

# Monetary Policy and Capital Market Development in Bangladesh

## Policy Note: PN 0708

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### Abstract

*Bangladesh Bank (BB) adjusted its monetary policy stance during 2005 in order to contain inflationary pressures and facilitate stability in the foreign exchange market. At the end of 2005, interest rates on NSD certificates were also adjusted upward. The latter development, however, raised some concern among different economic agents regarding its possible impact on the country's capital market. In this paper we attempt to closely inspect the evolution of monetary policy and capital market indicators in recent years and their possible interrelationship to shed some light on the issue. Since prices of stocks are mainly determined by company fundamentals, monetary policy can have only short term effect on stock prices. Even in the short run, effect of interest rates on stock prices is less clear-cut, and in a less developed capital market like Bangladesh, stock prices do tend to respond, for short term, to new reform measures and government incentives.*

### 1. Introduction

Bangladesh Bank (BB) adjusted its monetary policy stance during 2005 in order to contain inflationary pressures and facilitate stability in the foreign exchange market. At the end of 2005, interest rates on NSD certificates (government borrowing instruments from the non-bank public) were also adjusted upward. The latter development, however, raised some concern among different economic agents regarding its possible impact on the country's capital market. One recent study by Ahmed et. al. (2006) for Bangladesh found that contractionary monetary policy shock, measured by increases in short term policy interest rates have small, negative and short lived effect on the stock price index. In this paper we attempt to closely inspect the evolution of monetary policy and capital market indicators in recent years and their possible interrelationship to shed some light on the issue. We focus our analysis on the period, January '02 to December '06. Data on capital market indicators are collected from monthly reviews of Dhaka Stock Exchange (DSE), while interest rates and Treasury bills data are taken from various Bangladesh Bank's sources.

In a modern monetary system central banks have control over very short term (overnight) or short term (covering several months) interest rates; long term (1-year or more) interest rates, however, are determined by inflation expectations and real activities.<sup>1</sup> Relationship between monetary policy and stock prices can be understood within the stock price valuation model. When central bank raises the interest rates on monetary policy instruments, expected return on alternative assets (other than equity) rise, reducing the present discounted value of future cash flow or price of stocks.

The rest of this paper is organized as follows. Section 2 provides a brief discussion on recent changes in monetary policy stance while Section 3 discusses the changes in yields and stock of Government T-bills and NSD certificates. Section 4 provides a review of recent development in the capital market. A parallel analysis is conducted in Section 5 and finally, Section 6 concludes the paper.

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<sup>1</sup> The latter requires that there is a well developed secondary market for long term treasury bonds, which is still in its rudimentary stage in Bangladesh.

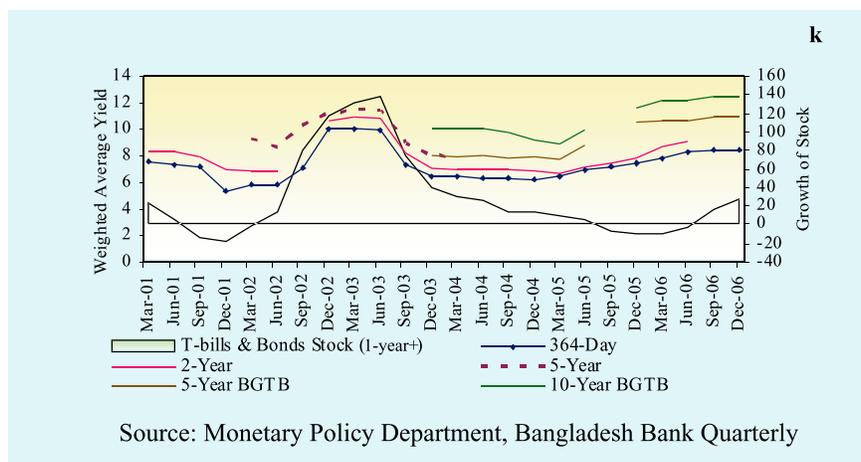
## 2. Monetary Policy and its Instruments

In order to achieve price stability goals, BB follows a monetary targeting framework where monetary aggregates are modeled on the basis of estimated real GDP growth, CPI inflation and changes in the income velocity of money.<sup>2</sup> Weekly repo, reverse repo auctions and T-bill auctions are held in order to fine tune the liquidity situation.

Focusing on the time period chosen for this analysis, note that the monetary policy stance was eased in FY04 by reducing the Statutory Liquidity Ratio (SLR) on the total (demand and time liabilities) of commercial banks to 16 percent from 20 percent effective 8 November '03.<sup>3</sup> However, the Cash Reserve Requirement (CRR) for Scheduled Banks, which was set at 4.0 percent of bank (demand and time) liabilities on 1st October '99 remained unchanged in FY04. In response to rising inflationary expectations, monetary policy stance of BB was adjusted accordingly.<sup>4</sup> CPI general inflation (12-month average), which had been stable throughout FY04 (going from 4.38 percent in June '03 to 4.59 percent in June'04), crossed the 6-percent mark at the end of the first quarter of FY05. The policy adjustment was first initiated by raising the CRR from 4.0 percent to 4.5 percent with effect from 1 March 2005. Further adjustment, both in SLR and CRR, came into effect in October 2005 to 18 and 5.0 percent respectively. However, for Islamic banks SLR remained unchanged at 10.0 percent. Despite these developments broad money (M2) growth increased to 19.5 percent in FY06 from 16.8 percent in FY05. By the end of FY06, annual flow of domestic credit had increased by 20.5 percent. Even private sector credit increased by 18.3 percent, while GDP expanded by a nominal rate of 11.3 percent.

## 3. Yields and Stock of Government Treasury Bills, Bonds and NSD Certificates

In Figure-1 yield and outstanding stock of low-risk government treasury bills of maturity period of 364-days, 2-year and 5-year are shown from March '01 to December '06.<sup>5</sup> Bangladesh Government Treasury Bond (BGTB) of 5-year and 10-year maturity period from December '03 to December '06 is also plotted in the same figure.<sup>6</sup>



<sup>2</sup> For more detailed discussion on Bangladesh Bank's monetary policy framework see Monetary Policy Review (October 2005), Vol. 1, No. 1

<sup>3</sup> Though for Islamic banks SLR remained unchanged at 10.0 percent.

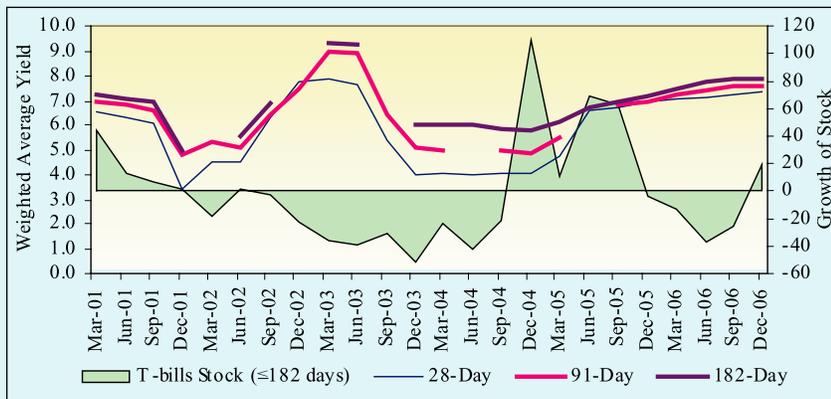
<sup>4</sup> During the last two years international oil price hike followed by periodic domestic upward adjustment of energy prices, depreciation of the domestic currency, rise in prices of essentials in international market caused the hike in CPI inflation. In addition, monopolistic control over the market by a small segment of traders is believed to contribute to the pressure on consumer prices.

<sup>5</sup> Low risk government treasury bills with a maturity of about 364-day, 2-year and 5-year, and also 5-year and 10-year Bangladesh Government Treasury Bond (BGTB) are taken as long term interest rates.

<sup>6</sup> The auction of 5-year treasury bills was suspended from 10 March, 2004. Auction for 5-Year and 10-year Bangladesh Government treasury bonds started from 28 December 2003.

T-bill yield of all maturities rose sharply during FY03, but fell sharply at the start of FY04 and remained stable up to March '05, after that these started to rise steadily but gradually.<sup>7</sup> Yields on 5 and 10-year BGTBs also show rapid rise since April '05. Following the rise in the yield of T-bills and bonds, growth of outstanding stock of these instruments reached its peak at the end of June '03. However, with the sharp fall in yields the growth of total outstanding stock started to decline rapidly from Sep '03 and fell to around 5.2 percent at the end of June '05. Despite the gradual recovery in the yields, growth of stock of government securities remained negative during FY06, and turned into positive figures only in the first half of FY07.<sup>8</sup>

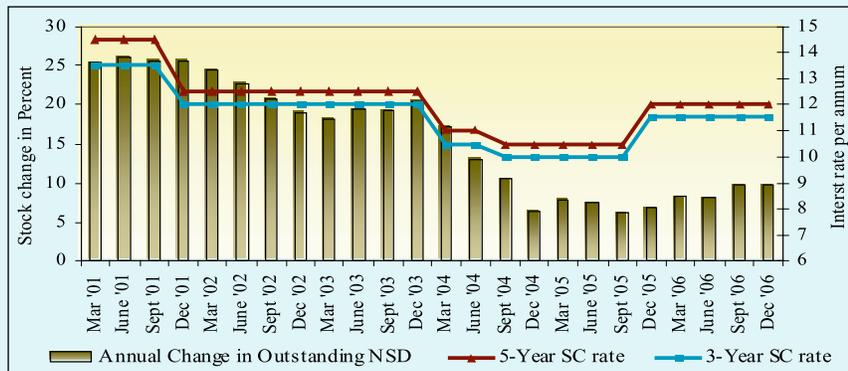
**Figure 2: Treasury Bills (up to 182 days): Yield and Growth of Stock**



Source: Monetary Policy Department, Bangladesh Bank Quarterly

Treasury bills with maturity period of 28, 91 and 182 days also rose sharply during FY03, only to drop sharply by the first half of FY04 to their former level. Annual growth of outstanding stock was negative during September '02 to September '04. The weighted average yield on the 28-day and 91-Day T-bill started to increase again from the final quarter of FY05 though at a moderate pace, and reached 7.10 and 7.43 percent respectively at the end of FY06 from 4.71 and 5.45 percent in March '05. At the same time there was a gradual rise in the 1-2 day and 3-11 day reverse repo rates during the same period. After a positive episode of growth from December '04 to September '04, growth of stock remained negative during December '05 to September '06, despite the rising trend of yields. However, the real return on 28-day T-bills (which accounts for a very large share of outstanding stock of T-bills) remained negative during the most part of FY06. Outstanding stock of treasury bills (up to 182 days) stood at BDT 48.09 billion at the end of December '06 from BDT 40.07 billion in December '05.

**Figure 3: Rate of Interest and Change in Outstanding Stock on NSD Certificates**



Source: Bangladesh Bank Quarterly

<sup>7</sup> It is worth noting that the high yield level of treasury bills and bonds contributed to the stable launching of the floating exchange rate regime in May '03.

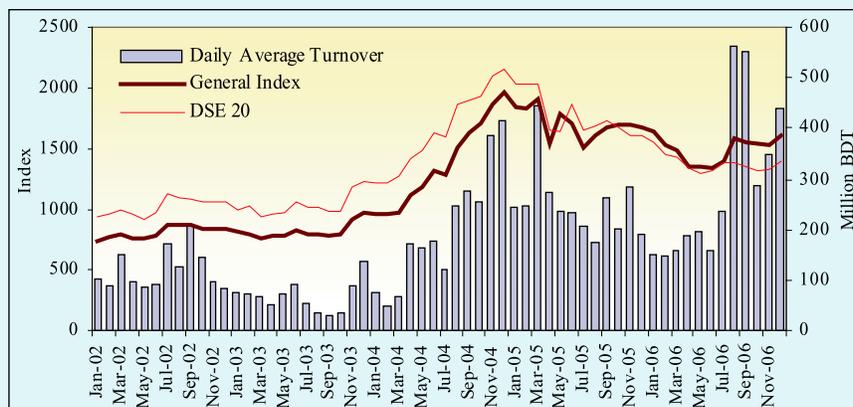
<sup>8</sup> Outstanding stock of 364-day treasury bills increased to BDT 6.3 billion in December '06 from BDT 5.0 billion in December '05. During the period outstanding stock of 5-year and 10-year BGTBs increased from BDT 9.5 and 6.9 billion in June '06 to BDT 28.5 and 32.6 billion respectively in December '06.

Figure-3 shows the rate of interest on NSD Certificates of 5 and 3-year maturities along with the change in outstanding stock of the same. To boost private sector economic activity, rate of interest on 5-year and 3-year NSD certificates were reduced by 200 and 150 basis points respectively to 12.5 and 12 percent in October 2001. Consequently, annual average growth (measured by averaging annual growth rate at the end of each quarter) of the outstanding stock of NSD certificates fell from 24.6 percent in FY02 to 19.3 percent at the end of FY03. Both the NSD certificate rates were further adjusted downward by 150 basis points effective January '04 and by another 50 basis points from July '04. Eventually annual average growth of the outstanding stock dropped to 11.76 percent in December '04 and to 7.05 percent in December '05. In view of low public demand, NSD certificate rates were revised upward to 11.50 and 12.0 percent from December 2005 as alternative sources of financing budgetary deficit were drying up. However, despite the rise in NSD rates annual growth of outstanding stock increased only marginally; from March '06 to December '06 the average growth rate of outstanding stock was 9.01 percent. From the above analysis it appears that though the growth of NSD showed rapid decline in response to downward adjustment of the rates, there was only muted response when the rates were adjusted upward. Rising inflation which mitigated the rise in real return plausibly caused the demand for NSD certificates to respond only marginally (e.g. 12-month average CPI general inflation increased by 68 basis points from June '05 to June '06).

#### 4. Recent Development in the Capital Market

The role of capital market in financing private investment remained at a nascent stage in the context of Bangladesh. Banks and financial institutions disbursed BDT 96.5 billion as industrial term loans during FY06, whereas only BDT 1.7 billion was raised in the capital market through private placements and public offerings (BB Annual Report FY06). As of December, 2006 a total of 310 securities were listed at DSE comprising 255 companies, 13 mutual funds, 8 debentures and 34 treasury bonds as opposed to a total of 249 securities comprising 230 companies, 10 mutual funds and 9 debentures as of December 2001. Thus during the last five years only 54 new companies got listed in the DSE of which only three were listed by direct listing route, and the rest were listed by public offering. Total market capitalization of all listed securities in DSE, however, increased substantially (by around 130 percent) in 2004 to BDT 224.9 billion. At the end of December '06 it stood at BDT 323.4 billion. DSE market capitalization as share of GDP fell to 5.41 in June '06 from 6.06 in June '05.

Figure 4: DSE General, DSE-20 Index and Turnover (in Million BDT)



Source: Bangladesh Bank Quarterly

In Figure-4 monthly data of DSE general (DSE-Gen from hereafter) and DSE-20 index are plotted. Monthly turnover are also plotted in the same diagram. Looking back, secondary market activities had exhibited some sign of dynamism during January-October '02 as reflected in the volume of turnover and market indices. However, daily average turnover dropped to BDT 63

million during November '02 to October '03 period from BDT 127 million during January-October '02. Market indicators started to show new dynamism from November 2003 and reached new heights at the end of December '03 as the daily average turnover jumped to BDT 136.92 million from the recorded low of the year of BDT 30.29 million in September '03.

Declaration of lucrative incentives in the FY04 national budget, floatation of some quality IPOs along with several important reform measures initiated by the SEC helped to regain investor's confidence back to the capital market. The national budget exempted purchasers of listed equities of any taxation queries as to the source of the funds so long as purchased shares were not sold or transferred within two years of purchase. This was effective for a limited time (FY04 to FY05). In addition, dividend-income tax was exempted and a new dividend distribution tax was imposed on the companies paying dividend.<sup>9</sup> One important capital market development of the in 2004 was the initiation of electronic settlement through the Central Depository System (CDS) from 24 January '04. In order to prevent market manipulation by in-house officials of listed companies, SEC banned purchasing or selling shares of a company by their beneficiary owners during the interim period (from the date of the financial year closure and the day of approval of accounts by company's board), promulgated by a circular on 11 July 2004. De-listing of 13 companies in August 2004 by DSE due to their repeated failure in complying with the listing rules was also an important step toward bringing orderliness in the stock exchange.

The DSE general index started rising significantly from November '03, which stood at 1318.9 at the end of June '04 thereby increasing by around 58 percent (or 50 percent in real terms). The sharp rising trend continued up to the end of December '04, as the DSE-Gen index reached its peak at 1971.3. This development owed significantly to the banking sector performance, as indicated by market capitalization and total turnover.

As a stepping stone towards an emerging secondary market in public debt, trading on BGTBs started on DSE from the 1st January '05. However, in order to temper the rising trend of stock index and control excess liquidity in the capital market, SEC decided to suspend credit facility extended by brokers to their clients until further notification.<sup>10</sup> At the same time, SEC also increased members' trade margin requirements by reducing the free trading limit from BDT 10 million to BDT 5 million. In response to the above initiatives, secondary market activities became quiet during January-February '05 and the daily average turnover reduced to BDT 245 million from BDT 402 million in November-December '04. However, in March '05 daily average turnover of DSE rapidly increased to BDT 447 million, which significantly surpassed the level of daily average transactions during the 2001-05 period<sup>11</sup>. Considering the interest of investors, on 12 February 2004 SEC amended the margin rule by increasing the free limit up to BDT 10 million; later on 18 April 2005, it withdrew the order related to the suspension of margin rule, 1999. At the end December '05 the stock index stood at 1677.3, which was higher by 11 percent from the July '05 figure. The market observed a downward trend during January-June '06 and then turned to a positive mode from July '06. In August '06 daily average turnover at DSE reached BDT 561 million, thereby exceeding the previous record level of March '05, where Dhaka Electric Supply Company (DESCO) and Rupali Bank respectively accounted for around 13 and 4 percent of the total turnover.<sup>12</sup> In the wake of political instability the market witnessed fluctuations during the last two quarters of 2006; however, the index increased to 1609.51 at the end of 2006.

<sup>9</sup> In order to attract companies into the capital market, a few more steps were also taken. For example corporate tax rate for non-listed companies was fixed at 37.5 percent and for listed companies it remain unchanged at 30 percent (and 45 percent on banks, insurance and financial institutions). However, 10% tax rebate was allowed for companies declaring a 20 percent or more in dividend.

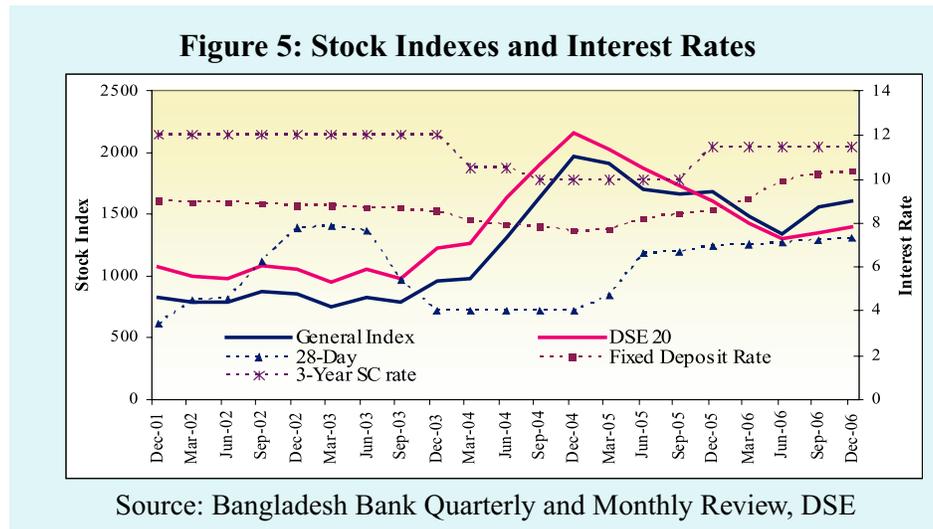
<sup>10</sup> The DSE-general index increased by 52 percent during July to December '04 and the daily average turnover increased from BDT 140 million in March-July'04 to BDT 316 million in August-December '04.

<sup>11</sup> Around 58.5 percent of the turnover was attributed to banking sectors

<sup>12</sup> DSE General Index stood at 1587.08 in August '06 from 1339.53 in June '06. Rising prices of Rupali Bank and selected power sector securities partly contributed in raising the index. It is worth to note that DESCO was the first state owned enterprise to be listed with the DSE under direct listing regulation of 2006.

## 5. A Parallel Analysis

In Figure-5 capital market indices and various interest rates are plotted on a quarterly basis from December '01 to December '06. It is observed that the exuberance in the market indices which started in December '03 actually preceded the fall in the rate of NSD certificates and fixed deposit rates. However, the falling yields on all treasury bills and bonds might have exerted some positive influence on the revival of capital market activities. The rates of interest on NSD certificates which were reduced from January '04 by 150 basis points appear to coincide with the reduction in stock index growth to 11.76 percent in December '04 against 19.32 percent in December '03. At the same time the fall in interest rates on fixed deposits by 86 basis points from December '03 to December '04, which slowed down the average (quarterly observations of annual change) time deposit growth was also favorable to the rising stock indices.



However, the trend of stock indices started to move in the opposite direction from the beginning of 2005 (with some month to month fluctuations as discussed earlier), while NSD rates remain unchanged and fixed deposit rate was also stable. One interesting observation during the period was that CRR increased from 4.0 percent to 4.5 percent from 1 March 2005, while the capital market turnover reached a new height in the same month. It is worth noting that, even though the yields on bills started to increase from March '05 and on bonds from June '05, the annual growth of outstanding stock of all bills and bonds fell from 25.6 percent in December '04 to 9.0 percent in March '05 and 11.9 percent in June '05. Therefore, the impact of rising yields (of bills and bonds) is deemed to be minimal on the capital market indicators during the period examined. Indeed, DSE-Gen stood higher in May '05 over April '05 and DSE-20 index in June '05 over June '04 (see Figure-5).

During July-December '05, DSE-Gen was in an increasing trend, while DSE-20 was in a declining mode during September-December '05. The NSD rates were adjusted upward from December '05 (see figure and related discussion) and weighted average fixed deposit rate also increased by 127 basis points in June '05 over December '05 as the growth rate of time deposit increased from 16.8 in December '05 to 18.9 in June '06. On the other hand, both the indices experienced a continuous downward trend during January-June '06. Therefore, the rising interest rate plausibly generated some impetus in the falling trend of stock indices; but as there was modest increase in annual growth rate of outstanding stocks in response to the rise in rates, their net impact on stock prices was moderate. This argument would be more convincing if we consider the rise in stock indices and turnover during the July-September '06 period. In September '06 growth rate of outstanding stock of NSD certificates, all treasury bills and bonds, and that of time deposits stood at 9.77, 5.2 and 19.1 percent, respectively in September '06 from 8.11 percent,

(-)8.8 percent and 18.9 respectively in June '06. The upshot of the above discussions is that the impact of rise in interest rates on capital market indicators was minimal, short lived and not very precise.

## 6. Concluding Remarks

Stocks prices are mainly determined by company fundamentals, while monetary policy can have only short term effect on stock prices. Even in the short run, the effect of interest rates on stock prices is less clear-cut, and in a less developed capital market like Bangladesh, stock prices do tend to respond, even over short term, to new reform measures and tax incentives as discussed above. Therefore, there remains a greater scope for capital market development independent of the monetary policy stance. Increasing public confidence in the stock market through strengthening the regulatory mechanism and ensuring transparency and accountability in financial disclosure of companies are crucial. Government support is much needed to bring in profitable SOE's and private sector enterprises in the capital market. A well developed capital market is also helpful to the central bank in the formulation of the monetary policy through which it can gain information about public perception (e.g. inflation expectations) and hence increase the efficacy of monetary policy using the stock market channel.

## Reference

- Ahmed, M. Kabir, M. Akhtaruzzaman, and S. Barua (2006), "Effects of Monetary Policy on Price Formation of Financial Assets: A Test for Bangladesh", Working Paper 0703, Policy Analysis Unit, Bangladesh Bank.
- Lastrapes, W., D. (1998), "International Evidence on Equity Prices, Interest Rates and Money", *Journal of International Money and Finance*, Vol. 17, Issue 3, pp. 377-406.
- Mishkin, F.S. (2004), *The Economics of Money, Banking and Financial Markets*, Seventh Edition, pp. I-XXXIV + 1-679.
- Neri, S. (2004), *Monetary Policy and Stock Prices: Theory and Evidence*, Bank of Italy, Economic Research Department, pp. 1-44.
- Rapach, D., E. (2001), Macro Shocks and Real Stock Prices, *Journal of Economics and Business*, Vol. 53, pp. 5-26.
- European Central Bank (2002): The Stock Market and Monetary Policy, *Monthly Bulletin*, Frankfurt/Main, PP. 39-52.
- Dhaka Stock Exchange Ltd, *Monthly Review (various issues)*, Dhaka, Bangladesh
- Bangladesh Bank (October 2005), *Monetary Policy Review*, Vol.1, No.1