Recent Exchange Rate Movements in Sri Lanka

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Impact of exchange rate is manifold. It affects imports, exports and competitiveness; domestic prices and wages; domestic interest rates and investment; capital inflows and outflows; production specialization and resources allocation; and more seriously it can lead to crises and breakdown of economic and social structure. In the recent past countries have shown a tendency either to choose a hard peg or freely float the currency. Following the trend, Sri Lanka had to float the exchange rate in November, 1977, with interventions in guiding the rate. In January 2001, the intervention through quoting buying and selling rates was abandoned allowing greater freedom in the determination of the exchange rate through market forces. This paper explains basic facts about exchange rates, exchange rate regimes and the need for regime switches.

Exchange Rates and Exchange Regimes

1.1 Defining Exchange Rates

Exchange rate is a price. It is the price of one currency in terms of currency of another country or a group of countries. The price can be defined in nominal or real terms. The nominal exchange rate is the price of a unit of currency in one country in terms of currency of another country. Our nominal exchange rate is commonly stated as our currency per unit of foreign currency. eg. Rs. 93 per US Dollar.

Exchange rates in all countries move relative to other currencies. All exchange rates continuously move subject to market pressure. Even if countries have pegged and fixed rates, those currencies are pegged to floating currencies. Thus, they float with respect to other currencies.

The real exchange rate is the price of a good produced in one country in terms of the value of goods produced in a foreign country.

Real exchange rate = EP*/P

eg 1.
Sri Lanka's price index = P = Rs 105 (say)
Foreign country price index = P* =USD110 (say)
Nominal Exchange Rate = E =79 Rs/USD
Price of domestic goods in terms of Dollars =P/E = 105/79
Price of foreign goods in terms of domestic goods = 110/ (105/79) = EP*/P

eg 2.
Price of US Mango = $ 10 = P*
Price of Sri Lankan Mango = $ 2 = P/E
Price of a US Mango in terms of Sri Lankan Mangos = 5 = EP*/P

Nominal Effective Exchange Rate (NEER)

NEER is computed as a weighted average of several important nominal exchange rates. Weights are based on the relative importance of countries to Sri Lanka. Usually they are based on the bilateral trade volumes. The index is usually computed to reflect foreign currency value of the rupee. It is published in the Central Bank Annual Report. The following formula shows the computation of the index.

$$NEER = \prod_i E_i^{w_i}$$

Where Ei is the rupees per unit of foreign currency. Thus, lower NEER as given in Figure 1 shows Sri Lankan rupee depreciation.

Real Effective Exchange Rate (REER)

REER is computed as a weighted average of important real exchange rates as shown in the following formula:

$$REER = \frac{P}{\prod_i \left(P_i^* / E_i\right)^{w_i}}$$

Where P_i^* is the price index in the foreign country, and P is Sri Lanka's price level. REER is shown in Figure 2.

1.2 International Financial System and Evolution of Exchange Rate Regimes

An exchange rate regime is an arrangement used by a group of countries to settle payments among themselves and to determine their exchange rates. More common regimes are dollarization, fixed exchange rate regime, managed floating regime, pegged regime, crawling or adjustable regime, and free floating regime.

Before World War I, the world operated under a gold standard in which the currencies of most countries were convertible directly into gold. For example, a US Dollar was equivalent to approximately 1/20 ounce of gold, the UK Sterling was ¼ ounce of gold. Central Banks had to guarantee to buy or sell gold in unrestricted amounts at a fixed price. Adherence to this gold standard meant that a country had no control over its monetary policy. With the coming of the World War I, which led to massive trade disruptions, countries could no longer convert their currencies to gold, and the gold standard collapsed. As the world economic crisis developed in the 1930s, governments began to introduce exchange controls to ensure that there were sufficient reserves available to pay for essential commodities. After the World War II, victorious Allies met in Bretton Woods, New Hampshire, USA to develop a new international monetary system to promote world trade and prosperity. They introduced Gold Exchange Standard, created the International Monetary Fund and the World Bank. The objectives of the new monetary system were: to establish an international monetary system with stable exchange rates; to eliminate exchange controls; and to achieve convertibility for all currencies.

In the fixed system US Dollar was used as the reserve currency fixed at $35 per ounce of gold. Central Banks had to intervene in this system to maintain the fixed exchange rate. Central Banks devalued or revalued their currency depending on 'fundamental disequilibria' such as persistent balance of payment deficits or surpluses.

The Bretton Woods system was effective for about 25 years, although there were occasional crises and problems. Throughout most of the 1950s the international currency scene was reasonably calm and progress was made towards the objectives of the Bretton Woods system. In December 1958, the European Monetary Agreement came into force and convertibility (to a greater or lesser extent) was introduced for western European currencies.

Figure 1 - Normal Effective Exchange Rate

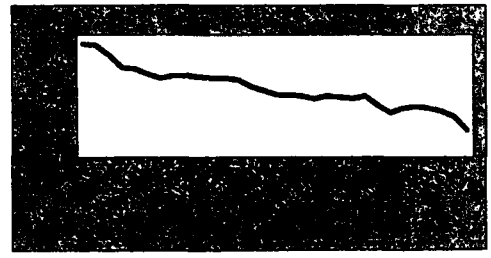
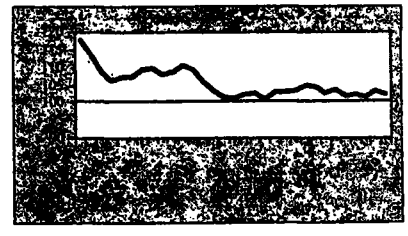


Figure 2 - Real Effective Exchange Rate



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At the end of 1958, however, the USA's huge balance of payments deficits started a run on gold, and the price rose above $35 per ounce for the first time since 1951. The central banks had to step in to resolve the crisis by establishing a gold pool and stabilizing the price by market intervention. The 1960s saw gathering difficulties, caused largely by the difference in growth rates between individual countries. Throughout the remainder of the 1960s there were further stresses. The May 1968 riots in Paris caused such a loss of confidence in the French Franc that the Banque de France used up so much of its currency reserves in supporting it that it eventually had to devalue it by 11 per cent in August 1969. The Deutsche Mark, on the other hand, was suffering pressure in the other direction. A huge inflow of capital into the Mark forced the Bundesbank in September 1969 to cease its intervention in the market and let the currency float for a short time. A month later, the Mark was revalued by 9.3 per cent.

The early 1970s saw a loss of confidence in the Dollar, due chiefly to the massive US balance of payments deficits. During the 1960s these deficits had been responsible for reducing the US's gold reserves from $18 billion in 1960 to $11 billion in 1970. By 1970, also, foreign official short term claims on the USA were more than double its gold reserve. As a result, the Dollar's convertibility into gold was increasingly brought into question. With confidence in the Dollar under attack, a decline in US interest rates from 1970 set off a Dollar crisis at the beginning of 1971.

A massive capital outflow from the US took place, seeking higher interest rates in Europe. This forced the major European central banks initially to intervene in the markets and then either to revalue (in the case of Switzerland and Austria) or, like Germany and Holland, to float. The Dollar crisis continued, however, and by August 1971 the US finally abandoned Dollar-gold convertibility. The Smithsonian Agreement of December 1971 attempted to establish a realignment of the major currencies and a return to fixed parities. In February 1973 the US devalued again and raised the gold price to $42.22. This failed to stop the outflow of capital, however, and in March 1973 Japan and the European hard-currency countries announced that they would no longer intervene in the market. This action marked the demise of the Bretton Woods system. Since then countries have resorted to various regimes.

Why do Exchange Rates Move?

Determination of Exchange Rates

Researchers have observed that the exchange rate follows economic fundamentals in the long-run such as export growth, BOP surplus or deficit, output growth, relative inflation and interest rates.

2.1 Long-run Rate — Purchasing Power Parity Argument

Exchange rate fluctuates to equate prices of goods across borders.

$EP^* = P$

Balance of Payment Argument

Demand for Rupees (Supply of Foreign Exchange)

= f(Exports, Capital Inflow)

= f(Foreign Income, Price Differential, Interest Rate Differential)

Supply of Rupees (Demand for Foreign Exchange)

= f(Imports, Capital Outflow)

= f(Domestic Income, Price Differential, Interest Rate Differential)

In this framework exchange rate fluctuations follow economic fundamentals. Some illustrations are as follows:

1. Increase in domestic income may lead to increased imports causing the exchange rate to depreciation.
2. Increase in foreign income may increase the demand for domestic goods causing the exchange rate to appreciate.
3. Increase in domestic price may divert domestic consumers to purchase foreign goods leading to a depreciation of domestic currency.
4. Increase in interest rate may attract foreign funds to a country leading to an appreciation of the domestic currency.

Short-run Determination of the Exchange Rate

In the short-run exchange rate is determined by activities in the foreign exchange market. The banks are the natural intermediary between foreign exchange supply and demand. The main task of a bank's foreign exchange department is to enable its commercial or financial customers to convert assets held in one currency to assets held in another currency. The conversion take place as a 'spot' transaction or a 'forward' transaction. Banking activities in the foreign exchange field tend inevitably to establish a uniform price range for a particular currency throughout the financial centers of the world. If at a given moment the market rate in one center deviates too far from the average, the balance will be restored by arbitrage.In Sri Lanka foreign currencies are traded with prices quoted in terms of rupees. There is no international market for rupees as it is not a convertible currency. Daily rates are determined by the activity levels in foreign exchange markets, and are subject to formation of market positions.

Interest Rate Parity

The parity argument asserts that exchange rates fluctuates to equalize returns to investment. The return depends on the difference between foreign and domestic interest rates and the expected exchange rate depreciation. Thus, when the market expects a greater depreciation the domestic interest rate tends to rise.

$$R = R^* + Exp(Depreciation)$$

Determination of short term rates also depends on the market perception by each individual foreign exchange dealer. Dealers acquire their skills through experience. However, even a skillful dealer could be swayed by adverse expectations and herd behavior leading to wide fluctuations of the exchange rate.

Empirical research shows that short run exchange rate movements follow a random walk.

Figure 3a - Long-run Exchange Rate

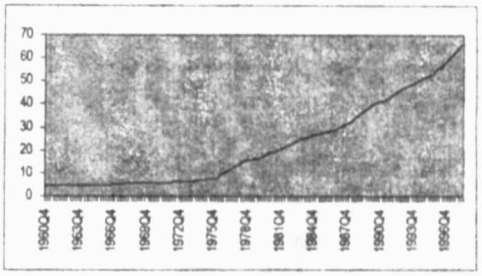
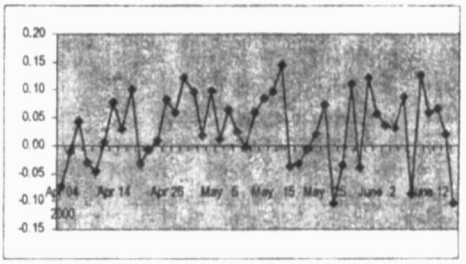


Figure 3b - Short-run Exchange Rate

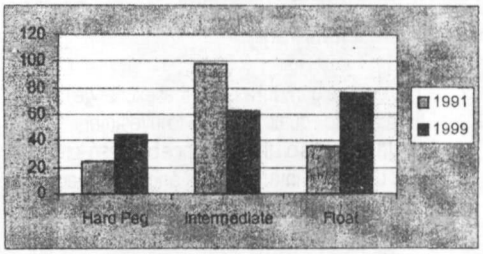


This implies that the difference between today's and tomorrow's rates is not predictable.

Exchange Rate Management and Choice of Regimes

In a dollarized economy national currency is abandoned in favor of dollars (or any other currency) as Ecuador and El Salvador did recently. In a currency board system national currency is linked to a foreign currency. In the fixed exchange rate regime (conventional peg or pegged with a horizontal band) a Central Bank maintains a fixed value for its currency with respect to one major currency or a basket of currencies. Whenever the national currency shows a tendency to move away from the fixed value, Central Bank intervenes by buying or selling national currency to mop-up the excess demand or supply. In a crawling peg, the currency is

Figure 4 - Exchange Regime Switches



Source: International Monetary Fund

adjusted periodically in small amounts at a fixed, pre-announced rate. In a crawling band the currency is maintained within certain fluctuation margins around a central rate. In a managed floating regime the central bank intervenes in the market by buying or selling domestic currency using foreign currency without any pre-specified path. Freely floating regime is where the exchange rate is determined by market forces. Central Bank does not intervene in the process. Therefore, the Central Bank has the control over the domestic money supply, and it could be used to curb domestic inflation.

Exchange Rate and the Monetary Policy

From the inception, two of the major objectives of the Central Bank have been the preservation of domestic value of rupee and the external value of rupee. Over time the Central Bank has directed the monetary policy to achieve the two objectives. This was done by allowing only the permissible growth in money supply, and intervening in the short term interest rate determination to contain excessive cost of borrowing.

The money supply in the country is dictated by the pressure on the exchange rate. Hence, As Robert Mundell has asserted, a central bank with fixed exchange rate cannot use its monetary policy for stabilizing domestic inflation. Those countries with rigid fixed exchange rates such as Hong Kong, Argentina, Estonia and Lithuania do not have central banks, instead they operate with currency boards. As Robert Mundell has explained monetary policy is totally ineffective when exchange rate is fixed. It is effective when the exchange rate is fully flexible.

In view of new theoretical and empirical findings, many central banks have increasingly focused their attention on the sole objective of price stability, while letting exchange rates be determined by market forces. However, there still exist interventions to eliminate extreme fluctuations. Central Banks use exchange rate as an intermediate target to guide monetary policy. Their main instrument is the short term interest rate. The interest rate affects exchange rate in the short run through interest rate parity condition.

Exchange Rate and Competitiveness

It is generally agreed that misaligned exchange rate, especially when it is overvalued could affect a country's competitiveness. However, exchange rate alone cannot enhance a country's competitiveness. As recent discoveries show country competitiveness is a function of many microeconomic concepts of a firm.

Adverse Expectations and Financial Crises

An overvalued currency is the key to a crisis. It is now well accepted that misaligned fundamentals will decide IF a crisis will occur, and adverse expectations will decide WHEN it will occur. If a central bank maintains a higher value for its currency market players will form adverse expectations and stage a run on the central bank, similar to a run on a commercial bank by depositors. Recent episodes in East Asia, Russia, and Brazil clearly show adverse impact of over valued currency. If a central bank does not regularly revise the value of its currency market players will form adverse expectations and stage a run on the central bank, leading to a currency crisis.

Polarization

Increasingly central banks have moved away from managed or crawling regimes to either hard pegged or freely floating regimes. Figure 4 shows the world experience.

Exchange Rate Movements and Regime Changes in Sri Lanka

Evolution of Exchange Controls in Sri Lanka

Balance of Payment situation determined the exchange controls in the early years since World War II. Controls were intensified in late '50s due to BOP difficulties. With the oil price shock of '70s the controls were further tightened. Restrictions were relaxed with the liberalization of the economy in 1977. Sri Lanka accepted Article VIII of the IMF and fully liberalized the current account, i.e. no exchange restrictions are applicable to trade and travel. Sri Lanka has relaxed the following set of the capital account transactions.

Investment

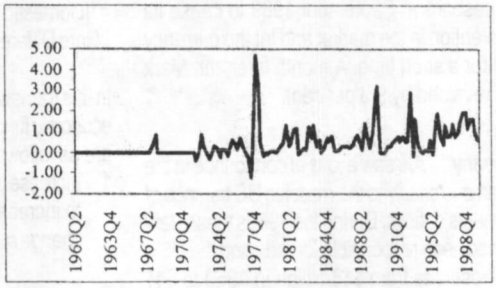
Incoming investment is free (Outgoing investment is under control)
Certain BOI projects are exempted from the above controls
Portfolio investment via SIERA (Share investment external rupee accounts)
Investment abroad approvals case by case
Borrowing and Lending
Banks could borrow up to 15% of their capital
Corporate sector can borrow – case by case

Repatriation is allowed for foreigners but, controlled for locals.

Evolution of Exchange Rate Regime

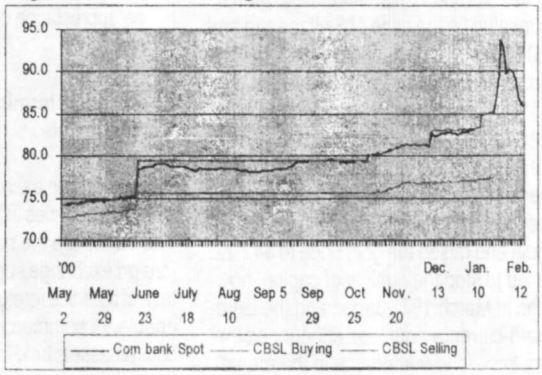
After the Independence Sri Lanka continued with a fixed exchange rate system until 1968. (See Economic Progress of Independent Sri Lanka, Central Bank, 1998). In 1968 a dual exchange rate system was introduced in the aftermath of rupee devaluation of 1967. The unsatisfactory export performance led to the devaluation in 1967. The dual exchange system known as the Foreign Exchange Entitlement Certificate Scheme

Figure 5 - Exchange Rate Movements in Sri Lanka, 1960-98



was introduced in 1968 and operated with one exchange rate applicable to essential imports and non-traditional exports (low rate) and a higher rate applicable to exports and 'non-essential' imports. In November 1977 the dual exchange system was abolished, and Sri Lanka adapted a floating system. The Dollar was depreciated from Rs. 8.83 to Rs. 15.56. Changes in exchange rates before and after the collapse of Bretten Woods

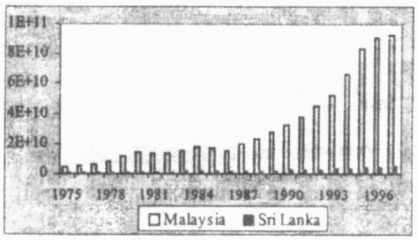
Figure 6 - Recent Exchange Rate Movements



Sri Lanka Rupee Rate

Central Bank began quoting fixed daily rates for six major currencies. In 1982 the quotation was limited only to the US Dollar. The Dollar was Rs. 21.03, with intervention band of Rs. 21.02 & 21.04 (roughly .07 %). In March 1987 the band was widened to 0.1% , the buying and selling rates were Rs. 28.4 & 28.77. In March 1992 the

Figure 7 - Exports of Malaysia & Sri Lanka



margin was widened to 1%, intervention rates were 42.98 & 43.42. In March 1995 the band widened to 2%, intervention rates were Rs. 49.41 & 50.41. In June 2000 Central Bank begins intervention on a horizontal band. (Figure 5)

On January 23rd, 2001 Central Bank stopped announcing the buying and selling rates. Temporary prudential requirements were imposed to manage drastic fluctuations of the rupee. (Figure 6)

Behavior of Exchange Rate and Central Bank Intervention

Central Bank monitors exchange rate movements in relation to an array of factors such as—

- developments in the exchange rates of major trading partners;
- expected developments in international currency markets;
- developments in domestic foreign exchange and money markets;
- projected developments in the balance of payments;
- developments in the Real Effective Exchange Rate; and
- tendency to form adverse expectations

Central Bank has also imposed several prudential measures to avoid adverse fluctuations of the exchange rate. Limits were placed on daily working balances maintained by commercial banks in foreign exchange, on the basis of past export-import transactions. This was to prevent banks building up foreign exchange for excessive trading. Banks were instructed to ensure settlement of export proceeds within 90 days. Penalty interest rates were to be charged when overdue. Forward sales and purchase of foreign exchange were to be backed by a rupee deposit of 50 per cent, to discourage excessive forward contracting. Banks were advised not to permit early or prepayment of import bills, in anticipation of a depreciation. Banks were also instructed to limit their forward market operations only to trade based transactions.

Matching Experience with Fundamentals

During the fixed exchange regime, Sri Lankan rupee was fixed at 4.76 rupees per dollar. The currency was devalued in the late sixties in view of large BOP deficits and falling external assets. After 1973 the rate continued to slide downward responding to the deficit in the current account, and increasing domestic prices.

Current Account Balance of Sri Lanka

Central Bank was able to contain undesirable short term fluctuations through intervention both at low and high values. The exchange rate was given sufficient freedom to move and be on its own course by allowing gradual upward or downward movements. The long-run movements are monitored by observing the behavior of real exchange rate.

Matching Experience with East Asia

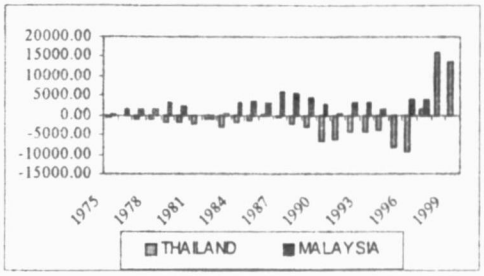
Malaysian experience

Malaysian ringgit rate was stable unlike the Sri Lanka's exchange rate. This is illustrated by high export volume and positive trade balance in Malaysia. For example, in 1997 Malaysian exports was US $ 90 bn compared to Sri Lanka's exports of US $5.5 bn.

Thailand experience

Thailand experienced an exchange rate crisis as the exchanged rate was fixed irrespective of worsening fundamentals. Figures 7 and 8 illustrate the experience.

Figure 8 - Balance of Trade in Malaysia & Thailand



South Asian Experience

South Asia is typically a region with low export growth, low productivity, closed economy concepts in macroeconomic management. Hence, exchange rates in South Asia have had a depreciating trend as shown in Figure 9.

Recent Exchange Rate Developments and Impact

Sri Lanka's exchange rate was subject to increased pressure due to the following major factors:

- Adverse international oil price shock
- Escalating defence expenditure
- Worsening trade deficit and balance of payment deficit
- Worsening external reserves
- Adverse expectations

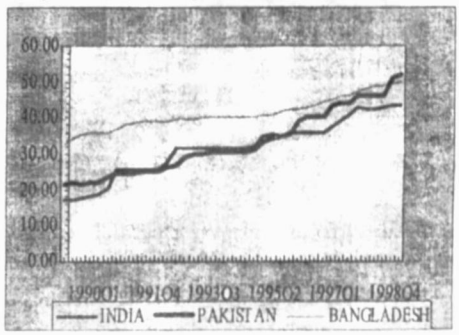
Central Bank attempted to contain the pressure by increasing interest rates and by granting greater freedom to the determination of the exchange rate.

Why Float?
Large and Complex Forex Markets

Each day more than $1.2 trillion worth of exchange (75 times of our annual income) changes hands around the globe. This is an amount far exceeds the daily value of world trade. Thus, even a small change in exchange rates can have immediate and profound effects on economic events, ranging from our level of consumption to profits of firms. Large changes can shake governments as we have evidenced in East Asia. Today's exchange rate regimes are profoundly different from the regimes existed few decades ago. In the current system exchange rates among the major currencies fluctuate in response to market forces. International private capital flows finance current account imbalances today unlike the financing of imbalances through official means few decades ago. Lower transaction costs arising from developments in telecommunications and information technology has fueled up the process of integration in financial markets and the world economy imposing serious challenges to the management of exchange rate in small economies. In addition to the influence by developments in external economy exchange rate movements are affected by adverse expectations of people. As evidenced from the 'tequila' crisis of Mexico in 1994 and repeated in East Asia, Brazil and Russia in 1997, a fixed exchange regime is not sustainable by a central bank.

The independent monetary policy contradicts with fixed or managed regimes. (Mundell 1962). If a central bank maintains a managed regime it should stand ready to support its currency. Thus, the system is not substantially different from a fixed regime. This leads to confusion over the final policy target; if it should be external value of the currency (exchange rate) or the domestic value of the currency (domestic price level). Such a system is sustainable if financial markets are relatively small and rather unsophisticated. In today's world, financial system is very complex and new financial instruments and new developments

Figure 9 - Exchange Rates in South Asia



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information technology allow market players to be very sophisticated. Thus, they can make use of any managed system to gain arbitrage profits. When the central bank announces an intervention band it also gives signals to the market on the future exchange rate path assumed by the Central Bank. Since central bank also takes into account market signals, a vicious cycle of ever depreciating exchange rate could arise. Hence, a central bank has to be very clear about its monetary policy targets. If it intends to target the exchange rate, a currency board system is more useful; even though it is not ideal. If it intends to target domestic price level of inflation, the exchange rate has to be floated and it should be allowed to be determined by market forces.

Impact
Immediate Overshooting (depreciation)

Estimates using Thai data show that one percentage depreciation in exchange rate will increase inflation rate by 0.03 percentage points immediately.

Impact of step depreciation on inflation diminishes gradually.

Thai depreciation and inflation

Monetary policy could now be designed to curb long-run inflationary pressures. The inflationary pressures have so far been low, but after the rapid depreciation the pressure may rise. The increased mobility in the determination of the exchange rate will grant greater freedom to the monetary policy to aim at reducing inflation.

Sri Lanka's Inflation

The true market rate will allow export supply and import demand functions to fall in line, result in a proper resources allocation. Thus, if previously the exchange rate was unrealistically high, gradual depreciation will discourage some imports giving a boost to the domestic production sector, and the export sector. If however, it were unrealistically low, the resulting appreciation will increase imports, all consumer, intermediate and investment goods boosting the consumer welfare and growth of the economy. It may have an adverse impact on exports, but it will avoid foreigners purchasing domestic resources at unrealistically low prices.

Concluding Remarks

- Nominal exchange rate follows macroeconomic fundamentals of an economy in the long-run, whereas short-run fluctuations follow a random walk.
- A central bank should not fix the exchange rate as it will invite the formation of adverse expectations and economic crises. Currency Board or Dollarization is more sustainable, if existing macroeconomic conditions permit such a move.
- Countries have moved away from intermediate regimes to polar regimes.
- Exchange rate could operate freely in an environment of capital account liberalization. Sri Lanka has partially opened the capital account, and is considering the complete liberalization.
- Freely moving exchange rate enhances the efficacy of the monetary policy.
- Stable and strong exchange regimes are outcomes of strong economic fundamentals. Thus, there is a need for promoting growth generating factors in the economy cannot be over-emphasized. Those are technology, human capital; research and development, and infrastructure.