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Management of Macro Economic Performance of Bangladesh: An Empirical Analysis

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Bangladesh is one of the least developed countries. The economy of Bangladesh suffers from both supply side and demand side problems. This study has been undertaken with a view to investigate management of macro economic conditions of the country over the two sub periods period a) Sub period-1: Macroeconomic policy under administrative control i.e. 1980-81 to 1993-94 ; b) Sub period-2: Macroeconomic policy under reform measures i.e. 1994-95 to 2009-10. The study doesn't find full applicability of either Keynesian or Monetarist view of the macro model for Bangladesh. Authors' suggest that the performance of the Bangladesh economy is a mixture of accomplishment and failure, not significantly different from that of the majority of poor less developed countries and thus a coordinated approach to fiscal, monetary and exchange rate and debt management policy is required to achieve the long-term goal and sustainable economic growth with inflation within control. Authors' observe that the performance of the Bangladesh economy is a combination of achievement and malfunction, not considerably dissimilar from that of the majority of poor Third World countries though the country has achieved a degree of success since independence. They argue that the international donors led by the World Bank, correspondingly can be proud of the role it has played in assisting in the development procedures of the country.

Field of Research: Bangladesh, Macro economy, Less Developed Countries
JEL classifications: E2 , E4 , E5 , E6

1. Introduction

Bangladesh remains a poor, overpopulated, and inefficiently-governed nation. Although more than half of Gross Domestic Product (GDP) is generated through the service sector, nearly two-thirds of Bangladeshis are employed in the agriculture sector, with rice as the single-most-important farm produce. Economic growth is supported by garment exports and remittances from Bangladeshis working overseas. In 2008, Bangladesh pursued a monetary policy aimed at maintaining high employment, but it also resulted in higher inflation rate in the process. In 2008, the country grew at the rate of 4.9% with the per capita income growth of $1500 US per annum (World Bank 2009). According to http://ns.bdnews24.com/details.php?id=199118&cid=2 (June/22/2011) the National Economic Council of Bangladesh has cleared the Sixth Five Year Plan involving Tk 13.47 trillion. It has been estimated that the gross domestic product (GDP) will grow at 7.3 percent and stand at eight percent by the end of the plan.

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Bangladesh economy suffers from the problems of both the supply and demand side issues. Managerial inefficiency has created bottleneck to achieve macroeconomic stabilization of the country after forty years of independence. It is one of the least developed countries in the world as it suffers from poverty, imperfection in factor and product market, continuous disequilibria in the economy, defective administrative structure, and inappropriate tax structure, heavy dependence on external sector, lack of capital stock, infrastructure bottlenecks, high unemployment rate, low standards of living, low level of savings and investment, unskilled labor market, acute balance of trade deficit and low gross domestic growth rate are prevailing in the economy. The country is not only technologically and managerially inefficient but also underdeveloped in the areas of key infrastructure such as transport, telecommunication, and energy sectors (World Bank 2009; SPBB 2011).

There are numerous underlying social problems that have threatened the nation which remain unsolved. These problems include overpopulation and inadequate nutrition, health, illiteracy; a low standard of living, scarcity of land, vulnerability to natural disaster-floods; virtual absence of valuable metals; and inadequate government and bureaucratic structures. The agricultural and the industrial sector are still in infancy stage. Public and private sector investment is inefficiently utilized, due to the presence of bureaucratic delay and corruption. Government policies have been somewhat effective in stimulating the economy however, resulting in government failure as well as market failure (Wolf 2003).

The private sector had benefited from an environment of greater economic freedom, decentralization, and has improved performance in banking, production of jute, fertilizer, ready-made garments, and frozen seafood. Over the period of 2001-2005, Growth averaged 5.4% per year which has been the highest 5-year average since the country's independence. This growth was mainly underpinned by private investment which grew at an annual average rate of 10% with an increase in its share in GDP from 16% in 2001 to 18.5% in 2005; share of public investment fell from 7% to 6% during the same period; strong exports, of the garments; large inflows of remittance fueled growth in construction and services sectors; and finally agriculture, growth has been low, averaging just 2% over the same period (World Bank 2009).

The economic growth is at around 6 % (on an average) for the last thirty-seven years. However, monetary and fiscal policy of the country is yet to be properly coordinated as macro management of the country faces many problems. This research has examined the multi-flow impact on the macroeconomic variables of the country over the time period. This paper is structured as follows. The first two sections of the paper provide the introduction and background to the literature review. Section three outlines the objective and explains the research methodology applied by gathering quantitative data. Section four explains the analysis of the data and results and section five provides policy implications and finally concluding comments.

2. Literature Review

The proximate determinants of the money supply are determined by three factors, as suggested by Friedman and Schwartz (1963) (a) the stock of high –powered money; (b) the ratio of deposit to reserve; (c) the ratio of deposit to currency.

Kaldor (1970) criticizes the Monetarist view that the quantity of money is determined by the demand from the public and that the central bank will control the quantity of money supply. Villanueva (1980) describes a semi-annual macro econometric model of the Philippines. Five basic sectors of the economy and their linkages were identified – namely, income-expenditure, monetary, output, credit and balance of payments sectors. Rashid (1981) observes the relatively poor simulation performance for Bangladesh. Wijesinghe (1982-1983) suggests that in developing countries like Sri Lanka, more emphasis should be placed upon the expansionary effect of output as the substitution effect is conditional upon the assumption of a well-behaved production function of neo-classical type.

According to Chowdhury (1983), foreign investment is likely to favor imported processes based on large-scale production which involves huge capital and may disfavor the use of locally available skill since in the plan there is no clear-cut provision for preventing the foreigners from using imported processes. Chowdhury (1986) reveals that the growth in government expenditure in Bangladesh has a greater impact on changes in nominal income than growth in narrow money (M_1). Osmani, Bakht and Anwaruzzaman (1986) have analyzed that fiscal policy affects the monetary sector in a variety of ways. Deficit financing have contributed significantly to the expansion of money supply. Jones and Sattar (1988) observe that inflation in Bangladesh is not purely a monetary phenomenon.

Lewis (1990) prepares a general equilibrium model of the Bangladesh economy in order to examine the macroeconomic and inter-sectoral consequences of proposed trade and industrial policy reforms in Bangladesh. Crow, Murshid and Rashid (1991) observe that financial brokers lending working capital to the small paddy collecting traders were rewarded with cheaper supplies of paddy. Momen (1992) depicts that money supply is endogenous in less-developed nations while it is exogenous in the industrial economies.

Bhuiyan and Rashid (1995) suggest that the array of incentives now available for particular export should be extended fully to other non-traditional exports and backward and forward linkages, to the extent that are economically viable, be encouraged and the existing system of export incentives should be streamlined to minimize administrative bottlenecks and to facilitate smooth and quick implementation of policy. Dhanasekaran (1995-96) supports the monetarist claim that it is, change in money stock that primarily determines changes in nominal GNP. Harrigan (1996) argues that national saving rates have been boosted by prudent government budgetary policy and that statutory saving and financial sector liberalisation has also played a significant role in boosting saving and these effects would appear to have come both through larger real interest rates, and financial deepening.

Kenen (1996) describes with the implications of openness of the economy and the exchange-rate arrangements for the functioning of monetary and fiscal policies. Roy (1996) opines that fiscal instruments seem to be important for engineering products, paper, newsprint, and paper products to influence exports. Rahman and Shilpi (1996) suggest that in a country where the interest rates and exchange rates are pegged or managed or are subject to non competitive market influences will have little effect on investment and capital accumulation. Further, traditional aggregated demand management policies could have favorable short run effects with regard to two gaps and inflation, without having any significant impact on growth, unless the policies directly encourage investment.

Rashid and Kemal (1997) comment that in Pakistan the policies pursued under the structural adjustment program have tended to increase the poverty levels mainly because of decline in growth rates, withdrawal of subsidies on agricultural inputs and consumption, decline in employment, increase in indirect taxes, and decline in public expenditure on social services. Donghyun (1997) argues in favor of liberalisation that it would provide Korean manufacturing firms with access to the less costly funds available in international financial markets and these funds will facilitate their restructuring away from labor-intensive production techniques toward more capital intensive techniques.

Kannan (1997-98) opines that linkage between monetary and fiscal policy of Mauritius a small country. An increase in Government capital expenditure improves output, but its impact on output and prices depends upon how the increase in budget deficit will impact upon how the increase in its capital expenditure is financed. Ali (2001) doesn't find full applicability of Keynesian or Monetarist view of supply of and demand for money in Bangladesh. Arndt, Dorosh, Fontana, Zohir, , El-said, Lungren, (2002) observes that the Bangladesh economy and household incomes are clearly linked with the global economy, particularly through food grain trade and the Readymade Garments sector. Maroney, Hassan, Basher, and Isik (2004) find that within the context of Bangladesh, monetary policy is more important than fiscal policy.

Ali and Islam (2011) recommend that: the high-powered money plays a significant role in the money supply process in Bangladesh. Since the central bank of the country has strong control of the high-powered money, it is strongly argued that Bangladesh Bank needs to have more independence in conducting monetary policy independent of political interference in the country and need to pay serious attention to manage and control the High-powered money in order to have strong influence over both narrow and broad money supply; Since external resources has had significant effects both types of money supply, the central bank also needs to monitor external resources carefully in understanding and then managing the money supply process of the country; Central bank independence is expected to have a better monetary policy, which may be helpful to have a much better management of the interest rate and credit flows of the country; the above mentioned better management of the monetary sector may bring about a much better outcome in the real sector of the economy in terms of achieving lower rate of inflation and unemployment, and a higher rate of economic growth; Since financial liberalization was found to have strong impact on the money supply function, it is argued here that various distortions still existing in the financial markets need to be improved through continued and hopefully prudent financial reforms. Without removing

imperfection from the banking system and financial markets, the country cannot have the opportunity to attain sustainable economic development.

Chu, Islam and Ali (2011) argue that there are many allegations of insider trading, market manipulation, and corruption in the equity market, leading to demonstrations by investors in the country on a number of occasions, eroding confidence in the equity market. Unfortunately, neither the government including the Securities and Exchange Commission, nor any regulatory authorities including the Bangladesh Bank had taken serious steps to deal with these allegations in a serious and effective manner to restore investor confidence in an already small and unstable market environment.

Islam (2011) depicts that Bangladesh economy has the potential to achieve higher growth than has been achieved in the recent past; and effort needs to be made to attain and sustain such growth. That, in turn, would require serious efforts at removing the constraints on investment _ domestic as well as foreign. Mobilization of domestic resources (especially raising revenue/GDP ratio) should be a priority. However, single-minded pursuit of a growth agenda would not be sufficient from the point of view of achieving the ultimate goal of development, viz., reduction (and eventual elimination) of poverty and achievement of other Millennium Development Goals through a wider sharing of the benefits of growth. Higher rate of growth of productive employment, a faster transfer of workers to sectors/activities with higher levels of productivity, reversal of the trend of rising income inequality, and greater attention to social aspects of development would have to be important elements in a “growth plus” development agenda.

Raj, Khundrakpam and Das (2011) find in their study analyzed the behavior of interaction between fiscal and monetary policies in India using quarterly data for 2000Q2 to 2010Q1. The choice of period of the study was influenced by the operating procedure of monetary policy in India which underwent a paradigm shift in the early 2000 with the introduction of liquidity adjustment facility and the interest rate channel becoming the main monetary policy signaling instrument. The impulse response functions from VAR analysis showed that monetary policy is highly sensitive to shocks in inflation and it responds swiftly in a counter-cyclical manner. Khan (2011) observes that the popularity of governments is related to inflation because it directly affects the standard of living of the people. That’s why democratic governments are more careful about keeping the inflation rate under control compared to less democratic countries and thus they follow a more contractionary monetary policy in good times.

In website: http://www.unnayan.org/reports/meu/sept_11/meu_Sept_2011.pdf observes that for the lower rate of real effective exchange rate (REER) from nominal effective exchange rate (NEER) in the calendar year 2010, the export situation of Bangladesh is in a competitive position. Reserves have risen correspondingly to exceed USD 10 billion (5.7 months of imports) in January 2010. Due to such inflows, Bangladesh Bank was forced to accumulate net additional reserves of USD 2.1 billion in the first seven months of FY10 in order to prevent the nominal value of taka from appreciation.

IMF (2011) comments that on the macroeconomic front of Bangladesh, official fiscal and monetary targets for FY12 (July 2011–June 2012) provide solid anchors, but achieving them requires timely and well-coordinated policy actions. To this end, subsidy costs should be reduced by adjusting fuel and electricity prices in order to protect priority spending and contain the budget's domestic financing requirement. Interest rates need to be made more flexible to boost demand for government paper, minimize central bank financing of the budget, and allow the envisaged monetary tightening to be transmitted to the real economy. The greater exchange rate flexibility observed recently should help relieve external pressures. It suggests that in structural areas, further reforms to tax policy and administration, public financial management, monetary and exchange rate operations, the financial sector, and the trade and investment regime should help bolster growth and poverty reduction efforts and reduce external vulnerability.

3. Objectives and Research Methodology

On the basis of literature review, the research has been undertaken with the following objectives:

- to determine the factors which simultaneously explain the variations in macro economic factors due to multi-flow influence among the variables;
- to investigate effectiveness of the management of macro economic scenario of the country in the process of sustainable economic development; and
- to find out whether any structural change have taken place in the macro economy of Bangladesh due to continuous financial reform programs especially implemented from the mid nineties.

The study reviews the theoretical and empirical literature on macro economy with special reference to Bangladesh. After independence on 16th December 1971, her economy suffered due to legacy of the war. The study started from 1980-81 This is because though from 1976 mixed economy started but still the economy run as per socialistic attitude. Macro-economic stability program and structural adjustment process was started in the middle of eighties. Repression prevailed in the economy till early Nineties as fixed exchange rate system was continued and interest rate ceiling on banking channel was not fully effective. Though financial liberalization actually started in 1990 but still Taka was convertible partially in 1993 and fully 1994 as well as managed floating system starts during mid Nineties repression going on . To make the study more up-to-date we have taken latest available data for which the study period is extended up to 2010 (June), a total of thirty-one years. Time period of the study can be divided into two sub-periods as mentioned below: (a) Sub period-1: Macroeconomic policy under administrative control i.e. from 1980-81 to 1993-94 (b) Sub period-2: Macroeconomic policy under reform measures i.e. from 1994-95 to 2009-10.

Data in the study has been used extensively from the secondary sources i.e. published data in various issues of Bangladesh Bank Economic trends, Bangladesh Bank Bulletin, Bangladesh Arthanaitic Jarip, Bangladesh Arthanaitic Samikhaya, Statistical Year book of Bangladesh, Annual Report of Bangladesh Bank, Statistical Pocket Book of Bangladesh, Bangladesh Bank Quarterly and Twenty one years of national accounting of Bangladesh (1972-73 to 1991-92) etc. We have also consulted published books,

working papers, reports, research monographs, journals and research works that are relevant to the study.

This research has attempted to determine multi-flow effect between variables of real monetary and external sectors by estimating the reduced form of equations as an example of showing the multi-flow effect in the overall economy of the country. We use alternative definition of the money supply i.e. Narrow money (M_1) or Broad money (M_2) where money supply is considered as either dependent variable or independent variable in various equations.

To test the structural change for the period from 1980-81 to 1993-94, we shall consider dummy variable (DM) as 'O'. When we consider the period from 1994-95 to 2009-10, then dummy variable (DM) is '1'. Usual t-value, F value, R-Square, Adjusted R- square will be estimated. Besides the statistical test, we also test whether serially correlated errors are present or not. As such the study has computed Durbin Watson statistics. Wherever serially correlated errors are present, we have used first order autoregressive i.e. AR (1) to remove auto correlation error term.

4. Specification of the Model

One can build a simultaneous equation model to show the multi-flow effects of the determinants of the real-monetary-external sector model. Instead of undertaking such modelling exercise, we have estimated the following reduced from equations of a real-monetary-external type model to test the multi-flow effect. From the literature review in Model-A and model-B are developed. Gross domestic product (GDP) is the most important factor which depends on consumption, investment, domestic savings, money supply, bank rate and foreign exchange reserve. Instrumental variables are investment, high-powered money and interest rate, total number of bank branches, domestic saving and consumption.

When we are specifying the model for money supply, we have taken alternatively narrow money and broad money as dependent model. Independent variables are GDP, bank rate, consumption, domestic savings, and foreign exchange reserve. In this case instrumental variables are foreign aid and loan, high-powered money, investment, consumption, total number of bank branches, net foreign asset. Foreign exchange reserve depends on GDP, bank rate, consumption, domestic savings, and money supply. In this equation instrumental variables are bank rate, GDP, capital outflow, foreign remittance, investment, consumption, and domestic savings.

Similarly the study also built Model-B where GDP depends on consumption, investment, money supply, rate of interest on deposit and exchange rate. Instrumental variables are high-powered money, foreign remittance, exchange rate, domestic savings, rate of interest on deposit, net foreign asset and deposits with bank. When we are specifying the model for money supply, it is same as Model-A. The study considers independent variables gross domestic product, high-powered money, rate of interest on deposit, national savings and exchange rate. In this case instrumental variables are foreign aid and loan, investment, consumption, total number of bank branches, high-powered money, balance of trade and bank rate. Exchange rate depends on gross domestic

product, rate of interest on deposit, consumption, national savings, money supply, and foreign exchange reserve. In this equation instrumental variables are same as model – A, including net foreign assets.

GDP = f (CONS, INVT, Ms, R, ER)..... (4)
Where instrument list: H, FR, ER, DS, R, NFA, DMB
Ms = f (GDP, H, R, NS, ER)..... (5)
Where instrument list: FAL, INVT, CONS, TNBB, H, BT, BR
ER = f (GDP, R, CONS, NS, Ms, FER) ..... (6)
Where instrument list: BR, GDP, CO, FR, INVT, CONS, DS, NFA

Model: A

GDP = f (CONS, DS, Ms, BR, FER) .....(1)
Where instrument list: INVT, H, R, TNBB, DS, CONS
Ms = f (GDP, BR, CONS, DS, FER) ..... (2)
Where instrument list: FAL, H, INVT, CONS, TNBB, NFA
FER = f (GDP, BR, CONS, DS, Ms) .....(3)
Where instrument list: BR, GDP, CO, FR, INVT, CONS, DS

Model: B

GDP = f (CONS, INVT, Ms, R, ER)..... (4)
Where instrument list: H, FR, ER, DS, R, NFA, DMB
Ms = f (GDP, H, R, NS, ER)..... (5)
Where instrument list: FAL, INVT, CONS, TNBB, H, BT, BR
ER = f (GDP, R, CONS, NS, Ms, FER) ..... (6)
Where instrument list: BR, GDP, CO, FR, INVT, CONS, DS, NFA

Where:
GDP= Gross Domestic Product
CONS= Consumption
DS= Domestic Savings
Ms=Money Supply
BR= Bank rate
FER= Foreign Exchange Reserve
INVT= Investment
H= High-Powered Money
R= Rate of interest on deposit
TNBB= Total Number of Bank Branches
FAL= Foreign Aid and Loan
NFA= Net foreign assets
ER= Exchange Rate
CO= Capital Outflow
FR= Foreign Remittance
DMB= Deposit money banks (govt. net)
NS = National Savings
BT = Balance of Trade

Here we use alternative definition of money, i.e. M_1 and M_2, and assume following priori relationship:

- GDP is positively related to consumption, investment, domestic saving, national saving, money supply and foreign exchange reserve. Rate of interest on deposit is

negatively related to GDP. GDP is also positively related to investment. Exchange rate is negatively related to GDP.

- Money supply (both narrow money and broad money) is positively related to GDP, consumption, rate of interest on deposit, high–powered money and foreign exchange reserve.
- It is negatively related to domestic saving and national saving. High-powered money is positively related to money supply. Bank rate is negatively related to money supply.
- Foreign exchange reserve is positively related to gross domestic product. Rate of interest, consumption, domestic saving and money supply are positively related to foreign exchange reserve.
- Exchange rate is negatively related to gross domestic product. It has also negative impact on consumption, domestic savings, money supply and foreign exchange reserve. Rate of interest on deposit has negative impact due to exchange rate depreciation.

5. Results and Findings

The data below is collected from various sources, BBS (1993), Bangladesh Bank (1997& 2011) and Ministry of Finance (1997 & 2011). In model (A) from equation (1A) below, while considering gross domestic product as dependent variable, consumption and narrow money are significant at 1% level of significance and they depict expected sign. Here we also find that dummy variable is significant at 1% level of significance. Adjusted R-square is 0.974 which indicates that good fit of the equation. Durbin-Watson statistics is 1.7346, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

Equation No: 1A**:** Dependent Variable: GDP
Method: Two Stage Least Squares
Instrument list: INVT H R TNBB DS CONS

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-5237.25	2312.43	-0.8296	0.5236
CONS	0.0636	0.0242	2.6249	0.0158
DS	0.0523	0.0448	1.1686	0.2556
M_1	9.9187	3.4536	2.8719	0.0091
BR	-1539.381	7962.501	-0.1933	0.8486
FER	16.8847	3068.847	0.0055	0.9957
DM	0.8207	0.0658	12.4716	0.0000
R –Square	0.9825	Adjusted R-square		0.9746
F-statistic	234.3567	Prob (F-statistic)		0.0000
Durbin-Watson stat.	1.7346			

Considering equation (1B), we find that domestic saving and broad money are significant at 5% and 1% level of significance respectively. The equation provides a good fit at 97% of the observed variation in the gross domestic product. Durbin- Watson

statistics is 1.618510, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

Equation No: 1B: Dependent Variable: GDP
Method: Two Stage Least Squares
Instrument list: INVT H R TNBB DS CONS

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	7664.097	3351.281	2.2869	0.0317
CONS	0.0208	0.0138	1.5013	0.1482
DS	0.0512	0.0239	2.1444	0.0439
M_2	2.7521	0.5098	5.3980	0.0000
BR	6513.053	5547.370	1.1740	0.2535
FER	-1901.254	1972.294	-0.9639	0.3460
DM	0.4025	0.2830	1.4221	0.1678
R-Square		0.9825	Adjusted R-square	0.9728
F-statistic		622.4755	Prob(F-statistic)	0.0000
Durbin-Watson stat.		1.6185		

In equation (2A), we observed that GDP and consumption are significant at 1% and 5% level of significance respectively. The equation provides a good fit at 95% of the observed variation in narrow money. Durbin- Watson statistics is 1.603477, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

Equation No: 2A
Dependent Variable: M_1
Method: Two Stage Least Squares
Instrument list: FAL H INVT CONS TNBB NFA

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-890.6034	5204.635	-0.1711	0.8658
GDP	0.0959	0.0270	3.5396	0.0019
BR	272.9141	665.2476	0.4102	0.6858
CONS	0.0045	0.0019	2.3554	0.0283
DS	-0.0070	0.0140	-0.5044	0.6192
FER	-0.0008	0.0382	-0.0234	0.9815
DM	5143.081	9983.554	0.5151	0.6118
R –Square		0.9579	Adjusted R-square	0.9514
F-statistic		120.9762	Prob (F-statistic)	0.0000
Durbin-Watson stat.		1.6034		

In equation 2B, we found that GDP is significant at 1% level of significance. The equation provides a good fit at 94% of the observed variation in broad money. Durbin-Watson statistics is 1.592620, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

Equation No: 2B
Dependent Variable: M_2
Method: Two Stage Least Squares
Instrument list: FAL H INVT CONS TNBB NFA

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-7037.314	24182.34	-0.291010	0.7739
GDP	0.355765	0.125908	2.825592	0.0101
BR	9502743	3090.945	0.307438	0.7615
CONS	0.007358	0.009059	0.812318	0.4257
DS	-0.063532	0.065107	-0.975803	0.3403
FER	0.087439	0.177601	0.492334	0.6276
DM	22864.50	46386.66	0.492911	0.6272
R-square	0.9489	Adjusted R-square		0.9405
F-statistic	87.03205	Prob(F-statistic)		0.0000
Durbin-Watson stat.	1.592620			

Equation 3A depicts that GDP is significant at 5% level of significance. The equation provides a good fit at 87% of the observed variation in foreign exchange reserve. We observe that if the GDP rises by 1%, then the foreign exchange reserve will rise by 1.06%. Durbin- Watson statistics is 1.605101, which indicates that no autocorrelation prevails at 1% level of significance. F value is significant at 1% level.

Equation No: 3A
Dependent Variable: FER
Method: Two Stage Least Squares
Instrument list: BR GDP CO FR INVT CONS DS

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-34730.27	27606.24	-1.2580	0.2254
GDP	1.0618	0.4149	2.5589	0.0203
BR	8871.135	16556.63	0.5358	0.5990
CONS	0.0133	0.0301	0.4407	0.6649
DS	0.0254	0.0551	0.4616	0.6599
M_1	5700.087	6268.753	0.9092	0.3759
DM	56464.36	92246.73	0.6121	0.5486
R-Square	0.8783	Adjusted R-square		0.8730
F-statistic	25.4052	Prob(F-statistic)		0.0000
Durbin-Watson stat.	1.605101			

Equation 3B shows that GDP is significant at 5% level of significance. Here the equation provides a good fit at the 87% of the observed variation in the foreign exchange reserve. Durbin- Watson statistics is 1.5821 , which indicates that no autocorrelation prevails at 1% level of significance. Dummy variable is significant at 5% level of significance, which implies that structural change has occurred. F-statistics is significant at 1% level of significance.

Equation No: 3B
Dependent Variable: FER
Method: Two Stage Least Squares
Instrument list: BR GDP CO FR INVT CONS DS

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	42081.81	119691.3	0.3515	0.7295
GDP	1.0749	0.4150	2.5897	0.0191
BR	-10325.82	18755.65	-0.5505	0.5891
CONS	0.0141	0.0305	0.4617	0.6501
DS	0.0224	0.0498	0.4515	0.6573
M_2	2.2333	7.3315	0.3046	0.7644
DM	0.1682	0.0673	2.4981	0.0197
R-square		0.8823	Adjusted R-square	0.8797
F-statistic		26.8220	Prob(F-statistic)	0.0000
Durbin-Watson stat.		1.5821		

Equation 4A shows that consumption and investment is significant at 5% and 1% level of significance. Here the equation provides a good fit at 97% of the observed variation in the GDP. We use AR (1) to remove autocorrelation problem. F-statistics is significant at 1% level of significance.

Equation No: 4A
Dependent Variable: GDP
Method: Two Stage Least Squares
Instrument list: H FR ER DS R NFA DMB

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-11629.70	15525.80	-0.7490	0.4630
CONS	0.0620	0.0258	2.4044	0.0266
INVT	0.0493	0.0479	1.0300	0.3159
M_1	10.0804	3.6596	2.7544	0.0126
R	-770.9253	8802.406	-0.0875	0.9311
ER	-169.9178	3276.799	-0.0518	0.9592
DM	47003.22	54216.55	-0.8669	0.3968
AR(1)	0.0025	0.2486	0.0100	0.9921
R-Square		0.9746	Adjusted R-square	0.9733
F-statistic		138.0736	Prob(F-statistic)	0.0000
Durbin-Watson stat.		1.7842		

In equation 4B, we find that investment and rate of interest on deposit is significant at 5% level of significance. The equation provides a good fit at the 91% of the observed variation in the gross domestic product. Here we use AR (1) to remove autocorrelation problem. F-statistics is significant at 1% level of significance.

Equation No: 4B
Dependent Variable: GDP
Method: Two Stage Least Squares
Instrument list: H FR ER DS FAL NFA

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-79863.98	36537.66	-2.1857	0.0416
CONS	-0.0480	0.0423	-1.1354	0.2703
INVT	0.5179	0.2523	2.0526	0.0541
M2	0.0011	1.0441	0.0011	0.9991
R	7972.294	3634.989	2.1932	0.0409
ER	-5.5839	5.6203	-0.9935	0.3329
DM	-9253.656	34243.25	-0.2702	0.7899
AR(1)	-0.1696	0.2426	-0.6992	0.4928
R-square		0.9187	Adjusted R-square	0.9100
F-statistic		369.8355	Prob(F-statistic)	0.0000
Durbin-Watson stat		1.9648		

In equation 5A, we observed that GDP and high-powered money is significant at 1% and 5% level of significance. The equation provides a good fit at the 93% of the observed variation in the narrow money. To remove autocorrelation problem, we use AR (1). F-statistics is significant at 1% level of significance.

Equation No: 5A
Dependent Variable: M_1
Method: Two Stage Least Squares
Instrument list: FAL INVT CONS TNBB NFA BT

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-138.6187	4848.517	-0.028590	0.9775
GDP	0.0976	0.026264	3.717900	0.0015
BR	-187.3764	614.2428	-0.305053	0.7636
H	0.0045	0.001945	2.361074	0.0291
DS	-0.0063	0.013734	-0.459201	0.6513
ER	0.0008	0.036667	0.022812	0.9820
DM	4310.607	9383.615	0.459376	0.6512
AR(1)	0.0025	0.239532	0.01437	0.9918
R-square		0.9397	Adjusted R-square	0.9320
F-statistic		100.7955	Prob(F-statistic)	0.0000
Durbin-Watson stat		1.7469		

Equation 5B indicates that GDP is significant at 1% level of significance and high powered money at 10% level of significance. The equation provides a good fit at the

94% of the observed variation in the broad money. To remove autocorrelation problem, we use AR (1). F-statistics is significant at 1% level of significance.

Equation No: 5B
Dependent Variable: M_2
Method: Two Stage Least Squares
Instrument list: FAL INVT CONS TNBB NFA BT

VARIABLE	COFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-4715.367	23761.96	-0.1984	0.8448
GDP	0.3611	0.13059	2.7650	0.0123
BR	-686.1547	3040.732	-0.2256	0.8239
H	0.0189	1.5081	1.8036	0.0616
DS	-0.0611	0.0700	-0.8733	0.3934
ER	-0.0820	0.1745	-0.4703	0.6434
DM	20294.03	46851.69	0.4331	0.6698
AR(1)	0.0025	0.2601	0.0096	0.9924
R-square	0.9492	Adjusted R-square		0.9404
F-statistic	72.8897	Prob(F-statistic)		0.0000
Durbin-Watson stat	1.6282			

Equation 6A indicates that GDP is significant at 5% level of significance. It is negatively related. Dummy variable is significant at 5% level, which implies that structural change has occurred. The equation provides a good fit at the 87% of the observed variation in the exchange rate. We use AR (1) to remove autocorrelation problem. F-statistics is significant at 1% level of significance.

Equation No: 6A
Dependent Variable: ER
Method: Two Stage Least Squares
Instrument list: BR GDP CO FR INVT CONS DS NFA

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-36979.33	35818.43	-1.0324	0.3172
GDP	-1.0437	0.4087	-2.5538	0.0212
R	10357.00	23727.27	0.4365	0.6683
CONS	-0.0161	0.0438	-0.3690	0.7170
NS	0.0274	0.0654	0.4190	0.6807
M_1	2025527	10.4451	0.1939	0.8487
FER	-6240.654	8761.889	-0.7122	0.4866
DM	0.8451	0.2431	3.4766	0.0021
AR(1)	-0.0587	0.4243	-0.1385	0.8915
R-square	0.8769	Adjusted R-square		0.8701
F-statistic	21.7739	Prob(F-statistic)		0.0000
Durbin-Watson stat.	1.6169			

Equation 6B depicts that GDP is significant at 1% level of significance and negatively related. Here we also find that dummy variable is significant at 1% level of significance. The equation provides a good fit at the 88% of the observed variation. Here AR (1) is used to remove autocorrelation problem. F-statistics is significant at 1% level of significance.

Equation No: 6B
Dependent Variable: ER
Method: Two Stage Least Squares
Instrument list: BR GDP CO FR INVT CONS DS NFA

VARIABLE	COFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	59484.26	148633.3	0.4002	0.6943
GDP	-1.0450	0.3794	-2.7536	0.0141
R	-13120.66	23256.87	-0.5641	0.5805
CONS	-0.0187	0.0378	-0.4961	0.6265
NS	0.0241	0.0513	0.4698	0.6448
M_2	0.5917	10.1838	0.0581	0.9544
FER	-6563.060	7343.351	-0.8937	0.3847
DM	0.7692	0.1262	6.0944	0.0000
AR(1)	-0.1110	0.3718	-0.2987	0.7690
R-square		0.8991	Adjusted R-square	0.8838
F-statistic		24.3635	Prob(F-statistic)	0.0000
Durbin-Watson stat.		1.6848		

To sum up, the study observes that GDP is the key factor of the measurement of macro economy. Consumption and narrow money have a significant relationship with GDP. Broad money and domestic saving also have an impact on the economy. Narrow money has a relationship with GDP and consumption. Broad money has a significant relationship with GDP. Foreign exchange reserve has an impact on GDP. GDP is also related to investment and rate of interest on deposit. Narrow money and broad money both have significant relationship to GDP and high powered money. Exchange rate is related to GDP. The study observes that Rahman and Shilpi's (1996) findings are not fully applicable.

We obtained mixed results of the structural changes. This implies that financial reform measures have some positive impact on the domestic economy. However, the economy still needs more changes. Momen (1992) observes that IMF policy prescriptions for less-developed economies (LDEs) are not likely to be effective or relevant until LDEs financial structures and levels of industrialization have improved. This is supported by our results. The study has found that real sector is largely dependent on GDP.

Other factors such as rate of interest on deposit, investment, consumption also have an impact on the real sector of the country. We observed that money supply depends directly on high-powered money and GDP; where as the external sector depends on exchange rate and foreign exchange reserve. When we test multi-flow effect through simultaneous equations using instrumental variables, we observed that GDP is the key factor in the economy and is directly related to the consumption and investment

process. Monetary management of the economy should be designed with proper assessment, planning, implementation, market condition of the people's desire or intention, timely decisions, positive real rate of return, adjustment of price change for accelerating the growth of GDP. External and internal factors have impacts on the supply of money process.

Foreign exchange reserve is directly related to GDP, and depends on export-import of the country, foreign aid and loan, foreign remittances etc. International commitment, commercial transaction, and transfer payment of the country affects the reserve position and it cannot be fully predetermined. The study reveals that some of the determinants of export sector of the country have multi-flow effect on other sectors of the economy.

The study has also investigated overall impact of financial reform measures in the real, monetary and external variable. From the study we find that for the development of Bangladesh, fiscal policy will have to be coordinated with monetary policy, exchange rate and debt management policies along with appropriate measures so that reduction of dependence on the external sector can be achieved to accelerate economic growth, ensuring social justice and to bring stability in the financial sector in an efficient manner (Bahar 2009). Structural changes have occurred partially and the economy did not benefit from these reform measures.

6. Concluding Remarks and Policy Implications

Globalization challenges have had a significant negative impact on the domestic economy and aggregate output. Hence, dependence on external sector should be minimized. The findings of this study supports Lewis's (1990) results that for the Bangladesh economy to replace the current off-budget export subsidy, based on retention of foreign exchange earnings, by export subsidies financed out of the government budget would promote exports. These measures may be applied for the economic development of the country.

From the study it is also evident that for the development of the country, fiscal policy will have to be coordinated with monetary policy along with appropriate measures in order to minimize the dependence on the external sector to accelerate economic growth, ensuring social justice and to bring stability in the financial sector. The deregulation of Bangladesh economy and the gradual introduction of different programs for macroeconomic stability and structural adjustment began since the mid-eighties along with the financial reforms in 1990s. Although Bangladesh is still an undeveloped country, the primitive characteristics of LDCs do not exist here. This indicates that the country is able to attain a certain level of infrastructural development especially in the financial sector, which facilitates the process of development, though it is not sufficient. Ali and Islam's (2011) recommendation may be seriously considered by the policy makers of the country. Bangladesh bank should be more efficient and effective to maintain price stability, decreasing current double digit inflation rate to single digit inflation rate, maintenance of stability of exchange rate especially from depreciating value of Bangladesh Taka against US Dollar and reduction of default culture may be arranged.

One of the objectives of the study is to test whether structural change has occurred or not. From the study, we have obtained mixed results about the structural change. Although Bangladesh economy was deregulated from the mid eighties when macroeconomic stabilization measures were taken, however, lack of planning and political will hindered the growth process. To expedite the process, financial sector reform program were launched in 1990. Though economic development of the country needs to be given a big push, partial financial intermediation specially depository intermediation of the country has more or less occurred. This indicates that to develop the economy of the country channeling saving-investment, favorable balances of payment position, productive utilization of foreign remittances is needed.

As such financial reform measures should be designed with more positive attitude which includes independence of Bangladesh Central Bank, allocation of capital funds, growth oriented resource mobilization, reduce government borrowing from the banking sector, designing of appropriate tariff rate structure, removal of red tape and bureaucratic control and delay. When rate of interest on deposit is high, the Bangladeshi expatriates from abroad become motivated to send their earnings. This also helps to narrow the gap of huge trade deficit and exchange rate remains in a favorable position. The study observes that government expenditure has positive impact on GDP which supports Kannan's (1997-98) findings for Mauritius.

Monetarists argue that money supply has a dominant influence on change in price level, spending, production, and employment. On the other hand, neo-Keynesians believe that a wide range of factors, both monetary and non-monetary, have influenced employment, growth and prices (Keynes 1936). The study neither support monetarist view fully or the Keynesian view fully. The economic condition cannot be fully improved by depending on fiscal policy. The study concludes that Bangladesh needs a mix of fiscal and monetary policy. Over the long time period in case of some equations structural changes have occurred. It indicates that fiscal policy and monetary policy cannot alone improve the economic condition. We need a combination of demand management and supply side policies to improve economy.

The study doesn't find full applicability of either Keynesian or Monetarist view of the macro model for this country. Our observation also supports the conclusion of Osmani, Bakht and Anwaruzzaman (1986), as they argue that fiscal policy affects the monetary sector in a variety of ways. Results of the findings of Maroney, Hassan, Basher, and Isik's (2004) macro-econometric model for the Bangladesh vary with the findings of this study. They find that within the context of Bangladesh, monetary policy is more important than fiscal policy.

Fiscal policy of the country has not designed well enough to stimulate growth through taxation, public expenditure, and revenue adjustment, accumulation of capital and domestic resource mobilization and institutional framework. Despite reform measures, real variables indicate that government has failed to raise taxes, proper mobilization of domestic resources and creation of effective allocation as per the requirement of the economy. Monetary stability in the economy can be achieved through attaining price stability, inflation and real rate of return to increase economic growth rate. This study reveals that for the development of Bangladesh, fiscal policy will have to be coordinated

with monetary policy simultaneously along with appropriate measures so that reduction of dependence on the external sector can be achieved to accelerate economic growth, ensuring social justice, income equality, improvement in the balance of payment position, exchange rate and price stability in the financial sector along with managerial and operational efficiency both in the private and public sector can be ensured. Islam (2011) observations can be fruitful if the country can be able to develop managerial efficiencies and effectiveness in all level of the economic tire so that macro economic stabilization can be attained.

The pace of human development, which is a key factor contributing to economic growth and includes health, education, social protection, infant and maternal mortality, life expectancy has surpassed that of most low income countries (LDCs). Main question is how to ensure long term sustainable growth of 5-6% and how to raise growth to the 7-8% range, which is desirable and needed to meet the government's poverty reduction goals. The key barriers to improved growth performance as observed by the World Bank (2009) include: (a) inadequate infrastructure, road, rail, power and inefficient and cost ineffective ports, given the increase in demand.(b) Transparency International has ranked Bangladesh last in its corruption ratings for five years in a row and many important aspects of governance are very weak. (c) Urbanization has been very rapid and largely imbalanced. More than quarter of the population now lives in urban areas, while in 1960 the number was just 5%. Fifty percent of GDP is spent on urban activities. Urbanization has been skewed toward Dhaka, making it among the fastest growing metropolises in the world. This is adding to growing concerns about congestion, lagging urban planning and management, and skyrocketing real estate prices

The performance of the Bangladesh economy is a mixture of accomplishment and failure, not significantly different from that of the majority of poor Third World countries. The country has achieved a degree of success since independence. The international donors led by the World Bank, similarly can be proud of the role it has played in assisting in the development processes. On the policy side, a good record on GDP growth rate seems to have benefited from impressive macro stability. Though inflation did not touch double digits for almost two decades, but now it has been rising at an alarming rate and creating low level equilibrium trap by decreasing purchasing power capability. Public and external debt situation currently has been not tolerable situation with growth in saving and investment rates. Recently capital market scam also created negative impact on the domestic economy of the country. This is due to managerial inefficiency and corruption that is prevailing in the economy.

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