

Monetary Policy and Exchange Rate Frameworks: The Indian Experience

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I would like to congratulate the International Monetary Fund and Monetary Authority of Singapore for holding this Second High Level Seminar on Asian Financial Integration. This forum provides a good opportunity for all of us to exchange notes, ideas and views on the continuously evolving texture of the international financial architecture, particular as it affects Asia and as Asian financial growth itself impacts the rest of the world. The international financial landscape today is clearly much more complex than it has been in previous decades. In each of our countries monetary policy making has become a delicate balancing act between the imperatives of domestic economic, financial and monetary concerns and the evolving international situation that we have to observe closely on a real time basis and to take it as a given. The rapid changes that technological change, financial innovation and globalisation have brought to financial markets are also forces at work that have to be taken account of. We are all living through interesting times, but our job as central bankers is perhaps to make the world less interesting through the implementation of policies that ensure monetary and financial stability!

Indian economic reforms that have been in process now for a decade and a half seem to have propelled us to a higher growth path of 8 per cent plus GDP growth. Our challenge in monetary policy making now is to ensure that such a growth path can be preserved, or further accelerated, while we provide a macro-economic environment that is characterised by monetary, price and financial stability. As I will document further, among the changes that we have gone through in the last decade and a half, a key transformation is the increasing openness of the Indian economy. Within that, our economic relationships with the rest of Asia are also intensifying through sustained expansion in trade and hence in financial relationships as well. Given the emerging economic demographics in the world, and the shifting economic weight towards Asia, we are very conscious of the need for increasing integration in Asia and how our own role will evolve in the coming years.

Each of the Asian countries has experienced significant changes in the operation of monetary policy in an open economy framework in recent years. Whereas we do face many similar problems, particularly through the impact of international developments such as the international crude oil price hikes, domestic developments continue to carry greater weight in most of our economies in our monetary and macro-economic management approaches. I, therefore, thought that the best thing that I can do today to facilitate discussion is to provide a brief description and evaluation of India's experience as we have implemented significant structural changes in the framework of monetary and exchange rate management in an increasingly market oriented and open economy.

I. Changes in the Monetary Policy Framework

In the aftermath of a balance of payments crisis in 1991, stabilization was undertaken simultaneously with structural reforms over wide areas of the Indian economy. This dramatic change in context fundamentally altered the manner in which monetary policy began to be formulated.

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First, given the reality of multiple goals assigned to the monetary authority, the achievement of macroeconomic and price stability received greater emphasis. Thus the overall objective has had to be approached in a flexible and time variant manner with a continuous rebalancing of priority between growth and price stability, depending on underlying macroeconomic and financial conditions. As we observed the severe costs of financial instability elsewhere, financial stability has ascended the hierarchy of monetary policy objectives since the second half of the 1990s. Strong synergies and complementarities are observed between price stability and financial stability in India. Accordingly, we believe that regulation, supervision and development of the financial system remain within the legitimate ambit of monetary policy broadly interpreted.

Second, the operating framework of monetary policy underwent a transformation during the 1990s. A variety of administered interventions in interest rates and bank credit flow characteristic of the 1970s and 1980s gave way in the early 1990s to a brief period of broad monetary policy rules or 'monetary targeting with feedback'. From the second half of the 1990s, the Reserve Bank of India (RBI) switched to a multiple indicator approach in which high frequency and low frequency indicators are tracked and the information used to draw policy perspectives.

Third, the growing market orientation of monetary policy has tilted the choice of instruments decisively from direct to more indirect and market-based monetary policy measures. On the eve of reforms, statutory pre-emptions in the form of cash reserve ratio (CRR) and statutory liquidity ratio (SLR) requirements locked away nearly 70 per cent of bank deposits, severely eroding the profitability of the financial system and effectiveness of monetary policy. The SLR was brought down from 38.5 per cent of net demand and time liabilities (NDTL) in early 1992 to 25 per cent in mid-1994. The CRR has been progressively reduced to 5 per cent from 15 per cent in 1991.

Fourth, interest rate deregulation was initiated across different segments. In September 1990, all sector-specific and use specific interest rate prescriptions were abolished except for loans below Rs.200,000 which were subject to a minimum rate prescription. In October 1994, the minimum rate prescription was withdrawn and the lending rates of banks were made free subject to the setting of the prime lending rate (PLR). In 2003, banks were advised to announce a benchmark PLR to transparently reflect actual cost of funds. At present, banks enjoy the flexibility of pricing loans and advances using market benchmarks and time varying spreads in an objective and transparent manner. Interest rates on a number of loans and advances, including advances for acquiring residential properties, purchase of consumer durables and the like are determined without reference to the benchmark PLR. Although, savings bank deposit rates continue to be regulated, by 1995, rates on term deposits with maturities of over two years were freed. In the following year, rates on deposits of over one year maturity were freed. By October 1997, the ceiling on rates on deposits of thirty days to one year maturity period was removed. Currently, deposit rates for all maturity are free and the minimum maturity period for term deposits has been reduced to 7 days by 2004. Banks can offer differential rates of interest on wholesale domestic term deposits different from those offered on the retail domestic term deposits. Interest rate ceilings on export credit in foreign currency and non-resident deposits are prescribed but they are transparently linked to international interest rates. The Reserve Bank provides information on its website on the range of deposit rates and lending rates.

We, thus, made a carefully calibrated transition from an administered interest rate regime to one of market determined interest rates over a period of time, while minimising disruption and preserving financial stability. This approach also provided market participants adequate time to adjust to the new regime.

Interest rate deregulation is essential to smoothen the transmission channels of monetary policy and enhance the signaling effects of policy changes. However, some rigidities remain in certain segments hindering the overall efficiency of interest rates in resource allocation. In this context, administered interest rates fixed by the Government on a number of small saving schemes and provident funds is of special relevance as they generally offer a rate higher than corresponding instruments available in the market as well as tax incentives. As banks have to compete for funds with small saving schemes, the rates offered on long-term deposits mobilized by banks set the floor for lending rates at a level higher than would have obtained under competitive market conditions. In fact, this has been observed to be a factor contributing to downward stickiness of lending rates, which has some implications for the effectiveness of monetary policy. This is a reality that we have to appreciate and live with given the absence of social security coverage and adequate safety nets in the country. These small savings schemes administered by the government through the wide reach of post offices, and some through commercial banks, provide small savers access tax savings instruments that are seen as safe and stable. Whereas they do have some impact in terms of blunting monetary transmission mechanisms, they can perhaps be seen as contributing to overall financial stability. Benchmarking these administered interest rates to market determined rates has been proposed from time to time. Whereas some rationalisation in schemes has indeed been done, more progress will depend on the emergence of better social security and pension systems, and perhaps easier access to marketable sovereign instruments.

Finally, all sector-specific refinance facilities have been phased out except export credit refinance. A liquidity adjustment facility (LAF) consisting of repo / reverse repo in government securities has emerged since June 2000 as the main operating instrument of monetary policy. The LAF serves two objectives. First, it has provided greater flexibility in addressing day-to-day liquidity mismatches. Second, it sets a corridor for overnight market interest rates, imparting stability in the market. The LAF rates serve as tools for liquidity management as well as signalling of interest rates. The effectiveness of LAF has perceptibly improved the efficacy of monetary policy transmission.

The evolution of autonomous monetary policy in the 1990s also depended on the effective removal of fiscal dominance that had existed earlier through the automatic monetisation of fiscal deficits. Over the period 1994-97, this subvention was phased out by agreement between the government and the RBI, marking a unique milestone in monetary-fiscal coordination. Another important institutional change was the freeing of the RBI's balance sheet from the burden of exchange guarantees accumulated in the pre-reform era.

Legislative amendments have been carried out, first in 2000 and now in 2006, to strengthen RBI's regulatory jurisdiction over financial markets in terms of the operations of the forex, money and government securities markets. These legislative changes are expected to empower the RBI in terms of instrument independence and hence the effectiveness of monetary policy. In terms of process, we are also proceeding towards greater transparency and consultation, while increasing the frequency of policy reviews from semi-annual to quarterly. Alongside this enhancement in accountability we are also attempting greater transparency in communicating monetary policy. Going forward, the key issue, given the institutional empowerment, is the speed and quality of the transmission of monetary policy impulses. This is the subject matter of the following section.

II. Monetary Transmission

Consistent with these structural changes in the monetary policy framework, improvements in the channels of transmission emerged early on as a concurrent objective in order to enhance policy effectiveness. Accordingly, the RBI simultaneously undertook the development of the domestic financial market spectrum, sequenced into the process of deregulation of interest rates, the withdrawal of statutory pre-emptions, the qualitative improvement in monetary-fiscal coordination and the progressive liberalisation of the exchange and payments regime, including the institution of a market oriented exchange rate policy. The development of financial markets in India encompassed the introduction of new market segments, new instruments and a sharper focus on regulatory oversight.

The Indian money market was fairly underdeveloped till the mid-1980s; dominated by the overnight segment with a narrow base, limited number of participants and administered interest rates since December 1973. In 1987, participation was widened on the lending side and institutions were set up as market makers for the orderly development of the market. Select institutions were allowed to borrow from the money market on a term basis and the ceiling on interest rates was withdrawn in 1989. New instruments like Certificates of Deposit (CDs) and Commercial Paper (CP) were introduced in 1989 and 1990 and interest rates on money market instruments became progressively market determined. In 1998, the RBI initiated a process of developing the overnight money market into a pure interbank market. The phasing out of non-banks from the money market was sequenced over the period 2000-05. Non-banks (except PDs who are allowed to operate in the overnight market) have largely migrated to the new collateralised markets which were developed in consonance. Non-banks can now take recourse to collateralised repos outside the RBI for purposes of borrowing and lending of funds. An innovative money market instrument called the Collateralised Borrowing and Lending Obligation (CBLO) was introduced in January 2003, which provides investors the benefit of guaranteed settlement and an exit option before maturity. Trading volumes in the collateralised money markets have increased substantially. Technological upgradation has accompanied the development of the money market. Efforts are currently underway to introduce screen-based negotiated quote-driven dealings in call/notice and term money markets. Information on overnight rates and volumes would be disseminated by the RBI in order to enable market participants to assess the liquidity conditions in an efficient and transparent manner.

The Indian foreign exchange market has been widened and deepened with the transition to a market-determined exchange rate system in March 1993 and the subsequent liberalisation of restrictions on various external transactions leading up to current account convertibility under Article VIII of the Articles of Agreement of the International Monetary Fund in 1994. Since the mid-1990s, banks and other authorised entities have been accorded significant freedom to operate in the market. Banks have been allowed freedom to fix their trading limits and to borrow and invest funds in the overseas markets up to specified limits. They have been allowed to use derivative products for hedging risks and asset-liability management purposes. Similarly, corporates have been given flexibility to book forward cover based on past turnover and are allowed to use a variety of instruments like interest rates and currency swaps, caps/collars and forward rate agreements. The swap market for hedging longer-term exposure has developed substantially in recent years. A number of steps have also been taken to liberalise the capital account covering foreign direct investment, portfolio investment, outward investment including direct investment as well as depository receipt and convertible bonds, opening of Indian corporate offices

abroad and the like. In recent years, the Reserve Bank has delegated exchange control procedures to banks and authorised dealers to such an extent that there is hardly any need to approach the Reserve Bank for any approval. These reforms are being reflected in vibrancy in activity in various segments of the foreign exchange market with the daily turnover over US \$ 33 billion (as at the end of April 2006).

The government securities market was moved to an auction-based system in 1992 to obtain better price discovery and to impart greater transparency in operations. This was a major institutional change which, along with the freeing of the money and foreign exchange market and the phasing out of automatic monetisation of fiscal deficits, created a conducive environment for the progressive deregulation that was to follow. The setting up of well capitalised Primary Dealers (PDs) for dealing in Government securities followed in 1995, backed up by the introduction of Delivery *versus* Payment (DvP) for Government securities, adoption of new techniques of floatation, introduction of new instruments, particularly Treasury Bills of varying maturities and repos on all Central Government dated securities and Treasury Bills of all maturities by April 1997.

It may be mentioned that since April 1992, the entire Central Government borrowing programme in dated securities has been conducted through auctions. In 2005 the Reserve Bank has put in place an anonymous order matching system to improve price discovery, and settlement procedures for mitigating risks. To further activate trading and improve the depth of the securities market, the introduction of a "when issued" market has also been announced recently. All these measures have brought about significant changes and a new treasury culture is developing, contributing to the formation of the term structure of interest rates. The demand for government securities is now driven more by considerations of effective management of liquidity rather than by statutory liquidity requirements. Efforts are being made to improve the retail holding of government securities since the Government securities market still lacks in depth and is dominated by banks and financial institutions often exhibiting uni-directional perceptions about liquidity. To attract retail participation in government securities market, one of the foremost tasks ahead is to create an environment that provides a safe and secure investment avenue for small investors with adequate returns and liquidity. In this context, the RBI is emphasising the provision of demat holding facility for non-institutional retail/small investors for risk mitigation in scrip losses or settlement of deals in the secondary market. Non-competitive bidding has also been introduced since January 2002 for direct access to the primary issues for non-sophisticated investors.

The corporate debt market in India has been in existence since independence in 1947. It was only since the mid - 1980s, however, that state owned public enterprises (PSUs) began issuing bonds. In the absence of a well functioning secondary market, such debt instruments have remained highly illiquid and unpopular among the investing population at large. Corporates continue to prefer private placements to public issues for raising resources. The dominance of private placement can be attributed to several factors, *viz.*, ease of procedures and operation of private placement, considerably higher costs of public issues, and higher subscriptions for private placements. Financial institutions have tended to dominate public issues in the primary corporate debt market. The secondary market for corporate debt has suffered from lack of market making resulting in poor liquidity, and a tendency on the part of institutional investors to hold securities to maturity and consequent reduction in market supply of securities.

Several measures have been taken in the recent past to transform the corporate debt market in India. Some of these measures include de-materialisation

and electronic transfer of securities, rolling settlement, introduction of sophisticated risk management, trading and settlement systems. Towards the end of 2003, steps were also taken to reform the private placement market. All these measures are expected to improve the functioning of the corporate debt market in India. It needs to be recognised, however, that it has been difficult to develop the corporate bond market everywhere. Just under half the world's corporate bond market is in the US, and another 15 per cent in Japan. Among other countries, the UK has a long standing bond market, but the European one is still developing. Among developing countries, it is perhaps only South Korea that has a reasonably well developed bond market. The corporate debt market in India has a large potential to raise resources particularly for infrastructure projects, housing and for corporate and municipal needs. Appropriate institutional processes, development of various market segments including for mortgage – backed securities and bond insurance institutions for credit enhancement, easing cost and abridgment of disclosure requirements for listed companies, rating requirements for unlisted companies, a suitable framework for market making, consolidation, centralized data base on primary issues for wider public information, real time trade reporting system for dissemination of information, access to RTGS and state of the art technology would provide a strong impetus for corporate bond markets to grow in India.

A key area of emphasis in the development of financial markets in India is the provision of the appropriate technological infrastructure for trading, clearing, payment and settlement. Since the late 1990s, the establishment of a modern, robust payments and settlement system consistent with international best practices has emerged as an important objective of the RBI. A three-pronged strategy of consolidation, development and integration is pursued in this regard. Consolidation revolves around strengthening the existing payment system by providing the latest levels of technology. The developmental dimension includes real time gross settlement, centralised funds management, securities settlement and structured financial messaging. Other key elements in the technological content of market development are electronic clearing (introduced in 1994), electronic funds transfer (1996), quick funds transfers with centralized settlement in Mumbai (2003), negotiated dealing system (NDS), screen based order matching system (2002) for electronic reporting of trades and online dissemination system and submission of bids for primary issuance of government securities and a Clearing Corporation of India Ltd. (CCIL), promoted by banks, financial institutions and primary dealers for clearing and settlement of trades in foreign exchange, government securities and other debt instruments, commenced operations in April 2001. The CCIL acts as a central counterparty (CCP) to all transactions and guarantees settlement of trades executed through its rules and regulations eliminating counterparty risks in adherence to international best practices. Oversight over the payments and settlement system is vested in a National Payments Council, and Board for Payment and Settlement Systems established within the RBI.

As may be seen from this brief description of the various measures that had to be taken to develop the market and institutional framework for efficient monetary policy transmission, development of markets is an arduous and time consuming activity that requires conscious policy making and implementation. Markets do not develop and function overnight: they have to be created, nurtured and monitored on a continuous basis before they start functioning autonomously.

III. Exchange Rate Management

The regime shift in the conduct of exchange rate management in India that occurred in the early 1990s had a significant impact on the monetary policy framework.

Coincidentally, the 1990s were characterised by bouts of currency turmoil and contagious financial crises in many parts of the world, developing, transitional and developed alike. Monetary policy became increasingly complex. For the majority of developing countries, including those in the Asian region, which continue to depend on export performance, appropriate exchange rate determination is of great importance as volatility imposes significant real effects in terms of fluctuations in employment and output and the distribution of activity between tradeables and non-tradeables, fluctuations that are difficult to absorb in such economies. In the fiercely competitive trading environment where countries seek to expand market shares aggressively by fiercely compressing margins, volatility in the exchange rate can easily translate *ex ante* profits into *ex post* losses along with the deleterious collateral impact on employment and economic welfare. The determinants of exchange rate behaviour however, seem to have altered dramatically. Earlier, factors related to changes in merchandise trade flows and the behaviour of commodity price inflation were well understood and provided guidance for operating monetary policy. In this environment, monetary policy principally targeting low inflation was consistent with exchange rate changes under purchasing power parity. These traditional anchors of understanding have been swept away by the vicissitudes of capital movements, with currencies often moving far out of alignment of the traditional fundamentals. Moreover, it now appears that expectations and even momentary reactions to the day's news are often more important in determining fluctuations in capital flows and hence it serves to amplify exchange rates volatility.

Furthermore, the liquidity impact of capital flows has become an even more important problem for monetary management than it was the case hitherto. The globalisation of financial markets, even if imperfect, has now magnified the impact of monetary policy actions taken in one country on others. The policy accommodation pursued until recently by the US had a global impact, affecting the rest of the world with an abundance of liquidity. Low interest rates in the US have encouraged capital to flow into emerging market economies. This has resulted in a large build-up of foreign exchange reserves and excessive domestic liquidity in many countries in Asia, amplifying the Fed's policy stance. Complicating the environment of monetary and exchange rate management further, there is now increasing evidence that exchange rate pass-through to domestic inflation has tended to decline from the 1990s across a number of countries. Inflation has turned out to be much less sensitive to exchange rates but has tended to equilibrate around the globe (Mohan, 2005).

In India, the exchange rate regime up to 1990 is best described as an adjustable nominal peg to a basket of currencies of major trading partners with a band. After the balance of payment crisis of 1991 a two-step downward adjustment in the exchange rate was undertaken in July 1991 and then followed by a transitional 11-month period of dual exchange rates before a market-determined exchange rate system was set in place in March, 1993. Since then, the exchange rate is largely determined by demand and supply conditions in the market. The exchange rate policy in recent years has been guided by the broad principles of careful monitoring and management of exchange rates with flexibility, without a fixed target or a pre-announced target or a band, while allowing the underlying demand and supply conditions to determine the exchange rate movements over a period in an orderly way. Subject to this predominant objective, the exchange rate policy is guided by the need to reduce excess volatility, prevent the emergence of destabilising speculative activities, help maintain adequate level of reserves, and develop an orderly foreign exchange market. The Indian market, like other developing countries markets, is not yet very deep and broad, and can sometimes be characterised by uneven flow of demand and supply over different periods. In this situation, the Reserve Bank of India has been prepared to make sales and purchases of foreign currency in order to even

out lumpy demand and supply in the relatively thin forex market and to smoothen jerky movements. However, such intervention is not governed by a predetermined target or band around the exchange rate. As the foreign exchange exposure of the Indian economy expands, the role of such uneven demands can be seen to reduce. While it is not possible for any country to remain completely unaffected by developments in the international exchange markets, fortunately we were able to keep the spillover effects of the Asian crisis to a minimum through constant monitoring and timely action, including recourse to strong monetary measures, when necessary, to prevent the emergence of self-fulfilling speculative activities (Mohan, 2005).

The experience with capital flows has important lessons for the choice of the exchange rate regime. The advocacy for corner solutions – a fixed peg without monetary policy independence or a freely floating exchange rate retaining discretionary conduct of monetary policy – is distinctly on the decline. The weight of experience seems to be tilting in favour of intermediate regimes with country-specific features, without targets for the level of the exchange rate and exchange market interventions to fight extreme market turbulence. In general, emerging market economies have accumulated massive foreign exchange reserves as a circuit breaker for situations where unidirectional expectations become self-fulfilling.

Recent information suggests that India's integration with the world economy is getting stronger, with implications for the conduct of exchange rate policies in the future. Trade in goods (i.e., exports *plus* imports) as a proportion of GDP increased from 14.6 per cent in 1990-91 to 28.9 per cent in 2004-05; while gross current account receipts and payments as percentage of GDP increased from 19.4 per cent to 45.0 per cent over the same period, reflecting the growth in buoyant Indian trade in services. Correspondingly, in the capital account, gross flows (total inflows *plus* outflows) have doubled as a proportion of GDP: from 12 per cent in 1990-91 to 24 per cent (US\$ 167 billion) in 2004-05. Thus, the Indian economy is substantially exposed to the international economy and hence increasingly subject to the vicissitudes of international financial developments. There is also growing evidence pointing to a distinct strengthening of India's balance of payments, benefiting from the equilibrating properties of a more flexible exchange rate regime. Recent developments in the balance of payments seem to indicate that the Indian economy is entering an expansionary phase of the business cycle. A noteworthy feature is the re-emergence of a current account deficit (CAD) since 2004-05 after a hiatus of three years of surpluses, preceded by a decade of CADs averaging 1 per cent of GDP. Oil imports, which account for about a quarter of total imports, have recorded high growth rates and contributed 47 per cent to the change in the current account deficit in 2004-05 over the previous year. The elevated levels of international crude prices that rule currently have affected countries across the globe and India has been no exception. Apart from the impact of high crude oil price, the significant growth in merchandise trade deficit in 2004-05 and 2005-06 was also caused by the sizeable growth in non-oil goods imports, emanating from capital goods, export-related inputs and a range of intermediate goods all of which have an intrinsic growth linked character. Besides, the large expansion in imports is also spurring vigorous export growth. In this sense, the merchandise trade deficit has acquired a growth leading dimension and is thus a positive feature of the Indian economy.

As the current account deficit widens, and we contribute to the unwinding of global imbalances at the margin, we have to give consideration to the sustainable magnitude of the current account deficit. This sustainability depends on the perceived stability of capital flows which, in turn, would be dependent on the assessment of growth prospects of the economy by foreign lenders and investors. Whereas it is understood that a more open economy that has access to international capital flows

can run a higher current account deficit than a less open one, our approach to this issue will remain informed by appropriate caution in the interest of financial stability. The acceleration in overall growth and the re-emergence of current account deficit since 2004-05 has been accompanied by a greater degree of openness. The growth in current payments has been accompanied by healthy growth in current receipts - in both goods and services, thus providing for some confidence in the sustainability of current trade patterns and financial stability. Current receipts pay for up to about 90 per cent of current payments.

Within current receipts, merchandise exports are being rapidly exceeded in terms of growth rates by software earnings and a wide variety of business services. Besides, private transfer receipts, comprising mainly remittances from Indians working abroad, seemed to have acquired a permanent character and have risen steadily to constitute around 3 per cent of GDP in recent years, impervious to exchange rate movements. It needs to be mentioned that oil price increases typically result in higher remittances to India as well as non-resident deposit inflows in the capital account, producing non-linearity in the impact of international crude prices on the Indian economy. These factors strengthen the capability of the Indian economy to sustain higher CADs than in the past. Net capital flows have regularly exceeded the CAD requirements by a fair measure, enabling large accretions to the reserves. In fact, the expansion in the CAD during 2005-06 has masked the strength of the capital flows.

With such an increase in exposure to the international economy, trade and other current account flows, along with capital flows, the Indian economy is entering uncharted territory, although a healthy one from all accounts. We have found that our approach of broad market determination of the exchange rate, flexibility, combined with intervention as felt necessary, has served as well so far. As we proceed we feel confident that we continue in a similar direction in the future, while constantly monitoring the situation to make any changes that may become desirable.

IV. Dealing with Change

Recent developments have posed testing challenges to the conduct of monetary and exchange rate management in India as in the rest of the world. While world GDP growth is well above its long-run average of 3.8 per cent, there is a growing incidence of large systemic shocks. Though price stability has been maintained in the face of the oil shock, risks loom large in the form of lagged second order effects of oil price increases, geopolitical tensions, the probability of disorderly and rapid adjustment of current account imbalances and the risks emanating from the housing market, particularly when the cycle turns down. The outlook for the oil economy in the near term appears to be tilting in favour of higher prices and greater volatility. Global imbalances widened further during 2005 in an environment of rising interest rates worldwide and ample liquidity in global financial markets. The current account deficit of the US surpassed US \$800 billion, matched by increased surpluses elsewhere, particularly in Europe, East Asia and oil-exporting countries. While the deficit is still increasing, the location of the surplus appears to be changing recently. The current account surpluses of the oil-exporting countries of the Middle East are close to those of emerging Asia. Less than a third of the combined current account surplus of the oil-exporting countries has been reflected in their foreign exchange reserves, which rose, by about US \$ 90 billion in 2005. There are some indications that the oil surpluses have been deployed in more diversified avenues through new investment agencies and oil stabilisation funds which could be invested in assets other than bank deposits. In an environment of above trend growth in the world economy, unusually low volatility in financial markets and strong profitability in banking systems in most countries, investors have been prepared to purchase risky assets at relatively high prices in

2005. Monitoring where the risk lies has become very difficult for the regulators, due to emergence of large conglomerates, sophisticated market instruments such as derivatives and presence of players like hedge funds. In this environment, any volatile and unpredictable changes in asset prices could become a source of financial instability. To maintain confidence in the financial system, it is necessary to prevent shocks from spreading through contagion.

Private capital inflows to emerging market economies increased in 2005; market access continued to be favourable and external financing costs dropped sharply. There have been low levels of credit spreads on bonds issued by emerging markets and companies with low credit ratings, which are around their lowest levels since 1997. Partly in response to these very positive borrowing conditions, an increasing number of emerging market countries have been able to issue long-term debt in their own currency and thereby reduce foreign currency exposure and rollover risk. Of the major central banks, the US Federal Reserve has raised its policy rate by 25 basis points each on sixteen occasions from 1.0 per cent in June 2004 to 5.0 per cent by May 2006. The ECB and Bank of England are hinting at policy rate increases in the coming months.

Under these conditions, certain stylised aspects of exchange market behaviour need to be kept in mind while dealing with monetary and exchange rate management from a medium term perspective. First, the day-to-day exchange rate movements in the short-run in foreign exchange markets have little to do with the so-called 'fundamentals' or a country's capacity to meet its payments obligations, including debt service. Second, in view of inter-bank activity, which sets the pace in forex markets, transaction volumes in "gross" terms are several times higher, and more variable, than "net" flows. Third, developing countries generally have smaller and localised forex markets where nominal domestic currency values were generally expected to show a depreciating trend, particularly if relative inflation rates were higher than those of major industrial countries. In this situation, there is a greater tendency among market participants to hold long positions in foreign currencies and to hold back sales when expectations are adverse and currencies are depreciating, than the other way round when currencies are appreciating and expectations are favourable. In recent years, exchange rate trends have been more mixed despite the existence of inflation differentials. Consequently, we are also seeing change in such behavioural trends. Fourth, the tendency of importers/exporters and other end-users to look at exchange rate movements as a source of return without adopting appropriate risk management strategies, at times, creates uneven supply-demand conditions, often based on "news and views". A self-sustaining triangle of supply demand mismatch, increased inter-bank activity to take advantage of it and accentuated volatility triggered by negative sentiments, not in tune with fundamentals can be set in motion, requiring quick intervention/response by authorities.

Against this back ground, 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. Despite several unexpected external and domestic developments, India's external situation continues to remain satisfactory. Our experience has also highlighted the importance of building up foreign exchange reserves to take care of unforeseen contingencies, volatile capital flows and other developments, which can affect expectations adversely as the emerging economies have to rely largely on their own resources during external exigencies (or contagion) as there is no international "lender of last resort" to provide additional liquidity at short notice on acceptable terms. Thus, the need for adequate reserves is unlikely to be eliminated or reduced even if exchange rates are allowed to float freely.

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 and movements in the repatriable foreign currency deposits of non-resident Indians. Taking these factors into account, India's foreign exchange reserves are at present comfortable, although pursuing this policy on a long-term basis raised the issue of sustainability of such strategy especially under the backdrop of uninterrupted inflows of foreign capital, optimum sterilization of such flows, appropriate instrument and cost of pursuing sterilization and associated liquidity management. In fact, the conduct of monetary policy and management in the context of large and volatile capital flows has proved to be difficult for many countries.

A key issue facing India amidst these sweeping winds of change is to work out the policy mix of instruments for liquidity management consistent with the monetary policy framework and operating procedures. In this context, the Indian experience with sterilisation and liquidity management is somewhat unique as compared with the approach followed by some other central banks in Asia. For instance, central banks in Indonesia, Korea, Malaysia, the Philippines, and Thailand all sterilised inflows in different ways. The Bank Indonesia (BI) employed Open Market Operations (OMOs) by issuing its own paper and also managed its budgetary operations in a way that built up large deposits with the bank Indonesia. While the Bank of Thailand (BOT) conducted OMOs to sterilize inflows, central bank bills were used extensively by the Bank of Korea (BoK) which later used quantitative controls and discounting policies to dampen domestic credit. Bank Negara Malaysia (BNM) historically deployed government and other deposits with the central bank to impact monetary liquidity. On the other hand, China sterilised capital inflows through issuance of central bank bills apart from using other instruments like reserve requirements, differentiating prudential treatment of banks based on capital strength, etc.

In the Indian context, sharp shifts in capital flows and hence in liquidity have marked the period during 2001-06 and can be explained as partly frictional and arising from seasonal and transient factors and partly cyclical, associated with the pick up in growth momentum and the induced demand for bank credit. This has warranted appropriate monetary operations to obviate wide fluctuations in market rates and ensure reasonable stability consistent with the monetary policy stance. In fact, the Indian experience illustrates the tight link between external sector management and domestic monetary management. What may be small movements in capital flows for the rest of the world can translate into large domestic liquidity movements distorting market exchange and interest rates in a developing country. Moreover, the absorption of external savings is also dependent on the stage of a business cycle that a country may be going through. In our case, the early years of this decade were characterised by low industrial growth and hence the absorptive capacity of the country was constrained. As we have entered an expansionary phase the current account has widened and the potential for greater absorption has manifested itself. Just as foreign exchange reserves can act as a shock absorber, on the external front, we had to look for a parallel liquidity shock absorber for domestic monetary management.

In this context, a new instrument, named as the Market Stabilisation Scheme (MSS) has evolved as a useful instrument of monetary policy to sustain open market

operations. The MSS was made operational from April 2004. Under this scheme, which is meant exclusively for liquidity management, the Reserve Bank has been empowered to issue Government Treasury Bills and medium duration dated securities for the purpose of liquidity absorption. The scheme works by impounding the proceeds of auctions of Treasury bill and Government securities in a separate identifiable MSS cash account maintained and operated by the RBI. The amounts credited into the MSS cash Account are appropriated only for the purpose of redemption and / or buy back of the Treasury Bills and / or dated securities issued under the MSS. MSS securities are indistinguishable from normal Treasury Bills and Government dated securities in the hands of the lender. The payments for interest and discount on MSS securities are not made from the MSS Account, but shown in the Union budget and other related documents transparently as distinct components under separate sub-heads. The introduction of MSS has succeeded, in principle, in restoring LAF to its intended function of daily liquidity management. Since its introduction in April 2004, the MSS has served as a very useful instrument for medium term monetary and liquidity management. It has been unwound in times of low capital flows and greater liquidity needs and built up when excess capital flows could lead to excess domestic liquidity.

Going forward, there will be a continuous need to adapt the strategy of liquidity management as well as exchange rate management for effective monetary management and short-term interest rate smoothing. This issue becomes even more relevant under a freer regime of capital flows. Global developments are expected to have an increasing role in determining the conduct of monetary and exchange rate policies in our countries. In an environment of global convergence, retaining independence of monetary policy may become increasingly difficult, calling for hard choices in terms of goals and instruments.

V. Financial Integration in Asia: Some Issues

In an era of increasing globalisation, discussion on monetary policy and exchange rate frameworks cannot be done in isolation. It is, therefore, pertinent to place the Indian experience in the context of Asian economic co-operation. Recent years have witnessed an expansion of the channels of integration within the Asian region, built primarily on strong macroeconomic performance. Asia accounts for more than 30 per cent of world GDP and contributes half of global growth. While the Asian Development Bank placed the aggregate GDP growth for the region at 7.3 per cent in 2004, the IMF in its World Economic Outlook, projected growth for emerging Asian economies at 7.3 per cent for the year 2005 too. Inflationary pressures were experienced in some of the Asian countries during 2004 and 2005, but were moderate in the context of high growth and oil prices. GDP growth in emerging Asia is driven by robust export growth as well as strong domestic demand. Sustained rapid growth in recent years and rising living standards have been accompanied by a dramatic increase in Asia's shares in world exports and raw material consumption. Clearly, globalization has had a major impact on Asia's role in the world economy as there is an ongoing transformation in the composition of production and trade with rising comparative advantage globally. In particular, economies with relatively high wage costs are shifting toward higher value-added products, including services, within the region. Furthermore, financial flows within the region have become more significant, intermediating savings within Asia, as well as channelling them to other parts of the world. The emerging markets of Asia, with their dynamic and skilled work force, are well placed to take advantage of new technologies and seize opportunities in the international market place to become a major engine of growth in the global economy. Strong economic performance has been accompanied by an accumulation of foreign

exchange reserves to build up resilience against external shocks (Reserve Bank of India, 2006).

As the Asian region has developed, intra Asian trade has gathered momentum leading to even higher economic integration within the region. This has been aided by the existence of ASEAN, which has progressively led to lowering of trade barriers among its member countries. As the ASEAN region has developed and gained in confidence trade links with the more developed countries of Japan, China and Korea have also intensified, along with more structured discussions towards the formation of PTAs and FTAs within the region. While this trade integration has intensified over time progress on financial integration has been limited. Understandably, there is now increasing discussion on the nature and prospects of progressive financial integration commensurate with degree of economic integration observed in the region.

Although financial integration in Asia is possibly lagging trade integration, the initiatives taken on this front are getting stronger. Central bank cooperation in Asia through a network of swaps was formalised in Chiang Mai Agreement of 2000 among central banks in East Asia. Among others, this led to two parallel movements – one in South Asia in the form of the SAARC Initiative and the other in East Asia reflecting the ASEAN+3 Initiative. The idea of having an integrated financial system so as to provide viable 'safety net' in times of crisis germinated quite strongly. More recently, there has been some discussion on the adoption of an Asian Currency Unit to avoid the volatility in intra-Asian currency movements and to create one of the principal currencies of the world. In this context, it is important to revisit first principles.

India's engagement with South East and East Asia is also on the upswing. The share of exports to developing Asia in India's total exports more than doubled from about 14 per cent in 1990-91 to almost 30 per cent in 2005-06. The corresponding share of the region in India's imports also increased from 14 per cent to 21 per cent during this period. In recent years, China has emerged as a major trading partner for India, accounting for 6.0 per cent of total exports and 7.4 per cent of total imports in 2005-06. In recognition of this expansion of economic engagement with the rest of Asia, as Governor Y.V. Reddy had announced at the First IMF-MAS Seminar held here last year, we have already implemented computation of the new six country real effective exchange rate (REER) index. This new index introduces two new currencies, the Remnimbis and the Hong Kong Dollar to supplement the earlier currency basket that includes the US Dollar, Pound Sterling, Euro, and the Japanese Yen (Reddy, 2005).

In the post-Asian crisis period, several Asian economies have adopted different types of intermediate exchange rate regimes with a growing preference for relatively more flexible exchange rates than before. In this respect, the key issue is how much of such flexibility is envisaged as optimal? What are the instruments to manage exchange rates? It is also necessary in this regard to recognize and re-assess the optimal level of 'insurance' that is provided by the foreign exchange reserves that is needed against potentially volatile and disruptive capital flows. Finally, recent sharp upward movements in oil prices in an era of heightened uncertainty may evoke differential responses on account of country-specific factors. It is in this milieu that the pragmatic choice of instrument of integration in the region has been regional trade agreements, best viewed as an expression of enlightened self-interest. The move towards regionalism has been catalyzed by the growing consensus that the enhancement of public good requires coordinated action and belief in overlapping fortunes. India has also entered into various regional economic cooperation, free/preferential trade agreements and bilateral investment treaties with its Asian neighbours.

Drawing from the experience and lessons of other regional blocks, it is important to take cognizance of certain issues for successful functioning of cooperative monetary arrangements as envisaged under any common currency unit. While a single currency has worked well in the context of the trading bloc centered on the USA, lessons can also be drawn from the recent experience of monetary and economic integration in Europe. The history of European monetary integration dated back with the creation of trading bloc - European Economic Community (EEC) - in 1958, which took the shape of the European Monetary System (EMS) in 1979 with a fluctuating exchange rate band among member countries. Currently, there are 12 countries that comprise a common Euro area (monetary union), although 25 countries constitute the member states of the European Union (EU). Some of the EU member countries are actively trying to be the part of the Euro area by fulfilling the four broad convergence criteria stipulated. The objective of monetary union in the euro area was clearly defined in the Maastricht Treaty and the primary objective of the European Central Bank (ECB) is to maintain price stability in the euro area. Price stability was then defined by the European Central Bank as an inflation rate of below but close to 2 per cent over the medium-term. The integration was largely facilitated by an institutional framework that had evolved over more than forty years.

It may be useful to note that in the United States, which may itself be seen as a large currency area, a single currency works because of the existence of labour mobility across regions and wage and price flexibility, within and across regions, i.e., due to real factors which determine the real effective exchange rate (REER) and long-run competitiveness. On the other hand, in Europe, introduction of a single currency met with some resistance due to language and cultural differences that historically limit labour mobility and wage flexibility. Labor unions are more powerful in Europe than in the United States, making real wages sticky. Moreover, with product market competition less intense, European producers are more likely to pass wage costs to consumers in the form of higher prices. Reflecting these factors, unemployment in the European countries appears to be more persistent in nature than in the US. Suffice it to conclude that the jury is still out on the merits of a common currency as it does reduce the flexibility of an economy to adjust to real sector changes (as is being seen in Europe). This in turn, can cause differential effective overvaluation/undervaluation of the currency across different countries within a currency union and possible erosion of long-term competitiveness of affected countries.

Relative to the Euro area, the Asian region exhibits much more pronounced diversity in economic structure, stages of development, demographic features, social and political systems and even lower mobility of factors of production, particularly labour. The successful operation of any currency area is dependent on wage flexibility and labour mobility across regions. With the existence of a common external exchange rate, effective internal flexibility in the "exchange rate" for a particular region can be achieved by the lower or higher wages, as necessary, relative to the rest of the currency area. Equilibration is then achieved through labour mobility that responds to these inter-regional wage differences. Furthermore, as has been found in Europe, through the imposition of the Maastricht criteria, commonality in fiscal conditions across countries is desirable for effective area-wide monetary policy. Any movement towards greater monetary and exchange rate cooperation among Asian countries will need to pay explicit attention to this set of difficult issues.

Meanwhile, there is no doubt that greater financial cooperation that leads to greater trade facilitation and fosters greater capital market linkages among Asian countries would be a move in the right direction. As there is greater variation among Asian countries with regard to the existence of current account surpluses and deficits, greater capital market linkage through the development of bond markets, trading and

settlement systems and the like, will enable surplus countries to invest in the deficit countries within the region. Thus Asian savings would have the potential of being put to use for fostering growth within the region.

VI. Conclusion

Cooperation among central banks around Asia is likely to play a key role in nurturing a broad – based mandate for integration. This has been in evidence as it helps in exchanging views and information on various subjects of common interests. Central bank cooperation helped in resolving the Mexican crisis of 1994. The most recent and ultimate form of central bank cooperation was achieved in 1998 when the European Central Bank (ECB) was created as the sole authority over monetary policy among its 11 members and with the creation of a new common currency in January 1999. On the other hand, according to some experts, central bank cooperation leads to moral hazard and, therefore, tampering with otherwise efficient market determined exchange rates, trade flows and general function of the market forces.

Nevertheless, in the context of our region, central bank cooperation is indispensable. In fact, with improvements in transportation and communication, some commonality in world view on the operations of the economy, and enhanced institutional arrangements, central bank cooperation has grown extensively. The increased degree of global integration and liberalization of capital movements would serve to be a dominant factor in encouraging cooperation amongst central banks in our region. Furthermore, a major implication of growing financial and trade integration, globally as well as within the region, is the greater susceptibility of monetary policy and exchange rate management to global factors relative to domestic factors, necessitating increased co-ordination in macro-economic management. The perceived benefits and costs of economic integration of a country within a larger region have to be seen in the context of the economy's resilience to possible shocks in an open economy framework. The ability of a country to derive benefits from economic cooperation in the presence of volatility in international capital flows is ultimately contingent upon the quality of its macroeconomic framework and institutions.

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rate, a national monetary policy and free capital mobility; it is, therefore, held that the best choice is to give up the fixed exchange rate and thus adopt a flexible one [Dornbusch and Park 1999].⁴ Indian Experience: Stylised Facts. Over the last five decades since independence the exchange rate regime in India has transitioned from a par value system of the evolution of exchange rate regimes and their corresponding monetary policy frameworks (table 6.2).⁴ Through the debt crisis of 1982 and up to the implementation of the Brady Plan in 1989-90, a number of countries had in place stringent and comprehensive capital controls on a variety of foreign flows.⁸ During this period, the four larger economies in Latin America experienced a severe exchange rate and/or banking crisis: Mexico, 1994-95; Argentina, 1995; Venezuela, 1994; and Brazil, 1999.¹⁰ By construction of the framework, inflation targeting along with increased flexibility of exchange rates implies that the central bank is allowed to intervene to control drastic changes in the exchange rate if those changes are deemed to conflict with the targeted inflation rate (or range).

Abstract We examine the strength of monetary transmission in India, using a conventional structural VAR methodology. We find that a tightening of monetary policy is associated with a significant increase in bank lending rates and conventional effects on the exchange rate, though pass-through to lending rates is only partial and exchange rate effects are weak.⁸ The objective of this paper is to explore the effectiveness of these links in the Indian context, using the structural VAR methodology that has commonly been applied to investigate monetary policy effectiveness not only in advanced and emerging economies, but also in many low-income ones.⁸ A country with strict controls but lax enforcement can experience large private capital flows. Although exchange rate volatility increases risk, modern monetary policy stabilizes inflation. This is the story of how inflation was eventually brought under control when interest rates replaced exchange rates as the principal tool of monetary policy. But although it successfully decreased inflation, financial policymakers remained reluctant to rely entirely on interest rate policy. Read Article⁸ In studies of monetary policy and central bank operations in the context of integration, to support the introduction of policy solutions to Vietnam, Phan Nu Thanh Thuy (2007), [1] Overview of monetary policies of the US, Singapore, Thailand, China; Le Van Hai (2013), [2] mentioned the experience of using monetary policy management tools of some developed and developing countries.⁸ Accordingly, the exchange rate is also used as the main operating tool of monetary policy.⁸ Before applying the operating mechanism of monetary policy within the framework of monetary policy, Thailand applied the monetary policy associated with two mechanisms: fixed exchange rate mechanism and monetary mechanism. target towards money supply.