# The Effectiveness of Monetary Policy and Fiscal Policy in Bangladesh

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*Keynesian and the monetarist theorist s have been debating for a l ong time on the effectiveness of fisca l and monetary policy. The outcomes of several empiri cal researches are open to further studies and those outcomes suggest that none of t he policies can be th ought of as superior t o the other. The relative effectiveness of fiscal and monetary policies in any economy depends on the prevailing economic and political conditions at any point in time. In order to determine the influence of fiscal and monetary policy on the economic activity in Bangla desh we have us ed time series analysis on the annual data for the period 1980-2012. The results obtai ned show that monetary and fiscal bot h the policies are equally effective in simulating economic growth in Bangl adesh. Moreover it has long run relationship with co-integrated impact on economic growth.*

## INTRODUCTION

Different macroeconomic policies lay critical roles in developing sustainable economic stability in a country, which create the environment for the faster economic growth. Monetary and fiscal policies are the fundamental components for promoting sustainable growth in the economy. The successful functioning of an economy depends on the coordinated activities of monetary and fiscal policies and the absence of this coordination leads to a poor overall economic performance. These policies are conducted by two separate authorities, they are mutually dependent, and therefore, it is extremely important to accomplish a consistent and sustainable policy-mix framework. Such framework can ensure harmonized monetary and fiscal policy and avoid possible inconsistencies.

Fiscal policy deals with the public expenditures and revenues. Pragmatic and sustainable fiscal stance promotes economic growth without inflation pressure, low levels of fiscal deficit and public debt, narrow down budget imbalances in situations of high fiscal deficit and public debt, etc.. Forward-looking governments participate in almost every part of social and economic life through the fiscal policy. The fiscal policy measures are taken by influencing aggregate demand and supply, attempting to create better employment conditions and acceptable inflation level, leading the policy of steady trade balance and supporting sustainable economic growth.

Monetary Policy deals with the discretionary control of money supply by the central bank. It is mostly focused on achieving stability of prices through targeting inflation rates, stimulating exchange rate leading towards positive balance of payment, and acceptable level of employment. Additionally, it

influences the output level and economic growth rate, and moderates excessive aggregate liquidity in the economy.

Both monetary and fiscal policies have been proved to have roles in the economic stabilization within developing countries. However, the Keynesians and the Monetarists have had focused debate over the usefulness of these policies. The monetarists consider monetary policy to have greater influence on economic activity and the Keynesian believe that this is the case with fiscal policy. Generally, there are certain situations where monetary policy is effective and others in which fiscal policy achieves better macroeconomic performance.

This research has been conducted to test the comparative efficiency of monetary and fiscal policy in Bangladesh through the stationary test by using Augmented Dickey Fuller Method. Firstly, we will clarify the monetary and fiscal policy interactions, Secondly, their influence on the economic growth, and thirdly, we will focus on the review of prior empirical studies. Special consideration will be given to data used for empirical investigation. The rest of the paper is dedicated to the model specification, discussion of the obtained result and conclusion.

## MONETARY AND FISCAL POLICY INTERACTIONS AND IMPACT

Due to the dependency of the overall performance of macroeconomic policy on both the monetary and fiscal policy, it is important to understand the different interactions between these policy instruments. When we are analyzing the influence of monetary policy on fiscal policy, interest rates and inflation rates can be identified as direct mechanisms for transmission. Interest rates' level and volatility have impact on fiscal positions as it directly influences servicing costs and sustainability of debt. Similarly, the level and volatility of inflation rates have impact on public finances. Public finances become more unpredictable and fiscal planning extremely difficult when price inflation contributes to the public expenditures increase through salary increase for government employees. Moreover, High inflation rate reduces the actual value of debt obligations and leads to the increase in real tax burden (Rakic B. et al, 2013, p. 106) (Jawaid, S. T. et al, 2010).Monetary policy can have an indirect impact on fiscal policy. Monetary policy instruments smooth the unnecessary output fluctuation, which enables fiscal policy instruments to ensure efficiency in economic stability. On the other hand, when monetary policy is not committed to output stabilization, then primary goal of fiscal authorities is to pursue countercyclical stabilization policies.

Fiscal policy also has impact on monetary policy. If the fiscal policy is expansionary, it results in economic overheating. That offsets monetary interventions and the intensity is dependent on the relative importance that price stability has over output stabilization (Rakic B. et al, 2013, p. 106) (Jawaid, S. T. et al, 2010).Increase in Government expenditures results in the reduction of economic growth level and requires a restrictive monetary policy. Fiscal policy components like unproductive public projects and ineffective tax systems unfavorably impact the potential level of economic growth and require more restrictive monetary policy. "Monetary and fiscal policies are interrelated in numerous ways, and this puts additional pressure on the monetary and fiscal authorities to pool resources in order to accomplish efficient outcomes" (Rakic B. et al, 2013, p. 107) (Jawaid, S. T. et al, 2010).

It is undeniable that monetary and fiscal policies are mutually interrelated in numerous ways, which creates pressure on the policy makers to accomplish efficient outcomes by pooling resources. Moreover, the complexity of policy creation is more difficult due to economic environment uncertainty and the nature of policy interactions. As mentioned earlier that the Keynesians-Monetarist debate has been going on for ages about the relative efficiency of monetary and fiscal policies in rising output. So it is important to analyze and observe cases in which fiscal policy performs better, and those in which monetary policy works (Rakic B. et al, 2013, p. 107) (Jawaid, S. T. et al, 2010).

Keynesian theorists focus on the liquidity trap as extreme special case, in which fiscal policy works. In the liquidity trap situation, interest rate reaches its minimum level and further increase in money supply will not lead to the interest rate reduction. In such situations investment must be big enough to provide expenditure equal to the full employment output. Otherwise, monetary policy will fail to increase

investments and restore full employment. But, fiscal policy will increase the output through rising government expenditures. (Rakic B. et al, 2013, p. 107) (Jawaid, S. T. et al, 2010).

On the other hand, the Quantity Theory of Money states that changes in stock of money (M) directly affect changes in national income value (PY) when the velocity of circulation is constant. In this situation monetary policy works and fiscal policy does not. The change in government expenditure will have no impact on the real income, and thus fiscal policy is ineffective while monetary policy increases real output (Rakic B. et al, 2013, p. 107) (Jawaid, S. T. et al, 2010).

Due to data availability and studied content, we focused on Broad Money, Economic Growth and Government Expenditure for our analysis. The reason behind choosing these variables is to investigate the effect of the monetary and fiscal policy on economic growth by addressing

1)      Whether monetary and fiscal policy has a joint effect on economic growth.
2)      Whether one of these policies is superior to the other one,
3)      Is any particular policy causing the sustainable growth in Bangladesh economy.

## THEORITICAL BACKGROUND

Darrat (1984) investigated the relative influence of fiscal and monetary actions with in a modified St. Louis single-equation in 5 Latin American countries, i.e. Brazil, Chile, Mexico, Peru and Venezuela. The annual time series data was taken during the time period from 1950 to 1981 of gross national product, money stock, government spending and exports. The results suggest that fiscal policy significantly lead monetary policy in explaining changes in nominal income.

Ali, Irum and Ali (2008) examined the effectiveness of monetary and fiscal policy for economic growth in South Asia Region (i.e. Pakistan, India, Srilanka and Bangladesh) through Auto Regressive Distributed Lag (ARDL) and Error Correction Model (ECM) using annual data series during 1990 to 2007. Results suggested that the monetary policy instead of fiscal policy has greater influence on economic growth in South Asian Countries. They considered Gross domestic product, broad money (M2) and fiscal balance for the study.

Jawaid, Arif and Naeemullah (2010) have done a study on the comparative analysis of monetary and fiscal policy on Pakistan. They have done the research based on the "Quantity Theory of Money" and the Keynesian approach to determine the relationship between Gross Domestic Product, Money Supply (MS) and Fiscal Balance (FB). To find out the existence of the long run relationship variables, they performed stationary analysis and the presence of autocorrelation was shown in the estimated model. The co-integration tests confirmed positive long run relationship between monetary and fiscal policy with economic growth.

Numerous studies have been done on the effectiveness of the monetary and fiscal policy. Rakic and Radenovic (2013) have done a thorough literature review on the effectiveness of monetary and fiscal policy. They have deduces that in order to determine the impact of monetary and fiscal policies on the economic activities, following various techniques and variables are used :

-   Monetary policy variables: interest rate, inflation rate, exchange rate, money supply, broad money
-   Fiscal policy variables: government revenues, government expenditures, budget deficit, budget surplus
-   Growth variables: logarithm of real GDP, GDP growth rate, nominal income, nominal income growth rate

In this paper we have analyzed monetary policy through broad money supply, fiscal policy through government expenditures and economic growth through real GDP .

## BANGLADESH PERSPECTIVE

Recent literature confirms that since 2008-2009, after the global turmoil, the Central Bank of Bangladesh has been pursuing the objective of attaining sustainable high broad-based economic growth in

the unfolding internal and global context, while containing inflation within tolerable moderate levels. Bangladesh Bank (BB) has held much more extensive stakeholder consultations before drawing up the 2010 issue of MPS. The broad consensus emerging out of the stakeholder consultations is that supportive monetary stance and stimulatory fiscal stance need to continue till fuller restoration of investment confidence in the domestic economy with firmer demand recovery in export markets emerging out of the global recession (Bangladesh Bank, 2010) .

The projected real GDP growth of 5.5-6.0 percent for FY10 was based on assumption that the then initial recovery of world economy from the recession triggered by the global financial crisis would hold pace or strengthen further. Broad-based global recovery proceeded faster than initial forecasts. Led by China and India, Asia was projected to register strong growth; but recovery in North America and Europe remained slower,, with some concern in USA about likelihood of a double dip recession. In Bangladesh economy domestic demand remained robust, well supported by growing worker's remittance inflows and budgetary stimulus outlays including higher social safety net spending (Bangladesh Bank, 2010).

With the government's access to substantial volumes of foreign financing and National Savings Scheme deposits in FY10, public sector borrowing from the banking system declined, freeing up credit resources for growing private sector activities. The supportive monetary policy continued to facilitate the recovery in exports and new investments taking firmer roots. Within the supportive general outlook, BB's monetary and credit policies continued targeted programs pursuing fuller financial inclusion of the economic activity segments, agriculture and SMEs, and population segments under-served by the markets, towards fostering inclusiveness of economic growth (Bangladesh Bank, 2010).

In 2012 the Bangladesh economy was faced with the challenges of rising inflation and balance of payments pressure stemming largely from a sudden surge in oil imports. To address the challenges BB pursued more restrained monetary policy stance which, as along with other policy measures, helped curb inflationary pressures and significantly strengthened foreign exchange reserve. At the same time sufficient funds for private sector development was ensured with private sector credit growth at 19.7% at the end of FY12. In FY13 the economy faced a different set of challenges. A sharp increase in foreign remittances and negative import growth for much of the year led to a sharp growth of Net Foreign Assets (NFA) which needed to be sterilized. Moreover, declining inflation and concern over a slowdown in growth created space for a 50 basis point rate cut by BB in January 2013 (Bangladesh Bank, 2012-13).

Although global growth prospect for 2014 (3.8%) is higher than the 3.1% for the previous two years, the road to recovery in the advanced economies was projected to remain uneven and these projections reflect recent downward revisions by IMF. Key trading partners, the US and the EU, are projected to grow faster in 2014 but private demand still remains very sluggish in the Euro Area. On the other hand, Emerging Market and Developing Economies (EDEs) were experiencing a multi-speed recovery process with growth projected at 5.0% in 2013 and 5.4% in 2014. China was projected to grow at around 7.7-7.8% the Indian economy was projected to grow by 5.6% in 2013 (Bangladesh Bank, 2012-13).

BB's preliminary estimates for FY13 growth came to 6.03%. The average GDP growth in developing countries was 5.0% in 2013 so while on the one hand Bangladesh's growth rate remains respectable, it is lower than the previous five year average of 6.2% growth. BB's forecast for output growth in 2014 was nothing deviating significantly from last 10 year average of 6.2%. The forecast was based on the analysis of trends of a number of variables including global growth, domestic and foreign investment, exports, imports, remittances, etc. BB is expected to forecast growth on a regular basis during the course of the year and the monetary program would also be flexible to accommodate any significant change in those forecasts (Bangladesh Bank, 2012-13).

Government borrowing (net) from the banking system rose in 2013 but remained within budget targets. Government borrowing (net) from the banking system amounted to 248 billion taka in FY13, short of the revised figure of 285 billion Taka. Broad money growth trends were above the program path (18.1% growth in May 2013 compared with 17.5% target), while domestic credit growth fell short of the anticipated rate due to shortfalls in private sector credit growth (Bangladesh Bank, 2013).

## MODELING FRAMEWORK

On the basis of literature survey and previous empirical studies, equation 1 shows the effect of monetary and fiscal policy on economic growth:

$$GDP_t = \beta o + \beta_1 MS_t + \beta 2 GE_t + \varepsilon_t \quad ................................(1)$$

According to equation 1, the coefficient of broad money supply ($M_2$) used as a proxy of monetary policy, government expenditure used as a proxy of fiscal policy and finally εt is the error term. The two proxy variables are expected to be positive. The annual time series data of Bangladesh from period 1980 to 2012 are collected from World Development Indicators (WDI-2012). The real gross domestic product (GDP), money supply (M2) and government expenditure (GE) are in logarithm form.

## ESTIMATIONS AND RESULTS

To find out the existence of the long run relationship between variables of equation1; firstly this study performed stationary test by using Augmented Dickey Fuller method. The results of ADF test are shown in the table 1

**TABLE 1**
**UNIT ROOT TESTS FOR VARIABLES**

| Variable | ADF | Order of integration |
|----------|------|----------------------|
| LNGDP | -7.73 | I(1) |
| LNM2 | -4.50 | I(1) |
| LNGE | -4.60 | I(1) |

The results show in the table 1 demonstrate that all series are stationary at first difference which entails that combination of one or more series reveal a long run relationship. Therefore, we move for co integration test.

In order to test whether variables in question are co integrated the Engle-Granger (EG) and Johanson co-integration test have applied on the residuals from the long run relationship. The null hypothesis implies the there is no co integration among the variables, while the alternative hypothesis suggests that there is co-integration exists in the long run relationship. The results of EG tests are reported in table 2.

**TABLE 2**
**EG TEST RESULTS**


**Null Hypothesis: RESIDUALECT has a unit root**
**Exogenous: Constant**
**Lag Length: 0 (Automatic - based on SIC, maxlag=8)**

|  |  | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic |  | -3.875554 | 0.0057 |
| Test critical values: | 1% level | -3.653730 |  |
|  | 5% level | -2.957110 |  |
|  | 10% level | -2.617434 |  |

*MacKinnon (1996) one-sided p-values.


Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESIDUALECT)
Method: Least Squares
Date: 06/25/14   Time: 21:37
Sample (adjusted): 1981 2012
Included observations: 32 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| RESIDUALECT(-1) | -0.671785 | 0.173339 | -3.875554 | 0.0005 |
| C | 2.26E-05 | 0.001762 | 0.012797 | 0.9899 |


Based on the obtained results we can conclude that all variables are co integrated meaning that a long-run relationship exists among them. Furthermore this study has applied Johanson co integration test to analysis the co integration relationship again. Johanson test also uses two statistics for co integration namely Trace statistics and Maximum Eigen value statistics. The calculated Trace and maximum Eigen value test statistics and their parallel critical value are presented in table 3

**TABLE 3**
**JOHANSON TEST RESULTS**

**Date: 06/26/14   Time: 11:41**
**Sample (adjusted): 1982 2012**
**Included observations: 31 after adjustments**
**Trend assumption: Linear deterministic trend**
**Series: LNGDP LNGE LNM2**
**Lags interval (in first differences): 1 to 1**

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.499636 | 43.18330 | 29.79707 | 0.0008 |
| At most 1 * | 0.341956 | 21.71829 | 15.49471 | 0.0051 |
| At most 2 * | 0.245806 | 8.745289 | 3.841466 | 0.0031 |

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.499636 | 21.46501 | 21.13162 | 0.0449 |
| At most 1 | 0.341956 | 12.97300 | 14.26460 | 0.0792 |
| At most 2 * | 0.245806 | 8.745289 | 3.841466 | 0.0031 |

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Staring with null hypothesis of no co integration among the variable; table 3 shows that both test statistics rejects null hypothesis at 5% level of significance in favor of alternative hypothesis that there is at least one co integration vector exist in the model. Therefore results from Trace, Maximum Eigen and EG test statistics show that there exists steady positive equilibrium relationship between the considered variables.

**CONCLUSION**

In this study we are interested to investigate the effect of monetary and fiscal policy on economic growth and the results confirm the positive long run relationship between monitory and fiscal policy with economic growth in Bangladesh context.  It also implies Bangladesh has survived from different financial crisis through the simultaneous effect of both the policies rather solely depending on one in particular. The findings also suggest that in order to get a sustainable economic growth, the combination and harmonization of both monetary and fiscal policy are needed as they have joint impact on overall growth stimulation.

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