

Monetary Policy and Money Supply Process in Bangladesh: An Analytical Review

A Dissertation by

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ID NO-08272024

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of MA in Governance and Development**



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Statement of Candidate

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ABBREVIATIONS

BB-	Bangladesh Bank
BOP-	Balance of Payment
C/D-	Currency-Deposit
CPI-	Consumer Price Index
CRR-	Cash Reserve Requirement
DD-	Demand Deposits
DMB-	Depository Money Bank
E/D-	Excess reserve-Deposit
FC-	Foreign Currency
FY-	Fiscal Year
GDP-	Gross Domestic Product
IRS-	Interest Rate Spread
M1-	Narrow Money
M2-	Broad Money
MB-	Monetary Base
mm-	Money multiplier
MPR-	Monetary Policy Review
MPS-	Monetary Policy Statement
MRA-	Micro-credit Regulatory Authority
NBFI-	Non-Bank Financial Institution
NDA-	Net Domestic Assets
NFA-	Net Foreign Assets
NGO-	Non Government Organizations
NSAPR-	National Strategy for Accelerated Poverty Reduction
PCB-	Private Commercial Bank
R/D-	Reserve-Deposit
RM-	Reserve Money
SCB-	State-owned Commercial Bank
SD-	Savings Deposits
SLR-	Statutory Liquidity Requirement
TD-	Time Deposits

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ABSTRACT

The Central Bank is the highest authority employed by the government for formulation of monetary policy to guide the economy in a certain country. Monetary policy is defined as the regulation of the money supply and interest rates by a central bank. Monetary policy also refers to how the central bank uses interest rates and the money supply to guide economic growth by controlling inflation and stabilizing currency. Like any other central bank, Bangladesh Bank is performing the role to formulate monetary policy in Bangladesh.

The control of money supply is an important policy tool in conducting monetary policy. The success of monetary policy depends on the degree of predictability, measurability and controllability that the monetary authority has over money supply.

Monetary policy in Bangladesh is framed using projected real GDP growth rate. The targeted rate of inflation adopts Reserve Money (RM) and Broad money (M2) as operating and intermediate targets respectively. The RM is influenced by the indirect market based instrument such as CRR, SLR, repo, reverse repo, open market operation and moral suasion.

This paper analyses the different statistical economic data relating to money supply. To get the outcome of the study determinants of money supply, monetary base and money multiplier have been explained. Basically the trend, behavior of the determinants shows that net foreign assets, net domestic assets, interest rate spread, government borrowing have a greater impact on money supply process in Bangladesh. It is revealed here that changes of broad money, monetary base and money multiplier are not proportionally acting in targeting and achieving money supply. The prudent consideration addressing the matters may helpful for Bangladesh Bank for adopting and implementing effective monetary policy and sustainable growth in economy.

Chapter 01: Introduction

1.0 Background of the Study:

The Central Bank is the highest authority employed by the government for formulation of monetary policy to guide the economy in a certain country. Monetary policy is defined as the regulation of the money supply and interest rates by a central bank. Monetary policy also refers to how the central bank uses interest rates and the money supply to guide economic growth by controlling inflation and stabilizing currency. Like any other central bank, Bangladesh Bank is performing the role to formulate monetary policy in Bangladesh.

There have been significant changes in the legal, institutional and policy frameworks of the financial system of Bangladesh under the Financial Sector Reform Programmes (FSRP) in the 1990s. These changes enable Bangladesh Bank to conduct monetary policy on the basis of market based instruments along with direct instruments in order to achieve price stability and smooth financial intermediation. Therefore, understanding the distinct active channels of monetary transmission in the economy of Bangladesh would guide the monetary authority in formulating and conducting monetary policy (Ahmed and Islam: 2004).

The monetary policy framework of Bangladesh Bank identifies a logical sequential set of actions for designing and conducting the monetary policy. The framework is based on credible information on the stability of the money demand function, the money supply process, and the monetary transmission mechanism. Monetary policy in Bangladesh is framed using projected real GDP growth rate. The targeted rate of inflation adopts Reserve Money (RM) and Broad Money (M2) as operating and intermediate targets respectively connecting between different policies instruments like repo, reverse repo rates, bank rate, Cash Reserve Requirement (CRR) and Statutory Liquidity Requirement (SLR).

The control of money supply is an important policy tool in conducting monetary policy. The success of monetary policy depends on the degree of predictability, measurability and controllability that the monetary authority has over money supply.

1.1 Rationale of the study:

Bangladesh Bank (BB) announces its monetary policy twice a year since 2006. Also BB has adopted flexible exchange rate system since 2003. We know that the behaviour of money supply and its determinant (Money Multiplier) have a greater impact on monetary policy. The equilibrium in the money market depends on the condition $M_s = M^d$ ie, money supply should be equal to the money demand. There is a dynamic relationship among the money multiplier components (currency-deposit ratio, reserve-deposit ratio and excess reserve- deposit ratio) and the reserve money components.

It is to be accentuated that net foreign assets and net government borrowing have a greater impact in changing reserve money. Bangladesh Bank uses some mechanism to manage those matters that fit with monetary policy.

The objectives of this paper are to come up with a conclusion to find out the implication of money multiplier (*mm*) as well as reserve money on the money supply process, the trend and behavior of broad money and the control mechanism of Bangladesh Bank over the components of broad money, reserve money and money multiplier.

1.2 Research Questions:

1. What is the money supply process in Bangladesh?
2. What are the determinants of money supply and their trend as well as result on it in Bangladesh?

1.3 Methodology:

The study is made based on the analysis of secondary data obtained from the Bangladesh Bank, Ministry of Finance, Bangladesh Bureau of Statistics (BBS) and the paper on National Strategy for Accelerated Poverty Alleviation (NSAPR). During the analysis, publications of Bangladesh Bank, its different issues of Monetary Policy Statements (MPS), Monetary Policy Reviews(MPR), Monthly Economic Trend(up-to November, 2010), Annual Reports, Scheduled Bank Statistics, Bangladesh Bank Bulletin, Bangladesh Bank Quarterly, Balance of Payments, Bangladesh Bank website (www.bangladeshbank.org.bd), Circulars, Working Papers, Policy Notes , Policy Papers were consulted. Also different issues of Bangladesh Economic Review

published by Ministry of Finance, Statistical Yearbook, Journals and Periodicals were very helpful to the study. Furthermore, discussion with the relevant officials of Bangladesh Bank has been applied for empirical experience. Also relevant statistical test, spreadsheet analysis has been made to find out the outcome. Tables as well as graphical presentation of the relevant data were used to show its trends and outcomes in this study. Basically this study was confined to the behavior and trend analysis among the components of money supply. The following list of variables was strongly considered during the study:

List of variables:

Dependent Variable: Supply of broad money (M2)

Independent variables: Net Foreign Asset (NFA), Net Domestic Asset (NDA),
Money Multiplier (*mm*)

Money demand function = $f(\text{NFA}, \text{NDA}) = M2$ and

Money supply function = $f(\text{mm}, H)$ where H = reserve money

Again (*mm*) can be a function of c/d , r/d and e/d

ie, $mm = f(c/d, r/d, e/d)$ where c/d = currency -deposit ratio

r/d = reserve-deposit ratio

e/d = excess reserve-deposit ratio

1.4 Literature Review:

There are several theories; empirical studies have conducted on Money, Money demand, and money supply process, its determinants and behaviour all over the world. But the monetary policy is framed in different countries according to the country context and the country specific, depending on the economy of that country. But no country can ignore the exogenous factors and its impact on domestic economy.

In Bangladesh Hossain (1988) conducted a study on a quarterly short run money demand model for Bangladesh. He specified and estimated a short run money demand model for Bangladesh for the period 1974- 1985 after both formal and informal tests of model selection. The Laidler short run real money demand model has been found to be appropriate for Bangladesh. Mckinnon, White and Davidson's (1983) non nested test of model selection suggested that neither the log-linear nor the

linear functional form has any superiority over the other for Bangladesh. Real permanent income and the expected rate of inflation have been found to be important variables, both theoretically and statistically, in the money demand function. The long run permanent income elasticity of the demand for money has been found to exceed unity. In the case of Bangladesh, the empirical results show that both the demand for narrow and broad money is stable functions.

The demand for money is conventionally expressed in real terms, this being an identifying factor of money demand function for the money supply function, whereas the money supply function is usually expressed in nominal terms. An assumption implicit in the demand for real money balances is that the price elasticity of the demand for nominal balances is unity or that there is no money illusion in the speculative demand, when the liquidity preference equation is expressed in nominal terms (Patinkin: 1965).

Taslim (1983 & 1984) found that the demand for money in Bangladesh originates from the transaction and precautionary motives, and as a result, at least from a theoretical point of view, Bamol(1952) or Tobin's (1956) transaction demand theory is appropriate.

Generally, in a well functioning and matured capitalist economy, there are three motives for holding money, namely transaction, speculative and precautionary motives (Keynes 1936, ch13) and these motive depend on interest rates and of alternative assets (i.e., the rate on treasury bills, bonds or securities or some weighted average rates of returns on these financial assets) and the level of income (Ahmed and Islam: 2007).

All these discussions are made before 1990's. under the initiative of Financial Sector Reform Programmes(FSRP) at the beginning of the 1990s liberalized interest rate and market based instruments was introduced. As a result, the variables used before the 1990s are changed in calculating the money demand functions under the new circumstances.

Islam (2008) conducted an empirical analysis on the Impulse Response of money multiplier (*mm*) and on reserve money (RM) he found that the estimated impulse response function of money multiplier (*mm*) is shows that the individual's impulse (shocks) of C/D, R/D and E/D on changing money multiplier shows a

significant negative response of mm at different time horizon. The combined impulse response shows that impact of C/D ratio is much higher than that of R/D and E/D. The R/D ratio, which is controlled by BB, shows less influence to mm but it depicts a systematic pattern. Regarding the impulse response of RM shows that one standard innovation shock by government borrowing has impacted on RM in long time path of the system. It implies that the impact of net government borrowing from BB on RM persists for a longer time. Similarly, the impact of net foreign asset on RM also persists for a longer time. These two components are, however, beyond the control of Bangladesh Bank.

Ahmed and Islam (2007) stated that Bangladesh possesses some features of a developed economy due to interest rate liberalization and the launching of market based instrument(i.e., scale variable). The money demand models for the country is specified to depend on (1) real income (i.e., real GDP) and nominal treasury bill (28 days) rates R_1 as a measure of opportunity cost of holding money) for broad money; (2) real income and fixed deposit rates (nominal) for narrow money(M1) and (3) real income and short term deposit rates (nominal) for narrow money(M0). Therefore the general money demand function for Bangladesh is as follows:

$$m_j^d = f (y, R_l)$$

where, m_j^d = Demand for real money balances.

y = Scale variable or real income.

R_l = Nominal interest rate as an opportunity cost of holding money.

j = 1 for broad money (M2), 2 for narrow money (M1) and 3 for narrow money (M0).

l = 1 for TB rate (28 days), 2 for fixed deposit rate and 3 for short term deposit rate.

Ahmed and Islam (2007) has conducted a study to explore the long-run equilibrium money demand relationship as well as short-run dynamics through Johansen (1988) and Johansen and Juselius (1990) multivariate cointegration

techniques using the quarterly data on relative macroeconomic variables. They found that a single cointegrating vector describes the long-run equilibrium money demand relationship for both the broad money and narrow money categories in Bangladesh. They said that the long run demands for broad money(M2), narrow money (M1) depend positively on real income and negatively on TB, fixed deposit and short term deposit rates respectively.

There is a relation between money supply and money demand, The money supply in an economy determined by its demand created. So, the money supply is mostly depending on the determinants of money demand function, such as real income and interest rate. The interest rate is a target variable of the monetary authority that might be controlled by them. In order to stabilize the interest rates, the monetary authority changes the money supply through open market operations. Gordon (1984) suggests that if the monetary authority tries to implement such a rule, then the monetary base becomes endogenous to the determinants of the money demand functions. A dual relationship may therefore exist between the monetary base and the arguments of money demand functions. In Bangladesh, the interest rate is not the major target variable of the monetary authority, and its role in the money market is minimal because of the absence of a broad range of functional assets. Also, interest rates are institutionally determined and in many cases are not responsive to money market conditions. Changes in the money supply in Bangladesh mainly originate from changes in reserve money (Hossain: 1988).

Two important components of reserve money originate from the government's fiscal deficit and the foreign exchange reserves of the banking system. Fiscal deficits in Bangladesh are mainly financed by borrowing from the banking system and by foreign aid and loans. Domestic private borrowings are limited. Fiscal deficits are, therefore an independent source of money supply and normally are not related to the demand side factors of the economy (Hossain: 1988).

However, to the extent that fiscal deficits are used by a fall in revenue due to a fall in income, the money supply will be related to real income. Under a fixed or controlled exchange rates system, changes in money supply are directly related to change in foreign exchange reserves. Changes in foreign exchange reserves can be considered as the net result of export earnings, import payments and net inflow and outflow of foreign capital.

Sunkel (1960) and Parikh (1984) argue that government budget deficits tend to rise due to continual attempts by the government to maintain nominal fiscal expenditures. In the absence of a well-structured financial market, the budget deficit is financed by the central bank borrowings. Thus from a structuralize viewpoint, budget deficits and consequent expansion in money supply are not autonomous while the necessity of the essential commodities in the domestic market goes up, import is a must. As a result, rising imports and devaluation generate in the domestic inflation, price level spirals and borrowing through central bank increased the money supply causing a further rise in the price level. But tight monetary policy in this regard may cause scarcity in the domestic need of essential commodities. So, the some degree of control of monetary authorities is desirable.

Anowaruzzaman(1988) discussed the major determinants of currency-ratio in Bangladesh and identified four variables namely real income, interest rates, number of bank branches, inflation rate as the most important determinants of currency ratio. The importance of the ratio derives from the fact that currency performance of the public influence the money stock in some definite manner and makes the money stock partly endogenous. As a result central bank can not determine the money supply completely exogenously. Hence the behaviour of the currency ratio should be understood.

Momen (1992) has found that for the developing economies real gross domestic production changes are noticeably exogenous relative to all other variables and especially money supply. This findings suggests that money supply changes in the more agricultural economies have been responded to expanding economic activity; a result fully consistent with the structuralists who argue that money supply is an endogenous variable (Shanon and Wallace 1985, Eshag 1983; Taslim 1983; Thirwall 1977;and Garcia 1964). In the industrialized nations subsample there is a high degree of inter relations amongst the variables, and in all money supply changes are ranked well- above gross domestic production changes, strongly suggesting that income and production changes may be induced by money supply changes. It was found from the ranking of all variables from greatest exogeneity to least that in the developed nation's money supply changes precede price changes, which precede real production changes, lending support to the view that money supply changes are more likely to lead to inflation in this subsample (Cagan 1956; Deaver 1970; Harberger

1963; and Vogel 1974). He also mentioned that price changes are likely to be followed by money supply changes in the less-developed economies. Another interesting finding was that generally the relationship between money supply changes and real production changes is positive for less advanced economies, but negative or negligible for the advanced. This latter finding is suggestive that mild inflation may induce real economic growth.

Hossain (1993) developed a simple money multiplier model of the money supply and examines the behaviour of each of the components of money multiplier for the period 1972 to 1993. His empirical results suggested that although the deposit-currency ratio equation is stable, the equations of the time deposit ratio and the excess reserve deposit ratio are unstable. Both the narrow and broad money multiplier equations are also found unstable. He also concluded that in order to effectively conduct monetary policy through monetary targeting, it is important that the monetary authority in Bangladesh makes an effort to stabilize the value of the money multiplier.

The literature on money multiplier forecasting is quite rich in international perspective. There are two standard approaches to forecast money multiplier: “Aggregate” and “Component”. Under aggregate approach the multiplier forecasting is done directly, rather it is forecasted on the basis of the forecasts of its components like currency-deposit ratio, reserve-deposit ratio etc. Bomhoff’s (1977) first developed a Box-Jenkins type model for the United States multiplier using monetary data and compared both methodology and the results with the regression of the Federal Reserve Bank of St. Louis. He considered the aggregate approach and finds that his model performs 30 per cent better than those produced by St. Louis.

In contrast to Bomhoff’s, Johannes and Rasche (1979) followed components approach of forecasting. They developed an Auto Regression Integrated Moving Average (ARIMA) model for the various components of multiplier for US using monthly data and find that the series models of the individual money multiplier component yield more accurate forecast of the multiplier than those by other regression model.

Hafer and Hein (1984) investigate the relative forecasting capabilities of aggregate and component time series model of money multiplier using monthly US

data and found that the aggregate approach does equally well as the component method.

Recently Zaki(1995) used Egyptian monetary data and found that aggregate forecasting approach of the money multiplier provided satisfactory result while the components approach did not.

More recently Arby (2002) developed time series models for forecasting multiplier in Pakistan using aggregate and components approach and found that the aggregate approach is superior to the component method and produce better projected values.

1.5 Scope and Limitations of the Study:

In this study different statistical data produced by Bangladesh Bank, Ministry of Finance, Bangladesh Bureau of Statistics and from other sources have been used. The available data range considered here since FY 1993-94 to FY 2009-10. But it was very difficult to calculate and to analyse huge numerical data. That is why, in some cases the calculation has been shown concisely in the main part of the paper. Most of the data and its calculation has been tried to be attached as appendices for the convenient of the reader.

1.6 Organisation of the Thesis:

The structure of the thesis is organised as follows: the first chapter deals with the problem statement of the research along with the background of the study, rationale, research question, methodology and also a review on related literature that had been consulted during the study, the second chapter discusses the financial system of Bangladesh and its components including the government initiative in the financial system. The third chapter deals with the monetary policy framework of Bangladesh Bank. The transmission mechanism and the effects of the instruments of money supply. The fourth chapter covers the main part of the study money supply process in Bangladesh including the trend, behaviour and several ratio analysis of its determinants . The fifth chapter contains also the core part that analyse monetary base and money multiplier including the sources of reserve money and the determinants of money multiplier which led to the findings of the study. Finally chapter six outlined some findings and gives some recommendations followed by conclusion.

1.7 Conclusion:

Bangladesh Bank is the key player in the financial sector management on behalf of the government in Bangladesh adopts monetary policy to regulate the financial sector as well. Creation of money, maintain monetary base for money supply by using its operating instruments are the prime responsibility lies on Bangladesh Bank. Analysis of available statistical data used here to come to the conclusion of the study. The present study addresses the behavior of broad money, reserve money and money multiplier their sources, trend, contribution and impact on money supply which are already discussed by different author are also reviewed here.

Chapter 02

The Financial System in Bangladesh

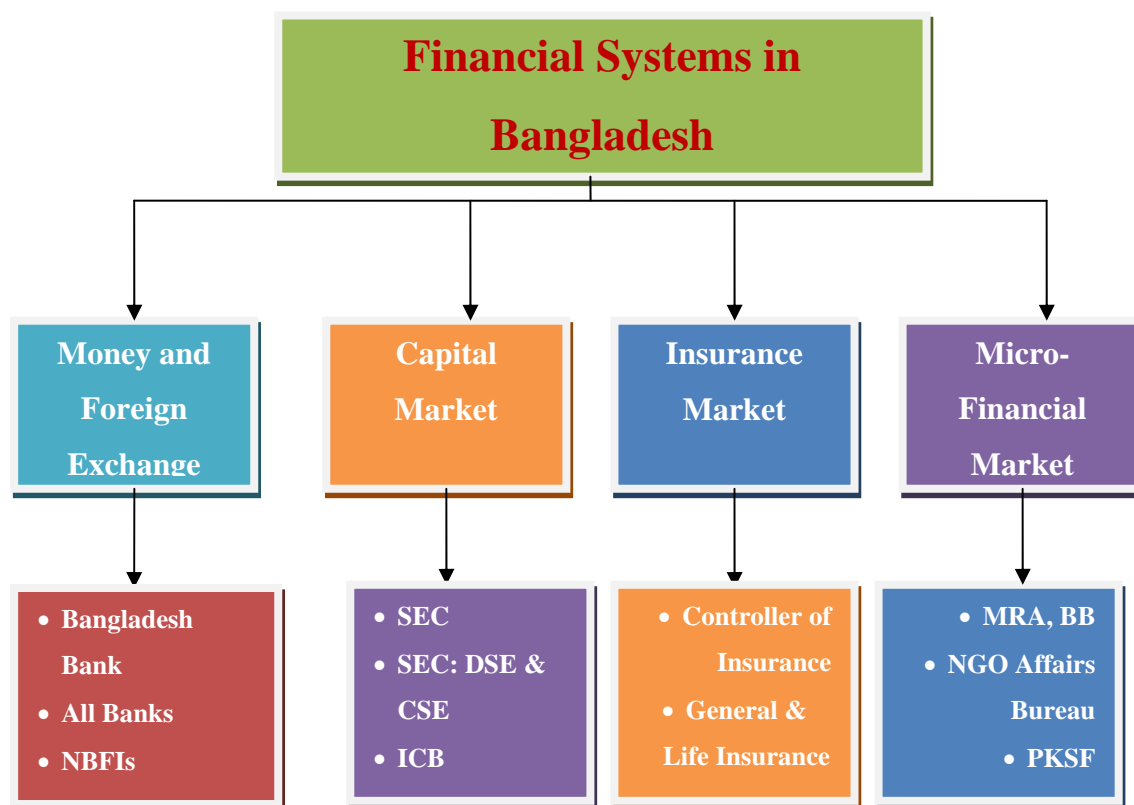
2.0 Introduction

The financial system of Bangladesh comprises and non- banks and financial institutions (NBFs) with a good numbers of micro credit organizations. It covers the money and foreign exchange market, capital market, insurance market and micro credit market. This chapter discusses different aspects of the financial system of Bangladesh and highlights some government interventions of the recent past in this field.

2.1 The Financial System in Bangladesh

The formal financial sector in Bangladesh includes Bangladesh Bank (**BB**) as the central bank, 48 commercial banks including 4 states owned commercial Banks (**SCB**), 5 government owned specialized banks, 30 domestic private banks (**PCBs**) of which 6 banks are operating under Islamic Shariah, 9 foreign banks (FCBs) and 29 non-bank financial institutions. Moreover, there are 2 large governments owned and 60 private owned insurance companies Microcredit Regulatory Authority (**MRA**) has given licences to 298 micro-credit organizations. The financial system also embraces stock exchanges and co-operative banks. The entire system is shown in the diagram Figure.2.1.

Figure 2.1: The financial system of Bangladesh



2.1.1. Banking Sector:

The banking sector, as a part of the financial system, includes the central and commercial banks, specialized banks and other financial institutions. The financial system in Bangladesh is dominated by the banking sector with limited role of NBFIs and insurance companies in capital market. Banking sector alone accounts for about 95 percent of assets of the financial system. Total number of scheduled bank branches rose from 5042 at the end of December 1985 to 6939 in June 2009. The structure of the banking system has changed substantially over the last five years. The market share of the government owned banks declined substantially to 3.11 percent of the total industry assets in 2008 as against 54.4 percent in 1990 while PCBs share rose to 54.2 percent in 2008 as against 22.6 percent in 1990. The foreign commercial banks held 8.0 percent of the industry assets in 2008, showing a slight increase by 0.03 percentage point over the year 1990.

The banking system again is dominated by the 4 State owned commercial banks, which operate 3387 branches (49 percent of the total) and together controlled

29.50 percent of deposits of in June, 2009. Despite their dominance and reasonably robust growth, these banks have been losing market share due to the rapid growth of private banks for their better service to customers. Their share in total deposits declined to 29.50 percent in June, 2009 from 71 percent in 1985.

The growth of the domestic private banks is even more impressive. Private Banks (including Islami banks) continues to increase their market share of total deposits from only 18.34 percent in 1985 to 62.95 percent in June, 2009. On the other hand, foreign banks' market share has remained more or less unchanged at about 7 percent of total deposits while market share of total advances increased from 5.3 percent in 1985 to 6.97 percent in June 2009. The market share of deposits and advances by type of banks is given in the Table- 2.1.

Table- 2.1 : Market Share of the Banks by types

(In percent)

Deposit of Schedule Banks							
Type of Banks	1980	1985	1990	1995	2000	2005	2009
SOBs	89.45	70.89	62.43	62.07	55.22	40.52	29.49
DFIs	4.34	4.40	4.73	4.90	5.98	5.97	5.46
PCBs	0.00	18.34	26.06	27.85	31.47	46.47	57.76
FCBs	6021	6.37	7.14	5.18	7.04	7.04	7.29
Advances of Scheduled Banks							
SOBs	80.20	58.26	52.78	52.36	47.17	35.25	22.76
DFIs	16.16	22.94	20.42	17.18	16.16	9.18	7.33
PCBs	0.00	13.51	21.05	25.13	31.13	49.02	62.95
FCBs	3.65	5.29	5.75	5.32	5.54	6.55	6.97

Source: (Bahar: 2009) and Statistical Department, Bangladesh Bank

i) Central Bank and its policies:

Bangladesh Bank (BB), as the central bank, has legal authority to supervise and regulate all banks and non-bank financial institutions. It performs the traditional central banking role of note issuance and of being the banker to the government and banks. Given some broad policy goals and objectives, it formulates and implements monetary policy, manages foreign exchange reserves and lays down prudential

regulations and conducts monitoring of the entire banking system. Its prudential regulations include, among others: minimum capital requirements, limits on loan concentration and insider borrowing and guidelines for asset classification and income recognition. Bangladesh Bank has the power to impose penalties for non-compliance and also to intervene in the management of a bank if serious problem arise. It also has the delegated authority of issuing policy directives regarding the foreign exchange regime.

ii) Interest Rate Policy:

Under the financial sector reform program, banks are free to charge/fix their deposit (Bank /Financial Institutes) and lending rates other than export credit. At present, Loans at reduced rates (7%) are provided for all sorts of export credit since January 2004. With a view to controlling the price hike and ensuring adequate supply of essential commodities, banks can differentiate interest rate up to 3 percent considering comparative risk elements involved among borrowers in same lending category. Recently banks have been advised to upload their deposit and lending interest rate in their respective website. Besides, maintaining of capital adequacy, foreign exchange regulations, formulation of exchange rate policy are other functions performed by Bangladesh Bank.

iii) Bank Licensing

Bank Company Act, 1991, empowers Bangladesh Bank to issue licenses to carry out banking business in Bangladesh. Pursuant to section 31 of the Act, before granting a license, Bangladesh Bank needs to be satisfied that the following conditions are fulfilled: "that the company is or will be in a position to pay its present or future depositors in full as their claims accrue; that the affairs of the company are not being or are not likely to be conducted in a manner detrimental to the interest of its present and future depositors; that, in the case of a company incorporated outside Bangladesh, the Government or law of the country in which it is incorporated Bangladesh as the Government or law of Bangladesh grants to banking companies incorporated outside Bangladesh and that the company complies with all applicable provisions of Bank Companies Act, 1991." Licenses may be cancelled if the bank fails to comply with above provisions or ceases to carry on banking business in Bangladesh.

v) Commercial Banks

The commercial banking system dominates the financial sector with a limited role of non-bank financial Institutions and the capital market. The banking sector alone accounts for a substantial share of assets of the financial system. The banking system is dominated by the 4 state owned commercial banks, which together control more than 30% of deposits and operates 3383 branches (50% of the total) as of June 30, 2008.

v) Specialized Banks

Out of the 5 specialized banks, 2 (Bangladesh Krishi Bank and Rajshahi Krishi Unnayan Bank) were created to meet the credit needs of the agricultural sector while the other two Bangladesh Shilpa Bank(BSB) and Bangladesh Shilpa Rin Sangstha (BSRS) are for extending term loans to the industrial sector.

vi) Non-Bank Financial Institutions (NBFIs)

Twenty-nine financial non-bank financial institutions are now operating in Bangladesh. Of these institutions, 1 (one) is government owned, 15 (fifteen) are local (private) and the other 13(thirteen) are established under joint venture with foreign participation. The total amount of loan and lease of these institutions is Tk.99,091.80 million as on 31 December 2007. Bangladesh Bank has introduced a policy for loan and lease classification and provisioning for financial institutions from December 2000 on half-yearly basis. NBFIs play a significant role in meeting the diverse financial needs of various sectors of the economy as well as to the deepening of the country's financial system. The activities of NBFIs witnessed an impressive growth during the last five years.

2.1.2 Capital Market:

The capital market, an important ingredient of the financial system, comprising debt and equity instruments plays a significant role in the economy of the country by channelling surplus resources to the most productive uses. The market is regulated by a number of government bodies including the central bank and stock exchanges. The Securities and Exchange Commission exercises powers under the Securities and Exchange Commission Act 1993. It regulates institutions engaged in capital market activities. Bangladesh Bank exercises powers under the Financial Institutions Act,

1993 and regulates institutions engaged in financing activities including leasing companies and venture capital companies.

2.1.3 Insurance

The insurance sector is regulated by the Insurance Act, 1938 with regulatory oversight provided by the Controller of Insurance on authority under the ministry of commerce. General insurance is provided by 21 companies and life insurance is provided by 6 companies. The industry is dominated by the two large, state-owned companies Shadharan Bima Corporation(SBC) for general insurance and Jiban Bima Corporation (JBC) for life insurance--which together command most of the total assets of the insurance sector.

2.1.4 Microfinance Institutions

Microfinance is now a nation-wide activity in Bangladesh. The issue of a regulatory framework has come to the forefront because NGO-MFIs, the major provider of this service, are providing financial services to the poor outside the formal banking system. The government enacted 'Microcredit Regulatory Authority Act, 2006' on July 16, 2006 with effect from August 27, 2006 with a view to ensuring transparency and accountability of microcredit activities of the microfinance institutions (MFIs) in the country.

2.2 Government Initiatives in the Financial Sector

There was a major policy shift in early 1980s when private sector banks were allowed in the country. The sector embarked upon a Financial Sector Reform Program in the 1990s, which primarily aimed at entrusting additional powers to the central bank by strengthening efficacy of its instruments. Interest rates were liberalised; open market operation was activated by introducing new bills. Attempts were made to improve governance in the financial sector.

In the monetary and foreign exchange front, there is an exchange-rate regime, which is market determined. Floating of Taka since June 2003 was made without encountering undue volatility. Further reform in simplifying and streamlining forex operations and payment system is underway. New financial instruments of varying tenure such as repo and reverse repo and government investment bonds of longer

tenor have been introduced. Efforts are underway to develop the government and corporate bond market. Bangladesh Bank and the Securities and Exchange Commission (SEC) agreed to allow the government bonds to be traded in the stock exchange. Securitisation of receivables of private financial institutions has started.

The Bangladesh Bank has got a Policy Analysis Unit (PAU) which produces various analytical policy briefs and publishes monetary policy review, financial sector review and Bangladesh Bank Quarterly.

To make the financial sector more competitive, some initiatives have been taken by the government. Nationalised Commercial Banks (NCBs) like Sonali Bank, Janata Bank and Agrani Bank have been corporatised and incorporated as public limited company. Sale of Rupali Bank to a foreign private entrepreneur is underway. These banks will be more accountable to the central bank. The major challenge is how to create a level playing field for non-bank financial institutions vis-i-vis banks in order to function as complementary institutions both banks and NBFIs should follow some ethical and technical norms. Banks can go for joint financing under syndication arrangements with leasing companies on any project proposal. Public sector banks in charge of agricultural and industrial term lending suffer from poor decision making and low efficiency. In order to make them efficient and financially viable, restructuring of these institutions is necessary. Otherwise, it will hinder the overall financial sector stability and soundness.

2.3 Conclusion

In the financial system, money market still plays a dominant role in the money market. For instance, industrial term loans disbursed by scheduled banks and NBFIs stood at BDT 258.76 billion in FY2009-10. Along with a dominant money market, the capital market is also growing over time, although still narrow based compared to many South East Asian countries (e.g. South Korea, Malaysia, Indonesia, Thailand and India). But the bond market is virtually absent in the financial system of the country. On the other hand, a large number of unregulated micro-finance institutions are actively providing credit and related services to small and medium enterprises (SMEs). These major features of the financial system support the possible existence of the bank lending channel of monetary transmission in Bangladesh.

Chapter 03

The Monetary Policy Framework of Bangladesh Bank:

3.0 Introduction:

The monetary policy framework of Bangladesh Bank identifies a logical and sequential set of actions for designing and conducting the monetary policy. The framework is based on credible information on the stability of the money demand function, the money supply process, and the monetary transmission mechanism. Monetary policy in Bangladesh is framed using projected real GDP growth rate. The targeted rate of inflation adopts Reserve Money (RM) and Broad money (M2) as operating and intermediate targets respectively.

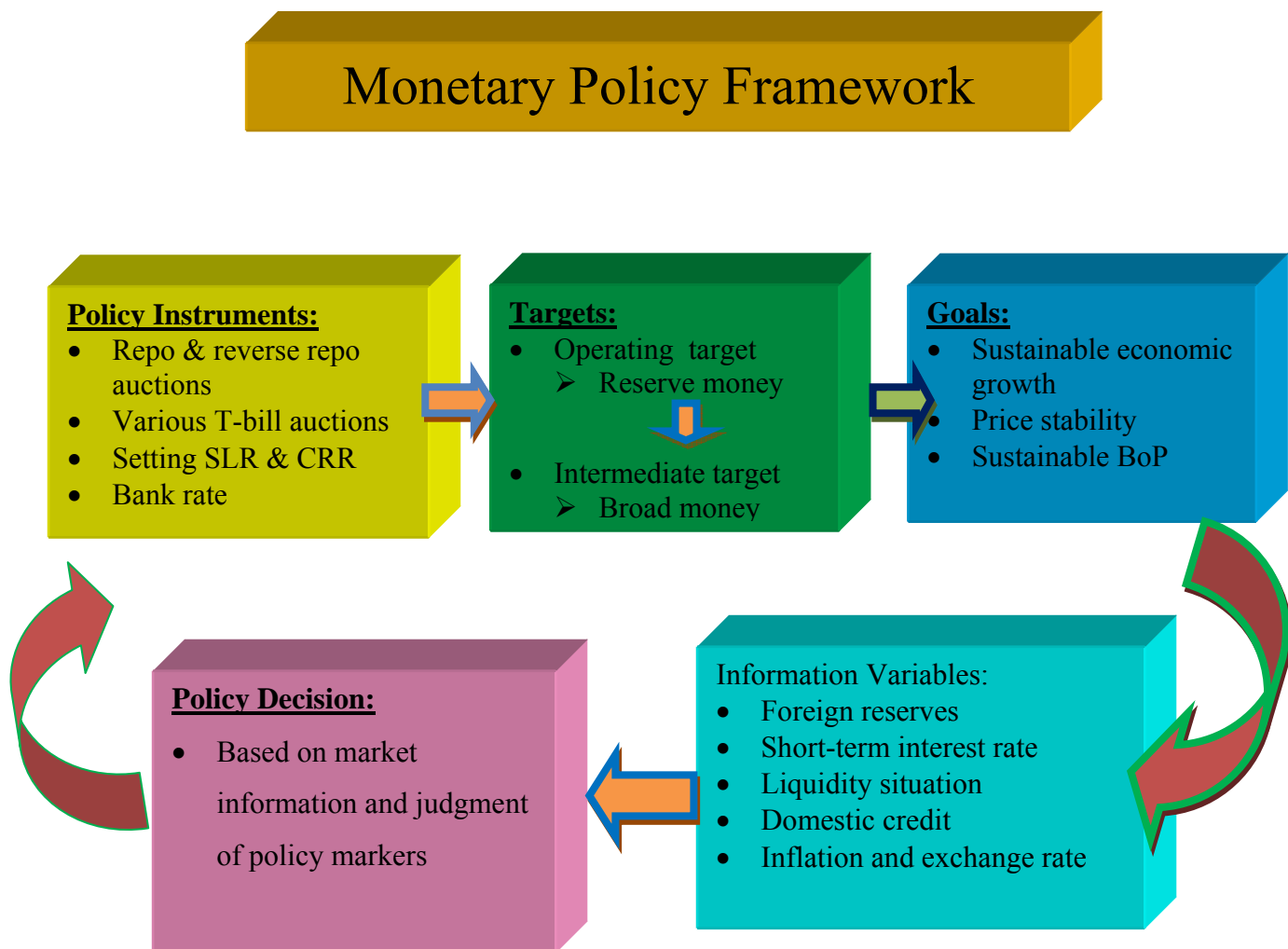
Within the framework, the monetary policy aims at supporting highest sustainable output growth along with reasonable price stability and smooth adjustment to internal and external shocks faced by the economy. The process uses repo, reverse repo, and Bangladesh Bank bill rates as policy instruments for influencing financial and real sector prices toward the targeted path of inflation. The underlying assumption is that growth of monetary aggregates (such as RM and M2) has a predictable relationship with the domestic price level. Therefore, by controlling the growth of monetary aggregates, Bangladesh Bank aims at achieving price stability. In practice, Bangladesh Bank sets a growth rate of RM that is deemed to be consistent with targeted inflation and output growth, with the idea that the RM growth will in turn lead, through money multiplier, to a given growth rate of M2 in the economy.

Monetary policy consists of a set of rules that aim at regulating the supply of money in accordance with predetermined goals. Monetary policy is important because it can influence economic growth, inflation, and the balance of payments (BOP). The central bank conducts monetary policy by using instruments that influence the supply of money and interest rates in the economy. The fundamental objective of pursuing monetary policy by the central bank is to ensure that the expansion in the money supply is consistent with the objectives of the government policies for economic growth, inflation, and the BOP. In conducting monetary policy, the central bank tries to ensure that the supply of money is in line with the amount of money demanded by

the economic agents: households and firms. The main policy goals of monetary policy of Bangladesh Bank are:

- To achieve sustainable economic growth
- To maintain price stability
- To attain sustainable BoP.

Flow chart-1: Monetary Policy Framework of Bangladesh Bank



3.1 Transmission Mechanism of Monetary Policy:

Various operating targets, intermediate targets, and policy objectives that central banks commonly use and pursue are given in table-3.1.

Table-3.1: Different Instruments for controlling money supply.

Instruments	Operating Targets	Intermediate Targets	Policy Objectives
Direct Instruments	Reserve Money	Money Supply	Sustainable growth
Indirect Instruments			
Required Reserve Ratio	Short term interest rate	Domestic Credit	Low inflation
Discount rate		Long-term interest rate	Sustainable balance of payments
Open Market Operation			Reserve and Liquidity management

3.2 Effects of Indirect Instruments on the Money Supply:

Historically, the direct instruments to control the money supply have been popular, particularly in developing countries. However, the more recent trend has been to substitute indirect instruments for direct instruments. Three examples below show as to how Bangladesh Bank can use indirect instruments to increase or decrease the money supply.

3.2.1 Required Reserve Ratio:

The required reserve ratio is the amount of reserves as a percentage of their deposits that banks are required to hold. These reserves may be held in the form of cash in the vault or as deposits with the Bangladesh Bank. Bangladesh Bank can decide whether or not it will pay interest on these deposits. Changes in reserve requirement affect the money supply by causing the money multiplier to change. For example: if Bangladesh Bank wants to increase the money supply, it decreases the required reserve ratio. As soon as it does, deposit money banks (DMBs) have additional free reserve that they can lend. Because reserves generally earn no interest, banks will increase their lending until all unutilized reserves are invested in interest-earning assets. The increase in

bank credit increases the money supply. If BB wants to decrease the money supply, it increases the required reserve ratio. To increase their reserves, DMBs must decrease their lending. This leads to decline in money supply. The present reserve requirement ratio of Bangladesh Bank is 23% of which 5% is cash reserve requirement (CRR) and 18% statutory liquidity reserve (SLR).

3.2.2 Discount Rate (Bank Rate):

The discount rate is the rate of interest that Bangladesh Bank charges DMBs for credit. Changes in the discount rate affect the money supply by affecting the volume of discount loans and the monetary base. A rise in discount loans adds to the monetary base and expands money supply. Conversely, a fall in discount loans reduces the monetary base and shrinks money supply. For example, Bangladesh Bank increases the discount rate to money supply. DMBs pay more for Bangladesh Bank credit. Typically, DMBs will increase the lending rate charged from the private sector, and the demand for credit by the private sector will decrease. The current discount rate is 5%.

3.2.3 Open Market Operations:

For controlling the monetary base, Bangladesh Bank carries out open market operations (OMO). When the central bank engages in open market operations, it buys or sells government securities, bonds in transactions with DMBs. For example, Bangladesh Bank can buy or sell government securities in open market operations to change the quantity of money available. Open market purchases expand the monetary base, thereby raising the money supply. In a repurchase agreement (often called a repo), Bangladesh Bank purchases securities with an agreement that the seller will repurchase them in a short period of time. On the other hand, open market sales shrink the monetary base, lowering the money supply. In a reverse repo transaction, Bangladesh Bank sells securities and the buyer agrees to sell them back to the BB in near future.

Of the three indirect instruments of monetary policy, open market operations seem to be the most effective tool. This is because open market operations are the primary determinants of change in the monetary base. Moreover, they occur at the initiative of the central bank, are easily reversed, and can be implemented quickly.

3.3 Conclusion:

The objective of monetary policy of Bangladesh is to maintain price stability achieving highest sustainable output growth; as such inflation and output growth are the basic policy targets. Bangladesh Bank uses the reserve money (operational target) programme to target a growth path for broad money (intermediate target) consistent with the targeted rate of GDP growth and inflation. Annual monetary programme is continually monitored and adjusted in light of unfolding events. The actual developments are also monitored to keep in line with the programme. In this pursuit monetary policy instruments used by the Bangladesh Bank as and when necessary (Annual Report: 2008-09, Bangladesh Bank).

Chapter -04

The Money Supply Process in Bangladesh

4.0 Introduction:

The key players in the money supply process as follows:

1. The Central Bank- The government agency that oversees the banking system and is responsible for the conduct of monetary policy; in Bangladesh, it is Bangladesh Bank.
2. Banks (depository money banks (DMBs)) - The financial intermediaries that accept deposits from individual and institutions and make loans : commercial banks, savings and loan associations, mutual savings banks and credit unions.
3. Depositors- individuals and institutions that hold deposits in banks.

Of the three players, the central bank in Bangladesh, Bangladesh Bank is the most important. The conduct of monetary policy by Bangladesh Bank involves actions that affect its balance sheet (holding of assets and liabilities) to which we turn now.

4.1 The Central Bank's Balance Sheet:

In order to understand the dynamics of money supply process in Bangladesh, the balance sheets of the central bank, depository money banks (DMBs) and the monetary survey of the banking system need to be studied.

Table-4.1 shows an analytical balance sheet of the central bank:

Table- 4.1: Analytical Balance Sheet of the Central Bank

Assets	Liabilities
Net Foreign Assets	Reserve Money
Net Domestic Assets	Currency
Net Domestic Credit	Currency held in banks
Net claims on government	Currency in circulation
Claims on DMBs	Deposits of DMBs
Claims on the private sector	Other deposits
Other items net	

Net foreign assets include the following items:

- On the assets side, official international reserves (including gold, foreign exchange, the reserve position of the country in the IMF, and holdings of special drawing rights);
- On the liability side, short-term liabilities to foreign central banks, including their deposits, swap facilities, overdrafts, and some medium and long-term debt; such as the country's use of IMF credit; and
- Other foreign assets and liabilities not included in the definition of official reserves.

Net domestic assets include both net domestic credit and other items, net.

Net domestic credit comprises several claims: net claims on the government, claims on DMBs, and claims on other domestic sectors.

Let us now turn to the **liabilities side** of the balance sheet:

Reserve money is sometimes called high powered money, base money, or the monetary base. It includes the following core items:

- Currency in circulation (the amount of currency in the hands of the public);
- Reserves of DMBs with the central bank. Reserves consists of their deposits at the central bank plus currency that is physically held by banks(called vault cash).

Reserve money excludes:

- The government's deposit with the central bank; and
- Central bank liabilities to non-residents.

Currency in circulation depends on the asset side of the balance sheet and is a liability to the central bank. The total assets always be equal to the liability as per accounting principles.

4.1.1. The Monetary Base:

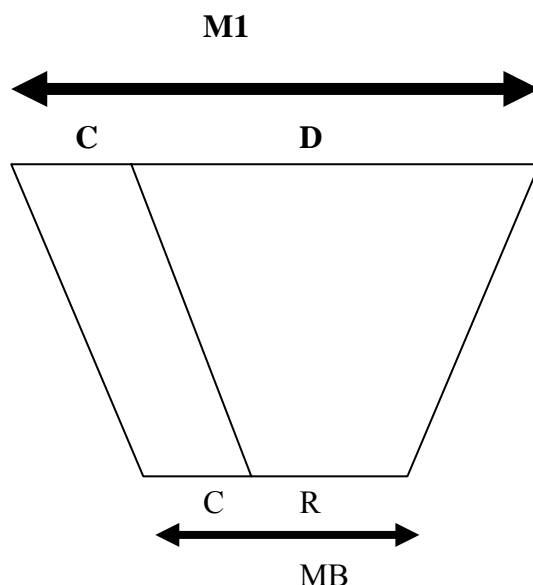
Reserve money or the monetary base, also called “high powered money” consists of:

C	Currency in the hand of the public
+R	+ Reserves of the banking system (Reserves of Depository Money Banks (DMBs) with the central bank. Reserves consist of their deposits at the central bank plus currency that is physically held by banks called vault cash).
MB	= Monetary Base

The term ‘high powered’ refer to the fact that an increase in the base money by Tk. 1 creates, through the money multiplier, an increase of more than Tk. 1 in money supply.

Monetary base is typically the monetary liabilities of the central bank.

Diagram-4.1: Money Stock Pyramid



The above pyramid indicates that in an economy currency in circulation is usually kept equal, but fluctuate the amount of M1 based on reserve fluctuation as well as money multiplier.

4.2 Balance Sheet of DMBs:

Now let us look at the balance sheet of DMBs. Table 3.3 shows the analytical balance sheet of DMBs.

Table- 4.2: Analytical Balance sheet of DMBs

Assets	Liabilities
Net Foreign Assets	Deposits
Reserves	Demand
Currency in the vault	Time
Deposits with central bank	Foreign currency
Domestic Credit	Liabilities to the central bank
Net claims on the government	
Claims on the private sector	
Other items, net	

DMBs typically hold foreign assets because they are in the business of financing foreign trade. The central bank requires that DMBs hold a certain percentage of the deposits of their clients as reserves- as cash in their vaults or as deposits with the central bank. Reserves in general and cash in particular ensure that money is readily available anytime for the bank's depositors if they wish to make withdrawals. The most important item on the liabilities side of DMBs' balance sheet consists of deposits of the private sector. These are classified by type of instruments: demand or checkable deposits, savings deposits, time deposits, and deposits denominated in foreign currency.

4.3 The Monetary Survey:

One of the most important purposes of the monetary survey is to present data on monetary and credit developments for the entire banking system in a timely fashion. This allows policymakers to monitor developments and adjust monetary policy, if necessary.

Table- 4.3 shows a typical monetary survey. The asset side of the survey is essentially the sum of the items in the analytical balance sheets of the central bank and the DMBs. The liabilities side of the survey is broad money (M2), which consists of narrow money (M1) and quasi money (QM).

Table- 4.3: Monetary Survey

Assets	Liabilities
Net foreign assets	Broad money
	Narrow money
Net domestic assets	Currency in circulation
Net claims on the government sector	Demand deposits
Claims on the private sector	Quasi money
Other items, net	Time and savings deposits
	Foreign currency deposits

4.3.1 Narrow Money (M1):

M1 consists of:

- Currency in circulation (C) which includes the notes and coins that we use plus,
- Demand Deposits (DD) in the banking system. Deposits are also money, because they can be converted into currency and are used to settle debts e.g, current account, savings account, traveler's check etc.

So, we can write the equation as, $M1 = C + DD \dots\dots\dots(1)$

4.3.2 Quasi Money (QM) includes time and savings deposit (TD) in the banking system

and any foreign currency deposit (FC) of residents;

$$QM = TD + FC \dots\dots\dots(2)$$

4.3.3 Broad Money (M2) includes all liabilities of the banking system. It is defined as:

Broad Money = Narrow money + Quasi money

So, $M2 = M1 + QM \dots\dots\dots(3)$

M2 includes everything in M1

Adds:

- Savings deposits (SD) e.g, Post Office savings deposit.
- Small denomination time deposits (TD) e.g, different fixed deposits,
- Foreign currency deposits (FC)

So, this equation can also be written as, $M2 = M1 + SD + TD + FC$

The basic balance equation of the monetary survey states that total liabilities are equal to total assets. It implies that broad money (M2) is identical to net foreign assets (NFA) plus net domestic assets (NDA):

$$M2 = NFA + NDA \dots\dots\dots(4)$$

4.3.4 Calculating the Contributions to the Growth of Money Supply:

There are three approaches to calculate the contributions to the growth of money supply, those are:

- The basic balance equation of the monetary survey.
- The money multiplier, a ratio that relates the change in the money supply to a given change in the monetary base.
- Income velocity of circulation showing the relationship between M2 and nominal GDP.

Let us now focus on the basic balance equation of the monetary survey (equation 4). A change in M2 stems from a change in NFA, or in NDA, or both:

$$\Delta M2 = \Delta NFA + \Delta NDA \dots\dots\dots(5)$$

This identity states that the money supply increases when a BOP surplus exists. A surplus in the BOP shows up as an increase in NFA. NDA increases if the banks extend credit to the private sector or to the government.

We now want to know about the primary determinants of the growth in the money supply. We can answer this question by dividing both sides of equation (5) by the stock of money at the end of the previous period. This stock of money is identified as $M2_{t-1}$:

$$\Delta M2 / M2_{t-1} = \Delta NFA / M2_{t-1} + \Delta NDA / M2_{t-1} \dots\dots\dots(6)$$

Using equation (6), we may calculate the contributions of the BOP and of NDA to the percentage changes in the money supply in Bangladesh (table 3.5).

Table- 4.4: Contributions to the Growth of M2 Supply

	2001- 2002	2002- 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007	2007- 2008	2008- 2009	2009- 2010
Assets									
Net Foreign Assets (in Crore Tk.)	9234	13591	15913	18229	21525	32397	37318	47459	67074
Net Domestic Assets (in Crore Tk.)	89022	100226	113391	132780	158663	178616	211950	249040	295958
Liabilities									
Broad Money (in crore Tk.)	98256	113817	129304	151009	180188	211013	249268	296500	363031
Contribution to M2 growth									
Change in net foreign assets (%)	29.1	47.2	17.1	14.6	18.1	50.5	15.2	27.2	41.3
Change in net domestic assets (%)	11.71	12.59	13.14	17.10	19.49	12.58	18.66	17.50	18.84
Change in Broad Money (%)	13.13	15.59	13.80	16.75	19.30	17.06	17.63	19.17	22.44

Source: Author's Compilation

The growth of net foreign assets (NFA) and net domestic assets (NDA) work as the driving forces behind the growth of money supply (M2) over the time. In the FY 1994-95, it was 14.5 percent, while it decreased to (-) 35.9 percent in the FY 95-96 (For Detail See Appendix-B & C). In the time series data contribution of NFA was negative in the FY95-96, FY96-97, and FY98-99 and in FY 2000-01. In which the most negative contribution to money supply was (-) 35.9 percent in FY 95-96. On the other hand, NDA has a moderate changes over the period and had a great contribution on money supply in FY95-96 at 22.63 percent which was the highest contribution on money supply as percent. NFA has the highest contribution at 50.5 percent in the FY

06-07. The other biggest contribution on money supply was 47.2 percent and 41.3 percent in FY 2002-03 and 2009-10 respectively, while the NDA was 12.59 percent and 18.84 percent during the fiscal years. This was happened mainly due to the growth of NFA of Bangladesh Bank which attained 54.25 percent, 63.33 percent and 41.53 percent in those fiscal years.

Though NFA has a fluctuating trend and the changes of NDA were almost consistent over the period, the broad money (M2) has got an upward trend. But whatever the changes encountered in NFA and NDA, M2 increased over the time since 1993-94 to 2009-10. In FY 2009-10, M2 has recorded a robust growth of 22.44 percent which was 19.17 percent over the previous fiscal year. Of which NFA has a great contribution at 41.3 percent during FY2009-10.

4.4. Liquidity Management by the Bangladesh Bank:

Liquidity is a measure of the ease with which fractional reserve banks can meet the demand for withdrawals by their depositors. This requires that banks maintain an adequate amount of cash on hand or the ability to readily acquire such cash.

The liquidity management by Bangladesh Bank (BB) can be defined as the framework where set of instruments and the rules are used to control the liquidity consistent with its ultimate objective focuses on supporting the highest sustainable output growth while maintaining the price stability by targeting M2 growth. The M2 target is attained by using indirect instruments under the framework of the reserve money. After formulating a reserve money programme to achieve the desired level of M2, the actual developments are monitored and required steps are taken accordingly. Reserve money, the operating target of Bangladesh Bank, gives an indication of liquidity in the monetary system. BB tries to regulate liquidity conditions consistent with overall monetary projection by adjusting the level of deposits of the banks' with the Bangladesh Bank through its indirect instruments. The deposits can be split into required reserves and excess reserves. These excess reserves are the policy variable for BB's monetary policy. Excess reserves are balances that banks can use either lending to the private sector or invest on Government securities and Bangladesh Bank securities. By making investment on securities more attractive (less attractive) Bangladesh Bank can refrain (or encourage) banks from (to) increasing (enhance) lending. The instruments which affect the level of deposits of the banks are (1) open

market operation through repo, reverse-repo and 30-day and 91-day BB bills; (2) variations in reserve ratios; (3) secondary trading; (4) discount rate and; (5) moral suasion. Money market in Bangladesh, especially the overnight market, has undergone significant changes in the last few years. In order to reinforce indirect monetary operation and to manage the day to day liquidity position in the market, BB has introduced several new arrangements in the recent years namely Repo, Reverse Repo and Interbank Repo operation from July 2002, April 2003 and July 2003, respectively. Both Repo and Reverse Repo transactions are conducted through auction held on each working day at Bangladesh bank. Through Repo operation, BB lends money to a bank or financial institution by purchasing securities which the bank or financial institution repurchases upon maturity. The Reverse Repo facility enables participating institutions to purchase government securities from BB upon commitment of resale after the agreed upon term. In addition to the Repo and Reverse Repo arrangement, BB also allows the banks and other financial institutions to make secondary transaction of treasury bills and other government securities in their possession, which is called interbank repo in Bangladesh banking jargon (MPR:2005). The rate in the interbank repo operation is freely determined in the market place where BB exercises zero intervention. Repo transactions can be made for a term depending on the maturity of the bills and bonds. However, it is observed from the market that a majority of the deals are for one to two days while that of BB bills are held on weekly basis.

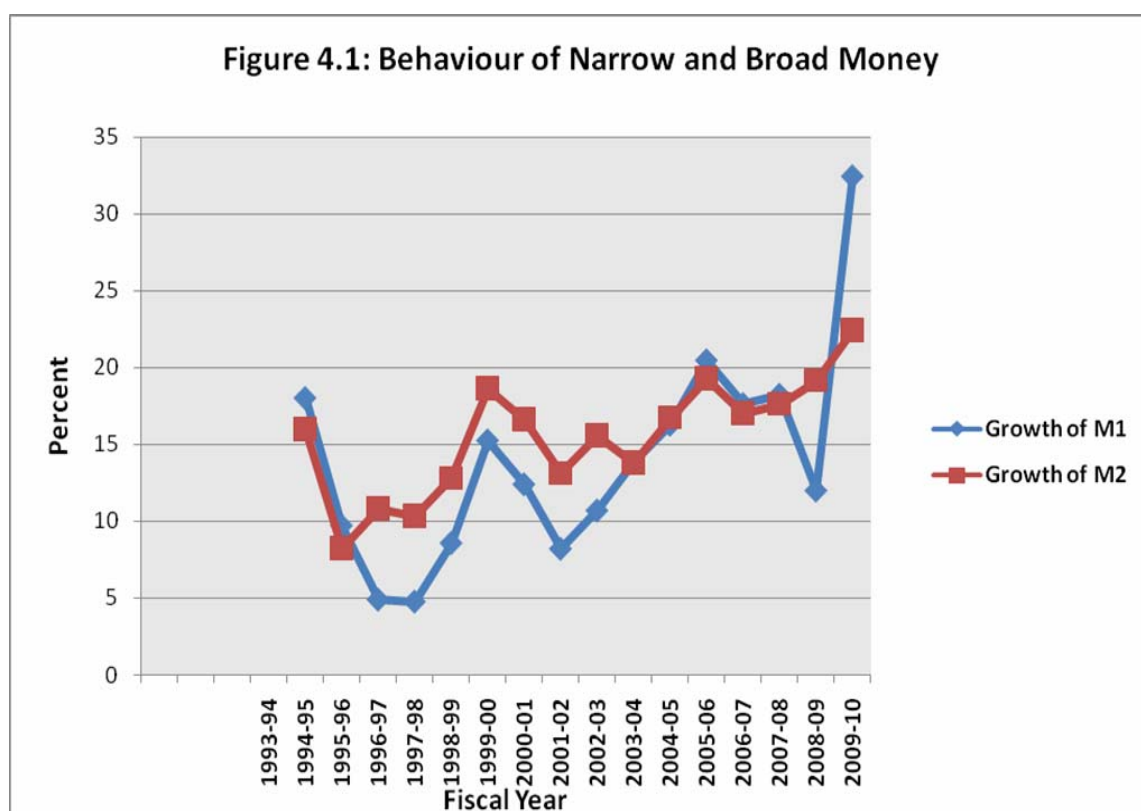
The repo facility and secondary trading enhance the liquidity position of the banking system, while reverse repo and BB bills mop-up it. Bangladesh bank generally uses the repo and reverse repo tools to maintain a desired amount of liquidity in the market where the rates arrangements emerges from the auction procedure. During the period of high demand for central bank money, the bidders quote higher repo rate in order to increase their chance to get the central bank money. So, a higher overnight market rate ie; call money rate leads to a higher repo rate from the auction. Similarly, the injection or turn exerts an impact on the call money rate and interbank repo rate for overnight transactions in the appropriate direction. Variation in reserve ratios (i.e. CRR and SLR) is used infrequently. BB conducts secondary trading as and when necessary.

4.5. Behaviour of Money supply and its determinants.

This section analyses the money supply determinants and the related factors that have a greater impact on money supply process as well as monetary and credit market development in Bangladesh during the period from 1993-1994 to 2009-2010. This chapter also discusses the trends of the different factors and shows the ratios how their behaviour creates impact on the money supply process. Also how the government borrowings and trends of deposits, interest rate play an effective role on money supply in Bangladesh.

4.5.1. Behaviour of Narrow (M1) and Broad Money (M2):

Figure-4.1 shows the behavior of narrow money (M1) and broad money (M2). While comparing the trends, percentage change of M2 most of the time dominates over M1 since 1993-94 to 2008-09. Initially growth rate of M1 was higher than the M2, during 1994-96 became slow down remained till 2002-03 and became equal during 2003-05,



then exceeded again and remained till 2007-08 and 2009-10 higher growth rate than M2. So, higher growth rate of M2 prevailed from 1996-97 to 2002-03 and again slowed down in FY2005-06 due to slower growth in time deposits and higher growth in currency demand (figure-4.2). An analysis of the component of broad money show

that the growth rate of time deposits started to increase from FY 1996-97 and maintained higher growth than that of currency and demand deposits until FY 2003-04. During FY 2004-05, 2005-06 and 2009-10 the growth rate of currency demand was higher than that of demand and time deposits reflecting higher demand for holding currency due to the higher inflationary expectation.

The following table describes the trends.

Table-4.5 : Components of Money Supply (M2) and its trends over time

(Tk. in crore and figure showed in parenthesis are changes)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
(a) Currency Outside banks	18518.1 (17.12%)	22862.1 (23.46%)	26643.8 (16.54%)	32689.9 (22.69%)	36049.2 (10.28%)	46157.1 (28.04%)
(b) Demand deposits	16849.9 (15.31%)	19739.6 (17.15%)	23462.5 (18.86%)	26517.6 (13.02%)	30236.5 (14.02%)	41621.8 (37.65%)
(c) Time deposits	116042.3 (16.89%)	138021.9 (18.94%)	161336.2 (18.89%)	189480.5 (17.44%)	230073.0 (21.42%)	275042.8 (19.55%)
(d) Deposits (b+c)	132892.2 (16.69%)	157761.5 (18.71%)	184798.7 (17.14%)	215998.1 (16.88%)	260309.5 (20.51%)	316664.6 (21.65%)
Broad Money (M2) (d+a)	151446.4 (16.75%)	180674.2 (19.30%)	211504.2 (17.06%)	248794.9 (17.63%)	296499.9 (19.17%)	363031.1 (22.44%)
Narrow Money (M1) (a+b)	35404.1 (16.28%)	42652.3 (20.47%)	50168.0 (17.62%)	59314.4 (18.23%)	66426.9 (11.99%)	87988.3 (32.46%)

Source: Bangladesh Bank, Monthly Economic Trend, September, 2010.

It is to be accentuated that the growth of M1 and M2 depends on the three factors currency outside banks, deposits, and inflation. From Table-4.1 it is clear that recently currency outside bank and demand deposits have been increased, while the time deposits decreased.

4.5.2. Sources of Money Supply (M2):

Sources of money supply (M2) depends on several components, such as Net Foreign Assets(NFA), Net Domestic Assets(NDA), domestic credit including government net credit along with other public sectors credit and private sector credit, also NDA

consists of total domestic credit and Net Other Assets resulting creates broad money(M2). NFA and NDA is a compilation of Bangladesh Bank (BB) and deposit Money Banks (DMBs).

Table-4.6 shows the composition and sources to change of broad money and credit and their movement over time. In the FY 2009-10 broad money increased by 22.44 percent over that of previous year. It was increased by 19.17percent in FY2008-09 over that of previous year. Under the purview of my study years since 1993-94, the growth of broad money stood at 15.96 percent in FY1994-95 over FY 1993-94. Then it decreased at 8.24 in FY1995-96, again started inclining trend at 18.62 percent up-to FY 1999-2000, while again there was a declining trend found up-to 2003-04 (for detail see appendix- A). More recent years it was observed the inclining trend of broad money except FY2006-07. Though the overall growth of broad money situation is fluctuating, but the total amount increased in the consecutive years under study period. During FY 2009-10, total domestic credit of the banking system has increased by Tk.51661.5 crore (17.90 percent) compared to the previous year Tk. 39875.2 crore (16.03 percent) and it was highest growth at 20.91 percent in FY 2007-08, but the amount of Taka was 43004.6 which was less than the change of FY2009-10.

Table-4.6: Sources to change the broad money:

(Tk. in crore and figure showed in parenthesis are changes)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Broad Money (M2) (a+b)	151446.4 (16.75%)	180674.2 (19.30%)	211504.2 (17.06%)	248794.9 (17.63%)	296499.9 (19.17%)	363031.1 (22.44%)
a)NFA of the banking system	18229.3 (14.6%)	21525.2 (18.1%)	32397.1 (50.5%)	37318.0 (15.2%)	47459.4 (27.2%)	67073.7 (41.3%)
b)NDA of the banking system(1+2)	132779.7 (17.10%)	158662.9 (19.49%)	178615.9 (12.58%)	211949.5 (18.66%)	249040.3 (17.5%)	295957.5 (18.84%)
1) Total domestic credit of the banking system (i+ii+iii)	148837.3 (17.39%)	179087.1 (20.32%)	205672.5 (14.84%)	248677.1 (20.91%)	288552.3 (16.03%)	340213.8 (17.90%)
i)Government sector (net)	25582.7 (16.82%)	31624.1 (23.62%)	36040.0 (13.96%)	46909.1 (30.16%)	58185.1 (24.04%)	54392.3 (-6.52%)
ii)Public sector (other)	11239.1 (24.63%)	15145.5 (34.76%)	17455.4 (15.25%)	11632.3 (-3.36%)	12439.7 (6.94%)	15060.7 (21.07%)
iii)Private sector	112015.5 (16.84%)	132317.5 (18.12%)	152177.1 (15.01%)	190135.7 (24.94%)	217927.5 (14.62%)	270760.8 (24.24%)
2) Other assets (net)	-15620.1 (-20.36%)	-19938.1 (-27.64%)	-26565.3 (-33.24%)	-37200.1 (-40.03%)	-39512.0 (-6.21%)	-44256.3 (-12.01%)

Source: Monthly Economic Trends, Bangladesh Bank, September, 2010.

The trend of broad money supply indicates that credit to the government sector is decreased in FY2009-10 by (-) 6.52 percent which was 24.04 percent and 30.16 percent in the previous years. This was happened due to satisfactory growth of revenue earning and tremendous sell out of national bonds (Sanchayapatra). On the other hand, public sector credit increased at 21.07 percent in FY 2009-10, while it was(-)33.36 percent in FY 2007-08. It was decreased due to transfer the liabilities of the Bangladesh Petroleum Corporation (BPC) to government sector. Also public sector credit increased in FY 2008-09 and 2009-10 due to make mandatory to increase of agricultural loans for all private commercial banks and foreign banks by Bangladesh Bank .But no negative impact found on the private sector credit.

Table- 4.7 : Contribution of the Sources of Money Supply (M2)

End of Period	Change of NFA (percent)	Contribution of BB to NFA (percent)	Contribution of GoB to Domestic credit (Percent)	Contribution of other public Sector to Total Domestic Credit (Percent)	Contribution of Private Sector to total Domestic Credit (Percent)	DMBs contribution to total Domestic credit (Percent)
1993-94	-	90.05	12.53	18.48	68.99	13.10
1994-95	14.5	84.58	11.18	14.37	74.45	11.75
1995-96	-35.9	79.72	13.46	12.14	74.40	9.59
1996-97	-2.9	76.25	15.10	11.53	73.37	9.29
1997-98	3.9	79.16	15.46	10.83	73.71	8.48
1998-99	-5.8	73.17	16.40	9.18	74.42	7.20
1999-00	31.0	68.52	19.00	8.36	72.63	6.67
2000-01	-13.5	67.27	19.43	8.45	72.12	7.02
2001-02	29.1	78.30	19.79	7.40	72.81	6.16
2002-03	47.2	86.89	17.39	6.81	75.80	5.69
2003-04	17.1	85.10	17.31	7.07	75.62	6.13
2004-05	14.6	80.58	17.22	7.52	75.26	6.81
2005-06	18.1	86.66	17.66	8.46	73.88	7.89
2006-07	50.5	88.82	17.52	8.49	73.99	8.01
2007-08	15.2	87.99	19.19	4.66	76.15	4.28
2008-09	27.2	91.12	20.16	4.31	75.52	4.02
2009-10	41.3	91.25	15.99	4.43	79.59	4.18

Source: Self Compiled based on Monthly Economic Trends, Bangladesh Bank.

The above table shows the growth rate of NFA, which indicates fluctuating tendencies, up-to FY2000-01, then it has come back with positive trends and it contributed most in the FY 1999-2000 and 2002-03. BB,s contribution to the NFA is a lion's share than DMBs. On the other hand, private sector playing dominating role on domestic credit and contribution of public sector to domestic credit is a declining trend, which indicates that larger credit flow to the private sector. DMBs have significant role on domestic credit.

4.6. The Ratios:

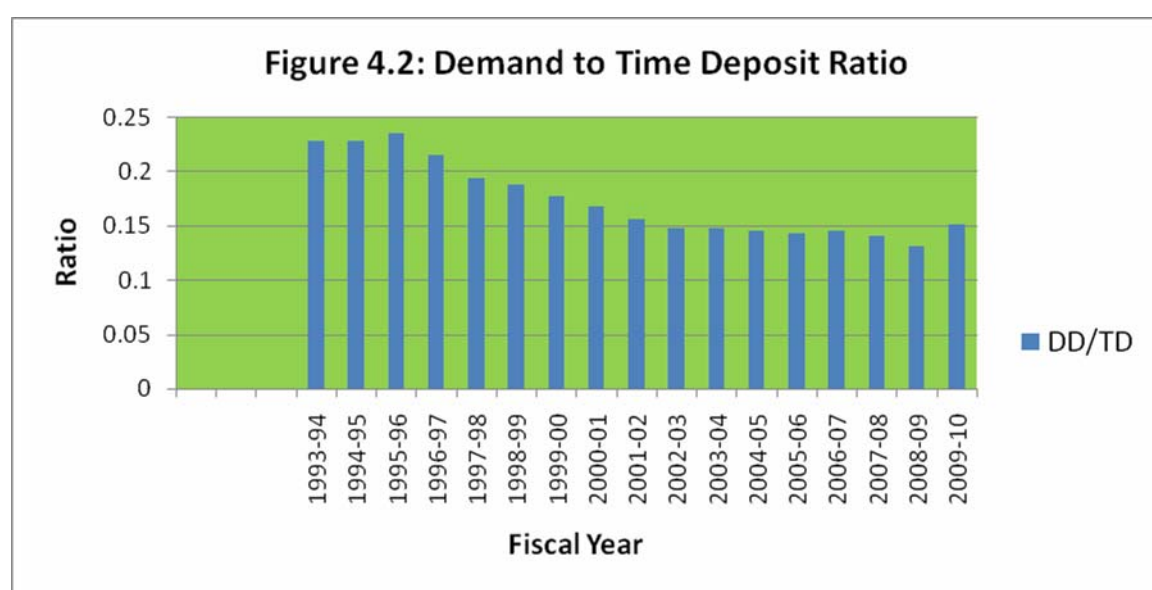
The behavior of narrow money and broad money growth can be illustrated through the following ratio analysis.

Table 4.8: Demand to Time Deposits Ratio (DD/TD):

(Tk. in crore)

End of the Period	Demand deposits	Time Deposits	DD/TD
1993-94	5751.1	25235.9	0.228
1994-95	6614.3	29032.9	0.228
1995-96	7336.1	31231.1	0.235
1996-97	7592.4	35460.3	0.214
1997-98	7735.2	39980.5	0.193
1998-99	8562.8	45777.3	0.187
1999-00	9705.3	54881.1	0.177
2000-01	10869.1	64826.8	0.168
2001-02	11620.4	74454.9	0.156
2002-03	12827.9	87251.1	0.147
2003-04	14612.6	99273.7	0.147
2004-05	16849.9	116042.3	0.145
2005-06	19739.6	138021.9	0.143
2006-07	23462.5	161336.2	0.145
2007-08	26517.6	189480.5	0.140
2008-09	30236.5	230073.0	0.131
2009-10	41621.8	275042.8	0.151

Source: Monthly Economic Trends, September, 2010, Bangladesh Bank.

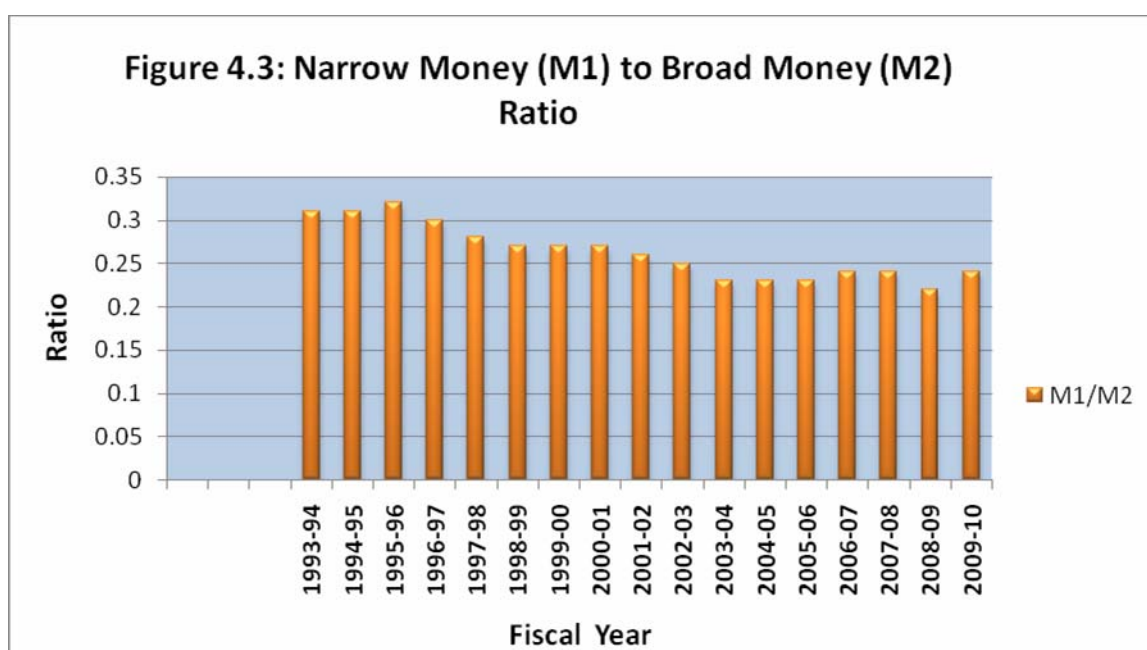


Source; Based on Monthly Economic Trends, Bangladesh Bank.

Figure-4.2 shows the trends in demand and time deposits. The ratio is indicating a gradually declining trend over the years except FY 2009-10. The higher growth in time deposits partly reflects the higher opportunity cost of holding money due to attractive returns on different terms deposits, the decline intended to decrease the cost of borrowing and thus to stimulate the economy.

4.6.1 Narrow money (M1) to Broad money (M2) ratio:

The liquidity performance of the economy, as measured by M1 to M2 ratio which was on a slight inclining trends from FY 93-94 to FY95-96, then started to decline till FY 2001-02 and remained almost constant at 0.23, again inclined a little bit then again remained at the similar pace with little fluctuation at 0.24 to FY 2009-10.



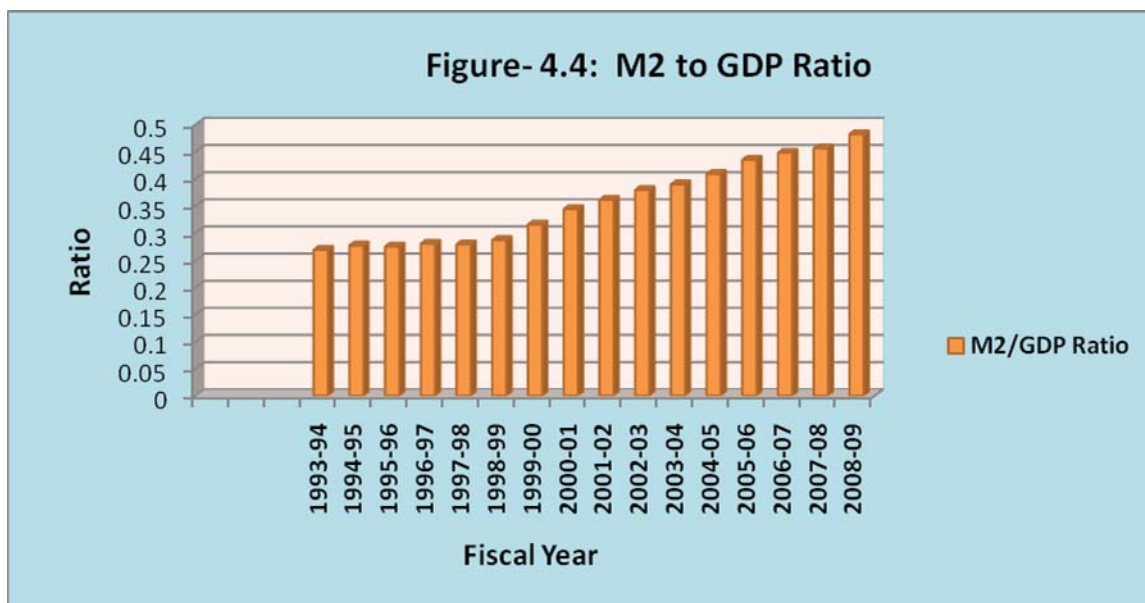
Source: Based on Monthly Economic Trends, Bangladesh Bank.

The reason for decrease in M1/M2 ratio would be due to a decrease in demand for holding currency or demand deposits, which may be due to the innovation of ATM, debit and credit cards. On the other hand the increase in M1toM2 ratio appears to be lingering due to an increase in demand of holding money or demand deposits as higher inflationary expectations.

4.6.2 M2 to GDP:

A welcome development recorded during the last few years is the secular rise in M2 to GDP ratio (Table-4.9).the higher monetary expansion during the periods were principally driven by the acceleration in net domestic assets(NDA) coupled with low

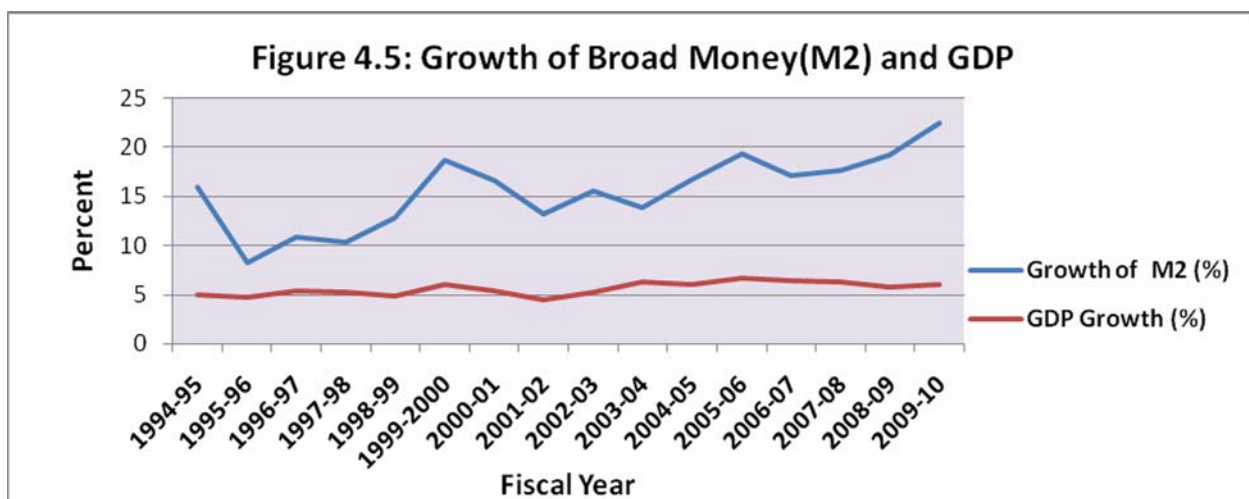
inflation. This pattern also reflects higher monetization of the economy amid increasing financial sector intermediation of economic activities.



Source: Based on Monthly Economic Trends, Bangladesh Bank.

Table-4.9: Growth of M2 and Growth of GDP

End of the Period	Growth of M2 (%)	GDP Growth (%)
1994-95	15.96	4.93
1995-96	8.24	4.62
1996-97	10.8	5.39
1997-98	10.35	5.23
1999-99	12.81	4.87
1999-00	18.62	5.94
2000-01	16.6	5.27
2001-02	13.13	4.42
2002-03	15.59	5.26
2003-04	13.8	6.27
2004-05	16.75	5.96
2005-06	19.3	6.63
2006-07	17.06	6.43
2007-08	17.63	6.19
2008-09	19.17	5.74
2009-10	22.44	6.00



Source: Author's Compilation.

4.7. Conclusion:

Like any other country, Bangladesh Bank regulates the money supply by its different operating instruments. BB tries to keep its balance sheet sound, but the elements of the balance sheet of BB fluctuating, whose impact goes on money supply. The behavior of M1 and M2 indicates that they are fluctuating due to changes of NFA, NDA, RM and GDP as well as inflation to target M1 and M2. Also deposits are not in order for all time. Contribution of the sources of money supply are inconsistent in the system. BB needs to take more effective measure to regulate its operating instruments.

Chapter-5

Factors Determining the Money Supply in Bangladesh:

5.0 Introduction:

The three variables that determine money supply are (i) the monetary base (ii) the currency-deposit ratio and (iii) the reserve-deposit ratio.

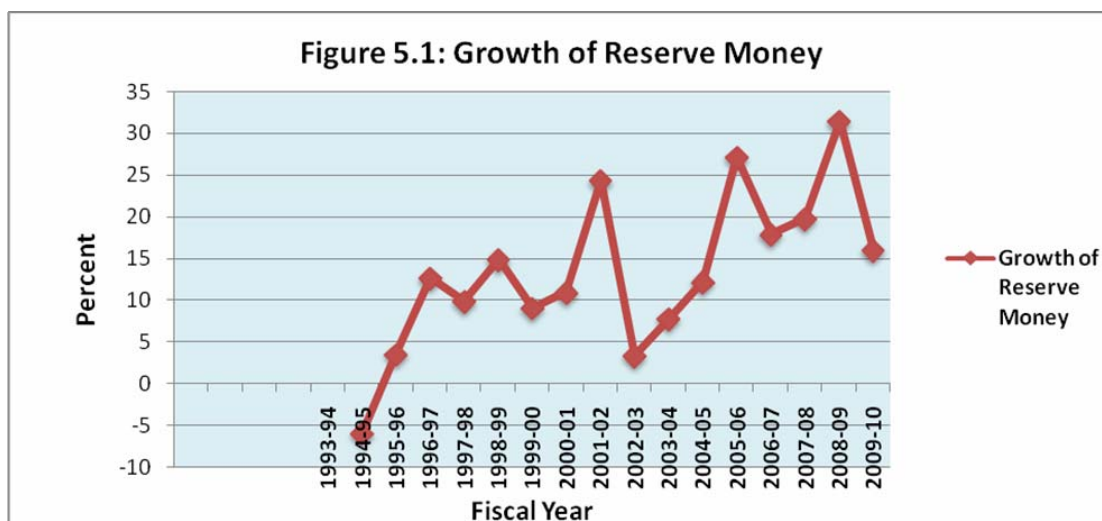
5.1 The monetary base or reserve money:

The monetary base or reserve money (also called high-powered money) is being used as an operating target in the line with overall money projection, which is a part of accommodative monetary policy and liquidity management. As a result of changing government debt management system, the role of Bangladesh Bank has changed to conduct monetary policy. Under the new system, Bangladesh Bank has introduced 30-day and 90-day Bangladesh Bank Bills since October 2006 to operate its monetary policy. As a result, auction of weekly Bangladesh Bank bills is being used to control the level of reserve money and auction of repo and reverse repo is being used for fine tuning. The reserve money equals currency in circulation plus total reserve in the banking system.

5.2 Components of Reserve Money (RM):

We learnt from the analytical balance sheet of the central bank that the components of the RM include currency in circulation, currency held in banks, deposits of DMBs and other deposits which creates the monetary base for money supply. Figure 4.6 shows that the growth rate of reserve money (RM) got a steady upward trend except FY2002-03. The growth rate at 31 percent is the highest in the FY 2008-09 than the previous year, again fall down drastically at 16 percent in FY 2009-10. An analysis of the trend of reserve money growth show that RM started to increase from FY96 at an annual rate of less than 5 percent reaching close to 27 per cent growth in FY 2005-06. However it dramatically fell to the 10 percent range in FY 2006-07 before attempting another run-up. The high figure of a few years ago was due mainly to growth in net foreign assets (NFA) and, to an extent, in net domestic assets (NDA) as well 31 percent in each case. An analysis of the components of reserve money (RM) growth shows that currency outside banks during FY09 increased by 10 percent as

against 22.7 percent increase during the same period last year. Cash in tills increased by 14.9 percent in FY09 which increased by 38 percent during the last fiscal. On the other hand, deposits of banks with BB increased by 75 percent in FY09 as against 11.9 percent increase during the last year due mainly to increased reserve requirements, particularly SLR.



Source: Author's compilation based on Monthly Economic Trends, September 2010 Bangladesh Bank.

In FY2009-10 the growth of reserve money stood at 16.03 percent which was 31.45 percent in the previous year. During FY 2009-10 net foreign assets with Bangladesh Bank increased at 41.53 percent, while net domestic assets decreased by 26.16 percent. The growth of reserve money is decreased in FY 2009-10 compared to FY2008-09, though there was high growth in foreign assets, but because of low growth in net domestic assets, in spite of increasing in foreign remittance and decreasing of import cost. At the same time BB's claim on DMBs decreased by 6.65 percent and 3.40 percent in FY 2008-09 and FY 2009-10. BB's claim on government sector decreased by 22.91 percent in FY2009-10 compared to FY 2008-09. Also BB's claim on the other depository institutions has increased by 28.02 percent in FY 2009-10 over the previous fiscal year. Other assets increased by 18.42 percent and 21.78 percent in FY 2007-08 and FY2008-09 respectively, while decreased again by 4.10 percent in FY 2009-10. Detail is shown in table-5.1.

Table-5.1 : Sources to change the Reserve Money:

(Tk. in crore and figure showed in parenthesis are changes)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
1. Reserve Money (a+b+c)	29405.3 (12.22%)	37381.3 (27.12%)	44073.1 (17.90%)	52789.6 (19.78%)	69390.1 (31.45%)	80510.3 (16.03%)
a) Currency issued	20327.9 (17.59%)	24894.1 (22.46%)	28787.4 (15.64%)	35648.5 (23.83%)	39448.7 (10.66%)	50465.4 (27.93%)
b) Balance of scheduled banks with BB	9041.3 (1.67%)	12436.6 (37.55%)	15224.0 (22.41%)	17034.2 (11.89%)	29800.2 (74.94%)	29835.5 (0.12%)
c) Reserves of other financial institutions with BB	36.1 (47.95%)	50.6 (40.17%)	61.7 (21.94%)	106.9 (73.26%)	141.2 (32.09%)	209.4 (48.30%)
2. Sources of change in Reserve Money (a+b)	29405.3 (12.22%)	37381.3 (27.12%)	44073.1 (17.90%)	52789.6 (19.78%)	69390.1 (31.45%)	80510.3 (16.03%)
a) Net foreign assets of BB	14689.2 (8.47%)	18654.5 (26.99%)	28774.3 (54.25%)	32835.8 (14.12%)	43244.9 (31.70%)	61204.9 (41.53%)
b) Net domestic assets of BB (i+ii)	14716.1 (16.22%)	18726.8 (27.25%)	15298.8 (-18.31%)	19953.8 (30.43%)	26145.2 (31.03%)	19305.4 (-26.16%)
i) Domestic credit (a+b+c+d)	24253.8 (20.77%)	33818.3 (39.44%)	34937.3 (3.31%)	35974.7 (2.97%)	38677.4 (7.51%)	32353.9 (-16.35%)
a) Government sector (net)	15674.3 (32.30%)	25026.1 (59.66%)	25931.1 (3.62%)	25997.3 (0.26%)	28955.4 (11.38%)	22320.6 (-22.91%)
b) Public sector (other)	1105.6 (-3.11%)	1016.0 (-8.10%)	988.0 (-2.76%)	946.4 (-4.21%)	853.1 (-9.86%)	830.7 (-2.63%)
c) BB's claims on DMBs	6132.5 (4.79%)	6346.3 (3.49%)	6442.1 (1.51%)	7334.2 (13.85%)	6846.8 (-6.65%)	6613.9 (-3.40%)
d) BB's claims on other depository institutions	1341.4 (8.06%)	1429.9 (6.60%)	1576.1 (10.22%)	1696.8 (7.66%)	2022.1 (19.17%)	2588.7 (28.02%)
ii) Other assets (net)	-9537.7 (-26.83%)	-15091.5 (-58.23%)	-19638.5 (-30.13%)	-16020.9 (18.42%)	-12532.2 (21.78%)	-13048.5 (-4.10%)

Source: Monthly Economic Trends, Bangladesh Bank, September, 2010.**5.2.1 Sources of Reserve Money (RM):**

An analysis of the sources of RM shows that the ratio of NFA to NDA started to increase from 0.34 since FY01 and reached its highest level at 3.1 in FY10 due to

large increase in Net Foreign Assets. It happened for high remittance inflow and reduced on import expenditure.

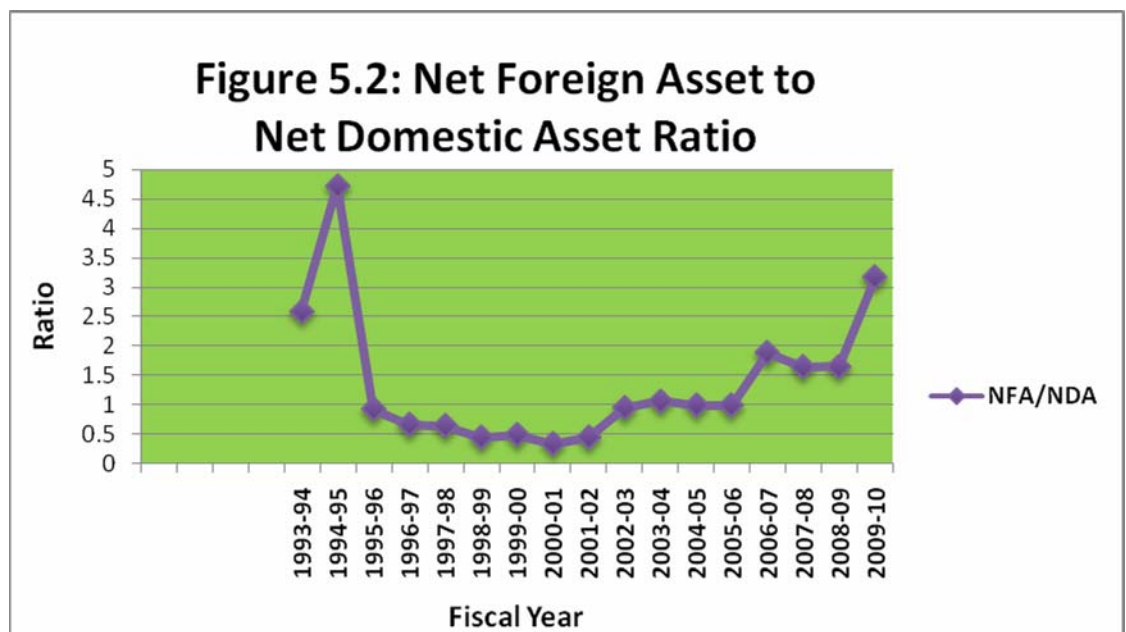
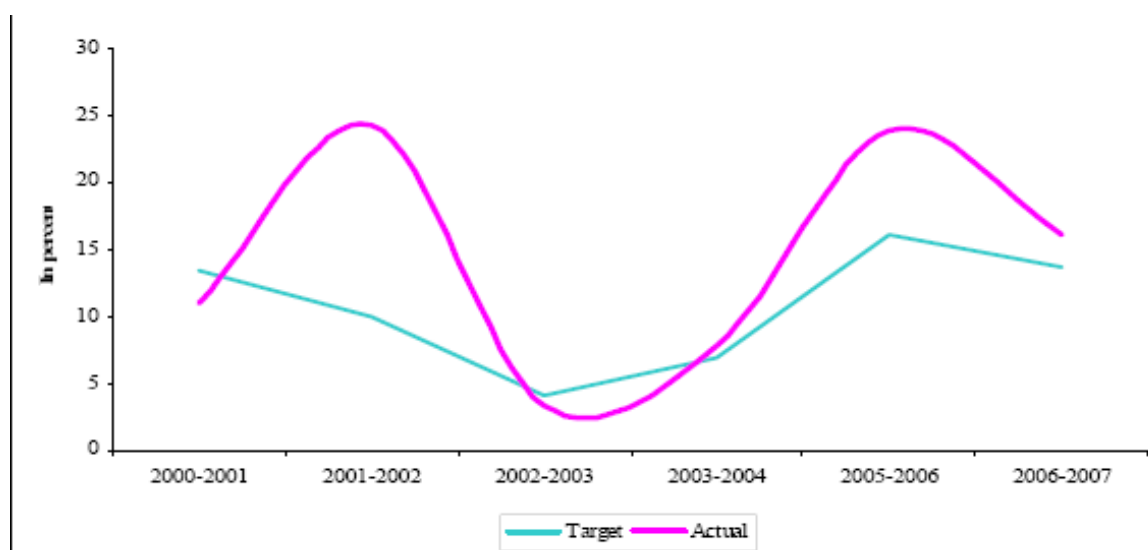


Figure-5.3 indicates that during 2001-2002 actual RM was above targeted RM. During 2003-2004 it was generally matched with target, but during 2005-2006 there was a huge gap again. High variation of government borrowing originating from financing fiscal deficit was one of the major factors, which changed RM beyond its targeted level. The analysis shows that government borrowing contributes to loosening the power to control over RM by BB (Islam: 2008).

Figure 5.3: The Growth in RM, FY01- FY07



Source:(Islam: 2008), WP 0805, Bangladesh Bank.

5.3 The Money Multiplier

In the model of money supply the Central Bank, DMBs and depositors directly influence the money supply. The variables are grouped by the player(s) who is the primary influence behind the variable. The central bank influences the money supply by controlling monetary base, reserves and required reserve ratio. The central bank can control the monetary base much more precisely than it can control reserves, it makes sense to model the money supply process by linking the money supply to the monetary base (MB) or high-powered money .Depositors influence the money supply through their decisions about their holding of currency, while banks influence the money supply with their decision about excess reserves. However, because depositors' behavior influences bankers' expectations about deposit outflows, which as we have seen affects banks' decisions to hold excess reserves, depositors are also listed as a player determining excess reserves.

To understand how the money supply process works, we can derive all the results described above using a concept called the money multiplier, denoted by mm , which tells us how much the money supply changes for a given change in the monetary base. The relationship between the money supply, the money multiplier, and the monetary base is described by the following equation:

$$M = mm \times MB$$

Where, mm = money multiplier.

The money multiplier mm tells us what multiple of the monetary base is transformed into the money supply. Because the money multiplier is larger than 1 is logical: a Tk. 1 change in the monetary base leads to more than a Tk. 1 change in the money supply. Also mm will depend on depositors' decisions about holdings of currency and banks' decisions about holdings of excess reserves.

5.4 Factors that Determine the Money Multiplier: A model of Money supply.

The money supply is the sum of currency(C) and demand deposits (D)

$$m = C+D.....(1)$$

The reserve money (RM) is the sum of currency (C) and bank reserves (R)

$$RM= C+R.....(2)$$

Dividing the first equation by the second, we obtain

$$m/RM = C+D/ C+R.....(3)$$

Then we divide the numerator and denominator on the right side by D

$$m/RM= (C/D+1)/(C/D+ R/D).....(4)$$

Where, C/D is the currency-deposit ratio and that R/D is the reserve-deposit ratio.

Multiplying by RM on both side of equation (4), we obtain

$$m=(C/D+1)/(C/D+ R/D) \times RM.....(5)$$

Equation (5) shows how to money supply depends on the three exogenous variables, reserve money, currency-deposit ratio and reserve-deposit ratio. We can now see that the money supply is proportional to the reserve money. The factor of proportionality, $(C/D+1)/(C/D+R/D)$, is denoted by mm and is called the money multiplier. We can write $m= mm \times RM$. Each taka of monetary base produces mm taka of money. Because, reserve money has a multiple effect on the money supply.

Factors affecting the money multiplier

Based on the complex money multiplier that we have derived above, we know that it is affected by three factors:

- (1) The currency-deposit ratio (C/D)
- (2) The excess reserves-deposit ratio (E/D)
- (3) The required reserves ratio (R/D)

It is important that we know the intuitions of how each one of those factors affect the money multiplier.

(1) Currency-deposit ratio (C/D)

The currency ratio represents the amount of cash individuals hold relative to the amount of checkable deposits they have with the banking system. To simplify our analysis, let us assume that individuals store their wealth either with cash or checkable deposits. If an individual has currency ratio of 0.7, that means he/she keeps Tk, 70 of cash for every Tk.100 he/she has in a checking account.

We have seen that given everything else remains the same, as an individual's currency ratio increases, that simply means that the individual is transferring more of his/her wealth from checkable deposit to currency holding. Since individuals are holding more currency and getting less deposits (i.e. currency ratio increases), less "money" can be created by the banking system. As a result, the money multiplier and the money supply shrink.

(2) Excess reserves-deposit ratio (E/D)

The excess reserves ratio represents the amount of excess reserves a bank with keep for every Tk.1 of deposits it accepts. It is important to remember that this is the amount of reserves a bank keeps in addition to those that it is required to keep by law (i.e. required reserves). Since a bank keeps more of the deposits as excess reserves (i.e. excess reserves ratio increases), that means there will be a smaller pool of resources available to make loans. This will lead to shrinkage of the money multiplier, which in turn leads to shrinkage of the money supply.

(4) Required reserves-deposit ratio (R/D)

The required ratio indicates the amount of reserves a bank is required to keep for every Tk.1 of deposits it accepts. The reserve requirement represents the portion of the deposits that is not available to a bank to make loans. Hence, as the required reserves ratio increases, the amount of loans a bank can make decreases. As a result, the money multiplier and the money supply shrink.

5.5. Determinants of Money Multiplier in Bangladesh:

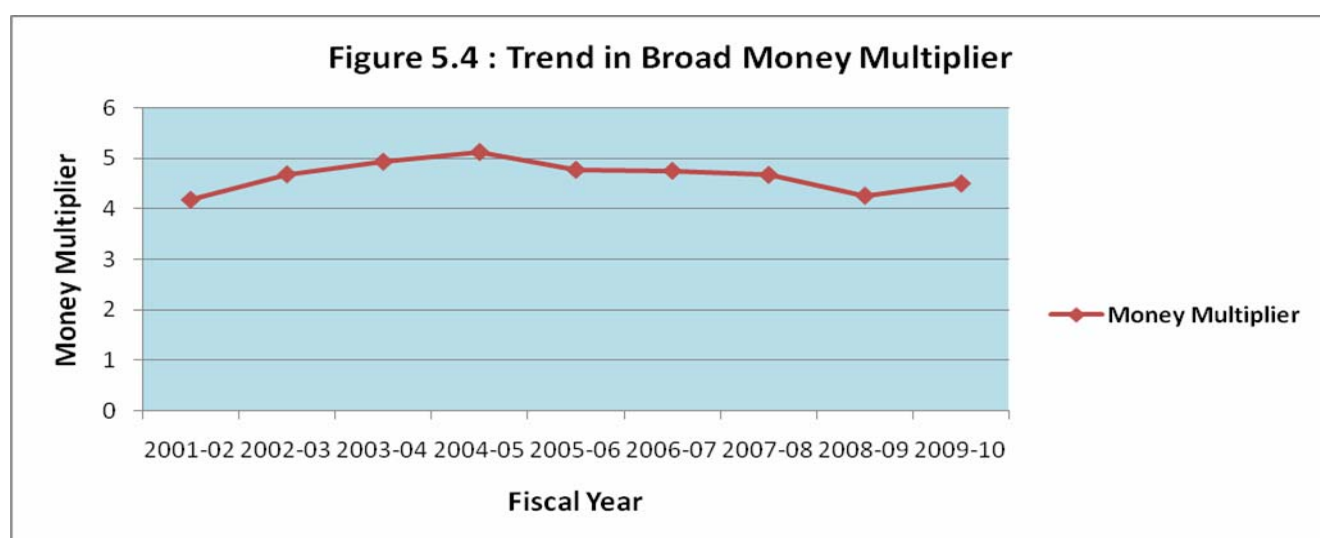
The broad money multiplier (*mm*) showed a fluctuation trend during 1980-2010 (Table-5.3). The stability of *mm* is important for conducting monetary policy. High volatility means money supply is unpredictable. The volatility of *mm*, as measured standard deviation, witnessed a higher trend during the 1980s and the 1990s relative to 2001-2010 period (Table 5.3 and figure- 5.4). The movement of *mm* depends on many factors, which are examined below.

Table- 5.2: Money Multiplier, Reserve Money and Broad Money

In crore Tk.

Fiscal Year	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Reserve Money	23533.6	24313.1 (3.31%)	26256.4 (7.99%)	29547.3 (12.53%)	37863.2 (28.14%)	44555.0 (17.67%)	53271.5 (19.56%)	69390.1 (31.45%)	80510 (16.03%)
Broad Money	98256.2 (13.14%)	113817.2 (15.84%)	129304.0 (13.61%)	151009.0 (16.79%)	180188.1 (19.32%)	211013.0 (17.11%)	249267.5 (18.13%)	246499.9 (18.95%)	293031.1 (22.44%)
Money Multiplier	4.19	4.69	4.94	5.13	4.78	4.76	4.68	4.27	4.51

Source : Bangladesh Bank , Monthly Economic Trends (Various Issues)

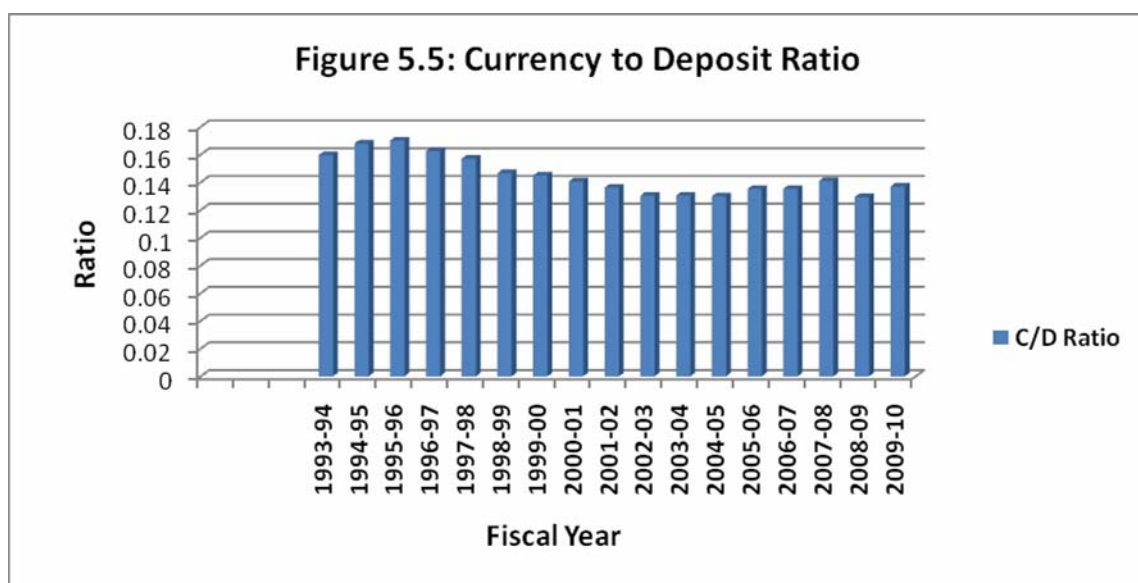


5.5.1 Behaviour of Currency to Deposit Ratio (C/D):

The currency-deposits ratio initially was an upward trend upto FY05-06 and was highest in the FY 95-96 at 0.17, then gradually went down in FY 04-05 at 0.13. A

striking development evident over the FY 05 is the gradual decrease in the currency to deposits ratio, which suggests an increased intermediation through the banking system. It started to gain the ratio till FY07-08 showing higher currency and deposits demand mainly resulting from higher inflation and expectation of inflation during the period.

We have already experienced that the lower C/D ratio is better for the economy. When C/D ratio lowers, means increase the deposit in the banking system, which has a multiple dimension of expansion of money. In this situation, banks have enough money to lend for further investment. On the other hand if C/D ratio raises means



Source: Based on Monthly Economic trends, Bangladesh Bank.

deposits turned into currency in hand, which has less multiplication. The lower the currency-deposit ratio, the fewer Taka of the monetary base the public holds as currency, the more money banks create. Thus, a decrease in the currency-deposit ratio raises the money multiplier and the money supply.

If, we look at the following table- 5.3 which indicates the decade wise changes of the C/D ratios we found that there is some fluctuations between 1980-2010. It averaged 20 per cent in the 1980s, which declined to 16 per cent in 1990s and 15 per cent during 2001-2007. This indicates that people are in favour of deposits. This was happened due to raising national income (the average GDP growth rate was 3.7 per cent in 1980s, 4.8 per cent in 1990s and 5.8 per cent during 2001-2010) and increase in deposit interest rate. The trend volatility shows that C/D ratio is more or less

predictable and BB has comprehensive role over money supply as we have already seen from table-3.6 that broad money increase rate is in normal trend.

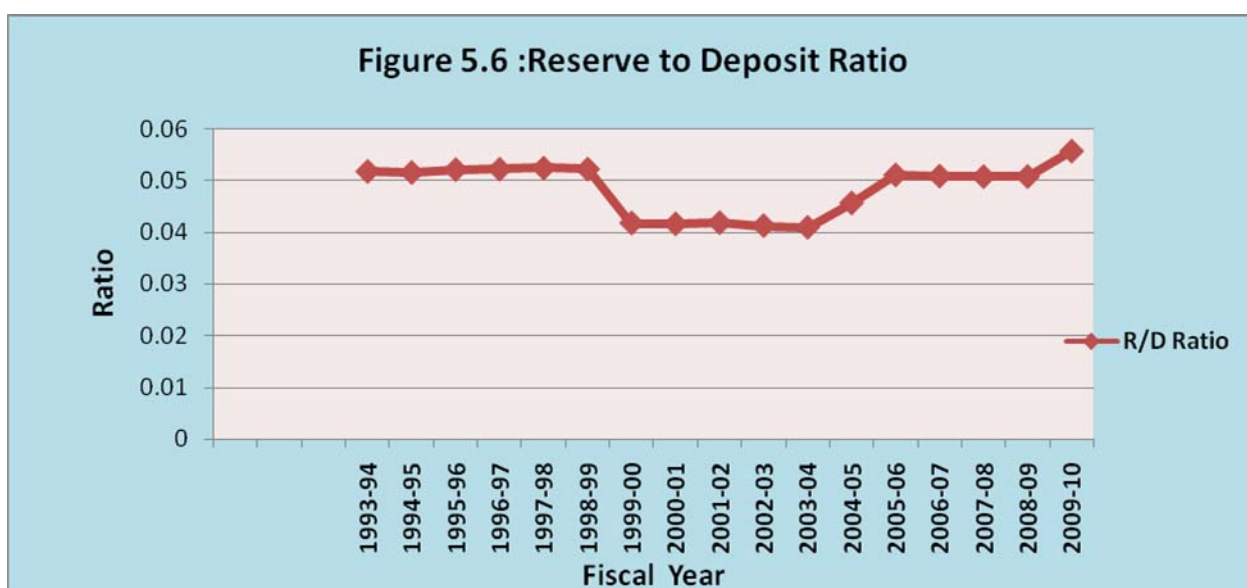
Table- 5.3: Changes of C/D, R/D and E/D ratio

Variables	1980-1990	1991-2000	2001-2007/2010
C/D	0.20	0.16	0.14
R/D	0.07	0.06	0.05
E/D	0.01	0.03	0.04
<i>mm</i>	4.24	4.81	4.92

Source: Islam:2008, WP 0805, Bangladesh Bank and Self compiled

Besides, increase of bank branches, financial innovations like consumer's credit, credit card, debit card, ATM, e-banking and cost of financial transaction also affect C/D ratio.

5.5.2 Changes in Reserve to Deposits Ratio (R/D):



Source: Based on Monthly Economic trends, Bangladesh Bank.

The reserve to deposit ratio is one of the important tools of Bangladesh Bank's monetary policy stance to achieve its goals like other policy tool CRR and SLR. It is a good weapon to control monetary base as well as money supply after the introduction of different treasury bills since 1995. The lower the reserve-deposit ratio, the more loans bank make and the more money banks create from every Taka of reserves. Thus, a decrease in the reserve-deposit ratio raises the money multiplier and the money supply.

Figure- 5.6 indicates the fluctuating trends of the R/D ratio. The highest reserve was during the FY2008-09 and lowest in the FY2001-02. Though the trend of reserve and deposits both are increasing over time, but the ratio is not an inclining trends. During the periods currency in circulations also increased based on the reserve in the Bangladesh Bank. The R/D ratio shows that it averaged 7 percent in the 1980s, then declined to 5 percent in the 1990s, and again increased to 6 percent during 2001-2010 (Table-5.3). After the introduction of floating exchange rate, repo, reverse repo and interbank repo transactions, the control of R/D is somewhat weaker than that of the C/D ratio in money multiplier, which to be taken to considerable notice to the Bangladesh Bank while designing the monetary policy.

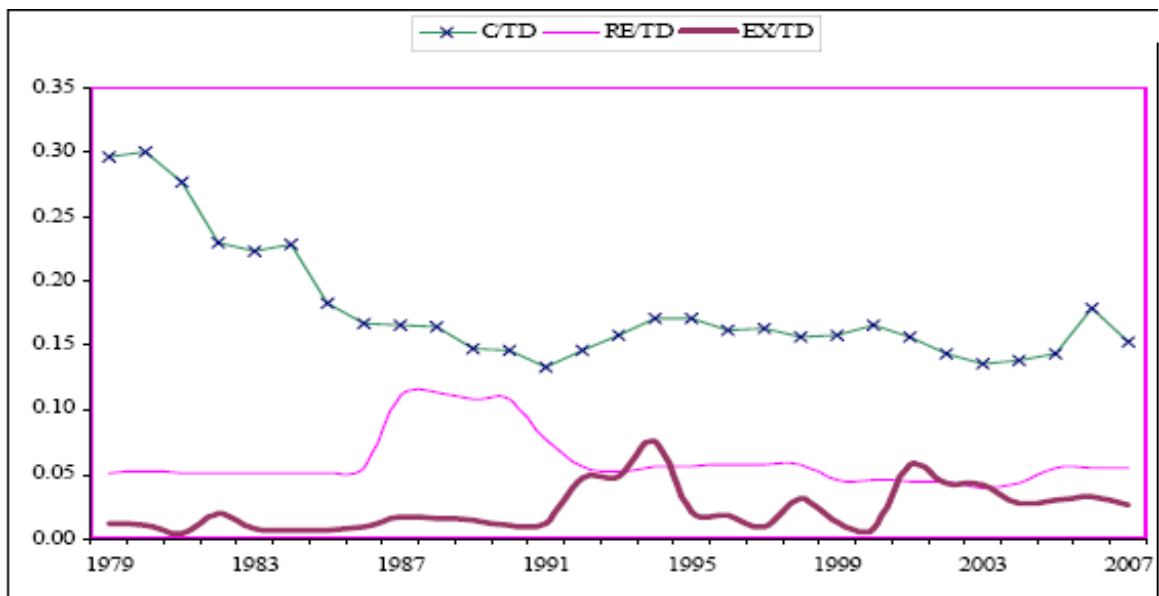
5.5.3 Changes in Excess Reserve-Deposit Ratio

The average excess reserve-deposit (E/D) ratio, which measures the behavior of the banks, increased to 4 percent in the 1990s from only one percent in the 1980s. During 2001-2010, it showed a declining trend and averaged 2 percent. In view of efficient fund management of the banks (Table-5.3), the higher E/D ratio means higher opportunity cost for the banks. The opportunity cost in terms of the market interest rate is very crucial for fund management by the banks. Primarily, in order to meet unexpected outflow of deposits and to face abnormal behavior in the money market, banks keep the excess reserve. This behavior is also affected by aggregate credit demand which originates from overall economic activities. Since, excess reserve does not earn any interest income, the tendency of the banks would be to minimize through adopting efficient fund management (Islam:2008).



Source: Self compiled from monthly Economic Trends, BB

Figure 5.8: Trends in Currency-Deposit, Reserve- Deposit and Excess Reserve- Deposit Ratios

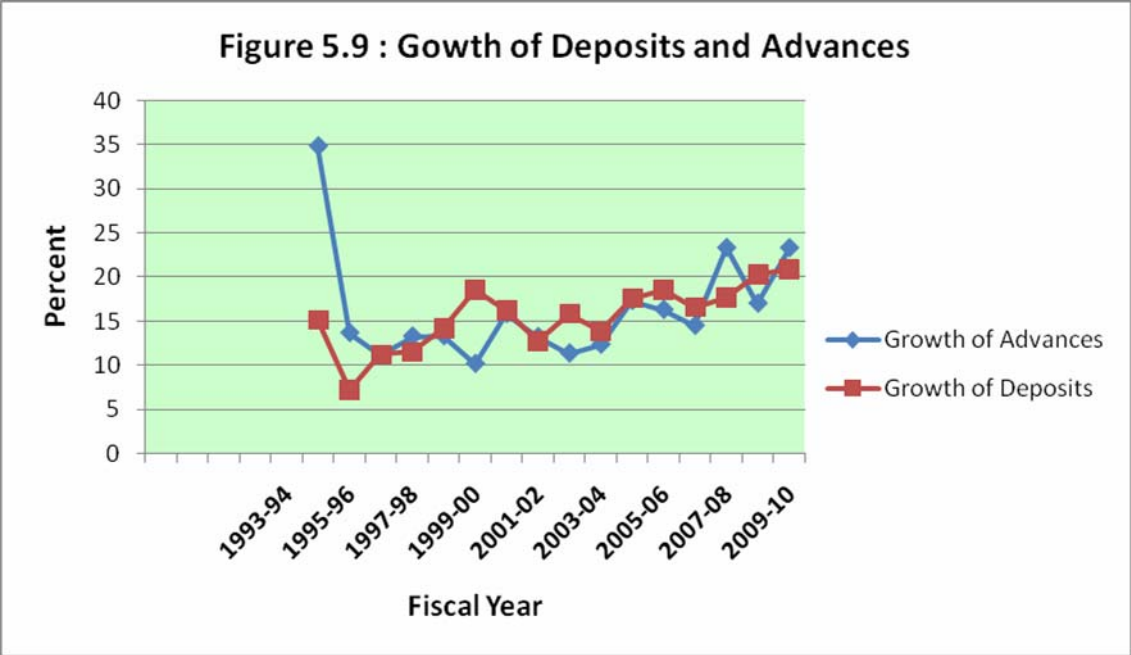


Source: Islam:2008, WP 0805, Bangladesh Bank.

5.6. Bank Deposits and Credits:

An analysis of bank deposits shows that the relatively slower growth rate of deposits can be attributed to increased consumption and investment expenditure reflecting higher level of economic activity and lower real interest rate. On the other hand,

downward revision of deposit rate may have some effect on the lower growth rate of time deposit. The movement of the total deposit and advances of the banking system show a similar pattern during the period from FY94 to FY 10 except for a few deviations



The growth rate of total deposits was higher than advances during the periods of FY 2000, FY03, FY06, FY07and FY09 (figure- 5.9) indicating significant monetary stimulus in those years of low inflation.

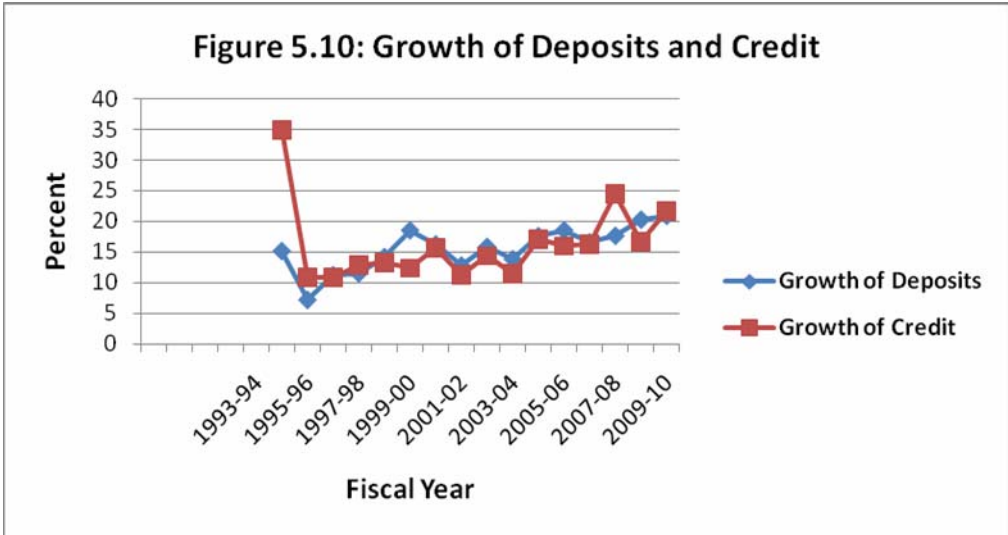


Figure- 5.10 indicates that the growth of deposits almost higher than the credit with few exception in FY96, FY98. But the growth of credit exceeded in the FY08 which indicate that the government borrowing, public borrowing and private borrowings increased.

Table-5.4: Weighted Average Lending and Deposits rate:

(In percent)

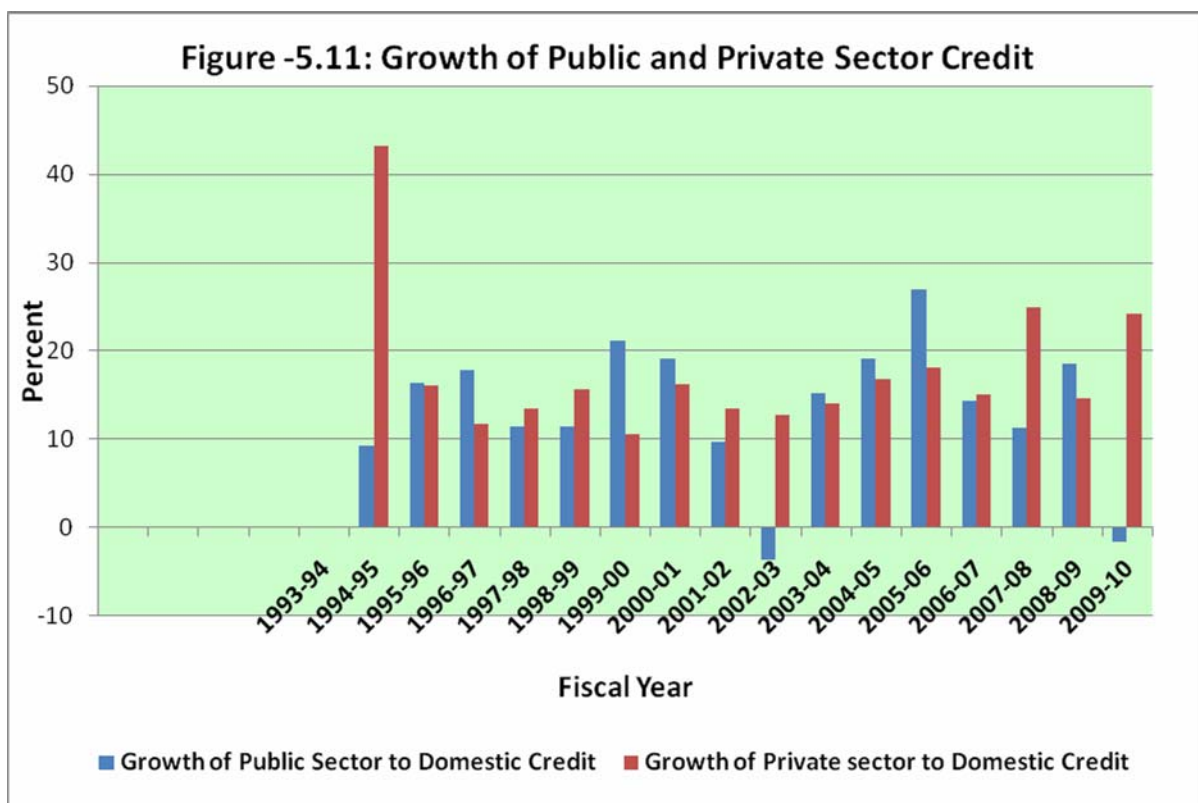
Period	Nominal Lending Rate	Nominal Deposit Rate	Spread	Inflation (12 Months Average)
2000-01	13.75	7.03	6.72	1.94
2001-02	13.16	6.74	6.42	2.79
2002-03	12.78	6.29	6.49	4.38
2003-04	11.01	5.65	5.36	5.83
2004-05	10.93	5.62	5.31	6.49
2005-06	12.06	6.68	5.38	7.16
2006-07	12.77	6.85	5.92	7.20
2007-08	12.29	6.95	5.34	9.94
2008-09	11.87	7.01	4.86	6.66
2009-10	11.23	5.96	5.27	7.31

Source: Monthly Economic Trends, September 2010, Bangladesh Bank.

Table – 5.4 depicts the weighted average interest rates of scheduled banks on deposits and advances. It is evident from the table that the weighted average interest rates on deposits and advances declined from nearly 13.8 percent in FY01 to 10.9 percent in FY05, and the trend was reversed up-to FY08, then again declining trend observed till FY 2009-10 due to following the central bank's tightened bias in monetary policy. The nominal spread between advance and deposit rates declined gradually from 6.7 percentage points in FY01 to 5.31 percentage points in FY05 before increasing to 5.92 percent in FY07 observed fluctuating trend onward till FY2009-10.

5.7. Credit to the Public and Private Sector:

During FY07 credit by DMBs substantially increased to both public and private sectors (Figure -5.11). The public sector credit, however, showed a higher growth resulting from rapid increase of investment credit by DMBs to the public sector.



In the FY 03 and FY 10 growth of Public sector to the domestic credit goes negative, as the contribution of DMBs drastically decreased in NFA at (-)23 percent and (-)26 percent respectively compared to the previous year. Also BB's contribution was decreased at 5.69 percent and 4.18 percent to domestic credit in the same fiscal years.

5.8. Cash Reserve Requirement (CRR), Statutory Liquidity Requirement (SLR) and Bank Rate:

The cash reserve requirement ratio (CRR), statutory liquidity requirement (SLR), bank rate is effective means of announcing the monetary policy stance.

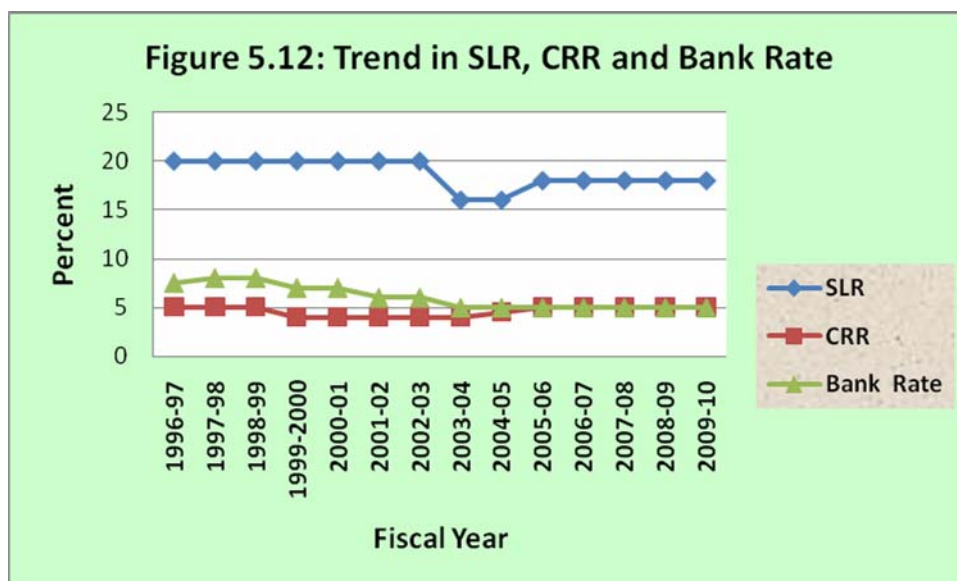


Table- 5.5 shows the movements of SLR, CRR and the Bank Rate since 1996-97. Banks were required until mid 1980s to maintain 5 percent of their total demand and time deposit liabilities as CRR and 20 percent of total liabilities as SLR. In October 1987, the SLR was raised to 25 percent of which CRR was raised to 10 percent which continued until 1990. Thereafter the SLR of the scheduled banks was gradually reduced to 24 percent (01 April 1991); 23 percent (25 April 1991); 22 percent (05 December 1991); 21 percent (01 April 1992); 20 percent (28 May 1992); and 16 percent (08 November 2003); and 18 percent since FY 2005-06 of total demand and time liabilities. The CRR was also adjusted to 9 percent, 8 percent, 7 percent, 6 percent, and 4 percent respectively during the period mentioned above. However, in the face of upward pressure on inflation, the monetary policy stance changed significantly in September 2004. The Bangladesh Bank responded by tightening the monetary policy and revised CRR for the scheduled banks from 4 percent to 4.5 percent of their demand and time liabilities effective from 01 March 2005 increasing further to 5 percent on 01 October 2005. The SLR was raised to 18 percent from 16 percent effective from 01 October 2005.

Table: 5.5: Changes of CRR, SLR and Bank Rate and Impact on Interest rate

(In Percent)

Period	SLR	CRR	Bank Rate	Nominal Lending Rate	Nominal Deposit Rate	Spread	Inflation (12 Months Average)
1996-97	20	5	7.5	6.67	13.69	7.02	3.96
1997-98	20	5	8	7.07	14.02	6.95	8.66
1998-99	20	5	8	7.28	14.16	6.88	7.06
1999-2000	20	4	7	7.21	13.86	6.65	2.79
2000-01	20	4	7	13.75	7.03	6.72	1.94
2001-02	20	4	6	13.16	6.74	6.42	2.79
2002-03	20	4	6	12.78	6.29	6.49	4.38
2003-04	16	4	5	11.01	5.65	5.36	5.83
2004-05	16	4.5	5	10.93	5.62	5.31	6.49
2005-06	18	5	5	12.06	6.68	5.38	7.16
2006-07	18	5	5	12.77	6.85	5.92	7.20
2007-08	18	5	5	12.29	6.95	5.34	9.94
2008-09	18	5	5	11.87	7.01	4.86	6.66
2009-10	18	5	5	11.23	5.96	5.27	7.31

Source: Monthly Economic Trends, September 2010, Bangladesh Bank.

Table-5.5 shows the movements of SLR, CRR, Bank Rate, interest rate, inflation, and the real rate of return since 1997. With a view to facilitating better management of the scheduled banks with ample liquidity as well as to avoid widening of interest rate spread, a policy of downward adjustment of SLR was followed under the Financial Sector Reform Program (FSRP). It may be noted here that SLR and CRR are generally revised downward to increase funds with the scheduled banks for productive purposes and for boosting the confidence of the customers in respect to soundness of the banking system. Thus the decline of SLR and CRR was expected to create a favorable impact on the banks to expand credit. The growth of credit and investment was higher during the periods prior to 1987 compared with later years the reduction in SLR and the lending rate was generally associated with higher

investment growth since 1991 (with a few exceptions) which in turn led to increased GDP growth implying that bank lending channel was more effective before 1987 while after 1990 Cash Flow Channel was more effective (see appendix-).

Table: 5.6: Impact of SLR through Cash Flow Channel

(In Percent)

Year (end June)	SLR	Growth of liquidity	Lending rate	Growth of bank investment	GDP growth
1991	23	15.74	14.99	15.25	3.30
1992	20	10.05	15.12	93.01	5.00
1993	20	8.24	14.39	13.53	4.60
1994	20	37.24	12.78	6.08	4.10
1995	20	12.61	12.22	33.05	4.90
1996	20	-5.56	13.41	-0.65	4.60
1997	20	13.51	13.69	5.37	5.40
1998	20	11.37	14.02	9.46	5.20
1999	20	17.88	14.16	15.74	4.90
2000	20	23.69	13.86	23.85	5.90
2001	20	5.97	13.75	7.83	5.27
2002	20	20.75	13.16	3.72	4.42
2003	20	16.77	12.78	29.84	5.26
2004	16	7.63	11.01	-4.91	6.27
2005	16	0.00	10.93	15.64	5.96
2006	18	22.51	12.06	-8.51	6.63
2007	18	27.58	12.78	29.70	6.43
2008	18	7.90	12.29	59.86	6.21

Lending channel can be described as If SLR goes down, Bank lending will go up consequently bank investment and total output will go up. For the cash flow channel, If SLR goes down then cash flow of bank will go up, Interest rate will go down and Bank investment would go up consequently total output will increase.

5.9. Interest rate and Inflation:

Central Bank adjusts its monetary policy when the inflation appears to be heading above its target level. Issues of the estimation of a stable money demand function in Bangladesh, an in-depth investigation of money inflation relationship, and the interest

rate sensitivity of aggregate demand components ie, mainly private investment and consumption need to be reviewed.

5.9.1 Interest Rate Spread in the Banking Sector:

The Bangladesh Bank has expressed its concern over the high interest rate spread (IRS) that exists in the banking sector which emerges from the apprehension that high IRS acts against stimulating private investment and hence economic growth in the country and is a reflection of inefficiencies in the banking system. It is argued that high cost of borrowed fund adversely affects private investment and low deposit rates discourage savings mobilization.

The weighted average nominal lending rate of all banks showed a rising trend since FY06 with a little downward move during the last two quarters of FY08. BB has been urging the banks to lower their lending rates to reduce the cost of borrowing to the investors in the presence of excess liquidity in the banking system. The weighted average nominal deposit rate, on the other hand, marginally increased at 12.77 over the FY07 then coming down FY 10 (Table-5.5).

The IRS for the foreign commercial banks (FCBs) is much higher than that of private commercial banks (PCBs) and the state owned commercial banks (SCBs), while the specialized banks (SBs) have the lowest IRS (Bangladesh Bank Quarterly, January-March,2008.).

A recent analysis shows that the high IRS that exists in the country's banking sector is largely the outcome of inefficiencies and lack of competition and existence of market segmentation in the banking system. In order to rationalize the IRS, it is important for BB to address the underlying weaknesses such that the banking sector becomes more competitive and the banks are encouraged to bring more efficiency in their operations.

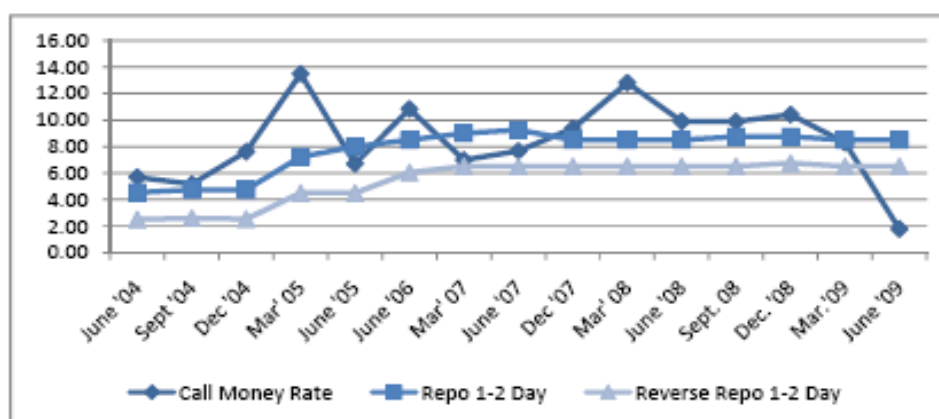
5.9.2 Short and Long Term Interest Rates

The transmission channels of monetary policy is conventionally viewed as running from short term interest rates managed by the central banks to longer term rates that influence aggregate demand. The long term bond rate contains a premium for expected inflation and thus serves as an indicator of the credibility of a central bank's commitment to low inflation.

5.9.3 Repo, Reverse Repo and Overnight Money Market:

The overnight money market (call money market) and day to day operation of monetary policy through indirect instruments like Repo, Reverse Repo are closely associated. This is a short term collateralized loan facility provided to the scheduled banks or to financial institutions.

Figure-5.13: Overnight Money Market rates



Source: Monetary Policy Review: April, 2009, Bangladesh Bank

The above figure shows the trends of quarterly average 1-2 days repo rate, 1-2 day reverse repo rate, call money rate and interbank repo rate. It is appeared from the above figure that the call money rate hits higher during the first quarter of the calendar year 2005 and second quarter of 2006. The first one happened due to the tightening liquidity in the market as a precautionary measure by BB to curb the speculative tendencies after the floating foreign exchange rate introduced and the problems relating to the prices of essentials and balance of payment situation more pressing. During FY 2006, BB did not accept any repo bid for the first five months. Instead, reverse repo operation took place on a regular basis. Due to the recession in 2008 government borrowing from the internal sources and marginal inflation were increased. Then, Bangladesh Bank increased the interest rate of repo (1-2 day) at 8.50 percent and reverse repo (1-2 day) at 6.50 percent by increasing 25 basis point as a pre-cautionary measure. The figure -5.13 showing a co movement of repo and reverse repo rates while the average call money rate fluctuated during June 2004 to June 2009. Later on the rates re-fixed as before while the recession was moderate in 2009. Bangladesh Bank suspended auction of repo (1-2 day) and reverse repo (1-2

day) since April 2009 to August 2009 to maintain the liquidity due to high remittance, less growth of export-import and increased growth of current account balance of payment. In June 2010 the rate of repo (1-2 day) and reverse repo (1-2 day) was 4.50 and 2.50 respectively which indicate the strength of this open market operation tool used by Bangladesh Bank.

On the other hand, interest rate of 91-days, 182-days, 364-days Treasury Bills and 30-days Bangladesh bank bills declining, also the similar trend found in 5-year, 10-year, 15-year BGTB while 20-year BGTB has got inclining trend.

5.10. Government Borrowing:

Bangladesh economy is characterized in poor growth of revenue income which in turns comply the government to depend on the sources of internal and external borrowings to meet its fiscal deficit and becoming over burden of debt. Bangladesh economy started with a relatively large public sector where a majority of large enterprises were nationalized. Those state owned enterprises incurred losses were the root of consolidated fiscal deficits.

The main sources of the domestic borrowings are individuals, central bank, scheduled banks, non-bank financial institutions. The overall fiscal deficit (excluding grants and BPC liability) was estimated at 4.8 percent of GDP in FY08 compared with 3.7 percent in FY07. The pressure on fiscal balance increased largely due to flood and cyclone relief and rehabilitation related expenditure and a sharp rise in subsidies following the rise in fuel, fertilizer, and food grain prices in the international market.

As compared with July-march, FY 07, total government borrowing increased by 53.8 percent (Tk. 39.2 billion) during July-March FY 08, in which domestic borrowing grew by 22.2 percent (Tk. 16.1 billion) and foreign financing grew by 62.2 percent (Tk. 23.1 billion). Over the first three quarters of FY 08, government borrowing from the banking system increased markedly. On the other hand borrowing from the non-bank sources declined with the same period of the previous fiscal year. There was a sharp increase in the inflow of foreign assistance during the half of the FY 08 and the trend continued upto quarter three of FY 08. Here is year wise trend of government borrowing from the domestic sources.

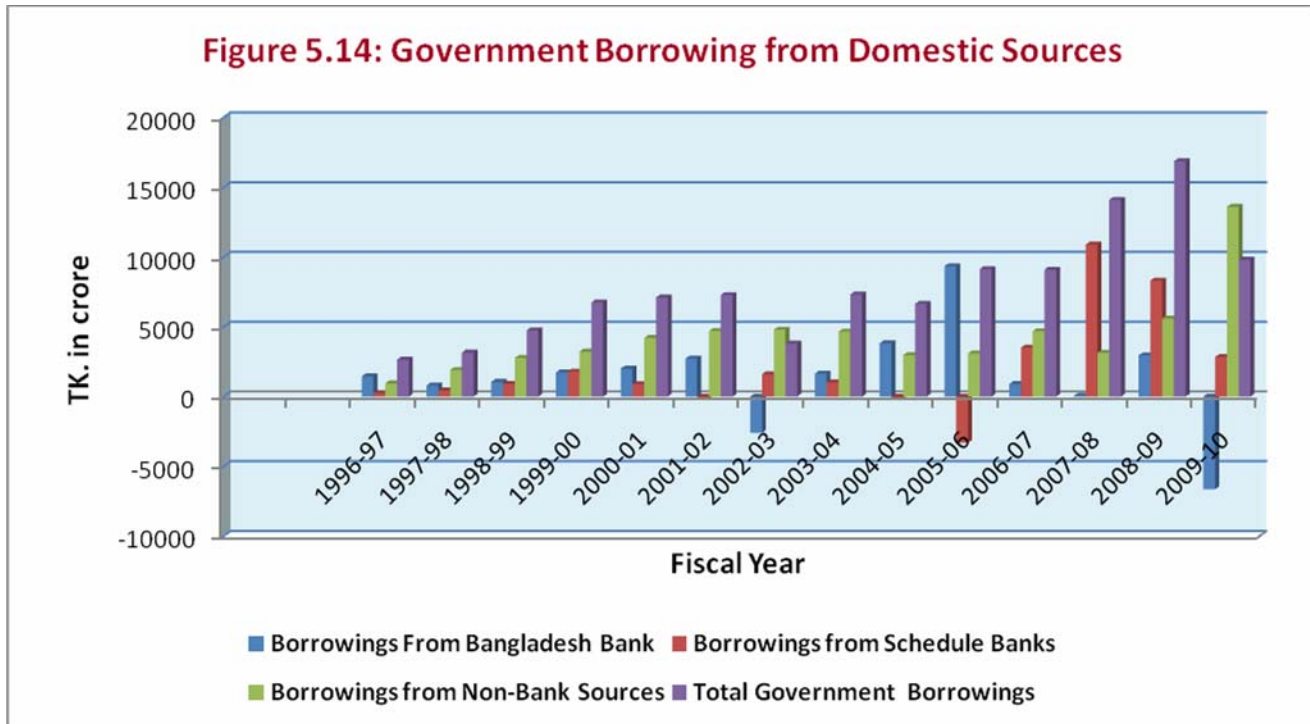
Table 5.7: Net Government Borrowings from Domestic Sources

(Tk. in crore)

FY	Net Government Borrowing from Banking System			Borrowings from Non-Bank Sources	Total Government Borrowings	Percentage of GDP
	Borrowings From Bangladesh Bank	Borrowings from Schedule Banks	Total Borrowings			
1996-97	1452.10	254.90	1707.00	947.42	2654.42	1.50
1997-98	806.60	448.20	1254.80	1905.17	3159.97	1.60
1998-99	1064.40	912.20	1976.60	2772.44	4749.04	1.90
1999-00	1738.10	1786.20	3524.30	3229.68	6753.98	2.80
2000-01	2009.30	895.10	2904.40	4208.42	7112.82	2.80
2001-02	2727.00	-158.10	2568.90	4711.47	7280.37	2.70
2002-03	-2589.70	1607.20	-982.50	4795.22	3812.72	1.30
2003-04	1653.00	1016.10	2669.10	4658.90	7328.00	2.20
2004-05	3826.70	-142.80	3683.90	2972.57	6656.47	1.80
2005-06	9351.80	-3310.40	6041.40	3103.23	9144.63	2.20
2006-07	905.00	3510.90	4415.90	4682.30	9098.20	1.90
2007-08	66.20	10893.40	10959.60	3144.05	14103.65	2.60
2008-09	2958.20	8317.90	11276.10	5643.00	16919.10	2.75
2009-10	-6634.90	2842.00	-3792.90	13610.00	981710.10	1.42

Source: Bangladesh Bank, Statistical Department

From Table- 5.7, it is shown that net government borrowing from banking system were negative in FY 2002-03 and FY2009-10 to meet the budget deficit, the Bangladesh bank's contribution in those fiscal year was less than the DMBs. Net government borrowing was highest in FY1999-2000 and FY2000-01 (2.80 percent of GDP), and money supply was 18.62 percent (NFA 3.11 percent, NDA 15.51 percent) and 16.60 percent (NFA(-)1.49 percent, NDA 18.09 percent) compared to the previous year. Least found in FY2002-03 and 2009-10 at 1.30 percent and 1.42 percent of GDP where money supply were 15.59 percent and 22.44 percent respectively due to considerable growth of Bangladesh Bank's contributions (63.33 percent and 41.53 percent) to NFA.



5.11. Projection of Broad Money (M2) and Income Velocity of Money:

The basic framework for estimating the demand for money is the quantity theory of money. It assumes a direct link between the stock of money (M2) and the general level of economic activity, as represented by nominal GDP. This relationship is captured in the following equation with a coefficient called the income velocity of money, v:

$M2 \cdot v = P \cdot Y$ where, M2= The stock of broad money

V=Velocity of circulation

P= Consumer Price index and

Y=real GDP

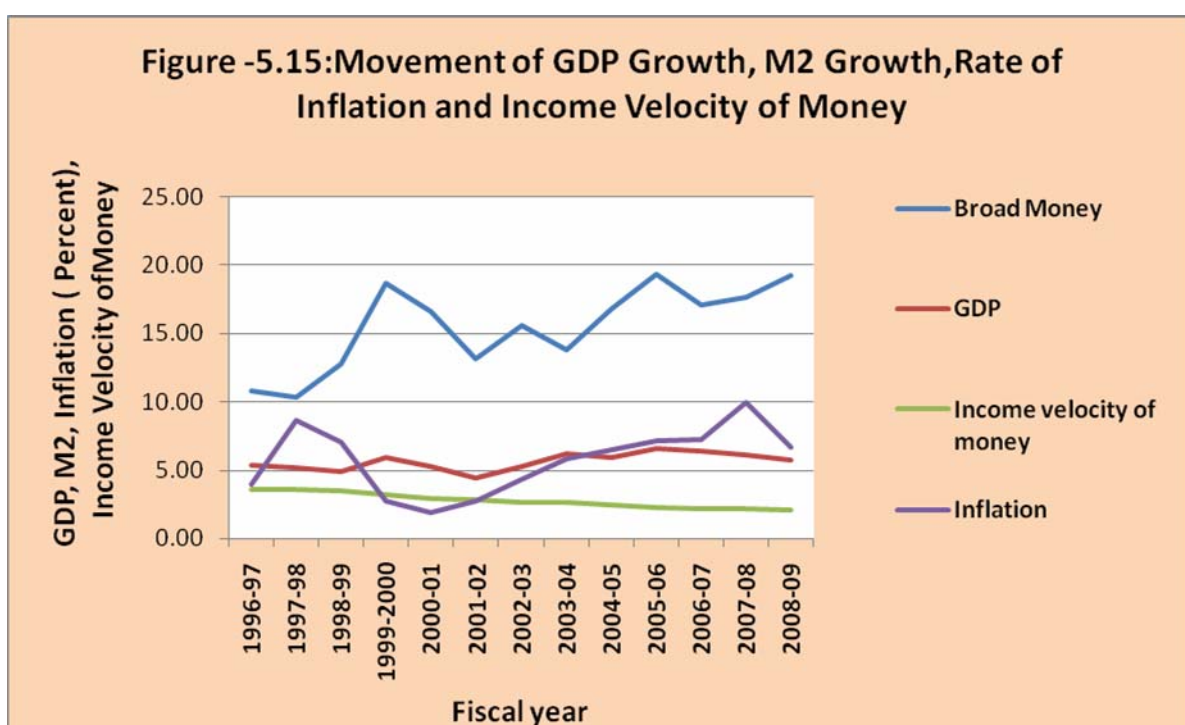
Therefore, $v = P \cdot Y / M2$, this implies that the income velocity of money is equal to nominal GDP divided by broad money. For Bangladesh income velocity of money has been calculated on the basis of nominal GDP divided by the broad money at the end of the year (Table- 5.8).

Table- 5.8 : Bangladesh: Income Velocity of Circulation of Money

(In percent)

Fiscal Year	Broad Money	GDP	Income velocity of money	Inflation
1996-97	10.80	5.39	3.60	3.96
1997-98	10.35	5.23	3.60	8.66
1998-99	12.81	4.87	3.50	7.06
1999-2000	18.62	5.94	3.20	2.79
2000-01	16.60	5.27	2.90	1.94
2001-02	13.13	4.42	2.80	2.79
2002-03	15.59	5.26	2.60	4.38
2003-04	13.80	6.27	2.60	5.83
2004-05	16.75	5.96	2.50	6.49
2005-06	19.30	6.63	2.30	7.16
2006-07	17.06	6.43	2.20	7.2
2007-08	17.63	6.19	2.19	9.94
2008-09	19.17	5.74	2.07	6.66

Source: Based on Monthly Economic Trends, Bangladesh Bank.



Source: Annual Report, 2008-09, Bangladesh bank.

The income velocity of money declined from 3.60 of FY 97 to 2.07 in FY 10 (Table -4.15). Income velocity of money was on a declining trend over the past

several years indicating increased deepening in the economy. Movements of GDP and M2 growth, inflation and income velocity of money during FY 97 to FY10 are shown in the figure- 4.22.

5.12 Projection of M2 Growth Rate in Bangladesh:

Since the income velocity of money ‘v’ is largely constant, the growth rate of M2 for the next year is based on a projection of real GDP growth rate and inflation rate or the nominal GDP growth rate. Table -5.9 presents a projection of M2 growth rate during the FY 2008-09 to FY 2010-11.

Table- 5.9 : Projection of M2 growth Rate in Bangladesh

FY	Real GDP Growth Rate (Percent)	CPI Inflation Rate (Percent)	M2 Growth Rate
2008-09	6.5	9.0	15.5
2009-10	7.0	7.5	14.5
2010-11	7.2	7.0	14.2

Source: Based on NSAPR-II data.

Bangladesh bank sets safe limit of M2 growth target in the line with projected GDP growth and inflation expectations. The Bangladesh bank targets the RM expansion path which is consistent with M2 projection. In practice, however, the behavior of targeted and actual money growth is not matched (figure -5.16). The wide gap that exists between targeted and actual money growth indicates that BB has a rather loose control over money supply.



Table- 5.10: Money Supply and Its Determinants: 1993-94 to 2009-10

(Tk. in crore)

	1993-94	2009-10	Changes in percent
Money Supply	36403.0	363031.1	897.26
Currency outside banks	5416.0	46157.1	752.24
Demand Deposits	5751.1	41621.8	623.72
Time deposits	25235.9	275042.8	989.89
Monetary Base	11307.9	80510.3	611.98
Currency issued	6107.5	50465.4	726.29
Reserves with BB by DMBs (Tk A/C & FC A/C)	5200.4	29835.5	473.72
Reserve with BB by by NBDCs, NBFIs, OFIs	00.0	209.4	209.4
Money Multiplier	3.87	4.75	22.84
Currency-deposit ratio	0.16	0.14	-12.50
Reserve-deposit ratio	0.05	0.06	20.00
Excess reserve-deposit ratio	0.09	0.04	-55.56

Table-5.11 : Money Supply and Its Determinants: 2004-2005 to 2009-10

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	Changes in percent
Money Supply	151446.4	180674.2	211504.2	248794.9	296499.9	363031.1	140
Currency outside banks	18518.1	22862.1	26643.8	32689.9	36049.2	46157.1	149
Demand Deposits	16849.9	19739.6	23462.5	26517.6	30236.5	41621.8	147
Time deposits	116042.3	138021.9	161336.2	189480.5	230073.0	275042.8	137
Monetary Base	29405.3	37381.3	44073.1	52789.6	69390.1	80510.3	174
Currency issued	20327.9	24894.1	28787.4	35648.5	39448.7	50465.4	148
Reserves with BB by DMBs (Tk A/C & FC A/C)	9041.3	12436.6	15224.0	17034.2	29800.2	29835.5	230
Reserve with BB by NBDCs, NBFIs, OFIs	36.1	50.6	61.7	106.9	141.2	209.4	480
Money Multiplier	5.38	4.96	5.18	5.18	4.71	4.75	-12
Currency-deposit ratio	0.13	0.14	0.14	0.14	0.13	0.14	8
Reserve-deposit ratio	0.05	0.05	0.05	0.05	0.05	0.06	20
Excess reserve-deposit ratio	0.03	0.04	0.03	0.03	0.06	0.04	33

Source: Authors compilation based on Monthly Economic Trends, September, 2010.

Between FY 2004-05 and FY 2009-10 the money supply increased by about 140 percent (Table- 5.11). This large increase in the money supply can be explained by two factors- the monetary base and the money multiplier.

We know that the money supply is proportional to the monetary base. Thus an increase in the monetary base raises the money supply by the same percentage. In this case, the monetary base increased by about 174 percent during the period. But the increase in money supply(140 percent) is not proportional to the monetary base (174 percent). This may be attributed to decline in the money multiplier by about 12

percent. In FY 2004-2005, the lower currency-deposit ratio raised the money multiplier (5.38). But the money multiplier declined in FY 2009-10 at 4.75 because both the currency-deposit ratio and reserve –deposit ratio increased.

In comparison between this study period since FY 1993-94 and FY 2009-10 (Table-5.10) money supply increased by 897.26 percent and monetary base increased by 611.98 percent which is also not proportional. Again the money multiplier increased between the fiscal years by 22 percent due to decrease in currency-deposit ratio (-12.50 percent) and excess reserve to deposit ratio (-55.56 percent) while reserve-deposit ratio inclined by 20 percent.

5.13. Conclusion:

The experience from the analysis of this chapter that the factors of the determinants have a great impact on money supply as well as on the growth of M2. The ratios C/D, R/D and E/D changed *mm* as well as MB result reflected on money supply. Changes of CRR, SLR, Bank rate, interest rate spread create impact on bank deposit also contribute to change reserve money as well as money supply. Government borrowing plays an great impact on the inflation which is very volatile over the years impedes in anticipating M2. Bank credit and advances are not consistent with deposits. So, the determinants need to be handled more carefully by adopting effective monetary policy and need its implementation properly by the Bangladesh Bank.

Chapter 06:

Findings and Recommendations

6.0 Introduction

To a monetarist economist, nothing could be more obvious than the desirability of establishing the money supply as the target variable for central bank policy. As the central bank Bangladesh Bank plays vital role for structuring the sound financial sector and for improving the economic activities in Bangladesh. Bangladesh Bank formulates and implements monetary policy, manages foreign exchange reserve, supervises and regulates DMBs and NBIs. As part of the efforts to raise the capability of Bangladesh Bank for economic policy analysis, a number of policy documents (Monetary Policy Review, Financial Sector Review etc) are being published regular basis. For controlling the money supply at a reasonable position Bangladesh Bank trying to use all their direct and indirect instruments and open market operation tools to achieve their policy objective through their different operating and intermediate targets. Previous chapters of this paper unveil some findings based on the analysis of the available data regarding money supply in Bangladesh.

6.1 Findings:

6.1.1 Behaviour of Broad Money and its Determinants:

- Behaviour of Narrow Money (M1) and Broad Money(M2) showed that change of M2 most of the time dominates over M1 since 1993-94 to 2008-09. Initially growth rate of M1 was higher than the M2, during 1994-96 became slow down remained till 2002-03 and became equal during 2003-05, then exceeded again and remained till 2007-08 and 2009-10 higher growth rate than M2.
- An analysis of the component of broad money shows that the growth rate of time deposits started to increase from FY 1996-97 and maintained higher growth than that of currency and demand deposits until FY 2003-04. During FY 2004-05, 2005-06 and 2009-10 the growth rate of currency demand was higher than that of demand and time deposits reflecting higher demand for holding currency due to the higher inflationary expectation.

- The ratio of demand and time deposits (Figure-4.2) is indicating a gradually declining trend over the years except FY 2009-10. The higher growth in time deposits partly reflects the higher opportunity cost of holding money due to attractive returns on different terms deposits, the decline intended to decrease the cost of borrowing and thus to stimulate the economy.
- A welcome development recorded during the last few years is the secular rise in M2 to GDP ratio (Table-4.9). The higher monetary expansion during the periods were principally driven by the acceleration in net domestic assets (NDA) coupled with low inflation. This pattern also reflects higher monetization of the economy amid increasing financial sector intermediation of economic activities.
- The liquidity performance of the economy, as measured by M1 to M2 ratio which was on a slight inclining trends from FY 93-94 to FY 95-96, then started to decline till FY 2001-02 and remained almost constant at 0.23, again inclined a little bit then again remained at the similar pace with little fluctuation at 0.24 to FY 2009-10.
- Projection of broad money growth is not consistent with the projection. Projected M2 growth rate were 15.5 percent, 14.5 percent and 14.2 percent in FY 09, FY 10 and FY 11 respectively considering real GDP growth and CPI inflation rate. But actual growth of M2 were 18.95 percent and 22.44 percent in FY 09 and FY 10 respectively, much more higher than the projection.

6.1.2 Fluctuation of Reserve Money and Its Determinants:

- As we have seen the relationship between RM and MB (figure-4.1), the MB largely depends on the RM. When RM increases MB also increases and if RM decreases, MB decreases by the effect of mm. RM is mainly depending on deposit of DMBs and net foreign assets. Among these two components foreign assets is an unpredictable component. The accumulation of net foreign asset in BB depends on foreign exchange market condition, which is influenced by import growth, export growth and inflow of remittances, aid flow, and foreign exchange transaction by the commercial banks. As a result, there frequently remains a gap between targeted RM and actual RM. Which hamper the controllability of BB over RM. Also, DMBs deposits, excess reserve and borrowing from BB have significant impact on RM. Bangladesh Bank controls

these reserves through discount rate, repo, reverse repo and other direct and indirect instruments.

- The monetary base or reserve money showed fluctuating trends over the time. In FY2009-10 the growth of reserve money stood at 16.03 percent which was 31.45 percent in the previous year. During FY 2009-10 net foreign assets with Bangladesh Bank increased at 41.53 percent, while net domestic assets decreased by 26.16 percent. The growth of reserve money is decreased in FY 2009-10 compared to FY2008-09, though there was high growth in foreign assets, but because of low growth in net domestic assets, in spite of increasing in foreign remittance and decreasing of import cost. An analysis of the sources of RM shows that the ratio of NFA to NDA started to increase from 0.34 since FY01 and reached its highest level at 3.1 in FY10 due to large increase in Net Foreign Assets. It happened for high remittance inflow and reduced on import expenditure.
- During FY2001-2002 actual RM was above targeted RM. During 2003-2004 it was generally matched with target, but during 2005-2006 there was a huge gap again (Figure-5.3). High variation of government borrowing originating from financing fiscal deficit was one of the major factors, which changed RM beyond its targeted level. The analysis shows that government borrowing contributes to loosening the power to control over RM by Bangladesh Bank.

6.1.3 High level of Interest Rate:

- Under the initiative of the Financial Sector Reform Program in the 1990s, the interest rate is liberalized to make it market oriented. Bangladesh Bank relaxed its control over the Scheduled bank to fix the interest rate, but set bands to keep it manageable. But later on BB removed the bands as well as other restrictions for enabling the commercial banks to enjoy greater flexibility in setting their interest rate to make it competitive. Even with all those initiatives still the interest rate was high as earlier prior to the reform programs undertook due to the practice of directed lending to specific sectors, such as state owned enterprises especially in energy and civil aviation sectors and mediated through the state owned commercial banks and specialized banks as well as the existence of imperfections or inefficiencies in the banking sector. Also High cost of non-performing loans, high administrative and incidental

cost including high expenses to set up new branches and to hold skilled manpower are identified as the major causes. But in the recent years IRS showed somewhat declining trends from FY 2000-01 (13.75 percent to 11.23 percent) till the end of FY 2009-10 due to grow the efficiency of the management and its monitoring system making the banking sector competitive. At the same time nominal deposit rate also in a declining trend (Table-5.4).

- Wide interest rate spread observed yet, though it is in a declining trend from FY 2000-01 (6.72) FY 2009-10 (5.27) .
- The movement of the total deposit and advances of the banking system show a similar pattern during the period from FY94 to FY 10 except for a few deviations. The growth rate of total deposits was higher than advances during the periods of FY 2000, FY03, FY06, FY07 and FY09 (figure- 5.9) indicating significant monetary stimulus in those years of low inflation.

6.1.4 Inconsistency in proportion to money supply and its determinants:

- The money supply is proportional to the monetary base. Thus an increase in the monetary base raises the money supply by the same percentage. In this case, the monetary base increased by about 174 percent during the period. But the increase in money supply (140 percent) is not proportional to the monetary base (174 percent). This may be attributed to decline in the money multiplier by about 12 percent. In FY 2004-2005, the lower currency-deposit ratio raised the money multiplier (5.38). But the money multiplier declined in FY 2009-10 at 4.75 because both the currency-deposit ratio and reserve to deposit ratio increased (Table 5.11).
- In comparison between this study period since FY 1993-94 and FY 2009-10 (Table-5.10) money supply increased by 897.26 percent and monetary base increased by 611.98 percent which is also not proportional. Again the money multiplier increased between the fiscal years by 22 percent due to decrease in currency-deposit ratio (-12.50 percent) and excess reserve to deposit ratio (-55.56 percent) while reserve-deposit ratio inclined by 20 percent (Table-5.10).

6.2 Recommendation:

6.2.1 Government Borrowing from BB:

As we know that government borrowing has a great impact on RM. Though from the fiscal year 2002-03 to FY2007-08, budget deficits have been remained in the modest range of 3.0-4.0 per cent of GDP, and domestic financing was 2.0 per cent, the balance being financed through concessional external aid, which is the cheapest source of budget finance available. It is the domestic financing part that is at once costly, crowds out private investment, and could fuel inflation if sourced excessively through government borrowing from the Bangladesh Bank. So, BB may take it in a strong consideration and make the government to understand to find out options to create enhancement of internal resources other than borrowing from banking system.

6.2.2 Rationalizing the Interest Rate:

The financial system of Bangladesh is undergoing through rapid transition where institutions and instruments are being well developed and strengthened. Also, the financial market is segmented along with other limitations, undermines the economy's allocate efficiency and productivity. These characteristics of the country's financial system have a significant impact on the banks in setting deposit and lending rate and consequently the IRS. It is very important to create a liberalized, well regulated and competitive environment in the financial sector, a developed and matured financial market with diversified product in Bangladesh for ensuring a rational level of IRS. A recent analysis shows that the high IRS that exists in the country's banking sector is largely the outcome of inefficiencies and lack of competition and existence of market segmentation in the banking system. In order to rationalize the IRS, it is important for BB to address the underlying weaknesses such that the banking sector becomes more competitive and the banks are encouraged to bring more efficiency in their operations.

For doing this, it is required to reduce the non-performing loans, strengthen the local banks compared to the foreign banks. Also directed lending and high administrative expensed should be reduced and concentration could be drawn to modern and efficient techniques of measuring risk assessment mechanism,

ensuring better liquidity management, access to credible and timely information (strong credit information bureau) on financial credit market issues; above all enhancing the institutional capacity of the banking sector. Above all the interest rate spread (5.27 at present) should be reduced to a reasonable level which is still higher than India (4.00-4.50). For this Bangladesh Bank need close monitoring and supervision over the banking sectors as well as need moral suasion on the banks.

6.2.3 Targeting Broad Money Supply:

The simple rule of monetary accommodation would require our money supply (broad money, M2) to grow at a rate equal to the sum of projected GDP growth and its deflator (a broader measure of economy-wide price inflation). We found in our discussion that there is an inconsistency between targeted M2 and actual M2 growth. This may be consistent by using the tools effectively in calculating GDP and inflation. It indicates a few twists and wrinkles have appeared on the horizon, which means that when targeting GDP and inflation Bangladesh Bank necessarily be more cautious and be carefully calculate the consequences. Because depending on these two main factors money supply is largely dependent.

6.2.4 Private Credit and Investment:

To keep credit flow to the private sector at the current rate while meeting additional demands from government will surely bust BB's target for both money supply and credit growth. On the other hand, credit restraint, which is the outcome of tighter monetary policy, cannot be popular with the business community. A liberal monetary policy is with easy availability of credit, more investment and further growth. So, Government and BB may adopt flexible credit scheme for private sector to flourish. Recently the Finance Minister of the present government urges the BB to take necessary steps to reduce interest rate for easy availability of bank loans for the potential investor.

6.3 Conclusion:

The recent global financial turmoil creates some negative impact on banking system, foreign remittance anticipating to be reduced, foreign investment may be declined, domestic capital mobilization may be interrupted that may affect the RM as well as money supply in Bangladesh. In the meantime government has declared financial package to recover the financial sector and the foreign exchange earnings sectors. Also government is trying to bring black money on the track of real economy. All these effort will help to keep the GDP growth as intended and Bangladesh Bank will be able to control the inflation and be able to keep steady growth rate of broad money and sustainable growth of the economy.

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