Management of Foreign Reserves : The Bangladesh Perspective

DR. MIR OBAIDUR RAHMAN

DECEMBER 1997

BANGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA

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ABSTRACT

Level of International Reserves or Foreign Exchange Reserves is considered to be an important macro indicator in the macroeconomic management of a country. The management of the foreign reserves in Bangladesh need to be weighed in the context of several macro variables. The most important are income meaning the gross doemstic product, the import payments of the country, the export earnings and the variability of export earnings.

This study employs both numerical and descriptive devices to explain the management of international reserves in the context of Bangladesh. Inadequacy of time series quarterly data for many of the variables responsible for explaining the reserve situation debars undertaking spohisticated econometric models in analysing reserve situation. However, regression analysis are used for identification of the important variables and their magnitude in explaining reserve. The empiricals estimation covers the period 1973-1995 for which annual data for most of the series are available. Both the logarithmic and nominal variables indicates that variability measure exert influence on reserve situation in Bangladesh. The coefficient of openness variable as well as variability measure are positive, in line with theoretical reasonings. However, T-statistics for the openness variable for both the logarithmic and nominal cases are not significant at 5% level.

The policy response to the persistent reserve decline has been inadequate. The official exchange rate was devalued by 4.6 percent vis-a-vis the US dollar in seven steps in 1996-97. This was not adequate to avoid a 4 percent appreciation of the real effective exchange rate in 1996-97, which is likely to have contributed adversely to the competitiveness of Bangladesh's exports. The recent sharp devaluations in Southeast Asian competitor countries must have further seriously eroded Bangladesh's competitiveness. Pursuing a competitive exchange rate policy, together with continued trade liberalization, will be important for strengthening the economy's export base. At the same time, steps will be needed to improve the capital account balances. These include, in particular, sustained efforts by the Government to increase aid utilization by removing project implementation bottlenecks, meeting policy commitments and attracting increasing private capital inflows.

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Mr. Sirajul Islam Talukder, Joint Director, Bangladesh Bank provides me necessary inputs on exchange rate of determination mechanism in Bangladesh, foreign exchange reserve situation, and valuable statistical inputs that helped shape this report in a cohesive form. Mr. S.M. Zobayer Enamul Karim, Research Officer, Bangladesh Public Administration Training Centre helped me with statistical artifacts. Mr. Md. Helal Uddin, Steno, Bangladesh Public Administration Training Centre did the arduous jobs of typing and collating the scattered pieces of writing to project an integrated paper.

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Dr. Mir Obaidur Rahman

CHAPTER-I

The determinants of Reserves Scenario - A Review

Level of International Reserves or foreign exchange Reserves is considered to be an important macro indicator in the macroeconomic management of a country. There are numerous determinants for finding an optimum level of foreign exchange reserves. Earlier literatures mainly concentrated on simple criteria such as ratio measures (ratio of reserves to imports) for the world as a whole. There were also studies to establish criteria for determining the optimal level of reserves for individual countries. During the late sixtees, ratio measure was substituted by the use of econometric techniques to estimate regression equations.

Kelly [1970], Kenen and Yudin [1965] attempted to determine the actual reserve holdings in terms of various determinants. This represented a breakthrough in estimation procedure and encouraged consideration of many independent variables as determinants of reserve holdings. Another improvement was the more sophisticated specification of functional relationship between reserve holdings and the independent variables. In most of the studies, the variables import, the average propensity to import and the measure of the variability in the balance of payments were the three major determinants in the reserve demand equation. These variables in most cases had significant coefficients and the expected sign.

Kelly [1970] explicitly pointed out the fallacy in equating "adequacy" of or "need" for reserves to demand for reserves. The demand for reserves reflected the policy judgements of the reserve holders themselves and did not correspond to any

objective assessment of adequacy. He presented a model yielding optimal level of reserves for a government attempting to maintain external and internal balance under a regime of pegged exchange rate. He tested the model on a group of 46 countries over the period 1953-65.

The level of reserves, R*, was regressed on the standard deviation of exports, the average propensity to import, M/Y, and the alternative proxies for opportunity cost : per capita income, Y/P, and foreign assets and liabilities, A and L in both linear and logarithmic forms. The pooled data contained 598 observations. Dummy variables were included for each of the 46 countries to test for inter-country differences. All the independent variables were significantly different from zero. However, the coefficients on the average propensity to import and foreign liabilities were positive, which contradicted the theoretical contention.

Edwards [1983] estimated a demand function for reserves for a group of 23 LDCs that maintained a fixed exchange rate during 1964-72, and for a group of 18 LDCs that devalued their currencies at least once during this period. The reserve demand specification included income as a scale variable, the average propensity to import as the degree of openness variable and a variability measure. He estimated the coefficients using cross-section data for both groups.

The scale and openness variable were significantly different from zero for both group of countries. The variability measure assumed an important role for the fixed rate countries, it assumed no importance in determining the demand for reserves by the devaluing countries. The coefficients were quite stable through time for both groups of countries.

Saidi [1981] incorporated two explanatory variables, real income and a variability measure, to study the effect of exchange rate flexibility on the Canadian demand for international reserves. By employing Canadian quarterly data, he estimated the reserve demand equation for the period 1950-76. He also estimated the equation for two different sub periods : 1950-61, the period of flexible exchange rates and 1962-76, the period of fixed exchange rate. The aim was to provide evidence on the square root law of demand and the inventory-theoretic approach to the demand for international reserves.

The square-root law of demand for reserves received strong support from the Canadian experience. This was confirmed by the invariance property of the transactions volume elasticity across different monetary regimes. The income elasticity of demand for reserves was found to be stable across the exchange rate regimes and insignificantly different from the expected value of 0.5. Moreover, the magnitude of economies of scale with respect to variability was greater under flexible than under fixed exchange rates.

Ben-Bassat and Gottlieb [1992] used the theoretical framework of cost-benefit approach in outlining the demand function for reserves. Their specification of the demand for reserves included variability of net foreign exchange flows and the opportunity cost of holding reserves. The estimation of the opportunity cost of holding reserves was a challenging endeavour in most of the empirical work and different authors used different formulations for calculating opportunity cost. Some even used proxies for the opportunity cost, Iohya [1970]. However, Ben-Bassat and Gotlieb emphasized that it was difficult to compile the data on real rate of return on capital and the currency composition of reserves for cross section of countries.

Therefore, the model was estimated for Israel over the period 1968-88, for which all the relevant variables were available annually.

The Issue : Bangladesh Perspective

The above analysis reveals that foreign exchange reserves is a function of different variables : the most important are income, import, variability measure of export earnings and the cost of holding reserves. The justification of reserves holdings must thus be based on this determinants. However, the level of reserves for developed as well as the developing countries need to be analysed in the contexts of seignorage. The seignorage facility is enjoyed only by vehicle currency, a currency that is widely used to denominate international transactions. The developing countries suffer from some structural rigidity. Their import demands seldom tally the export earnings. Even the export earnings suffer from vulnerability due to rigid composition of export, mainly concentrated on few items.

Viewing in this perspective, the management of the foreign reserves in Bangladesh need to be weighed in the context of several macro variables. The most important are income meaning the gross domestic product, the import payments of the country, the export earnings and the variability of export earnings. The liberalization of the current account of the balance of payments accounts and the convertibility of the Taka in the context of the open market economy need to be incorporated in the analysis of the reserves situation. Bangladesh finances her development programme mainly through borrowed fund; bilateral or multilateral. Commitment as well as disbursement of aid in also an important factor in reserve determination. Bangladesh, a labour exporting country earn foreign exchange

through services rendered by Bangladesh national in Middle East and South East Asian Countries. The flow of remittances may thus constitute one of the determinants in the Bangladesh context.

Scope, Objective and Plan of Presentation

The premise of this article is threefold :

i) Foreign Exchange Reserve and the determinants of reserve. Chapter-II deals with this topics. This chapter will outline some of the variables influencing the reserve position through econometric analysis. The obligation of the Bangladesh Government towards maintenance of adequate reserve in line with the donar insistence will also feature in analysis.

ii) Exchange Rate Determination Mechanism in Bangladesh and the devaluation debacle. The exchange rate determination mechanism for the Pre and Post independence period will be analysed. Link between devaluation and reserve augmentation will be explored with theoretical insights. Chapter-III discusses these phenomena in detail.

iii) Policy Issues. Chapter-IV outlines important measures by the Government to upholds adequate reserves.

Methodology

The study employs both numerical and descriptive devices to explain the management of international reserves in the context of Bangladesh. Inadequacy of time series quarterly data for many of the variables responsible for explaining the reserve situation debars undertaking sophisticated econometric models in analysing reserve situation. However, regression analysis are used for identification of the important variables and their magnitude in explaining reserve.

Important macro variables such as gross domestic product, import payments, export receipts are compiled from the publications of the Bangladesh Bank, Bangladesh Bureau of Statistics and from the International Financial Statistics published by International Monetary Fund. Various publications of International Monetary Fund on reserves are consulted to integrate analysis on different aspects of reserves situation in Bangladesh.

CHAPTER-II

Foreign Exchange Reserve : Post Independence Period

In common parlance, reserve holdings denotes accumulation of convertible currencies. The IMF definition of reserve equals the sum of gold, special drawing rights, foreign exchange and reserve position at the Fund. The foreign exchange reserve of Bangladesh includes all the above items.

The time series data on Foreign Exchange Reserve and other related important macro variables of Bangladesh since independence upto 1996-97 are provided in Table1.

Table-1 : Foreign Exchange Reserve and Macro Variables (1973/94-1996/97)

(In crore Tk.)

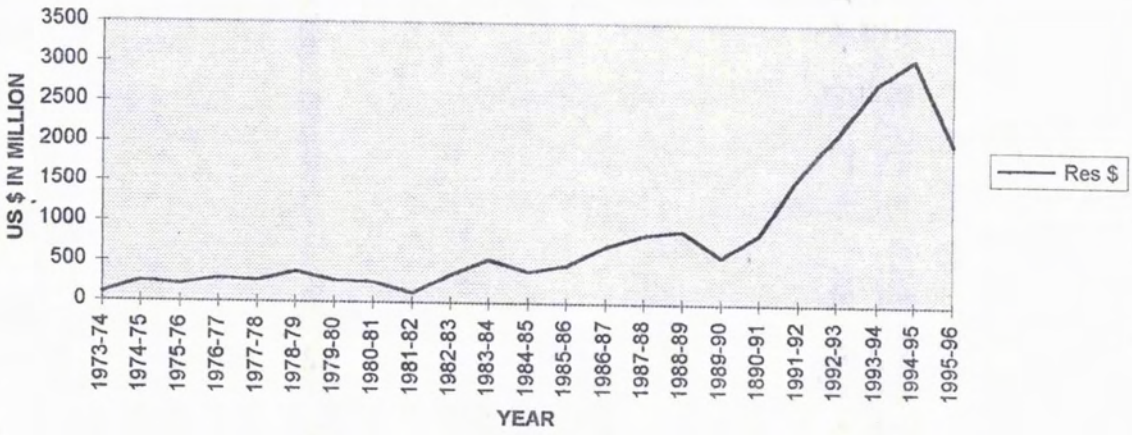
Year	ResT	Res$	Import	Export	Trade Balance
1973-74	913	110	680	297	- 383
1974-75	3508	257	1057	306	- 751
1975-76	3188	213	1910	552	- 1359
1976-77	4833	294	1307	626	- 682
1977-78	4048	269	2164	741	- 1424
1978-79	5940	380	2498	929	- 1570
1979-80	4053	274	3546	1125	- 2422
1980-81	4523	254	4266	1160	- 3107
1981-82	2698	122	5220	1256	- 3965
1982-83	8765	358	5513	1617	- 3897
1983-84	13595	540	5869	1991	- 3879
1984-85	11068	396	6874	2416	- 4459
1985-86	14408	476	7065	2432	- 4634
1986-87	22151	716	8026	3264	- 4763
1987-88	26963	857	9329	3809	- 5521
1988-89	29454	914	10848	4079	- 6769
1989-90	18161	589	12374	4977	- 7398
1890-91	31501	881	12521	6125	- 6396
1991-92	62713	1610	1321	7263	- 5949
1992-93	84407	2123	15934	9258	- 6676
1993-94	111289	2772	16766	10098	- 6669
1994-95	123089	3077	23455	13929	- 9527
1995-96	84906	2023	28098	15879	- 12219
1996-97	-	1719	-	-	-

Note : ResT : Reserve in Taka, Res$: Reserve in US$ (million).
Source : Economic Trends, Statistics Department, Bangladesh Bank (various issues).

It can be seen from the table that the level of foreign exchange reserves which stood at US $ 110 million only at the end of 1973-74 grew substantially over the years, particularly after 1990-91. Till 1981-82, a definite pattern in reserves holdings was not discernible. The growth pattern exhibited year to year fluctuation which were quite substantial in some years. From 1981-82, an increasing trend in reserve holding is observed except for the year 1984-85 and 1989-90. The substantial decline in foreign exchange reserve in 1981-82 occurred due mainly to a large increase in the cost of petroleum import following world-wide upsurge in oil prices. The decline in foreign exchange reserve in 1989-90 is attributable to a significant increase in import payments particularly for capital machinaries, transport equipments and textiles. Some decline in workers' remittances and increased outflow of other capital also contributed to the decline in reserves.

The big jump in the level of foreign exchange reserves in 1991-92 till 1994-95 emanated mainly from a phenomenal increase in export earnings particularly from readymade garments and an increase in private transfers. The downward trend in the level of reserves as evidenced in 1995-96 and 1996-97 is attributable partly to an increase in import payments and partly to outflow of foreign capital. The trade balance deficit stood at Tk. 9526 crore in 1994-95 a 50% increase from the 1993/94 and Tk. 12218 crore in 1995/96 represents 35% increase from 1994/95. Figure-1 shows the reserve position for 1973/74 - 1996/97.

Foreign Exchange Reserve of Bangladesh from 1973-74 to 1995-96



The foreign exchange reserve situation in Bangladesh needs a critical analysis in the event of dwindling reserve. At times the reserve even drops to a level which fails to meet the import payments for two and half months. The absolute value of international reserve holdings needs to be gauged with the volume of trade to ascertain the adequacy of reserves as well as to indicate the level of reserve augmentation. Following table (Table-2) present the ratio of international reserves to imports for the world as a whole as well as for some selected Asian Countries. The numbers in the table indicate how many weeks of imports could be financed with the existing stock of international reserves.

Table-2 : International Reserves/Import

(Weeks of imports)

	1973	1983	1992	1995
All Countries	13.30	11.40	13.40	-
Bangladesh	7.50	12.60	24.40	14.50
India	13.70	18.30	12.70	24.30
Nepal	59.10	14.90	30.70	-
Pakistan	22.10	19.20	4.70	7.20
Sri-Lanka	10.50	8.50	13.90	19.04

Source : International Finance Statistics (Various Issues)

For all countries, this ratio was roughly the same in 1992 as in 1973. For Bangladesh and Nepal, the reserve situation seems to very healthy in 1992. This indicates that Bangladesh and Nepal could finance more than six months of imports

through its reserve holdings. However, situation is not very cosy in 1996. The reserve holdings could only finance roughly 3 months import bill.

The burgeoning industrial structure warrants enough reserve in the dynamism in industrial activities. Natural disaster in Bangladesh sometimes exposes the economy to acute vulnerability in terms of food shortage and medicine. Occasionally, this drains huge amount of foreign reserves. Persistence devaluation is sometimes resorted to augment the foreign reserve. The optimal level of foreign exchange reserve must meet the import payments for a period of four to fix months. The different factors that influences the foreign exchange reserve situation are export-import trade, disbursement of foreign aid, wage earners remittance and foreign direct investment. It is pertinent at this point to review import-export and other variables influencing reserve situation in Bangladesh.

Earnings from the exportables constitute one of the major sources of foreign exchange reserves. But the growth of export earnings in 1996-97 lacks behind the average performance of the previous years. Ready made garments as well as frozen shrimp exports faces problems because of poor quality. And there is possibility exports earnings may be lower in 1997-98. On the contrary, the demand for import registered an increase. During 1996-97, the import payments increased by only 4% which was much lower than that of the previous years. The year 1996-97 witnessed a low volume of import of consumer goods as well as food. Import of primary goods, particularly foodgrains, showed a significant contraction in 1996-97 due to consecutive bumper crops in the last two years. This, together with a very low growth in imports of capital goods, accounts for the particularly subdued overall growth in merchandise import payments. The insipid performance of the industrial

sector during 1996-97 put a low pressure on reserve holding situations. The World Bank forecast that import demands may increase during the latter part of 1997-98. It is apprehended that if there is a cut in industrial import due to inadequate foreign exchange reserves, the country may experience slow industrial growth.

The current account deficit declined from 5.1 percent of GDP in 1995-96 to 2.8 percent in 1996-97, reflecting a low (3.5 percent) growth in merchandise imports, a higher-than-targeted (14 percent) growth in merchandise exports, and a strong (21 percent) growth in remittances. Export base continues to remain narrow and, thus, vulnerable to shocks and threats such as the ones Bangladesh is currently facing in the European, US and Japanese markets. Currently, export of garments accounted for 53 percent and knitwear 31 percent of the total 1996-97 increase in merchandise exports. Leather exports declined nearly 8 percent due to a weakening in global demand for leather products and a continuing decline in the supply of high grade hides in Bangladesh. Export of jute goods fell by 3.5 percent, reflecting to some extent increasing production bottlenecks arising from worn out plant and equipment in Bangladesh's jute mills.

Wage earners remittance is another contributing factor of a satisfactory level of Foreign exchange reserve position. Bangladesh earned Taka 3479 crore as remittances from Bangladeshis employed overseas during the first six months of the 1997 calendar year (January - July). The total earnings in this sector last year was Taka 4978 crore which was 41 per cent of the total foreign exchange earnings of the country for the same period. The banking system, despite weaknesses in their asset portfolio, functioned without any major disruption throughout 1996-97, making transfer of remittances easier than before. Also, establishment of outlets by

some banks at certain points for collecting remittances from Bangladeshis residing in the United States augmented remittances flow. However, political instability very often destabilizes the smooth flow of remittance causing fluctuation in the foreign exchange reserves. Devaluation also may be a contributing factor in reserve augmentation the remittance. The following table (Table-3) shows remittances over the period 1975-76 to 1996-97 and the figure (Figure-2) displays the remittances yearwise.

Table-3 : Number Of Persons and Remittances

(Tk. in crore)

Year	No. of Persons	Remittances
1975-76	-	25
1976-77	-	73
1977-78	16908	154
1978-79	24610	189
1979-80	27610	386
1980-81	38456	620
1981-82	68362	840
1982-83	63551	1480
1983-84	50122	1491
1984-85	69046	1147
1985-86	78422	1661
1986-87	60545	2136
1987-88	73677	2304
1988-89	86745	2477
1989-90	110014	2496
1990-91	96691	2726
1991-92	185106	3242
1992-93	237779	3697
1993-94	192263	4355
1994-95	199925	4815
1995-96	181461	4978
1996-97*	-	3479

*(January - July)

Source : Bureau of Manpower, Employment and Training & Bangladesh Bank.

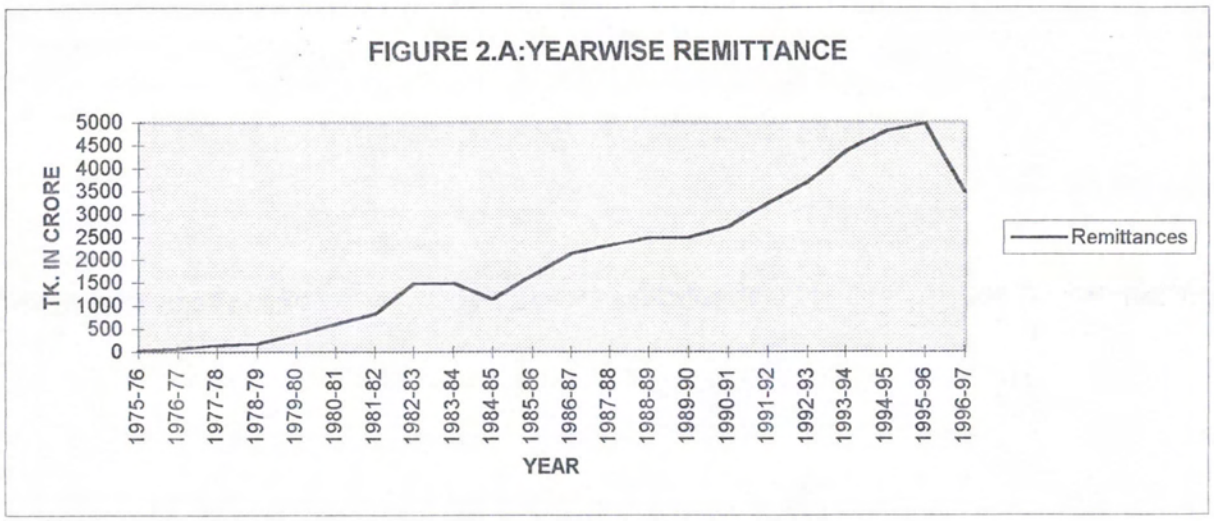


FIGURE 2.A:YEARWISE REMITTANCE
TK. IN CRORE
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1975-76
1976-77
1977-78
1978-79
1979-80
1980-81
1981-82
1982-83
1983-84
1984-85
1985-86
1986-87
1987-88
1988-89
1989-90
1990-91
1991-92
1992-93
1993-94
1994-95
1995-96
1996-97
YEAR
Remittances

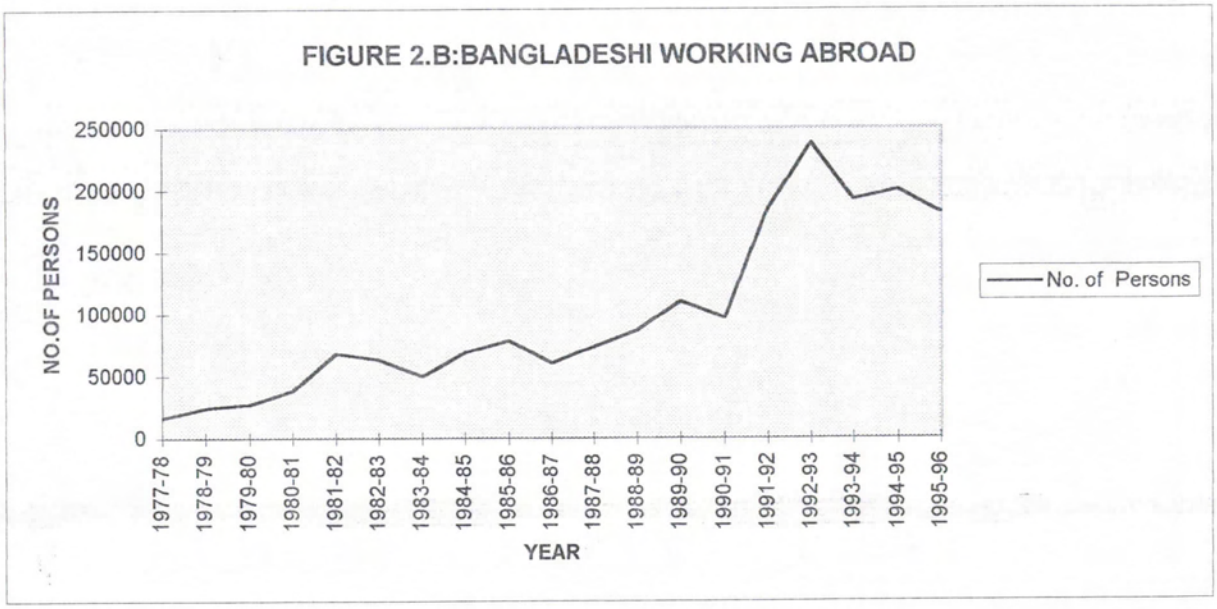


FIGURE 2.B:BANGLADESHI WORKING ABROAD
NO.OF PERSONS
250000
200000
150000
100000
50000
0
1977-78
1978-79
1979-80
1980-81
1981-82
1982-83
1983-84
1984-85
1985-86
1986-87
1987-88
1988-89
1989-90
1990-91
1991-92
1992-93
1993-94
1994-95
1995-96
YEAR
No. of Persons

It is encouraging to note that remittances represented an increasing trend till 1995/96. Both the values, persons working abroad and remittances showed upward trend. The trend on remittances flow attests significant contributory influence in reserve augmentation. However, Bangladesh can not bank on remittance flow on reserve augmentation because the recessionary cycle and currency debacle in South East Asian countries may reduce the expatriate workforce substantially causing a downward trend in remittances.

The pressure on the reserve situation may be accounted for less disbursement of foreign aid and the withdrawal of Taka 500 crore from the capital market by foreign investers. "Foreign investors were among the big winners in the stock market episode as they timed their exit from the market with near perfection". Almost all the portfolio capital that came into Bangladesh markets in 1992-93 to 1994-95 have now left. Bangladesh's inability to utilize two adjustment credits kept net aid disbursements at a level ($ 1.2 billion) lower than what could have been achieved in 1996-97. This was also a factor in the continuing downward trend in aid disbursements observed in recent years. The foreign exchange reserve level at end-September 1997 stood at $ 1.6 million, equivalent to only about 2.4 months of the projected 1997-98 merchandise imports. This uncomfortably low reserve level is a cause for concern.

Determinants of Foreign Exchange Reserves

Fluctuations in various determinants through which reserve holdings recorded are exports earnings, import payments, remittances, foreign direct investment and aid disbursement. The export capability and import requirement of Bangladesh

varies with its different economic cycles. Aid disbursement and foreign direct investment depends on investment environment as well as external bilateral and multilateral relationship of Bangladesh. Besides, exchange rate policy plays a crucial role on remittances. Import and export are both a function of exchange rate manoeuvrability. Exchange rate management, however is a function of both inflation and competitiveness in trading with other partner countries and are generally monitored through real effective exchange rate (REER).

The rise in real interest rate may boost up the country's remittances and enhance inflow of other portfolio investments. If higher portfolio and direct investments take place for some reason or other, then foreign exchange reserve may rise. The level of foreign exchange reserves thus on the whole depend on the export earnings, import payments, investment climate, exchange rate management and maintenance of competitiveness in the external market.

Regression Analysis

There are several studies outlining the determinants of foreign exchange reserve. Most of these studies are not exhaustive in nature. The treatment of determinants are partial. Lack of comprehensive data series on many of the important variables are responsible for such a partial analysis. We present a partial analysis model to illustrate the case for Bangladesh. We use both nominal and real variable.

The model specifies reserve-demand equation of the following type :

$$\log(R/P)_t = \alpha_0 + \alpha_1 \log(Y/P)_t + \alpha_2 \log \sigma_t + U_t$$

Where P is the price deflator for GNP and U is the random error.
The relevant variables of the model are :

R = Level of reserves in millions Taka. This equals the sum of gold, special drawing rights, foreign exchange and reserve position at the fund.

σ = the variability measure of the balance of payments. This is standard deviation of exports over the preceding and the current year.

Y = Gross Domestic Product in millions taka.

The variables Y/P and ..... influence the demand for reserves positively. Both theoretical reasonings and previous empirical works justify their inclusion. We know that larger the country, the larger its imports. Therefore, a larger volume of reserves are needed. Similarly, the higher the variability of a country's external payments, the more reserves that country is willing to hold in order to even out fluctuations in external payments. Thus, both coefficients are expected to assume a value greater than zero.

The empiricals stimation covers the period 1973-1995 for which annual data for most of the series are available. Both logarithmic and nominal values are used. The logarithmic function goes elasticity and nominal values represent scale. The econometric estimation is conducted by window version of TSP. The computer printout is presented in Appendix-A.

The parameter of various variables are presented in tabular form with other important statistical measures.

Table-4 : Empirical Findings

Variables	Coefficient		T-Statistics		F-Statistics		R^2	
	Log	Nominal	Log	Nominal	Log	Nominal	Log	Nominal
Openness	0.056	0.023	0.493	1.159				
Variability measure	0.560	3.194	4.94	2.635	38.87	52.43	0.63	0.70

Both the logarithmic and nominal variables indicates that variability measure exert influence on reserve situation in Bangladesh. The coefficient of openness variable as well as variability measure are positive, in line with theoretical reasonings. However, T-statistics for the openness variable for both the logarithmic and nominal case are not significant at 5% level. The magnitude in logarithmic case tally with many empirical studies (Saidi,).

CHAPTER-III

Exchange Rate Determination Mechanism

Exchange rate denotes the price of one currency in terms of another currency. This is generally expressed as the domestic currency units per unit of foreign currency or foreign currency units per unit of domestic currency. The previous definition, most often employed in the theoretical economic literature while the later are employed in compilation of real and nominal exchange rates. There are several concepts of exchange rate; nominal exchange rate; real exchange rate and real effective exchange rate. The reserve position correlates with exchange rate environment and therefore policy makers are very much concerned about analysing the implications of exchange rate changes for the economy and the balance of payments. An appreciation of exchange rate erode the purchasing capacity of other trading partners. This may result in foreign exchange depletion as a consequence of loss in export earnings. This import augmentation may turn the trade balance to a deficit position. Thus exchange rate determination mechanism is considered to be an important area for analysis of reserve situation. This chapter thus explains the exchange rate determination mechanism in Bangladesh and an allied topics, implication of devaluation on reserve position.

The exchange control in Bangladesh is basically being administered in accordance with the provisions of the Foreign Exchange Regulation Act, 1947. A number of provisions were, however, added and amended subsequently during the association with Pakistan. Before independence, erstwhile Pakistan pegged its Rupee with the Pound Sterling. The domestic currency units per unit of British

Pound fixed exchange rate system with respect to a particular currency. Any appreciation or depreciation of the Rupee was measured with reference to Pound Sterling. After independence, the value of Bangladesh currency 'Taka' continued to remain pegged with the Pound Sterling. However, on subsequent devaluation and Jittery in the value of pound Sterling in the international market, Taka was linked with the trade weighted basket of six currencies representing the major trading partners of Bangladesh, with U.S. dollar as the intervention currency. The exchange rate of Taka vis-a-vis U.S. Dollar was determined on the basis of the Real Effective Exchange Rate (REER) calculated with reference to that currency basket. At present, the basket covers the currencies and respective weights for fifteen major trading countries. The effective exchange rate is a measure of whether or not the currency is appreciating or depreciating against a weighted basket of foreign currencies, mainly the important trading partner.

Management of Official Exchange Rate Bangladesh Scenario

Before independence, Pakistani Rupee was paged with Pound Sterling. Till 31st December, 1971 the rate was £ 1 = Rs. 13.33. Following liberation Bangladesh currency continued to remain paged with Pound Sterling and the exchange rate of Taka was fixed at £ 1 = Tk. 18.98 effective January 1, 1972 bringing Taka at parity with Indian Rupee remained in force till May 1, 1975. Then on devaluation of Taka, £ 1 = Tk. 30 was with effect from May, 1975 represented 36.73 percent devaluation.

The main reason for the devaluation was to restore the external competitiveness that was eroded on account of very high rate of inflation that pervaded the economy in the wake of independence. Though Taka was pegged with Pound Sterling yet in the backdrop of the collapse of the Briton Woods system the switch over of the U.K. to floating system, since June 23, 1972 made Taka, in effect, float with Pound Sterling since June, 1972. The movement of Pound Sterling vis-a-vis other currencies caused the movement of external value of Taka in the same direction. The fixed rate with Pound Sterling meant the absence of built-in-mechanism by which the cross rates of Taka with other major currencies could be stabilized to tideover this difficulty.

Bangladesh switched over to managed floating system in 1976. Under this arrangement, Taka-Pound exchange rate was refixed when the fluctuations of Pound Sterling vis-a-vis U.S. Dollar exceeded the prespecified margin in either directions. This system eroded the stability of Taka-Pound exchange rate which inserted some degree of uncertainly in the external trade front. The Taka-Pound exchange rate was refixed on eighteen occasions from April 26, 1976 to August 13, 1979 and to ensure greater stability in the Taka-pound exchange rate Bangladesh adopted the currency weighted basket method in August, 1979. Under this arrangement Taka-Pound exchange rate was fixed in relation to four major currencies viz. Pound Sterling, U.S. Dollar, Deutsche Mark and Yen. The practice was to adjust the Taka-Pound exchange rate when the value of Pound Sterling the intervention currency, changed more than a pre-specified margin in either directions vis-a-vis the currencies composing the basket. Under this arrangement exchange rates of Taka against currencies other than Pound Sterling were cross rates based on the London market rates for the currencies concerned.

The above arrangement continued until January 11, 1983 when a major change in the country's exchange arrangement was effected. The arrangement that was introduced on January 11, 1983 and still continuing differed from the previous, arrangement mainly in two respects :

(i) The intervention currency was changed from the Pound Sterling to the U.S. Dollar and

(ii) a trade-weighted basket was substituted for the previous currency-weighted basket.

Under the present arrangement exchange rate of Taka vis-a-vis the intervention currency is determined on the basis of the relationship of Taka to a weighted basket of currencies of the country's major trading partners. The shift to U.S. Dollar which was considered to be a stronger currency than the pound sterling, as intervention currency was expected to promote stability of exchange rate of Taka. The trade-weighted basket instead of currency weighted one was considered to provide a direct and more accurate indication of the change in the country's external competitiveness.

Nominal and Effective Exchange Rate

The Nominal Effective Rates (NEER) is a weighted average of various bilateral exchange rates and measures the average change in the value of a country's currency against that of all other (major) partner countries. It is used as an index of how a currency performs in foreign exchange market. A measure of competitiveness must take into account not only changes in exchange rate but also changes in the price level. So, Real Effective Exchange Rate (REER) indices are

calculated taking into account the relative price changes. The REER measures the average change in a country's exchange rate against that of all other currencies, adjusted for price developments. The REER index is used as an indicator of the international competitiveness of Taka and also as an indicator in determining equilibrium real exchange rate.

Exchange Rate, Foreign Exchange Reserves and the Devaluation episode

The International Finance literature endorses that devaluation may be a panacea to replenish the foreign exchange reserves position to satisfactory level. However, the salutory effect of devaluation depends on many factors. Theoretically, in the Bangladesh situation every bit of devaluation of the taka will make imports costlier in the local currency and will reduce imports. Hence, it would relieve pressure on the balance of payment. On the other hand, it will boost exports by making it cheaper and more competitive. As the dollar gains in value, it will buy more for foreign importers in the local currency and so the overall exports performance and earnings from it will grow faster.

This theoretical paradigm is very simple. In fact the outcome depend on the fulfilment of many other subsidiary conditions, the export and import elasticity is the prime determining factor. The exports of Bangladesh's such as Jute or Garments were not sufficiently responsive to changes in prices. So there is no guarantee that exports earnings would augment following the devaluation.

Even if exports are sensitive to price changes, i.e. elastic then the export sector will be required to increase productivity rapidly and make more quality products to seize the opportunity. It may be achieved if the production efficiency of all the factors of product can be increased quickly ; besides regular power supply and infrastructure support. This is not feasible in the country at this moment. The anomalies in the major export sectors against a steady inflow of imports warrants a clear and broad based analysis. Further, devaluation entails external liabilities. The external liabilities increase in terms of the local currency. Debt servicing, import bills settlement and transfer of money for treatment and tuition fees increase on account of devaluation. The cost of imports of capital goods, machinery and raw materials. It will augment the overall production cost to add to the prices of exportables thereby reducing the competitiveness.

In the process of the country's industrialisation, mainly the textile sector will face a severe setback. The devaluation is aimed at slowing down imports, but it may hit hard the import of capital goods rather than luxury goods. An overall slowdown in import is bound to slowdown export activities to lead the economy to settle at a lower equilibrium. The government's revenue target is also likely to face a severe setback as duty collections by customs officials and internal tax officials are likely to fall in this situation.

There is general consensus among all political economist, that devaluation require delicate balancing, while devaluing the government must outweigh the prospects of export growth against the growth in external liabilities, including imports, which are currently much more than the country's export earnings. The

devaluation of Bangladeshi Taka vis-a-vis US $ is presented in the following table (Table-5).

Table-5 : Exchange Rates

Name of Currency	Taka per U.S. Dollar		
	Period Average		End Period
Period	Official Rate	WES Rate	Official Rate
1971-72	7.30	-	7.76
1972-73	7.88	-	7.35
1973-74	8.88	-	13.65
1974-75	15.05	-	14.95
1975-76	15.05	-	14.95
1976-77	15.43	-	15.52
1977-78	15.12	19.86	15.06
1978-79	15.22	19.68	15.12
1979-80	15.49	19.21	14.73
1980-81	16.26	20.11	18.10
1981-82	20.07	22.79	22.11
1982-83	23.80	24.12	24.50
1983-84	24.94	27.16	25.20
1984-85	25.96	29.38	28.00
1985-86	29.89	32.74	30.30
1986-87	30.63	33.08	31.00
1988-89	32.14	32.91	32.27
1989-90	32.92	33.58	34.90
1990-91	35.68	36.38	35.79
1991-92	38.15	38.15	39.00
1992-93	39.14	-	39.80
1993-94	40.00	-	40.25
1994-95	40.20	-	40.10
1995-96	40.86	-	41.75

Source : i) Statistics Department, Bangladesh Bank.
ii) Wage Earners Branch, Sonali Bank.

Note : a) Exchange rate represents the mid point of buying and selling rates.
b) Official Rates and WES Rates have been unified from Ist January, 1992.

Available statistics reveal that in spite of seven times devaluation in the fiscal 1996-97, export earnings from Ready made Garments, leather,, frozen foods, jute goods and tea fell short of export targets. It appears that devaluation has adversely affected the import-substitute industries, including textile.

The policy response to the persistent reserve decline has been inadequate. The official exchange rate was devalued by 4.6 percent vis-a-vis the US dollar in seven steps in 1996-97. This was not adequate to avoid a 4 percent appreciation of the real effective exchange rate in 1996-97, which is likely to have contributed adversely to the competitiveness of Bangladesh's exports. At present Bangladesh Bank regularly calculates and monitor the movement of the real effective exchange rate (REER) index of Taka. In case the calculated REER index excess the base number i.e., 100 a prima facie case exists for depreciation of Taka in order to return REER index to the base level.

Real Effective Exchange Rate (REER) Index
(Base 1990 = 100)

Year		REER	Year		REER
1991	I	97.43		II	98.73
	II	101.37		III	86.56
	III	100.05		IV	86.94
	IV	93.85	1995	I	87.19
1992	I	92.65		II	84.12
	II	94.50		III	86.34
	III	90.39		IV	86.10
	IV	91.61	1996	I	86.77
1993	I	93.86		II	85.77
	II	90.18		III	84.77
	III	90.42		IV	85.61
	IV	91.72	1997	I	89.67
1994	I	91.00		II	88.86

The recent sharp devaluations in Southeast Asian competitor countries must have further seriously eroded Bangladesh's competitiveness. Pursuing a competitive exchange rate policy, together with continued trade liberalization, will be important for strengthening the economy's export base. At the same time, steps will be needed to improve the capital account balances. These include, in particular, sustained efforts by the Government to increase aid utilization-by removing project implementation bottlenecks, meeting policy commitments-and attracting increasing private capital inflows.

CHAPTER-IV

Policy Issues : Theoretical Paradigm

Although maintenance of foreign exchange reserve to a satisfactory level is a fundamental responsibility of the central Bank, there is no standard discipline or norm to determine an optimum level of foreign exchange. The state of development, openness of the economy, variability of export earnings are, however, some of the basic parameter in the determination of an optimum level of foreign exchange. Generally sustainability of financing 3 to 4 month's import bills as per IMF standard is considered essential. However, there is no standard limit for the upper level of foreign exchange reserves, excessively high level of foreign exchange reserve has an implicit cost. An efficient utilization of foreign exchange reserve may augment income through interest earnings.

There are two aspects to the theory of international reserve demand in the policy analysis context; the determinants of reserves and currency composition of reserves. The policy perspective may be addressed through two approaches (a) the portfolio theory approach and (b) the transactions approach.

The portfolio approach uses the well-known Tobin-Markowitz model of portfolio optimization to determine both the optimum quantity of international reserves, R, and the optimum composition of such reserves. Within this framework the quantity of international reserves demanded will rise with : (a) increases in central bank wealth; and (b) increases in the return on international reserves relative

to the return on domestic assets; and (c) decreases in the relative riskiness of international reserves.

There have been no empirical tests of the portfolio theory with regard to the total demand for international reserves as a fraction of total central bank assets or net worth. All the empirical tests of the portfolio approach focus on the composition of international reserves. Optimum portfolios have been calculated and then compared with the actual currency compositions of individual central bank holdings of international reserves. The general conclusion is that the composition of developing countries international reserves roughly correspond to the optimum predicted by the portfolio model. In contrast to this, industrial countries tend to hold a much higher than optimal proportion of their international reserves in dollars.

The main message of the portfolio approach remains relevant for all policymakers, namely that it is less risky if international reserves are diversified across many different assets, i.e. gold, SDRs, and alternative currencies or short-term interest earning assets denominated in various currencies. Bangladeshis reserve composition constitute the above items.

The transactions approach to the demand for international reserves is based on the assumption that these assets are not held in order to maximize rates of return (adjusted for risk) for central banks, but rather to be used for foreign exchange market intervention. Thus, a country's total demand for international reserves should be a positive function of the actual or potential volume of foreign exchange market transactions by the central bank. This, it is hypothesized, depends on the volume of international transactions by the residents of a country, and on the volatility of the

country's balance of payments. Since no data exist on this volume (even for industrial countries), scholars must use of proxy. This proxy is often the volume of the country's imports, or the sum of its imports plus exports. Ideally, the gross volume of international capital flows should be included, but no data exist for this. Some scholars simply use GNP as a proxy for a country's total international transactions.

For any given volume of international transactions, fewer international reserves are needed if governments are more willing to engage in or allow balance of payments adjustment mechanisms to take place. More reserves are needed if government policies are devoted to controlling domestic interest rates, output, and prices.

Along similar lines, Clark's (1970) work suggests that fewer international reserves are needed as the speed of adjustment in the balance of payments increases. Finally, Cooper (1968) reasons that the degree of openness should affect a country's demand for reserves in a positive manner, because a more open economy is affected more by external disturbances. Many scholars have adopted Whitman's (1969) approach by using the ratio of imports, M to GNP or Y, to measure the degree of openness. Consequently, according to this line of reasoning, the demand for international reserves should rise with M/Y ratio, i.e., the average propensity to import.

In studies that examine the currency composition of international reserves, the appropriate scale variables include : (a) the gross volume of trade denominated in a particular currency; (b) the currency denomination of a country's long-term

debts; and (c) exchange rate arrangements. The idea associated with (c) is that a country will want to hold more dollars if its has officially pegged its currency to the dollar and/or if dollars are the official intervention currency.

Another possible reason for the increased demand for international reserves since the early 1970s is tied up with the fact that economists and policymakers have become progressively more aware of the facts that : (a) movements in the current account tend to shift resources between the traded and nontraded goods sectors of an economy; (b) the productivity of labour is higher in the traded goods sector, and (c) the rate of increase in labour productivity tends to be higher in the traded goods sector.

Consequently, fact (b) allows countries to raise their average labour productivity and standard of living by shifting resources toward the traded goods sector. In addition, fact (c) implies that the rate of economic growth within an economy will rise if the size of the traded goods sector increases relative to the nontraded goods sector. Therefore, all other things being equal, it will be advantageous to keep the current account positive, or at least to keep it from randomly deteriorating because such a deterioration will exert a negative effect on both the standard of living and the rate of growth. All of this suggests that perhaps central banks keep large volumes of international reserves because they want to manage their current accounts.

Recommendations

On the bass of previous analysis, we enumerate a list of suggestions for policy makers.

- The level of international reserves should rise as a country's gross international transactions increase. These can be measured by the sum of exports and imports (of goods and services, including debt servicing), but, if possible, some estimate of gross capital account transactions should be included. Export as well as import in future years will registered substantial increase because of untapped potential of the economy. To meet increased demand for imports, the export base need to be diversified and competitive exchange rate as measured by Real Effective Exchange rate need to be monitored regularly.

- The level of international reserves should increase as the focus of a government's policy moves more toward the domestic economy, as the speed of adjustment in the balance of payments decreases, or as the size of potential international payments imbalances rises. Fiscal consolidation, government intervention in case of balance of payments deficit is thus a pre-requisite. Bangladesh government's fiscal prudence need to be assessed in these perspective. Balancing of revenue earnings and expenditure through borrowing from the banking sector augar fiscal mismanagement. The Central Bank credit to the government increased by 27 per cent in 1996-97 following a 37 per cent expansion in the previous fiscal year. Tight financial policy, by reducing domestic credit

growth through limiting the expansion of borrowing by the government from banks is crying need of the hour.

- The level of international reserves should fall as the marginal product of capital rises at home, or as the interest rate falls on very liquid short-term assets denominated in reserve currencies. If the country uses expenditure reducing policies to eliminate balance of payments deficits via decreases in imports, then the level of international reserves should fall as the country's marginal propensity to import rises. If tight monetary policy improves the balance of payments primarily via the capital account, then the size of the marginal propensity to import becomes less important.

- The government of Bangladesh sought help of 500 million US $ from IMF to augment foreign exchange reserves. This aid package warrants bold reform on the part of the government and depends on the speed of implementation of the previous reform programs. The government is also planning to float bond denominated in foreign currency for Bangladeshi nationals working abroad to augment reserve holdings.

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Annexure-A

LS // Dependent Variable is LR
Date: 01/13/98 Time: 13:02
Sample: 1973 1995
Included observations: 23

Variable	Coefficient	Std. Error	T-Statistic	Prob.
LY	0.055954	0.113422	0.493328	0.6269
LST	0.560640	0.113353	4.945972	0.0001

R-squared	0.649280	Mean dependent var	5.085309
Adjusted R-squared	0.632579	S.D. dependent var	0.904345
S.E. of regression	0.548171	Akaike info criterion	-1.119396
Sum squared resid	6.310313	Schwartz criterion	-1.020657
Log likelihood	-17.76253	F-statistic	38.87686
Durbin-Watson stat	1.966261	Prob(F-statistic)	0.000003

LS // Dependent Variable is R
Date: 01/13/98 Time: 12:40
Sample: 1973 1995
Included observations: 23

Variable	Coefficient	Std. Error	T-Statistic	Prob.
GDP	0.023542	0.020401	1.153939	0.2615
ST	3.194270	1.211971	2.635600	0.0155

R-squared	0.714019	Mean dependent var	33746.74
Adjusted R-squared	0.700401	S.D. dependent var	40805.77
S.E. of regression	22335.30	Akaike info criterion	20.11079
Sum squared resid	1.05E+10	Schwartz criterion	20.20953
Log likelihood	-261.9096	F-statistic	52.43151
Durbin-Watson stat	2.014962	Prob(F-statistic)	0.000000