

Government Domestic Borrowing and Inflation in Bangladesh and the Central Bank's Monetary Policy to Curb Inflation

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***Abstract:** This article examines whether there is any relationship between inflation and government domestic borrowing. At present, in the year 2012 we are observing that our country is suffering from double-digit inflation, which is an indirect result of government borrowing. High debt through high borrowings increases inflation and interest rates and reduces private investments creating crowding out effect. To control the money supply, central bank has to take contractionary monetary policy and it causes severe liquidity crisis in the banking sector. In this context, the present paper attempts to provide a conceptual framework for understanding inflation and its vicious cycle and the relationship between inflation and government borrowing. Further, the study highlights whether the monetary policy taken by the country's central bank is able to prevent runaway inflation effectively.*

***Keywords:** Crowding-out Effect, Contractionary Monetary Policy, Liquidity Crisis, Runaway Inflation*

1.1 Introduction

Inflation in Bangladesh at present is almost 11%, which the country didn't experience over many years in the past. Such high rate of inflation is an indirect result of government domestic borrowing. In an effect to curb inflation, the central bank has adopted a restrained monetary policy causing severe liquidity crisis in the banking sector. Banks are now offering high deposit rate for collecting more deposits and they are also charging high rate for loan disbursed to their customers. It is time now to study how the process creates inflation. In reality, inflation takes place in Bangladesh due to supply shock and push in cost. When interest rates soar, it causes investments to plummet, which creates

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supply shock. This has an impact on production capacity and costs. The customers taking loan at a higher rate from the banks must raise their final product price to cover the increased cost of production. The final product price thus has increases and this eventually leads to create inflation following a wage price spiral.

In addition, the government is taking loans from money market in large amounts in order to fund development works in an international environment when flows of foreign aid and loans slowed down due to financial crisis in the developed world and the failure of different countries and agencies to keep their aid commitments. Bangladesh government is going to increase bank borrowings substantially, to the extent of Tk 294 billion, to finance the budget deficit of the current fiscal year ending June. The budgetary target for government borrowing from the banking system was originally set at an aggregate level of Tk 189.57 billion through issuing treasury bills (T-bills) and bonds. Higher subsidy requirements particularly in energy, power and agriculture sectors and lower inflow of fund from the overseas sources have forced the government to borrow more from the country's banking system. Besides affecting investment to the private sector the increased bank borrowing target saying that it might hit the liquidity position of commercial banks particularly the primary dealer banks, due to their underwriting obligation to the government borrowing. The Bangladesh Bank earlier selected 15 PDs-12 Banks and 3 non-banking financial institutions to deal with government securities in the secondary market. This liquidity crisis further aggravates the inflationary situation of our country despite the contractionary monetary policy of the central bank.

1.2 Objective of the study

- a) To examine the relationship between government domestic borrowing and inflation rate in Bangladesh;
- b) To find the future trend of the inflation rate; and
- c) To find whether inflation is reduced by a tighter monetary policy taken by the central bank.

2. Research Methodology

The problem statement of this study has been chosen with an objective to measure the effectiveness of the central bank's monetary policy to curb inflation in the current context of government domestic borrowing. Variables chosen for this study are the average rate of inflation and government domestic borrowing (net) from both banking and non-banking sector for measuring the relationship between these two variables. The study also

considers the tighter monetary policy taken by the central bank in reducing inflation. Besides some indicators in this study like repo rate, reverse repo rate, call money rate, lending and deposit rate, depreciation of local currency shows that inflation does rule over this variables.

2.1 Data Sample and Period

The study examines the relationship between government domestic borrowing and inflation rate. To observe the relationship, inflation and government borrowing data of 10 years (2002-2011) have been assessed while for trend analysis of inflation, inflation rate of January 2011-December 2011 has been considered.

2.2 Data Sources

The study is based on secondary data collected from various publications like periodicals, articles of different authors, various departments (Statistics Department, Monetary Policy Department, Foreign Exchange Policy Department, Debt Management Department) of Bangladesh Bank, web site of Bangladesh Bank, Bangladesh Bureau of Statistics etc. A brief opinion survey of from related people was also conducted.

2.3 Data Analysis

A regression analysis has been done for identifying the relationship between government domestic borrowing and inflation. Here the dependent variable is government domestic borrowing and inflation is the independent variable. A trend analysis is also done to forecast inflation in months between January 2012 and June 2012. For the regression and trend analysis Minitab software is used. Simple percentage is used in the charts and graphs to visually present the information.

3. Inflation- The Present Situation in Bangladesh

3.1 Sources of Inflation

Inflationary pressure in Bangladesh is originated largely from supply side shocks generated by key factors such as high food price in the world market, supply shortage, increasing negative trade balance and continuous currency depreciation in Bangladesh. The inflationary situation in Bangladesh is on the rising trend, especially since August 2009, primarily owing to the soaring increase in food prices. The food price hike has accelerated the general inflation rate in the country. If the food price level rises at an existing rate of 1.31 percent per month and if adequate anti-inflationary measures are not taken, the overall general inflation will continue to be a 'double digit figure'. The current

rate of rise in inflationary pressure suggests that the rate of general inflation might reach 12 percent in June 2012, which however remains at restricted levels thanks to the efforts of agricultural ministry for bumper crop output during the last few years.

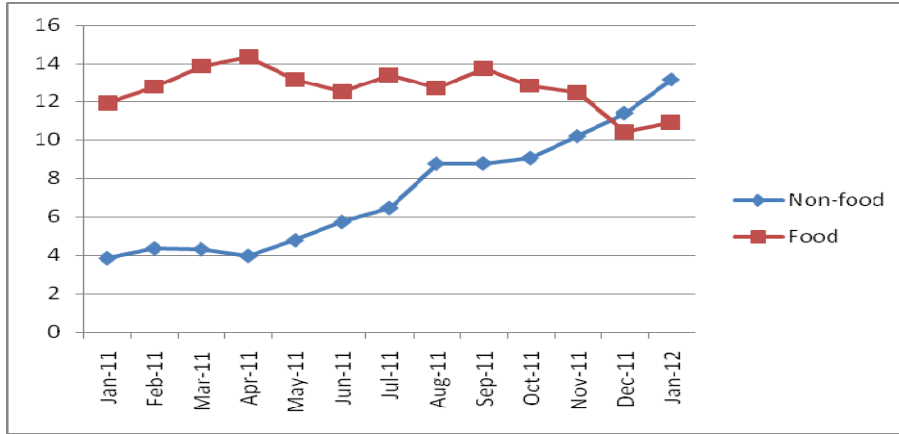
In line with the much-avowed political objective, the government intended to plough more money into the rural economy and semi-urban areas and pushed the commercial banks hard to disburse more 'agriculture' and 'SME loans'. Unfortunately most part of this 'big push' money helped increase unproductive consumption and speculative demand and a large sum had reportedly gone to help the capital market bubble. Thus the money injected has been apprehended to be used not in favor of capacity building or productivity improvement. Another reason of inflation might be the use of heavy domestic borrowings in a situation when flow of foreign aid has been substantially reduced.

3.2 Food and Non-food Inflation

Bangladesh Bureau of Statistics (BBS) data showed that the food inflation increased to 10.90 per cent in January 2012 from 10.40 per cent in December 2011 and non-food inflation rocketed up to 13.16 per cent in January from 11.38 per cent in December. High prices of rice, pulses, fish and meat, fruits, edible oil and milk pushed the food inflation upward, while rising prices of cloth, fuel oil, treatment and transportation cost, hike in house rent, increase in prices of furniture and home appliances and laundry equipment contributed to further rise in the non-food inflation in January. Moreover the government has raised the electricity price to cut subsidies. It has fuelled the non-food inflation.¹²

BBS statistics showed the point-to-point inflation both in rural and urban areas in January 2012 had reached 11.15 per cent and 12.73 per cent from 10.25 per cent and 11.62 per cent respectively in December 2011. In the rural areas, the food inflation rose to 10.18 per cent in January from 9.60 per cent in December, while the non-food inflation swelled to 13.23 per cent in January from 11.62 per cent in December. Prices of food items went up to 12.56 per cent in January from 12.26 per cent in December in urban areas, and the non-food items' prices increased to 12.97 per cent in January 2012 from 10.74 per cent in December 2011.¹²

Figure 1: Food and Non-food Inflation Rate (point to point)



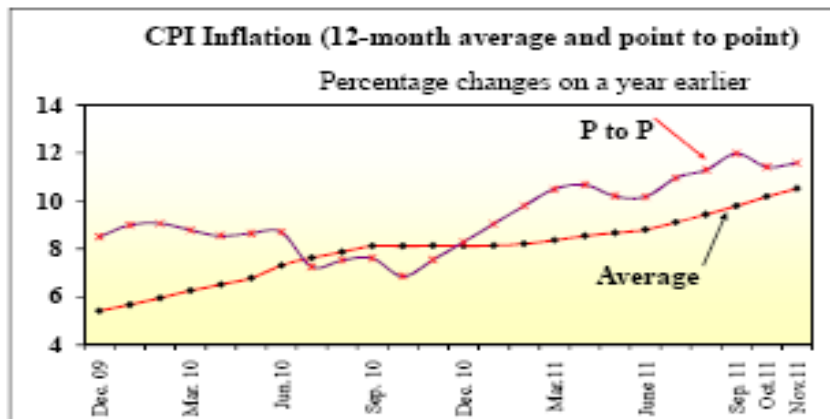
Source: Monthly Update, Bangladesh Bank (January 2012)

Average and Point to Point Inflation

The annual average rate of inflation (12-month average CPI, 1995-96=100) increases to 10.71 percent in December, 2011 from 10.51 percent of November, 2011. However, the rate of inflation on point to point basis remarkably decreases to 10.63 percent in December, 2011 from 11.58 percent of

November, 2011.⁵

Figure 2: Average and Point to Point Inflation Rate



Source: Monthly Update, Bangladesh Bank (December 2011)

3.3 Consequences of Inflation

i) Interest Rate Development

Repo rate (1-3 Day tenure) and reverse repo rate (1-3 Day tenure) increased by 50 basis point at

7.75 percent and 5.75 percent from 8 January, 2012 as compared to 7.25 percent and 5.25 percent respectively in 5 January, 2012. The weighted average call money rate in the inter-bank money market increased to 19.67 percent in January, 2012 as compared to 17.15 percent in December, 2011.⁵

The weighted average yield on 91-Day, 182-Day and 364-Day treasury bills increased to 10.50 percent, 10.63 percent and 10.88 percent respectively in January, 2012 as compared to 9.50 percent, 9.18 percent and 10.00 percent respectively in December, 2011. The weighted average yield on 5-Year BGTB, 10-Year BGTB, 15-Year BGTB and 20-Year BGTB increased to 9.00 percent, 11.25 percent, 11.50 percent and 11.95 percent respectively in January 2012 as compared to 8.50 percent, 9.55 percent, 11.00 percent and 11.50 percent respectively in December, 2011.⁵

The lending rate of scheduled banks stood higher at 12.83 percent in November, 2011 as compared to 12.80 percent in October, 2011. The deposit rate of scheduled banks also stood higher at 7.53 percent in November, 2011 as compared to 7.46 percent in October, 2011.⁵

Figure 3: Repo, Reverse Repo & Call Rate

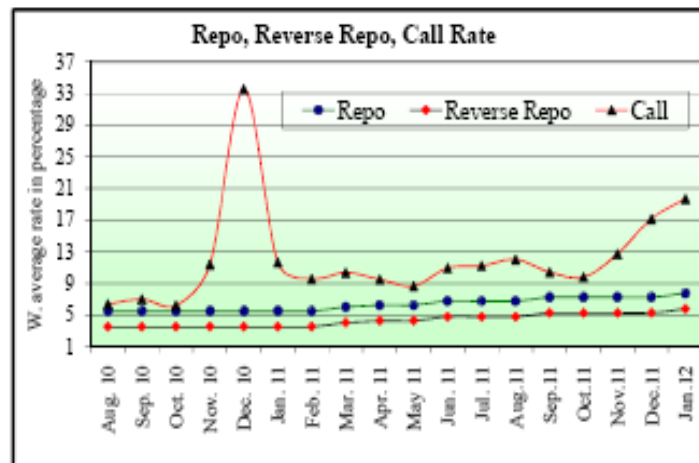
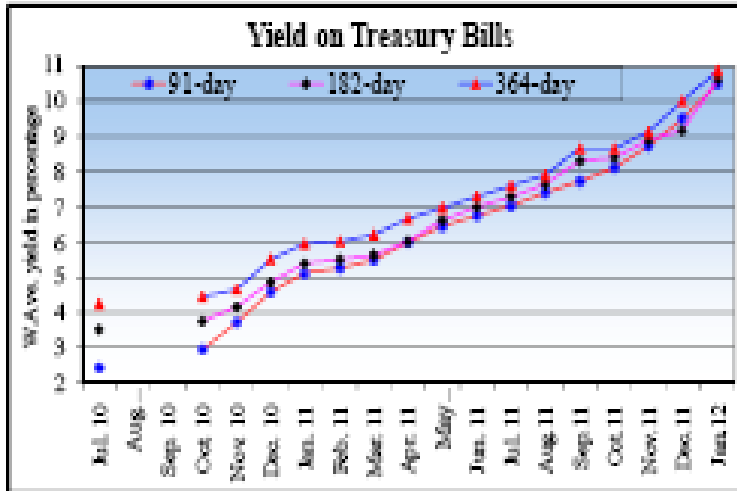
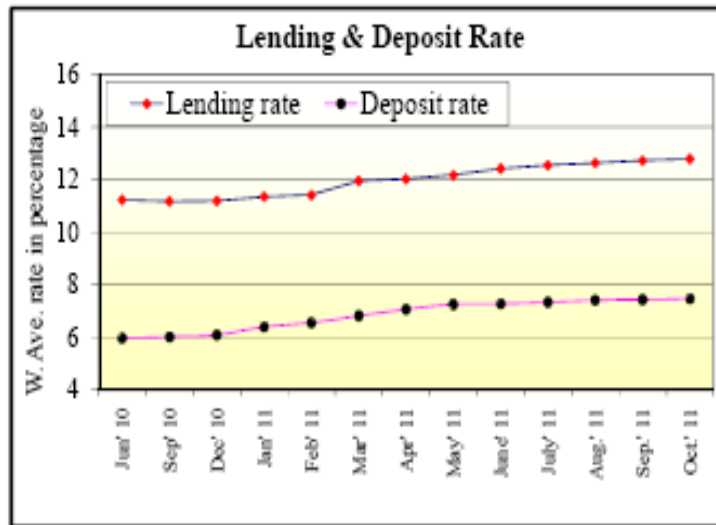


Figure 4: Yield on Treasury Bills



Source: Monthly Update, Bangladesh Bank (January 2012)

Figure 5: Lending & Deposit Rate



Source: Monthly Update, Bangladesh Bank (December 2011)

Table-1

Period	Treasury Bills			BB Bills	BGTB				Repo	Rev. Repo	Call Money	Lending	Deposit
	91-Day	182-Day	364-Day	30-Day	5-Year	10-Year	15-Year	20-Year	1-3 Day	1-3 Day		Rate	Rate
2010-11^R													
July	2.43	3.51	4.24	2.53	7.88	8.79	8.84	9.20	4.50	2.50	3.33	...	...
August	...	...	...	...	7.88	8.82	8.86	9.23	5.50	3.50	6.36	...	...
September	...	...	...	3.50	7.93	8.85	8.91	9.24	5.50	3.50	6.97	11.17	6.00
October	2.94	3.75	4.45	3.50	7.96	8.85	8.94	9.25	5.50	3.50	6.19	...	...
November	3.72	4.16	4.65	3.50	8.00	8.89	9.05	9.41	5.50	3.50	11.38	...	...
December	4.58	4.85	5.50	...	8.10	9.45	9.11	9.56	5.50	3.50	33.54	11.19	6.08
January	5.11	5.39	5.94	...	8.25	9.50	...	9.60	5.50	3.50	11.64	11.34	6.39
February	5.25	5.50	6.00	...	8.25	9.45	9.12	9.60	5.50	3.50	9.54	11.41	6.54
March	5.48	5.63	6.20	...	8.26	9.36	9.20	9.63	6.00	4.00	10.35	11.95	6.81
April	5.98	6.03	6.67	...	8.26	9.45	9.30	9.65	6.25	4.25	9.50	12.02	7.06
May	6.45	6.63	6.97	...	8.26	9.45	9.35	9.65	6.25	4.25	8.64	12.17	7.24
June	6.75	7.00	7.30	...	8.26	9.45	9.35	9.65	6.75	4.75	10.93	12.42	7.27
2011-12^P													
July	7.04	7.28	7.60	...	8.26	9.45	---	10.00	6.75	4.75	11.21	12.55	7.32
August	7.40	7.65	7.90	...	8.30	9.50	9.65	10.25	6.75	4.75	12.02	12.63	7.40
September	7.73	8.30	8.65	...	8.35	9.53	10.30	10.85	7.25	5.25	10.41	12.72	7.42
October	8.12	8.40	8.65	---	8.50	9.55	10.99	11.50	7.25	5.25	9.77	12.80	7.46
November	8.73	8.90	9.13	---	8.50	9.55	11.00	11.50	7.25	5.25	12.70	12.83	7.53
December	9.50	9.18	10.00	---	8.50	9.55	11.00	11.50	7.25	5.25	17.15	---	---
January	10.50	10.63	10.88	---	9.00	11.25	11.50	11.95	7.75	5.75	19.67	---	---

Source: Monthly Update, Bangladesh Bank (January 2012)

ii) Exchange Rate Movements

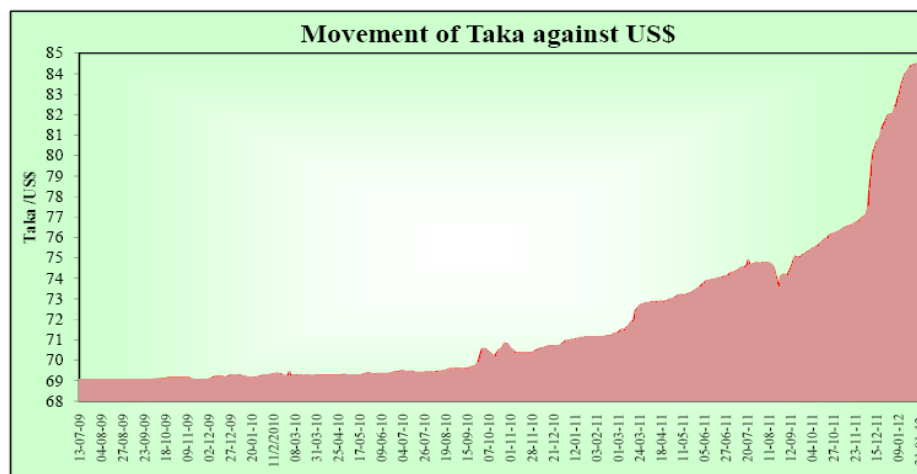
Exchange rate of Taka per US\$ increased to Tk.81.85 at the end of December, 2011 from Tk.74.15 at the end of June, 2011. Taka depreciated by 9.41 percent as of end December, 2011 over end June 2011.⁵

Table 2

(Taka per US\$)

Month	2010-11		2011-12 ^P	
	Month Average	End Month	Month Average	End Month
July	69.4370	69.4100	74.4835	74.7050
August	69.4886	69.5850	74.4497	73.6150
September	69.6744	70.2150	74.5746	75.2300
October	70.5474	70.7850	75.7187	76.1950
November	70.3913	70.3650	76.4780	76.8600
December	70.6170	70.7450	79.6659	81.8450
January	71.0363	71.1500		
February	71.1735	71.3000		
March	71.9456	72.7350		
April	72.8235	72.9000		
May	73.1919	73.4850		
June	73.8848	74.1450		

Source: Statistics Department & Monetary Policy Department, Bangladesh Bank

Figure 6: Movement of Taka against US (\$)

Source: Statistics Department & Monetary Policy Department, Bangladesh Bank

iii) GDP Growth

In the budget of 2011-12, the government has targeted 7 percent GDP growth rate which seems to be improbable considering the present inflation growth rate.³

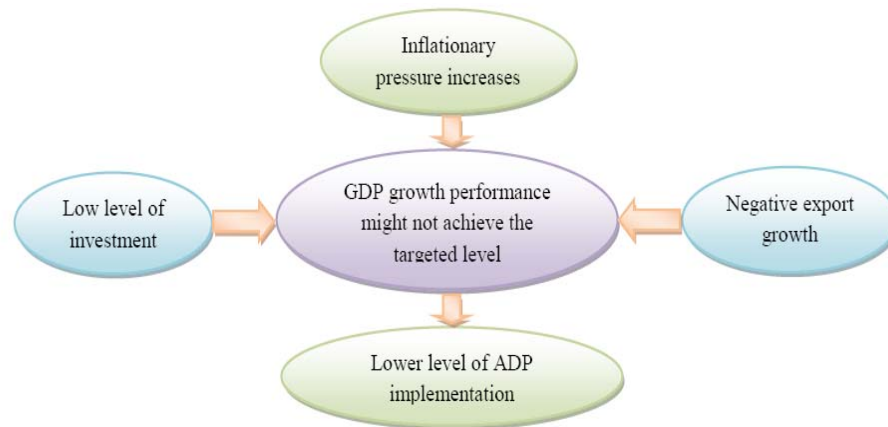
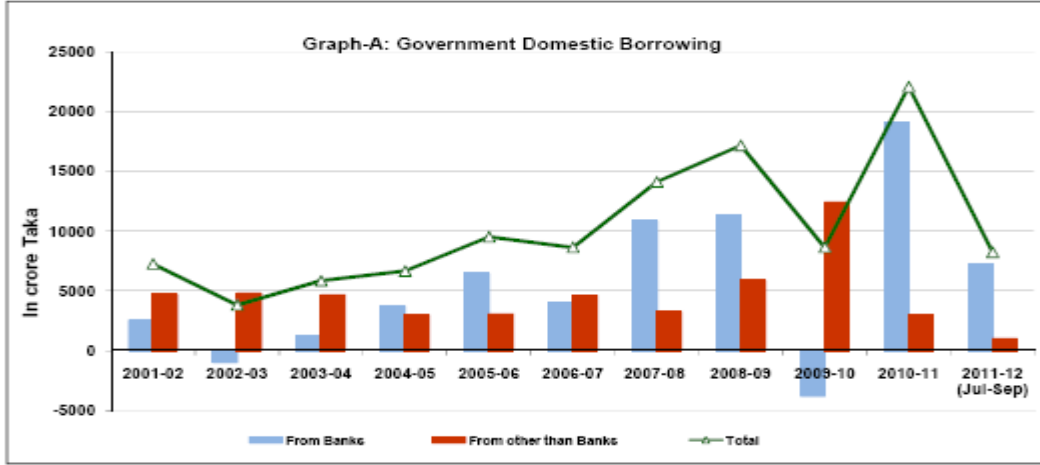


Figure 7: GDP growth scenario in Bangladesh

3.4 Government Domestic Borrowing (net)

Continuation of current trend might result into an increasing movement in domestic debt. Total estimation of government borrowing from domestic sources in FY 2011-12 is Tk. 272.08 billion which is 23.26 percent higher than that of FY 2010-11 and 275.47 percent higher than that of FY 2001-02. In FY 2011-12, the government has estimated to borrow 68 percent higher from banking sectors in comparison to that of FY 2008-09 indicating a sharp crowding out effect which has dampened private investments. The government borrowing from banking sector in FY 2011-12 (up to September, 2011) is Tk. 72.28 billion which is 0.8 percent of GDP. Government borrowing from the banking system outstanding as on 30 September 2011 is Tk. 806.65 billion which was Tk. 768.25 billion outstanding as on 31 August 2011. The government borrowing from non-banking sector in FY 2011-12 (July to September, 2011) is Tk.10.00 billion that was Tk. 17.410 billion in FY 2010-11. Government domestic borrowing from banking sector in FY 2011-12 (July-September, 2011) is 622.57 percent higher than borrowing from non-banking sector.⁸

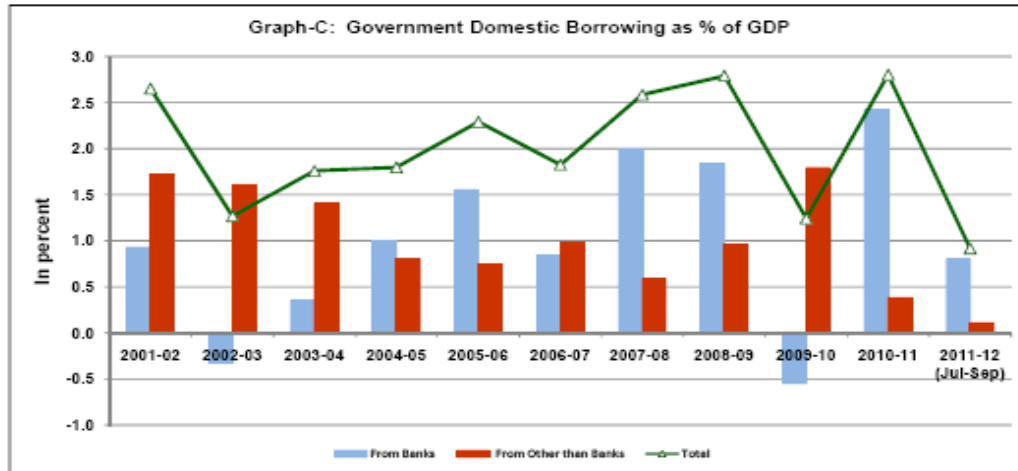
Figure 8: Government Domestic Borrowing



Source: Statistics Department, Bangladesh Bank

The borrowing from banks as percentage of GDP has been increasing over the time. In FY 2010-11, the government borrowing from banking sector is 1.43 percent of GDP while it is 0.45 percent from non-banking sectors. However, in FY 2001-02, the government borrowing from banking sector amounts 0.93 percent of GDP while from non-banking sector it totals 1.72 percent.⁴

In FY 2001-02, total domestic debt as percentage of GDP was 2.65 percent while in FY2010-11, it became 1.88 percent. Total domestic borrowing as percentage of GDP remains 1.5 to 3.0 percent of GDP over the last ten years.⁴

Figure 9: Government Domestic Borrowing as % of GDP

Source: Statistics Department, Bangladesh Bank

3.5 Monetary Policies and Strategies

A tighter monetary policy statement from the central bank is in the offing. In a situation, when Bangladesh got to see double digit inflation, there is the record decline in net foreign assistance inflow, sliding foreign direct investment and, more importantly, a continuously depreciating local currency against the backdrop of a dwindling foreign exchange reserve. However, the questions in the mind of the policy researchers are: (a) should a tighter monetary policy be enough to ensure macro stability, and (b) how far a tighter monetary policy will help bring down the inflation and exchange rate?

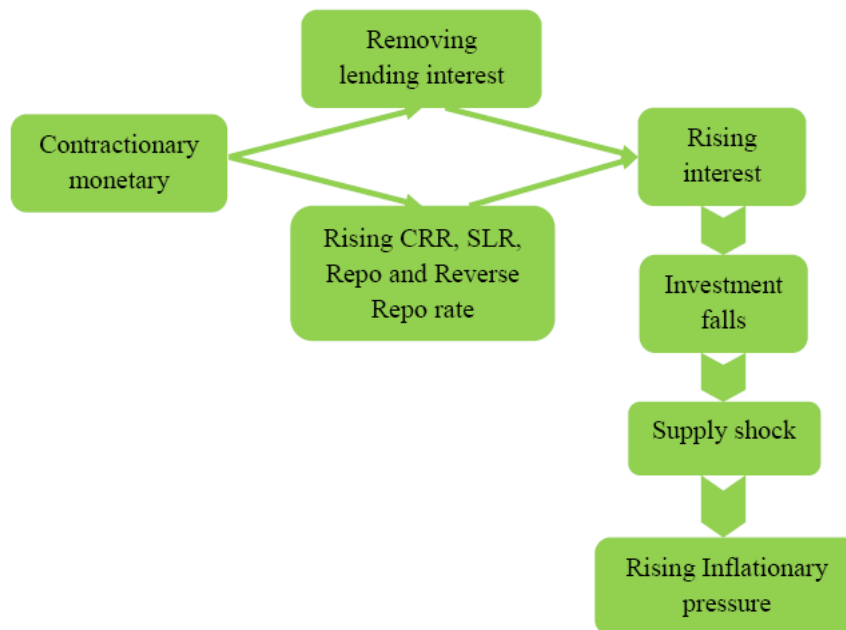
Through monetary policy the central bank controls supply, availability, and cost of money so as to achieve optimum economic growth while maintaining price stability. Monetary policy is relatively flexible, i.e. immediate changes can be made in response to shocks, as opposed to fiscal policy, which takes longer to manage and implement.

Monetary policy can be expansionary, i.e. it increases the total supply of money, as opposed to being contractionary, which decreases cumulative money supply. Expansionary policy is usually adopted when confronted with unemployment during recession by lowering interest rates. Conversely, contractionary policy is espoused to stabilize inflationary pressure through interest rate increases.

3.6 Impact of Wrong Monetary Policy 1

Bangladesh Bank has attempted to control the monetary aggregates by using different policy tools which have not been effective in controlling inflation. It pursued a tight monetary policy assuming that the country is facing inflation, which is demand pull in nature, while according to many; inflation takes place in the country due to supply shock and push in cost. To control supply shock inflation, augmenting the level of production can be an effective step along with other necessary measures. On the other hand, tight monetary policies in demand pull inflation might create a reverse effect by soaring up inflation further and increasing the balance of payment pressure.

The objective of the monetary policy is to influence the performance of the economy which is supposed to be reflected in inflation, economic growth and level of employment. The tools used by the Bangladesh Bank to control the money supply are discount rate, required reserve ratio and open market operation as advised by IMF. Adopting a tight monetary policy would reduce the availability of credit to the commercial bank and its ultimate effect will be the reduction of credit availability to the people which would cause an increase in interest rate.



It has been demonstrated that contractionary monetary policy of Bangladesh Bank increased the interest rate that would ultimately reduce the volume of investment. Thus,

the reduction of investment would cause a negative impact on the level of production which might increase the supply shortage of output and soars up inflation in Bangladesh

4. Analytical Part

4.1 Regression Analysis: Inflation versus Government Domestic Borrowing

Table-3: Government Domestic borrowing and Inflation Rate

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Inflation Rate(y) in %	4.38	5.83	6.48	7.17	7.20	9.94	6.66	7.31	8.13	10.71
Govt. domestic borrowing (X)	246.37	812.72	855	656.47	523.13	626.13	4112.77	7153.52	626.67	2072.85

Source: Statistics Department, Bangladesh Bank and Bangladesh Bureau of Statistics

From the table it appears that Y and X have an indefinite relationship. As X rises, Y tends to rise in few years and fall in the other years. These ten data points are plotted on the following two dimensional scales, with values of X along the horizontal axis and values of Y along the vertical axis.

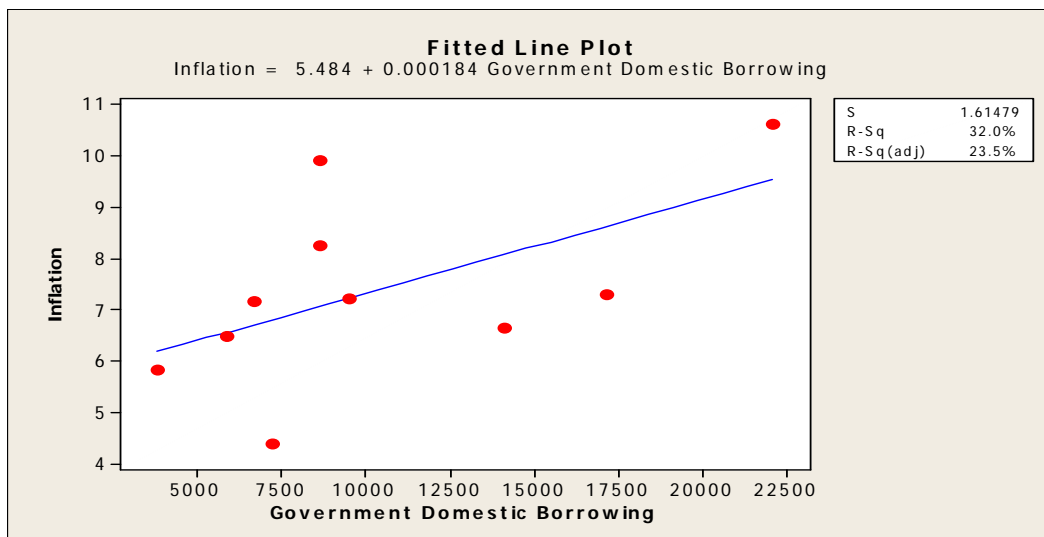


Figure 10: Fitted Line Plot

4.2 Trend Analysis for Inflation

Using the inflation rate of January 2011- December 2011 a forecast is made for the next six months of the year 2012. The forecasted inflation is shown below:

Table-4

Month (2012)	January	February	March	April	May	June
Inflation rate (%)	10.78	11.02	11.27	11.51	11.75	12

Fitted Trend Equation

$$Y_t = 7.614 + 0.244 * t$$

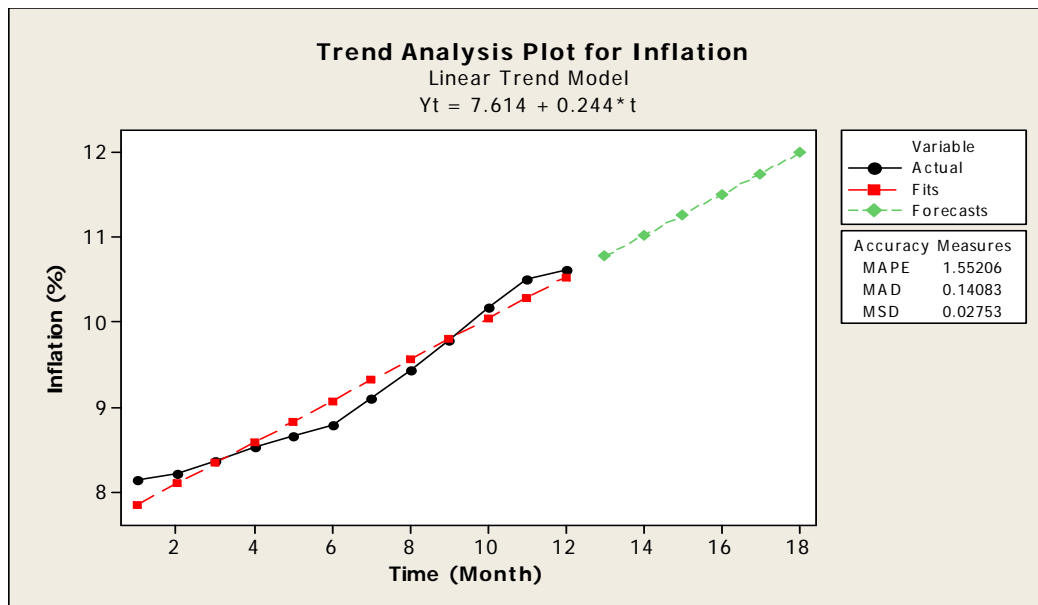


Figure 11: Trend Analysis Plot

5. Major Findings

i. Monetary policy and government domestic borrowing both affect the inflation rate. Although the central bank has been pursuing a contractionary monetary policy, the government has been following an expansionary fiscal policy -- mainly on account of safety nets and subsidies. According to some experts, the contractionary monetary policy has reduced the amount of total loanable funds in economy. The government deficit, being met by its borrowing from the banking sector, has tended to crowd out the private sector, as far as the availability of credit funds is concerned. If this practice continues, it will further raise the cost of borrowing. A contractionary monetary policy, running in tandem with an expansionary fiscal policy, cannot serve useful purposes, more so if the government would like printing money to finance its deficit. This will only aggravate the inflationary situation.

ii. High debt through high borrowings increases inflation and interest rates and reduces private investments. The government mainly borrows both from the Bangladesh Bank and the commercial ones. In FY 2010-11, the government has borrowed 4.43 times higher from banking sectors (BDT 11,240.5 crore) in comparison to that of FY 2001-02. In FY 2001-02, government has borrowed an amount of Tk. 2,534.9 crore from banking sector. These high borrowings indicating a sharp crowding out effect which has dampen private investments. It is not desirable with drastic public sector loan growth at the cost of private sector.

iii. The government has become more dependent on banking sectors other than non-banking ones for domestic financing over the time. The government total domestic borrowing from banking sector in FY 2010-11 is 22072.85 crore Tk. Among them borrowing from banking sector was 19043.80 crore Tk which is 2.42 percent of GDP. The government's borrowing from the banking system needs to be contained urgently. In the MPS for January-June, the BB aims to bring down credit growth to government to 31 percent by June this fiscal year. It also targets to restrain credit growth to the private sector to 16 percent by June down from 18 percent in July-December. Bangladesh Bank might achieve its target on private sector credit growth. But it will be difficult to bring down government borrowing in line with the Bangladesh Bank target.

iv. Government has to take loan from the banks against issuing government securities. As the deposit rate of banks has increased government has to increase the yield of their securities as well to take loan from the banking sector. As a result 12 primary dealer banks have to suffer for the previously purchased securities of 1 thousand 855 crore 70 lakh tk. These will also create liquidity crisis for the banks

v. Inflation often results in a falling currency, which makes exports more competitive. Exchange rate of Taka per US\$ increased to Tk.81.85 at the end of December, 2011. Taka depreciated by 9.41 percent as of end December, 2011 over end June 2011.

vi. From the regression analysis of inflation versus government domestic borrowing we find the following regression equation:

$$\text{Inflation} = 5.48 + 0.000184 \text{ Government Domestic Borrowing}$$

The regression figure illustrates an imperfect linear relationship between inflation rate and government domestic borrowing. As borrowing increases in these scatter diagrams, inflation increases in most of the years but also decreases in some years. The degree of changes is not in a perfectly predictable way. Thus, inflation might be slightly higher or lower than expected. That is, the X-Y points do not lie on a straight line.

Interpretation of the result:

a) Regression coefficient (Coef) = 0.000184 indicates that if government domestic borrowing increases by one crore, inflation will increase by 0.000184%

b) Computed t value= 1.94. The computed t value is used to test whether the regression coefficient β_1 is significantly different from zero.

c) Constant = 5.484. This value is the Y intercept which means that if government domestic borrowing is zero inflation is 5.484%

d) The p value in the analysis of variance table (0.089) indicates that the relationship between inflation rate and government domestic borrowing is not statistically significant.

e) R squared = .35. The fitted regression line explains 35% of the variance in inflation rate. Among the total variance in inflation 35% is directly caused by the government domestic borrowing and the remaining can be explained by the factors which create by the sequential effect of the government domestic borrowing.

f) From the Analysis of F ratio: The F ratio 3.76 in this ANOVA table tests the null hypothesis that the regression is not significant,

6. Conclusion and Recommendation

Food inflation increased to 10.90 per cent in January 2012 from 10.40 per cent in December 2011 and non-food inflation rocketed up to 13.16 per cent in January 2012

from 11.38 per cent in December 2011. Inflation has risen by almost 2 per cent - its highest level which is an indirect result of unprecedented levels of borrowing by the government especially to repay the loan of Bangladesh Petroleum corporation and to increase long term investment of different banks, non-bank financial institutions and employees GF of different companies (social safety coverage) and a fall in foreign aid mobilization .It means that the national debt which stood at 8626 crore in the year 2009-10 has soared to uncontrollable levels at 22072 crore tk in the year 2010-2011. Bangladesh Bank is under pressure due to rising inflation caused by this government borrowing.

Bangladesh Bank's restrained monetary stance aims to bring inflation down to a single digit in the next few months, and restore new external sector equilibrium along with sufficient space for private sector credit growth. There is thus very limited room for credit expansion to both public and private sectors. The target to squeeze credit to private sector would hurt investment and job creation. Credit has already become costlier as banks are charging 16-17 percent interest. Cost of business in the productive sector would also rise after BB withdrew the cap on interest rate earlier. Private sector growth has already remained low due to gas and electricity crises, high bank interest rates, liquidity crisis in the banking sector. If the central bank moves ahead this way it'll have adverse impacts on the overall economy though less import and higher export and remittance flow has revealed some improvement.

The central bank monetary policy can't do anything to control high government borrowing. The success of the BB in attaining its targets will depend on a squeeze in government's borrowing from banks. Here, the decision lies with the hands of the government, its fiscal policy and ability to ensure speedy disbursement of foreign aid. Government need to put further fiscal discipline. They may reach consensus to cut spending, reduce subsidy and/or increase taxes to bring budgets into balance. Again Central bank in any country should run free without any government intervention in its policy making. There must be constitutional provision for central bank's autonomy to oversee monetary policy in the country.

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