain monetary stability. Secondly, the operating procedures of monetary policy had to contend with shifts in monetary transmission channels as a result of financial liberalisation. Finally, the evolution of inter-linked money, Government securities and foreign exchange markets, while necessary for efficiency, posed challenges to monetary management in terms of heightened risks of contagion.

The transition from a planned economy to a market economy in the 1990s, thus, sharpened the Reserve Bank's monetary policy dilemma of providing credit to both the Government and the commercial sector at a reasonable cost, while at the same time containing inflationary pressures. While sudden external shocks required a hardening of monetary conditions in order to ensure orderly conditions in the financial markets, the growth objective presaged a softer

interest rate regime. In view of the increasing complexities of monetary management, the Reserve Bank adopted a multiple indicator approach in which a host of macroeconomic variables are monitored for the process of monetary policy formulation. Furthermore, the monetary authority had to simultaneously hone up an array of monetary policy instruments - quantum and rate - in order to harness monetary conditions to the desired macroeconomic objectives in this *milieu* of uncertainties.

The present day challenges to central banking in India and abroad are too complicated to allow a simple summing-up. The unsettled state of the policy debates and the central banks' dilemmas call for a fuller discussion, to which we turn next.

Section III

Contemporary Issues in Central Banking

Most central banks today perform functions which go well beyond the core central banking functions. The range of contemporary issues in central banking may be discussed under the following three broad headings:

A. Formulation and Conduct of Monetary Policy,
B. Financial Stability,
C. Payments and Settlement System,

There is no uniform interpretation of monetary policy strategy in the literature. Monetary policy broadly comprises a clear specification of the monetary policy reaction function and communicating the reaction function and the actual policy decisions to the public.[13] The former component of the strategy includes:

- The objectives of monetary policy;
- the (intermediate) policy target through which the ultimate objectives are obtained; and
- the institutional framework of monetary policy decision-making (*i.e.*, the operating procedures of monetary policy).

On the other hand, the latter component of the strategy emphasises communication policy, in respect of the pre-commitment to policy targets,

transparency about the decision making process and the signals to condition/anchor public expectations, derived from the degree of central bank autonomy.

I. Objectives

The key issue here is whether the attainment of price stability should be the dominant objective of monetary policy. The case of price stability as the prime objective of monetary policy rests on the assumption that volatility in prices creates uncertainty in economic decision making. Rising prices affect savings adversely while they make speculative investments more attractive. The most important contribution of the financial system to an economy is its ability to augment savings and allocate resources more efficiently. A regime of rising prices, thus, clearly vitiates the atmosphere for promotion of savings and allocation of investment. Furthermore, the domestic inflation rate also has a bearing on the exchange rate of the currency. Besides, there is a social dimension, particularly in developing and merging market economies. Indeed, inflation affects adversely the poorer sections of the society who have no hedges against inflation. Thus, a critical question that arises in this context is at what level of inflation the adverse consequences begin to set in.

The empirical evidence on the relationship between inflation and growth in cross-country framework is somewhat inconclusive. In many cases, the sample includes countries with inflation rates as low as only one to two per cent as well as countries with inflation rates going beyond 200 and 300 per cent. It is, however, clear that growth rates tend to fall with high inflation (Fry, Goodhart and Almeida, 1996). The appropriate inflation threshold beyond which costs tend to exceed benefits, thus, needs to be estimated for each country separately (Sarel, 1996, Khan and Senhadji, 2001). Nevertheless, even moderate inflation levels are often perceived to be worrisome by the policy makers because, inflationary pressures, if not held in check, can lead to higher inflation and eventually affect growth.

While there is a growing consensus among the central bankers regarding the virtues of price stability, the case against price stability is not without its protagonists. Notably, Paul Krugman has recently argued that.

> "……..the belief that absolute price stability is a huge blessing, that it brings large benefits with few if any costs, rests not on evidence but on faith. The evidence actually points the other way: the benefits of price stability are elusive, the costs of getting there are large, and zero inflation may not be a good thing even in the long run."

Prof. Krugman's arguments do not seem relevant for developing and emerging market economies because his criticism is aimed against those countries which seek 'absolute' price stability and (unlike most of these countries), attempt to bring down inflation rate from about 2 per cent to almost zero. This is evident from what he himself advocates: "….adopt as a long run target fairly low but not zero inflation, say 3-4 per cent. This is high enough to accommodate most of the real wage cuts that markets impose, while the costs of the inflation itself will still be very small."

The anti-inflationary stance of monetary policy during the 1990s was essentially framed against the backdrop of high inflation of the 1960s, fuelled by large-scale monetisation of fiscal deficits. In a sharp contrast, the recent co-existence of low and stable inflation - even deflation - with low growth, has naturally fostered a degree of revisionism. In many cases, financial crises, often sparked off by irregularities in the banking system and "irrational exhuberance" in capital markets, which could not be picked up by inflation indicators, had adverse output effects. This set off a process of deflation, which in turn, fed back into the system by eroding collateral values. Combating the spiral of falling prices and output in a conventional monetary policy framework is especially difficult given the zero bound on nominal interest rates. This has fostered a lively debate between the proponents of the so-called "continuity view", who interpret the present situation as an aberration and those advocating the so-called "new view", who urge a broader degree of central bank activism, especially in response to financial market developments, which have potential output effects (Borio, et. al. 2003). Notwithstanding the extreme theoretical positions, most central banks tend to operate on the golden mean of constrained

discretion which takes the pragmatic view that within the mandate of price stability, monetary policy has to stabilise swings in effective demand as well (Bernanke, 2003). This is reinforced by the recent report of the IMF's Interdepartmental Task Force on Deflation (IMF, 2003). The Report suggests that central banks need to pay attention to a wide menu of macroeconomic indictors, including developments in aggregate prices, output gaps and asset, credit and financial markets (which are aggregated to construct an index of deflation vulnerability) so as to ward off the potential deflationary tendencies.

Despite a generalised recognition of price stability as the primary goal of monetary policy, in the face of a benign inflationary environment in the last few years, the objective of output stabilisation has, thus, been prominently pursued by central banks all over the world, both in terms of preventing economic overheating and providing stimulus to faster recovery from recessions. Several developing countries have also used monetary measures to defend the exchange rate. In this context, the debate on "rules *versus* discretion" has engaged the attention of policy makers, and given the scope for time-inconsistent behaviour and the associated inflation bias of central bankers, there has been a growing emphasis on policy rules, particularly the Taylor-type rules. Constrained discretion seems to be the preferred rule for most central banks today.

A number of central banks, beginning with New Zealand (1989), adopted price stability as the sole goal of monetary policy during the 1990s. Presently, there are 18 inflation targeters (IMF, 2003). This also implies there are many others, including the US Federal Reserve, no less, outside the fold. Interestingly, a 1999 Bank of England (Frty, 1999) survey of monetary policy frameworks reveals the continuing diversity of central bank objectives. While price stability emerged as the main/ other important policy objective in 50 out of the 77 central banks, as many as 54 central banks reported exchange rate management to be the main/other important policy objective. There is no doubt that inflation targeters have been able to achieve a reasonable degree of price stability. At the same time, there is little evidence to suggest that inflation

targeting on average improves performance as measured by the behavior of inflation, output, or interest rates (Ball and Sheridan, 2003).

In the Indian context, the broad objectives of monetary policy have been:

- to maintain a reasonable degree of price stability; and
- to help accelerate the rate of economic growth.

The emphasis as between the two objectives has changed from year to year depending upon the prevailing conditions.

The crucial question that is being debated in India as elsewhere is whether the pursuit of the objective of price stability by monetary authorities undermines the ability of the economy to attain and sustain high growth. A considerable part of the relevant research effort has been devoted to the trade-off between economic growth and price stability.

In India, the Chakravarty Committee (1985) had presumed precisely the same target of four per cent as "the acceptable rise in prices' purported to reflect 'changes in relative prices necessary to attract resources to growth sectors". Subsequent research places estimates of threshold inflation in India in the range of 4-7 per cent, depending on the period and methodology.

A macro-econometric model of the Indian economy shows that a 10 per cent sustained hike in real public investment in the non-agriculture sector, financed by primary money leads to an annual inflation rate of about 2.3 per cent and additional GDP growth of one per cent, on an average, during the first two years. In a span of 10 to 15 years, inflation rate rises to about 17 per cent per annum while additional output growth slows down considerably to an average of 2.7 per cent over this period. This implies that in the long run a sustained improvement in growth through monetisation of the fiscal deficit could involve a severe trade-off in terms of inflation as every one per cent additional output growth would entail nearly 6 to 6.5 per cent increase in the inflation rate in the long-run (RBI, 1996).

It may be noted, however, that there is a need to have an appropriate fix on the acceptable level of the inflation rate in India. In the 1970s, the average

annual inflation rate, as measured by the Wholesale Price Index (WPI), was 9 per cent. In the 1980s, it was 8 per cent. However, in the period between 1990 and 1995, the average inflation shot up to around 11.0 per cent before decelerating to about 5.3 per cent during 1995-2002. The objective of the policy has been to keep the inflation rate around 4 to 5 per cent. This itself is much higher than what the industrial countries are aiming at and therefore, does have some implications for the exchange rate of the rupee. Monetary growth can be so moderated that meeting the objective of growth does not push inflation rate beyond this tolerable level on an average.

No one in India is advocating absolute price stability or even the order of price stability that is being sought as an objective in the industrially advanced countries. The Advisory Group on Monetary and Financial Policies (Chairman: Shri M. Narasimham), however, recommended that the Reserve Bank should be mandated a sole price stability objective. There are several operational constraints, as noted by Governor Jalan in the Monetary and Credit Policy Statement of April 2000:

> "Based on the experience of some industrialised countries, there is a view that, in India also, monetary policy, to be transparent and credible, should have an explicit narrowly defined objective like an inflation mandate or target. While technically this appears to be a sound proposition, there are several constraints in the Indian context in pursuing a single objective. First, there is still fiscal dominance and the debt management function gets inextricably linked with the monetary management function while steering the interest rates…Secondly, in the absence of fully integrated financial markets, which remain still imperfect and segmented, the transmission channel of policy is rather weak and yet to evolve fully. Thirdly, the high frequency data requirements including those on a fully dependable inflation rate for targeting purposes are yet to be met " (December 2000).

A question that is sometimes raised in this context is whether monetary policy by itself could be able to contain inflationary pressures particularly in developing countries and the emerging market economies (EMEs). It is true that developing countries and the EMEs are subject to greater supply shocks than developed economies. Fluctuations in agricultural output have an important bearing on prices. Nevertheless, a continuous increase in prices,

which is what inflation is all about, cannot occur unless it is sustained by a continuing increase in money supply. The control of money supply has thus an important role to play in any scheme aimed at controlling inflation.

The mix of monetary and non-monetary factors behind Indian inflation is reflected in Governor Y. V. Reddy's Mid-Term Review of Monetary and Credit Policy of November 2003:

> "…The probability of emergence of any undue pressure on prices during this year appears to be low on current indications. First, the good monsoon and expected recovery of agricultural production would have a favourable impact on prices of agricultural commodities. Second, the comfortable stocks of foodgrains and foreign exchange reserves would facilitate better supply management in the unlikely event of price pressures in agricultural commodities. Third, the prices of 'fuel, power, light and lubricants' so far have remained moderate in the absence of any renewed pressure on international oil prices, particularly in the wake of reduction in geopolitical tensions in the Middle-East. Fourth, both and reserve money growth M_3 have remained subdued…".

Besides, the issue of the merit of price stability as a central banking objective, there is also the question of measuring inflation. There are several issues involved here:

- The vast range of the consumption basket often makes it difficult to create a comprehensive price index. The measurement of services inflation, for example, is an important issue in the Indian context, which was recognised by the Working Group on the Index Numbers of Wholesale Price in India (1999).
- There is also the choice between wholesale and consumer prices. The Wholesale Price Index (WPI) and the Consumer Price Index (CPI) occasionally diverge because of the problems of coverage and the weighting of commodities comprising the indices. As pointed out in the Reserve Bank's April 2001 Monetary and Credit Policy Statement, this divergence between retail and consumer prices is a reason why central banks need to monitor several indicators.
- The rapidity of product innovations makes inter-temporal comparisons increasingly difficult. Illustratively, while a baseline personal computer could cost the same in 1997 and 2003, its power could have been upgraded from 266 MHz to 1000 MHz.
- Individual consumption baskets have been rapidly expanding, especially in emerging market economies. Thus, individuals could, *ceteris paribus*, be worse-off because the list of items of consumption they perceive as a 'standard need' has expanded although their prices have not changed.

- Another issue is the integration of asset prices in the standard price indices, which typically comprise commodities (Bernanke and Gertler, 2004). It is not clear, first of all, whether asset price changes should be viewed as a cause or a component of inflation as we understand it today. Besides, the methodology of factoring in asset prices in the standard price indices is still not very firm.

- There is a need to distinguish between the pull- and push- factors behind inflation. The recent literature has attempted to construct measures of "core" inflation, which is the part of inflation that emanates from demand side pressures (Cecchetti, 1996). There are several methodologies available - the most popular one being to exclude commodities whose prices are subject to supply shocks, such as oil. Since the monetary authority is essentially concerned with the management of demand, several central banks, such as Australia, Canada, New Zealand and the UK monitor some variants of core inflation. In case of emerging market economies such as India, the difficulty is often that a measure of 'core' inflation could lose public credibility since a large part of the inflation is driven by a wide-range of regular supply shocks.

It is important to appreciate that, on balance, the monetary policy decisions of the Reserve Bank, like those of most central banks, are essentially environment- specific. Thus, just as price stability is of prime importance, growth is equally a matter of policy concern. Although the two objectives are mutually reinforcing in the long run, short-run trade-offs are often live and real, especially in case of structurally constrained economies. It is in this context, Governor Jalan has summed up the prevalent thinking:

> "…There is a growing consensus now - in theory as well as in practice - that Central Bank should have instrumental independence, and concentrate on a single target of inflation control with the use of a single instrument. The position, no doubt, is theoretically sound, but as I look at the history of economic thought and changing fashions in economic policy making, I must confess to a sense of discomfort on whether the current dominant view on "one target, one instrument" will survive the test of time…In developing countries this whole question of trade-off - particularly at the margin -and during periods of external or domestic uncertainties, becomes even more relevant because of a large non-monetised and agricultural economy. It seems to me that a certain amount of target flexibility and balancing of conflicting objectives are unavoidable…" (December 2000).

II. Intermediate Target

Besides the objectives for monetary policy there are other issues connected with the transmission mechanism of monetary policy actions. Central Banks in the industrialised economies have experimented with various intermediate targets in order to influence the economy in general and prices in particular. In choosing appropriate targets, central banks generally keep three major aspects in view: First, the ability to influence the target variable in a reasonably predictable manner is important. Secondly, the target must exhibit a stable (if not constant) relationship with the end objective of monetary policy. Thirdly, the target must lead to the final objectives, even though feedbacks from developments in the goal variable to the target are also important. In the context of the growing emphasis on monetary policy transparency, the chosen target should also be clearly communicable to the public.

In the choice of the target, there is always a trade-off between 'controllability' of the target and the 'attainment' of the end objectives. The monetary policy mechanism holds the key in determining the target. If variables at the beginning of the transmission process are selected (such as interest rate or base money growth), the target may be become controllable but may not show a strong influence on the goal variable. At the other extreme, the final objectives (such as inflation or nominal income) that lie at the end of the transmission process could also be targeted. In such cases, however, the monetary authority may have little control over the target. The middle option could be to adopt intermediate targets (such as money growth or exchange rate) which could lie somewhere at the middle of the transmission process. The importance assigned to targets *vis-a-vis* objectives in the design of the monetary policy strategy is particularly critical because a mere achievement of targets while missing the objective could erode the credibility of monetary policy.

The question relating to the choice of appropriate target for conducting monetary policy goes into the basic question of the interrelationship between money, output and prices. With the observed instability of the money demand function, several central banks have been disenchanted with monetary targeting

and have accordingly either switched over[1] to a 'menu' or 'check list approach' or given up monetary targeting altogether. Nevertheless, in the 1999 Bank of England survey of monetary frameworks, 43 out of 50 central banks viewed monetary aggregates as relevant intermediate targets while only seven central banks preferred the interest rate as intermediate targets.

In developed economies, an alternative to monetary targeting has been the interest rate. This has been primarily due to the fact that interest rates in those countries play a more important role in equilibrating markets. Various segments of the financial markets are closely integrated with interest rates in the different markets mutually influencing one another. This is hardly the case with most developing countries although such an integration could be seen emerging in several of them.

The effectiveness of central bank policies has to be assessed in the context of the great uncertainties against which the policies are implemented. There are concerns about the ability of a central bank to influence the term structure of interest rates. Inflation expectations are highly volatile; hence it is difficult to know the real rate of interest at any point of time. It is also not easy to assess monetary conditions during normal periods. Inflation calls for tightening and recessions call for easing of monetary policy. During the intermediate conditions, it is difficult to assess what the appropriate stance of monetary policy could be. The ability to fight deflation has long been a major challenge for the modern central banks. The exchange rate regime adopted by a country and financing of the fiscal deficits also have significant implications for the independence over the money supply process. The "impossible trinity", *i.e.*, incompatibility between fixed exchange rate regime, open capital account and independent monetary policy is well recognised by the central banks all over the world.

[1] The lack of unanimity is clear in a comparison of the monetary policy operating frameworks of the three leading central banks. The US Federal Reserve sets a inter-bank interest rate target (*viz*., the Federal Funds Rate) and explicitly states that the monetary and credit aggregates do not possess any information content. The European Central Bank monitors monetary aggregates as a reference value as part of its twin pillar policy framework. The Bank of Japan switched from targeting interest rates to bank reserves in March 2001.

The growing complexities of macroeconomic management is now leading a number of central banks to monitor a number of macroeconomic indicators rather than centre monetary policy decisions around nominal anchors such as money, interest rates and the exchange rate. The management information system of a number of central banks, including the European Central Bank, the Bank of Mexico and the South African Reserve Bank, has now been broadened to a large set of macroeconomic variables, often including leading indicators, in response to the growing complexities of monetary management.

The Reserve Bank broadly followed a monetary targeting regime since the later half of the 1980s till 1997-98, based on the recommendations of the Chakravarty Committee. The cornerstone of the monetary strategy was a stable relationship between money, output and prices. The available empirical evidence then had clearly suggested that the demand for real money was a reasonably stable function of a select set of variables. In fact, some of the factors that have contributed to the instability of the demand function for money in the industrial economies such as financial innovations and large movements of funds across the border were yet to have the same impact in India. The Reserve Bank was, thus, able to estimate the appropriate growth in money supply, given the expected increase in real output and the acceptable level of inflation. An increase in money supply was seen not only resulting in an increase in demand but also influencing output through the availability of credit. The concept of monetary targeting that was being used in India was a flexible one which took into account the various feedbacks. In this connection, Governor Rangarajan had remarked that:

> "Our approach to money supply has been eclectic. We have not bound by a fixed rate of growth of money. This is a far cry from "mindless monetarism" of which we are sometimes accused…". (February 1997)

The growing complexities of monetary management during the 1990s increasingly required that the formulation of monetary policy be based on the information gleaned from a large number of macroeconomic indicators rather than being predicated on a single monetary aggregate. This was reinforced by

the monetary experience during 1997 and early 1998 when external shocks - most notably during the East Asian crisis - impacted on Indian financial markets. Besides, there was also the policy concern that while the money demand functions estimated typically with time series data continue to be stable, the deregulation of interest rates during the 1990s could impact on money demand. This ambivalence on the vexed issue of the stability of money demand was clearly articulated by Governor Jalan in the Monetary and Credit Policy Statement of April 1998:

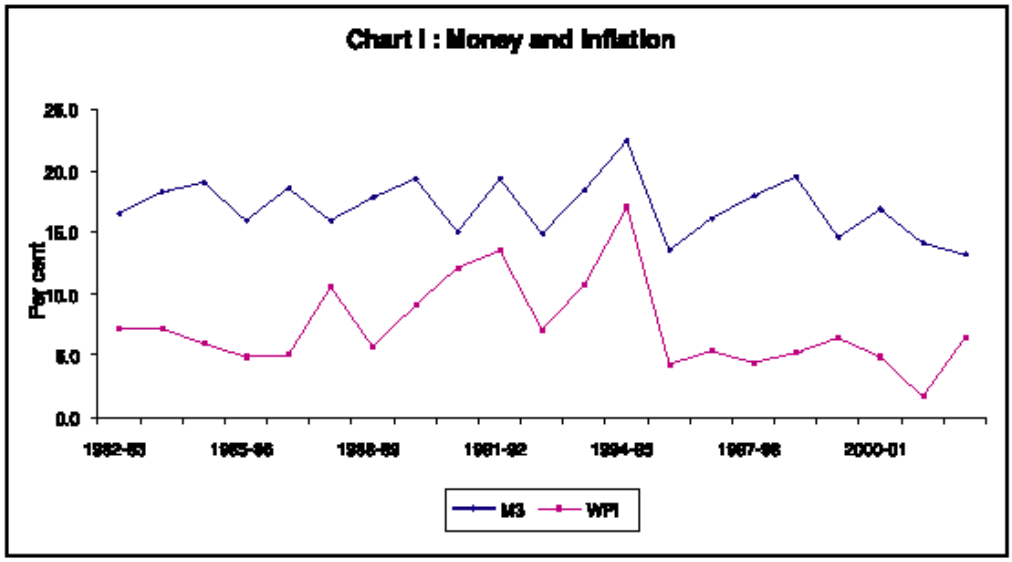
> "Most studies in India have shown that money demand functions have so far been fairly stable. However, the financial innovations that have recently emerged in the economy provide some evidence that the dominant effect on the demand for money in near future need not necessarily be real income, as in the past. Interest rates too seem to exercise some influence on the decisions to hold money".

This was echoed in the contemporaneous report of the Working Group on Money Supply: Analytics and Methodology of Compilation (Chairman: Dr. Y.V. Reddy) (1998). The Group reported that while there existed a long-term equilibrium relationship between real money balances and real income, there were short-term deviations from the long-run equilibrium, which could be explained by other relevant variables to ensure predictive accuracy. The Group, thus, concluded that monetary policy exclusively based on the demand function for money could lack precision. In view of the changing monetary dynamics, the Reserve Bank formally switched from monetary targeting and broad-based its list of policy indicators in April 1998. The Monetary and Credit Policy Statement of April 1998 announced that the Reserve Bank would:

> "…adopt a multiple indicator approach wherein interest rates or rates of return in different markets (money, capital and government securities markets) along with such data as on currency, credit extended by banks and financial institutions, fiscal position, trade, capital flows, inflation rate, exchange rate, refinancing and transactions in foreign exchange available on high frequency basis are juxtaposed with output data for drawing policy perspectives…".

In the new monetary policy framework, although the exclusive use of monetary aggregates has been de-emphasised, it remains an important indicator of the monetary policy stance, with the monetary and credit policy statements

announcing monetary projections for the year. Monetary aggregates continue to be relevant for India for two reasons. First, since the money demand function for India has remained reasonably stable, it remains helpful in predicting price movements with reasonable accuracy at least over a period of time, say 3 to 5 years (Chart 1). The Monetary and Credit Policy Statement of April 2001 stressed that while prices could be affected by non-monetary supply side factors in the short run, there is very little disagreement that in the medium to long term, inflation is essentially a monetary phenomenon. This is reinforced by the fact that the income velocity of money - which relates the money stock to nominal income - has remained reasonably stable in sharp contrast to the volatility experienced in economies in which financial innovations have been deep. Secondly, the money stock target is relatively well understood by the public at large. With the money supply target, the stance of monetary policy is unambiguously defined and gives a clear signal



to market participants. This is, of course, not to say that monetary authorities should confine their attention to just one aggregate. In the Indian context, the quantity of money continues to play an important role in determining prices. Under these circumstances, it is better to target money than the interest rate.

However, the monetary authority must watch the behaviour of interest rates in various markets and must be willing to intervene and smoothen the volatility. At the same time, it is necessary to decompose the sources of inflation in view of the repeated occurrence of supply-side shocks in the economy since the late 1990s. This is not necessarily inconsistent with an overall monetary target.

A number of central banks, including Australia, Austria, Canada, New Zealand, Norway and Sweden, have experimented, in the mid-1990s, with monetary conditions indices[2] (MCI) constructed by a linear combination of domestic interest rates and the exchange rate, weighted by a measure of the degree of openness of the economy. In India, the Monetary and Credit Policy Statement of October 1997 also explored the possibilities of using MCIs as indicators of monetary conditions. Although the Bank of Canada continues to use the MCI as a loose operating target, the cross-country experiences with the MCI have not been very positive, especially as the degree of transmission to the monetary policy objectives of price stability and growth have been often open to doubt.

An important component of the process of monetary policy formulation is to stabilise inflationary expectations. A number of central banks, including the Bank of England, conduct market surveys. Some central banks, such as the European Central Bank (ECB) and the South African Reserve Bank, also monitor yield curves, a locus of the yields of various maturities at a point of

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[2] For example, see Freedman (1994) and Eika, Ericsson and Nymoen (1996). MCIs are essentially a linear weighted combination of nominal or real interest and exchange rate deviations with respect to a base period. In case of relatively short-term interest rates, nominal values suffice as it may be assumed that the inflation rate would not change very drastically in the short run. Thus, normalising and setting baseline value (= $r_t = r_0$ and $e_t = e_0$) at 100,

$$MCI (v) = a(r_t - r_0) + b(e_t - e_0) + 100 \quad (1)$$

where, r_t and e_t refer to the interest rate and exchange rate in terms of foreign currency, respectively, at time t, r_0 and e_0 to the base period interest and exchange rates, and v to the ultimate target variable, typically output (y) or inflation (p).

The weights reflect the relative influence of the particular variable on the monetary policy target, *viz.*, inflation and/or real output growth. Thus,

$y = -\mu r - be +$ other variables or, $p = -\mu r - be +$ other variables and, $dv/dr = a$, $dv/de = b$ where $v = p,y$

An increase (decrease) in r_t and/or an appreciation (depreciation) in e_t in (1) increases (decreases) the MCI, signaling tighter (expansionary) monetary conditions.

time, to gauge market expectations. Simply put, the argument is that if the markets expect higher (lower) demand in the future, the cost of funds would increase (fall) accordingly (Shiller, 1990). In emerging markets, the information content of yield curves is often limited by a number of factors. First, it is not always clear whether shifts in the yields reflect expectations regarding growth or inflation, especially as supply shocks often mean that prices can go up even when the economy is below potential output. Second, since Government securities markets are not deep enough, players do not necessarily make fine distinctions between tenors available. It is precisely this large set of ifs and buts that render central banking in emerging market economies so much more complex.

III. Operating Procedures of Monetary Policy

The operating procedures of monetary policy have been changing the world over in response to financial liberalisation. The key challenge before the contemporary monetary management is to modulate liquidity conditions in the financial markets consistent not only with the macroeconomic objectives but also with the market outcomes. A number of central banks set formal/informal bands for the overnight interest rate. Such monetary policy impulses travel to real activity if inter-bank markets are deep enough and if the interest rate structure, as a whole, is sufficiently sensitive to movements at the short end.

The strategy of liquidity management followed by a number of central banks now broadly follows a two-step procedure of estimating market liquidity, autonomous of policy action to initiate action in terms of open market operations and interest rate signals to steer monetary conditions (Borio 1997). Participants in the Large Value Transfer Systems (LVTS) are provided overdrafts at the ceiling of the interest rate band while post-settlement surplus balances yield interest income at the floor rate of the band. The overnight rate, thus, generally hovers within the band because the participants know that they will at least get the floor rate on their surplus balances and pay the maximum ceiling rate for meeting any shortfall. When the overnight rate goes beyond the ceiling, central banks may inject liquidity through reverse repo operations.

Obversely, when the overnight interest rate falls below the ceiling, the central bank may impound liquidity through repo operations. The other advantage of liquidity management is that it accords central banks the flexibility to quickly switch between the quantum and rate of liquidity. In a scenario when transmission channels shift course, this assumes a special significance. The actual framework adopted by a country to manage liquidity, however, may vary in terms of the specific aspects of their operations.

The operating procedures of monetary policy of most central banks are now beginning to converge to variants of three closely-related paradigms:

- A number of central banks, including the US Federal Reserve (since 1992), estimate the demand for bank reserves and then carry out open market operations to target short-term interest rates (the Federal Funds Rate in case of the USA).
- A second set of central banks, including the Bank of Japan (since March 2000), estimate market liquidity and carry out open market operations to target bank reserves, while allowing interest rates to adjust.
- A third and growing number of central banks, including the European Central Bank, modulates monetary conditions in terms of both the quantum and price of liquidity, through a mix of open market operations (OMOs), standing facilities and minimum reserve requirement and changes in the policy rate, but do not announce pre-set money or interest targets.

Central banks in most emerging market economies now follow one of the three leading paradigms. The Bank of Mexico estimates the demand for bank reserves and conducts open market operations to achieve a target level of the banks' settlement balances with itself, allowing interest rates to adjust. The Bank of Korea switched to an interest rate target in 1998, through open market operations conducted on the basis of estimated demand for bank reserves. The Bank of Thailand (BOT) manages market liquidity through daily repurchase market operations, and foreign exchange swaps supplemented by interest rate signals through the fortnightly repurchase rate.

The operating procedure of the conduct of the Reserve Bank's monetary policy have witnessed, in many ways, the most dramatic shifts during the 1990s. The Reserve Bank has gradually shifted from direct to indirect instruments of monetary control in order to align monetary policy to the new

market-based environment. The emerging liquidity management framework is broadly in line with cross-country experiences in respect of changes in operating procedures of monetary policy in response to the challenges of financial liberalisation. There are now an array of monetary policy levers, including open market operations and interest rate signals - which are able to effectively modulate monetary conditions consistent with the process of price discovery. Besides, the shifts in the monetary policy transmission channels as a result of financial liberalisation necessitate policy impulses through both quantum and rate channels. Finally, the experience of sudden switches in capital flows has emphasised the need for swift policy reactions with a view to balancing the domestic and external sources of monetisation to maintain orderly conditions in the financial markets ensure price stability.

The switch to indirect instruments of monetary control began in the early 1990s with the initiation of financial sector reforms. The particular sequencing of the process has been largely influenced by the contemporary monetary developments. The Reserve Bank introduced open market (including repo) operations in 1992-93 to sterilise surplus capital flows which began to pour in with the liberalisation of the capital account. Although the Reserve Bank repeatedly emphasised that it would like to reduce reserve requirements which effectively acted as an indirect tax on the banking system, it nevertheless had to repeatedly raise CRR on more than one occasion in order to contain the monetary (and hence inflationary) impact of capital flows. Once inflation was reined in by the latter half of the 1990s, the Reserve Bank was free to pursue its medium-term goal of cutting reserve requirements to the statutory minimum, especially as the onset of the domestic slowdown simultaneously required easing of monetary conditions. With the gradual liberalisation of interest rates by the mid-1990s, the Reserve Bank was able to reactivate the Bank Rate as a signalling device in 1997-98. The role of the Bank Rate has been changing over the years with the deepening of financial sector reforms. It was initially used as a single lever to change financial prices, with the entire liquidity support from the Reserve Bank, and for a time before full liberalisation, commercial bank deposit rates were linked to it. As the price of the bulk of primary liquidity is

now, more or less, market-determined, the Bank Rate now essentially acts as a signal of the Reserve Bank's medium-term monetary policy stance. A number of rates, such as the interest payable on eligible CRR balances, and the interest charged on Ways And Means Advances to the Government and a portion of export credit refinance, continue to be at the Bank Rate.

The repeated bouts of instability in the financial markets during the second half of the 1990s underscored the need for an effective management of liquidity on a day-to-day basis. The tenor of repo operations, originally introduced to sterilise capital flows in 1992, was gradually reduced from 14 days to daily auctions by 1997-98 to stabilise markets. The Reserve Bank instituted an Interim Liquidity Adjustment Facility, following the recommendations of the Committee on Banking Sector Reforms (Chairman: Shri M. Narasimham), in April 1999, which later evolved into a full-fledged Liquidity Adjustment Facility (LAF) by June 2000. The LAF, which is increasingly emerging as the principal operative instrument of monetary policy, allows the Reserve Bank to manage market liquidity on a daily basis and at the same time, transmit interest rate signals to the market. As the LAF gradually replaces other windows of liquidity support, the Reserve Bank would also be able to phase out sector-specific refinancing facilities which had earlier been a source of market segmentation. At the same time, the Reserve Bank put in place a strategy of temporarily financing the Government deficit through private placements/devolvement in auctions of government securities during times of tight monetary conditions and offloading such paper when liquidity improved to insulate the cost of public debt from temporary vicissitudes of the financial markets.

The Reserve Bank is, thus, now able to manage liquidity through a market oriented mix of open market (including repo) operations reinforced by interest rate signals through changes in the Bank Rate and the repo rates, in addition to the traditional tools of changes in reserve requirements and refinance facilities. While the changes in the Bank Rate signal the medium-term perspective of the central bank, the changes in the LAF rates signal shifts in the day-to-day liquidity management.

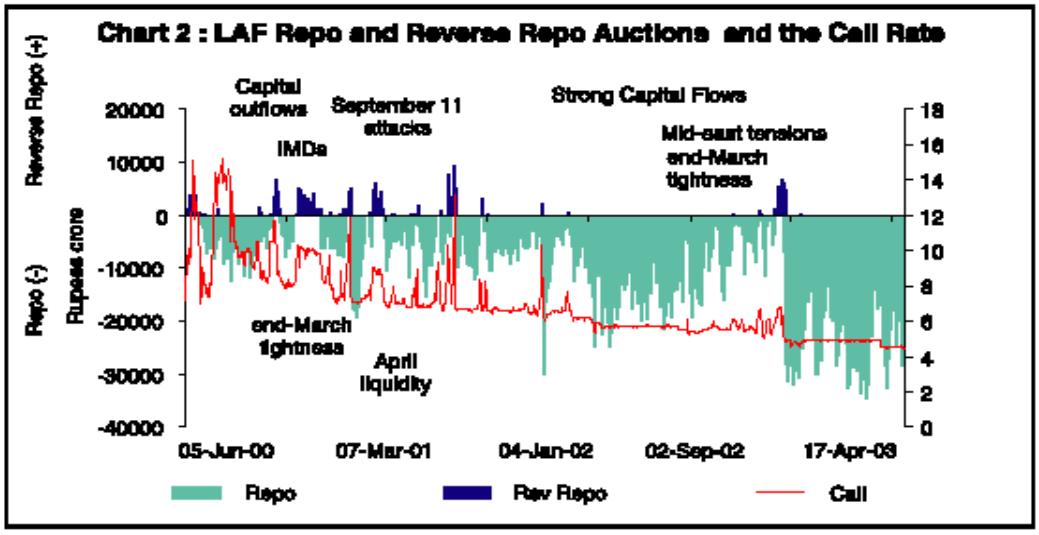
The efficacy of the emerging operating procedures of monetary policy remains a matter of debate. There is very little doubt that the Reserve Bank is now able to set an informal corridor through two-way day-to-day liquidity management. The pass-through to the credit market, however, does not appear very effective because of a variety of factors such as the overhang of high cost deposits, large non-performing assets and high non-operating expenses in the banking system. As a result, real interest rates continue to remain high. This underscores the need to further strengthen structural measures to impart the necessary flexibility to the interest rate structure in the credit markets.

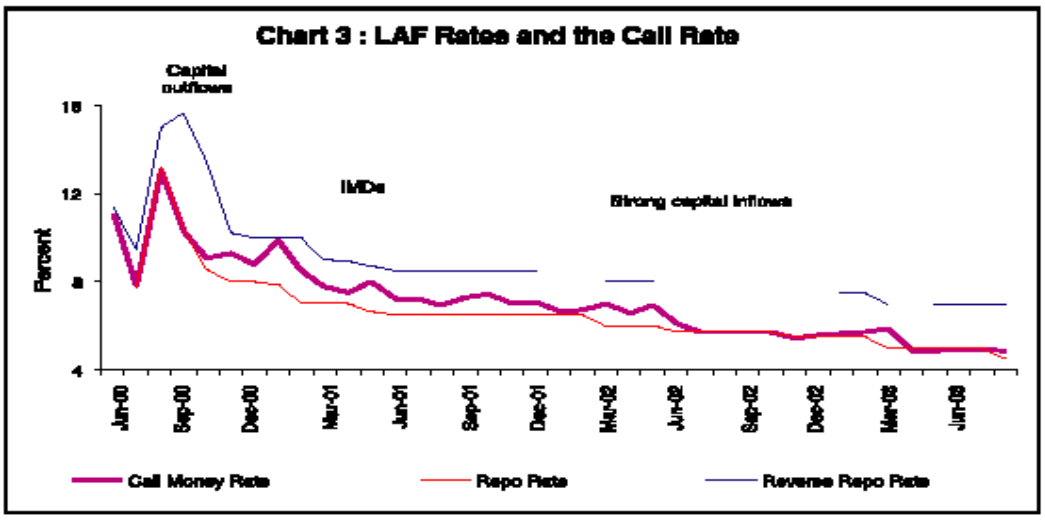
The principal strength of the LAF has been the high degree of flexibility imparted to day-to-day monetary management in terms of both the price and quantum of liquidity. Analytically, it is possible to distinguish partition the LAF experience of market stabilisation into six sets of roles:

- Stabilising regular liquidity cycles, by allowing banks to tune their liquidity requirements to the averaging requirements over the reporting fortnight and smoothening liquidity positions between beginning-of-the-month drawdown of salary accounts to fund household spending and end-of-the-month post-sales bulge in business current accounts.
- Stabilising seasonal fluctuations, by injecting liquidity during quarterly advance tax outflows or at end-March, when banks avoid lending on call which adds to their CRAR requirements and mopping up liquidity in April to counter the large ways and means advances drawn by the Government prior to the inception of its borrowing programme.
- Stabilising sudden liquidity shocks, by injecting liquidity on account of say, temporary mismatches arising out of timing differences between outflows on account of government auctions and inflows on account of redemptions,
- Stabilising markets in face of sudden capital outflows (as was done during June 2000) by injecting high-cost liquidity, through higher cost reverse repos, to meet the liquidity gap on the one hand and raise domestic interest rates, on the other, to ward off the possibility of speculative attacks on the foreign exchange market.
- Stabilising markets in the face of sudden capital outflows and at the same time neutralising the impact of market volatility on the cost of public debt (as was done during July-August 2000) by funding the Government through private placements and mopping up the liquidity by aggressive repo operations at attractive rates.

- Stabilising markets in face of sustained capital flows, especially since November 2000, by mopping up bank liquidity through repos and at the same time, gradually reducing repo rates to enable a softening of the interest rate structure.

The Reserve Bank has been able to inject (absorb) liquidity through reverse repos (repos) on almost a day-to-day basis (Chart 2). This has enabled it to encase short-term interest rates (and by extension, gilt prices) within an informal corridor set by the repo and reverse repo rates during the past three years (Chart 3).





As the primary instrument of monetary policy, the LAF has to mediate between the several objectives of the Reserve Bank's monetary policy. The quantum of absorption (injection) of liquidity and the price have to be determined bearing in mind not only the day-to-day liquidity position in the financial markets, including the foreign exchange markets but also the medium-term impact on price stability and growth. The multiple objectives pursued by the Reserve Bank along with the changes in the operating environment on account of technological advances pose a number of challenges:

- Statutory provisions impose limitations on the scale of repo operations (as discussed below in fuller details).
- The Reserve Bank accepts bids in the LAF auctions in accordance with its multiple objectives. This implies that, at times, it is not possible to absorb (inject) the entire surplus (deficit) liquidity. The balance spills into the inter-bank market, especially as the LAF auctions are held early morning, often driving call rates beyond the corridor set by the LAF. Although the LAF is essentially an instrument for fine-tuning liquidity by the central bank, this creates the scope for arbitraging between the LAF and the inter-bank markets by the market players.
- Although LAF rates are supposed to emerge from the market, most players often tend to play safe by bidding at interest rate signals emitted by the Reserve Bank. This effectively implies that the LAF rates function as policy rates set by the central bank, providing the central bank a grip over both the quantum as well as price of liquidity.
- The switchover to real-time gross settlement (RTGS), in which each transaction will have to be settled individually, is likely to create a demand for intra-day liquidity.

An important issue is the ability of the Reserve Bank to manage capital flows. Barring the spurt in remittances in the 1970s, the monetary base has been essentially governed by the monetisation of the fiscal deficit, on the asset side, and the resultant hike in reserve requirements, on the liability side, till the early 1990s. The haemorrhage on account of sustained capital flows, on the one hand and reserve requirements, on the other, has, however, reduced the share of net domestic assets in reserve money to 3 per cent as at end-March 2003 from 91 per cent as at end-March 1991.

The question, then, is to find instruments of sterilisation, especially when central banks do not possess a sufficient stock of domestic assets. In this regard, there are three standard solutions: raising reserve requirements, issuing central bank securities or assuming it is credible enough, conducting uncollateralised repo operations[3]. The choice of instruments is often critical, especially as the degree of market orientation and the associated incidence of the cost on the central bank and the banking system varies a great deal. In case of across-the-board unremunerated reserve requirements, the entire dead weight cost is borne by the market in the form of an indirect tax on the banking system. In case of central bank paper of medium-term maturities, the macro-economic cost is relatively lower since the paper is not only likely to be subscribed by surplus banks but can also be traded, although the payout for the central bank balance sheet could be substantial because the very tradability necessitates market-related pricing. A number of central banks, such as China, Korea, Malaysia and Poland do issue central bank paper although there are often limits in terms of central bank net worth (Malaysia) or money supply (Korea). Faced with strong capital flows, China resorted to raising reserve requirements in September 2003 to buttress the issue of central bank bills. An intermediate solution often is to conduct a continuum of relatively short-term uncollateralised repo operations. In this case, while the central bank has to pay interest rates which are sufficiently high to attract subscribers, the lack of secondary liquidity imposes a cost, although this could be minor if the tenor is sufficiently low.

The challenge of sterilisation, in the Indian case, is not very acute, *per se*, because the large order of fiscal deficit allows the banking system to park the surplus liquidity emanating from capital flows in gilt-edged paper. The

[3] A repo is effectively a borrowing by central bank from the financial markets. Conservative accounting norms would suggest that the central bank should, like any other lender, furnish a collateral, say a government security. This also implies that the ability of the central bank to mop up liquidity through repo operations is limited by its stock of government paper. If a central bank is credible enough, it could conduct repo operations without collateral. In that case, a repo would essentially be a promise to pay, akin to an increase in a contingent liability of the central bank. In the context of the Reserve Bank balance sheet, this would effectively mean that the present reduction in the net Reserve Bank credit to Government would instead be substituted by an increase in the non-monetary liabilities (NNML).

problems in this regard are really technical in nature because of the limited degree of manoeuvrability available to the Reserve Bank under the Reserve Bank of India Act, 1934. Under the Act, the Reserve Bank cannot pay interest on government balances or on bank balances, in excess of CRR stipulations, borrow clean beyond the paid-up capital of Rs.5 crore or issue paper in its name. While there is very little doubt that these are sound principles of central banking, they create an artificial central bank demand for domestic assets in the present macro-economic context:

- Since the Government cannot receive interest on surplus balances with the Reserve Bank, it typically 'buys back' Government paper from the central bank for the period of surplus and saves the interest payment. This means if capital flows do not follow the seasonality of the Government expenditure and the Centre runs a surplus, the Reserve Bank needs to have sufficient stock of government paper to transfer to the Government.
- Since the Reserve Bank cannot pay interest on bank balances, over and above CRR stipulations or borrow more than its paid-up capital, repo (reverse repo) operations, which are essentially collateralised borrowing (lending) to absorb (inject) market liquidity have to be camouflaged as two-leg sell-buy (buy-sell) outright transactions in underlying Government securities. There is thus, an asymmetry in the scope of repos (limited to the Reserve Bank's holding of Government securities) and reverse repos (limited, technically, only by the stock of non-monetised public debt).

There is, thus, a need to amend the Reserve Bank Act, 1934 in order to accord it greater flexibility of operations in tune with contemporary developments. While it could be prudent to insist on collateral in reverse repo transactions in which the central bank is lending money, there is certainly a strong case for uncollateralised repos. Besides, although the size of the Reserve Bank's balance sheet has expanded about 2000 times since 1935, the statutory stipulations regarding borrowing are still defined in terms of the original Rs.5 crore.[4] At the same time, it is necessary to ensure that the fundamental principles of central banking are not compromised - especially as *ad hoc*

[4] The size of the RBI's balance sheet has enlarged from about 50 times its paid-up capital 1,03,968 times by June 2003 !

Treasury Bills began from a similar arrangement of administrative convenience.

The strength of the central bank balance sheet has acquired a new importance in recent years, especially as monetary policy has emerged as the principal tool of macroeconomic stabilisation in most countries.[32] The size and composition of the Reserve Bank balance sheet has changed substantially mirroring the changing imperatives of its monetary policy. The sharp reduction in reserve requirements as a part of the shift to indirect instruments of monetary control has concomitantly shrunk the size of the Reserve Bank balance sheet, as a percentage of GDP. This implies not only that is the monetary impact of every Rupee of primary money is much greater but also that the ability of the Reserve Bank to transfer profits to the fisc is likely to be limited in the future. This, in turn, puts a natural cap to the direct accommodation that the Reserve Bank can provide to the Government. Besides the reduction in the volume of profits, the rate of profits is also likely to be moderated by the decline in the share of net domestic assets because of the scale effect of the cut in reserve requirements and the substitution effect of sterilising sustained capital flows to the extent of the differential between the domestic and foreign rates of interest. Finally, the deregulation of financial prices affects central bank solvency, especially as changes in valuations typically affect the asset side much more than the liability side, which comprises cash and current account balances of various players in the macro-economy. In order to maintain sound health, the Reserve Bank has taken several measures to ensure revaluation of assets, domestic as well as foreign, on a prudential basis and also build up a contingency reserve fund of up to 12 per cent of its asset base by June 2005.

(iv) Central Bank Autonomy

What transcends these frontline issues in monetary policy formulation is the crucial underlying question of the autonomy of central banks, *i.e.*, the independence that they enjoy in taking monetary policy decisions. The argument in favour of autonomous central banks rests on the premise that monetary stability can best be achieved only if the task is entrusted to

professional central bankers who can take a long-term view of the monetary policy stance (Rogoff, 1985). Too much concern with the *short term* can result in 'stop-gap' policies. Implicit in this kind of reasoning is the assumption that political leadership normally tends to take a view guided by *short term* gains without weighing the long-term costs and such an approach is not conducive to ensuring stability. More than any other objective of economic policy, monetary stability requires the pursuit of consistent policy over a long time. It is now increasingly accepted that effectiveness of any policy depends upon how the public perceives policy makers' commitment and behaviour. Based on the premise, it is argued that an autonomous central bank would tend to lend greater credibility to monetary policy and therefore improve its efficacy.

The case in favour of autonomous central banks has not found universal acceptance. Two arguments are advanced in this regard. First, it is argued that all policy decisions in a democratic set up should be subject to scrutiny by the elected legislature and as such, the concept of an autonomous central bank is 'undemocratic'. An expression of this opinion is found in the deliberation on the Balanced Monetary Policy Act of 1982 in the American Senate, wherein, it was stated:

> "It is the time for Congress to wrest control of monetary policy from the hands of a tiny band of monetary ideologues in the White House, the Administration and the Federal Reserve. It is time for basic economic policy once more to be set by elected officials who must bear the final responsibility. It is time to restore common sense, balance and stability to monetary policy."

It may be noted that no central bank is totally autonomous in the sense of not being answerable to any one. Even the most independent central banks have to report, in one form or the other, to the legislature, which in any case has ultimate power to change the law relating to the central bank. All the same, there is a difference between a situation in which policy decisions are under continuous scrutiny, and an arrangement where the central bank periodically reports to the legislature. At the same time, it needs to be borne in mind that the case of central bank autonomy is really limited to functional rather than goal independence.

Since monetary policy is an integral part of overall economic policy, it is also argued that there can be no meaningful separation between the fiscal policy and monetary policy. If such a separation is forced and if the two policies run at cross purposes, which is deemed to be more than likely with autonomous central banks, one of the two has to give in. This conflict of policies may inflict considerable damage to the economy. An integrated package of policies thus has a better chance of success than a set of conflicting ones.

An interesting question that arises in this context is whether autonomous central banks have a better achievement record in the conduct of monetary policy. Most empirical studies exploring the relationship between independence and performance have judged performance in terms of containment of inflation (Alesina and Summers, 1993, Blinder, 1998). Given the considerable differences over the manner of classifying central banks in terms of autonomy, it is not surprising that the empirical evidence is inconclusive. A number of studies have found an inverse link between the two, *i.e.,* that the average rate of inflation is lower in countries which have relatively autonomous central banks. On the other hand, some studies do not establish such an inverse relationship. Even where an inverse relationship is found, it is subject to a number of interpretations.

It has been argued that the success of a central bank in controlling inflation may arise not so much from its independence from the government as from the nature of objectives it is expected to fulfil. If the central bank has multiple objectives, the net result in terms of the achievement of a single objective, such as price stability, may not be that striking. The central bank will also be compelled to think in terms of trade-off between one objective and another. The success of those central banks which have achieved a high degree of price stability may be attributable not so much to their independence as much to the fact, that they have statutory objectives with a narrower focus. Central banks which may not enjoy independence from government can nevertheless succeed in ensuring price stability if they are asked to pursue that single objective.

The question of autonomy of central banks boils down ultimately to the dynamics of monetary-fiscal policy linkage. In this regard, it may be noted that there is a high degree of consensus emerging among the industrially advanced economies on inappropriateness of the funding of the government by the central bank. This takes either or all of the following three forms: First, segregation of monetary management from debt management, by entrusting the latter to the treasury, or a public debt office or a corporate entity, which is distinct from the central bank, as in the UK. Second, countries have placed legal constraints on central banks' lending to the government. Finally, many countries have enacted legislation which limit fiscal deficits.

There are countries in which central banks are totally prohibited from purchasing government paper from the primary market - the list includes members of the European Union, Japan and the USA. In many other countries, legislative limits have been placed on direct central bank credit to the Government. In several other countries while there are no legal limits, the central banks do not normally provide direct credit to the government. It is recognised that since central banks can acquire government securities as part of their open market operations, there cannot be a ban on central banks acquiring government debt. While statutory limits on credit to Government can be circumvented, direct funding of government, without limits by the central bank, is believed to come in the way of the efficient conduct of monetary policy. The freedom of the central bank to pursue monetary policy according to its judgement requires that direct funding by central bank to the government is restricted and the limits are made explicit.

The Indian experience in respect of central bank autonomy is quite interesting. At the time of the enactment establishing the Reserve Bank, the Indian public opinion was strongly in favour of a central bank that was independent. Interestingly, while introducing the Bill, the then Finance Minister[35] said:

> ".…….It has generally been agreed in all the constitutional discussions, and the experience of all other countries bears this out, that when the direction of public finance is in the hands of a ministry responsible to a popularly elected Legislature, a ministry which would for that reason be liable to frequent change with the changing political situation. It is

> desirable that the control of currency and credit in the country should be in the hands of an independent authority which can act with continuity. Further, the experience of all countries is again united in leading to the conclusion that the best and indeed the only practical device for securing this independence and continuity is to set up a Central Bank, independent of political influence."

The subsequent developments, especially after the Independence in 1947, should be seen in terms of the evolution of the borrowing programme of the Government of India through Treasury Bills. The bigger concern was that there emerged a practice of automatically creating *ad hoc* Treasury Bills in favour of the Reserve Bank to the extent of the shortfall in Government balances.[36] In order to *avoid* problems of roll-over, the Reserve Bank began to fund *ad hocs* into marketable securities which could be offloaded to the market in due course by 1959. As the budgetary needs of the Government began to exhaust the ability of the market to absorb government paper, *ad hocs* began to be funded into a unique instrument known as non-transferable special securities without any definite maturity. Until 1955, the total outstanding Treasury Bills had never exceeded Rs. 472 crore. With the sharp deterioration of the fiscal deficit especially during 1980s, the outstanding Treasury Bills rose to Rs. 19, 266 crore by March 1993. Indeed, if allowance is made for the funding of Treasury Bills of Rs. 71,000 crore in aggregate during 1982, 1987, 1988, 1991 and 1992, the actual outstanding Treasury Bills as at end-March 1993 were placed at a formidable level of Rs. 90,266 crore. An overwhelmingly large proportion of these Treasury Bills was held by the Reserve Bank, thereby monetising the budget deficit of the Government. In addition to Treasury Bills, the Reserve Bank has also held Government dated securities not picked up by the then captive market. As a consequence, the outstanding reserve money (*i.e.*, money created by the Reserve Bank) as on March 1993 for example, amounted to Rs. 1,10,943 crore, of which, the net Reserve Bank credit to the Central Government accounted for as much as Rs. 96, 523 crore or 87 per cent.

This growing fiscal deficit and its monetisation by the Reserve Bank of India raised important issues regarding the relative roles of fiscal policy and monetary policy. Monetary policy particularly in the 1980s had to address itself

to the task of neutralising the inflationary impact of growing deficits by continually mopping up the large increases in reserve money. Given the then fully administered interest rate structure, the much needed absorption of excess liquidity in the system was undertaken mainly by increasing the Cash Reserve Ratio (CRR). Furthermore, given the below-market rates on Government securities, the Statutory Liquidity Ratio (SLR) had to be progressively raised so as to meet the large financing requirements of the Government. This process inevitably culminated into the CRR reaching its statutory maximum limit which had to be raised by amending the Act. The SLR reached the phenomenally high level of 38.5 per cent.

The Committee to review the Working of the Monetary System (Chairman : S. Chakravarty, 1985), strongly recommended a fundamental restructuring of the monetary system recognising the dangerous trajectory that the monetary-fiscal policy was on. The Committee argued that price stability should be the dominant objective of monetary policy with inflation control perceived as the joint responsibility of the Government and the Reserve Bank. The Chakravarty Committee strongly advocated a system of monetary targeting which would bind the Government and the Reserve Bank to a mutually agreed level of net RBI credit to Government, consistent with the appropriate level of expansion of money supply.

Besides the inflationary impact of the monetisation of the fiscal deficit, the draft of resources from banks by *fiat* through statutory liquidity requirements also implied that banks could not optimise their portfolios. By the early 1990s, for example, statutory preemptions amounted over 63.5 per cent of banks' net demand and time liabilities. Moreover, the need to contain the interest rate burden of public debt also induced a degree of financial repression. The rate on 91-day Treasury Bills - *ad hoc* as well as tap - was kept fixed at 4.6 per cent since July 1974 even though the average inflation rate ruled well over 8 per cent in the 1970s and 1980s. Put together, this resulted in distorting the process of price discovery and blunting the interest rate channel of monetary policy transmission.

In this connection, Governor Venkitaraman pointed out that:

> "High fiscal deficits, borrowing from the banking system, credit repressions or allocation to the Government at low rates, restricted credit availability to the productive system, high rates of interest - these form parts of a vicious cycle which we have got to break…I realise that the decisions which are needed involve hard choices... if the compulsions of political economy are real, so are the heavy costs of macroeconomic imbalance. The soft political options of today will surely become the hard economic realities of tomorrow" (February 1992).

A similar stance was subsequently reiterated by Governor Rangarajan:

> "…if rates of interest are kept at artificially low levels, it can only result in diverting funds from the organised to the unorganised sectors, losing total control over the end-use of funds. While aggregate savings may not be significantly influenced by changes in interest rate, there is enough evidence, nevertheless to show, even in the Indian context, that savings in the form of financial assets are considerably influenced by interest rate. Therefore, if the financial institutions are to perform effectively their major role of mobilising resources, the rate should be allowed to be determined by the forces of supply and demand…The monetary authority, however, cannot keep interest rates for long at levels that are inconsistent with the basic supply and demand balance" (May 1997).

In the first half of the 1990s, there was a conscious effort to contain the fiscal deficit and budget deficit. This has facilitated the efforts of the Reserve Bank to moderate the expansion of money supply. However, so long as the practice of issue of *ad hoc* Treasury Bills continued, there was no immediate check on the expansion of the RBI credit to Government. Even when year-end deficits were moderated, deficits during the year were large. It therefore, became necessary to move away from the system of issue of *ad hoc* Treasury Bills and the consequent automatic monetisation of the fiscal deficit so that the Reserve Bank regains control over its balance sheet. This was emphasised by Governor Rangarajan:

> "In the Indian context, perhaps the first step should be to move away from a system in which the deficits that are incurred by the central government automatically get financed by the Reserve Bank…Then the onus of responsibility for the conduct of monetary policy will be squarely on the shoulders of the Reserve Bank, where it should logically rest" (September 1993).

A Supplemental Agreement was signed between the Government of India and the Reserve Bank on September 9, 1994 to phase out the system of

ad hoc Treasury Bills, over a period of three years. It was agreed that the net issue of *ad hoc* Treasury Bills at the end of the year 1994-95 was not to exceed Rs. 6,000 crore and that, if the net issue of *ad hoc* Treasury Bills exceeded Rs. 9,000 crore for more than ten consecutive working days at any time during the year, the Reserve Bank would automatically reduce the level of *ad hoc* Treasury Bills, by auctioning Treasury Bills or selling fresh Government of India dated securities in the market. Similar ceilings at Rs. 5,000 crore for year end and Rs. 9,000 crore for intra year were stipulated for 1995-96 and 1996-97. The scheme of phasing out *ad hocs* worked reasonably well.

The Government of India and the Reserve Bank of India signed a "historic" agreement on March 26, 1997 to formally put in place the announcement made by the Union Finance Minister in his Budget Speech for 1997-98 as under:

"The system of *ad hoc* Treasury Bills to finance the budget deficit will be discontinued with effect from April 1, 1997.

A scheme of ways and means advances (WMA) by the RBI to the Central Government is being introduced to accommodate temporary mismatches in the government's receipts and payments. This will not be a permanent source of financing the government's deficit."

The critical distinction between the present schemes of Ways and Means Advances provided by the Reserve Bank to the Government and the earlier *ad hoc* Treasury Bills is that the former are subject to an absolute mutually agreed limit and therefore, do not take the cumulative character of the latter. If the WMA crosses 75 per cent of the limit, the Reserve Bank could trigger off a fresh floatation of government securities depending on the prevailing monetary conditions. This implies that the Reserve Bank is now able to control the form and timing of its accommodation to the Central Government. The critical question is whether the Reserve Bank is also able to control the size of its credit to the Government.

The share of the net RBI credit to Government in reserve money has fallen very sharply during the latter half of the 1990s. The Government has actually recorded a surplus with the Reserve Bank thrice during 1999-2000,

2001-02 and 2002-03 after the two years of surplus during 1975-76 and 1977-78. At the same time, the share of the Centre's gross fiscal deficit as a proportion of GDP has remained relatively sticky at 5.1 per cent during 1995-2002 as compared with 5.6 per cent during 1990-95. Besides, the share of the incremental net bank credit to the Government in the Centre's gross fiscal deficit actually rose in the latter half of the 1990s as compared with the first half of the 1990s. The decline in the share of the net RBI credit to the Government in reserve money is thus mirrored by an increase in banks' investments in Government securities (with excess SLR securities at 41.6 per cent of NDTL as on October 17, 2003) far above the mandated SLR requirements. This reflects the fact that the Reserve Bank was able to trade the surpluses in the banking system during the last five years or so with the deficits of the Government sector as a result of i) reductions in reserve requirements; ii) strong capital flows on the supply side; and iii) poor credit offtake on the demand side. When liquidity conditions change, such as during bouts of capital outflows, banks often offload government paper back to the Reserve Bank. If the past is any guide, it would be reasonable to expect that the fiscal gap would re-emerge as a source of monetary pressure once liquidity conditions change in case capital flows dry up or credit demand picks up. It is, in this context, that Governor Jalan warned in the Mid-term Review of the Monetary and Credit Policy for 1999-2000 that:

> "These developments (*i.e.*, fiscal slippage) do not augur well for the future unless determined action is taken to increase revenues, reduce deficits in the public sector, and reduce expenditure through appropriate policy actions. As recently announced by the Government, it is imperative that necessary actions to correct fiscal distortions are taken as early as possible. It may also be mentioned that fiscal slippages are no longer regarded as a matter of domestic concern alone. All over the world, international agencies and investors keep a close watch on emerging trends in Government finances, as they have a bearing on future macro-economic stability."

Returning to the need for fiscal discipline, the April 2000 Monetary and Credit Policy Statement again emphasised:

> "While some comfort can be drawn from the fact that we have been able to manage a large government borrowing programme without undue

> strain on interest rates or the overall liquidity environment, it is also clear that such high levels of fiscal deficits are not sustainable over the medium term. The continuing large fiscal deficits year after year have already led to sharp increase in repayment obligations on outstanding public debt in the nineties…The large borrowing programmes of Government year after year have also put pressure on the absorptive capacity of the market…If the economy were characterised by excess demand and liquidity pressures, it would have been difficult to meet the large borrowing requirements of government without a sharp increase in interest rates and some crowding out of private investments. It is of utmost importance that such an eventuality is avoided by taking credible fiscal action urgently. A national consensus on an effective and time bound programme of fiscal correction is, therefore, essential…"

Fiscal dominance thus continues to be the critical issue in monetary management. There is now a strong view that a separation of monetary and debt management functions which are now simultaneously performed by the Reserve Bank could ease the fiscal constraint. The case for functional autonomy which has been so eloquently urged by successive Reserve Bank Governors now appears within the bird's view of fruition. In this context, the Union Finance Minister noted in his 2000 February Budget Speech:-

> "…In the fast changing world of modern finance it has become necessary to accord greater operational flexibility to the RBI for conduct of monetary policy and regulation of the financial system. Accordingly, I intend to bring to Parliament proposals for amending the relevant legislation..."

The Fiscal Responsibility and Budget Management Act would phase out monetisation of the fiscal deficit through primary subscriptions by 2006. At the same time, it must be appreciated that even if the Reserve Bank does not directly monetise the fiscal deficit, monetary management would still have to contend with the fiscal impact on bank liquidity. It is, thus, necessary to emphasise that monetary management, however deft, and monetary-fiscal coordination, however seamless, cannot, in the ultimate sense, be a substitute for fiscal discipline. Governor Jalan himself emphasises that:

> "The most conspicuous failure (of Indian economic policy), in my view, for which there is no ***alibi***, and the responsibility for which lies squarely and indisputably at our doors, is the erosion in public savings and the inability of the public sector to generate resources for investment or provision of public services…In the annals of development history, it is

> hard to find another example of a perfectly sensible idea - the need for higher public investment for greater public good - leading to exactly the opposite result, *i.e.* higher public consumption with diminishing returns for the public!" (January 2001).

B. Financial Stability

i) Emerging Issues

Financial stability has always been an integral concern of central banks. Of late, however, issues relating to financial stability have come into a sharper focus with the realisation that financial sector weaknesses lie at the core of economic instability as demonstrated by the recent financial crises in Asia, Russia, Brazil, Turkey and most recently, in Argentina.

The rationale for financial stability and the role of the central bank is increasingly being recognised.[37] Financial crises in the last decade or so generally involved significant loss of output and employment (6 to 10 per cent decline in GDP during the crisis year, and as high as 50 per cent of annual GDP over a period of six years).[38] Widespread financial instability undermines the role of the financial system in performing the primary functions, such as, intermediation between savers and borrowers with an efficient pricing of risks and the smooth operation of the payments system. When financial instability rises to a crisis proportion, it often brings in its wake a macro economic crisis or a currency crisis or both. As recent experiences show, such crises have grave implications for the most vulnerable sections of society who pay for their resolution through increased taxes, reduced public expenditure and unemployment. The costs involved in crisis resolution - particularly in restructuring the weak financial systems in the post crisis period - amounted to 10 to 30 per cent of GDP, which represented essentially additional crisis induced burden for the public sector. Large-scale social dislocations associated with crisis also threatened the governance structures, particularly in the absence of effective social safety nets. This scale of welfare loss to the public justifies the need for public intervention. It follows that the central bank, being placed at the nucleus of the financial system, has a vital role to play in restoring and maintaining financial stability.

The role of the central bank in maintaining financial stability varies cross-sectionally according to the stage of development of the economy as well as over time, for a given economy. This is because domestic financial system is subject to different kinds of shocks -both home grown and external, depending upon the degree of its integration with the global economy.

During the 1990s, the world economy has changed in a fundamental manner. The most significant among the changes is the liberalisation of capital movements by emerging market economies. On an annual average basis, aggregate net capital flows (official and private) to emerging market economies rose from an annual US $ 47 billion during the 1980s to US $ 155 billion a year in the 1990s. In particular, private capital flows rose sharply during the 1990s, displacing official flows as the major source of external financing by a large margin - private capital flows which averaged under US $ 18 billion a year during the 1980s, shot up to as much as US $ 134 billion per year during the 1990s. While the volume of private capital flows has increased spectacularly, so has the associated volatility. The recent financial crises have unambiguously demonstrated that the international financial markets tend to react exuberantly to successes, hesitantly to early warning signals and overwhelmingly to adversities. In other words, the capital account liberalisation, financial innovations, and technological advances have not only increased the scale of financial transactions significantly, but have also greatly enhanced the inherent risks associated with them, especially by making the transmission of panic easy and fast and often spilling over to other economies.

These developments, coupled with special characteristics of developing countries - such as, the relative thinness and opaqueness of financial markets, weaknesses in the financial sector and often, relative inflexibility of exchange rates, make them inherently more vulnerable to external shocks, especially on capital account, thereby undermining financial stability.

First, the thinness of financial markets relative to the size of global financial flows means that relatively small changes in capital flows, measured by global standards, can cause disproportionately large changes in asset prices. This explains euphoria in good times as rising asset prices validate initial

inflows, and panics in bad times in a symmetrical manner. Secondly, the relative opaqueness of financial markets means that investment flows are often based on inadequate information and, therefore, liable to change suddenly. Asymmetry of information may lead to herd behaviour with less informed investors following the lead of those who are perceived to know better, thus creating familiar boom-bust cycles. The inadequacy of information could also lead to contagion as the investors fail to discriminate between countries.

Thirdly, weaknesses in the financial sector have turned out to be the Achilles' heel for regulators as revealed in the recent spate of financial crises. With a weak financial sector, capital inflows in the boom phase are likely to be intermediated in a manner that creates an excessive buildup of unhedged foreign exchange exposure and accumulation of large short-term foreign debt, often by the banks themselves (for example, Indonesia). For instance, in 1996 - that is, just before the outbreak of the Asian financial crisis - short-term debt as percentage of foreign exchange reserves had shot up to 100 per cent for Thailand, 177 per cent for Indonesia, and as much as 203 per cent for Korea. It is now clear that capital account liberalisation combined with a weak financial sector can push the already weak banks into riskier activities, thus, making them more vulnerable at times of crisis. It is here that the Indian financial system has scored for prudence - keeping short-term debt at 8 per cent of the foreign exchange reserves and 3.9 per cent of total debt - which explains the resilience of the Indian financial system during the recent financial crises.

A typical chain of causation may run on the following lines: with capital account liberalisation, high quality corporate clients shift to lower cost borrowing abroad. Consequently, the asset portfolio of banks deteriorates and bank margins decline, thereby reducing bank profitability. This often induces them to enter into riskier activities. On the liability side, banks may be tempted to borrow short-term abroad, thus increasing their foreign exchange exposure. On the asset side, banks may be tempted to expand into domestic activities, *such as,* real estate and stock market, which are exceedingly risky (being backed by collaterals, which are overpriced on account of asset price bubbles). Illustratively, in 1996, real estate exposure (as percentage of total lending) of

banks reportedly ranged between 30-40 per cent in Thailand and 25-30 per cent in Indonesia, which was perilously high by international standards. In India, this percentage has been negligibly small. Similarly, the exposure of Indian banks to the stock market is limited to 5 per cent of their advances. This prudential regulation has also enabled Indian financial system to withstand the waves of contagion even when stock markets crashed.

It follows that absorption of international capital inflows in excess of the capacity of the financial system to efficiently intermediate them can be a harbinger of trouble. Rapid credit expansion outpacing the absorptive capacity of the real economy, especially with high concentration of credit to property sector and equity markets may be an invitation to a financial disaster. Inadequate or ineffective supervision, poor assessment and management of financial risks, and low capital base tend to make the underlying risks only greater.

Despite the widespread transition towards flexible exchange rates, many developing countries continue to carry the hangover of the earlier fixed exchange rate regime. As a result, exchange rate systems in several developing countries tend to be of the "soft peg" variety. This often creates the appearance of exchange rate stability, which willy nilly encourages borrowers to ignore exchange risk and build up substantial unhedged foreign exchange exposure, thus adding to their vulnerabilities. An appropriately flexible exchange rate regime with a tolerable level of volatility would have induced more explicit recognition of foreign exchange risk. Maturity and currency mismatch and exposure to increased credit risk can eventually lead to a deterioration in banks' balance sheets. When such weaknesses assume systemic proportion, banking crises are inevitable. This banking crisis can, in turn, trigger a currency crisis because it becomes very difficult for the central bank to defend its currency against a speculative attack. Any rise in interest rates to keep the domestic currency from depreciating has the effect of weakening the banking system further. Under the circumstances, when a speculative attack on the currency occurs, if the central bank raises interest rates sufficiently to defend the currency, the banking system may collapse. Once the investors recognize that a

country's weak banking system makes it less likely for the central bank to take steps to successfully defend the domestic currency, they have even greater incentives to attack the currency because expected profits from selling the currency have now risen. Thus, with a weakened banking sector, a successful speculative attack is likely to materialise and can be triggered by any of many factors.[39]

It is clear that challenges facing the central banks in maintaining financial stability are varied and increasingly complex. One can visualize at least four inter-related aspects of the tasks before central banks:

(i) oversight of the financial system;
(ii) crisis prevention;
(iii) crisis management; and,
(iv) crisis resolution.

It is increasingly being recognised that crises could result from both "bad-policies" and "bad-luck", and that strong fundamentals may not insulate a country from "bad-luck". With a view to minimising the frequency and intensity of crises, the end-1990s saw a major restructuring of the domestic and international architectures, with central banks vested with the responsibility of ensuring financial stability.

At the global level, crisis prevention initiatives prominently centres around strengthened IMF surveillance - both under the normal Article-IV discussions and the newly devised Financial Sector Assessment Programme (FSAP)[40], data dissemination and greater transparency, constructive involvement of the private sector, Sovereign Debt Restructuring Mechanism (SDRM), and introduction of new facilities like the Contingent Credit Line (CCL). Development and implementation of standards and codes has been one of the cornerstones of the recent initiatives to strengthen the international financial architecture.[41] The IMF and the World Bank jointly monitor and assess member countries' observance of standards and codes through Reports on the Observance of Standards and Codes (ROSCs). Besides these formal initiatives, a list of Macro-Prudential Indicators (MPIs)/Financial Soundness Indicators - disaggregated into core and encouraged sets - has also been

designed to assist member countries to enhance their ability to early identify the vulnerabilities in the financial systems. Central banks in general had a major role in the evolution of this reformed international architecture, and also had to implement many of those initiatives themselves with a view to contributing to the goal of global monetary and financial stability.

The Reserve Bank has long been conscious of the linkages between macro-economic stability and financial stability. In this context, Governor Jalan remarked in the Mid-term Review of the Monetary and Credit Policy for 1998-99 that:

> "…The financial crisis in South-East Asia and Japan has brought to the fore the problems that weak and fragile domestic financial sector can pose for the real economy. It is now established beyond reasonable doubt that while a persistent and unexpected downturn in the real economy creates difficult problems for the financial sector, a fragile financial sector can deepen the real economy crisis and impose heavy social costs. It is, therefore, of utmost importance to strengthen capital adequacy, income recognition and provisioning norms for banks as well as other financial institutions and to move towards full disclosure and transparency in banking operations in line with international best practices…."

In order to reinforce financial stability, the Reserve Bank has, by and large followed a three-pronged inter-related strategy of:

- maintaining the overall macroeconomic balance, especially through the twin objectives of price stability and growth;
- enhancing the macro-prudential functioning of institutions and markets, as outlined above; and
- strengthening micro-prudential institutional soundness, through regulation and supervision.

This was reinforced by Governor Y. V. Reddy in his November Mid-Term Review of Monetary and Credit Policy for the year 2003-04:

> "The emphasis at this stage is on continuance of measures already taken with an accent on implementation, facilitating ease of transactions by the common person, further of the consultative process and continued emphasis on institutional capacity to support growth consistent with stability in a medium-term perspective".

(ii) External Sector Management

It is now recognised that besides domestic disturbances, changes in the external environment also affect the national economic performance with increasing rapidity. In this context, Governor Jalan pointed out in the Monetary and Credit Policy Statement of 2001-02 that:

> "…Monetary management has now become much more complex than was the case even a few years ago. This is because of several factors, such as, the on-going integration of financial markets across the world, the phenomenal increase in financial turnover, liberalisation of the economy, and the rapidity with which unanticipated domestic and international tremors get transmitted to financial markets across the world because of the new technology…The need to quickly change the policy stance in the light of emerging situation has also been the experience of other monetary authorities including the US and European central banks… Keeping these realities in view, it is particularly important for banks and financial institutions to make adequate allowances for unforeseen contingencies in their business plans, and fully take into account the implications of changes in the monetary and external environment on their operations..."

The challenges of the macroeconomic balance have been changing course with the progressive liberalisation of the external sector during the 1990s following the BoP crisis of 1991. The span of reforms in the external sector is indeed expansive: dismantling of trade restrictions along with greater integration with world markets and in consonance with the World Trade Organisation (WTO) commitments; a transition from a pegged exchange rate regime to a market-determined system - beginning with the Liberalised Exchange Rate Management System of 1993, achieving current account convertibility in August 1994 and progressive liberalisation of capital flows including opening up of foreign direct investment and investment by foreign institutional investors (FIIs). Indeed, while capital account liberalisation is by all means complete for non-resident investors, there is a clear bias against debt flows, particularly short-term borrowings. India has adopted a cautious approach towards free convertibility of domestic assets by residents. The policy stance with respect to capital account convertibility has been recently amply clarified by Governor Jalan:

> "In respect of short-term external commercial borrowings, there is already a strong international consensus that emerging markets should keep such borrowings relatively small in relation to their total external debt or reserves. We would do well to continue with our policy of keeping access to short-term debt limited as a conscious policy at all times - good and bad. ……..So far as the free convertibility of domestic assets by residents is concerned, the issues are somewhat fundamental. Suppose the exchange rate is depreciating unduly sharply (for whatever reasons) and is expected to continue to do for the near future. Now, further suppose that domestic residents, therefore, decide - perfectly rationally and reasonably - that they should convert a part of whole of their stock of domestic assets from domestic currency to foreign currency. Domestic stock of bank deposits in rupees in India is presently closed to US $ 290 billion, nearly three and a half times our total reserves. One can imagine what would have happened to our external situation, if within a very short period, domestic residents decided to rush to their neighbourhood banks and covert a significant part of these deposits into sterling, euro or dollar" (August 2003).

It is important to highlight that the liberalisation of the external sector in India was purposefully gradual and judiciously benchmarked by domestic as well as external considerations. The external sector strategy, essentially, hinges on five core elements:

- A sustainable current account balance, of below 2 per cent as suggested by the High Level Committee on the Balance of Payments (Chairman: Dr. C. Rangarajan);
- Sufficiency of reserves;
- Stability of reserves, by encouraging non-debt flows and controlling short-term debt;
- Stability in the foreign exchange market; and
- Prudent external debt management.

This strategy has paid rich dividends in terms of attaining macroeconomic stability, especially demonstrated during the SouthEast Asian crisis, wherein the Indian economy came out relatively unscathed. There is little doubt that the judicious management of the external sector in India is one of the success stories of the 1990s. The most visible indicator of this success story has been the sharp increase in foreign exchange reserves to US $ 75 billion as at end-March 2003, equivalent to an import cover of 14 months from an import cover of 2 months in 1990-91. The reserves further increased to US $

93.2 billion by November 7, 2003. The basic thrust of reserve management was laid down by Governor Jalan in his Monetary and Credit Policy Statement of 2001-02:

> "The overall approach to the management of India's foreign exchange reserves in recent years has reflected the changing composition of balance of payments, and has endeavoured to reflect the "liquidity risks" associated with different types of flows and other requirements. The policy for reserve management is thus judiciously built upon a host of identifiable factors and other contingencies. Such factors, *inter alia*, include: the size of the current account deficit; the size of short-term liabilities (including current repayment obligations on long-term loans); the possible variability in portfolio investments and other types of capital flows; the unanticipated pressures on the balance of payments arising out of external shocks (such as the impact of the East Asian crisis in 1997-98 or increase in oil prices in 1999-2000); and movements in the repatriable foreign currency deposits of nonresident Indians. Taking these factors into account, India's foreign exchange reserves are at present comfortable. However, there can be no cause for complacency. We must continue to ensure that, leaving aside short-term variations in reserve levels, the quantum of reserves in the long-run is in line with the growth in the economy and the size of risk-adjusted capital flows. This will provide us with greater security against unfavourable or unanticipated developments, which can occur quite suddenly."

The management of the foreign exchange market poses a number of challenges. The relative thinness of the markets imply that they are especially susceptible to "news", so that day-to-day movements, in the short-run, often have little to do with the so-called 'fundamentals'. Adverse expectations, especially fuelled by the unidirectional depreciation of the rupee till recently, often turn out to be generally self-fulfilling because of their adverse effect on "leads and lags" in export/import receipts and payments, remittances and inter-bank positions, reinforced by the herd behavior, often induced by the "Daily Earnings At Risk" (DEAR) strategies of risk management. The task of exchange rate management is often further complicated by the persistent disconnect between economic theory and central bank practice. The rigid assumptions of economic modelling typically throw up intellectual support for corner solutions such as freely floating exchange rates, or a currency board type arrangement of fixed rates. The operational realities of foreign exchange markets have, however, led most countries to adopt intermediate regimes of

various types of managed floats, including fixed pegs, crawling pegs, fixed rates within bands, managed floats with no pre-announced path, and independent floats with foreign exchange intervention.

After the liberalisation of the exchange rate regime in the mid-1990s, the Reserve Bank has, therefore, had to chart its own course of exchange rate management, learning from the contemporary experiences. There is now a well-laid out policy response to sudden changes in capital flows so as to stabilise markets: on demand-side, including monetary tightening and changes in the cost of import finance as well as on supply-side, including the Reserve Bank's operations in the foreign exchange market and changes in the cost of delaying export proceeds. Governor Jalan laid down the basic tenets of exchange rate management in his Monetary and Credit Policy Statement of 2001-02:

> "India's exchange rate policy of focusing on managing volatility with no fixed rate target while allowing the underlying demand and supply conditions to determine the exchange rate movements over a period in an orderly way has stood the test of time."

The Indian exchange rate policy has been appreciated by a recent IMF report, which describes it comparable to the global best practices.[42]

Another area where significant progress has been achieved is external debt consolidation. From being classified as a nearly severe indebted country, India now figures in the less indebted list of developing countries as classified by the World Bank. The external debt to GDP ratio has improved from 38.7 per cent in 1991-92 to 20.0 per cent in 2002-03. The turn around has been possible due to a conscious policy entailing a cautious and prudent approach towards external debt management. The main pillars of external debt management include a preference for a longer maturity profile, tight control and vigil on short-term borrowings, and restricting commercial borrowings within manageable limits with emphasis on cost considerations and end-use restrictions like real estate and the stock market, and de-emphasising guarantees. In recent times, external debt restructuring is being encouraged which include prepayment and refinancing of high-cost debt with low-cost

debt. The consolidation of the external debt position has indeed provided the necessary flexibility to the Reserve Bank to further liberalise the external sector.

It is now clear that the pursuit of financial stability requires structural changes in the world economic order, beyond national central bank policy-making. The Reserve Bank not only contributed to the design of the new international financial architecture by voicing its perspectives in major decisions through the Executive Director of India at the IMF, but also implemented several measures so as to enhance the stability of the domestic financial system in an international context. India was one of the first members to subscribe to the SDDS through which data relevant for assessment of macroeconomic stability are being disseminated regularly. India voluntarily agreed for a Financial Sector Assessment Programme (FSAP) and after the completion of the programme in 2001, the appropriateness of India's internal frameworks for assessing financial system stability has been validated. So far external assessment has also been completed in respect of 7 standards and codes through preparation of ROSCs for India.

In December 1999, the Reserve Bank, in consultation with the Government of India, had also appointed a Standing Committee on International Financial Standards and Codes (Chairman: Dr. Y. V. Reddy) to identify and monitor developments in global standards and codes, to consider all aspects of applicability of these standards and codes to Indian financial system, and to periodically review the status. All the non-official Advisory Groups, appointed by the Committee, have already submitted their reports. The work of the Standing Committee and its advisory groups in this important area has been commended internationally.

Besides the set of measures which were introduced in line with the international trend and India's commitment to help preserve global financial stability, keeping in view the specific features of the Indian financial markets and institutions, internally developed frameworks for crisis prevention have also been put in place. To strengthen the effectiveness of the internal stability assessment framework, an interdepartmental group of the Reserve Bank was

constituted in accordance with the announcement made in the Mid-term Review of October 2000 to develop a core set of MPIs for India and to prepare a pilot review and subsequent half-yearly modified updates enabling superior internal assessment of financial stability.

The manner in which the Indian rupee withstood the South Asian contagion, and the fact that India has successfully avoided any systemic banking crisis so far suggest that Reserve Bank's performance has been remarkable among the emerging market economies. Its ability to ensure both exchange rate and overall financial stability has significantly enhanced its credibility. Its managed flexible exchange rate regime, cautious approach to liberalisation of the capital account, and foreign exchange reserves policy taken together provide the strongest impetus to the domestic crisis prevention architecture.

(iii) Banking Supervision

Central banks in a number of countries perform supervisory functions in relation to the banking system. There are several countries in which the supervisory function is either shared between central bank and other authorities or is totally left outside the ambit of the central bank. Since monetary stability cannot be divorced from financial stability, several studies have argued for the supervisory function to be an integral part of a central bank. However, there are others who perceive a conflict of interest between supervisory and monetary policy concerns. There can be occasions when a tight monetary policy can force difficulties on the banking system, which if the central bank as a supervisor tries to moderate, could lead to a situation involving a conflict of interest. Most of the difficulties associated with financial stability, however, arise out of factors not directly connected with monetary policy, such as poor asset quality, inadequate capital, *etc*. An associated issue is the debate over the relative merits of unified supervision and separate regulators in view of the trend towards the formation of financial conglomerates operating across banking, insurance and securities sectors.[43] The points of debate deepen even further if the central bank is mandated the responsibility of unified supervision,

and thus assumes, *de facto* responsibility over all segments of the financial sector.

While some banking supervision is conducted by the Federal Reserve Board, it is largely the responsibility of other institutions such as the office of the Comptroller of the Currency, banking regulators in each separate state and the Federal Deposit Insurance Corporation. The European Central Bank can take up specific tasks concerning policies relating to the prudential supervision of credit and other financial institutions (except insurance undertakings). Member national central banks continue to be either directly responsible or closely associated with prudential supervision within their national jurisdictions. In Germany, though a government office is responsible for banking supervision, it is the central bank staff who undertake much of the day-to-day work of monitoring individual banks. In France, supervision is the responsibility of the Commission Bancaire, but its Secretariat is effectively part of the Banque de France, and the Governor chairs it. In Japan, the central bank closely monitors the large banks, though the responsibility for supervision formally rests with the Finance Ministry. A few central banks, such as the Monetary Authority of Singapore supervise all the banking, insurance and securities segments. At the other extreme, there are a number of countries, most notably the UK and in the Scandinavian countries, in which super regulators have been created outside the central bank. The Bank of England, however, continues to bear responsibility for systemic regulation.

The challenge of supervising the large banking system in the Indian economy was recognised by Governor Deshmukh,

> "…The difficulty of the task of the Reserve Bank in dealing with the banking system of the country does not lie in the multiplicity of the banking units alone. It is aggravated by its diversity and range…While the bigger Indian banks have always responded readily to advise …some of the newer or smaller ones have pursued policies that did not accord with the best traditions of commercial banking…" (March 1948).

The Reserve Bank has been involved in broad based supervision. As a part of the ongoing financial sector reforms and in line with international best practices, the Indian supervisory framework, which had earlier concentrated on

onsite micro-supervision, is now being strengthened with off-site surveillance and risk-based supervision.

In this connection, Governor Jalan has observed that:

> "Regulation is largely perceived to be free or costless and as such, tends to be over-demanded by the public and oversupplied by the regulator. However, regulation involves a range of costs, which are ultimately reflected in the price of financial intermediation. In fact, the focus in the current debate is whether regulation should be imposed externally through prescriptive and detailed rules or alternatively, by the regulator creating incentive compatible contracts that reward appropriate behaviour. The main responsibility for risk management and compliant behaviour has to be placed on the management of financial institutions. In the ultimate reckoning, it is necessary to recognise that there are distinct limits to what regulation and supervision can achieve. In particular, it does not provide a fool-proof of assured contact of safety and does not absolve either management or consumers of their responsibilities" (December 2002).

The Reserve Bank instituted a supervisory strategy comprising on-site inspection, off-site monitoring and control systems internal to the banks. Steps have also been taken to set up a formal off-site monitoring system (OSMOS). The scope of the new prudential supervision reporting system introduced effective the quarter ended September 1995, has been strengthened over the years. In order to exercise integrated supervision over the financial system, the Board for Financial Supervision (BFS) with an Advisory Council was constituted on November 16, 1994 under the Reserve Bank of India (BFS) Regulations, 1994. The BFS has assumed the supervisory responsibility of all India financial institutions effective April 1995 and registered non-banking financial companies (NBFCs) effective July 1995. In view of repeated bankruptcies in the sector, the Reserve Bank was vested with comprehensive legislative powers in respect of NBFCs in January 1997. While the reform process has attempted to achieve regulatory convergence among various intermediaries, cooperative banks continues to pose a supervisory challenge not only because of the large numbers but also because of multiple reporting authorities.

The cornerstone of the strategy of supervision is the institution and progressive strengthening of prudential norms for income recognition, asset

classification and provisioning besides adopting the Basle Committee framework for capital adequacy. The capital position of Indian banks has improved significantly - while 75 out of 92 banks had a CRAR of above 8 per cent as on March 31, 1996, 91 out of 93 banks recorded a CRAR satisfied the statutory minimum CRAR of 9 per cent by March 2003. It is, however, important not to lose sight of the fact that Rs.22,516 crore was infused as recapitalisation by the Government in respect of public sector banks between 1992-2003. Furthermore, all financial institutions except IFCI and IIBI, had a CRAR much above the stipulated norm of 9 per cent as at end-March 2003. As at end-March 2002, 620 out of 663 reporting NBFCs had a CRAR of 12 per cent and above. Similarly, there was a significant improvement in asset quality. The share of gross NPAs to gross advances for scheduled commercial banks declined from 15.7 per cent as at end-March 1997 to 8.8 per cent as at end-March 2003. Net NPAs as a proportion of net advances also declined from 10.7 per cent in 1994-95 to 4.4 per cent in 2002-03. What is even more encouraging is that this decline had taken place inspite of domestic slowdown, which typically raises the probability of default by borrowers. In fact, during 2002-03, NPAs, gross and net, witnessed an absolute decline for the first time in six years. It is also important to note that the improvement in bank health has been accompanied by an improvement in bank profitability. Net profits of scheduled commercial banks jumped to 1 per cent of total assets during 2002-03 from 0.16 per cent during 1995-96.

The prudential norms are reinforced by disclosure norms, individually as well as in terms of the group, especially following the recommendations of the Committee on Banking Sector Reforms (Chairman: Shri M. Narasimham) (1998). Additionally, several steps have been taken with a view to improve the statutory audit and inspection systems and strengthening the internal defence within the supervised entities through better internal control. Banks and FIs have already put in place asset-liability management systems, typically supervised by an Asset Liability Management Committee (ALCO). The Reserve Bank has also issued guidelines on risk management systems in October 1999, supplemented by guidance notes on credit risk and market risk

management in October 2002, intended to serve as a benchmark to the banks, which are yet to establish integrated risk management systems. Furthermore, a credit information bureau, Credit Information Bureau (India) Limited (CIBIL), has been set up in August 2001 with a view to improve data dissemination. The Reserve Bank has also repeatedly stressed the need for marking investment to the market in order to capture true current values. Banks were initially required to mark to market 30 per cent of their investment portfolio in 1992-93 and the proportion was gradually raised to 75 per cent in 1999-2000. At present, the investment portfolio is required to be classified into 'held to maturity', 'available for sale' (at least annual revaluation) and 'held for trading' (at least monthly revaluation) in accordance with GAAP practices.

The Reserve Bank has been gradually developing a risk-based supervision methodology in line with international best practices. This will facilitate allocation of supervisory resources by focusing them on relatively vulnerable banks and in areas in which the bank is relatively more vulnerable. Besides, the introduction of consolidated accounting and quantitative techniques for consolidated supervision is also being implemented. Banks have been advised to voluntarily build in risk-weighted components of their subsidiaries into their own balance sheets on a notional basis from year ended March 2001. Besides developing a supervisory rating based on the CAMELS (capital adequacy, asset quality, management, earnings, liquidity and systems and controls) methodology for domestic banks and the CALS (capital adequacy, asset quality, liquidity, compliance and systems) methodology for foreign banks for optimising scarce resources, the Reserve Bank has put in place a framework for prompt corrective action (PCA) based on early warning triggers.

A detailed self-assessment of the Core Principles for Effective Banking Supervision in October 1999 showed that the Indian regulations were in line with international norms. Identified gaps have since been addressed with issuance of detailed guidelines on country risk and consolidated accounting. The Advisory Group on Banking Supervision (Chairman: Shri M.S. Verma) (2000), set up by the Standing Committee on International Financial Standards

and Codes, have indicated that the Indian regulations are more or less in line with international standards. The Reserve Bank has been sharpening risk management practices in line with the recommendations of the New Basel Capital Accord, which essentially refines the concept of credit risk and also emphasises the need to account for a variety of related risks, including market risk. At the same time, the Reserve Bank has emphasised the need to tailor the emerging Basel II risk management framework to the particular macroeconomic circumstances, technical skills and technological feasibilities.

Apart from these issues, a feature unique to the Indian financial system relates to the dominance of Government ownership of most of the commercial banks in India. This introduces another element in the relationship between Government and the Reserve Bank. While at a conceptual level, the problem can be resolved, in practice the issue may not be fully worked out. As the owner of the banks, Government must exercise proprietal control on all matters directly relating to ownership whereas the Reserve Bank, as the supervisory authority should exercise the supervisory function in the same way as it would exercise on any bank, whether owned by the Government or not. Supervisory functions would include the prescription of prudential norms and their effective monitoring. Ownership functions, which are unambiguous, relate to the appointment, term and emoluments of chief executives and the constitution of the board of directors. Government and central bank may confront a conflicting situation only if the Government issues directions which may have the effect of going against the prudential and other guidelines issued by the Reserve Bank of India. Deterioration in the quality of loan assets of the nationalised banks in recent years is partly attributable to the fact that explicit prudential norms relating to income recognition, provisioning or capital adequacy were not in place. In fact a firm set of prudential norms will itself act as restraint on the Government in its direction to the banks. The Government has also to redefine its relationship with banks. While exercising strict control over certain aspects, the nationalised banks must be allowed to enjoy a high degree of operational autonomy. A similar situation exists in countries like Italy and Switzerland where the Government owns a fairly large number of banks. Since monetary

stability and financial stability are all inter-woven with each other there has necessarily to be a continuous dialogue between the Government and the Reserve Bank and appropriate conventions need to be established. In this regard, the possible role of the central bank as the "lender of the last resort" assumes special significance.

The international financial community has come a long way since the days of Bagehot who first established the concept of lender of the last resort (LOLR) way back in 1873. Indeed, in recent years, there is an outpouring of research on the LOLR role of the central bank. The LOLR takes different connotations in different situations but the essence is the degree of discretionary provision of liquidity to a financial institution or the market as a whole that the central bank is willing - and in some cases - mandated to make.[44] The Reserve Bank is not explicitly mandated to perform lender-of-the-last-resort functions in Chapter III (Central Banking Functions) of the Reserve Bank of India Act, 1934. Section 18, however, allows an omnibus power to the Reserve Bank to initiate action - including advancing loans repayable on demand and up to a maximum of 90 days - when "…in the opinion of the Bank a special occasion has arisen…".

In the context of contemporary financial crises, one can identify at least four kinds of situations that may threaten financial stability. These include:

- Bank runs;
- Failure of the inter-bank market;
- Failure of illiquid but solvent bank(s); and,
- Failure of one or more insolvent banks.

(a) Bank Runs

In the literature on bank runs, the nature of the deposit contract coupled with the absence of complete information on the assets of the bank(s) are cited as the main reasons for a solvent bank to experience a depositor run. When assets of banks are largely illiquid term loans while their liabilities comprise predominantly unsecured short term deposits, it makes them susceptible to deposit runs. If such banks' assets are not readily marketable, depositor runs

can result in a forced disposal of assets at depressed prices, thus leading an otherwise sound bank to insolvency. Each depositor is aware that if other depositors withdraw early, the bank would have to convert illiquid assets into cash to cover all deposits. Given these "co-ordination problems", any external event which triggers a belief that other depositors will withdraw their deposits results in a run. More recently, the literature has extended the notion of the "co-ordination failure" to cover general creditor-borrower relationship and introduced the concept of incomplete information.[45] It has been argued that depositors are not readily able to observe the financial condition of the bank or its borrowers, since loans are based on private information about its borrowers. Accordingly, any external impulse which raises doubts among depositors whether other depositors will find the bank sound can lead to pre-emptive withdrawals even if they themselves do not share the view about the bank being unsound.

The instances of bank runs in the Indian economy have been rare, especially because the banking industry is dominated by public sector banks and because of wide-spread deposit insurance. The response of the Reserve Bank varies depending on its assessment of the causes of the bank run. When several co-operative banks in Gujarat faced a loss of depositor confidence following the unearthing of irregularities in the securities markets in March 2001, the Reserve Bank took action against several erring banks. On the other hand, when the ICICI Bank faced a temporary cash gap arising out of sudden deposit drawals in Gujarat in April 2003, the Reserve Bank, on request, granted a temporary special liquidity facility of Rs.800 crore based on a favourable assessment. The Reserve Bank also provided lines of credit to the Unit Trust of India in the late 1990s.

(b) Failure of the Inter-bank Market

The inter-bank market is also subject to incomplete or asymmetric information. As such, doubts may arise about the solvency of a bank, which is in fact sound. In such cases, even solvent banks may be unable to borrow from the interbank market. In this regard, it would be desirable for the central bank

with up-to-date supervisory information to lend to banks, which the inter-bank market may have wrongly judged insolvent.

Secondly, the inter-bank market may become more cautious in times of crisis. When the liquidity problem is small, a bank with surplus liquidity would be able to lend to all illiquid banks. However, an individual bank's surplus is, typically, insufficient to lend to all illiquid banks.[46] The surplus bank(s) may be unwilling to place their surpluses in the problem bank(s) given the higher perceived probability of loss. Again, in such cases, there is a scope for the central banks to lend to troubled banks.

Thirdly, liquidity may dry up in the interbank market because each bank refuses to lend if it cannot be confident that it will itself be able to borrow in the interbank market in order to address its own possible liquidity shortage.[47] In such cases, the central bank may have to step in either to provide liquidity or reassurance to banks that liquidity will be available in the case of a shortage.

The Reserve Bank has recently taken several steps to strengthen the inter-bank market. The need for limiting large exposures, which are uncollateralised by their very nature, was especially brought home when a co-operative bank, which had been funding unsustainable positions on call, was not able to meet its commitments in the aftermath of the irregularities in the securities market in April 2001. Bank operations in the call money market is now linked to their owned funds (and in case of borrowing, aggregate deposits). These restrictions have also been extended to primary dealers. Non-bank participants, introduced to broad base turnovers in the early 1990s, are now being phased out to limit the call money market to a purely inter-bank market.

(c) Failure of illiquid but solvent bank(s)

The failure of illiquid but solvent bank(s) is deemed to be the most important rationale for LOLR. A failure of a large bank or a number of smaller banks could result in systemic financial instability. This possibility arises essentially because of ripple effects given the network of inter-bank exposures

of various kinds, the failure of one bank to fulfil its obligations may have an immediate and direct effect on other banks.

There are at least three mechanisms identified in the literature. The first is inter-bank lending which is generally unsecured. Peer monitoring is a potential source of systemic risk *via* inter-bank lending.[48] Secondly, there is the possibility of contagion. The failure of one bank may lead to run on another bank in a domino fashion if depositors perceive similarities between the two - based either on specialisation in type of business or geographic areas. Financial systems with deferred uncollateralised net settlement tend to generate substantial inter-bank exposures whereas RTGS eliminates them. Thirdly, systemic risk may emanate from the operation of settlement and payment arrangements. In this regard the distinction between deferred uncollateralised net settlement and real-time gross settlement (RTGS) becomes important. The issues relating to the payment and settlement system are taken up more fully later.

(d) Failure of one or more insolvent banks

Financial instability resulting from a bank failure is usually characterised by panic in which the behavior of depositors becomes unpredictable.[49] When a bank approaches the central bank for liquidity support, the central bank typically does not have time to verify whether or not the bank is solvent. If the central bank provides liquidity support to a bank which later turns out to be insolvent, it will incur a direct financial loss besides suffering from a reputational cost.

In the case of incipient failure of an insolvent bank, the provision of risk capital rather than liquidity support may need to be considered. The central bank need to weigh the probable cost of providing capital to a possibly insolvent bank against the cost of the instability that its failure could possibly generate.[50] A central bank may want to remain a LOLR and *not* become *owner of last resort* ! However, it may be less costly to restructure an insolvent bank than to allow it to fail. "Banks are usually worth more alive than dead" in the

sense that the liquidation value of a bank is lower than its market value as a going concern.

By insuring banks against the cost of liquidity or solvency problems, the provision of support may result in banks being less concerned than would be the case otherwise to avoid such problems. In other words, there could be a serious moral hazard problem. In particular, if LOLR is given to individual institutions on too favourable terms, it may cease to be last resort lending altogether and banks may come to rely on it as 'a matter of course'. More importantly, the expectation of bail out in an insolvency situation may result in bank managers and shareholders taking excessive risks and depositors not properly monitoring their banks.

A potential method to reduce, if not eliminate, the moral hazard problem is to impose a high penal rate relative to the pre-crisis period. However, that may

i) aggravate the bank's crisis;
ii) send a signal to the market that precipitates an untimely run; and
iii) give the managers incentives to pursue a higher risk-reward strategy in order to repay the higher rate (the so called gamble for resurrection).

Yet another solution to the moral hazard problem is the notion of "constructive ambiguity". By maintaining a degree of uncertainty about which financial institutions receive support and which will be allowed to fail, coupled with procedures for 'punishing' the managers and shareholders of imprudently managed financial institutions can help limit the moral hazard problem.

Constructive ambiguity, by definition, is difficult to pin down and formalise. Moreover, it places a large degree of discretion in the hands of the authorities, which raises a time-consistency problem: While it is in the interest of the authorities to deny their willingness to provide a safety net, they may later find it optimal to intervene. One way out is to have firm rules for disclosure after the event. This was exemplified by the Bank of England's handling of the small banks crisis in the early 1990s where, at the time, it was not made public that the bank was providing assistance to a small number of

small banks. But after the direct systemic threats were averted, the central bank then disclosed its operations to the public and accounted for its actions.

(C) Payments and Settlement System

With advances in data processing and telecommunication, issues relating to payments and settlements system are emerging at the centre stage. Until the 1980s, the term 'payments system' was almost completely absent from central bank reports. Today, there are many who argue that monetary policy functions would not have developed in the way they did without the first revaluation in payment technology.[51]

A payment system comprising a set of rules, institutions and technology for transfer of funds from one financial entity to another constitutes the core of a well functioning financial system. A sound and sophisticated payment system is necessary not only for efficient delivery of financial services but by imparting effectiveness to the transmission of policy induced impulses, it also adds to the potency of monetary policy.

With the spectacular growth in volume of financial transactions and globalisation, the central bank involvement in developing appropriate payments and settlements system is on the rise - the anchoring principle being 'timely settlement'. Securing the final settlement of transactions removes an important source of uncertainty in the financial system and can restrict the excessive concentration of exposures on the financial entities providing settlement services. In this process, central banks can contribute in distinguishing temporary liquidity difficulties from underlying solvency problems and thus help containing the spread of financial strains.

Guided by the notion of timely settlement, central banks in advanced industrial economies seem to focus on four inter related areas:

(a) large-value inter-bank funds transfer system (LVTS),

(b) settlement of securities transactions,

(c) settlement of foreign exchange transactions, and

(d) settlement of derivatives transactions.52

The LVTS is being strengthened by promoting the introduction of real-time gross settlement (RTGS) and the upgrading of multilateral net settlement systems. In order to improve the safety of securities settlement system, the accent is on shortening the time interval between trading and settlement and on the introduction of delivery versus payment system (D*v*P). In respect of foreign exchange transactions, individual banks are being actively encouraged to manage their settlement exposures more effectively. Of late, central banks have been drawing pointed attention to potential weaknesses in the clearing of derivatives and suggesting ways of eliminating them, ***inter alia***, through mechanisms for securing timely intra-day settlement.

In India, we still have miles to go in terms of development of payments and settlements system, but a significant beginning has been made. In the capital market segment, the introduction of scripless trading in the National Stock Exchange (NSE) and on-line trading at the Mumbai, Delhi and other stock exchanges have brought in strong elements of accessibility, efficiency and transparency in operations. These are reinforced by regulatory measures aimed at dematerialisation and even more importantly, introduction of rolling settlement.

The Reserve Bank, like many central banks in emerging market economies, has taken the initiative of payments reforms in both the operational and supervisory capacities, having inherited the functions of the clearing houses set up at the turn of the 20th century, on its foundation. The need for payments reform was, in fact, underscored by the Chakravarty Committee as early as the mid-1980s.

The Mission Statement of the Reserve Bank's Payment Vision statement emphasises the need to establish a modern, robust, efficient, secure, and integrated payment and settlement system for the country. This essentially involves a three-pronged strategy of i) developing an institutional framework to oversee the payments systems, under the aegis of the National Payments Council set up in May 1999, ii) operationalising information technology applications and iii) instituting satellite-based and terrestrial-based communications infrastructure and providing for adequate bandwidth.

Innovations include the introduction of cheque truncation and imaging of cheques to hasten realisation, spread of electronic clearing and funds transfer services (ECS and EFT) to speed up movement of funds, setting up of an automated teller machine (ATM) network to facilitate customer functions. With the INFINET, a wide area based satellite communication and terrestrial lines network using VSAT technology, becoming fully operational and widespread in usage, e-banking encompassing e-payments and Electronic Data Interchange would be easily facilitated. The Reserve Bank is now putting in place a real time gross settlement system (RTGS) in which processing and final settlement of funds transfer instructions take place continuously, reducing *domino* risks of default in place of the present deferred net settlement system.

As the modernisation of the payment and settlement system gathers momentum, there is a need to define the precise role of the Reserve Bank. A question in this regard is whether the persistence of the central bank monopoly over currency and related payment and settlement systems is economically efficient. The case for the central bank is, by and large, justified on the ground that the imperatives of macroeconomic stability in this case are more important than microeconomic efficiency.

Secondly, there is an influential view that combining provision of payment services (apart from settlement of bank funds) and supervision could create moral hazard problems. It is in this context, the Advisory Group on the Payment and Settlement System (Chairman: Shri M.G. Bhide) (2000) recommended that though the RBI should gradually come out of its role as a payment system provider except for settlement of funds after drawing lessons from a cross-country survey on payment system objectives, their management and the relevant legal backing obtained in these countries to draw appropriate lessons from it. A movement towards the segregation of the operation and regulation of payment systems has already been set in motion. The MICR cheque clearing systems technology applications and iii) instituting satellite-based and terrestrial-based communications infrastructure and providing for adequate bandwidth. Innovations include the introduction of cheque truncation and imaging of cheques to hasten realisation, spread of electronic clearing and

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Third, international practices regarding the scope of central bank supervision over the payment system vary. Since the supervisory authority of

the Reserve Bank is not grounded in statute, a draft Payment Systems Bill has been prepared, with provisions relating to the four broad areas of payment systems regulation, regulatory powers to the Reserve Bank for regulation of payment systems, provision of legal basis for clearing services and for netting of clearing settlements and powers to frame regulations.

Finally, a related issue is the impact upgradation of payment systems would have on monetary policy. There are two broad views. The first somewhat cataclysmic view is that central bank money could eventually disappear once debit and credit cards substitute cash in transactions demand and settlements take place through private networks which do not need to take recourse to central bank systems.[53] William MacDonough [54] of the Federal Reserve Bank of New York points out that" … A Few years ago I might have discounted the potential of these new networks but no longer…". The alternate view is that while the central bank balance sheet would certainly shrink as the demand for cash diminishes, the monetary base would survive if central banks could insist on central bank clearing.[55] This would still allow the central banks to modulate the price and quantum of primary money to harness liquidity conditions in the financial market conditions to the macroeconomic objectives.

In the Indian case, this is still an academic issue especially as e-money transactions essentially take place through the banking channel. It is, in this context, that the recent Working Group on Electronic Money (Chairman: Shri Zahir Cama) (2002) recommended that multi-purpose e-money should be permitted to be issued only against payment of full value of central bank money or against credit only by the banks.

Section IV

Concluding Remarks

Central banking is perhaps both an art and science. One needs to judge it in terms of current market practices and existing milieu of the economy under consideration, as well as in terms of analytical foundations. How far the central bankers fulfil the expectations of players in the financial markets/institutions, the academia and the general public? Have they made the 'black box of

monetary transmission' more visible? The answers to these questions are not necessarily the same, and it is here that a central banker needs to do some degree of tight rope walking. This concluding section delves into some ongoing challenges for central banks drawing either from the theoretical literature or from the experience of the past, worldwide.

First of all, there is the challenge of financial sector liberalisation. It is now increasingly clear that while competitive financial markets are necessary for efficient allocation of resources, failures in the financial markets carry serious output costs. Besides domestic disturbances, domestic financial markets are increasingly affected by contagion effects of external crises, over which domestic authorities have very little control. This implies that central banks have to intervene to ensure market stability in order to maintain the macroeconomic balance. This, in turn, calls into question, the ruling paradigm of inflation targeting, which, in its strictest form require monetary policy to be set by inflation numbers. While a number of central banks have attempted to address this problem by broadening their management information system, the changing inter-linkages between the macroeconomic indicators often obfuscate the information content. The matters are complicated further in emerging market economies, because of shifts in the channels of policy transmission.

An associated issue is the number of objectives the central bank can effectively pursue and the forms of intervention through which monetary policy can act. While most monetary theories prefer a single target-single instrument rule, it is increasingly clear that central banks must, at any given time, simultaneously pursue three objectives of price stability, growth and financial stability. While there is very little disagreement that these objectives are mutually reinforcing in the long run, the challenge of contemporary central banking is to manage their short-run conflicts and trade-offs.

Secondly, there is the challenge of ensuring soundness of financial institutions. It is now abundantly clear that the effectiveness of monetary policy action critically hinges on the efficiency of the institutional framework. The supervision of the financial system is getting increasingly complicated with conglomerates - both domestic and foreign, as also by the offshore financial

activities operating in multiple segments of the financial markets. Accordingly, the various segments themselves are getting increasingly integrated with each other. Repeated financial crises - and rapid contagion - have increasingly underscored the need for effective supervision. The problem of central banking today is that the jury is still out on the experiments that are taking place: in terms of various forms of supervision - onsite, off-site and risk-based, and the organisation of supervision - unified, lead regulators and single regulators.

Finally, there is the challenge of information technology. There is, first of all, the need to harness financial markets to fully exploit the advances in communications. Beyond the technological upgradation, is also the issue of formulating an appropriate legal framework, in which transactions could take place. At the same time, the operating procedure of monetary policy has to be increasingly tuned to the emerging new forms of e-transactions.

How does the Reserve Bank fare in terms of these challenges? The Reserve Bank has time and again emphasised the need to maintain stability in financial markets, in the context of financial liberalisation, and especially the risks of contagion emerging from the opening up of the economy. The pursuit of financial stability, in the broadest sense of the term, is increasingly emerging as a policy concern, almost at par with the twin objectives of price stability and growth. While there is little doubt that the Reserve Bank's record of financial stability is indeed impressive, the fact remains that like central banks in most emerging market economies, it has so far enjoyed the first-mover advantage in financial innovations, especially as earlier regulations were often prohibitive in character and markets were not sufficiently developed to initiate sophisticated financial instruments on their own. As markets deepen and instruments - spot and futures develop, the challenges of financial stability are likely to grow sharper requiring further refinements in the speed and effectiveness of the instruments of monetary policy.

The Indian financial system on the whole, is in sound health. The Reserve Bank has been refining its supervisory framework in recent years, buttressing the traditional onsite supervisory practices with off-site supervision and increasingly, risk-based supervision. The process of agglomeration of

financial activities has been paralleled by initiatives in consolidated supervision. The Indian supervisory framework is, by and large, comparable to international norms. There is wide-spread agreement that the ten years of prudential norms have been able to clean up bank balance sheets, but it is equally true that structural rigidities in the banking system, such as high levels of non-performing assets continue to constrain the efficacy of monetary policy. The challenges inevitably sharpen as markets grow competitive, the number and size of private players increase and as noted above, instruments of financial transactions grow more complex.

As regards the challenge of technology, the Reserve Bank has once again spearheaded the innovations in payment systems in the 1990s. The gradual upgradation of settlement systems in financial markets has been successful - as the launch of the T+3 (and subsequent, T+2) rolling settlement systems show. While e-money transactions continue to grow rapidly, they do not, as of writing, appear to pose a challenge to the conduct of monetary policy, especially their relative size remains miniscule and transactions take place through the banking channel. The future challenge of payment systems are likely to emanate from three quarters: the upgradation of technology, *per se*; the development of the associated legal framework and finally, the supervision of the clearing houses, which would emerge as payments systems providers, as the Reserve Bank gradually restricts itself to a regulatory role.

A final challenge relatively unique to the Indian economy (and to a large extent, a number of emerging market economies) is the size of the Government's fiscal deficit and the associated constraint it imposes on the conduct of monetary policy. It is a matter of increasing concern that most deficit indicators have now come to follow an U curve during the 1990s - as most of the gains of fiscal consolidation during the earlier half of the 1990s were dissipated in the later half of the 1990s. The impact of the recent high fiscal deficits was, however, muted by the fact that easy liquidity conditions, enabled by strong capital flows and poor credit off-take fostered a demand for government paper. There is every possibility that the fiscal gap would once again pose a constraint to monetary policy should liquidity conditions change.

The performance of the Indian economy during the 1990s demonstrates its inherent resilience. It cannot but be a matter of satisfaction that the post-reform growth rate has actually marginally accelerated to 6.0 per cent during 1993-94 from 5.8 per cent during the 1980s notwithstanding the rash of external shocks, domestic restructuring and occasional political instability. At the same time, there was a distinct deceleration in the inflation rate to 6.1 per cent from 8 per cent over the two periods. Reflective of the growing investor confidence, capital flows have been strong. The very fact that sterilisation has emerged as the principal challenge of contemporary monetary management in an economy which was once perpetually starved of foreign capital reflects the dramatic changes that have taken place in the 1990s.

There is widespread agreement that the record of the Reserve Bank in monetary management has been, on balance, satisfactory, to say the least. It is perhaps appropriate to conclude that the degree of credibility that the Reserve Bank has earned over time, is in itself likely to be an effective instrument of monetary policy in meeting the challenges of the future.

Notes

1. Rosa Maria Lastra, (1996).
2. Goodhart, Charles (1996).
3. Interview in the Financial Express (August 8, 2003).
4. “Lombard Street” is the *locus classicus* on central banking which coined the expression ‘lender of last resort’, which came to be regarded later as a *sine qua non* of central banking the world over.
5. Padoa – Schioppa, Dott Tommaso (1997), p.1.
6. Greenspan, Alan (1996).
7. Michael Parkin, an ardent monetarist, recounts that when he gave a lecture entitled “Does Money Matter?”, a friend remarked that only an economist could ask such a question!
8. For example, see Alesina (1988).
9. For example, see Clarida *et al* (1999). Leading New Keynesians include George Akerlof, Lawrence Ball, Ben Bernanke, Alan Blinder, Russell Cooper, Andrew John, Gregory Mankiew, Julio Rotemberg, Joseph Stiglitz and Janet Yellen.
10. Besides, the issue of non-neutrality of money, the stickiness of prices brought back the issue of monitoring financial quantities to the centre stage. For example, the focus on credit aggregates returned especially with the realisation that interest rates could be sticky on account of credit rationing.
11. For example, see Solans (2003).

12. See Goldfeld and Sichel (1990) and Ball (2002).
13. For example, see Houben (1999).
14. For example, see Fry, Goodhart and Almeida (1996).
15. For example, see Sarel (1996) and Khan and Senhadji (2001). 16. For example see, Borio *et al* (2003) and BIS Paper No.18 (2003). 17. For example see, Bernanke (2003).
18. See, for example, IMF (2003).
19. The initial literature on policy rules was based on stable relationship between money, income and prices, which allowed central banks to target inflation by fixing a monetary target given a rate of growth through the equation:

$m_t = k_t + p_t + y_t$, where

m is money growth, p is the inflation rate, y the real growth rate and, k, the rate of change of the inverse of income velocity of money taken to be zero.
As financial innovations allowed larger number of transactions to be serviced by a smaller amount of money (*ie*, k turned non-zero), central banks attempted to retain a fix on the macroeconomy through the price rather than the quantum of money. The most prominent of the interest rate based rules was the Taylor rule, which posited that

$i_t = r_t + p_t + l_1(y_t) + l_2 (p_t - p_t)$, where

i is the nominal interest rate to be set by the central bank, r_t the equilibrium interest rate, p the actual inflation rate,
p^t the targeted inflation rate, and y the output gap, *ie*, the difference between the actual and potential output, with the weights l measuring the monetary policy reaction to the deviations of the actual output from the potential and actual inflation from the target.
For example, see Bernanke and Mishkin (1997) and IMF (2003).
21. For example, see Fry (1999).
22. For example, see Ball and Sheridan (2003).
23. Reserve Bank of India (1996).
24. For example, see Bernanke and Gertler (1999).
25. For example, see Cecchetti (1996).

28. For example, see Shiller (1990).
29. For example, see Borio (1997).
31. The size of the Reserve Bank's balance sheet has enlarged from about 50 times the Reserve Bank's paid-up capital to 1,03,968 times by June 2003.
32. For example, see Stella (2002).
33. For example, see Rogoff (1985).
34. For example, see Alesina and Summers (1993) and Blinder (1998).
35. 'Finance Member' as it was then called.
36. The genesis of the practice of automatic monetisation is also quite revealing. While the Reserve Bank is authorised to grant to the Government advances repayable not later than three months from the date of making the

advance, these provisions are enabling and not mandatory. The provisions of the Act do not require the Reserve Bank to finance unlimited deficits of the Government. History reveals that once the Government slipped into deficit during the Second Plan after years of surplus, as a matter of operational convenience, an official of the RBI and an official of the Ministry of Finance agreed in early 1955, that whenever the cash balances of the Government fell below Rs. 50 crore, *ad hoc* Treasury bills would be created to restore the Central Government's cash balances to Rs. 50 crore. The then Finance Minister, Shri T.T. Krishnamachari, did assure the Reserve Bank that it would be the duty of the Finance Ministry to formulate its proposals for borrowing and deficit financing in consultation with the Reserve Bank but as subsequent history shows, a seemingly innocuous operational arrangement opened up the floodgates of automatic creation of *ad hocs* to finance the Government deficit.

37. For example, see Cecchetti and Krause (2001).

38. For example, see Goldstien and Turner (2003) and NBER (2001).

39. For example, see Mishkin (1999).

40. Recognizing the close Nexus between financial sector fragility and macro-economic vulnerability, a joint Fund/bank FSAP was launched in May 1999 as a part of the enhanced surveillance mechanism with the objective of reducing the likelihood and severity of financial sector crises and cross-border contagion through comprehensive assessments of national financial systems. These assessments essentially aim at: (a) identifying strengths, vulnerabilities and risks, (b) ascertaining the financial sector's development and technical assistance needs, (c) evaluating observance and implementation of relevant international standards and codes including an assessment of the ability of this observance in addressing the problems, and (d) helping in the formulation and implementation appropriate policy responses.

41. A set of 12 standards have been developed by different international organisations. These are: (1) monetary and financial policy transparency, (2) fiscal policy transparency, (3) data dissemination, (d) insolvency, (5) corporate governance, (6) accounting, (7) Auditing, (8) payment and settlement, (9) money laundering, (10) banking supervision, (11) securities regulation, and (12) insurance.

42. See IMF (2003b).

43. For example, see Abrams and Taylor (2000).

44. For example, see Freixas, Giannini, Hoggarth and Soussa (1999).

45. For example, see Morris and Shin (1999).

46. For example, see Flannery (1996).

47. For example, see Freixas, Parigi and Rochet (1998).

48. For example, see Rochet and Tirole (1996).

49. For example, see Goodhart and Huang (1999). 50. For example, see Guttentag and Herring (1983). 51. For example, see Davies (1997).

52. Bank for International Settlement (BIS), Annual Report No. 64.

53. For example, see Friedman (1999) and King (1999).

54. For example, see MacDonough (1998).

55. For example, see Goodhart (2000), Freedman (2000) and Woodford (2000, 2001).

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