

Macro-economic Management of the Indian Economy:
Capital Flows, Interest Rates and Inflation

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* The initial draft of this paper was completed in August, so some of the subsequent policy changes are reflected in footnotes rather than in the text.

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1 Introduction

Historical fears of inadequate reserves have been replaced by concerns about how to manage the increased inflows of foreign money. A sustained increase in net foreign earnings of the nation raises the possibility of Dutch disease. A global economy in a globalized world can be subject to the problems of success. High growth attracts foreign capital looking for profitable investment opportunities. In a positive cycle this inflow will indeed find profitable investment opportunities that others have missed and lead to even higher growth. However if the growth opportunities do not materialize fast enough there is enormous pressure on the currency to appreciate, resulting in either an accumulation of reserves (followed by monetary expansion and inflation) or actual (nominal) appreciation or both. Appreciation can in turn reduce exports and overall growth of tradable goods and services. This negative cycle of greater foreign earnings leading to slowdown in the growth of tradable goods is known as Dutch disease.

The translation of capital inflows (equity and debt) into productive investment depends to an important extent on the development of financial markets that intermediate such flows. Thus the translation of such inflows into accelerated growth depends on how quickly we can develop missing markets for debt and risk. Larger capital inflows also provide a golden opportunity to accelerate the lifting of restrictions on imports of goods and services and the purchase of foreign exchange for external spending and investment abroad. The accumulation of reserves above the level that fulfills a national precautionary motive is a clear signal that such liberalization should be accelerated. Beyond this the issue is one of monetary and exchange rate management.

Empirical estimates suggest that the sweeping reforms of the 1990s have put the economy on a rising growth path since 1994-5.¹ This rising growth trend has been supported by subsequent reforms despite their relative modesty. If this trend persists unchanged then we would average a growth rate of 8.75% during 2007-8 to 2011-12.² To put this into perspective, it is useful to recall that the Indian economy grew at a rate of 3.5% per annum during 1951-2 to 1979-80, 5.3% during 1980-1 to 1994-5 and about 7%

¹ Details in section 3.

² With policy and institutional reforms this trend may accelerate!

during 1995-6 to 2006-7.³ A rate of growth of 8.7% or the 9% targeted by the 11th plan is quite different from the 5.3% of the 1980s and the 7% of the late 1990s as it may be close to the maximum sustainable growth potential of the Indian economy. There have been only 16 countries⁴ in history whose per capita income growth has averaged 7.5% for a decade or more.⁵ Of these, only four countries were able to sustain 7.5% average growth for two decades and only two (Japan and China) for three decades. Thus the macro-economic challenge in generating GDP growth of 9% or more or equivalently per capita GDP growth of 7.5% or more, may be quite different from those seen earlier during the period of relatively moderate growth rates.

There are two inter-related macro-economic challenges we face in maintaining high growth on a sustained basis.⁶ These relate to capital inflows and inflation. Though the merchandise trade deficit has risen over the last three years to over 7% of GDP at market prices in 2006-7, the total (goods and services) trade deficit has stabilized at around 3% of GDP in the last two years. As net factor incomes (including remittances) constitute about 2% of GDP, this has left a current account deficit of a little over 1% of GDP. Capital inflows have spurred to around 4% of GDP, far in excess of the current account financing requirements, leading to large accumulation of reserves. If the growth momentum of the economy is maintained during the 11th plan, the capital inflows are likely to exceed current account financing requirements leading to pressures for appreciation of the currency and/or to monetary pressures on prices. We have to distinguish between equity flows (e.g. FDI and FII) in which growth expectations are a major driver and debt flows (e.g. ECB, Govt. securities, Commercial Paper) that are primarily driven by interest differentials and exchange rate movements. An important challenge is to modulate the latter through financial and fiscal measures instead of using physical controls.⁷

³ These are underlying rates derived from a statistical analysis that accounts for rainfall fluctuations.

⁴ Among medium – large countries. In addition there were 5 small and 5 tiny countries.

⁵ Our per capita GDP growth would be approximately 7.5% if GDP grows at 9%.

⁶ Besides the numerous real side challenges (public goods infrastructure, skills and education, credible rule of law, public service delivery mechanisms, institutional reform).

⁷ A 1974 MOF paper first wrote about moving from physical to financial controls and the Dagli committee added its weight to this move in the late 1970s. Thirty years latter we should not have to argue about the merits of the latter under normal condition, i.e. except in an emergency or crisis such as our BOP crises in 1990-91 and the Asian crisis of 1997-98.

On the real side, the relatively closed and controlled nature of international trade in agriculture is likely to result in domestic demand-supply imbalances that will lead to spurts in inflation.⁸ Given the difficulty of trading-off farmers' interests against those of poor and middle class consumers, this puts intense political pressure for quick fix solutions that make rational macro-management more difficult. A sustainable macro-management strategy therefore has to take account of these non-economic constraints. On the external side the rising price of oil is another challenge that complicates macro-management. Unless price signals are transmitted to users they have no incentive to invest in costlier energy-efficient equipment and consumer durables. The only long term solution, that of increased efficiency in the use of energy, will be hampered and development of alternative domestic sources will be stymied.

There are also well known constraints on the real side such as infrastructure (particularly electricity)⁹ as well as emerging bottlenecks such as the shortage of educated/skilled manpower that are linked to the maintenance and possible increase in the rate of growth. These issues will be addressed by the 11th Plan. In this note we address the problems that can disrupt growth by upsetting the macro-economic balances and have therefore to be addressed as part of fiscal, financial and monetary policy.

A strategy for macro management must have the following elements (with sections in which they are addressed in brackets):

- (a) Excess capital inflows reduce the costs and risks of external sector reforms and raise the opportunity cost of financial sector under-development. We must therefore use this opportunity to (i) eliminate all controls and restrictions on purchase of goods and services and on outflow of capital. (ii) Accelerate financial market reforms (sections 5.1, 5.2, 5.3.1 and 8).
- (b) The impact of capital inflows depends on the extent to which they are motivated by growth opportunities or by interest differentials. We must therefore remove all policy distortions and market distortions that keep these differentials from narrowing. Fiscal deficit target will have to be adjusted downward (section 5.3.2 and section 7).
- (c) The critical macro-policy choice raised by excess capital flows is between nominal appreciation and sterilization. To improve the trade-off, policy changes needed to reduce the costs to society of both nominal appreciation and of

⁸ These must be and are expected to be, addressed as part of the eleventh plan.

⁹ Virmani (2007) provides a somewhat unconventional view of what types of infrastructure are important.

sterilization must be identified. This will raise the overall benefit-cost ratio for capital inflows and allow us to continue the process of capital account liberalization on the inflow side (section 6).

2 Theory and Empirics

The conventional wisdom (based on neo-classical real economy and monetarist theory) is summarized in the following analysis.¹⁰ With an open capital account and a fixed exchange rate it is impossible to have monetary independence. Thus according to this analysis, capital inflows will inevitably result in real appreciation, only the method by which this happens can differ. We can either let the nominal exchange rate appreciate as it will if the central bank does not buy foreign exchange or hold the nominal exchange rate fixed by accumulating reserves and let monetary expansion and consequent (inevitable) inflation result in a real appreciation. This is sometimes referred to as the ‘trinity’ or ‘tri-lemma’.

On the other extreme are empirical analysts who point to the growth experience of many countries including China to posit that an undervalued exchange or a fixed exchange rate in the face of a sustained positive balance on current plus (exogenous) capital account is a driver of economic growth.¹¹ A number of studies done in the context of the Balassa-Samuelson effect show that, even in developed countries, the (bilateral) real exchange rate can have a long run impact on relative growth rates.¹²

The indigenous view, which guided our management of the surge in capital inflows following the liberalization of FDI and equity inflows in the 1990s, is as follows:¹³ Though the rational expectations model provides useful insights for monetary management, its assumption that growth is exogenously determined by deep underlying factors is questionable for developing economies lying well inside the global production possibility/technology frontier. The process of catch-up growth that such economies are undergoing is highly diverse and variable and dependent on government policy and

¹⁰ Rational expectations model. See Bery et al (2003), Shah and Patnaik (2007) for application to India.

¹¹ See Razin and Collins (1997), Bhalla (2002), Bhalla(2005), Bhalla(2006).

¹² See eg. Faria and Leon-Ledesma(2000)

¹³ In Virmani (1998).

programs (positive and negative).¹⁴ As long as there is excess labor resources in the economy and no other binding input constraints in the form of “public or quasi-public goods” such as choked highways, a rise in earnings/inflows can raise saving, investments and technical change in the economy leading to higher growth.¹⁵ The initial impact of the inflow of capital must be to **reduce** the cost of capital, that is to both reduce the interest rate on borrowing/debt and lower the cost of equity(perhaps to different degrees depending on the perceived opportunities and nature of the financial market). This in turn will lead to an increase in investment, as long as more structures and machinery can be constructed and/or machinery can be imported (i.e. as long as there is less than 100% crowding out of existing investment). The only issue is whether this increased investment leads to a sustained increase in the growth rate (for at least the duration of the capital inflows and perhaps a few years thereafter). The conventional answer is an unambiguous “no.” Our answer is that it depends on the growth potential of the economy, though admittedly very difficult to determine, is a judgment that governments and their advisors are routinely called on to make.

Therefore contrary to conventional wisdom, some accumulation of reserves, appropriately sterilized, can restrain inflation and the consequent real appreciation. In such circumstances a modestly undervalued exchange rate can aid the growth process without undue cost in terms of inflation.¹⁶ Once the growth acceleration stops and growth plateaus at a higher level, the economy may start to approximate the conventional full employment model on which the ‘Trinity’ analysis is based.¹⁷

The conventional model assumes the existence of complete and integrated markets, particularly financial markets. Given the dualistic nature of most developing countries (formal/organized and informal/unorganized), the model can at most be assumed to apply to the formal sector. The two way interaction of this sector with the informal sector will however affect the results of policy changes in ways not envisioned or accounted for in

¹⁴ With major inconsistencies between the assumptions and implications of the neo-classical growth model and its implications. Again this does not mean that the insights of this model are not useful!

¹⁵ This cannot happen in the monetarist model because the economy is already at full employment. Alternatively/equivalently the real side of the economy is driven by real factors that are independent of monetary developments/shocks and monetary policies.

¹⁶ Illustrative calculations showed that this is what happened in 1993-1994.

¹⁷ This is perhaps what happened in much of S. E Asia during the 1990s!

the model.¹⁸ Further, in an economy with open capital account, a complete and integrated financial market implies interest parity between domestic and global interest rates. If this parity does not hold because of policy distortions or natural causes, we would expect the conclusions and recommendations of the model to be modified.

Policy distortions can and have, led to imperfect or non-existent markets for private-good infrastructure such as electricity as well as to other services such as education-skills, that will affect growth and inflation. Any realistic policy analysis must account for these imperfections and their impact on inflation and growth outcomes.

The conventional model gives little guidance on issues related to asset price inflation.¹⁹ The shortage of supply of ‘urban land’ is likely to be a major determinant of Asset price inflation in India. It is important to be clear about what we mean by “urban land!” ‘Urban land’ is distinguished from ‘village land’ by the presence of critical Public and Quasi public goods. The most basic distinction between the two (from the start of Urban history a la Mohenjo-Daro), is the former’s planned layout. A city is divided into parts, sub-parts and plots, by roads of varying sizes and is in turn inter-connected and integrated by them. Overlaid on it or underlying it or tucked away from sight, are water drains, sewers, water mains, water and sewage treatment plants, garbage collection and disposal systems and channels for utilities. Some form of public transport system is also essential for cities above a certain size/spread.²⁰ In virtually every State of the country the supply of ‘Urban land’ (so defined) has been woefully inadequate because it has been made the responsibility of either monopolistic agencies or powerless, untrained planning departments (or both).²¹ This along with bad policies, such as expropriatory rent control laws, has resulted both in astronomical land/real estate prices for the limited ‘urban land’ available in the market and in slums wherever non-marketed land was available in or near the cities. Increasing the supply of ‘urban land’ will therefore be an important instrument in the control of inflation, as real estate is an important input into most services.

¹⁸ For instance a policy induced rise in interest rates will result in both higher capital inflows and a transfer of savings/capital from the informal segment to the formal segment of the economy.

¹⁹ Whence the phrase ‘irrational exuberance.’

²⁰ Parking space for private transport is also an essential element of modern urban land use, though the mix private and public transport can vary from one city to another and even within a city.

²¹ In modern cities land can also be expanded vertically, by re-defining floor space indices and changing municipal by- laws and providing bigger sewers, water mains and parking spaces.

3 Growth Trend

Statistical analysis stretching over the seven post-independence decades shows two statistically significant breaks in the rate of growth of the economy (table 1 and figure 2). One break occurred in the early 1980s (dummy variable D80+) following a policy shift away from excessive and oppressive controls and restrictions towards gradual but persistent de-control. The second break occurred in the mid-1990s following deeper and more broad based and deeper reforms of the early 1990s, which put the economy on a gradually accelerating growth path (time dummy Year 94+).²² The results of the growth regression, which also takes account of the impact of monsoon rainfall variations (drain), are as follows:

$$\text{GdpGr} = 0.035 + 0.02 \text{ D80} + 0.002 \text{ Year94} + 0.188 \text{ drain} - 0.093 \text{ drain}(-1)$$

Details are given in table 1 and the same is depicted in figure 1.

Table 1 : Statistical Details of GDP Growth Trend Equation

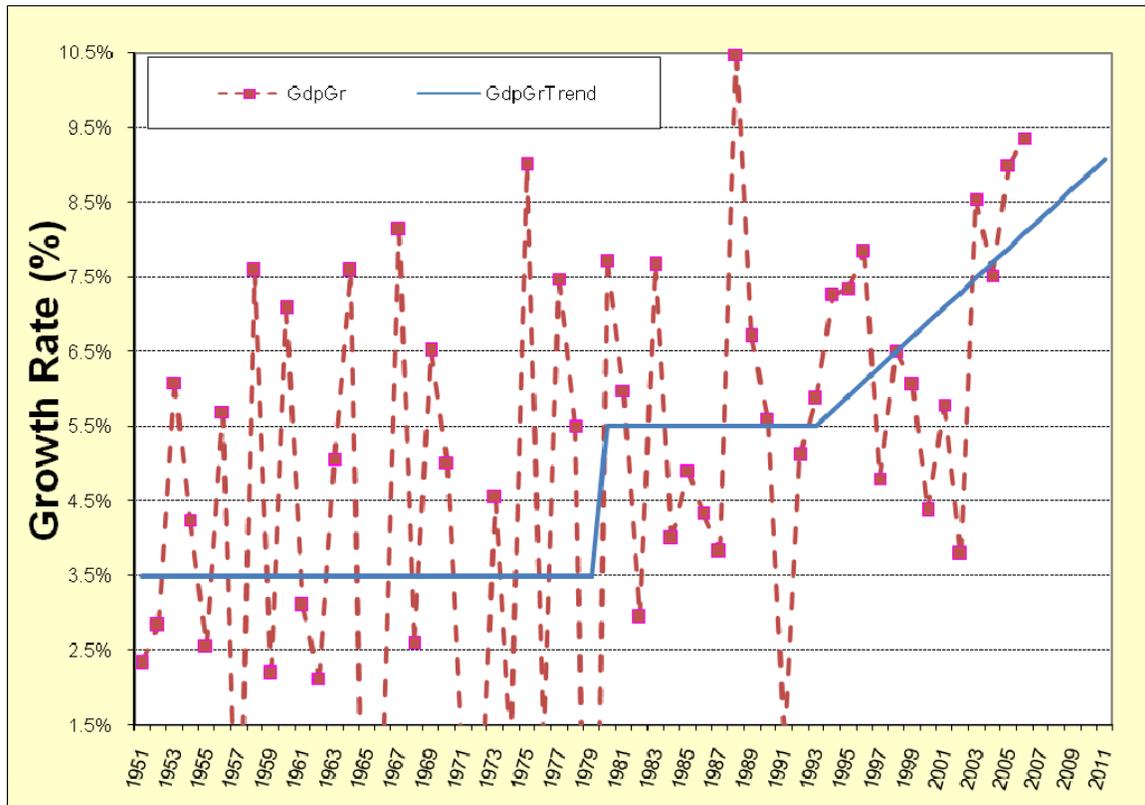
		Dependent Variable = GDP growth rate				
Independent variables =>		<i>Intercept</i>	<i>D80+</i>	<i>Year 94+</i>	<i>drain</i>	<i>drain(-1)</i>
<i>Coefficient</i>	=	0.035	0.020	0.002	0.188	-0.093
<i>standard deviation</i>	=	0.004	0.006	0.001	0.029	0.029
<i>t statistic</i>	=	9.2	3.2	2.2	6.4	-3.2
<i>P-value</i>	=	0.000	0.002	0.032	0.000	0.003
R ² (adj)= 0.59 (se=0.020)		Period: 1951-2 to 2006-7			F =21	

All variables (except year 94+) are significant at the 1% (5%) level.

If we use the estimated equation to project growth rates for the 11th Plan (assuming normal rainfall in every year), then we obtain an average growth rate of 8.7% per annum during this period. The 9th Plan's target of an average growth rate of 9% is very realistic to us though it was criticized for being too modest at the time of release of the approach paper. It is however 1.2% points higher than the achievement of about 7.8% per annum during the 10th Plan and is consistent with historical Plan targeting at a couple of per cent above previous Plan achievement.

²² Virmani (2005), Virmani(2006) explain this paradox – 'slower reforms immediate acceleration' vs. 'major reforms gradual but sustained acceleration'.

Figure 1 : GDP growth rates and fitted time trends (showing the historical breaks)



Given the Plan’s efforts to fill the gaps in supply of Public (Roads, Urban Planning / land, Public health, agriculture R&D) and Quasi-public goods (basic education, electricity transmission – distribution, dams – canals) an augmentation of the statistical trend by 0.3% per annum is quite credible. Thus our analysis/projection is quite different from that of most analysts, who assert/suggest that the trend growth rate is around 7% (or when pressed up to 8%) and the higher average growth of 9.2% in the last two years is all due to cyclical factors such as an upswing of World growth/trade cycle and excess liquidity / high monetary growth.²³ The appearance of cyclicity since the 1990s can be explained as follows: The 1994-5 to 1996-7 spurt and the 1997-8 to 2002-3 slowdown may be due to the fact that QRs on capital goods and intermediate goods were eliminated in the first burst of reforms while those on consumer goods were eliminated during 1997-

²³ Note that this is quite different from the effects of rain fall which is accounted for in our estimates but not in the estimates (and projections) of others.

98 to 1999-2000. This resulted in a sharp rise in effective protection for consumer durables followed by an even sharper fall, possibly resulting in a boom-bust cycle in items with significant economies of scale such as automobiles and major consumer durables.

There are two potentially significant reasons for large capital inflows. One is profitable medium-long term investment opportunities arising from the growth potential of the economy and the other is short term arbitrage opportunities arising from policy distortions. Let us consider each in turn. Clearly the Indian growth performance and growth potential has attracted significant amounts of equity flows and (more recently) FDI. The fact that these flows are far in excess of the current account deficit despite two years of over 9% growth suggests that investors expect opportunities for profitable investment to continue to grow. This implies that either growth will accelerate further or the expectations will prove too optimistic and capital inflows will slow down over time and eventually reach a more balanced level or both. In any case such an equilibrium is unlikely to be established over the 11th Plan period and may take 10-15 years, given the renewed attractiveness of the Indian economy for Japanese and oil rich Gulf investors.

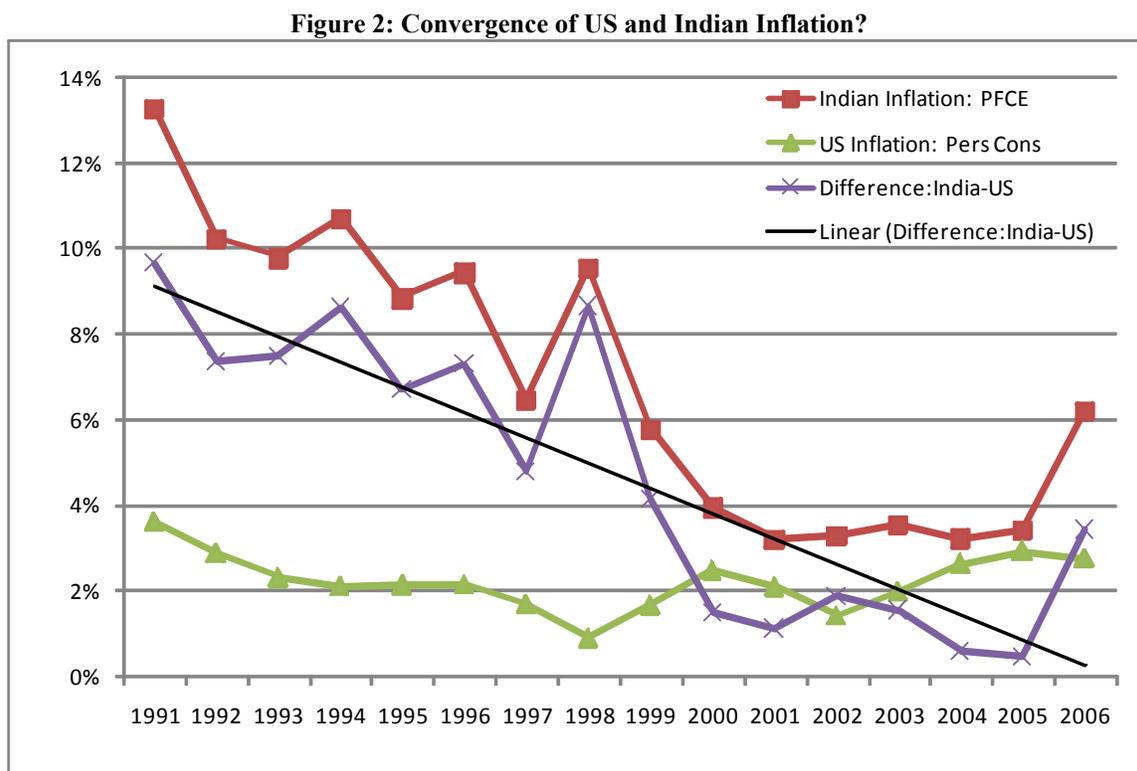
In the second case, there is a need to remove distortions that create arbitrage opportunities, because even short term flows can continue for years as long as distortions persist. Together these two cases require a comprehensive strategy of macro-management.

4 Inflation Convergence

The issue of excess demand arising from capital inflows or any other source cannot be analyzed objectively without a price index suitable for this purpose. Globally, the consumer price index (CPI) is used for measuring the inflation trend for the purpose of macro-economic monitoring and management. Unfortunately, in India we do not have an aggregate CPI appropriate for use as an indicator of aggregate prices and demand pressures. The sectional CPI's such as those for Urban non-manual and blue collar workers and for Rural and agriculture labor may serve a useful purpose for calculating real wages of these sub-groups, but are very inadequate for getting a handle on aggregate excess demand pressures. We have therefore conventionally used the Wholesale price

index which is more comprehensive and also available on a weekly basis, for monitoring. Clearly its weakness lies in excluding prices of retail and other services that are part of the basket of the hypothetical average consumer.

For our current purpose, the best and most comprehensive price index available is the implicit price deflator for private final consumption expenditure from the GDP accounts. The fact that it is only available on an annual or quarterly basis is not a serious handicap, as our purpose is to determine the trend in inflation and gap between Indian and global inflation. The following graph shows the inflation rate as measured by this indicator along with the US inflation rate as measured by personal consumption deflator from the GDP accounts, along with the difference between the two inflation rates.



The figure (above) shows that Indian inflation has been on a down trend since 1991, and this is reflected in the clear down trend in the gap/difference between the Indian and US inflation rates. The reasons for this are also clear one of the most important and most successful element of the 1990s reform has been the reduction in protection. Quantitative restrictions have been eliminated and non-agricultural tariffs have declined from a “peak

rate” of around 150% in 1991 to 10% in 2007-8. Though most of the QRs on agricultural imports have been eliminated average agricultural tariffs remain high relative to comparator countries with a few rates as high as 100%.

The trend line suggests that, with a continuing reduction in tariffs there is a credible possibility of eliminating the historical gap between US and Indian inflation. The sudden rise in the inflation gap in 2006 is however a warning and a source of concern; This gap seems to be linked to the global rise in food prices.²⁴ Given the much higher share of food in the consumption basket of the average Indian consumer,²⁵ the inflation gap can open even if Indian food inflation is identical to (or lower than) the global food inflation as long as it is (much) higher than for non-food consumer goods. An elimination of the inflation gap is therefore dependent on the international trade policy and internal marketing policy for agricultural products. We expect the inflation gap to narrow during 2007, but to remain above the trend line in the figure, which projects a nil gap.

5 Interest Parity

With a completely open capital account, risk free interest rates should converge. Bhatt and Virmani (2005) provided evidence to show convergence toward short term (3 month/91 day) uncovered interest parity during 1991-2 to 2003-4. The following figure depicts the nominal interest rate on three month US Treasury bills and Indian 91 day Treasury Bills and the gap between them since the equity market opening of 1992. The similarity in the pattern of annual average variation illustrates this conclusion (figure 3). Further, the interest rate differential has been on a clear down trend, falling from an average of over 6% in 1993 to below 2% in 2006.

The speed of convergence between one year US Government securities and Indian 364 day Treasury bills seem to have been much faster (figure 4). The pattern of variation of the annual averages of the two rates is similar while the gap has been on a clear downtrend. The nominal interest differential has declined from an average of about 7.5% in 1992 to an average of less than 2% in 2006.

²⁴ Energy prices are also a source of concern, but have not so far been reflected in domestic prices because of incomplete pass through. The demand effects through the fiscal have also been moderated by physical controls on prices that have the effect of taxing oil company profits (additional tax on).

²⁵ Relative to the average US, EU or Japanese consumer

Figure 3: Interest rates on US 3 month and Indian 91 day Treasury Bills

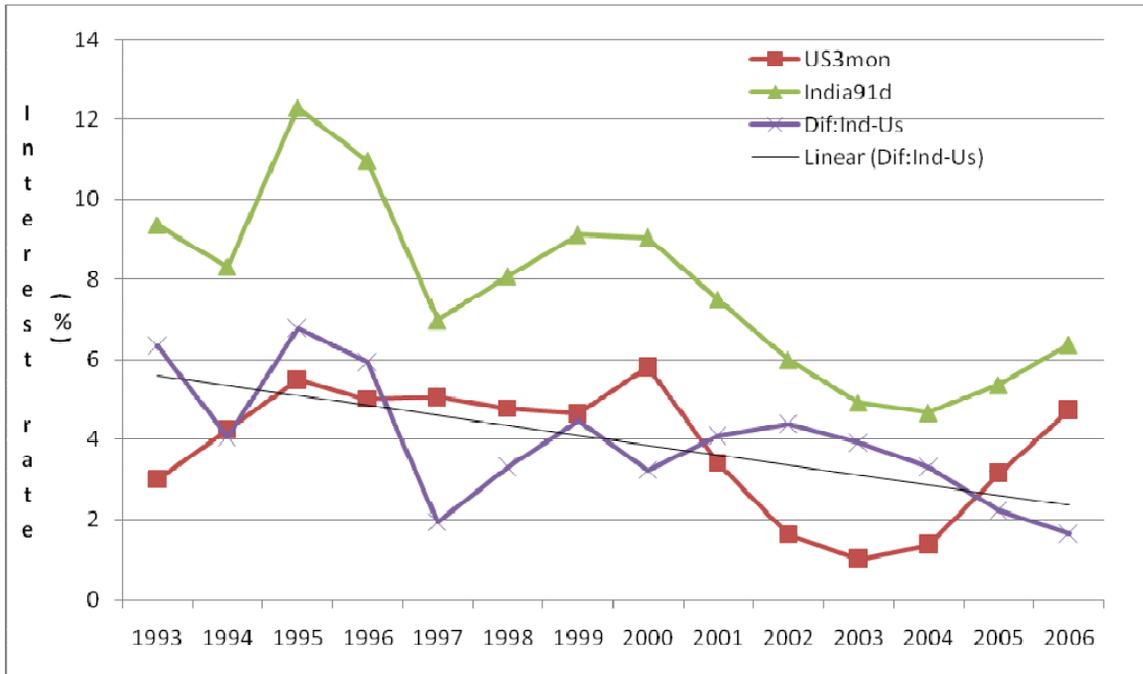
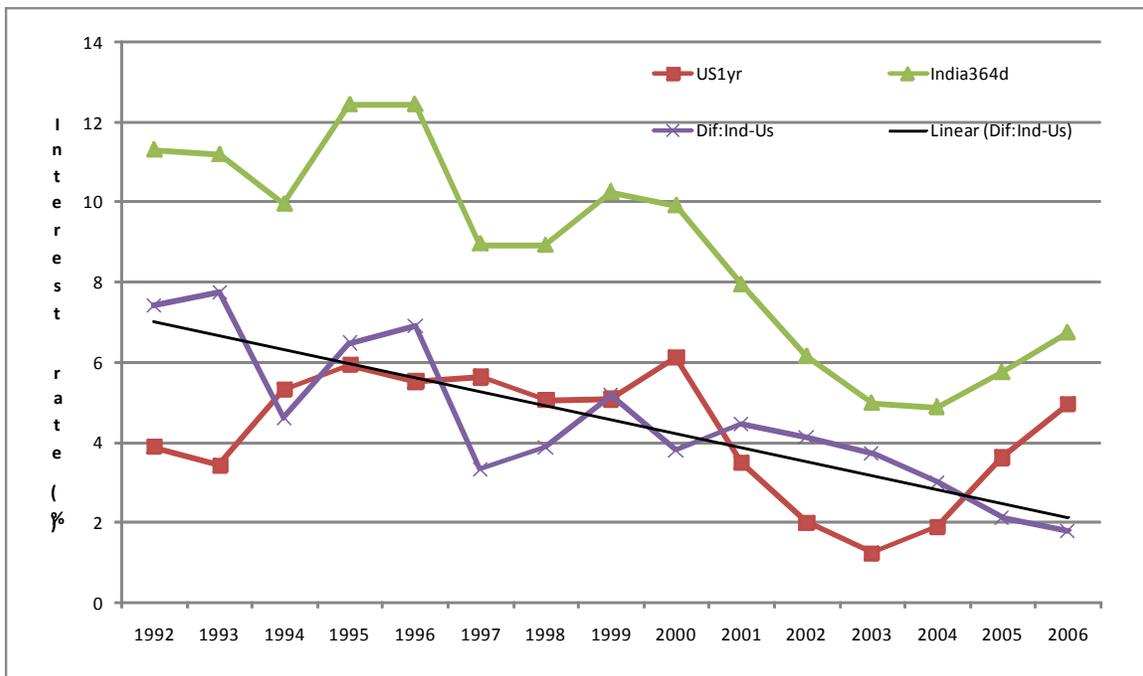


Figure 4: Interest rates- 1 year US Govt securities & 364 day Indian Treasury Bills

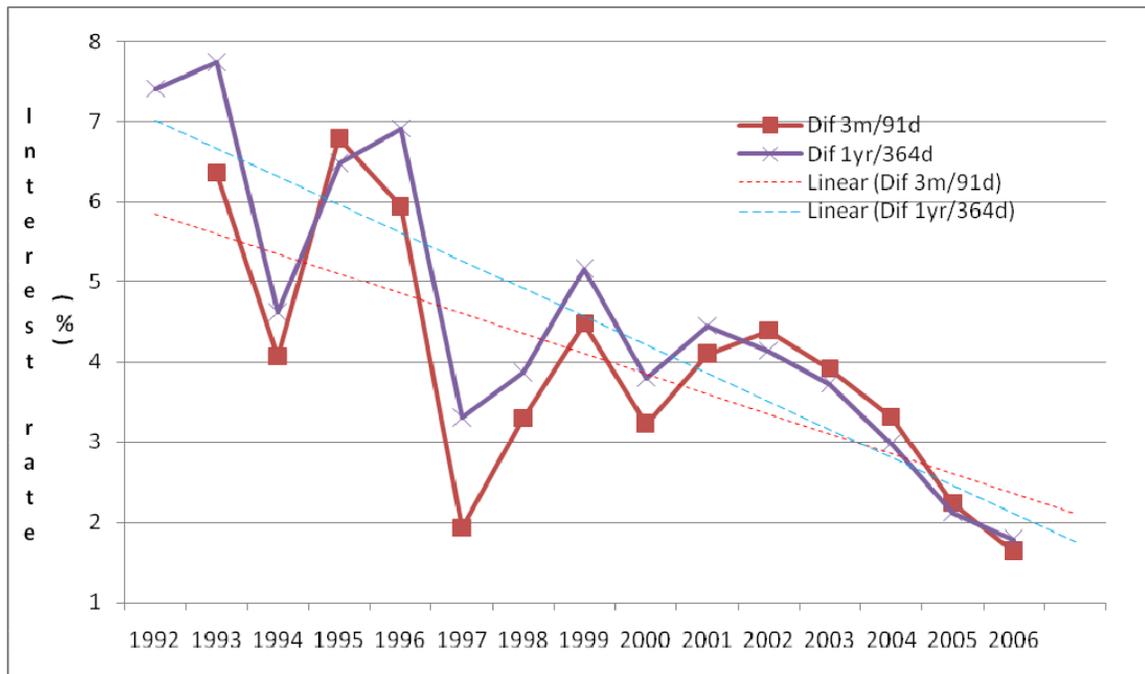


Comparing these trends with the trend in annual inflation (figure 2), it seems that inflation convergence has been much faster than the convergence in nominal interest rates

and consequently in real interest rates. This is consistent with our earlier observation about market imperfections and distortions in capital/credit markets.

The comparative progress of interest convergence in the short and medium term ends of the market can be seen more clearly in the following figure which depicts the 3 month and one year interest differentials along with their trend rates. The interest gap at the short end of the market has been marginally higher than that at the medium end from 2002 to 2005. Similarly the convergence has been much slower at the short end than at the medium. This again suggests the presence of imperfections in the capital/credit market.

Figure 5: Slow Convergence of Risk Free Nominal Interest Rates



6 External Policy

The basic macro-management challenge is to maximize the benefits of greater globalization and financial market integration, while minimizing the costs of excess inflows. The greatest potential benefit of capital inflows into India is to make available risk capital and investment funds (a) to entrepreneurs to whom this would not have been available otherwise and (b) at a lower cost than it would otherwise have been available. This happens and is happening in India through competition and technical change in the financial services industry, the development of new markets and the introduction of new products. This in turn has a direct and indirect impact on economic growth. As long as net inflows and CAD are more or less in balance the only potential cost is a sudden outflow ('Asian crises') that has been successfully managed by many different countries including India in the past.²⁶ Having prepared macro-strategy papers after the Mexican, Asian and Russian crisis, at a time when both our reserves and experience was a fraction of what it is today, I have complete confidence that we can manage such outflow spikes in the future.²⁷

If the medium-long term capital inflows are in excess of the long term current account deficit, as they appear to be today, the cost is in the form of an appreciation of the real exchange rate with its effect on net exports of goods and services and on inflation. The first step must be to re-examine the entire policy framework to identify and remove [any policy distortions](#) that are promoting this imbalance.

²⁶ Soon after the BOP crises of 1990 had been successfully dealt with in 1991-2, the Ministry of Finance freed equity inflows through FII's. This resulted in an unprecedented equity inflow into India from September 1993 to October 1994 of about \$6 billion or 2% of GDP for this 12 month period. This was followed by the Asian crises of 1997 and the Russian crises of 1998. The strategy developed during 1997 was used successfully to manage the outflows that resulted from the crises. See Virmani (2003) or Virmani(2001c) for analysis of external sector reforms.

²⁷ Through monetary measures and flexible exchange rate management. Looking into the future, fiscal consolidation (reduction of fiscal deficit) in a period of high growth creates fiscal space that can be used to run a counter cyclical fiscal policy which further reduce the cost of large capital outflows.

6.1 Trade Policy

With a current account deficit of 1% to 1.5% of GDP a rise in the merchandise trade deficit or the overall goods and services deficit is not a threat to BOP equilibrium. There are a number of policy measures that will simultaneously improve the efficiency and competitiveness of the Indian economy and increase its capacity for higher growth. They will also ensure that short term bottlenecks in domestic supply do not result in inflation spurts. These [policy measures](#) are a more efficient means of raising the CAD, [compared to](#) a capital inflow driven appreciation of the currency and can to some extent reduce the pressure on the currency to appreciate.

6.1.1 Imports

With a peak non-agriculture tariff of 10% and a simple average (at 8 digit) of 9.1% we have now (2007-8) reached the [tariffs prevailing in ASEAN countries with relatively higher tariff](#) levels in this category. Studies have shown that industry and services have responded splendidly to the reduction of tariffs.²⁸ Further gains in efficiency and competitiveness can be obtained through a reduction to OECD levels ([or mid-range of ASEAN levels](#)). We should target a uniform import duty on all non-agricultural commodities that will put us on par with OECD countries in terms of protective tariffs by 2009-10. With a Central VAT and State VAT(s) in place by then, it would be possible to provide a level playing field to producers competing with imports as well as to exporters, by fully off setting all indirect domestic taxes incorporated in exports.

Agricultural tariffs, at a simple (8 digit) average of 36.8%, remain relatively high. [This is due to](#) livelihood issues that are present in India, but not in middle income or higher income OECD countries. These [tariffs also need to be reduced](#) to reap the advantages of global competition, [but at](#) a much slower pace (but not glacial pace).²⁹ We could target a reduction of all agricultural tariffs above some rate X to this rate by 2009-10. Trade facilitation measures should also be accelerated.

²⁸ See for instance Virmani, Goldar, Veeramani and Bhatt (2004) or Virmani (2006b).

²⁹ This could be accelerated if the developed countries eliminate subsidies on agriculture. The latter in turn would be facilitated by increased demand for bio-fuels that have led to temporary increase in global prices.

6.1.2 Exports

Services taxes and excise duties should be integrated into a Central VAT regime with full offset for exporters and full imposition of this central VAT (CENVAT) on all imports.³⁰ Till such time as this happens there should be a mechanism for providing service tax offset to exporters, in a manner that is administratively sustainable keeping in view the possibility of evasion. The importance of this is heightened during a period in which the real effective exchange rate has appreciated (REER 36 country). This will make it easier to [have](#) two way movement in the exchange rate as part of a managed float.

6.2 Movement of Persons

Though the export of business services is rightly feted, training and certification systems for thousands of technical skills and hundreds of specialized skills do not exist in India. A model visa regime should be set up for movement of skilled persons into India, so as to expand the skill set available in India, address potential skill constraints in the Indian economy expeditiously and smoothly and make India a true knowledge power. This [is](#) important not only for skills used directly in industry and services, but also for the critical task of educating the educators and training the trainers, [where the shortages are likely to be even more acute](#). Our bilateral and multilateral efforts to increase the flow of skilled professionals to developed countries will then also have greater credibility as the model law can be propagated to OECD countries. In addition, this will moderate the imbalance in labor remittances (net private remittances in BOP accounts).

6.3 Capital Flows

With excess capital inflows hitting 3% of GDP and gross FDI exceeding \$20 billion, there is no need to continue encouraging more debt and portfolio inflows. There is greater need to facilitate outflows, as gross inflows of capital can be partly offset by greater outflows of capital. The focus should be on those measures that increase freedom for the common citizen and/or improve the efficiency of doing business without increasing volatility. Similarly any systemic biases towards capital inflow should now be

³⁰ Virmani (2001b) or Virmani (2002).

removed as they are no longer needed. Going further, it can be argued that excess capital inflows now impose a cost on the economy (an externality) that needs to be corrected through an appropriate tax.

6.3.1 Outflows

Different analysts at different times argue that, (a) Freeing of outflows will actually encourage greater inflows. (b) That freedom of capital inflows will increase the probability of surges in capital outflows. Though these arguments are prima facie contradictory, each has a rationale for a specific context and policy framework that prevailed in the country about which examples are given. It is thus important to be clear about our own domestic and international situation [today](#) and the policy framework that we have, in weighing these possibilities. In our situation (current and foreseeable) of sustained growth, large capital inflows and downward flexibility in exchange rates (b) is highly unlikely and easily manageable through monetary policy and exchange rate flexibility.³¹ In the case of (a) the distinction between legal and illegal inflows is very important. A freeing of legal capital outflows by nationals is likely to shift some capital outflows from the illegal to legal channels thus increasing the latter. The opening of legal outflow channels can in principle also encourage the repatriation of assets held abroad illegally- however given a decade and a half of liberalization, most if not all of this has already happened. Thus in our judgment, the overall effect of complete liberalization of capital outflows by domestic companies, organizations and citizens will be very small net flows, but a considerable increase in economic freedom and potential efficiency gains. Such freedom must of course be subject to reasonable safeguards relating to National security and terrorism, and reporting requirements relating to tax evasion and money laundering. As a matter of abundant caution, remittances above a certain level could require advance intimation to the RBI i.e. when it is being planned. The larger the proposed/anticipated remittance the earlier it must be reported.³²

³¹ As per the experience acquired in handling earlier episodes of potential and actual outflows, such as the Mexican, Asian and Russian crises.

³² This should not be confused with the reporting requirements under Money Laundering Act or Anti-terrorist legislation. The two should be kept strictly separate.

As an intermediate step towards complete liberalization of outflows two categories of outflows should be freed from all controls/limits. These are outward Indian FDI and export of project services. Till such time as outflows are completely decontrolled a number of specific liberalization steps can be taken. Examples are,

All citizens should in principle be allowed to hold unlimited amounts of foreign currency (cash).³³ Any conditions imposed on rupee cash holdings by tax authorities as anti-evasion measures can also apply to holding of US dollar bills and other currency.³⁴ Carrying of currency across the border will continue to be regulated as it is in other countries. Thus for example air travelers would continue to be required to declare physical transport of any currency, including rupees, above a certain value. This change, would lead to a small increase in the stock of private foreign exchange holdings and a commensurate reduction in the public/RBI stock.

Restrictions/controls on opening of foreign bank accounts (including in foreign branches of Indian banks) by Indian citizens should be removed.³⁵ Controls/restrictions on payment of interest on EEFC accounts can also be lifted so as to facilitate exports and imports.³⁶

Rules, regulations and procedures for foreign investment by Indian citizens and companies must also be simplified so that there is a readjustment of India's holding of foreign securities from Government/RBI towards private agents. For instance they must be allowed to purchase hedge products and trade on recognized futures and forward markets in commodities etc. without restrictions.³⁷ For this purpose domestic financial intermediaries must be free to advise citizens about investment possibilities in other countries.

³³ Currently residents can hold up to \$2000/- in cash.

³⁴ For instance there can be an overall cash holding limit with residents free to hold a mix of rupees and foreign currency. This can be tailored to meet legitimate money laundering concerns.

³⁵ Currently residents can open RFC accounts with money gifted to them by family members and other legitimate remittances.

³⁶ Recently interest was allowed to be paid on such accounts up to a maximum balance of US \$ 1 million.

³⁷ Currently companies are not allowed to undertake "naked margin trading." If this restriction is removed, Indian financial institutions can start specializing in such trading and offer these products to a wider array of small-medium companies in India who are engaged in international trade.

6.3.2 Inflows

All monetary requirements should be reviewed to eliminate differential reserve requirements that favor inflow of NRI or other debt into Indian banks. We must also consider turning the tables by imposing higher reserve requirements on foreign borrowing by banks. It is possible to adjust this additional reserve requirement so as to eliminate the excess advantage of foreign borrowing and thus eliminate the need for borrowing bans and/or rationing. For instance, with a global [interest](#) rate of 6% and a domestic [interest](#) rate of 8%, a 25% (additional) reserve requirement can [equalize the advantage of borrowing abroad and thus](#) be a more efficient substitute for a ban on foreign borrowing by domestic banks.

This is also an appropriate time to review the rules for interest rates on NRI accounts and to eliminate those that allow payment of higher Rupee interest rates on NRI accounts than on normal domestic accounts.

Similarly any differential taxation that favors foreign creditors and investors (including NRIs) must be eliminated. We used to apply an accepted principle of income taxation namely zero tax on lending by foreign (non-resident) lenders to domestic (resident) borrowers.³⁸ We have since switched over from this principle to one of equal treatment of foreign and domestic residents on interest income earned in India, by imposing an income tax and a withholding tax as is done in the USA.³⁹

6.3.2.1 Interest Parity and taxation

Till interest parity is established an important issue is that of taxation of interest paid on external commercial borrowing (ECB). The uncovered interest parity condition can be used as a guide to derive the rate of tax on interest paid on ECB consistent with a stable exchange rate. The interest parity condition is,

$$(1+(1+x)I_w)=(1+I_d)E_t/E_o$$

³⁸ We had argued for this principle in the early nineties when the objective was to raise all private capital flows.

³⁹ For instance interest (or other forms of income) on US debt held by foreigners is taxed in the USA. Dividends paid by most companies are also similarly taxable.

where I_w is the interest rate on ECB, x is the tax rate on this interest,⁴⁰ I_d the domestic interest rate on borrowing of equal risk and tenure, and E_t/E_0 the expected depreciation of the rupee-dollar/foreign currency rate. If the expected depreciation is zero, then the interest parity condition reduces to

$$(1 + x) I_w = I_d ,$$

This yields the interest tax rate consistent with a stable global financial market equilibrium.⁴¹ For instance if the foreign interest rate is 6% and the equivalent domestic rate is 8%, then the interest tax rate $x = 1/3$ or 33%. This rate is almost equal to the marginal tax rate on interest income received by a resident. If there is an expectation of a continuing appreciation of the rupee the required tax rate would be higher. However, if the expectation is only temporary then the rate calculated above may be sufficient given the intangible transaction costs of borrowing from abroad.

The tax should in principle apply to all foreign borrowing. Short term credit of tenure less than one year could be subject to a minimum interest tax calculated as the absolute amount that would be paid if it was borrowed for a full year. Thus if the borrowing is for 6 months at an annual rate of 6%, the tax liability would be equal to 2% of the loan even though the interest paid is about 3% of the loan amount. The effective tax rate in this case is $2/3^{\text{rd}}$ and would rise progressively with shortening of tenure.⁴² It is important to recall and reiterate at this point, that the tax becomes zero if the interest parity condition is established.

If such a tax can be effectively imposed on all ECB it will reduce if not eliminate the arbitrage opportunity arising from changes in interest rates resulting from monetary policy and temporary spikes in the exchange rate.⁴³ We can then decontrol all medium and long term ECB (say of a tenure of 3 years and above). There can also be an

⁴⁰ Subsidy if negative.

⁴¹ In the conventional monetarist model, interest parity is guaranteed in the absence of the capital controls. In empirical work ad hoc risk premium have often to be assumed to explain divergence from these conditions for all but the most developed economies (USA, EMU, UK).

⁴² However, there may be practical difficulties in implementing such a format.

⁴³ If the source country has a credit type taxation of foreign income or a tax treaty that effectively eliminates the (additional) tax liability implied in the current withholding tax, then other methods become necessary. Indirect taxation though zero interest CRR requirements on capital inflows can be explored.

announcement of progressive reduction of the minimum tenure to 1 year over the next 3-5 years.

Such a tax can be justified to counter negative externalities arising from excessive capital inflows, as long as the interest parity condition does not prevail. This tax differs from the ‘Tobin Tax’ in that the latter was to be levied on all capital transactions, while the former is restricted to debt flows only. Recall that one reason for restricting the tax to debt **alone** is imperfection in and fragmentation of capital markets that do not allow interest rates and returns on riskless assets to equalize. Note also that the earlier experience of Chile and other countries in imposing some form of (explicit or implicit) capital inflow differs from the Indian situation in one important respect. Here, the tax is supposed to replace an existing QR on ECB, which has been in place for decades, not as in Chile and other countries as a substitute for another market based policy.

Given the practical difficulties involved in the introduction of further taxation, additional reserve requirements on debt inflows and auction of borrowing rights can be considered as means of implementing such an implicit tax.

6.3.2.2 Auction of ECB Rights

An alternative more flexible way of achieving the same objective would be to auction the right to undertake External Commercial borrowing. The auction could be held on a quarterly or monthly basis with the annual ceiling appropriately divided into quarterly or monthly tranches. The bid variable could be the unit price per Rupee crore of borrowing by Indian residents from foreign residents (all legal entities so defined). This has the added advantage that the auction cost per annum declines with term of the borrowing thus giving an incentive to long term borrowing/debt. The ECB transaction would have to be registered (as currently) within a specified time period (3 to 6 months) after the auction.

The sub-limits on FII investment in Government securities and commercial debt securities need to be removed, if elimination of the interest differential is to be expedited. If found operationally feasible, we can impose a condition that the right (purchased through auction) lasts only till the time the securities are sold in the market (i.e. it is a right to gross (not net) borrowing within the specified period and not a stock holding

right with implied trading rights). That is, new rights have to be purchased every time a security is purchased from the market.

This system would also allow us to reduce the minimum term to 1 year (say) once the system is functioning smoothly.

6.3.3 FII Debt limits and Cost of Sterilization

No additional tax is **required** on portfolio flows, as it is already taxed on par with domestic portfolio investment. The necessity of eliminating the favorable treatment of portfolio capital routed through Mauritius remains. Appropriate changes in rules and procedures need to continue to eliminate the possibility of round tripping and tax avoidance.

Elimination of limits on FII investment in government securities and in private bonds can play a vital role in eliminating the interest gap between Indian and global financial markets and in establishing interest parity. Though inflows on this account are currently below the limit, this is because a serious player requires a minimum scale of operation (MES) to undertake debt business as a profitable long term opportunity. Unless the limits are set well above the MES there is tremendous policy uncertainty about future limits, which add to the market risk of developing a completely new market. Once these limits are eliminated, serious players are likely to enter and develop the market on a long term basis and thus increase FII flows into the debt market. The increased demand for government securities can help eliminate the interest gap between OECD government securities and Indian Govt. securities and thus reduce the costs of sterilization. Greater FII investment in private bonds will help deepen and widen the market and eventually provide medium sized firms better access to capital.⁴⁴

6.3.3.1 Hybrid Products

FCCB constitute debt till they are converted into equity. This is how they are treated domestically. The same principle should be applied to FCCBs issued abroad or when held by foreigners/non-residents. This means that they must be subject to rules similar to those applied to ECB (e.g. aggregate or individual limits). During the past year

⁴⁴ The direct effect is merely to transfer some of the debt inflow from the ECB to the domestic bond market, this itself has beneficial long term effects.

it was discovered that some companies were using optionally convertible debentures and other variations of these products and classifying these as equity. This has rightly been stopped.

Similarly preference shares can be converted into debt by imposing call/put options (directly or indirectly). To ensure that such instruments, normally treated as equity, do not become vehicles for evading existing restrictions on debt (as long as they remain in place), an undertaking must be given by those issuing such shares to foreign investors.⁴⁵ Both they and the lenders would then be liable to penalty if evasion is discovered subsequently.

6.3.3.2 Participatory Notes

Concern has been expressed in the past by the RBI and others on the lack of customer knowledge when participatory notes are used by FIIs (20 out of 882, but encompassing 35% of total FII inflow). Currently foreigners can directly invest in India only by getting registered as a Foreign institutional investor (FII) or by opening a sub-account with a registered FII. The rules for both require that the source of funds be broad based, prominent examples of which are mutual funds, insurance companies and employee pension fund. This means that private equity funds (with a limited number of investors) and endowment funds and high net worth individuals (including PIOs) are excluded from the market and have found indirect ways such as PNs to invest in the market. Allowing direct access will improve transparency and regulatory oversight and allow imposition of tighter controls on PNs without giving rise to accusations of anti-reform action. We should allow foreigners residing in countries with good legal systems and well regulated markets to invest in India through Domestic Institutional investors and SEBI registered portfolio managers. It will be the duty of these DIIs and portfolio managers to apply KYC norms similar to those applied by banks and report to the regulatory authorities.⁴⁶ In other words FII should be incorporated in and become a subset of foreign investor (FI) regulations.

⁴⁵ There are suspicions in the markets that this has happened in the real estate sector after ECB to it was restricted.

⁴⁶ All payment from the investor by the DFI or Portfolio manager would have to be made from a recognized/regulated bank in a legally/regulatorily clean country (e.g any OECD member country bank).

To the extent that registered FIIs and FII sub-account holders use PNs as a tax avoidance measure (by transferring tax liability to lower tax jurisdictions), a ban on PNs will eliminate the tax bias in favor of equity inflows. Such a correction is highly desirable.⁴⁷

6.3.4 Mutual Funds and VCFs

In the context of taxation a mutual fund is a pass through vehicle whose earnings should only be taxed in the hands of the MF investor (and any profits of the MF manager). Mutual fund earnings arise from company dividends, interest on debt and capital gains on equity. To the extent that companies pay dividend tax, this component of a mutual funds' return should not be taxed in the hands of the receiver. However any MF earnings from interest received and capital gains actualized should be appropriately taxed in the hands of the domestic receiver (and withholding tax on foreign receiver). Any anomalies in this regard need to be corrected. This can easily be done if the MF calculates and states on its payout slips what proportion of earnings came from corporate dividends, short and long term capital gains and other income such as interest, rents and profits. Then the taxpayer would have to apportion these earning among the different categories and pay the appropriate tax for each category, when filing returns. Other solutions can also be considered, which simplify monitoring of potential tax evasion and make it necessary for foreign receivers of dividends from Indian companies to formally file for a refund if they are entitled to do so under a double tax agreement.

The MF would in turn, as a pass through vehicle, calculate the proportion of earnings from dividends and pass a proportionate tax benefit to the MF investors. In general the dividend statement of the mutual fund (or any other investment agent) should specify the proportion of income received in the form of corporate dividends, short and long term capital gains and other income (interest, rent etc on which corporate tax has not been paid).

A genuine VCF, in addition to being a pass through vehicle should provide special procedures to facilitate high risk or very uncertain entrepreneurial activities and

⁴⁷ Surjit Bhalla has pointed out that off-shore use of derivatives allows foreign investors to avoid payment of 33% tax that local residents have to pay.

incentives for the same in line with global best practice (USA, Ireland, Israel, S Korea). These incentives should in general be the same for foreign and domestic investors and not biased in favor of the former. The key words here are ‘very uncertain’ and “high risk.”⁴⁸ The latter means that these are novel activities, for which there are no historical information to calculate the probability of success/failure. Though it is not easy to operationalise these terms, one has to ascertain and adapt global best practice to Indian conditions, particularly the abysmal enforcement of laws.

⁴⁸ Not ‘technology intensive,’ ‘high tech’ and ‘knowledge based.’

7 Monetary Management

In the conventional rational expectation model an exogenous increase in capital inflows (positive capital shock) must result in a real appreciation, either through a nominal appreciation or through higher inflation.⁴⁹ This in turn must result in a rebalancing of the economy from tradables (relative shrinkage) to non-tradables (relative expansion) without affecting the size of the economy or its growth rate. If the capital account is open, then the interest rate is determined by and fixed relative to the global interest rate. Consequently there are no direct effects on investment and growth of this inflow of foreign capital into the economy.

We assume that the bulk of flows into the Indian economy at this point in time are driven by medium-long term growth expectations (economy, corporate sector etc) not by short term arbitrage opportunities (interest differentials cum appreciation expectations).⁵⁰ An imperfect indicator is the proportion of net equity in total inflows.⁵¹ The inflow of FDI, equity and venture capital into an emerging economy characterized by expectation of sustained growth, can in our view, change the level of investment, the efficiency of intermediation and the productivity of capital and consequently the rate of growth of the economy. To the extent that this happens the assumptions of the conventional model are incorrect and therefore the implications for monetary and exchange rate management must be modified.⁵² For capital inflows driven by interest differentials, reform of financial markets (debt, banking, credit, inflow rules) and a reduction in the fiscal deficit are essential for correcting the differential and eliminating such flows.⁵³

Capital markets in emerging economies are typically underdeveloped and fragmented. Thus the relatively free flow of foreign capital into and out of the economy (which arguably holds for India) may not imply that all interest rates meet the interest

⁴⁹ The converse is supposed to happen if capital flows out (negative shock).

⁵⁰ And that this is likely remain true in the next 5-10 years in terms of either the proportion of flows or the ratio to GDP.

⁵¹ Sophisticated financial contracts may be used to disguise debt flows as equity in some cases.

⁵² Unlike in developed economies this phase can last a couple of decades in fast growing emerging economies.

⁵³ Short and long term respectively.

parity condition.⁵⁴ Further, greater inflows of capital, as they are accompanied by special skills and knowledge, could accelerate the monetization of the economy by broadening and deepening the degree of financial intermediation.⁵⁵

7.1 Exchange Management

It has been our policy since 1992 to allow foreign exchange markets to respond to permanent adverse changes in the BOP situation but to ensure that this happens in an orderly manner. On the other hand temporary shocks are to be dealt with through appropriate monetary and exchange rate interventions. Given the cacophony of public debate and strong disagreements among experts on the issue of managing large capital inflows, the paper tries to articulate policy for managing medium-long term excess flows of capital.

There is a fair degree of consensus that in a market economy (i.e. where foreign trade is not explicitly or surreptitiously managed through subsidies) a real appreciation of the exchange rate has, (a) a negative effect on exports and a positive effect on imports⁵⁶ and (b) reduces the size of the tradable sector relative to the non-tradable sector. The precise impact will differ for different countries depending on a number of factors including the elasticity of demand and supply and the extent of pass through. There is no such consensus on the affect of the exchange rate on economic growth, whether through its effect on foreign trade or through the effect on the tradable sector (particularly modern manufacturing) or through other channels. Broadly, the theorists tend to discount any such effects, while the empiricists tend to find some effect of exchange rate under/over valuation on growth.

⁵⁴ Bhatt and Virmani (2005) showed the existence of uncovered interest parity (UIP) in the money markets for 3 month Treasury bills (USA and India).

⁵⁵ Incorrect assumptions and simplistic application of developed country lessons can also have negative effects such as euphoria and panic a la Asian crisis.

⁵⁶ Virmani (1991a) showed that earlier results were flawed because market sectors (e.g. manufactured goods) were not dis-aggregated from controlled sectors (e.g agriculture and petroleum oil). Only the former can be expected to respond freely to price signals.

7.1.1 Exchange rate and Growth

Our research on economic growth in India has shown that an appreciation of the real exchange rate, defined as the price of tradable goods relative to the price of non-tradable services (ReXr) has a negative effect on growth.⁵⁷ The effect of changes in the real effective exchange rate (REER) on growth was not however, found to be statistically significant, **once the ReXr is accounted for**.⁵⁸ The difference probably arises because the ReXr is the net result of the interaction of the exchange rate, quantity controls and tariff rates.⁵⁹ One of the channels for this effect is the impact of the REER on net exports of goods and services, with a depreciation increasing the effective demand in the economy.⁶⁰ The positive effect of such an increase depends critically on the capacity of the economy for acceleration in real economic growth. Such a possibility is clearly greater when the economy is growing at 5% than when it is growing at 9%.⁶¹ There are however indirect gains from a higher level of exports and imports even when the net balance of goods and services trade does not change much. These gains arise from the effect of greater competition and competitive access to technology, capital goods and ideas. There is therefore, we believe, merit in moderating the appreciation of the rupee (as measured by the 36 country REER), arising from excessive capital inflows (net inflow in excess of current account deficit if any).⁶²

7.1.2 Exchange rate and Reserves

One way to do this is to mirror the policy approach that has been adopted for negative trends and shocks. That is to allow managed appreciation of the rupee in response to medium term trends but moderate the short term positive shocks through appropriate exchange rate policy. Some would say that this is what RBI/Govt has been

⁵⁷ Virmani (2005b), Virmani(2006b).

⁵⁸ In a comparative framework (in contrast to our single country analysis) Faria and Leon Ladesma (2000) show for a set of four developed countries (US, UK, Germany, Japan) that even though (bilateral) Purchasing power parity (PPP) seems to prevail in the long run, the (bilateral) real exchange rate seems to have a long run impact on relative growth rates (thus contradicting the theory underlying PPP).

⁵⁹ Thus a reduction in QRs and tariffs, resulting in the reduction in effective tariffs can offset part of the appreciation of the REER.

⁶⁰ Excessive focus on the rupee-USD rate or even the 5/6 country REER is inappropriate as they give partial and sometimes a completely misleading picture.

⁶¹ On the other hand if the economy is growing faster because it is more productive/efficient, then exports may respond more strongly to exchange rate changes.

⁶² Which is driven by expectations of returns in fast growing (relatively) newly opened economy.

doing till 2006-7 and that the approach should be continued. Others argue that there was too little flexibility during 2004-5 to 2006-7 and that this flexibility has increased in 2007-8 and that the latter is more suggestive of a flexible approach. Another, more formal operational version that has been suggested in similar contexts is for the Central Bank to set a symmetric band of 5% to 10% within which it does not intervene in the market. Intervention is then used only if the exchange rate moves out of the band. The band is also adjusted on a rolling/moving average basis if the exchange rate hits the band and stays there.

Whatever the version that is adopted, it should be complemented by an explicit policy for investment of reserves. All additions to reserves that are an outcome of this policy would either be (a) put in a separate fund or (b) treated as part of a separate reserve tranche. The objectives and risk parameters for such a tranche/fund would be somewhat different from the existing reserves.⁶³ The (ultimate) objective would be to earn a rate of return equal to the interest rate on Indian government securities purchased for the purpose of sterilizing these reserves plus targeted appreciation. This fund/tranche could only be invested in specified countries and specified categories/lists of securities with an investment grade rating. If successful, such a strategy would eliminate the cost of sterilization that has so exercised a number of observers/analysts.

A depreciation of the US\$ against major currencies generates a partial appreciation of the rupee as measured by the REER 36-country trade/export weighted (REER36), even if there is no change in capital inflows and/or purchases by the RBI. A view would have to be taken on whether to treat it similarly to or differently from a change in rupee value vis-à-vis all currencies.

⁶³ If capital inflows continue and reserves continue to grow at the current pace it will not be long before reserves double. In that case we may have to create another tranche or fund managed by an investment corporation, that could invest in equity and below investment grade paper.

7.2 Money Supply

The sterilization operations have to be meshed with the monetary management and inflation targets.

7.2.1 Inflation and Money

It is now conventional wisdom that lags between monetary growth and inflation are long and variable.⁶⁴ Thus sound empirical research is needed to determine these links. Our very preliminary research finds a link between money (M1) growth and WPI inflation:

$$(1) \text{ GrWpi} = 0.049 - 0.645 \text{ GrGdpfc} + 0.436 \text{ GrM1}$$

$$(1.7) \quad (-2.5)** \quad (2.5)**$$

$$R^2 = 0.28, R^2(\text{adj}) = 0.23,$$

$$(2) \text{ GrWpi} = 0.057 - 0.627 \text{ GrGdpfc} + 0.4546 \text{ GrM1} - 0.0385 \text{ GrNrfea}$$

$$(2.1)** \quad (-2.6)** \quad (2.9)*** \quad (-2.6)**$$

$$R^2 = 0.40, R^2(\text{adj}) = 0.36,$$

where GrX stands for growth rate of X, WPI is the wholesale price index, Gdpfc is the GDP at factor cost, M1 is the money supply and Nrfea is net foreign exchange assets of the RBI. Two facts stand out. One that the explanatory power of both equations is limited. This means that there is a substantial element of inflation that is not explained by monetary factors. Second the coefficients of GDP and money supply are different from one, contrary to the simplified quantity theory of money.⁶⁵

These or similar/better equations can be used to determine a monetary target consistent with targeted inflation and projected growth rate. This in turn can be translated into a targeted change in the monetary base using a multiplier. For instance if

⁶⁴ For Europe according to one expert this is between 1½ years and 3 years.

⁶⁵ Lagged values of these variables are not found to be significant. M3 is either not statistically significant or the explanatory power of the equation is lower.

we use equation (1) and target an inflation of less than 5%, with a projected GDP growth rate of 9% the targeted M1 growth rate is 13.5%. Assuming an M1 multiplier of 1.4 and assuming that the NDA will not grow this yields a targeted growth in RBI's net foreign exchange assets (Nrfea) of 10%.⁶⁶

Thus any growth of the RBIs net foreign exchange assets above this level would have to be sterilized. Sterilization would also have to be increased if the growth in NDA is positive or the GDP growth falls short of 9% (from equation 1 or 2).

During 2004-5 to 2006-7 RBI purchases of foreign exchange and the sterilization of these reserves (both) averaged about 1.7% of GDP. On average about 60% of the sterilization was done through an increase in CRR and the rest through MSS. During the first half of 2007-8, RBI purchases have already reached about 3.4% of GDP and sterilization about 2.4% of annual GDP.⁶⁷ The increase in CRR represents a reversal of the long term objectives of policy and RBI has stated that it is a short term reversal of the long term objective. Therefore increasing reliance will have to be placed on MSS and/or open market operations for sterilization in future. This also makes it urgent to de-control investment in government securities and commercial paper, by potential domestic and foreign investors, so that interest can fall and converge to corresponding global rates and eliminate sterilization costs.⁶⁸

7.2.2 Interest Rates

The approach outlined above has implications for the use of interest rate as an instrument of monetary management. Once the limits of GDP growth acceleration are reached the tri-lemma of monetary policy becomes applicable. This paper suggests that we break this tri-lemma by the use of an additional instrument, a fiscal instrument, the explicit or implicit tax on interest on foreign debt. This is used to eliminate arbitrage possibilities by equating after-tax interest rates in India and abroad. If this tax is held constant (or changed only in response to foreign interest rates) then domestic interest rates cannot be changed at will without recreating the problem. If the RBI wishes to

⁶⁶ Please note that these are merely illustrative calculations.

⁶⁷ During the first half of 2007-8 the ratio is 30-70, though the ratio for the whole year can be different.

⁶⁸ This is a key assumption of the monetarist/ rational expectation model. Without it some of the conclusions and recommendations of the model are not valid.

continue to use interest rate signals to change domestic interest rates, then the interest parity will have to be restored by changing the tax on foreign interest payments. As frequent changes in the tax rate may not be possible, the interest rate cannot be used as a frequent signaling device and sterilization operations would become the main instrument for controlling the monetary situation. With the risk free interest rate anchored to the global rate (as it must be under an open capital account) RBI may have to make more active use of prudential norms to signal its views on euphoric asset price based lending.

If the right to ECB is auctioned, however, the market price for this privilege will adjust to offset the interest rate changes. For instance, with a positive interest gap, a tightening of monetary policy (whether through interest rate signals or otherwise) would lead to a rise in the auction price of ECB rights.

In either case the width of the interest rate band around the global interest rate rates (and the corresponding tax rate/auction price) is limited by the need to minimize the incentive for tax evasion and/or the incentive to substitute equity inflows for debt flows.

If investment by financial intermediaries (domestic and foreign) is completely decontrolled, we believe that, the interest rates will converge over time and eliminate the need for such a tax.

7.2.2.1 Administered Interest Rates

For Banks and other financial intermediaries to function effectively within such a flexible financial market, any remnants of administered rates must be eliminated. This will mean making small saving rates and interest rates on government pension funds, market related. Several committees have deliberated on this issue and suggested that they be related to interest rate on government treasury bills and government securities and/or Bank deposit rates.

8 Fiscal Deficit

A further reduction of the fiscal deficit can widen the space for monetary policy effectiveness. In the long term a lower fiscal deficit will result in a reduction in the real domestic long term interest rate of the economy and thus brings it closer to the World

long term rates (US, Japan, EU).⁶⁹ In the short term it can reduce the excess demand pressure created by the inflow of foreign funds. Most high growth South East Asian economies had a fiscal surplus during most of their high growth period. Even in the short term, a lower fiscal deficit will mean a reduced supply of government securities and for any given demand structure a higher price for government securities and treasury bills i.e. a lower interest rate. This will directly reduce the interest gap with the US, Japan etc. We should target a reduction in the consolidated general government fiscal deficit to 3% by 2013, with 1.5% each for the Center and States, from the existing (2008-9) target of 6% (3% each for the Center and States).⁷⁰ A further reduction should be considered thereafter.⁷¹

9 Financial Market Development

A coherent and consistent framework of monetary management will allow us to accelerate the development of financial markets. There is an urgent need for developing competitive, open and well regulated markets for (a) long term debt (b) rupee futures and forwards, and (c) interest rate /credit risk products, so that economic agents can hedge their exposure in an efficient market with low transaction costs.⁷² By promoting the developments of these markets in India it will also generate financial skills and jobs in India. Such learning by doing in the financial sector is an essential foundation for the export of financial services in the future.⁷³

The lesson that we draw from the recent global financial crisis (Sub-prime mortgages, ABS, ABCPs, CDOs, SIVs etc.) is not that we should slow or stop financial innovation but that regulatory forbearance and accommodating accounting standards are inappropriate. We must apply (at least initially) stringent transparency conditions and strict accounting standards to fancy new products that few people in the economy really understand and initially regulate them fairly strictly. Conversely we must always be

⁶⁹ Chapter 3 of the WEO of October 2007 also shows that a reduction in the fiscal deficit reduces the costs of subsequent reversal of capital flows.

⁷⁰ This would also bring us into equivalence with the EU which has a 3% fiscal deficit limit under the Maastricht treaty. Note that the current target is double that of the EU.

⁷¹ A fiscal surplus can also contribute to an increase in a Nations's global wealth holdings. The most prominent example is China.

⁷² This requires the presence of speculators with diverse expectations.

⁷³ A la regional or global financial center.

prepared to loosen the strict regulations once the market participants are fully cognizant of all the implications of these new products so that the market can spread and grow rapidly to the benefit of relatively less well endowed participants.

10 Conclusion

The above note lays out a consistent frame work for monetary management in the context of excess capital inflows. Among the important features of this framework are:

(1) A change in the emphasis of capital inflow policy from a positive to a neutral stance on equity inflows and a negative stance on debt inflows.

(2) A reduction of the gap between Indian and foreign interest rate so as to reduce the incentive for debt inflows and reduce the cost of sterilization.

(3) A continuation/acceleration of our autonomous, widely acclaimed and highly beneficial reductions in tariff rates.

(4) A faster opening of the capital account to resident companies, entrepreneurs and citizens in terms of capital outflows.

(5) A rational trade-off between nominal appreciation and sterilization coupled with a flexible exchange rate policy and clear mandate for sterilization.

A shared perception of this policy framework and its broad approach will ensure that the government helps market agents reduce and manage the uncertainty arising from external and domestic shocks through development of markets for risk and sound regulation.

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