



International Journal of Physical and Social Sciences

(ISSN: 2249-5894)

CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
<u>1</u>	Malaysia Ministry of Education's Selection of Poems for the Form Four and Form Five New Literature Component. Dr. Chew Fong Peng and Ms Tan Li Chin	<u>1-23</u>
<u>2</u>	An investigation into motivation techniques used by the University of Zimbabwe administration to retain staff: 2008-2010. Tendai Douglas Svotwa, Freddie P Mupambireyi and Samuel M Gumbe	<u>24-58</u>
<u>3</u>	Dutifulness and Social Responsibility of School Teachers. Armin Mahmoudi	<u>59-71</u>
<u>4</u>	Small and Medium Enterprises (SMEs): A Promising Sector for Sustainable Development in Bangladesh. Md. Nazmul Haque	<u>72-91</u>
<u>5</u>	Managing High Performance in Business Organisations: Components of Excellence. L. P. Padhy	<u>92-114</u>
<u>6</u>	The White Tiger. Aravind Adiga	<u>115-123</u>
<u>7</u>	A study on Safety and Health provision that act as a drive force for the Employees in manufacturing sectors. Dr. S. Chitra Devi, Dr. K. J. Renuka and Anand.J	<u>124-139</u>
<u>8</u>	Nature Of Job And Occupational Stress: A Study Of Workers Of An Industry. Dr. Syed Khalid Perwez and Dr. Abdul Khalique	<u>140-170</u>
<u>9</u>	Effect of Flyash on the Properties of Waste Plastic Fibre Reinforced Concrete - An Experimental Investigation. Dr. Prahallada M. C. and Dr. Prakash K.B.	<u>171-191</u>
<u>10</u>	Ethnic upshots on senior citizen finance in India - An empirical study on reverse Mortgage- need and challenges. Prof. Suresha B and Dr. Gajendra Naidu	<u>192-212</u>
<u>11</u>	Competitive Advantage and Human Resource Treasures; the Perils Attached with Ignorance of Tacit Knowledge in 21st Century. Dr Tripurari Pandey	<u>213-234</u>
<u>12</u>	A study on Role of Literacy on dietary pattern among pregnant women in rural areas of Aligarh, U.P. Dr. Saba Khan and Farhat Jahan	<u>235-248</u>
<u>13</u>	Emotional Intelligence Explores Human Resources as Social Capital. Dr. J. Venkatesh and Mr. D. Balaji	<u>249-264</u>
<u>14</u>	Globalization: Its Impact On The Composition And Growth Of India's Foreign Exchange Reserves With Special Reference To Capital Inflows And Outflows, Full-Convertibility And Optimum Level Of Foreign Exchange. Dr. Hala Raman	<u>265-296</u>
<u>15</u>	A Study On Transform Stress Factors Related To The Strategies To Cope With Of Employees In Selected Textile Industries In South India. Dr. G. Sakthivel	<u>297-317</u>
<u>16</u>	Investment Analysis And Portfolio Construction. Dr. B. Revathy and N. Suthendren	<u>318-335</u>

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Title

GLOBALIZATION: ITS IMPACT ON THE COMPOSITION AND GROWTH OF INDIA'S FOREIGN EXCHANGE RESERVES WITH SPECIAL REFERENCE TO CAPITAL INFLOWS AND OUTFLOWS, FULL-CONVERTIBILITY AND OPTIMUM LEVEL OF FOREIGN EXCHANGE

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Abstract:

Apart from highlighting the historical and theoretical aspects of foreign exchange rate, the study aims to analyze the composition of India's foreign exchange reserves during the period between 1991 and 2009 and the issues related to optimum level of holding of foreign exchange reserves, full capital account convertibility, flow of capital and interest rate have also been critically analyzed. The study shows that the exposition of Indian economy in 1991 to global has much perceived effect on accumulation of foreign exchange reserves but India, at present, can not move on to full capital account convertibility due to fiscal deficit, inflationary trends and lack of very sound global level financial centre. The study reveals that India has presently obtained more than optimum level of foreign exchange reserves and Indian interest rates and investment climate were conducive to foreign exchange inflows which accrued mostly from capital accounts to various sectors of Indian economy during period under study.

Prior to first world war, the potentiality of earning foreign exchange by trading countries was limited due to the export of traditional commodities. Due to the situation, during the period between 1870 and 1914, there was no major currency crisis and the international trade and finance flourished without any major currency devaluation or revaluation (Friedrich Claus 1974)¹. But, after the world wars, due to the industrialization and diversification of trading among the countries, the foreign exchange market in the international level has undergone remarkable changes which includes the emergence of fixed exchange rate, flexible exchange rate, flexible or fixed exchange rate with band, "dollarization", Currency BOARDS, SDRs, EURO currency and other kinds of developments. Along with these developments, the determination of exchange rate based on basket of currencies by IMF in 1975 was also emerged and it resulted in assigning different weights to different currencies based on their exports and imports for fixing the exchange rate of the currencies of the individual countries.

Though the problem of foreign exchange is very often dealt with by the World Bank and International Monetary Fund, the International Bank for Settlement, the central banks of individual countries or union of countries, the exchange rates among trading countries often pose to be destabilizing forces in the management of foreign exchange, domestic inflation and

liquidity, growth of manufacturing industries, international trade and balance of payments of individual countries

Review of work on issues of forex reserves

Russell S Boyar(1978)² affirms that the optimal exchange rate policy is aiming at an appropriate degree of exchange rate flexibility but not targeting on a complete fixity or flexibility of the exchange rate. Don E Roper & Stephen J .Turnovsky(1980)³ opines that the appropriate level of foreign exchange market intervention should be considered in the framework of the level of international reserves and the changes in the exchange rate. Michael B. Connolly & Dean Taylor(1984)⁴ asserts that the choice of fixed exchange rate peg depends on a specific monetary discipline of the country which aims at equalizing monetary growth of the country with that of the currency to which its currency is to be pegged

Michal .P. Doodley et al(1989)⁵ examined the composition of foreign exchange in both industrial and developing countries during the period 1976-85 and highlighted that the countries composition of foreign exchange reserves were influenced by trade flows with reserve currency countries ,the denomination of currencies for debt service payments and the exchange rate arrangements. Wijnholds and Kapteyn (2001) suggests that forex reserves equivalent to 5 to 20 percent of M2 may be sufficient in accordance with the nature of exchange rate regime prevailing in that country .Mckonnan (2003)⁶ pointed out that American overspending has resulted East Asia into current account deficit and dollar asset which in turn mitigated its exchange rate appreciation and depreciation.

Rodric (2006) evaluated the cost of holding forex reserves as the difference between the cost of borrowing abroad and the return on reserves and found that when reserves accounted for 30 percent of GDP ,the cost accounted for 1 percent of GDP. Lim Ewe-Ghee argues (2006)⁷ that the Euro has overtaken the legacy of currencies as a reserve currency and that economic size alone is not a yardstick to challenge the net work externalities of US dollar..M.S.Mohantry & Philip Turner(2006)⁸ opines that a prolonged foreign exchange Reserves accumulation results in high intervention costs ,near- term inflation, overheated credit and asset markets, distorted banking system and monetary imbalances.

A study undertaken by Charles Wypoloz(2007)⁹ shows that the main source of uncertainty in Forex accumulation depends on capital flows rather than trade flows. Russell Green and Tom Torgerson (2007)¹⁰ highlights that when a country faces risk of capital flight, the may resort to implement money based measures. Roland Beak & Ibrahim Rahbari(2008)¹¹, while estimating optimal dollar and Euro shares of 24 emerging countries, the authors conclude that the optimal reserve portfolios are denominated by anchor currencies and reserve to debt ratio has moderate effect on optimum reserves and again, dollar is the best hedge for global sudden stops of forex reserves for Asia and Latin America and Euro is the best edge for Europe.

I Theoretical Aspects of Foreign Exchange Rate

The most important factors that determine the exchange rate are demand, supply, speculation and lags and leads of foreign exchange movement. As far as foreign exchange rate is concerned , the part played by arbitrators, traders, hedgers and speculators is much perceived. The foreign exchange rate of a country is not only influenced by spot transactions but also, by forward transactions in the foreign exchange market. Exchange rate will appreciate in a country when the demand for foreign currency in that country is lower than the supply. But, in the period of abnormal and severe depreciation in exchange rate, the residents in a country tend to convert their domestic currency into foreign currency and in such situation, a crisis in foreign exchange market is quite possible.

The disorderly, severe and abnormal character in foreign exchange movements may imply an exchange rate crisis. Even a country faces abnormal increase in the foreign reserves, it may suspect a crisis. In normal situation, a depreciated currency attracts a new demand for depreciated exchange and thereby, the depreciation can be gradually slowed down or eliminated. But, in abnormal foreign exchange market, the depreciation of currency will tend to deteriorate further leading to foreign exchange crisis.

Along with increase in forex trade, the private speculative transactions have been remarkably increasing during the last decade and the private speculation still exists as a challenge to the central bankers in all over the world. In times of depreciation and appreciation, the private speculators are vying with activities of the concerned central bank to reach their profit target. In

this context, it should be noted that the economists such as Freidrich Hayek and Rudolf Von Mises relied on the efficiency of market in determining exchange rate while Oskar Lange believed the role of central banks.

When a country confronts selling pressure of its currency, it tries to strengthen the exchange reserve by resorting to long term inflow of capital with the objective of avoiding exchange crisis or it may resort to partial liquidation of its currency to suppress the exchange crisis. But minimizing the official selling of foreign currency while facing selling pressure on its currency, a country can conceal the form of crisis for the time being without finding any solution to the problem

Foreign exchange crisis may also be perceived when a country faces severe problems in the fundamentals of exchange rate namely current account and capital account, external debt, fiscal deficit , high inflation, severe deflation etc. However, in the broader sense, the exchange rate of a currency is succumbed to pressure in the framework of fiscal, monetary and import and export policies of a country and the position of key currencies^{FN-1} in the world. More often than not, the foreign exchange crisis is not easily cognizable or rather disguised but certain aspects of economic indicators or systems will reflect the crisis in different degrees.

In fact, “forex reserves are instruments to maintain or manage the foreign exchange rate and enable orderly absorption of international money and capital flows.”(Y.V.Reddy 2002)¹².In the foreign exchange reserves management, the adoption of keynesian pump-priming may stimulate imports which, in turn,result in larger trade gap resulting foreign exchange imbalance. That is why pump priming is resorted to as a last weapon to combat currency crisis and flight of capital. Comparative rates of inflation and interest rate prevailing in trading countries are also equally important in determining capital flows towards investment and thereby influence the growth of foreign exchange and the determination of foreign exchange rate.

II Historical Development of Exchange rate system

In the era gold standard,from!815 to 1914 ,gold as a percentage of money supply of the United States, ,France and Britain declined from 33 percent to 10 percent. During the world wars, inflation gripped many countries and all efforts taken to reestablish prewar gold standard

collapsed in 1930s. Many countries one by one declared that they could not maintain gold standard. In the backdrop of such development, in 1944, the

1(F.N) Key currency: key currency is a currency that is generally accepted to settle debts among all countries.

Bretton Woods system laid the basic foundation to avoid instability and disruption of world trade by providing a formula of fixed exchange to all countries to combat currency competitiveness among the trading countries. Subsequently, along with the fixed exchange rate, particularly during the 1960's, many countries resorted to swap arrangement^{2.FN} to overcome their foreign exchange problems. The fixed exchange rate existed from 1944 to 1973 but "since March 1973, the international monetary system has been characterized mainly by floating exchange rate"¹³ (Lawrence S. Ritter & William. L. Silber 1977). It should be noted in this context that the floating exchange rate existed illegally from 1973 contrary to IMF's fixed par values and in Jan, 1976, at the IMF's meeting in Kingston, Jamaica, the entire fixed exchange rate system agreed at Bretton Woods was replaced by flexible exchange or floating exchange rate. Adoption of flexible exchange is also due to the fact that US could not withstand gold exchange standard. Since then, this system worked out smoothly by providing panacea for all types of speculative flow of foreign exchange to a considerable extent. In consonance of these developments at the international level, the adoption of fixed exchange rate has been losing its attraction. As such, the present international exchange rate system can be described mainly as a managed float system¹⁴ (Dudly G. Lockett 1981) and the greatest advantage of floating rates is that it reversed the trend towards "international hypertrophy"^{3FN} and it is supposed to mitigate high volatility in foreign exchange rates.

2(FN) Swap arrangements: This method was developed in the 1960's, by which, the central bank of trading countries would credit each other with a simultaneous spot and forward transaction.

3.(FN)“International Hypertrophy may be defined as the progressive enlargement of International organisation due to excessive nutrition” P.T.Ellsworth & J.Clark Leith: The International Economy ,Macmillan publishing company. Inc. New york,-1975 p-487

In the managed float system regime, the certain countries such as Brazil and Argentina which adopted a fixed exchange rate with a currency board did not bring their desired results. It is widely accepted that a country that aspires for a currency board has to forego monetary independence or the objective of stability in the foreign-

exchange market. Therefore, the adoption of fixed exchange rate with Currency Board is not a viable weapon in the floating or flexible exchange rate regime. Again, ‘free float’ is also not a feasible solution because it is not succumbed to government intervention. It is argued that in the free float regime, there may not be a need for a large foreign exchange reserves and, as a matter of policy, the government has to accumulate all the time a certain level of foreign exchange reserves. However the countries with their own global reserve currency such as US, free float may be a plausible option in many respects and most of other countries have now resorted to an intermediate strategy namely a managed float implying foreign exchange interventions due to the reason that the external value of one’s currency does matter in the domestic economic management and external trade and services.

With regard to Currency Board and exchange rate, between 1991 and 1998, Argentina was on a fast track of economic advancement with currency Board arrangement. “Argentina has passed from a speculative boom in the mid 1990’s to an economic depression in 2003”¹⁵(James Petras 2003). The adoption of currency board limited the ability of Argentina to respond to external shocks. Argentina abandoned the Currency Board arrangement in mid 2002. As regards the external debt, the small and open economies are also more prone to large external shocks of different nature and, for instance, “the Argentina crisis has clearly showed the danger of large external debt and the disadvantage of a fixed exchange rate”¹⁶.(Geethanjali Nataraj & Pravakar Sahoo 2003) The currency crisis in Argentina eroded the currency values remarkably and as a result, the debt burden of Argentina increased leading to the level of national bankruptcy.

III Facets of India's foreign Exchange Rate

As far as Indian economy is concerned, high capital flows into India have been mostly due to high economic growth in India due to globalisation, excess liquidity at the global level and the wide interest rate difference between India versus other developed countries. Of course, capital movements are not always triggered by pure arbitrage but the impact of arbitrage (M.R, Das year not given) on inflows of foreign currency can not be left ignored¹⁷. Though there has been a substantial fall in interest rate in developing countries it is still higher as compared to interest rate prevailing in some developed countries. This situation paves the way for non-resident Indians to hold liquid assets in India.¹⁸(Barry N.Siegel 1982). In spite of this situation, India is ready to channel a part of the foreign exchange reserves to the US owing to larger foreign exchange reserves accumulated after the introduction of new economic policy and the robustness of US financial system in the earlier period attracts such investment not only from India but also from other countries.

The fluctuation in the flow of foreign exchange in India has very often forced the Reserve Bank of India to go for intervention in the foreign exchange market in one form or another. Though the flow of foreign exchange is influenced by many factors, the condition of foreign investment inflows and the fall in export have very often compelled the Reserve Bank of India to take hard decisions in respect of foreign exchange market. Among the factors affecting foreign exchange rate in India, which factor is of prime importance depends on the actual situation prevailing in that particular point of time.

In India, the Foreign Exchange Regulation Act was introduced in March 25, 1947 and the responsibility of formulating the exchange control policing which is based on the subsequent Foreign Exchange Regulation Acts^{4FN} is vested with the Ministry of Foreign Trade, Government of India. The Reserve Bank of India is carrying out the activities of exchange control and has categorized the specific currencies^{5FN} which can be accepted as payments for export. To meet the changes that are taking place in foreign exchange market, the then Finance Minister, Yashwant Sinha replaced Foreign Exchange Regulation Act of 1973 with the Foreign Exchange Management Act(FEMA) which is now attracting a wide appreciation from the economists and traders in view of minimisation of checks and balances for the legitimate movement of currency and their utilization .

As far as India's foreign trade is concerned, considering the period between 1990-1991 and 2007-2008, the imports had been mostly exceeding exports and as a result, the accumulation of foreign exchange was limited through trade..The current account deficit of India which was 3.0 percent of GDP in 1991 registered a surplus of 0.7 percent of GDP IN 2001-02,1.2 percent of GDP in 2002-03 and recorded a further surplus of US414.1billion in 2003-04.The current account deficit averaged only 0.6 percent of GDP during 1994-95to 2003-04 as compared to 1.8 percent in 1980s.The current account registered a surplus in 2001-02 after a period of 23 years and continued surpluses in the following three years. Nevertheless it could not record the same trend in the following years and it recorded a deficit of around 1 percent of GDP in 2006-07,1.5 percent of GDP in 2007-08,and 2.6 percent of GDP in 2008-09

4.(FN)FERA's main object was to conserve scarce foreign exchange while FEMA aims at effective utilization of forex resources. All foreign exchange dealings between residents and nonresidents are governed at different points as per the act along with the guidelines of RBI and all other dealings in foreign exchange are routed through the authorized dealers of foreign exchange

5(FN). Specific currencies: Australian Dollar, Austrian schillings, Bahrain Dinars, Belgium Francs, Canadian Dollars, Danish Kroner, Deutsche Marks, French Francs, Hong kong Dollar, Italian Lira, Japanese Yen, Kuwait Dinars, Malaysian Dollars, Netherlands Guilders, Norwegian Kroner, Swiss Kroner, Swiss Francs, US Dollar.

As shown in the Table No 1,prior to the introduction of new economic policy (1991), the accumulation of foreign exchange could meet only a fortnight level of Indian imports and it was \$ 5.8 billion in March 1991 and it was even less than 1 billion in December 1990 and the then government sought IMF for loan to the level of \$2.6 billion which the country received with reform prescriptions. In 1991,the government was forced to pledge gold and draw credit from the bank of International Settlement and the Bank of England and the RBI sold \$200 million worth of gold in its coffers to mitigate the foreign exchange crisis As a result of new economic policy, the foreign exchange reserve even on June 1 1998, touched a level of \$ 28.8 billion, of which, the foreign currency assets alone accounted for 25.5 billion, At this level, the foreign

currency reserves met the requirements of 7 months import, 25 months of debt service payments and 6 months of import and debt-service payments taken together. **TABLE NO: 1**

COMPOSITION OF INDIA'S FOREIGN EXCHANGE RESERVES-1990-91 to 2008-09

END OF	RTP in IMF(US \$million)	SDR		GOLD		FOREIGN CURRENCY ASSETS		TOTAL*	
		Rupees in crore	US\$ in million	Rupees in crore	US \$ in million	Rupees crore	US \$ in million	Rupees in crore	US\$in million
1990-91	-	200	102	6828	3496	4388	2236	11416	5834
1991-92	-	233	90	9039	3499	14578	566312	23850	9220
1992-93	-	55	18	10549	3380	20140	6434	30744	9832
1993-94	299	339	108	12794	4078	47287	15068	60420	19553
1994-95	331	23	7	13752	4370	66006	20809	79781	25517
1995-96	310	280	82	15658	4561	58446	17044	74384	21997
1996-97	291	7	2	14557	4054	80368	22367	94932	26714
1997-98	283	4	1	13394	3391	102507	25975	115905	29650
1998-99	663	34	8	12559	2960	125412	29522	138005	33153

1999-00	658	16	4	12973	2974	152924	35058	165913	38694
2000-01	616	11	2	12711	2725	184482	39554	197204	42897
2001-02	610	50	10	14868	3047	249118	51049	264036	54716
2002-03	672	19	4	16785	3534	341476	71890	361470	76100
2003-04	1311	10	2	18216	4198	466215	107448	490129	112959
2004-05	1438	20	5	19686	4500	593121	135571	619116	141514
2005-06	756	12	3	25674	5755	647327	145108	676387	151622
2006-07	469	8	2	29573	6784	836597	191924	868222	199179
2007-08	436	74	18	40124	10039	1237965	299230	1237965	309723
2008-09	981	6	1	48793	9577	1283865	241426	1283865	251985

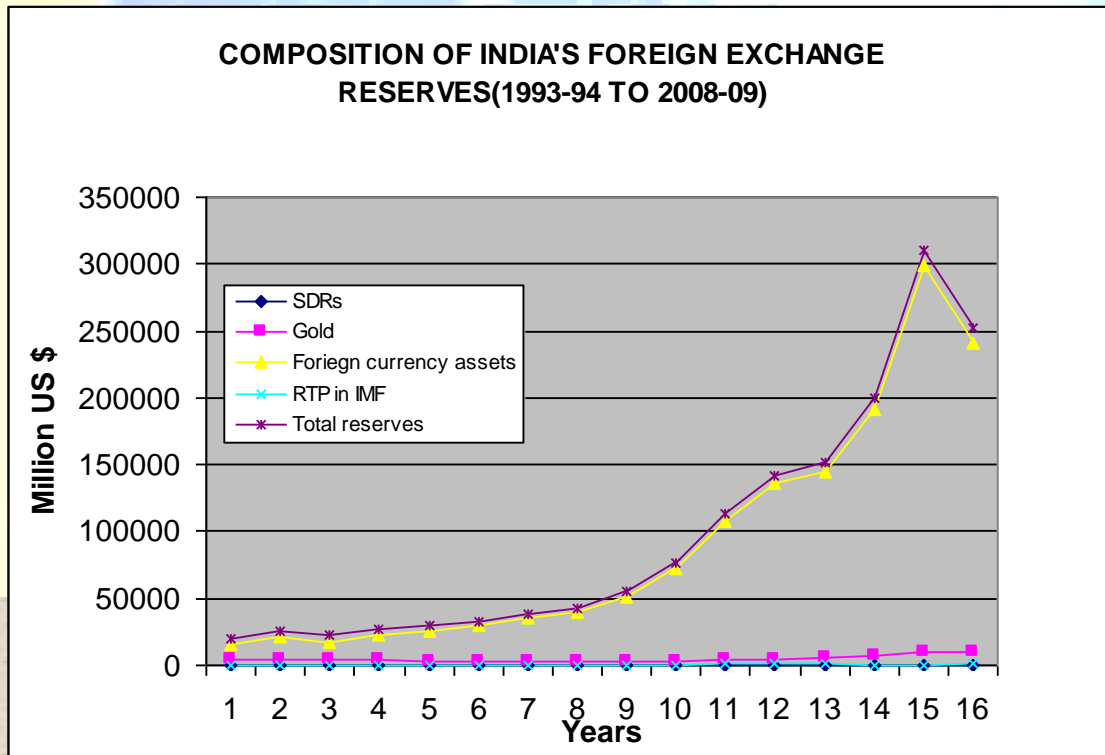
Notes: Total foreign exchange reserves includes RTP in IMF from the year 1994.

Source: Reserve Bank of India Bulletin, November 2003 P-S1031 & October 2007 P-S979

As shown in Table No 1, with regard to India's foreign exchange reserves, the foreign currency assets are the major and main components of foreign exchange reserves during the period under study and the proportion of SDR is very meagre while the proportion of gold in the total foreign exchange reserves is around 37.95 in 1990-91 declined to 3.8 percent in 2008-09.

This is because of the fact that the central banks all over the world, excepting very few, lost glamour of holding gold reserves since the US withdrawn gold exchange standard a long back. India borrowed SDR 3.9 billion during the period between 1981-84 and SDR 3.56 billion during the period between 1993-94. All the loans availed by India were paid back on May 31, 2000 and then it became contributor to IMF under Financial transaction plan of the IMF in late 2002. Till 15 th May 2009, India completed 15 purchase transactions of SDRs 1026.23 Million and twenty four repurchase transactions of SDRs 794.16 Million. India's reserve tranche position in IMF which was US 299 million in March 94 increased to US 1438 million in March 2005 and India participated in IMF financial support to Burundi, Brazil, Indonesia, Uruguay, Haiti, Sri Lanka, Pakistan, Brazil, Indonesia etc.

With regard to financial predominance^{6FN} of currency, dollar assumed a considerable importance in India inspite of the fact that the rupee depreciated from Rs



4.76 to a dollar in 1948 to over 43 to a dollar on 23 June 1998 and to over 46 to a dollar in 2009. The continuous depreciation may be favorable to the exporters, foreign exchange dealers and speculators, non-resident Indians, money concealers in overseas banks etc, but such

depreciation may not be a severe problem for India since India has always been importing more than exports. But after the introduction of new economic policy in 1991, the appreciation of Indian rupee emerged as a new problem in certain very short periods particularly for the last few years. Even such short periods of appreciation of Indian rupee, the Indian I.T, industries and many manufacturing industries faced deterioration in their profitability.

6(FN) Financial Predominance: The example for financial predominance is the London Money Market which existed prior to 1914. Financial predominance implies that the capital market and the currency of a country are “not only efficient in serving its own nationals but also accepts deposits or makes loans to exporters and importers(resident in other countries) on more favorable items than their domestic banks or capital market institutions” Ronald I.Mckinnon: Money in International exchange: The convertible currency system, Oxford University Press, New York 1979 p-84

Though India has already resorted to a slow and steady devaluation,^{7FN} the efficiency of devaluation depended on the elasticity of India’s demand for imports and the elasticity of supply of Indian export. A large part of our imports account for crude oil, petroleum products, fertilizers, capital goods, edible oils etc and these imports proved to be price inelastic. Therefore, any major devaluation or depreciation in India, would make Indian goods more costly owing to larger level of imports as compared to exports..

In the Indian foreign exchange market,^{8FN} demand and supply of foreign exchange mainly determine exchange rate, whereas, in the developed countries foreign exchange market, interest rate differential between two countries also does matter in the determination of foreign exchange rate. With regard to liquidity, banking is one of the major instruments of the Indian government and it is estimated in India that an M3

7(FN)Devaluation 1991:The reserve bank of India devalued the value of rupee by 8.7 to 9.7 percent against the four major currencies(US dollar, Pound Sterling, Japanese Yen and Deutsche Mark) and it was followed by another devaluation by 10 to 11 percent on July 3 ,1991 against five major currencies namely dollar, Deutsche Mark, French Franc, Japanese yen and pound

sterling. Though the foreign currency assets are held now in major currencies namely in US\$, Euro, Australian dollar, Japanese Yen and Pound Sterling, India's foreign exchange reserves are denominated in terms of US\$ only.

8(FN)FEDAI: Prior to 1983, the practice of fixing exchange rates for merchant transactions was with the Foreign Exchange Dealers Association of India (FEDAI) in consultation with RBI. However, the RBI fixed the basic spot purchases and selling rates. After the abolition of FEDAI rate schedule, there was development in the foreign exchange rate system in India. Thereafter, the Indian exchange market gradually headed towards the overseas practice of the traditional cross rates via the rupee sterling rate. Another important change in the exchange rate was the practice of having the two way quotations. Of late, some bankers as well as foreign banks in India have also started quoting two-way rates to increase the liquidity in the market. A market growth rate around 20 percent would mean a substantial monetary expansion totaling millions of crores. However, India has not yet attained the stage called 'rupee market' and the Indian rupee is not one of the key currencies in the world and therefore, the RBI can not solve foreign exchange problems internationally with pure monetary package. Share of Indian rupee in the global daily foreign exchange market turnover is 0.1 percent in 1998 whereas the share of dollar was 87.3 percent. In this respect, it should be noted that Indian rupee has attained the position of reserve currency in certain Asian countries such as Singapore, Malaysia etc in the recent period and India can be proud of such kind of miniscule development.

For the last few years, India is struck with excess foreign exchange reserves. Apart from exports, India's development bonds and FII's investment have also resulted in enhancement of foreign exchange. In addition, the repatriation of money by non-resident Indians into NRI deposits accounts has also led to an increase in the accumulation of foreign exchange. Again a number of fund managers repatriate their money into India due to interest rate difference. The stability of prices or inflation for the last five years is also an added attraction for those who repatriate their money into India. An analysis of sources of foreign exchange during the period between 1991 and 2008 reveals that the enhancement in the foreign exchange was mainly due to the increase in NRI and net direct investment along with FII investment which was commenced from 1993. The NRI deposits which was US\$14.0 billion at the end of March 1991 increased to US \$43.7 billion in end March 2008. As such, the contributions of foreign exchange increased remarkably through FDI, and NRI remittances, (Table No.2) followed by ECB and the export receivable.

Table No- 2

NRI DEPOSITS-OUTSTANDINGS AND INFLOWS/ OUTFLOWS 1991-2007 (at the end of March)(US \$ Million)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
A	10103	9792	10617	9300	7051	4255	2306	1											
B				1108	3063	5720	7496	8467	7835	8172	9076	9673	10199	10961	11452	13064	15129	14168	13211
C	3618	3025	2740	3523	4556	3916	4983	5637	6045	6758	7147	8449	14923	20559	21291	22070	24495	26716	23570
D			621	1754	2486	3542	5604	6262	6618	6754	6849	7052	3407	174 6	232	-	-		
E																1148	1616	2788	4773
T	13721	12817	13078	15685	17156	17433	20339	20367	20498	21684	23072	25174	28529	33266	32975	36282	41240	43672	41554

A - FCNR(A), B - FCNR(B), C - NR(E) RA D - NR(NR) RD, E - NRO T- TOTAL

HNNotes: FCNR(A) Foreign Currency Non-Resident Accounts); FCNR(B) Foreign Currency Non-Resident (Banks); NR(E) RA-Non-Resident (External) Rupee Accounts Non- Resident (Non-repatriable) Rupee Deposits NRO Non –Resident Ordinary Rupee Account

Source: Reserve Bank of India Bulletin , November 2003, p-S 1032 & October 2007 P-S980

As per the Reserve Bank of India, Bulletin,(Table .No.2) the NRI deposits which was 13,721 million US \$ in 1991 increased to 28529 million US \$ in 2003 and 41240 million US Dollar in 2007 and 43672 million US dollar in 2008.. Again, a lot of equity and debt funds are also being raised by many companies in India, which led to an increase in foreign exchange. As such, India enjoyed 18 months of imports cover by the end of 2003 The excess reserves increased over US 118.6 billion mark as on May 7, 2004 and the huge foreign exchange resources are quite adequate to pay back the entire external debt. According to RBI's Bulletin, at the end of March 2007, the foreign exchange reserves reached 199.17 billion, of which foreign currency assets constituted \$ 191.92 billion, Gold reserves \$ 6784 million and SDR's \$ 2 million. However , the foreign exchange reserves which recorded US\$309.7 billion by the end of March 2008 declined to US\$252.0 billion by the end March 2009 due to global meltdown (Table No.1). As such, India's reserve tranche position (RTP) with the International Monetary Fund (IMF) which was \$1438 million in 2004-05 declined to \$434 million in 2006-07. India's share in global forex market turnover increase from 0.3 percent in 2004 increased to 0.9 percent in 2007.. As such, the Government of India has been trying to use of foreign exchange reserves by creating 'a special purpose vehicle' for carrying out the financially viable infrastructure projects and SPV is a separate legal entity created to handle a venture as a subsidiary company on behalf of a parent company.

The following regression model has been fitted to find the influence of direct investment, portfolio investment, net merchandise, net invisibles, NRI deposits outstanding on foreign exchange reserves during the period between 1990-91 and 2008-09

End of	Foreign exchange reserves	Direct Investment	Portfolio Investment	NRI Deposit outstanding	Net Merchandise	Net Invisible	GDP at factor cost (Base year 1999-00)	Re-US\$ Exchange rate as on March 31 of respective year	Value in US\$ million
	Y	X1	X2	X3	X4	X5			X6
1990-91	5834	97	6	13721	-9438	-242	1083572	18.0	601984
1991-92	9220	129	4	12817	-2798	1620	1099072	24.5	448600
1992-93	9832	315	244	13978	-5447	1921	1158025	30.8	375982
1993-94	19553	586	3567	15685	-4056	2898	1223816	31.4	389750
1994-95	25517	1314	3824	17156	-9049	5680	1302076	31.4	414673
1995-96	21997	2144	2748	17433	-11354	5447	1396974	33.4	418255
1996-97	26714	2821	3312	20389	-14815	10196	1508378	35.5	424895
1997-98	29650	3557	1828	20367	-15507	10008	1573263	37.1	424060
1998-99	33153	2462	-61	20498	-13246	9208	1678410	42.1	398672
1999-00	38694	2155	3026	21684	-17841	13143	1786526	43.3	412592
2000-01	42897	4029	2760	23072	-12460	9794	1864301	45.6	408837
2001-02	54716	6130	2021	25174	-11574	14974	1972606	47.5	415285
2002-03	76100	5035	979	28529	-	17035	2048286	48.3	424075

					10690				
2003-04	112959	4322	11377	33266	-13718	27801	2222758	45.9	484261
2004-05	141514	6051	9315	32975	-33702	31232	2388768	45.0	530837
2005-06	151622	8961	12492	36282	-51904	42002	2616101	44.3	590542
2006-07	199179	22826	7003	41240	-61782	52217	2871118	45.3	633800
2007-08	309723	34362	27271	43672	-1626	74592	3129717	40.2	778536
2008-09	251985	35168	-3855	41554	-19403	89596	3339375	46.0	725951

TABLE NO: 3 REGRESSION MODEL OF SOURCES OF FOREGIN EXCHANGE Reserves. (1990-91to2008-09)

P-Provisional

Source:1)National income at factor cost obtained form Economic Intelligence Service, Foreign Trade and Balance of Payments October-2002 PP-347-358&National Income Statistics,July 2009-P-4

2)Reserve Bank of India Bulletin, respective years and July 2009.

From the above regression model,we get the following regression equation.

$$Y = -61401.1 + 1.489X_1 + 2.123X_2 + 2.508X_3 + .113X_4 + 1.375X_5 + 6.303X_6$$

Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	Durbin-Watson
1	.996	.993	.989	9383.07642	2.280

Dependent Variable: Y1 Independent Variable $X_1, X_2, X_3, X_4, X_5, X_6$

The explanatory variables explain 99.3 percent of the variation in the dependent variable.

DF1 for numerator $(K-1)=6$ and DF2 for denominator $(n-k)=12$

F critical value $=0.05=3.00$

F=269.07

F statistics exceeds the critical F, value the regression equation is statistically significant at 5 percent significance level

At percent significance level, the critical T value of this regression model is 2.179.

Therefore, the explanatory variables X_2, X_3, X_5 are significant,

The Durbin –Watson Statistics is 2.817. Since the Durbin –Watson statistic 0.05 critical values for $d_l=0.65$ and $d_u=2.21$, and $d^*=2.280 > d_u$, we conclude that there is no evidence of autocorrelation in this model.

IV Optimum Foreign Exchange Reserves

The Reserve Bank of India Act 1934 provides the legal framework for usage of foreign currency assets and gold aiming at safety and liquidity of foreign exchange reserves. The RBI has 357 tonnes of gold which constitutes 3.8 percent of foreign exchange reserves as on March 2009 and another 65 tonnes of the total gold are being held by the Bank of England and the bank of International Settlement. As far as the foreign exchange market is concerned “an ex ante optimal may turn out to be disastrous ex post as evidenced in Argentina, East Asia and Mexico”¹⁹ (Bimal Jalan 2003). Regarding optimal level of foreign exchange reserves, it is argued that the forex reserves should be able to meet the requirements of short-term debt and should also be capable absorbing vulnerable external shocks. The ratio of short term debt to foreign exchange reserves declined from 146.5 percent at the end of March 1991 to 15.2 percent at the end of March 2008 while the ratio of volatile capital flows comprising portfolio inflows and

short term debt which was 146.6 percent at the end of March 1991 to 45.4 percent at the end of March 2008²⁰.

The committee on Capital Account Convertibility(1997)and the committee on Fuller Capital account Convertibility(2006)chaired by Shri.S.S.Tarapore opined that the optimum level of foreign exchange should be based on trade based, money based and debt based indicators such as the scheduled amortization of foreign currency debts.However,RBI has to closely monitor the credit risk, market risk, and liquidity risk that the rupee is vulnerable. It should be noted in this context that India's short term debt was 0.6 percent of GDP in 2002²¹(Ashima Goyal 2003). In India, the external debt to national income which was 28.7 percent in 1990 declined to 16.0 percent in 2005. While comparing the external debt with many other countries, India is now in a comfortable situation. Besides, the short term debt also registered a declining trend and in February2003,IMF designated India as creditor in its Financial Transaction Plan and as such,India involved in the IMF financial support to Burundi ,Brazil, Indonesia, Uruguay, Haiti, Dominican Republic,Sri Lanka, Turkey, Bengladesh, Pakistan, Georgia, Romania etc .and India has remarkably done well in the external debt sector or balance of payments after globalization of Indian economy.

The salient feature of short-term external borrowing is that it should be comparatively of small proportion as compared to total external debt or foreign exchange reserves. In certain circumstances, redemption of short-term debt by foreign institutional investors may cause unexpected hardships in the management of foreign exchange. If the proportion of short-term debt is very large, the management of foreign exchange is very difficult As such, in India, the repercussions of external debt obligation in terms of short term debt do not have a perceived effect on foreign exchange market in the efforts towards mitigation of appreciation of Indian rupee.

The world Bank in its report on 'Global development Finance' 2003, opined that the most of the developing countries have piled up foreign exchange for more than six months of import requirements and even the 3 months of import cover is considered to be a safe level. The traditional approach of assessing reserve adequacy through import has been changed at present and it is assessed on the basis of size, composition and risk profile of various types of capital in-flows and outflows.Some of the economists are of the opinion that the forex reserves should be

at the level of about 25 percent of broad money.⁹. It is also argued by analysts that in certain situations, the exchange rate itself will mitigate the problems when there is deviation from optimal reserves

When there is a mismatch between foreign exchange inflow and absorption capacity of foreign exchange by Indian economy, the RBI takes various measures to set right the situation. For instance, the RBI on one side purchase dollars and on the

9(FN) Broad Money: Currency with the public + current deposits with banking system + Saving deposits with the banking system + certificates of deposits issued by banks + term deposits of residents with the contractual maturity upto and including one year with the banking system + other deposits with the RBI + terms deposits of residents with the contractual maturity over one year with the banking system + call borrowings from non-depository financial corporation by the banking system

other side sterilize rupee through various measures. In the recent past, the capital accounts of India have shown a remarkable improvement over the past decades showing signs of growth potential. However, a precautionary strategy for foreign exchange reserves underlines the point that a considerable level of foreign exchange reserves is required when a country expects high volatility in capital movements. But, India has been experiencing a capital account surplus and, at present, India's foreign exchange is one among the countries which have large foreign exchange reserves.

V Capital Account Convertibility

In the light of above observations, capital account convertibility which is regarded as one of the hallmarks of the developed country, may be resorted to in India when the economy attains fiscal consolidation, strengthen financial system and maintain sustained - low rate of inflation. It is one of the key factors for encouraging foreign investors because, whenever they need, they may reconvert local currency back into foreign currency. It should be noted in this context that a full capital account convertibility is fundamentally destabilizing due to the possibility of sudden and unexpected huge inflow or outflow of capital. Therefore, a country that goes for full capital account convertibility must have a strong financial

sector to deal with such huge inflows or outflows of capital. In fact, in India, all capital account transactions are gradually being decontrolled in view of globalization. Therefore, India is yet to achieve a stage to adopt a full-fledged capital account convertibility that has been a desired objective for quite a long period.

The Fiscal Responsibility and Budget Management Bill of 2000 aimed at establishing a viable institutional mechanism to attain overall fiscal prudence and eradicating obstacles encountered in implementation of monetary policy and debt management. Besides, the Fiscal Responsibility and Budget Management Bill brought in December 2002 in parliament aimed at reducing the present fiscal deficit to 2 percent of GDP and the revised bill proposed in July 2003 targeted to eliminate revenue deficit by the year 2008. But, contrary to expectation, India's fiscal deficit has grown in 2008-09 and it resulted in 6.8 percent of GDP in 2009-10. As such, the monetization of fiscal deficit is also carried out with utmost care without resulting inflationary spiral or without jeopardizing the growth process. An optimal level of monetisation may be resorted to according to the situation warranted without resulting inflation that will lead the way for gradual, slow and steady full capital account convertibility in future decades in tune with globalization of Indian economy. In India, the freeing of capital account of India should be done in a very stable, gradual and orderly manner and that India can not, at present, go for full capital account convertibility and withstand any international speculative capital.

VI

To conclude, an aggressive depreciation or devaluation of Indian rupee in terms of dollar may not be favourable to India in terms of stability of currency because of the fact that the import is higher than export.. and the low proportion of production accounts for export. Even if India resorts to aggressive devaluation or depreciation, the other trading countries may also follow suit in certain occasions. Hence, it is very difficult to increase the potentiality of Indian exports only by depreciation of Indian rupee or devaluation. It has been proved that the depreciation of Indian currency in terms of dollar for the fifty years did not bring the much desired effect in the export competitiveness. So, what is actually needed is that the fundamentals of Indian economy must be improved for sustainable and remarkable exports that can maintain stable and reasonable exchange rate.

There is nothing outlandish that exporters have been crying hoarse for a higher appreciation of rupee for their exports and the resultant profitability. However, smooth flow of international trade of a country, the level of foreign exchange must keep pace with the increase in the imports. It is generally believed that when balance of trade alone is concerned and when exports accounts for more than 75 percent of the production, an appreciation of rupee can be advantageous. For instance, in India, in the mercantile trade, an appreciating rupee may neutralize an increase in the price of oil in the international market.

Large public debt may cause a lot of hardship to national government in view of paying huge amount of interest and it may have disastrous effect on foreign exchange. "One of the manifestations of Parkinson's Law is that the availability of means for financing a trade deficit leads to the creation of a deficit to be financed"²²(Eingig Paul 1971). In this sense, as regards debt ratio, India is now at comparatively comfortable position as compared to earlier decades. The increase in foreign exchange reserves led to repayment of high cost foreign currency loans availed by the GOI from Asian Development Bank and World Bank and improve RTP in IMF.

Generally, foreign exchange crisis may be caused either by rapid abnormal reserve depletion or abnormal increase in forex reserves Hence, the trading nations have to be cautious about abnormal changes in the foreign exchange reserves and debt to effectively safeguard themselves from the onslaughts of international capital markets²³.(Ramkishen S.Rajan 2002) Foreign currency crisis will be deepening when they are accompanied by banking crisis. But, Indian banking sector is, at present, not facing any such crisis and hence, India tends to have larger reserves which in turn defend any kind of volatility in capital flows in the ensuing periods.

Of course, it is very difficult to detect a clear correlation or synchronization on the lines of purchasing power parity between trading countries. The variation in exchange rate and the variation in the national price level will not register on an even keel. It proves to be rudderless drift if India tries to have a PPP policy of control over foreign exchange rates and this has been proved by many studies undertaken earlier. As early as 1923, Lord Keynes opined that PPP was not the true measure of the value of exchange rate since it is restricted to foreign trade of goods only. Again, PPP may not be quite true measure in the countries with dominant capital flows since, in the exchange rate regime, non-tradable services also do matter as it will lead to

dissonance between exchange rate movements and price levels and again, the countries that use basket of goods for measuring price indices are not similar.

Most of the foreign investors still have doubts over the RBI's ability to control the foreign exchange market but the premier point to foreign investment is confidence in the stability of the currency. The whole thrust of historical development of exchange rate system of India aims at maintaining reasonable stability of national currency on par with other trading countries and, added to this fact is the domestic price stability that will mitigate disruptive changes in the exchange rate. In view of very minimal level of SDR facility available in the international monetary fund, a cogent policy is warranted under which the neutral international money since SDR's could not be substituted for such scarce currencies as a sole intervention currency as recommended by ...the committee of Twenty²⁴(P.T.Ellsworth and J.Clark Leith 1975) Keeping in view the above factors, India has been experimenting with regulatory measures to govern the operation of the foreign exchange market in various ways to achieve a reasonable stability in foreign exchange rate and to maintain optimum level of foreign exchange reserves. Along with increase in foreign exchange reserves, Indian financial system must be strengthened further to move on to full capital account convertibility in future period. India's dependence in foreign trade is less as compared to other Asian countries, India, "rather than devaluing the currency and retaining fixed exchange rates, the system of flexible exchange rates can be adopted."²⁵(Michael R, Edgmand 1983). By resorting to flexible exchange rate, the monetary authorities may find every possibility to have a favorable situation for bringing an appropriate stabilization policies towards inflationary control, stability in the value of currency, full employment and balance of payments equilibrium.

With regard to optimum level of reserves, Alan Greenspan, Chairman of the US Federal Reserve Board advocated the "Guidotti – rule" under which a trading nations external liability would be assessed on the basis of wide range of possible outcome out of all the external assets and liabilities. Such that, under this rule, a country which apts for the optimum level of reserves strategy has to forego new external borrowing as warranted and to monitor the broad money supply to avoid 'internal drain' of capital. It is argued that India can have minimum reserves ranging between \$30 billion to \$ 35 billion dollars since we have easy access to international

reserves and hence billions of dollars more than the minimum level can not be considered as a sign of wealth in all situations unless there is an equivalent investment. .

India has to keep up its global competitiveness through the exchange rate strategies along with interest rate. Based on interest rate, market stabilization schemes have been initiated and the RBI has been successful in sucking out the liquidity in the economy when inflows are very strong and are likely to destabilize the macro economic balance. Therefore, we should be very cautious towards interest rate movement which is also significant in the management of foreign exchange reserves..

The industrial countries which have large global reserve assets such as Euro, US dollar etc, may not find short term problems as may be experienced by the currencies of the emerging market economies. But, for the developing countries, the creation of sovereign bonds such as Asian Bond Fund (ABF) by Asian countries, may be helpful to solve any unexpected capital movements in Asia or encounter any panic and fickleness of global capital flows resulting volatile exchange rate movements. For South East Asian Nations, the Asian Bond may be denominated in dollar or local currency and it may be an institutional arrangement to face unexpected movements of capital and exchange rate in the future years. In recent years, the resurgence of private capital flows warrants such institutional set up to safeguard the instability in foreign exchange in the emerging market economies like India, china etc

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