

DEVELOPMENT OF CAPITAL MARKET IN BANGLADESH: A STUDY ON DHAKA STOCK EXCHANGE LIMITED

By

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CERTIFICATE

I have the pleasure to certify that the dissertation entitled "**Development of Capital Market in Bangladesh: A Study on Dhaka Stock Exchange Limited**" is the original work of Mr. Md. Hafizur Rahman. As far as I know, this is the candidate's own accomplishment and is not a collective work. He has finished this dissertation under my direct supervision.

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I do hereby declare that the dissertation entitled "**Development of Capital Market in Bangladesh: A study on Dhaka Stock Exchange Limited**" submitted to the Institute of Bangladesh Studies, University of Rajshahi for the degree of Doctor of Philosophy in Finance and Banking is my original work. I did not take any direct help from anybody for writing this thesis. This is completely my own product. No part of it in any form, has been submitted to any other University or Institute for any degree, diploma or for other similar purposes.

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ABBREVIATIONS

A

ADB	: Asian Development Bank
AGM	: Annual General Meeting
AM	: Arithmetic Mean
ASPI	: All Share Price Index
AIMS	: Asset and Investment Management Services of Bangladesh

B

BASIC	: Bank of Small Industries and Commerce Bangladesh Limited
BB	: Bangladesh Bank
BCI	: Bangladesh Commerce and Investment Ltd.
BISR	: Birla Institute of Scientific Research
BOI	: Bank of India
BOI	: Board of Investment
BSB	: Bangladesh Shilpa Bank
BSBL	: The Bangladesh Samabaya (co-operative) Bank Ltd.
BSCIC	: Bangladesh Small And Cottage Industries Corporation
BSRB	: Bangladesh Shilpa Rin Sangstha

C

CAPM	: Capital Asset Pricing Model
CBSF	: Credit, Bridge and Standby Facility
CDBL	: Central Depository Bangladesh Limited
CDS	: Central Depository System
CEO	: Chief Executive Officer
CGR	: Compound Growth Rate
CRR	: Cash Reserve Ratio
CSE	: Chittagong Stock Exchange
CV	: Coefficient of Variation

D

D/P	: Dividend Payout Ratio
DFIs	: Development Financing Institutions
DPS	: Deposit Pension Scheme
DPS	: Dividend Per Share
DSE	: Dhaka Stock Exchange

E

EMH	: Efficient Markets Hypothesis
EPZ	: Export Processing Zone

F

FIDP	: Financial Institutions Development Project
FIS	: Fixed Income Securities
FEAS	: Federation of Euro-Asian Stock Exchanges

G

GDP	: Gross Domestic Products
GIC	: General Insurance Corporation of India
GM	: Geometric Mean
GOB	: Government of Bangladesh

H

HBFC	: House Building Finance Corporation
HPR	: Holding Period Return
HPY	: Holding Period Yield

I

ICB	: Investment Corporation of Bangladesh
ICICI	: Industrial Credit and Investment Corporation of India
IDBI	: Industrial Development Bank of India
IDLC	: Industrial Promotions and Development Company of Bangladesh
IPF	: Investors' Protection Fund

L

LDCs	: Less Developed Countries
LIC	: Life Insurance Company
LIC	: Life Insurance Corporation of India

M

MDR	: Mean Daily Return
MFNGOs	: Micro Finance Non-Government Organizations
MNCs	: Multinational Companies

N

NAV	: Net Asset Value
NCB	: Nationalized Commercial Banks
NCL	: National Credit Limited
NGOs	: Non-Government Organizations
NSD	: National Savings Directorate

O

OLS	: Ordinary Least Square
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P

PNB	: Punjab National Bank
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R

RFM	: Rural Financial Market
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S

SABINCO	: Saudi-Bangladesh Industrial and Agricultural Investment Company Ltd.
SAFE	: South Asian Federation of Exchanges
SBI	: State Bank of India
SD	: Standard Deviation
SEBI	: Securities Exchange Board of India
SEC	: The Securities and Exchange Commission
SGR	: Simple Growth Rate
SLR	: Statutory Liquidity Ratio
SML	: Securities Market Line
SOEs	: State-Owned Enterprises
SPMRC	: Share Price Movement Regulating Committee

T

TGR	: Trend Growth Rate
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U

ULC	: United Leasing Company
UTI	: Unit Trust of India

ABSTRACT

In the context of development of capital market in Bangladesh, Dhaka Stock Exchange (DSE), occupies a very important and significant place. Some scholars earlier did some limited works relating to the capital market development in Bangladesh. But no in-depth study was earlier done on capital market development in Bangladesh. The present study, therefore, aims at evaluating the overall performance of capital market development in Bangladesh with special reference to Dhaka Stock Exchange (DSE). For this purpose required data were collected from secondary and primary sources. In a developing economy like Bangladesh, stock exchange has a vital role to play in the economic growth and development of the country through which capital market development can be ensured. It is not so easy task to evaluate the performance of DSE and its role in the development of capital market. However, attempts have been made to analyze the activities of DSE and to see to what extent its objectives were achieved. This work also examines and analyses the historical profile including objectives and function of DSE with a view to see to what extent its basic operations are successful. It also finds out the deviation, their causes and suggests the remedies. However, the specific objectives of the study are (1) to review and analyze the growth trend of the activities of DSE and to evaluate its performance; (2) to evaluate the performance of Mutual Funds in the development of Capital Market of Bangladesh; (3) to evaluate the role of ICB and other Development Financing Institutions (DFIs) in the development of capital market of Bangladesh; (4) to analyze the risk return relationship in the DSE before and after automation; (5) to analyze the dividend payment practices of listed companies and its impact on security prices in the DSE over the years; and (6) to identify the problems and to suggest measures for improving its performance.

The study was primarily based on secondary data and information in relation to the stock exchange. The secondary sources include: dissertations, research article, scientific papers, journals, editorials of national dailies and such other articles and research reports on stock exchange.

In the analysis of growth trends, simple growth rate, compound growth rate and trend growth rate were calculated. In addition to these, mutual funds' rates of return were calculated on the basis of Capital Asset Pricing Model (CAPM). Moreover, Krusal Wallis Test was also used in analyzing the risk return behavior of DSE before and after automation.

In this work, growth trends of the activities of DSE are analyzed. Over the last 25 years, DSE expanded a lot of business and operational activities. After liberation, trading activities were

resumed in 1976 with only nine (9) listed companies. At that time, the total paid up capital of the listed companies of the Exchange was only Tk. 137.53 million.

The study reveals that the growth trends of different activities of DSE over the last 25 years were positive in all respects. But the growth trends of DSE's all share price index show insignificant compound growth rate, (i.e., 7.02% only). Growth trends of public issue, turnover of share and debenture, listed companies' paid-up capital, market capitalization show the signs of better management and good performance. But the current management practice of DSE, in managing the share price index and individual share price, is not sound. Manipulation activities and short selling or insider trading is going on in the DSE. After the crash in 1996, the capital market authority took several reform measures but still the market is not corrected. This is very alarming for the development of capital market in Bangladesh.

Mutual funds' performance has been examined and analyzed in this thesis. A risk adjusted measure of performance has been done by using the Treynor index, the Shape index and the Jensen index. Those show that the first ICB mutual fund is one of the best performing fund. But the other funds were performing better than the market with a considerable degree of fluctuations.

For the development of capital market in Bangladesh, Investment Corporation of Bangladesh (ICB), and other Development Financing Institutions (DFIs) are playing a significant role since long. Role of ICB including DFIs has been examined and analyzed in this thesis. The findings suggest that merchandising operational performance of ICB may be considered efficient. But the current management practice of ICB in connection with financial assistance operation is not sound. Various companies enjoy underwriting and bridge financing facilities but they are not repaying their loans in time. The present loan recovery position of ICB is not satisfactory. For sound development of capital market, this situation is harmful.

In providing underwriting and bridge financing facilities to the entrepreneurs, the Corporation should be cautious and selective. After implementation of projects, supervision activities should be carried on and strengthened. Before disbursing any financial assistance to any entrepreneur, efficient professionals should appraise and examine the projects. The research findings show that the appraisals as well as other associated personnel are not doing their jobs efficiently and they are not in a position to detect weak cases.

Dividend policy of a company has great impact on the share price of a company. Event study methodology is employed to measure the security price performance. Before and after automation, the impact on security prices after the dividend announcement has been analyzed in

this thesis. Dividend announcement is an instrument, which reflects information about the company. In this analysis, it is found that dividend announcement has a strong signaling device which influence the securities' prices. The analysis shows that in the DSE, there is no dividend announcement effect; and dividend announcement does not carry positive information about the company. The ineffectiveness of the regulatory agencies sometimes causes distortion in the market. It may be mentioned that presence of kerb market is an example of ineffectiveness of the regulatory bodies and the government policies.

In risk return behavior analysis, Capital Asset Pricing Model (CAPM) has been used to evaluate the relationships between risk and return before and after automation. The expected relationship between risk and return is displayed by Securities Market Line (SML). The SML is a mirror where in, the risk-return combinations are reflected. Share price index in the DSE was high in November 1996 and the index reached upto 3600 points. To check the artificial bull market in 1996 several reform measures including automation in the DSE were taken by the government and some other donor agencies. Risk return behavior analysis and estimated SML has been computed in this thesis. The test results indicate that the market didn't improve and even after automation manipulative activities continued till today. The damage caused by 1996 debacle seems to be irreparable for bringing back investors' confidence in the market.

Bangladesh stock markets have grown significantly during the last two decades. Still, the size of the market is relatively small compared to other Asian markets. Moreover, liquidity was very insignificant in Bangladesh. So, Bangladesh's capital market can be characterized by a thin market having small market capitalization ratio and low level of liquidity. Adequate measures are to be taken to expand this market.

It has been observed from the analysis that co-variance is very unusual in case of 8th mutual fund i.e., negative return which implies something abnormal. These abnormalities should strictly be checked by the controlling authority. Other mutual funds were also performing better than the market but with a limited degree of fluctuations. So, it is recommended that for the development of capital market of Bangladesh, ICB should take adequate measures in investment sectors through which ICB can ensure smooth and healthy return for all the mutual funds for the benefits of the general public.

The healthy growth of ICB is depended mainly upon two aspects i.e., investment and recovery. Therefore, ICB should undertake feasibility studies for identification of proper investment projects in different sectors of the economy and take adequate measures for recovery. Proper monitoring and evaluation of investment projects is a pre-requisite for ensuring good returns.

Introduction of automation in the DSE did not make any significant impact on risk return relationship of stocks of DSE. But it was expected that the automation measure would improve the situation. So, the authority should take more care in attaining better results.

The stock price manipulation in 1996, heavily damaged the scope of emerging stock market for which the marginal investors lost the confidence. But it has been observed that all reform programs and regulatory measures to improve the unhealthy situation of DSE, failed to achieve the desired result. If stock markets are considered leading indicators of an economy, then one should conclude that the economic fundamentals are not healthy for the economy as a whole. But this situation should not be allowed to continue for long. Attempts should be made at both public and private levels to improve the situation.

Researchers observe that dividend announcement is a strong signaling device, which influences the security prices. The study shows that the Dhaka Stock Exchange's, dividend announcement does not carry positive information about the company. This effect may be a result of many factors. But those evil factors should immediately be removed. This price-pressure effect after the dividend announcement date may nullify the effect of dividend announcement on the stock price. So, this tendency should be reduced by proper training and motivation.

Capital market of Dhaka is still an infant market, which still needs proper care taking and nursing to accommodate all the avenues of security trading here. So, the regulatory body should be stronger and effective enough to reduce the effect of kerb market.

All the listed companies in the DSE should maintain a good and healthy dividend policy through which capital market investment can be geared up. Out of total 12 sectors, only a few sectors are providing a handsome and sound dividend payment to the shareholders, namely investment, engineering and pharmaceuticals and chemicals. Since the test result shows that there is no dividend announcement effect in the security price in the DSE, it is therefore suggested that manipulation, insider trading and presence of kerb market should be abolished to develop the capital market in Bangladesh.

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CHAPTER ONE

Introduction

1.1 Role of Financial System in Economic Development

Economic development refers to the quantitative changes in economic wants, goods, incentives and institutions. It explains the underlying determinants of growth such as technological and structural changes.¹ Schumpeter distinguishes between "growth" and "development". He considers growth as quantitative change but development as both quantitative and qualitative change in the economy. Meir and Baldwin define economic development as a process whereby the real national income of an economy increases over a long period of time.² Actually, in practice, a healthy and stable economic development is based on domestic resources of an economy.

Financial system is one of the most important assets of modern industrial societies. Savings and investment are the driving force of a national economy. The amount of savings and investment has a profound impact on the economic growth potential of an economy. Even though economic growth is a complex issue involving many factors, one of the most important factor is investment. Massive investment, however, cannot turn out without concrete savings indeed. The total volume of savings and investment is one of the determining factors in affecting the long-run economic growth rates. The poorer a country is, the greater is the need for financial institutions to collect and invest the saving within its frontiers. Financial institutions not only permit small amounts of savings invested conveniently, but allow the holders of savings to retain liquidity individually but finance long-term investment collectively. According to Thomas, "A financial institution provides the means for making funds in the form of money and claims to money, available to individual, business and government borrowers who wish to expand their purchases beyond the limits of their resources."³ By making funds available for lending and borrowing, the financial system provides the means whereby global economy can grow and increase the standard of living enjoyed by their

¹ M. L. Jhingan, *The Economics of Development and Planning* (Delhi : Donark Publishers Private Limited, 1989), p. 5.

² Gerald M. Meir and Robert E. Baldwin, *Economic Development, Theory, History, Policy* (New York : John Wiley and Sons, Inc., 1966), p. 1.

³ Rolling G. Thomas, *Our Modern Banking and Monetary System* (3rd ed. Englewood Cliffs., N.J. Prentice-Hall, Inc., 1959), p. 77.

citizens.⁴ The financial system is one of the dominant contributions of present and modern industrial societies. Its main function is to move insufficient lending funds in the form of credit from those who save to those who borrow for productive expenditure and financing. The financial system contributes the ways whereby modern economies extend and multiply the standard of living of the common people. A huge amount of loanable fund exhausted for purchasing land, building, machinery and equipment, new bridge, road, and school, colleges and so on. It is the financial system, which ascertain both the cost of credit and how much credit will be available to pay for the various different goods and services we generally use. Due to some reasons when credit go with more expensive, total spending outlay for goods and services usually drop in the economy. In this situation, unemployment will rise, and the economy's growth slows down. On the other hand, when the cost of credit decreases, total spending outlay in the economy will be increased, unemployment will reduce, and the growth of the economy will be animated. In practice, financial institutions perform an important function as intermediaries between the saver and the user of savings. At the present time, it is somewhat impossible to make investment without the active participation of financial intermediary in one way or another. Financial intermediaries collect savings from the public by issuing their own liabilities and then lend these funds to investors by acquiring the liabilities issued by the borrowers. Thus they act as the "half-way-houses" between the primary savers and final investors. In this way, they open up safe channels of savings and investment that are essential for promoting economic growth.⁵ Bhatt states that a healthy financial structure enables financial mobility. This type of mobility can be ensured subject to the availability of a competent institutional structure, necessary financial instruments, and a rational positive interest rate structure.⁶

The basic function of any economy is to allocate scarce material resources in order to produce the goods and services needed by society. The high standard of living most of us enjoy today depends fundamentally upon the ability of the nation's economy to turn out each day the enormous volume of clothing, food, fuel, shelter, transportation services, and other essentials of modern living. This is an exceedingly complex task because scarce resources must first be procured in just the right amounts to provide the raw materials of production and combined at just the right time with labor and capital to generate the products and services demanded by consumers. In short, any economic system must combine inputs- land and other natural resources, labor and managerial skills, and capital equipment- in order to produce outputs in the form of goods and services. The economy generates a flow of production (goods and services) in return for a flow of payments, usually in the form of money (Figure: 1.1)⁷

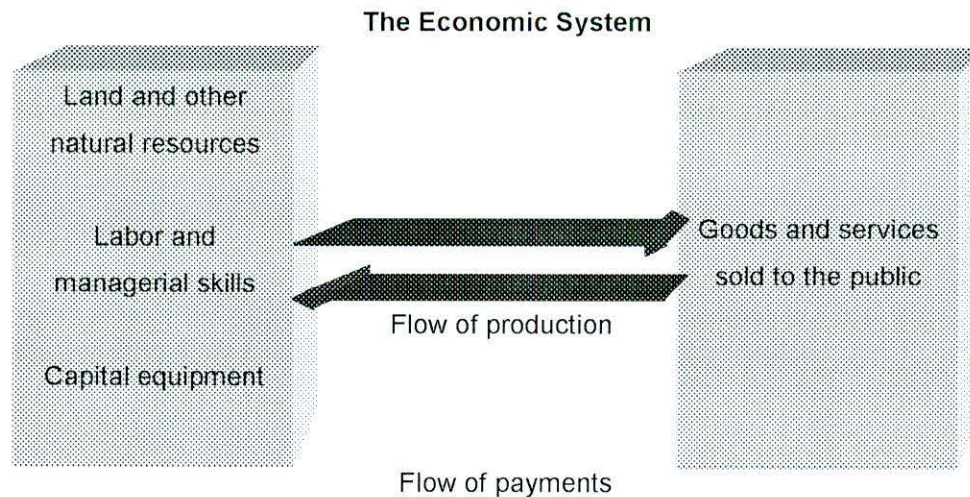
⁴ Peter S. Rose, *Money and Capital Markets* (New York: Irwin McGraw-Hill, 2000), p. 1.

⁵ Subrata Ghatak, *Monetary Economics in Developing Countries* (London : The Macmillan Press Limited, 1983), p. 58.

⁶ V. V. Bhatt, "Development, Resource Mobilization and Financial Institutions with special Reference to Developing Economics", *Finance and Development*, Bandyopadhyay and Khankojé (ed.), p. 7.

⁷ Ibid., p. 2.

Figure 1.1



Source : Peter S. Rose, *Money and Capital Markets* (7th ed., Irwin McGraw-Hill, 2000), p. 4.

Sustained improvements in the levels of living can be achieved only through the positive increase in productive capacity, which depends mostly on the pace of capital formation.⁸ Adam Smith states that the role of capital formation is an important key element to economic development.⁹ The citation below clearly states the working procedure of an economy.

Author shows that the flows of payments and production within the economic system as a circular flow between producing units (mainly businesses and governments) and consuming units (principally households) (Figure: 1.2). In modern economies households provide labor, managerial skills, and natural resources to business firms and governments in return for income in the form of salaries, wages, rents, royalties, dividends, etc. Most of the income received by households is spent to purchase goods and services. In 1980, for example, about 95 percent of the \$2.2 trillion in total personal income received by individuals and families in the United States was spent for consumption of goods and services or paid out in taxes. The result of this spending is a flow of funds back to producing units, which stimulates further production and creates income in future periods. The circular flow of production and income is, thus, interdependent and never ending.¹⁰

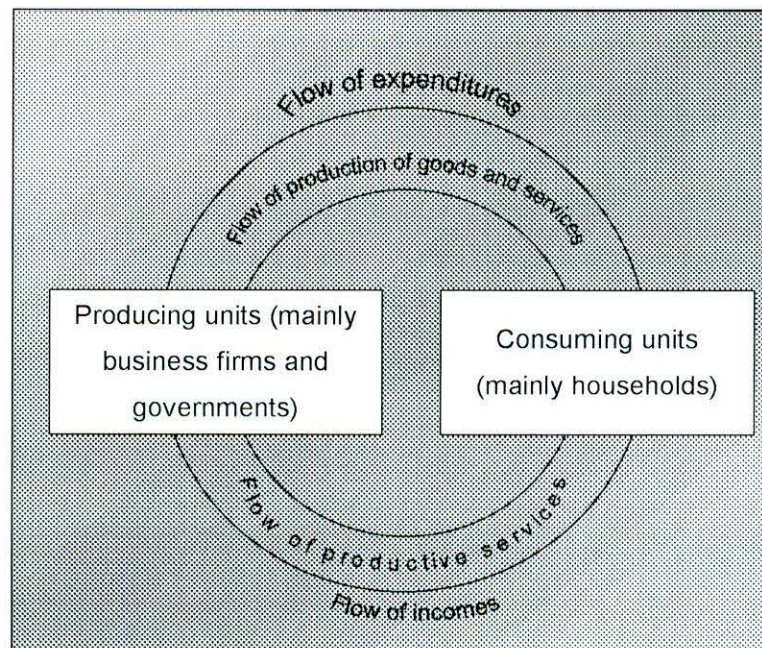
⁸ Paul Alpert, *Economic Development* (New York : The Free Press, 1967), p. 132.

⁹ Adam Smith, *An Inquiry into the Nature and Causes of Wealth of Nationals* (New York : Random House, Inc., 1937), p. 7; Narendra S. Bisht and Pamela K. Sharma, *Entrepreneurship : Expectations and Experience* (Bombay : Hamalaya Publishing House, 1991), p. 17.

¹⁰ Rose, *op.cit.*, p. 2.

Figure 1.2

Circular Flows of Income, Payments, and Production in the Economic System



Source : Peter S. Rose, *Money and Capital Markets* (7th ed., Irwin McGraw-Hill, 2000), p.5.

Arthur Lewis signifies rapid capital accumulation as the central fact of economic development.¹¹ It may be argued that other things, such as entrepreneurship and training of workers and public administrators are needed for economic development, in addition to capital accumulation. Yet these are seldom achieved without capital formation. Therefore, capital formation may be considered as the core factor by which all other things of growth are made possible.¹² Emphasizing the importance of capital accumulation Stiglitz states, "Capital accumulation is often given credit for being the engine of growth... Once one identifies the engine of growth, the task is to increase capital accumulation."¹³ Parson and Smelser consider the increased input of capital as one of the two necessary conditions for economic development, the other being the entrepreneurship.¹⁴ According to Meir and Baldwin, "development does not occur spontaneously as a natural consequence when economic conditions are in some sense 'right': a

¹¹ W. Arthur Lewis, "Economic Development with Unlimited Supplies of Labour", *The Manchester School*, May 1954; Meir, *Leading Issues in Economic Development* (New York : Oxford University Press, 1976), p. 249.

¹² United Nations, ECAFE, "Capital Accumulation and Development", *Programming Techniques for Economic Development*, Report of the First Group and Experts on Programming Techniques, Bangkok, 1960, pp. 8-13; Meir, *op. cit.*, p. 252.

¹³ Joseph E. Stiglitz, "Some Lessons From The Eastern Asian Miracle", *The World Bank Research Observer*, Vol. XI, No. 2, August, 1996, p. 153.

¹⁴ T. Parson and N.J. Smelser, *Economy and Society* (New York : Free Press, 1956), S.S. Khanaka, "Entrepreneurship and Economic Development", *Entrepreneurship : Reflections and Investigations*, Bisht, R.C. Misra, and A.K. Srivastava (ed.) (Allahabad : Chugh Publications, 1989), p. 28.

catalyst or argment is needed, ... "¹⁵ Jhingan states that capital formation is the main key to economic growth, which reflects effective demand and, creates productive efficiency for future production. Investment in capital goods through capital formation not only raises production but employment opportunities also, and leads to the technological progress. The provision for social and economic expenditures like transport, power, education, hospitals, etc., in the country is possible through capital formation. Capital formation leads to the exploitation of natural resources, industrialization and expansion of market; which are essential for economic progress. A rapid rate of capital formation gradually dispenses with the need for foreign aid. It helps in making a country self-sufficient and reduces the burden of foreign debt.¹⁶ The process of capital formation includes three interrelated stages: (a) the existence of real savings and rise in them; (b) the existence of credit and financial institutions to mobilize savings and to divert them in desired channels; and (c) to use these saving for investment in capital goods.¹⁷ However, with the expansion of a national economy, more savings and investment are obligatory. This is particularly authentic in underdeveloped countries like ours where the demand for capital for invests is very high. In case of underdeveloped countries, however, it is not easy to influence general public about the significance of savings. In a free economy, the corporation and government can rely on the securities market to raise needed capital. The funds raised needed capital. The funds raised through a securities market function as long-term capital.

Usually, the people in under-developed countries hoard much of the saving in cash, jewels, gold, etc.. As a result, if sufficient savings can not be mobilized for investment purpose, the rate of capital formation remains low.¹⁸ The financial markets channelizing the savings within the economy- which come mainly from domestic arrangement - to those individuals and organizations who need more funds for disbursement than are provided by contemporary income. Waqif says that in absence of a healthy financial superstructure, lion's share of people's savings is accumulated in socio-economically unproductive assets i.e., real and speculative assets instead of socio-economically productive assets i.e., financial assets. When saving is hoarded in the form such as cash, commodities, land, precious metals, jewelry, carpets, etc., it does not provide any contribution in real producer's capital formation. He also notes that a well-developed financial superstructure in an economy would also facilitate the mobilization and allocation of saving from the international sector, thus providing better scope for domestic development.¹⁹ Therefore, the basic need for capital accumulation is the establishment of a well-developed, widespread and efficient financial structure that can mobilize small and scattered

¹⁵ Meir and Baldwin, *op.cit.*, p. 299.

¹⁶ Jhingan, *op.cit.* pp. 320-21.

¹⁷ *Ibid.*, p. 41.

¹⁸ *Ibid.*, p. 324.

¹⁹ Arif A. Waqif, "A Generalized Model of Financial Intermediation". *The Indian Economic Journal*, Vol. XXVIII, No. 1, July-September, 1980, pp. 43-50.

saving of the people and channel the same for desired investment.²⁰ Realizing the same Van Horne states that efficient financial markets are extremely important to ensure sufficient capital formation and economic growth in a modern economy.²¹ In most countries of the world, including the U.S.A. and U.K., markets are utilized to carry out the puzzling job such as allocating resources, distributing income, and producing required goods and services. Van Horne argues "the more vibrant the financial markets in an economy, the more efficient the allocation of saving to the most promising investment opportunities, and the greater the capital formation in that economy."²² It is observed in the economic history of many countries that economic development and growth of financial infrastructure go hand in hand. Such interaction exists between the two that without the growth in the financial infrastructure, there can be no development and the latter in turn changes the shape and size of the financial institutions.²³ The financial structure is made up of a large number and an intricate system of specialized institutions. These institutions provide numerous ancillary services as well as the following three primary function: (1) the provision of a satisfactory medium of exchange and a measure or common denominator of value-money; (2) the transfer of savings from the saver to the user of saving to permit creation of the required capital goods; (3) the provision of a market for the transfer from hand to hand of such claims to wealth as written permission to pay and ownership instrument (shares), and for the conversion of such instruments into money.²⁴ Hasan states that the system should serve to facilitate the transfer of funds between the lenders and borrowers, it should provide risk sharing services to facilitate the capital accumulation process, and it should provide liquidity in the market to support non-financial activity. He also observes that these services should be efficiently produced and allocated, and they should exhibit stability in times of adverse economic events such as inflation or recession.²⁵ Financial institutions or organizations contribute an important function as intermediaries between the savers and the user of savings i.e., in translating savings into capital goods. Financial intermediaries dominate the financial scenario at home and overseas. In the present age of globalization, it would be almost impossible to make financing without the active participation of financial intermediary in one way or another indeed. A systematic diagram illustrates the role of financial institutions in the development process in an economy (Figure:1.3). This diagram explains how the financial sector is related to industrialization and development process.

²⁰ M. Zainul Abedin, *Commercial Banking in Bangladesh : A Study of Disparities of Regional and Sectoral Growth Trends (1846-1986)* (Dhaka : National Institute of Local Government, 1990), p. 2.

²¹ James C. Van Horne, *Financial Market Rates and Flows* (New York : Englewood Cliffs, NJ: Prentice-Hall, Inc., 1978), p. 54.

²² *Ibid.*, p. 16.

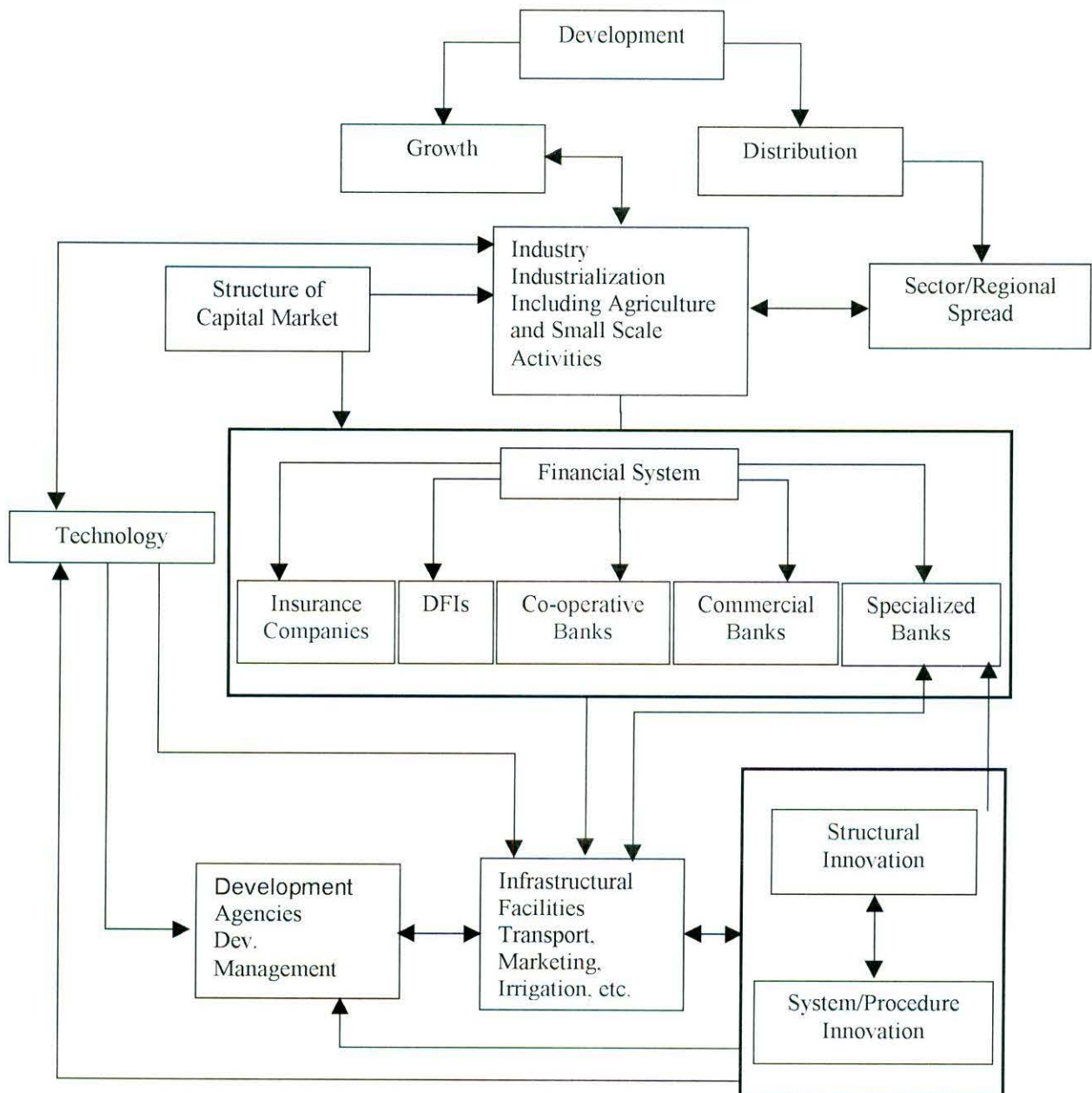
²³ M. Radha Swamy and S.V. Vasudevan, *A Text Book of Banking* (New Delhi : S. Chand and Company Limited, 1980), p. 1.

²⁴ Roland I. Robinson, Frank H. Gane, and Loring C. Farewell, *Financial Institutions*, Erwin W. Bochmiller (ed.) (Rev. ed. Illinois : Richard D. Irwin, Inc., 1956), p. 21.

²⁵ M. Kabir Hasan, "An Overview of Financial Liberalization in Japan", *Bank Parikrama*, Vol. XVIII, Nos. 3 and 4, Sep. and Dec., 1993, p. 51.

Figure 1.3

Inter Linkages of Various Institutions and Processes in Understanding the Role of Financial Institutions in Development.²⁶



1.2 Role of Markets in the Economic Assemblage

In modern world, market is usually regarded as an important economic institution, which can meet the demand of multifarious needs of the common people. "Modern societies use markets to allocate labor time, raw materials, energy, managerial skills, and capital. Managerial

²⁶ R. Bandyopadhyay, "Finance and Development : An integrative Framework", *Finance and Development*, R. Bandyopadhyay and D.P. Khankhoje (ed.) (Pune : National Institute of Bank Management, 1985), p. 33.

skills and capital in order to produce the thousands of goods and services necessary for survival and growth. Markets are the channels through which buyers and sellers meet to exchange goods, services, and resources.”²⁷

In practice, the marketplace determines that type of goods and services to be fabricated and produced for the community in general. If the price or rate of consumer goods and services rises, business units may also produce and supply more and more of those to the consumers. Fresh and innovative firms may enter into the market immediately to produce more than the targeted goods or services experiencing magnified demand and going up prices. On the contrary, a decline in price, usually leads to decrease in production of goods and services in the economy as a whole. Some firms drop their business from the market in the long run. “Markets reward superior productivity, innovation, and sensitivity to customer needs with increased profits, higher wages and salaries, and other economic benefits.”²⁸ The following citation and relevant illustration (Figure 1.4) show the role of market in the economy.

There are essentially three types of markets at work within the economic system: (1) factor markets, (2) product markets, and (3) financial markets (see Figure 1-4). In factor markets consuming units sell their labor, managerial skills, and other resources to those producing units offering the highest prices. The factor markets allocate the so-called factors of production (land, labor and capital) and distribute incomes in the form of salaries, wages, rental income, etc. to the owners of productive resources. As Figure- 1-4 shows, consuming units use most of their income from the factor markets to purchase goods and services in product markets. Food, shelter, clothing, medical care, automobiles, books, theater tickets, gasoline, and swimming pools are among the many goods and services sold in product markets.²⁹

Financial markets may serve as an integral part in the economy. The financial market channelizes resources coming mainly from the internal resource base to serve human beings and organization to meet the requirements. The financial markets can be termed as the heart of the financial system of any country, which determine the volume of credit, mobilization of savings, interest rates and security prices. A diagram can be helpful for better understanding in this regard, which is shown in Figure: 1.4.

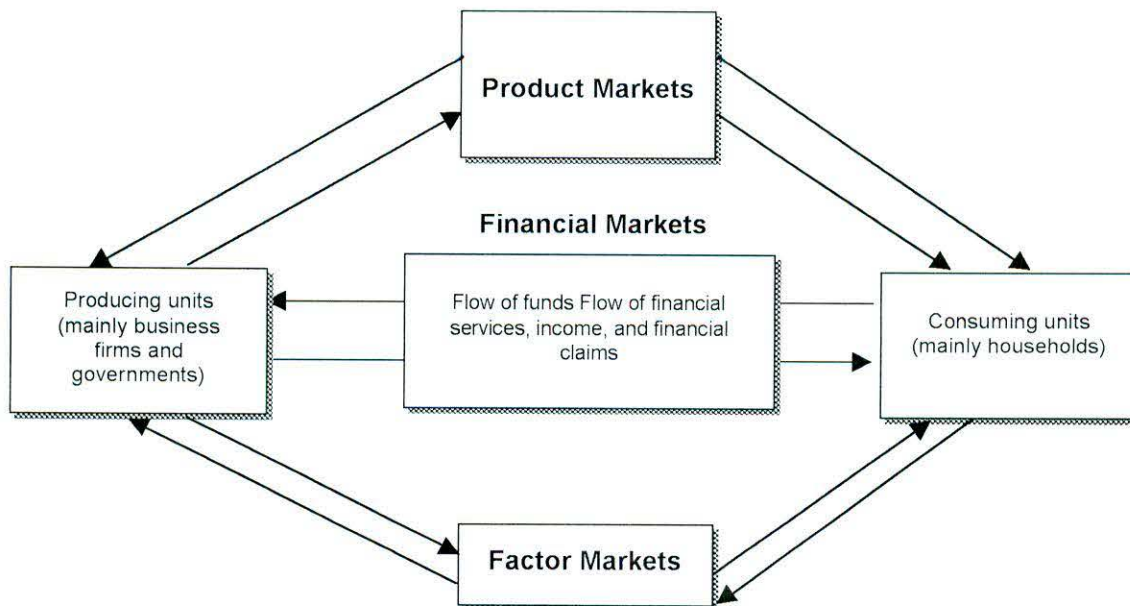
²⁷ Rose, *op.cit.*, p. 3.

²⁸ Ibid.

²⁹ Ibid.

Figure 1.4

Types of Markets in the Economic System



Source : Peter S. Rose, *Money and Capital Markets* (7th ed., Irwin McGraw-Hill, 2000), p.7.

In order to produce goods and services modern economies need huge amounts of capital provisions. In modern times, investments in new equipment magnify the effectiveness of labor and develop higher standard of living facilities. Since, investment or financing generally requires massive amounts of capital, it is possible by selling financial assets- stocks, bonds, etc. in the financial markets through which large amounts of funds can be generated within a short period of time. Those who deal in supplying funds in the financial markets, receive only promises in return for the loan. Financial assets i.e., shares and bonds promise the supplier of funds a future flow of income, which may be in the form of dividend payments, interest payments or capital gains from the assets.

1.3 Financial Configuration of Bangladesh and its Progress

The structure of financial system of Bangladesh is composed of different categories of financial institutions: the central bank; scheduled commercial banks³⁰; specialized banks including "Grameen Bank", Ansar VDP Unnayan Bank; development financing institutions (non-banking institutions); co-operative banks; insurance corporations and companies; House Building Finance Corporation (HBFC); investment, finance and leasing companies and the Post Office

³⁰ According to Bangladesh Bank Order 1972, Bangladesh Bank declares those banking companies operating in Bangladesh as scheduled which are able to maintain certain minimum capital requirement and operational criteria. Cited in Government of the People's Republic of Bangladesh, National Commission on Money Banking and Credit, Report of the IMF Technical Assistance Mission, Technical Report No. 12 and 13 (April, 1985), p. 2.

Saving Banks. It also includes stock exchanges and the informal markets.³¹ The leader as well as the guardian of the financial institutions of Bangladesh is the Bangladesh Bank. This is the central bank of this country.³² The financial system of Bangladesh consists of Bangladesh Bank (BB) as the central bank, 4 nationalized commercial banks (NCB), 5 government owned specialized banks, 30 domestic private banks, 12 foreign banks and 22 non-bank financial institutions. The financial system also embraces insurance companies, stock exchanges and the co-operative banks.

1.3.1 Central Bank and its Policies³³

Bangladesh Bank (BB), as the central bank, has legal authority to supervise and regulate all the banks. It performs the traditional central banking role of note issue and acts as banker to the government and the other banks. It formulates and implements monetary policy, manages foreign exchange reserves and supervises the banks and non-bank financial institutions. Its prudential regulations include: minimum capital requirements, limits on loan concentration and insider borrowing and guidelines for asset classification and income recognition. BB has power to impose penalties for non-compliance and also intervene in management of a bank if serious problems arise. It also has the delegated authority of issuing policy directives regarding foreign exchange regime.

1.3.2 Capital Adequacy

In January 1996, BB announced new policy on Capital Adequacy along the lines recommended by the Basle Committee on banking supervision. Revised policy on capital adequacy requires scheduled banks to maintain at least 8% of off-balance sheet risk and risk in different types of assets as capital.

1.3.3 Foreign Exchange System

On March 24, 1994 Bangladesh Taka (domestic currency) was declared convertible for current transactions in terms of Article VII of the IMF Articles of Agreement. Consequent to this, current external settlements for trade in goods and services and for amortization payments on foreign borrowings can be made through banks authorized to deal in foreign exchange, without prior central bank authorization. However, because resident owned capital is not freely transferable abroad (Taka is not yet convertible on capital account), some current settlements beyond certain indicative limits are subject to bonafide checks. Direct investments of non-residents in the industrial sector and portfolio investments of non-residents through stock

³¹ Government of Bangladesh, *Report of the National Commission on Money, Banking and Credit* (Dhaka : June, 1986), p. 10; Abedin, *op.cit.*, p. 7.

³² Ibid.

³³ Information recorded in the Annual Report of Bangladesh Bank (2000) under the head of "financial system" are analyzed here in sections 1.3.1 to 1.3.7 to highlight on a part of financial configuration of Bangladesh.

exchanges are repatriable abroad, as also are capital gains and profits/dividends thereon. Investment abroad of resident-owned capital is subject to prior Bangladesh Bank approval, which is allowed only sparingly.

1.3.4 Commercial Banks

The commercial banking system dominates Bangladesh's financial sector with limited role of Non Bank Financial Institutions and the capital market. Banking sector alone accounts for substantial share of assets of the financial system. The banking system is again dominated by the 4 Nationalized Commercial Banks, which together, as of June 30, 2001 controlled more than 54% of deposits and operated in 3612 branches (58% of the total).

1.3.5 Specialized Banks

Out of the 5 specialized banks, two (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**) were established for extending term loans to the industrial sector.

1.3.6 Financial Institutions

Twenty-two financial institutions are now operating in Bangladesh. Of these institutions, ten are local and the rest twelve are established under joint venture with foreign participation. Total amount of loan and lease of these institutions are Tk. 13168 million as on 30-06-2000. To enable the financial institutions to mobilize medium and long term resources. Government of Bangladesh (GOB) signed a project loan with IDA and a project known as "Financial Institutions Development Project (FIDP)" has started its operation from February, 2000. Bangladesh Bank is administering the project. The Project has established "Credit, Bridge and Standby Facility (CBSF)" to implement the financing program with a cost of US\$ 57.00 million.

1.3.7 Capital Market

Capital market, an important ingredient of the financial system, plays a significant role in the economy of the country. But, the capital market of Bangladesh is still at its growing stage, if compared with that of other neighboring countries. The development of capital market is necessary for attaining economic growth and development.

1.3.7.1 Regulatory Bodies

Securities and Exchange Commission exercises powers under the Securities and Exchange Commission Act 1993. It regulates institutions engaged in capital market activities. On the other hand Bangladesh Bank exercises powers under the Financial Institutions Act 1993 and regulates institutions engaged in financing activities including leasing companies and venture capital companies.

1.3.7.2 Participants in the Capital Market

SEC has issued license to 27 institutions to act in the capital market. Out of them, 19 institutions are Merchant Banker and Portfolio Manager while 7 are only Issue Managers and 1(one) acts as Issue Manager and Underwriter.

- (i) **Stock Exchanges** There are two stock exchanges namely, Dhaka Stock Exchange (**DSE**) and Chittagong Stock Exchange (**CSE**) dealing in the secondary capital market. DSE was established as a public Limited Company in April 1954 while CSE in April, 1995. As of 30 June 2000 total number of enlisted securities with DSE and CSE were 239 and 169 respectively. Out of 239 listed securities with the DSE, 219 were listed companies, 10 mutual funds and 10 debentures.
- (ii) **Investment Corporation of Bangladesh (ICB)** Investment Corporation of Bangladesh was established in 1976 with the objective of encouraging and broadening the base of industrial investment. ICB underwrites issues of securities, provides substantial bridge financing programmes, and maintains investment accounts, floats and manages closed-end and open-end mutual funds and closed-end unit funds to ensure supply of securities as well as generate demand for securities. ICB also operates in the DSE and CSE as dealers.
- (iii) **Specialized Banks** Bangladesh Shilpa Bank (**BSB**), Bangladesh Shilpa Rin Sangstha (**BSRS**), Bank of Small Industries and Commerce Bangladesh Limited (**BASIC**), some Foreign Banks and NCBs are engaged in long term industrial financing.

1.3.7.3 Insurance

The insurance Sector is regulated by the Insurance Act, 1938. 21 Companies are working under General Insurance and the life insurance is provided by 6 companies. The industry is dominated by the two large, state-owned companies Shadaran Bima Corporation (SBC) for general insurance and Jibon Bima Corporation (JBC) for life insurance which together command most of the total assets of the insurance sector.

1.3.7.4 Micro Financial Institutions

A rapidly growing segment of Rural Financial Market (**RFM**) in Bangladesh is the member based cooperative institutions. The largest member based institution is the **Grameen Bank**, the only formal institution of its type. All others are Non-Government Organizations (**NGOs**), biggest among them are **BRAC**, **ASA** and **Proshika**. Most of these institutions have an explicit social agenda to cater to the needs of the poorest sections of the non-agricultural population, with women making up a majority of their clientele. Up to December 1999 all the reported Micro Finance Non-Government Organizations (**MFNGOs**) have disbursed

Tk. 92,436.20 million and the outstanding loan was Tk. 18,692.17 million. Total active members were 9,433,974. The average recovery rate was approximately 95%. There are 87 MFIs, which have outstanding loan of more than Tk. 10 million, and 18 MFIs have outstanding loan of more than Tk. 50 million.

1.4 Importance of Capital Market in the Development Process of an Economy

A financial market is a composition of money market and capital market. Money market deals with short-term funds, (which is generally not exceeding one-year duration) and the capital market deals with long-term funds (more than one-year duration). A financial market can further be segregated into two parts: (a) security segment and (b) non-security segment. Security segment indicates security market, which is widely known as capital market. Capital market or securities market deals with long-term securities like shares, debenture, etc. A security or capital market is composed of two parts (i) Primary Market and (ii) Secondary market. Primary Market deals with new issues and the Secondary Market deals with existing issues. Recognizing the importance of Capital Market Rahman says, "An efficient capital market could be the proper vehicle in mobilizing domestic saving and translate (those) into investment."³⁴ Stating the importance of capital market three authors namely Choudhury, Saha, and Choudhury observe:

The capital market performs several important functions in the process of economic development. Among them the two most important function are i) promotion of saving and investment; and ii) efficient allocation of funds among competing uses (NCAER, 1966). The capital market offers both investors and issuers a broad spectrum of investment choices in terms of risk/rewards, tenor and liquidity, which can help increase the level of both saving and investment. The allocative efficiency of a market has to do with its ability to direct the investor to the most efficient issuer. In general, the price is expected to perform this function. In addition to above, the role of a capital market should be thought of as an alternative to existing conventional (cash) mode of finance, which not only deconcentrates ownership base, but also increases accountability and performance of the finance using companies.³⁵

Actually the capital market of Bangladesh started its business with the introduction of Dhaka Stock Exchange (DSE) and Investment Corporation of Bangladesh (ICB) since 1976. Two private investment companies, namely National Credit Limited (NCL) and Bangladesh Commerce and Investment Ltd. (BCI) got permission to participate in the capital market activities in Bangladesh in the eighties but due to abnormalities and irregularities NCL and BCI became inactive in the capital market operations of Bangladesh. In mid 1990s Chittagong Stock Exchange (CSE) was established. So, if we want to make any kind of discussion on the development of capital market in Bangladesh, our focal point should be thrown on the overall performance of DSE, CSE and ICB over the years.

³⁴ Md. Mozibur Rahman, "Development of Capital Market and Economic Growth : Role of Investment Financial Institutions", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 21.

³⁵ A.H.M. Nurul Islam Choudhury, Sujit Ranjan Saha, Toufic A. Choudhury, "Status of Capital Market in Bangladesh : An Overview", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 2.

For sound functioning of capital market in an economy it is essential to have investment banks, the broker members and organized stock exchanges. In our country like Bangladesh, long term government owned Development Financing Institutions (DFIs) are Bangladesh Shilpa Bank (BSB), Bangladesh Shilpa Rin Sangstha (BSRS) and Investment Corporation of Bangladesh (ICB) from which new entrepreneurs can get their financial support. In Bangladesh underwriting arrangements are mainly performed by ICB in consortiums with major DFIs, such as, BSB, BSRS and Nationalized Commercial Banks (NCBs). The pioneer Investment Bank ICB not only provides underwriting finance but also it provides bridge finance, finance for the purpose of sale and purchase of shares and debentures for the investors in general. ICB helps the investors in managing investor' portfolios and in formation of mutual fund of its own portfolio.

When an investor buy newly issued shares or securities, their personal savings committed to be used only productive purpose at least for a long time. If there is no securities market for investment in the economy, individuals would not be interested about the commitment of their savings to productive uses and the total amount of funds available to finance industry would not be as big as it is needed. An individual can recover his funds by selling them on the stock exchanges. The presence of securities market or capital market decreased the uncertainty of the general investors to acquire securities when they are first time issued. However, there is a relationship among the variables like the level of economic development, industrial development and the development of capital market of a country. Almost all the developed countries have high degree of industrialization. "It is also hard to find an industrially developed country not to have a developed capital market. However, these correlation should be understood as a system of mutual feedback with the result of continued economic betterment."³⁶ Developed and efficient capital markets are regarded to be the instrument for sustainable economic development. Commenting on the frontier of our DFIs, Rahman observes:

The performance of the DFIs and investment companies like ICB, NCL and others are also similar. There is no need for lengthy statistical arguments for this. DFIs have failed to establish prospective projects and the investment companies have failed to activate securities market and supply of long-term credit and risk capital which they were suppose to do. Most of the projects of the DFIs are sick. Whatever may be the reason one can say but it proves the inefficiency on the part of the DFIs to carry out their function for which these institutions were created.³⁷

To demonstrate the needfulness of capital market Mahmood observes, "Effective and optimum transformation of savings into productive investment can only be ensured by an efficient capital market."³⁸ It is true that capital is generated from savings, and since the savings rate in

³⁶ M. Shamsul Haque, "Development of Capital Market in Bangladesh", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 11.

³⁷ Mozibur Rahman, *op.cit.*, p. 22.

³⁸ Mahmood Osman Imam, "Stock Market Development : A Perspective of Investment Corporation of Bangladesh", *The Dhaka University Studies*, Part-C, Vol. 10(1), Dhaka, 1989, p. 80.

Bangladesh is tremendously low, its capital market is therefore underdeveloped indeed. If the capital market can provide enough scope for the investors to increase their further income by way of savings, it is possible to make the maximum savings from certain level of income. In an economy, Low-level of saving is mainly obligated for low per capita income. Showing the impact of low level of savings on investment Alam recognizes, "Given that the existing stock of capital depreciates at an annual rate of 10 percent, and that the population is increasing by between 2 and 3 percent yearly, the savings rate must be raised to at least 12 percent for sustained economic growth. Yet the combination of a low level of savings and declining foreign capital inflows yield a decline in gross investment (both public and private) from 15 percent of GDP in 1981-82 to 11.8 percent in 1987-88."³⁹

If we evaluate the country's securities market, the role of DSE and ICB can not be ignored, since those institutions have played paramount role in the development of capital market like Bangladesh. BSB and BSRS provide mainly debt financing including limited equity support for industrial projects. ICB is the only institution, which provides underwriting, bridge and debenture financing to the industrial projects. It also operates mutual funds, unit fund and investors' accounts. These schemes are meant for generating savings. Up to June 30, 1998 savings mobilizing by ICB's Mutual Funds was Tk. 17.50 crore and by Unit Fund was Tk. 598.57 crore. Moreover, ICB opened around 56933 net investment accounts by June 1998. Explaining the role of commercial banks in the capital market Alam observes:

Though commercial banks and insurance companies also have roles in the promotion of capital market in many other less developed countries (LDCs), their operations have not become a direct component of the capital market in Bangladesh. Nevertheless, the phenomenal growth of deposits with commercial banks in recent years (standing at 230 billion Taka on November, 1992), are deployed to meet the credit needs of various operations in economy and the banks thereby contribute, albeit indirectly, to the growth of the country's capital market.⁴⁰

Capital market is really important to the development process of an economy. By way of offering variety of financial instruments and investment opportunities to the investors, it encourages medium and long-term savings into the financial system. Now there is a growing focal point on the development of capital market in the developing countries. In a developing country like Bangladesh internal savings can not usually serve the countries needs rather it has to depend upon external sources also. An well-organized and sound equity market in developing countries can ensure to increase the availability of equity funding. The primary determination of capital market development is to make stronger the economy in general and to thereby, refine the standard of living of the people with a positive step.

³⁹ Khurshid Alam, "Capital Market and Privatization : A New Horizon of Expanding Equity in the Development of Bangladesh", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 25.

⁴⁰ *Ibid.*, p. 26.

1.5 Capital Market From the Standpoint of Suppliers of Savings

It is possible to make optimum transformation of savings into productive investment with the presence of an efficient capital market. Low-income levels and low savings rates are prevailing in Bangladesh since long, multifarious options are available to the general public. It is the capital market which may help to transform the individual saver as a "suppliers" or seller of his funds to the capital market. The individual comes to the market and look for the best combinations of advantages. Investors always look for protection and yield of his investment. The yield he expects that may come in the form of either interest, profit, dividends or capital gains or possibly a combination of these. An investor has two main concerns such as: **Safety**, which can be termed as return of his investment and **Yield**, which can be termed as return on his investment.⁴¹ Another investment alternative is also open to individual savers, which is not taken into account in the scope of the study,⁴². A supplier of savings or an investor can get traditional savings' alternatives in the economy, which can be categorized in the following manner: a) Commercial Bank Savings and Fixed Deposits; b) Postal Saving Banks' Deposits; c) Deposit Pension Scheme (DPS); d) National Savings Directorate (NSD); e) Saving Certificate and the like⁴³. An investor can also make "Investment" alternatives in the capital market in the economy such as: a) Stocks b) Debentures c) Mutual Funds and d) Bonds (not yet available in Bangladesh).

1.6 Capital Market From the View Point of a Company Seeking Financing

1.6.1 Long Term Financing Alternatives

In an economy there are many long-term capital projects, which is financed without knocking the capital markets. In practice, most long-term investment projects are financed with the blending of 1) New Equity or fresh Loans from Shareholder; 2) Retained Earnings; 3) Sale of Assets and 4) Private Placement. Varley observes:

Most companies start with this "inner circle" kind of financing, later enlarged to included a loan from a "local" bank whose managers typically have known the company's owners personally, are familiar with their business, their assets and their credit record over a period of years. In a branch banking system such as in Bangladesh the local relationships between banks and expanding business are much weaker.⁴⁴

⁴¹ John W. Varley, *Returns, Risks and Capital Market Development in Bangladesh*, Financial Sector Reform Project, Bangladesh Bank, Macro Financial Group Occasional Paper-3, Sep. 1992, p. 11.

⁴² Alternative options such as education, acquisition of land or building, life insurance policies, medical insurance and loan from relatives and friends although open to an individual but these options are kept outside the scope of this study.

⁴³ [There are some making an exception for in case of Traditional 'Savings' alternatives (c, d, and e) these options are limited to individuals only, not available to firms or companies.]

⁴⁴ Varley, *op.cit.*, p. 66.

1.6.2 Capital Market Alternatives

In case of large rapid growing projects, company must try to search for the finance outside the circle of family, friends, and local bank, and try to make necessary finance from the capital markets in the economy. In this stage, company faces some constraints as regards what to offer in exchange for the desired funds. Should it attempt for share in ownership which can be called equity; or should it offer certain promise to repay i.e., debt?. In Bangladesh, a company could have been able to think about a list of capital market alternatives that are: Private offering (with relatives and friends), Investment company, Development Finance Institution and Public Offering of Shares from **Equity** part of finance and Development Finance Institutions, Commercial Bank, Investment Companies, Leasing Companies and Public Offering of Debentures from Debt sources of fund.⁴⁵

1.7 Capital Market Scenario in Bangladesh

The financial system of Bangladesh plays a substantial and critical role in her development efforts by mobilizing savings and ensuring investments since long. In Bangladesh, the financial system consists of large variety of institutions, instruments and market. Due to these varieties, financial markets can be divided into money market and capital market. Capital Market ensures the flow of finance in the different sectors of the economy and plays a vital role in its growth and development. "The Capital Market is not one institution but a number of institutions through which supply and demand for long term capital is routed and regulated, for example, Stock Exchanges, Banks, Insurance Companies",⁴⁶ the investment banks, etc. Capital market is a technical mechanism, which brings the saver and borrower together. It ensures the flow of finance in different sectors of the economy and plays dynamic role in its growth and development. This discrimination between Money Market and Capital Market is based on the maturity of the financial instruments, which are handled in the financial markets. The money market deals in financial instruments of short-term nature, usually of one year or less, e.g., treasury bills. On the contrary, the capital market trades in longer-term financial instruments e.g., loans, stocks, bonds etc. In a modern economic system, it has been observed that the fitness of the economy is largely dependent on the capital market. Thus, it is appropriately termed as barometer of the economy indeed.

Actually, an efficient capital market is the main platform through which domestic savings can be mobilized and transformed into investment. The capital market of Bangladesh started functioning with the introduction of Dhaka Stock Exchange (DSE) in 1976. The major participants in the stock market are DSE, Chittagong Stock Exchange (CSE), Investment Corporation of Bangladesh (ICB), Bangladesh Shilpa Bank (BSB), Bangladesh Shilpa Rin Sangstha (BSRS)

⁴⁵ Varley, *op.cit.*, p. 67.

⁴⁶ B.N. Ahuja, *Dictionary of Economics* (New Delhi : Academic Publishers, n.d.), p. 20.

etc. Among the participants Dhaka stock exchange (DSE) and Investment Corporation of Bangladesh (ICB) have been playing leading role in the development of capital market of Bangladesh over the decades. Although in mid 1990s, Chittagong Stock Exchange (CSE) was established, but it is a new organization with limited impact on the economy as a whole. It is essential to have investment banks, the broker members and organized Stock exchanges for smooth functioning of capital market in an economy.

A person having a share of DSE is called a member of DSE. There are two types of members in the DSE (1) Broker, and (2) Dealer. The DSE is the only institution through which Broker and Dealer can take part in the stock exchange business. The DSE has at present 211 "Members", who are professionally known as "brokers". Provision has been made to increase the number of members up to 500. Order for buying and selling of securities from the stock exchange shall have to be executed through a broker who acts as an agent (as well as an expert guide) for the client (investor) to carry out the transaction. Initially, membership was restricted to Bangladeshi citizens only, but alteration to the articles of associations was recently made to open membership to all. Now foreigners are also qualified to become a member of the stock exchange.

The Dhaka Stock Exchange was incorporated on April 28, 1954 as the East Pakistan Stock Exchange Limited. On June 23, 1962 it was renamed as the Dhaka Stock Exchange Limited. Formal trading began in 1956. After liberation, trading activities were resumed in 1976 with only nine (9) listed companies. At that time, the total paid up capital of the listed companies of the exchange was Tk. 137.53 million. As a public limited company its activities are regulated by its Articles of Association and own rules and regulations, bye-laws along with the Securities and Exchange Ordinance 1969, Companies Act 1994, Securities and Exchange Commission Act 1993. The Chittagong Stock Exchange (CSE) was registered as a public limited company in April 1995. The trading operations of the exchange are fully automated from 1998. CSE is a self-regulated non-profit organization. A 24 member Board of Directors manages its business out of which 12 are elected from the members, and 12 are nominated from the non-members by SEC. The number of members is 129. The foreigners can also become members of CSE. It has provision for 500 members. The executive power of CSE is vested with the Chief Executive Officer (CEO). The CEO is appointed by the Board with the consent of SEC.

Only through the capital market, an entrepreneur can get equity or debt capital by issuing common stock and debenture very smoothly. Capital market is a platform for the entrepreneurs, which promotes industrial activities within the country by issuing shares and debentures. So, industrial inputs can only be gathered from capital market. In this connection, it can be emphatically said that, without capital market industrialization process is unthinkable. However, it has been observed that after crashing of share market in 1996, some reforms were already made in the DSE for the development of capital market in Bangladesh.

1.8 Institutions Active in the Capital Market of Bangladesh

The money market is designed for the making of short-term loans where individuals and organizations with surpluses of funds meet borrowers who have interim cash shortages. By agreement, a loan, which matures within one year or less, is considered to be a money market instrument. On the other side, the capital market is designed to finance long-term financial investment proposals. Financial instruments traded in the capital market have original maturities of more than one year.

In the money market commercial banks are the most important institutional lender to both business firms and governments. Non-financial business corporations with temporary cash surpluses also provide substantial short-term funds to commercial banks, securities dealers, and other corporations in the money market. Finance companies supply large amounts of working capital to major corporate borrowers, as do money market mutual funds which specialize in short-term, high-grade government and corporate securities (Table: 1).⁴⁷

Table 1.1

The Suppliers and Demanders of the Money and Capital Market

Money Market		Capital Market	
Principal Suppliers of Funds	Principal Demanders of Funds	Principal Suppliers of Funds	Principal Demanders of Funds
Commercial Banks	U.S. Treasury	Pension funds	Businesses
Non-financial Corporations	Commercial Banks	Insurance Companies	Households
Finance Companies	Non-financial Corporations	Households Savings and Loan Associations	Governments
Money Market Mutual Funds	Finance companies	Commercial Banks	
State and Local Governments	Security dealers		
Federal Reserve System	Federal Reserve System		

Table 1.1 shows that the principal suppliers of capital market are pension funds, insurance companies, household savings and commercial bank etc. on the other hand, the principal demanders of the fund are business, households and government.

In Bangladesh, one finds both financial intermediaries and a securities segment, although the securities segment is very small and relatively new. For examining the market from the viewpoint of savers and firms seeking capital, Table 1.2 is prepared to show some of the principal institutions active in the Bangladesh's capital market.

⁴⁷ Rose, *op.cit.*, p. 10.

Table 1.2

Principal Institutions active in the Capital Market of Bangladesh⁴⁸

Seeking Long Term Capital from Savers

PART-A

Financial Intermediaries	Non-Intermediaries
(Offering own liabilities to savers)	(Matching savers with securities / liabilities issued by others)
Commercial Banks	ICB
Insurance Companies	Investment Companies
Pension Schemes	Other Underwriters
Government (NSD)	Dhaka Stock Exchange
Government (P.O. Banks)	Chittagong Stock Exchange

Table 1.2 furnishes the financial intermediaries and non-intermediaries of the principal institutions active in the capital market of Bangladesh.

Supplying Long Term Capital to Firms

PART-B

Financial Intermediaries	Non-Intermediaries
(On-lending funds from savers)	(Investing own funds or marketing securities to savers)
Commercial Banks	DFIs
Insurance Companies (*)	ICB
Pension funds (*)	Other Underwriters (*)
	Investment Companies
	Leasing Companies
	Government
	Foreign Donors and Investors

(*) Very limited, usually as members of consortia led by ICB.

⁴⁸ Varley, *op.cit.*, p. 8.

In addition to the above institutions the Government of Bangladesh is directly and indirectly concerned in all four segments of the above arrangement. Besides owning the Nationalized Commercial Banks (NCBs), ICB, and the DFIs, the Government of Bangladesh is also directly involved in capital markets, both in bidding for funds and supplying funds to firms. The Government bids for saving through issuance of: Treasury Bills, Bangladesh Bank 91-days' bills, Debentures of State-owned corporations, National Savings Directorate (NSD) saving certificates, and Post Office Saving Bank Deposits. On the investment side, the government makes loans directly to some enterprises (e.g. Petro Bangla) and also directs the allocation of credit through the state owned NCBs and DFIs.⁴⁹

1.9 Savings and Investment Alternatives

Commercial Banks' savings deposits, fixed deposits, postal savings schemes, pension schemes of various NCBs and PCBs and National Savings Directorate (NSD) savings certificates (Defense Savings Certificate, Bangladesh Savings Certificate, Profit Based Saving's Certificate at the end of every three months and six months) are the savings alternatives or options available in Bangladesh through which an investor can invest his fund. Through investment alternatives, such as shares/ stock, debenture, Mutual funds or ICB Unit certificate not only an investor can get investment opportunities in the capital market of Bangladesh but also indirectly an investor can take part in the industrialization process of the country. Varley observes that the investors think that savings alternatives are less risky than investment alternatives⁵⁰.

An individual saver is a supplier of fund to the capital market and he is attracted to come to the market for return on its financing. But the investor is always concerned about the safety and yield of his investment. The yield that an investor expects that may come in the form of interest, profit, dividend or capital gain or possibly a blending of these. Safety is important in the sense that the original investment will be backed or not in time. On the other side, yield is also important in the sense that to what percentage it will produce further income.

A strong relationship exists among the variables like the level of economic development, industrial development and the development of capital market. Al-most all the developed countries have high degree of industrialization and developed capital markets. It is also hard to find an industrially developed country without a developed capital market. Developed capital markets can be termed as the vehicles for sustained industrial and economic development of a country. It can be pointed out that, an efficient capital market can only ensure effective and optimum transformation of savings into productive investment. Since capital is generated from savings, and the savings rate in Bangladesh is low, its capital market remains underdeveloped.

⁴⁹ Varley, *op.cit.*, p. 8.

⁵⁰ Although purchases of land, building, life insurance, educational expenses are also a kind of investment but these areas are outside the scope of this study.

1.10 Objectives of Savings and Investment

When an individual making investment in securities, the investors pursue different objectives. Either they seek to earn safe regular income largely in the form of dividend payment (for short, to be termed as regular income) or they look for appreciation in the real value of their investment (for short, to be described as capital appreciation). In addition to these, investors are also guided by the consideration of their investment being liquid, offering them the advantage of utilizing the same into alternative and more profitable channels (for short, to be designated as liquidity). It is not only that one seeks to achieve either of these objectives. There are even those who may be interested in seeking all the three objectives (for short, to be called as common mix).⁵¹

1.11 Statement of the Problem

Development of a sound capital market is a compulsion for creation of a favorable environment for private sector-led economic growth. A healthy capital market is needed to encourage savings, channelize that to productive investments, and to distribute risks and gains on the basis of financial commitments. Capital market thus can create profit for national prosperity. Currently, the capital market in Bangladesh is at an elementary stage. A private sector-led and export oriented economic growth cannot take place without sound financial intermediaries, such as banks, financial markets etc.

Particular emphasis should be given on the growth and development of the stock market. But that should be done by the promotion of the interests of all concerned - the investors, the stock exchange members, the government and the people in general. Capital Market of Bangladesh was in a slack stage during the decades of sixties, seventies and early part of eighties. During this period, few companies were listed in capital market and investors were not interested or accustomed in corporate stocks and bonds. The market registered an impressive growth particularly from late eighties to mid-nineties. In this period, market capitalization and index had shown a marked rise. The Securities and Exchange Commission (SEC) was setup in 1993 to regulate the development of the market and to enhance the degree of investors' protection.

It is observed that in every capital market manipulation is almost a common phenomenon. So, Bangladesh is not immune from it. But how long these manipulative activities will continue in Bangladesh? It is now a big note of interrogation in the minds of the investors and savers. In 1996, huge number of small and marginal investors lost their money and some of them ran into debt. In June 1996, the market behavior was not sound and it was going towards boom situation. Huge number of individual investors entered into the capital market. Trading volume rose sharply and all share price index of DSE reached 3648 points. In November 1996, the inevitable consequence happened and the market collapsed. Now, the index has come down to

⁵¹ R.P. Hooda, *Indian Securities Market : Investors' viewpoint* (New Delhi : Excel Books, 1998), p. 24.

800 points in recent times, which is very alarming for Bangladeshi investors. Share price index of DSE stood at 3648 points in November 1996 from 1000 points in January 1996 and then declined at around 500 points in 1998. In recent times, it has been increasing very slowly and reached at around 800 points. Although the volume of trading in the DSE has been increasing and nevertheless, it is not an indication of upward trend of capital market. Actually, it is a zero sum game among the brokers and dealers. After the crashing of share market in 1996, some reform measures were taken for improving the unhealthy situation of DSE. But those measures seem to be ineffective to solve the share market crisis. So, there exists a crucial need for investigation into the affairs of DSE, for finding out the difficulties and for suggesting measures for the improvement of the situation.

Hence, there arise some relevant questions: how were the growth trends of the activities of DSE over the years? What successes has it so far achieved and why? What were the causes of its recent setbacks? How can it overcome the problems? What role should it play in future in the development of Capital Market in Bangladesh?

Finally, the study aims at delineating the growth trends of Dhaka Stock Exchange and its contributions to capital market development in Bangladesh, analyzing its performance, identifying the problems and finding out the solutions for its betterment.

1.12 Objectives of the Study

The general objectives of the study are analyzing the growth trend of the activities of Dhaka Stock Exchange and its role in the capital market development in Bangladesh; evaluating its performance, identifying the problems and suggesting remedial measures for its improvement. However, the specific objectives are:

1. To review and analyze the growth trend of the activities of DSE and to evaluate its performance;
2. To evaluate the performance of Mutual Funds in the development of Capital Market of Bangladesh;
3. To evaluate the role of ICB and other Development Financing Institutions (DFIs) in the development of capital market of Bangladesh;
4. To analyze the risk return relationship in the DSE before and after automation;
5. To analyze the dividend payment practices of listed companies and its impact on security prices in the DSE over the years; and
6. To identify the problems and to suggest measures for improving its performance.

Apart from the main objectives mentioned above, the present study attempts to analyze the historical background, origin and development of DSE.

1.13 Review of Literature

Exclusive literature on DSE is too limited to make a comprehensive review. Although, some researchers and academicians did some works on capital market of Bangladesh for different purposes, no in-depth study on the performance of DSE was carried out earlier. However, the available literatures are reviewed here to find the existing knowledge gaps in the subject selected for this study.

Imam (1989)

Imam's study on **"Stock Market Development: A Perspective of Investment Corporation of Bangladesh"**⁵² is an important work. In this study the author analyses the contribution of ICB in the development of stock market in Bangladesh. He opined that ICB enabled to create demand for stock in trade dealings to a great extent by pooling savings through various schemes. He also observes that it failed to ensure benefits for sufficient number of profitable companies and thereby induced them, including profitable ones, to make public issues. In the concluding remarks the author states that lack of motivation to finance desired sectoral industries, malpractice of not showing earned profit in books of account, dearth of companies paying satisfactory dividend, which is less than the rate of return on government securities and absence of broad based shares, etc., are some of the reasons for slow process of stock market development in Bangladesh. The article was, however, more or less related to ICB and not exactly on DSE. But it has relevance to the development of Capital Market in Bangladesh.

Rahman (1992)

Rahman's paper on **"Development of Capital Market and Economic Growth: Role of Investment Finance Institutions"**⁵³ is a descriptive one. He observes that a developed capital market is both a necessary and sufficient condition for industrial development of a country. He says that the functions of the DFIs and investment companies like ICB, NCL and others were also aimed at achieving the same objective. He also observes that the DFIs largely failed to establish prospective projects; and investors' companies also similarly failed to activate securities market to ensure supply of long-term credit and risk capital, which they were supposed to do. He opines that most of the projects of the DFIs are sick. He says that these show the inefficiency of the DFIs to carry out their functions for which those institutions were created. However, his article was not an in-depth analysis of the activities of DSE.

⁵² Mahmood Osman Imam, "Stock Market Development : A Perspective of Investment Corporation of Bangladesh", *The Dhaka University Studies*, Part-C, Vol. 10(I), Dhaka, 1989, pp. 79-101.

⁵³ Md. Mozibur Rahman, *op.cit.*, pp. 20-24.

Ahmed (1992)

The paper entitled **"Bangladesh Stock Market: Investors are Indignant at Irregularities and Government Inaction"**⁵⁴ by Ahmed is an important work, which describes the scenario of stock market of Bangladesh in early 1990s. He observes that industrial projects, in the private sector, which needed long-term financing, were mainly dependent on BSB, BSRS and ICB. He states that major portion of the fund was channeled through those organizations, which were turned into bad debt due to non-payment and thus the volume of overdue loans increased.

In his analysis Ahmed emphasized on stock market investment. He opined that investors were losing money, due to irregularities and manipulation in the stock market, which were responsible for insecurity in stock market investment. He also observed that regulative bodies (office of the controller of capital issues under the Ministry of Finance, Office of the Registrar of Joint Stock Companies under the Ministry of Commerce, and the Bangladesh Bank) were inactive and were not properly performing their duties for the development of stock market.

Ahmed in his article states that there were some inadequacies or limitations of stock market, which, were as follows: (a) investors were not getting any guidance; (b) all the broker members of DSE were not active, most of them were inactive, which meant that they were not participating in stock transactions; (c) the bidding system in the stock market was outdated, (d) Investment Corporation of Bangladesh was the only corporate member of the stock exchange, which was government owned; (e) tax structure was also responsible for slow growth of stock market; (f) out of 142 listed companies, only 20/25 companies paid dividend above the bank's interest rates; (g) many of the companies listed with the stock exchange, hid their income just to escape from loan payments; and (h) some of them declared their projects as 'sick'. However, this article is partially related to the performance of DSE. It mainly dealt with stock market, in general.

Haque (1992)

The article written by Haque on **"Development of Capital Market in Bangladesh"**⁵⁵ is a descriptive one. It deals with the nature of capital market and role of developed capital markets. The author analyzed some characteristics of a developed capital market. He observes that the DSE was activated in 1976 with its old organization and little government control. At the same time GOB was pursuing an industrial policy of financing industries by loan funds from DFIs. The rationale, perhaps, was to allow sponsors an option to buy back loan financed assets out of the earnings of these enterprises as well as by issuing shares to the public through DSE. The history of default culture is well known in Bangladesh. Since most of those industries did not go into production and sale, they did not need additional capital from the capital market. He further adds

⁵⁴ Abu Ahmed, "Bangladesh Stock Market : Investors are Indignant at Irregularities and Government Inaction", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, pp. 14-19.

⁵⁵ M. Shamsul Haque, "Development of Capital Market in Bangladesh", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, pp. 10-14.

that one of the essential conditions of a competitive market is the participation by large number of buyers and sellers. Simply it is not possible in the present organization and operation of DSE. Finally, this study did not exclusively dealt with the operation of DSE.

Munshi (1993)

The paper entitled **"The Dhaka Stock Exchange: A Structural Evaluation of The Capital Markets of Bangladesh"**⁵⁶ by Munshi illustrates the sketch of stock market of Bangladesh. He observes that a comparison of the microstructure, architecture, and regulatory environment of the Dhaka Stock Exchange (DSE) with emerging and developed markets implies that the determinants of growth of capital markets in Asia may be structural as well as economic. The morphology of a stock market may be modeled in terms of a retailing function that acts as an investment 'distribution system' and funnels savings into capital; a communication system that maintains an order flow from the distribution network into the market; an order execution system that serves as a price discovery process; a clearing function; a communication system that disperses trade information; and a system of internal rules and external regulations that protect all participants and maintain a fair and orderly market without compromising the market's primary function of providing liquidity to holders of financial securities and of allocating capital.

According to the author a well-designed regulatory structure is necessary to reach an optimal balance between agency costs of capital formation and monitoring costs imposed by regulation. In the absence of regulation, wealth transfers between shareholder, debt holders, and management may occur that raise the cost of capital to corporations and lower investment in productive assets. Excessive and inappropriate regulations are associated with high monitoring costs to corporations because they limit the ability of the market to attract new capital. These relationships are played out in the saga of the South Sea Bubble in England of 1720 which decreased investors' confidence and increased the cost of capital because of fraud and manipulation in the absence of regulation; but what it engendered was the Bubble Act of 1720 in which excessive regulation of the market limited the ability of joint stock companies to raise equity financing and retarded industrial development and economic growth in England for a century. The repeal of the Act in 1825 launched England into the Industrial Revolution.

In summary, he observes that the liberalization and reform of capital markets in Bangladesh may fail to deliver the desired results without structural and regulatory changes to the market. These include policies that will foster the growth of an institutional brokerage industry in the private sector to generate and maintain order flow to the market; an investment banking industry to bring entrepreneurs and new issues to the DSE; an improved trading mechanism and settlement system to increase the capacity of the exchange and provide information flows and

⁵⁶ Jamal Munshi, "The Dhaka Stock Exchange : A Structural Evaluation of The Capital Markets of Bangladesh", *Working Paper*, Sonoma State University, 1993, pp. 1-5. Internet Original file name: Monterey.

liquidity; and regulation that curbs market manipulation and supports full disclosure to investors. The country possesses the cultural and economic prerequisites for rapid growth of its capital market but requires structural changes before either the capital market or an economic boom lead by the private sector can be realized.

Khan, Islam, Khatun (1993)

The article written by Salahuddin Ahmed Khan, Md. Sadiqul Islam and Khaleda Khatun on **“Stock Returns in Bangladesh: An Empirical Study”**⁵⁷ is an important work. They observe that Financial Assets are traded in primary and secondary markets. Stock exchange is the most dominant form of secondary market. It is the trading place where majorities of long term secondary market activities are performed. The Dhaka Stock Exchange (DSE), the only stock exchange in Bangladesh, has 149 listed securities including 6 closed end mutual funds, 4 Debentures as of June 1993. Of them, 11 Securities had no transactions during last 12 months. Other securities were thinly and infrequently traded on the floor. Compared to the transactions in the ASEAN stock Markets, the volume of transactions in DSE is very insignificant. In the stock market of the Philippines, the most underdeveloped stock market in the ASEAN region, the volume of trading was \$400 million in 1987 (Khan and Seleem, 1988). While in 1991 (4 years later) the total volume of transactions on the DSE floor was only \$ 3.61 Millions (Dhaka Stock Exchange, 1993).

According to their opinion it has been revealed (Ahmed, Khan and Islam, 1993) that the stocks in many companies are owned by few persons, who accumulated their holdings from the secondary market. Moreover, the local companies opt for debt financing irrespective of their leverage position. In addition, many of the high yielding risk free savings instruments have been affecting the demand for stock market securities. They argue that a rational investor will always expect additional return for taking risk. Although one study has indicated that the average monthly returns from DSE Stocks is higher than the monthly interest rate offered by the nationalized commercial Banks (Ahmed, 1991), no such attempt has been made to compare the stock returns with other risk free investment instruments available in the markets.

The study evaluated 62 active stocks of DSE with respect to their return during 1986-1991 Period. The findings of the study indicate that only a very few of the stocks offer returns above the risk free rate. The poor returns of stocks compared to the risk free investment instruments, bear some important policy implications. First, rational investors are unlikely to invest in stock market since they do not get reward for taking risk. In effect, DSE will fail to emerge as a conduit for mobilizing country's investable funds for industrial development. Unless the interest rates on risk

⁵⁷ Salahuddin Ahmed Khan, Md. Sadiqul Islam, Khaleda Khatun, “Stock Returns in Bangladesh: An Empirical Study”, *Journal of Finance and Banking*, Vol. 3, No.1, Dhaka, 1993, pp. 90-102.

free savings certificates and fixed deposits are reduced, or measures to provide incentives to the companies are taken, development of the economy through sound and broad-based stock market will be long away. The second observation of this study is that, stock market does not appear to be efficient, because the market did not correct the stock prices to make them competitive with the risk free investment instruments. Henceforth, in addition to reduction of interest on risk free rate, investment skill of the stock investors should be enhanced as well as establishments of supporting institutions like investment firms and brokerage houses should be encouraged. In addition, measures to increase the supply of good quality securities should be ensured. However, the present study has wider scope than that done in 1993.

Chowdhury (1994)

The paper entitled "**The status of securities Market in Bangladesh**"⁵⁸ by Chowdhury is an important work, which describes the scenario of securities Market in Bangladesh. The author evaluated securities market from the view point of DSE and ICB. Basically the paper is descriptive one. He has mentioned that supply of securities is inadequate. There have been a very few number of public issues in the last three years (1992-1994). According to his assessment, if foreign investors do not find enough securities to invest in Bangladesh, they may shift to other countries. So, steps should be taken to increase the supply of securities. The SEC Should also keep close watch on the performance of the companies, specially with regard to dividend payable and the regular holding of AGMS in time. However, it does not exclusively deal with DSE.

Munshi (1994)

The paper entitled "**Evolution of Capital Markets in Emerging Economies: Structural and Regulatory Issues**"⁵⁹ by Munshi is an important work, which illustrate the structural scenario of capital market of Bangladesh. He observes that DSE is older than the SES and shares its British colonial heritage but has remained a primitive market while the SES has grown. The comparison of market structure indicates that the ideal market design and the optimal type and extent of regulation may be contingent on cultural and behavioral variables. This study provides insight into market design variables and is expected to assist primitive capital markets to become more efficient centers of capital formation. In addition to these, information of this nature are essential to US investors who are eager to participate in the growth of Asian markets.

He states that, Bangladesh, a former colony, inherited its commercial laws from Britain. The Companies Act of 1913 forms the basis of regulating limited joint-stock companies. Additional regulations are set forth in the Capital Issues Act of 1947 and the Securities Exchange

⁵⁸ Mainuddin Ahmed Chowdhury, "The Status of Securities Market in Bangladesh", Seminar Paper, Dhaka : Bangladesh Public Administration Training Centre, pp. 1-103.

⁵⁹ Jamal Munshi, "Evolution of Capital Markets in Emerging Economies : Structural and Regulatory Issues", *Working Paper*, Sonoma State University, 1994.

Statute of 1969. These laws together with the listing rules and the by-laws of the Dhaka Stock Exchange (DSE) of 1954 form the basis of securities regulation in Bangladesh. As in Britain the securities industry is regulated directly by acts of Parliament and enforced by the Ministry of Finance and its agencies. There is no watchdog body such as the SEC in the US. The "Registrar of Joint Stock Companies" (Registrar), the "Controller of Capital Issue" (Controller), and the Bangladesh Bank are the primary enforcers of regulations. However, except for the Bangladesh Bank which, until deregulation, had actively enforced rules restricting currency movements, the activities of these agencies is mostly that of record keeping according to the letter of the Acts. All corporations must register with the Registrar and publish the filing information in newspapers. The role of the Controller, who is generally concerned about the recording of foreign participation, has been diminished in light of the country's recent liberalization of foreign investment. The Controller's main purpose is to issue the 'Consent Order' which seeks to assure that shares are "allotted fairly and unconditionally". Firms seeking to raise funds at the Dhaka Stock Exchange must additionally make a filing with the DSE which enforces a few additional rules such as minimum paid up capital (1 million Taka or approx. \$25,000), allotment of shares to the public on the same basis as those allotted to principals and friends, and rules controlling the declaration and payment of cash dividends and of stock dividends. [analyze the 10% dividend rule here]

The DSE, although tiny size with a market capitalization of \$450 million has received some attention from international investors because of its rapid increase in market value and high dividend returns; and because of the liberalization and reform measures adopted in that country since 1991. These measures include: full convertibility of the Taka, lifting of all restrictions and limits on foreign participation in securities and of repatriation of gains and profits, non-taxability of capital gains, an ADB funded project to expand and modernize securities markets, the formation of the Investment Corporation of Bangladesh, and an aggressive deregulation and privatization stance in general.

The DSE seems to be a well-behaved market and has been able to make steady gains without the boom-bust cycles of other Asian markets notably Taiwan and Indonesia; although this may be at the expense of liquidity. The order flow system and trading mechanism of the exchange naturally retard volatility but at the same time restrict access to the market. The order flow system is the market's weakest link; there is a virtual absence of the institutional retail brokerage function. Orders must be placed directly with one of the 200 members of the DSE. The members may aggregate orders or pre-negotiate deals with other members or large holders of stock.

This mechanism is essentially a double-auction call market sequentially held in each stock. The method used has several limitations that restrict the number of issues traded, trading volume capacity of the exchange, its liquidity, and its informational efficiency. Each member enters the floor with a given information set and corresponding buy and sell orders but is unable

to react to new information revealed by bids and offers until the next trading day. To enhance the markets trading capacity and informational efficiency new systems must be devised for order flow into the trading hall and for communication of information to and from the floor during trading. Reforms and future development of the DSE are expected in light of a \$40 million plan by the ADB (Asia Development Bank) to improve capital markets in Bangladesh. The plan includes provisions for a retail brokerage system to channel orders from individual investors to the market. One possibility is to make use of the countries well developed retail banking system. A corresponding enhancement of the clearing system would be needed possibly using computerized record keeping.

Haque, Eunus and Ahmed (1998)

“Risk Return and Market Efficiency in A Capital Market Under Distress: Theory and Evidence from Dhaka Stock Exchange, Bangladesh”⁶⁰ is an important work in the field of Capital Market of Bangladesh. The authors observe that, share prices in the two stock markets DSE and CSE, sky-knocked in October-November 1996 DSE index reached a peak of 36000 from under 1000 and crashed thereafter. It is hovering around 500 now. This work describes the experience of DSE after the scam of November 1996 by applying CAPM and EMH. Failure to stem the artificial bull market in 1996 has prompted several reform measures by the Government of Bangladesh and donor agencies including automation in both DSE and CSE. Based on data, four-months before and four-months after automation, this paper measured risk-return performance, estimated SML for big capital and small capital companies before and after automation and tested EMH. Test results indicate that market did not improve after automation and manipulation continues. The damage seems be irreparable for bringing back investors confidence in the market. Long term sources of capital for industrial investment is not available. This emerging market failure is a case to be studied by others interested in capital market development in South Asia.

Chaudhury (1998)

The article written by Chaudhury and others on **“Investment Banking in Bangladesh: Problems and Prospects”**⁶¹ is a descriptive one. It deals with activities of Investors' Banking and its functions. The authors observes that theoretically, on the one hand investment bank was supplementing to immediate equity requirements of the entrepreneurs by providing the bridge loan, and on the other, it was stimulating the equity market.

⁶⁰ M Shamsul Haque, Rizwan Eunus and Mohiuddin Ahmed, “Risk Return and Market Efficiency in a Capital Market under Distress : Theory and Evidence from Dhaka Stock Exchange, Bangladesh”, *Journal of Business Administration*, Vol. 24, No. 3 and 4, Dhaka, July and October, 1998, pp. 1-17.

⁶¹ A.H.M. Nurul Islam Choudhury, Sujit Ranjan Saha, Toufic A. Choudhury, “Status of Capital Market in Bangladesh : An Overview”, *Bank Parikrama*, Vol. XVII, Dhaka, 1992, pp. 1-18.

The authors also states that the effective role of Securities and Exchange Commission (SEC) of Bangladesh and government could give assistance for industrialization, which might have favourable impact on the capital market development in Bangladesh. In concluding remarks the authors state that if SEC of Bangladesh considers the experiences of other countries; and if expands its activities on a full scale, then the capital market of Bangladesh will definitely get a positive boost. Finally, their study did not exclusively dealt with the DSE.

Jaman and Basher (2000)

The article written by Jaman and Basher on "**Bangladesh capital market in the new millennium**"⁶² is a descriptive one. The authors observe that equity financing is superior to debt financing since equity empirically yielded higher returns to compensate its in-built higher risks than debts. Due to absence of a strong capital market, large projects are predominantly debt financed in Bangladesh because of its availability and soft terms.

They argued that market decapitalization is unlikely to take place in presence of a strong capital market. Had there been no market decapitalization and had the market capitalization grown at least at the rates of GDP's growth rates,, the lost US \$ 787 million could have been utilized for the country's economic development. In Bangladesh, there are 54 loss-stricken state-owned enterprises (SOEs) that are still to be privatized. The government wants to get rid of these sick enterprises. However, they suggest that, capital market participation, in the form of floating debt and equity, remains to be the acceptable option of financing and materializing these projects. But the study was not done exclusively on the DSE.

Khosru (2000)

This article written by Khosru on "**The Capital Market of Bangladesh: Present and Future.**"⁶³ is a descriptive one. The author observes that the Bangladesh Capital Market still remains hag-ridden due to a combination of negative factors such as the smallest size and shallowness of the market, absence of a CDS, paltry market liquidity aggravated by the absence of varied tradable financial instruments, lack of investors, market awareness and market transparency, the prodigal nature of our nation as a whole, the deplorable standard of research, information dissemination and book-keeping, unprofessional approaches of brokers to their services, and so on and so forth.

He also states that ours is a nascent market, in this perspective yet to go a long way and mature. He further states that we need to keep an eye on these changing novel trends and try to catch up with them. Everywhere these trends are springing up restlessly. We, too, should always

⁶² SAK Rahat Jaman and Syed Abul Basher, "Bangladesh Capital Market in the New Millennium", *Portfolio*, Chittagong Stock Exchange, January, 2000, pp. 7-9.

⁶³ Amir Khosru Mahmud Chowdhury, "The Capital Market of Bangladesh : Present and Future", *Portfolio, CSE Quarterly Bulletin*, Chittagong, Oct.-Dec. 2000, pp. 13-19.

be open to innovation and resilient to these contemporary changes. Only then will we have a healthy and vibrant capital market leading our country to economic prosperity. Finally, this study did not exclusively dealt with the DSE.

Imam (2000)

The paper entitled “**Capital Market Development in Bangladesh: Problems and Prospects**”⁶⁴ by Imam is an important work indeed, which describes the sketch of stock market of Bangladesh in recent times. He observes that our capital market is vulnerable to contingencies owing to its relatively new entity, tiny size, market shallowness and the weaknesses of market controlling authorities and instruments. He also states that the investors are still market-shy and diffident after the 1996 market crash.

However, the author suggested some measures that can be adopted for the development of capital market. These are:

- The listed companies that pay regular dividends should be given tax incentives and tax rebates as well.
- The mode of privatization of industries will be implemented through the public issuance of shares. This will deepen the securities market, diffuse ownership and bring in market disciplines.
- The government should off-load its equity holdings in State-Owned Enterprises (SOEs) and Multinational Companies (MNCs) through the stock market. This will improve the supply of securities in the market.
- The bond market needs to be developed. The implementation of government securities with medium term and long term maturates will also broaden the base of the bond market.
- Establishment of a separate judicial security tribunal for dealing with cases related to securities market.

According to his opinion although some reforms have made for the development of capital market in the Bangladesh, but still however, a few important reform measures are still pending. These include, among others:

- a) Restructuring Investment Corporation of Bangladesh (ICB) by creating three subsidiary companies carrying out the function of merchant banking, fund management and securities brokerage house.
- b) Divesting government holdings in State-Owned Enterprises (SOEs) and Multinational Companies (MNCs) through securities market.

⁶⁴ Dr. Mahmood Osman Imam, “Capital Market Development in Bangladesh : Problems and Prospects”, *Portfolio, CSE Quarterly Bulletin*, Chittagong, October-December, 2000, pp. 43-56.

Issuing government securities with medium-term and long-term maturities on a regular basis through the securities market.

Patil (2001)

The article written by Patil on **“Changing Scenario of Industrial Finance and Capital Market in the New Millennium”**⁶⁵ is a theoretical work. Patil observes that the main thrust of the industrial policy should be to build seamless linkages between DFIs/banks and the financial/capital markets so that they facilitate the process of transfer of funds from the ultimate savers to the ultimate users at minimum costs. The policy stance should however be neutral between DFIs/banks and the capital market by doing away with the fall back support currently being extended to DFIs/banks in distress. Thus themselves should undertake more of agency functions and encouraging the savers to shoulder investment risks directly. This would improve resource allocation efficiency while at the same time infusing the much-needed discipline among the users of funds.

Venkateswar (2001)

The article written by Venkateswar on **“The Adjustment of Stock Returns to Earning Announcements in the Bombay Stock Exchange (BSE)”**⁶⁶ is an analytical work indeed. The author observes that several studies in this area, including the studies by Ball and Brown (1968) and Beaver (1968), use the residual approach to assess the information content of earning announcements. However, due to the lack of data on consensus earnings forecasts by stock analysts, this paper uses the expectation model approach put forth by Benston (1967) and later refined by Gonedes (1971) and Forsgardh and Herten (1975). The market expectation of annual earnings is measured by using a simple average of the past three years (similar to Gonedes' approach [1971]). The model which is being used in calculating the expectation model may be stated as:

$$AR_{jt} = b_1 AR_{j,t-1} + b_2 AR_{j,t-2} + b_3 AR_{j,t-3} \quad (1)$$

where: $b_1 = b_2 = b_3 = 1/3$;

AR_{jt} = Annual earnings of firm j made known in time period t; and

AR_{jt} = Expected annual earnings for firm j in time t.

Following the model used by Fama, Fisher, Jeshner, Jensen and Roll (1969), it is assumed that there exists a unique linear relationship between the market return and the return for each individual security expressed by the following equation.

⁶⁵ Dr. R. H. Patil, *Changing Scenario of Industrial Finance and Capital Market in the New Millennium*, The A.D. Shroff Memorial Trust, Mumbai-400 001, 2001, pp.1-38.

⁶⁶ Sankaran Venkateswar, “The Adjustment of Stock Returns to Earning Announcements In The Bombay Stock Exchange”, *The Indian Economic Journal*, Vol. 48, Mumbai April-June 2000-2001, pp. 41-46.

$$\text{Log}_e R_{jt} = \alpha_j + \beta_j \text{Log}_e L_t + \varepsilon_{jt}$$

Where: $\text{Log}_e R_{jt} = \text{Log}_e [P_{jt}/P_{j,t-1}]$;

$\text{Log}_e L_t = \text{Log}_e (I_t/I_{t-1})$;

I_t = BSE index on day t ;⁵

P_{jt} = Price of stock j on day t ;⁵

α, β = Regression parameters; and

ε_{jt} = a disturbance term that should be uncorrelated to L_t , with constant variance and $E(\varepsilon_{jt}) = 0$.

A 60-day "estimation window" was used to generate the regression parameters for every individual stock in the sample. The estimation window started 71 days prior to the earnings announcement date and ended 11 days prior to the annual earnings announcement in order not to violate the assumption regarding the disturbance term.

However, the results obtained from this study suggest that the stock price reaction in the BSE depends on the magnitude of the unexpected earnings. These results are consistent with those of advanced financial markets around the world. This study documents the adjustment of stock prices to the release of earnings data in a developing country context. It suggests that earnings convey information to the stock market and the stock price reaction depends on the magnitude of the unexpected earnings. Sophisticated research reports including earnings projections are beginning to appear with the widespread liberalization of financial markets. Future work in this area may refine estimation of earnings expectations and also look at the behavior of volume on the eve of earnings announcements.

Simha (2001)

The paper entitled "**The Stock Market Debacle**"⁶⁷ written by Simha is an important work in the field of capital market. Simha expresses that it is unfortunate that most regulatory authorities in India are politically influenced in functioning. They are not endowed with real independence to do thorough job. Unconsciously, the regulatory role, which calls for extreme alertness is some how sometimes missing. Therefore, it has to accept some blame for the recent state of affairs.

He blames the Government and the Reserve Bank for several reasons. For almost two decades, the policy of the authorities has been to keep the stock markets bullish, in the belief that it would reflect the strength of the economy, help economic growth, promote saving, mobilize large funds for investment and stimulate inflow of funds from abroad. Monetary and credit policies also sought to promote the above objective. In particular, banks came to be given increasing freedom in the matter of lending against shares and other securities not only for other purposes but also for purchase of shares and securities and active two-way trading in them.

⁶⁷ Prof. S. L. N. Simha, "The Stock Market Debacle", *Stock Market In Turmoil-Lessons for Investors, Forum of Free Enterprise*, Mumbai, 2001, pp.1-12.

Engaging in *badla* transaction is lending money without any margin, something very risky, in a period of sharp fluctuations in share prices. It is also interesting to note that financial institutions and, what is worse, depository institutions such as the Stock Holding Corporation, are permitted to give loan against securities in the hope of the return of a bearish trend.

Share prices may go up and the speculator may not be in a position to buy them and return them to the lending institution. This is not asset management, but the opposite. This should be prohibited. Share prices ought to reflect the future prospects of a company and not what has happened in the past, good or bad. No successful formula has been found in this behalf, notwithstanding, enormous output of mathematical and econometrical analysis of the subject. His feeling is that the many of these asset management committees comprise mostly retired employees of government and public sector financial institutions, to enable them to get additional income and lead comfortable lives!

While dealing with the subject of long-term expectations, he observes that the expert professionals and speculators are not concerned with what an investment is really worth, but with what the market thinks the proper value is, under the influence of mass psychology. It is not a case of choosing those, which, to the best of one's judgment, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. The situation, however, is not entirely hopeless, especially for experts. Among other indicators, two ratios can be helpful, namely **Price-earning ratio and Price-net worth ratios**.

He observes that small savers should keep out of the stock markets altogether. It is well to note that, under no circumstances, will there be absolute stability. Government should do nothing to help bullish or bearish movements; it must remain neutral, by and large. Prevent large-scale speculation, financed by borrowing of money and securities. Excessive speculation can only take place with borrowed money or funds belonging to others, in particular financial institutions engaged in investment operations. Therefore such credit needs to be restricted, if not totally denied. The Securities and Exchange Board of India (SEBI) must watch carefully the functioning of stock exchanges but their day to day functioning must be left to the stock exchange authorities.

Mulraj (2001)

The paper entitled "**Some Rules for Investors**"⁶⁸ written by Mulraj is a consequential and conceptual work in the field of capital market. The author expresses that the stock markets

⁶⁸ J. Mulraj, "Some Rules for Investors", *Stock Market In Turmoil-Lessons For Investors, Forum of free Enterprise*, Mumbai, 2001, pp. 1-7.

are in a state of turmoil. To understand exactly what are the factors, it may be necessary to go into the history of reforms of capital markets.

The stock market has seen a sea change over the last decade. When that entered the trading ring in 1985, on becoming a member of the Bombay Stock Exchange, they had a floor based trading system where entry was restricted to members and their employees, on whose reliability and judgement an investor would have to depend.

Transactions were affected through an open outcry system resulting in a din of a magnitude that could cause partial deafness. In fact, if you promise not to tell her, I still use partial deafness as an excuse not to listen to my wife sometimes!

So in such an environment, what should an investor do? Well, it is a tough world out there but some rules can help. Michael Mouboussin, who is the chief economist at CSFB First Boston, has five rules of things to avoid doing. He says

- DONT irrationally escalate commitments (i.e. buying to average in a share with poor prospects)
- DON'T be overconfident
- DON'T be overly influenced by how information is presented (cloth do not maketh the man here)
- DON'T fall into the confirmation trap (be honest and objective) and
- DON'T base judgments on irrelevant information, including historical prices or multiples (the past is only a guide)

To these he has added his own humble rules. He further observes:

Know yourself: It is important to know what sort of person you are, and what style of investing suits you. Are you fascinated by quick trading profits? Are you happy with shorting? Are you a buy and hold investor? A long term investor? What is long term? Your broker or investment advisor would generally console you, when the price of the recommended share halves shortly after you have bought it, that yours is an investment for the long term!

There is no free lunch. This proposition may have been tested if the time of the lecture was 1 pm instead of 6. The point is that equity investing is always a matter of risk and that there is no reward without risk. It is becoming increasingly difficult for individual investors to assess the risk. This is because rapid changes in technology are shortening the life cycles of products and their profitable lives. Consider Point cast, an online financial news service that was offered a whopping \$100 m. for a buy out. It refused, wanting more. In a month, another new technology came in, which was superior, and this site's value fell to under \$5 m. This is how valuations are rapidly and brutally shattered.

Mukherjee (2002)

“Integration of Dhaka Stock Exchange with the Developed and World Stock Markets: An Empirical Investigation”⁶⁹ is a very important work done in the field of Capital Market of Bangladesh. The author observes that low integration means that these stock markets are segmented from the developed markets and he tried to investigate the integration of Dhaka Stock Exchange (DSE) with the developed and world markets. He uses regression analysis and moving correlation technique to find how these markets are integrated and how the integration has changed over time.

He states out that in financially integrated markets, capital should flow across borders in order to ensure that the price of risk – the compensation investors receive for bearing risk-is equalized across assets. Conversely, if capital control or other forces prevent movement of capital across borders, then it is likely that different economies will demand different levels of compensation for risk.

He argues that several studies have found those emerging markets were not well integrated with the developed markets until the early 1980s. Now, as a result of increased equity flows and opening of economies, it is found that emerging markets are becoming increasingly integrated with world financial markets and this has brought their cost of capital more in line with those in word markets. To further reap these benefits developing countries should (continue to) lower barriers to foreign capital flows. The most important barriers appear to be instability in under-developed stock markets and a lack of openness. Policy measures that can help remove the barriers of the emerging markets in general are - in addition to proper fiscal and monetary policies – a solid regulatory and accounting framework, investor protection, and less restriction on foreign ownership should be imposed.

1.14 Justification of the Study

From the review of literature, it appears that knowledge gaps largely exist in the field of analysis and evaluation of the performance of DSE. This study attempts to fill up the existing knowledge gaps.

DSE has been playing a vital role in the development of capital market in Bangladesh since its inception in 1976. As an introductory stock exchange, it has been performing a dynamic role in mobilizing savings for industrialization of Bangladesh Economy.

Since its establishment, a large number of companies were listed with the DSE, but with the exception of very few the results of inclusion of such companies, were not satisfactory in paying dividends to the investors. Moreover, all share price index in the DSE decreased dramatically in recent years. To find out the causes of low level of dividend payments'

⁶⁹ Sajal Kumar Mukherjee, “Integration of Dhaka Stock Exchange with the Developed and World Stock Markets : An Empirical Investigation”, *Journal of IBS*, Rajshahi University, 2002, pp. 99-105.

performance of the listed companies of DSE, some scholars wrote some articles. But earlier no detailed analysis on the performance of DSE was carried out. Further, no detailed study on the growth and bearish trend of share market was conducted by any scholar so far. Whatever works on DSE, were carried out earlier, were related to capital market development, mutual fund analysis, unit fund analysis and the like. No extensive work covering different aspects of DSE were done earlier by anybody in Bangladesh. But DSE, by now, is of over 24 years old. The DSE was established to help the industrialization of the country. It is high time, at the beginning of the 21st century to evaluate the performance of DSE with a view to identifying the shortcomings and to suggest measures for better performance.

Bangladesh is a developing country. Her development largely depends on the development of capital market. Since DSE is the leading stock exchange in the capital market of Bangladesh, analysis of its growth and performance would help the development of capital market in Bangladesh. From this particular viewpoint, this study claims high importance. The findings of this study are expected to be of great use to the policy makers, planners, researchers, teachers, students, investment bankers, investors and to the general public.

It has been observed that almost every year there is a budgetary provision for the development of capital market and some reforms have already been made in the DSE over the years, but investors are not getting any positive result from it. Moreover, investors are not feeling secured in the stock market investment due to ups and downs of the market resulting from irregularities and manipulative activities. In this study, it would be possible on the part of the researcher to find out what are the main causes for the present situation in the DSE. Not only that, how far regulatory institutions are active and to what extent they are playing their role and duties properly can also be found out. In addition to that, what types of steps should be taken into consideration to induce the moribund capital market of our country that can also be identified.

1.15 Scope and Limitations of the Study

The study analyzes the history, function, reforms and growth trend of DSE. The study intends to evaluate the progress of activities of last 24 years of DSE in terms of growth and performance. The main focus is on evaluating the DSE's activities over the years in relation to its role in the development of capital market in Bangladesh. The impact of mutual funds on performance of DSE, role of ICB and DFIs, etc. are also analyzed in the thesis. Risk return relationship prevailing in the DSE before and after automation has also been analyzed here. The study attempts to identify the causes of decline of price index and to suggest remedial measures.

In this study only DSE's growth and performance was measured. The secondary data for the study was collected mainly from the Head Office of DSE and SEC. However, availability of resources was the main constraints to the researcher for covering large samples for an opinion survey. Nevertheless, a micro level study of this type is contributive, at least, to the understanding of the current situation of DSE and its viability as a stock exchange for the development of capital market in Bangladesh.

However, this study excludes Chittagong Stock Exchange (CSE) and other contributing elements like ICB and other development banks, which help the development of capital market in Bangladesh. So, the findings and suggestions would be limited to the observations on the DSE only.

1.16 Plan of the Dissertation

The present dissertation work is divided into nine different chapters including this introductory chapter. The introductory chapter deals with role of financial system in economic development, financial configuration of Bangladesh, significance of capital market in Bangladesh economy, objective of investment, statement of the problem, objectives, justification and limitation of the study. Chapter two states methodology and conceptual frameworks of the dissertation. In Chapter three, the issues like history, function, recent reforms and the growth trends of the activities of DSE are discussed.

Chapter Four examines the impact of Mutual Funds on DSE's performance. Especially, ICB mutual funds are analyzed and evaluated although there are two private mutual funds namely, 1st BSRS and Asset and Investment Management Services of Bangladesh (AIMS) mutual funds in the stock market of Bangladesh.

Chapter five deals with the role of ICB and other DFIs in the development of capital market of Bangladesh. Especially the role of ICB, BSB and BSRS are analyzed in this chapter. Since ICB is one of the major participants in the development of capital market of Bangladesh detail performance of ICB are analyzed.

Chapter six analyzes the risk return behavior pattern in the DSE. Capital Asset Pricing Model (CAPM) has been used to evaluate the relationship between risk and return before and after automation. Securities Market Line (SML) has been drawn to examine the actual risk return relationship prevailing in the DSE before and after automation. The SML is a mirror where the risk-return combination available for all risky assets in the capital markets at a given point of time is reflected. Share price index in the DSE has skyrocketed in November 1996 and the index has reached almost 3600 points. To prevent the artificial bull market in 1966 several reform programmes and some measures have been taken by the government and donor agencies including automation in the DSE. Risk return behavior analysis and estimated SML has been computed in this chapter.

In Chapter seven, Dividend payment performance of listed companies in the DSE has been analyzed. Whether there is any relation between the dividend payment and the price of the stock have also been evaluated. Chapter eight deals with the problems of DSE and the policy implications of the study.

Finally, Chapter nine represents the summary of findings, policy recommendations and conclusions. This also deals with some suggestions for conducting further research in this field. The next chapter analyzes methodology and conceptual framework.

CHAPTER TWO

Methodology and Conceptual Framework

This chapter deals with methodology and conceptual framework of the study. Accordingly it is divided into three broad sections. The first section is devoted to analyze methodology of the study. The other sections explain the techniques of data analysis and the conceptual framework relating to the key concepts and definitions used in the study.

2.1 Definition

A method or methodology is a systematic and analytical study of the standard of conduct, which is followed in scientific investigations, it is "the system of principles, practices, and procedures applied to any specific branch of knowledge." The word, 'method' means "a way of doing"¹ something. It came from the Greek words 'meta' and 'hodos' meaning "a way"². Thus the word, 'methodology' stands for "a set of methods used in a particular area of activity"³. Broadly, a method or methodology is "the underlying principles and rules of organization of a philosophical system or inquiry procedure"⁴. Thus, "methodology is the systematic and logical study of the principles guiding scientific investigation."⁵ It is "the system of principles, practices, and procedures applied to any specific branch of knowledge."⁶ In other words, it is "the philosophical study of scientific method; the branch of logic dealing with general principles of the formulation of knowledge."⁷

¹ A.S. Hornby, *Oxford Advanced Learner's Dictionary of Current English* (London : Oxford : Oxford University Press, 5th ed., 1995), p. 734.

² William Geddie (ed.), *Chamber's Twentieth Century Dictionary* (London : W and R Chambers Limited, 1965), p. 669.

³ Hornby, *op.cit.*

⁴ Lawrence Urdong (ed.), *The Random House Dictionary of the English Language* (New York: Random House, 1968), p. 841.

⁵ Julius Gould and William L. Kolb (eds.), *A Dictionary of the Social Science* (London : Tavistack Publications, 1964), p. 425.

⁶ Robert Ilson (ed.), *Reader's Digest Great Illustrated Dictionary* (London : The Reader's Digest Association Limited, 1985), p. 1071.

⁷ Ibid.

2.2 Selection of a Method

We know that the selection of a research method is very important for conducting any research work. From the beginning we were conscious about the selection of appropriate method for this study. Research, in any branch of human knowledge "is a careful inquiry or examination to discover new information or relationships and to expand and to verify existing knowledge."⁸ It can also be said further that it is a "manipulation of things, concepts, or symbols for the purpose of generalizing and to extend, correct or verify knowledge, whether that knowledge aids in the construction of a theory or in the practice of an art."⁹ It emerges from an authentic zeal to know rather than a promise to prove. Keeping these broad principles of research in mind, we carefully adopted the ways and means which we call here "methodology" for verifying existing information and data with a view to "to expand and to verify existing knowledge"¹⁰ in the field under study.

Any scientific investigation requires one or more research methods, which enable a researcher to conduct the study systematically. Research is no doubt a disinterested or unbiased search for knowledge.¹¹ Though methodology plays an important role in any scientific or social research, the methods to be used somehow differ from one research to another. The present study makes an attempt to apply the method of documentary analysis. This is defined as "an attempt to find out what has happened in the course of time and to correlate the events, within the limits of available material on the one hand and of the researcher's intelligence and understanding on the other, into a meaningful sequence."¹² In fact, this analysis is primarily quantitative in nature and deals with characteristics, which can be identified and counted; although to realize the set objectives of the study qualitative interpretations are also necessary and desirable.¹³ The present study exclusively uses this method by compiling the data of last 25 years in the DSE and by drawing inferences from the analysis of those data.

Methodology is the key guideline of any research. Hence selection of a well-defined method is very important for any scientific inquiry in any field of knowledge. However, we in this work did not exclusively follow a single method rather used multiple methods for collecting data. These include: (a) study of secondary materials i.e., dissertations, articles, research paper, newspapers, reports, journals, periodicals, publications and annual reports of DSE and so forth; (b) discussions and formal interviews with key officials of DSE, members of DSE, resource

⁸ J. Francis Rummel, *An Introduction to Research Procedures in Education* (New York : Harper and Row, Publishers, 1964), p. 2.

⁹ Ibid., pp. 2-3; *Encyclopedia of the Social Sciences*, Vol. 13 (New York : Macmillan, 1934), pp. 330-334.

¹⁰ Rummel, *op.cit.*, p. 2.

¹¹ M. Zainul Abedin, *A Hand Book of Research for the Fellows of M. Phill and Ph.D. Programmes* (Dhaka : Book Syndicate, 1996), p. 11.

¹² Ibid., p. 170.

¹³ Ibid., p. 164.

persons i.e., policy makers, industrialists, journalists, investors etc.; At this stage about 100 persons from all these sectors were interviewed by the researcher to conduct an opinion survey. Purposive selection was made on the basis of length of involvement (minimum 5 years) in the capital market and in the DSE. Experts, educationists, scholars, researchers and policy makers having long experience in the field were also purposively selected for this study. (c) Academic tours for studying materials at home and abroad particularly in our neighboring country India were also made. In this study the researcher also uses documentary research method which is primarily quantitative in nature and considers the characteristics which are measurable but qualitative interpretations are also highlighted here.¹⁴ The researcher uses the annual reports and other documents of DSE covering a period of from 1976 to 2000 and carefully verifies and analyzes those for drawing logical inferences.

2.3 Sources and Nature of Data

In this study primary and secondary data are largely used. The secondary sources of data are published statistical reports, different annual reports of DSE and SEC, documents, ordinances, books and different periodicals published at home and abroad. Materials, which are incorporated in the study, are duly acknowledged. However, some primary data and information are collected from DSE head office and the investors. Besides, discussions were held with DSE officials, with the researchers engaged in capital market studies, policy makers, industrialists and resource persons. The results of these discussions are used in the analysis of data and in the evaluation of the performance of DSE. However, the detailed work plan and methodology of the study was developed with the progress of research works.

Secondary data were mainly used in evaluating mutual fund performances in the development of capital market of Bangladesh. Data were collected from the Annual Reports of ICB, for the Mutual Funds, the Securities and Exchange Commission's (SEC) Annual Reports and the SEC Quarterly Review, the Dhaka Stock Exchange's (DSE) Annual Reports and the DSE Monthly Review, Closing Quotation Register and database, The FACT Book - 1994-DSE, Monthly review of DSE, Local and International journals. The daily quotation published by the DSE, BSRS Annual Reports and AIMS Annual Reports were also used. Financial Express's daily quotation and investment journals (such as the Share Bazar) have also been used for collection of Data.

2.4 Types of Data and Their Sources

Two types of data sources, both primary and secondary were used in the study. Primary sources include unpublished official documents, interviews and discussions with the bank executives, experts and other scholars on the subject, newspapers, reports, manuscripts, thesis, and dissertations. The secondary sources contain published official statistics, reports, documents, laws, ordinances, books, articles, periodicals of different domestic and international

¹⁴ Abedin, *op.cit.* p. 53.

agencies, etc. All the above data are incorporated in the study according to their suitability and needs with due care and acknowledgements. Annual reports of the concerned banks, different reports and statistics of Bangladesh Bank and those of Ministry of Finance are extensively used in this study as data sources.

2.5 Analysis of Data

Data collected from different sources were computed and analyzed by the researcher by applying modern statistical techniques. Computer was used for detail statistical analysis. To make the data more meaningful, those are analyzed in tabular forms, percentages, ratios, mean, median, standard deviation, index numbers, time series and in some other statistical forms according to their suitability and needs of the study.

2.6 Authenticity of Data Sources

With a view to justify the authenticity or genuineness of the documents and books (which is called external criticism) and credibility or trustworthiness of the data within the documents and books (which is known as internal criticism), care has been taken to use the original works and documents, to distinguish between a fact and an opinion and to evaluate and compare between old and recent materials.¹⁵

In fact, much can be determined about an author's reliability by his care in acknowledging the sources of his information.¹⁶ Adverse opinions among authors, which seem to be equally reliable, are resolved here by weighing and counting the evidence for each point of view and then applying the researcher's value judgement.

2.7 Techniques of Data Analysis

2.7.1 Measure of Growth

The word growth means an increase. In other words, it may be termed as the process of growing. Oxford Advanced Learner's Dictionary of Current English defines it as: "An increase in economic activity, profit etc."¹⁷ The study assumes the term as an increase in some important variables such as public issue of listed securities, market capitalization, turn over of shares and debentures etc. In the periphery of the study, to estimate the increase in different selected variables, it is decided to use the following variants of growth rates keeping in view the nature of the data available and their suitability.

¹⁵ James D. Lester, *Writing Research Papers-A Complete Guide* (Illinois : Scott, Foresman and Company, 1967), pp. 39-42, Rummel, *op.cit.*, pp. 171-173.

¹⁶ Kate L. Turabian, *Students' Guide for Writing College Papers* (Chicago : Phoenix Books and The University of Chicago Press, 1965), p. 5.

¹⁷ Hornby, *op.cit.*, p. 527.

2.7.2 Simple Growth Rate (SGR)

It simply gives the percentage increase over the previous year. The following equation represents this rate:

$$\text{SGR} = (Y_t - Y_{t-1}) / (Y_{t-1})$$

where,

SGR = Simple Growth Rate,

Y_t = Values of the variable Y in year t,

Y_{t-1} = Value of the variable Y in previous year

$t-1:t$ = Considered year

$t-1$ = Previous year of the considered year.

2.7.3 Compound Growth Rate (CGR)

It indicates changes for a given period on the basis of the initial year and the terminal year values. The equation may be expressed as:

$$\text{CGR} = [Y_1 / Y_0]^{1/t} - 1] 100$$

Where,

CGR = Compound Growth Rate,

Y_1 = Value of the variable Y at the terminal year,

Y_0 = Value of the variable Y at the initial year,

t = Difference of year between the terminal year and the initial year.

2.7.4 Trend Growth Rate (TGR)

To observe the general performance of two groups of variables more meaningfully and objectively it is essential to compare their growth patterns over the period rather than on a year to year basis. Recognizing the above, Birla Institute of Scientific Research (BISR) observes that the best measure available for such an exercise is the compound growth rates which are least affected by the distortions brought about by the practice of window dressing indulged by the banks on the eve of releasing their balance sheets.¹⁸ In the same direction John R. Stockton and Charles T. Clark argue that, "if it is desired to compare the growth of two series, the best comparison can be made between the trends rather than between the two series themselves."¹⁹ To shun the problem, Robert D. Mason states more specifically that a semi-logarithmic trend is appropriate when the time series data is considered to be increasing or decreasing at somewhat

¹⁸ Birla Institute of Scientific Research (BISR), *Banks Since Nationalization* (New Delhi : Allied Publishers Private Limited, 1981), p. 52.

¹⁹ John R. Stockton and Charles T. Clark, *Introduction to Business and Economic Statistics* (Cincinnati, Ohio : South Western Publishing Co., 1971), p. 497.

constant rate.²⁰ BISR²¹ Bhuyan and Akhtaruddin,²² A.S. Chawla²³ etc. applied the Ordinary Least Square (OLS) method to fit the semi-logarithmic trend equation. The form of the semi-logarithmic trend equation is:

$$\log Y = A + BX \dots \dots \dots (1)$$

In the present analysis

Y = Dependent variable i.e., turn over of shares and debentures.

A = Constant or intercept of the trend line i.e., the value of Y at the origin.

B = Estimated trend coefficient i.e., the slope of the trend.

X = Point in time.

From the value of the slope (i.e., the coefficient of the trend denoted by 'B') the rate of increase for the trend could be determined. Hence, the following equation represents the growth rate:

$$\text{TGR} = [\text{antilog}(B) - 1] 100 \dots \dots \dots (2)$$

This growth rate is known as a semi-logarithmic least square trend growth rate or simply Trend Growth Rate (TGR). It is also a compound growth rate. But unlike the compound growth rate (mentioned earlier) it is calculated on the basis of the value of a variable for all the years of the time series. Therefore, it is considered to be a better estimate.²⁴ Then the test of significance is to be applied for finding out whether the estimated growth rate is significantly different from zero, at five percent or ten percent level of significance. Here the null hypothesis is:

$H_0: B = 0$, and the alternative hypothesis is.

$H_1: B \neq 0$.

If the null hypothesis were rejected, it would imply that the growth rate as well as the total regression was significant (at the above level).

2.8 Analysis Techniques of Mutual Funds Performance

For the purpose of analyzing the **mutual funds' performance**, some statistical tools including percentages, arithmetic mean, geometric mean, standard deviation (S.D.) and

²⁰ Robert D. Mason, *Programmed Learning aid for Business and Economic Statistics*, (Homewood Illinois : Learning Systems Company, 1978), p. 139.

²¹ BISR, *op.cit.*, p. 52.

²² M.S.R. Bhuiyan and Md. Akhtar Uddin, "Productivity in Uttara and Pubali Banks During Nationalized and Denationalized Periods : A Case Study of Commercial Bank in Bangladesh", *Bank Parikrama*, Vol. XIV, Nos. 3 and 4, Dhaka, September and December, 1989, pp. 100-125.

²³ A.S. Chawla, *Nationalization and Growth of Indian Banking* (New Delhi : Deep and Deep Publications, 1987), pp. 32-33.

²⁴ Ibid.

coefficient of variation (C.V.) have been used in this study. ASPI of the DSE as market index and average annual interest rate of Treasury Bills issued by the Government as a risk-free return has been taken into account. Mutual funds performance test has been estimated with the guidance of Jensen, Sharpe and Treynor index. Ranking and finding Spearman rank correlation have been also completed in the study.

2.9 Sample Design and Methodology in Mutual Fund Performance

At present in Bangladesh, with the exception of very few all mutual funds are brought about by the Investment Corporation of Bangladesh (ICB). ICB has been managing eight ICB Mutual Funds and one Unit Fund. For the study, 8 ICB mutual funds and one BSRS and one AIMs mutual fund have been taken as the sample of the study. The time boundary selected for the study covers the last twelve years from 1988-89 to 1999-2000. However, in chapter four, the researcher has followed a standard and suitable methodology in evaluating mutual fund performance in the development of capital market of Bangladesh. A research work was done by Bala and Habib captioned "Investment Performance Evaluation: A Study on Investment Corporation of Bangladesh (ICB) Mutual Funds"²⁵. The methodology, they used in their research work in evaluating mutual fund performance was followed by the present author.

2.10 Mutual Funds Rate of Return

Investors having mutual funds generally obtain three types of income: a) cash dividend or interest disbursement b) capital gain disbursement and c) change in the fund's net asset value (NAV) per share. Rate of return from any securities is generally designated to "yield" which is the ratio of the expected cash income to be received by the holder during a certain period of time which is generally one year, to the current price. It is called Holding Period Yield (HPY) which expresses Holding Period Return (HPR) as a percentage of each Taka invested.

The general formula for HPR is:

$$HPR = \frac{\text{Income payments received during period in Taka} + \text{Price at end of period in Taka}}{\text{Price at beginning of period in Taka}}$$

and HPY = HPR – 1. Hence,

$$HPY = \frac{\text{Income payments during period} + \text{price at end of period} - \text{price at beginning of period}}{\text{Price at beginning of period}}$$

²⁵ Swapan Kumar Bala and Ahsan Habib, "Investment Performance Evaluation : A Study on Investment Corporation of Bangladesh (ICB) Mutual Funds", *Dhaka University Journal of Business Studies*, Vol. 18(2), Dhaka, 1997, pp. 249-265.

Mutual funds' investors receive their "income payments" in the form of "cash dividend disbursement" and "capital gains disbursements" during a given period of time. But closed-end mutual funds differ from that of open-end funds in several important respects. Close-end mutual funds have a daily quoted price in the stock exchanges, whereas, the open-end mutual funds have the net asset value (NAV) which is computed on the basis of daily valuation of assets. Hence, the rate of returns calculation of open-end and closed-end mutual funds are quite different. Since investors generally obtained three types of income having mutual funds of its own: a) cash dividend or interest disbursement, denoted by d , and b) capital gain disbursements, denoted by c , and c) change in the fund's net asset value (NAV) per share from capital gains and cash dividends that were not distributed to the owners, denoted by $NAV_{t+1} - NAV_t$ for the t th period²⁶. The one period rate of return (r_t) for a open-end mutual fund and for a closed-end mutual fund are defined in equation (1) and equation (2) respectively.

$$r_t = \frac{C_t + D_t + (NAV_{t+1} - NAV_t)}{NAV_t} \quad (1)$$

$$r_t = \frac{C_t + D_t + (P_{t+1} - P_t)}{P_t} \quad (2)$$

Where,

- C_t : denotes cash dividend disbursements during the period
- D_t : denotes capital gains disbursements during the period
- NAV : denotes net asset value
- P : denotes market price
- t and $(t+1)$: denote beginning and ending of the selected time period

The C_t and D_t are the "income payments" received by the investors and the $(NAV_{t+1} - NAV_t)$ and $(P_{t+1} - P_t)$ are the "capital change over the period" expected to be received by the investor. Closed-end funds are essentially marketable shares of common stock. As a result, their one-period rates of return are calculated like common stock returns, which can be defined in equation (3)

$$r = \frac{\text{ending wealth} - \text{beginning wealth}}{\text{begining wealth (or, purchase price)}} \dots\dots\dots (3)$$

An investor can obtain two kinds of income from an investment in a share of stock or a bond:

1. Income from price appreciation (or losses from price depreciation) sometimes called capital gains (or losses). This quantity is denoted by $p_t - p_{t-1}$.

²⁶ Jack Clark Francis, *Investments Analysis and Management* (Singapore : McGraw-Hill Inc, 1991), p. 648.

2. Cash flow income from cash dividend or coupon interest payments, represented by the convention c_t .

The sum of these two sources of income (or loss) equals the change in the invested wealth during any given holding period. The rate-of-return formula can be restated in a form appropriate for almost any investment.

$$r_t = \frac{\text{price change} + \text{cashflow (if any)}}{\text{price at beginning of the period}} = \frac{(p_t - p_{t-1}) + c_t}{p_{t-1}} \dots\dots\dots (4)$$

where

p_t = market price at end of period t

p_{t-1} = price at end of period $t - 1$

c_t = cash flow income received during the t th period.

It has been observed that only cash dividend (interim and final or final only) is distributed among the mutual fund shareholders in Bangladesh. In spite of the fact that market prices of mutual funds are available but there is no authentic disclosure of NAV at official level. For the purpose and analysis of the research, the following equation no. 5 has been used in calculating annual rate of return (r_t) of a mutual fund

$$r_t = \frac{\text{Annual net profit}}{\text{Average total asset}} \dots\dots\dots (5)$$

Average total asset is the arithmetic average of total asset, which is the beginning and ending figures in the annual reports. r_t has been computed as per equation no. (1) for all the eight ICB Mutual Funds (from First to eighth) for twelve years and one BSRS Mutual Fund for five years (from 1996 to 2000). The overall return for all of the eight ICB Mutual Funds (from First to eighth) and one BSRS Mutual funds has been estimated by using the complete figures for a particular period. The arithmetic mean (AM), standard deviation (S.D.) with arithmetic mean [S.D. (AM)], coefficient of variation (C.V.) with respect to arithmetic mean [C.V. (AM)], the geometric mean (GM) and the standard deviation with geometric mean [S.D. (GM)] have been computed on the basis of annual rate of return for all the eight ICB Mutual Funds (from First to eighth) for twelve years and one BSRS Mutual Fund for five years (from 1996 to 2000). The market rate of return (r_m) has been computed on the basis of closing all share price index (ASPI) as per the following equation (6):

$$r_m = \frac{\text{ASPI}_{t+1} - \text{ASPI}_t}{\text{ASPI}_t} \dots\dots\dots (6)$$

2.11 Ranking Mutual Funds Rate of Return on the Basis of the Capital Asset Pricing Model (CAPM)

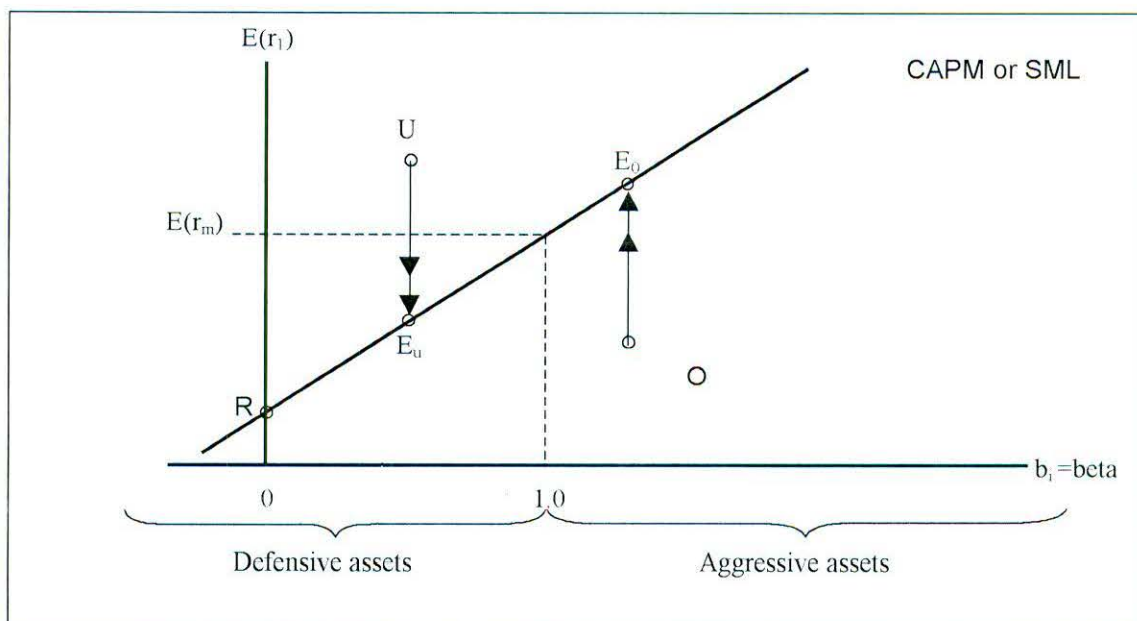
The CAPM is a relationship in which the expected rate of return of the i th asset is a linear function of that asset's systematic risk as represented by β_{MF} . Symbolically, equation 7 represents the CAPM. A risk-adjusted technique of mutual fund performance evaluation can be a wise performance-measuring yardstick, because it is insensitive to the portfolio risk. But in constructing a risk-adjusted measure, it is required to assume that stocks are priced according to a given pricing model. For the purpose of the research work, it is assumed that the Capital Asset Pricing Model (CAPM) holds for the Dhaka Stock Exchange (DSE) and systematic risk (β) of mutual funds have been computed in the following way:

$$\beta_{MF} = \frac{COV(r_{MF}, r_m)}{VAR(r_m)} \dots \dots \dots (7)$$

Where, COV is covariance, VAR is variance, r_{MF} is annual rate of return on mutual and unit funds computed earlier, r_m is annual market rate of return computed earlier, and β_{MF} is systematic risk of mutual funds. The arithmetic mean of 13 years' rates of interest on Government Treasury Bills ranging from 1988 to 2000 have been taken as the risk free return or riskless rate R for the analysis under study.

Figure 2.1

The Capital Asset Pricing Model (CAPM)²⁷



²⁷ Ibid., p. 276.

$$E(r_i) = R + \left(\frac{E(r_m) - R}{b_m} \right) b_i \dots\dots\dots (8)$$

$$E(r_i) = R + [E(r_m) - R] b_i, \text{ since } b_m = 1.0$$

where

b_i = independent variable representing systematic risk of i th asset; it determines the dependent variable $E(r_i)$, expected rate of return for asset i

R = vertical axis intercept, the riskless rate

$E(r_m) - R$ = slope of CAPM

U.S. Treasury bill yields are a good approximation of R , as they are generally considered risk-free.

Three widely used performance measurement technique like, the Treynor index, the Sharpe Index and the Jensen Index have been estimated and evaluated by captivating the arithmetic mean and standard deviation (S.D) therewith of the funds' and the market returns over the sample for all the eight ICB Mutual Funds (from First to eighth) for twelve years and one BSRS Mutual Fund for five years (from 1996 to 2000) period as the expected return, In all the cases the formula has been used those are as follows:

The Treynor Index ($\hat{T}_{MF}$)

$$\hat{T}_{MF} = \frac{\bar{r}_{MF} - \bar{R}}{\hat{\beta}_{MF}} \dots\dots\dots (9)$$

The Sharpe Index ($\hat{S}_{MF}$)

$$\hat{S}_{MF} = \frac{\bar{r}_{MF} - \bar{R}}{\hat{\sigma}_{MF}} \dots\dots\dots (10)$$

The Jensen Index ($\hat{J}_{MF}$)

$$\hat{J}_{MF} = \bar{r}_{MF} - [R + (\bar{r}_m - R)\hat{\beta}_{MF}] \dots\dots\dots (11)$$

Where, $\bar{r}_{MF}$ is the arithmetic average rate of return to a mutual fund, $\bar{R}$ is the average return on risk-free rate of Treasury Bills, $\hat{\beta}_{MF}$ is the estimated beta for a mutual fund. σ_{MF} is the estimated standard deviation with arithmetic average or return to a mutual or unit fund, and $\bar{r}_m$ is the arithmetic average rate of return to the proxy market portfolio represented by the all share price index (ASPI).

2.12 Period Under Consideration for Dividend Analysis

To test the effect of dividend announcement on the securities traded in DSE Ltd., Years, 1999 and 2000, have been considered as the observation period. In fact, the study focused on the last AGM as well as the last dividend announcement date of the selected securities in the sample. The last AGM date of 50 securities in the sample was distributed between periods of 1999 and 2000. The time period under consideration of 1999 and 2000 does not mean that the study is based on two year's data of the same company. Rather, data were taken one company's once, but these were distributed over 1999 and 2000.

2.13 Population and Sample of Dividend Performance Analysis

Total number of securities enlisted on Dhaka Stock Exchange Ltd. on December 31, 2000 was 241, including 219 equity shares, 1 ICB unit Certificate, 10 Mutual funds, and 11 debentures. There were 13 industrial sectors in total.

This study was done by identifying actively traded securities in DSE Ltd. Which included only those companies which declared dividend regularly (Once in a year minimum within five years) for the last five years ranging from 1995-96 to 1999-2000. So, 146 securities were randomly selected within this category, which represent 13 industrial sectors.

2.14 Some Refinement

To obtain an accurate measure of market reaction to dividend announcement, several refinements were required in the original test. This study on DSE excludes those securities, which issued bonus share, because issuance of bonus share also has impact on the market price of securities. The study excludes those securities, which issued right shares, because right share has impact on the market price of securities and the companies who has not call AGM in time This refinement measure reduced the sample size from 146 to 50. Although due to this criteria a few good companies were dropped from the analysis.

2.15 Event Study Methodology

An event methodology is employed to measure security price performance around the time of the event of dividend announcement.

2.16 Observation Period and Comparison Period

The announcement day is defined as day 0. Fifteen day (-15) before the announcement day was selected as the observation period whereas, Fifteen days (+15) after the announcement day was selected as the comparison period.

2.17 Statistical Tools

To test statistical significance of security price movement around dividend announcement date, the **Student test** was employed to measure the significance among the means of the samples, observation period, and comparison period.

The means of difference test $t = \frac{\bar{x}_1 - \bar{x}_2}{\sigma\bar{x}_1 - \bar{x}_2}$

Where,

$\bar{x}_1$ = Mean of sample one

$\bar{x}_2$ = Mean of samples two

$\sigma\bar{x}_1 - \bar{x}_2$ = Standard error of difference between two sample means worked out as

$$\sigma\bar{x}_1 - \bar{x}_2 = \sqrt{\frac{\sum (\bar{x}_{1i} - \bar{x}_1)^2 + \sum (\bar{x}_{2i} - \bar{x}_2)^2}{n_1 + n_2 - 2}} \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

and, the degree of freedom = $(n_1 + n_2 - 2)$

2.18 Risk-Return Relationship

In calculating risk-return relationship behavior before and after automation the researcher has used the following methodology. This methodology has already been used in analyzing the risk-return relationship for a period of four months by Haque and others²⁸. The Beta (β) of each stock along with the market is calculated for both time periods: before automation and after automation. Beta (β) is a relative measure of the sensitivity of an asset's return to changes in the return on the market portfolio. β is calculated by using the following formula:

$$R_s = A + \beta R_m$$

Where

R_s = Estimated return on the stock

A = Estimated return when the market return is zero

β = Measure of stock sensitivity to the market index

R_m = Return on the market index.

Sector β and market β are simple average of the stock β .

²⁸ M Shamsul Haque, Rizwan Eunos, Mohiuddin Ahmed, *op.cit.*

2.19 Data Used for Risk-Return Relationship Behavior in the DSE

The main sources of data are the secondary source. The SEC quarterly, SEC Annual Report, DSE Review, Portfolio Magazine (CSE Publication), Inquiry Committee report and market generated information, such as every day price of stocks and market index available in daily newspaper, web sites of DSE, CSE and SEC etc. are the major sources of data.

For the purpose of the risk-return behavior analysis, eight stocks from each sector were selected. From each sector a total of eight stocks, 4 stocks having highest market capitalization and 4 stocks having lowest capitalization were chosen based on market capitalization on 30 October, 2000. β of each sector (71 stocks from 9 sectors) was calculated. In the Jute Sector, only 7 companies' data were available and those were taken for the sample study. That is why, out of 72 stocks only 71 stocks have got final selection for the sample size.

Price of each stock is collected from August 1995 to July 1996 and then August 97 to July 1998. The period ranging from August 1996 to July 97 has not been taken to the sample size because that period was not normal period indeed in the DSE. In 1996, huge number of small and marginal investors lost their money and some of them ran into debt. In June 1996, the market behavior was not sound and it was going towards boom situation. Huge number of individual investors entered into the capital market. Trading volume rose sharply and all share price index of DSE reached 3648 points. In November 1996, the inevitable consequence happened and the market collapsed. In recent times, the index has come down to 800 points. Share price index of DSE stood at 3648 points in November 1996 from 1000 points in January 1996 and then declined at around 500 points in 1998. Because of this fluctuation in the index of the DSE the period mentioned above has not been considered. The automation of DSE took place in August 1998, due to this reason in this study the period August 1998, September 1998 and October 1998 were not considered. Holding periods' yields for selected daily transactions were computed. Trading did not take place for many stocks everyday.

2.20 Method of Kruskal Wallis Test

K Statistic

$$K = \frac{12}{n(n+1)} \sum \frac{R_j^2}{n_j} - 3(n+1)$$

where,

n_j = Number of items in sample j (before and after automation)

R_j = Sum of the ranks of all items in sample j

$n = n_1 + n_2 + \dots + n_k$, the total number of observations in all samples

k = Number of sample

Degree of freedom = $k - 1$

As long as χ^2 statistic is lower than the chi-square value for a given degree of freedom and level of significance, the null hypothesis will not be rejected.

2.21 Conceptual Framework

The caption of the present study is "Development of Capital Market in Bangladesh: A Study on Dhaka Stock Exchange Limited". There appear three variables i.e., (a) Capital market, (b) its development, and (c) DSE. So, conceptually the work is based on DSE but in doing so we had to trace out the development of the capital market in Bangladesh. In our present study we tried to evaluate the development of capital market and for that we had to use some indicators or parameters of the development of capital market. In our study we did not specifically use any parameter of development used by any authority – rather we took the help of self devised parameters which can be traced out in the entire work of the dissertation. In the introductory chapter we tried to evaluate the role of financial system in the economic development of Bangladesh. But that role is again traced in (a) its economic system, (b) flows of income payment and production in the economic system, (c) Inter-linkages of various institutions and the role of financial institution in the development, (d) role of markets in the economic assemblages, and (e) type of markets in economic system and so forth.

The key words, which are frequently used in this study, are defined here from theoretical point of view and operational standpoint.

2.21.1 The Stock Exchange

Stock Exchange is a market place where issued shares and stocks of all kinds of business whether commerce, industry, Government or any other concern are bought and sold freely, quickly and fairly.²⁹ The mode and method of operation and trading in a stock market is similar to that of a commodity market but the difference lies in the fact that while the commodities are bought for current consumptions, stocks and shares are acquired with the objective of preserving the value of savings and thereby deriving gains or income either through annual dividends or a appreciation in the value of stock purchased.

2.21.2 Bonds or Debentures

Bonds or debenture stocks are loans for a certain period, carry a fixed rate of interest, and are secured on the company's fixed assets. Both bonds and debentures are redeemable after a pre-determined fixed period of time. In the case of convertible debentures, it will have a conversion ratio into the ordinary shares according to the terms of offering.

²⁹ Md. Shariful Huq and Md. Abdul Huq, *Investors guide to Stock Exchange* (Dhaka: B.B. Publishers, 1988), p. 15.

2.21.3 The Primary Market

Generally a company after execution of all formalities for public offering of shares makes public announcement inviting applications for subscription of shares. This quotation of a previously unquoted security or creation of additional stock of shares may be broadly termed 'issue' and the market where application for buying of shares of a company at the offered price can be made is known as the 'Primary Market'. Shares are generally offered in the primary market at face value but, under special circumstances, can also be offered at a premium value or a discounted value.

2.21.4 The Secondary Market

Shares are a tradable commodity and an investor has the right to exercise his option to sell it at any time. For selling shares investors must find a buyer and a platform where such buying and selling can be done. The secondary market is the platform where buying and selling of shares are conducted. For the companies listed on the Stock Exchange, the Stock Exchange floor is the only authorized and legal premise for carrying out such trading.

2.21.5 Brokers

Since there is a complexity of the business transacted in the Stock Exchange and the knowledge and expertise necessary to make investment decisions, an investor without any professional counsel will find it almost impossible to make effective decisions. This realization has created a group of professionals who are members of the Stock Exchange. Professionally they are known as 'Brokers'. A broker is, therefore, a member of the Stock Exchange who performs the function of a professional councilor for investment on stocks and shares and acts as an agent for his investors in the performance of all Stock Exchange dealings.

2.21.6 Operating Efficiency

Operating efficiency can objectively be assessed through operating ration as worked out from published accounts. Such rations to be meaningful should be based on a time series of reasonable length, say, five years, and be compared to industrial ratios. In our present situation, industrial rations cannot be effectively worked out and gainfully utilized because of poor population of listed stocks within the domain of a particular industry. With the widening of capital market, it is expected that cluster of firms within an industry will become larger on the Stock Exchange ultimately resulting in a representative population and making it possible to work out industrial ratios.³⁰

2.21.7 Financial Strength

The financial strength of a company is very important and an essential requirement for continued operation, carrying out necessary balancing, modernization, replacement, and

³⁰ Md. Shariful Huq and Md. Abdul Huq, *op.cit.*, p. 15.

expansion programme, to carry reasonable stocks, stores, and spares, to be able to extend reasonable credit facilities, to shut too much dependence on creditors, to reduce excessive burden of borrowing from financial institutions and to be able to service debts regularly. Financial strength can particularly be used to secure company's future growth through vertical and horizontal expansion.³¹

2.21.8 Listed

A security 'listed' on a Stock Exchange is one, which is included in the official list of securities quoted on that exchange.

2.21.9 Oversubscribed

In case of a new issue, where applications are received for a total, in excess of the amount available, the issue is said to be 'oversubscribed'.

2.21.10 Preferred Stock

Such stocks take precedence over the common stock according to whatever terms are determined upon. Usually it is accorded a prior claim on the net assets and a specified amount of the profits.

2.21.11 Bank

The word bank has been derived from the Latin word "Banco" which means the bank of a river. It also means the demarcating line of land. The hip of money or wealth is also sometimes considered as bank. Renowned economists R.P.Kent has defined "bank as an institution, the principal function of which is to gather in fixed ideal money from the people and to lend it to others in need". According to English Finance Act 1915 "A bank is a person or corporation engaged in bonafide in banking business". In the opinion of G. Crowther "A bank is a dealer in debt his own and other people".

2.21.12 Broker

Broker means any person engaged in the business of broker for commission or other benefit, designed to bring into contact the supply and demand of securities and money market funds.

2.21.13 Capital market

Capital Market means the totality of financial markets in the broadest sense, including money markets and securities markets, both primary and secondary, and all forms of finance, whether short-, medium- or long-term, and all participants in the foregoing institutions.

³¹ Md. Shariful Huq and Md. Abdul Huq, *op.cit.*, p. 15.

2.21.14 Cash Transaction

Cash transaction means a transaction in securities with immediate payment of a debt when it is due either in cash or by any other means of money transfer or by a duly covered cheque.

2.21.15 Control

Control means the ability to direct the policies and activities of a person or entity, through direct or indirect ownership of securities, contractual arrangements or otherwise.

2.21.16 Dealer

Dealer means any person, not being an investor or issuer, engaged in the regular business of buying and selling of securities for his own account.

2.21.17 Financial Institution

Financial Institution means any person, or a bank, registered as a financial institution under the Banking Act.

2.21.18 Investment Adviser

Investment adviser means any person who engages himself in the business of advising in relation to the value of securities or the investing, purchasing or selling of securities.

2.21.19 Investor

Investor means a person engaged in the buying, selling or holding of securities for investment purposes for his own account.

2.21.20 Issuer

Issuer means a person who, directly or through the intermediary of an underwriter, agent or other arrangement, issues securities or introduces securities in the capital market.

2.21.21 Market Maker

Market maker means a person who for his own account operates in a financial market as a buyer of securities, offered for sale, or as a seller of securities demanded for purchase, in cases that no other counterparts are prepared to deal.

2.21.22 Public Offering

Public offering means an offer or invitation to the public as defined in section 165 of the Companies Act.

2.21.23 Security

Security means:

- a) stock, shares, bills, notes, commercial paper, certificates of deposit, bonds and debentures issued by the Government or statutory bodies, or by companies or other bodies whether corporate or unincorporated;
- b) any interest, privilege, right, option, warrant or receipt in respect of issues referred to in paragraph (a) and
- c) any interest or instrument commonly known as a security: Provided that the Bank may nonetheless determine whether or not any arrangement or matter constitutes a security and exempt, as it deems appropriate in pursuit of this Act, fully, partially or conditionally, types and classes of securities from the definition of securities for purposes of any or all of the provisions of this Act.

2.21.24 Self-regulatory Organization

Self-regulatory organization means an association of members who operate regularly in a capital market as brokers, dealers or market makers, which is established, with the permission of the Minister upon recommendation of the Bank, in order to provide rules and regulations aimed at the proper functioning of a stock exchange or other form of trade in securities.

2.21.25 Underwriter

Underwriter means any person or group of persons who undertakes or undertake to purchase securities from an issuer with the intention to offer for sale and distribute such securities, or who participates or participate in any such undertaking, but does not include a person whose interest is limited to a commission from an underwriter or dealer not in excess of the usual and customary distributors' or sellers' commission.

2.22 Recapitulation of the Chapter

Chapter two is devoted to analyze methodology and conceptual framework of the study. In this chapter efforts have been made to define methodology and to select a particular method which has been used for this study. In this chapter we have elaborately discussed the sources and nature of data and techniques of data analysis. Moreover, a conceptual framework of this study has been discussed elaborately and operational definitions of some key words such as growth, growth rates, simple growth rate, compound growth rate, the change of indices, etc. are explained.

The next chapter captioned "Historical Profile of Capital Market and the Growth Trend of Dhaka Stock Exchange" deals with the growth and expansion of the activities of the DSE during the last two and a half decades.

CHAPTER THREE

Historical Profile of Capital Market and the Growth Trend of Dhaka Stock Exchange

One of the objectives of our present work is to evaluate the growth trend of DSE. But prior to that it is necessary to go through the historical profile of DSE, because this historical sketch shows how the DSE has come into operation through several changes or trials and errors.

3.1 Introduction

For the development of capital market of Bangladesh Dhaka Stock Exchange (DSE) was established in 1954. The DSE was brought into operation on 28 April, 1954 under the banner of the East Pakistan Stock Exchange Association Limited. On 23 June, 1962, it was renamed as the Dhaka Stock Exchange Limited and started functioning later on. The trading activity of the DSE was stopped at the time of liberation war in 1971 and it was reregistered in 1976. In view of the change of economic policy of the government of Bangladesh in 1976, trading activities were finally resumed, with a total of 9 listed companies having a total paid-in capital of Tk. 137.52 million. By December 1999, there were 240 companies listed in the DSE including nine mutual funds and twelve debentures with a total market capitalization of approximately US\$ 869.5 million.¹

The DSE is one of the pioneer stock exchanges in Bangladesh, which is a self-regulated and non-profit making organization. There is another stock exchange in Bangladesh namely Chittagong stock exchange (CSE). Although DSE was incorporated in 1954 under the name of East Pakistan Stock Exchange, formal trading didn't start until 1956 at Narayanganj. In 1958, it was shifted to Dhaka and started full-fledged functioning at the Narayanganj Chamber building, Motijheel C.A. In October 1957, the Exchange procured a land at Motijheel, Dhaka. On 14 May 1964, the name of the Stock Exchanges was amended as Dhaka Stock Exchange Ltd.

After full-fledged functioning, the stock market entered into the boom years of 1986 to 1988. In the stock market temporary speculation and the Government's privatization order and policies were the major causes behind the boom situation. Due to declining trend in the economy and poor corporate accomplishment, and due to natural calamities in year 1988 and 1991, stock

¹ Year Book 1999-2000, Federation of Euro-Asian Stock Exchanges, p. 28.

market became inactive and slow since 1989. The DSE has been facing a bearish trend since 1996 and market performance has become relatively slow up till now. However after 1996, development activities and reforms are continued, for sound operation in the DSE. A screen-based trading system was introduced in 1998. But the performance was very poor in 1999 compared to 1998. Recently, ten (10) (IPOs) came into the market adding US\$ 39 million to the total market capitalization with only seven (7) of those companies actually trading.² Although some new rules and regulations have been introduced by the Securities and Exchange Commission (SEC) but chronic bearish trend in the stock market continuing till today.

In 1999, the capital market was depressed due to liquidity crisis and the non-existence of satisfactory market players. For more transparent clearing and settlement, although a central depository system (CDS) was introduced in the stock exchanges; DSE has been trying to improve the quality of services for the benefit of the members and the market in bringing trust of the investors in the stocks' investment. In the mean time, to prevent unfair trading such as manipulation of stock prices and insider trading, DSE has taken especial measures, which is computer oriented. The following remarkable reforms were made in the DSE.

(i) A panel of judges were appointed to listen to the problems and settle up investors' complains; (ii) Online trading system was introduced successfully by the DSE to solve Y2K problems; (iii) Amendment of Articles of Association of DSE has encouraged the foreigners to become the members of the DSE; (iv) The reforms of the DSE has enabled the members to extend the credit facilities to their clients; and (v) The creation of FEAS (Federation of Euro-Asian Stock Exchanges) has helped to play critical role in linking the stock market to one another and leads to increase the efficiency of capital markets in Bangladesh.

3.2 Objectives of DSE

The general objective of the DSE is to provide with marketplace through which buyer and seller of securities can meet together. Other objectives are: (a) To promote just and equitable principles of trade with a view to reflecting the market price of securities. (b) To protect the interest of the investors. (c) To review and plead fiscal measures affecting the investors. (d) To publish Journals and Brochures giving impartial and elaborate disclosures about listed companies.

3.3 Legal Control and Members of DSE

The Dhaka Stock Exchange (DSE) was registered as Public Limited Company and its activities were regulated by its Articles of Association, its own rules and regulations and the Securities and Exchange Ordinance, 1969, Companies Act 1994 and Securities and Exchange Commission Act, 1993. At present, the number of members in the DSE is 195. There is a provision to increase the number up to 500. Membership is open for foreigners also.

² Year Book 1999-2000, Federation of Euro-Asian Stock Exchanges, p. 28.

3.4 Major Functions of DSE

The DSE as one of the participants of capital market usually performs certain functions, which are stated under the following headings: (a) Listing of companies. (As per Listing Regulations), (b). Providing the market place for trading of listed securities. Settlement of trading. (As per Settlement of Transaction Regulations), (c). Publication of Daily Index and Monthly Review and (d) monitoring the Activities of Listed Companies. (As per Listing Regulations).

3.5 Policy Making Body of DSE

The general Meeting of the Members is the ultimate decision making body of the Exchange. The Council comprising of 12 members, 9 elected by the members biannually and 3 nominated by the Government who perform executive and management functions. It controls the business conducts of the members and set down the basic policies of the stock exchange. There is another Council, which is responsible for policy making only. It consists of 24 members [Article 74(l)]: 12 councilors to be elected from members, 1 councilor to be nominated by the Ministry of Finance (Finance Division) not below the rank and status of Joint Secretary, 1 councilor to be nominated by the Bangladesh Bank from amongst its officers of or above the rank of General Manager, President of Institute of Chartered Accountants of Bangladesh, ex-officio, President of Federation of Bangladesh Chamber of Commerce and Industry, ex-officio, President of Metropolitan Chamber of Commerce and Industry, ex-officio, President of Dhaka Chamber of Commerce and Industry, ex-officio, 1 councilor to be nominated by the Ministry of Commerce not below the rank and status of joint Secretary, 1 councilor to be nominated by the Ministry of Law not below the rank and status of joint Secretary, President of Supreme Court Bar Association, ex-officio, President of Bankers/Insurance Association, ex-officio and Head of the Department Finance/Economics, Dhaka University, ex-officio.

3.6 Listing Requirements

Public limited company can be listed in the DSE and the DSE has some listing Regulations: (a). no company will apply for listing or be listed unless it is registered as a public limited company or has been set up under a statute and its minimum paid-up capital is Tk. 10 million (approximately US\$ 208,000); (b) despite receiving the application for listing and any preliminary actions, no company shall be listed unless it has made a public issue.

3.7 Trading and Share Price Trading Restrictions

DSE regularly except Friday and other holidays follow automated on-line system. There are four markets in the system.

Public market- only trading of market lot share is done here through automatic matching.

Spot market- Spot transactions are done here through automatic matching which must be settled within 24 hours.

Block market- A place where bulk quantities of shares are traded through pick and fill basis.

Odd lot market: Odd lot shares are traded basing on pick and fill

Trading time schedule: 10.30 AM to 2.00 P.M.

Post Closing Session: 2.00 PM to 2.30 P.M.

The Share Price Movement Regulating Committee (SPMRC) regulates the share price in the stock exchange with the following guidelines:

Previous day's per share market price	Limits
Up to Tk 200	20% (not to exceed Tk 35)
Tk 201 – Tk 500	17.5% (not to exceed Tk 75)
Tk 501 – Tk 1000	15% (not to exceed Tk 125)
Tk 1001 – Tk 2000	12.5% (not to exceed Tk 200)
Tk 2001 – Tk 5000	10% (not to exceed Tk 375)
Tk 5001 and above	7.5% (not to exceed Tk 600)

In special cases, unrestricted trading can occur for a specified time period after which the above limits apply, as follows. New issues for the first five consecutive market days; Receipt of price-sensitive information, such as rights issues, bonus issues and dividends from the listed company for three consecutive market days; Securities not traded for the previous 30 market days for three consecutive market days.³

3.8 Restrictions Imposed in Dealing Securities

The restrictions of dealings in securities in the DSE are: (a) no person shall perform any business in securities on Stock Exchange unless he is a member thereof is an approved authorized assistant of a member; (b) no person other than a member of the Stock Exchange shall act as a broker for any security; (c) no person shall act as a dealer in a security listed in Stock Exchange outside such Stock Exchange.

3.9 Risk Management Mechanism Followed by the Stock Exchange

The "Settlement of Stock Exchange Transactions" regulations cover the settlement risk captioned as under: (a) when a member fails to deliver securities and/or make payment by

³ Year Book 1999-2000, Federation of Euro-Asian Stock Exchanges, p. 29.

check/pay order/demand draft within the settlement day, the DSE will automatically square up the unsettled transaction by buying or selling, as appropriate, on the day subsequent to the settlement day. (b) If a check issued by a member is not honored by the bank, the DSE shall automatically settle the transaction by selling the securities. (c) The member causing irregularities may not be allowed to carry on trading until all payments have been settled. (d) If any member fails to make payment and/or deliver securities within the settlement day more than once in any calendar month, the DSE shall inform the SEC in writing. (e) The defaulting member shall be liable to pay a fine to the DSE for each of the irregularities. (f) If any securities delivered by a member runs out to be forged, fake, stolen, invalid, defective in any way whatsoever, the defaulting member shall be liable to replace such securities or refund the amount at his selling price with interest at 2.5% per month for the period from the settlement date to the day of the replacement/refund, along with all benefits attributable to such securities as the settlement date. The defaulting member shall be barred from carrying on trading for eight market days after the notification.⁴

3.10 Trading, Settlement & Clearance

Authorized Members of the Stock Exchange and their employees are permitted to enter the Trading Hall for the purpose of conducting business. Trading begins at 10-30 A.M. and go on till 2.00 P.M. Guests and outsiders are allowed in the Trading Hall and in that case prior consent of the Stock Exchange Authority is required.

T+5 Days: All transactions in Public Market of a day, after netting, are settled and cleared through DSE Clearing House due on the 3rd and 5th working day respectively, calculated from the date of trading.

"Transaction on foreign buyer and/or seller: Members shall be allowed to carry out transaction of foreign buyer and / or seller involving a custodian bank to be settled directly between the member through the custodian bank within fifth day subsequent to the trading day i.e., T+5 in respect of the transactions carried out on each trading day with intimation to the clearing house. The members concerned shall submit details of the settlement along with the documentary evidence thereof, as prescribed by DSE in this behalf, which shall include a confirmation certificate issued by the custodian bank concerned to DSE in respect of settlement of transaction, to the clearing house within 10.00 A.M of the sixth trading day subsequent to the concerned trading day (i.e. T+6)."⁵

3.11 Trading Management Practice

In the Stock Exchange, Bids and Offers for the listed securities are made in specified market lots. The best bid or the lowest offer for a stock is given the priority on all bids or offers in

⁴ Year Book 1999-2000, Federation of Euro-Asian Stock Exchanges, p. 30.

⁵ Bangladesh Capital Market Prospects and Potentials, Dhaka : A Dhaka Stock Exchange Ltd. Publication Stock Exchange Building, 1998, p. 8.

the floor. If bids and offers are the same price the priority is given to the first offer. All transactions are to be cleared through Clearing House of the Exchange.

3.12 Reforms Made in DSE

The DSE has initiated extensive reform programs to ensure the soundness of the stock market and to make it a good place of investment for the investors. For ensuring transparency and updating of the information of the stock exchange, the following measures have been adopted by the DSE: (1). Articles of Association were amended to ensure more transparency. (2). Numbers of Councilors were increased from 12 to 24. (3). Management of the Exchange headed by CEO was bifurcated. (4). Fully automated on-line trading system was implemented. (5). Central depository system (CDS) has been introduced to ensure sound and convenient share management. (6). Foreigners are allowed to become member of DSE. (7). Panel of retired Judges has been designed to settle the disputes among the brokers and the clients. (8). Effective Surveillance Team (EST) has been formed to ensure more transparency and accountability of the trading activities of the DSE. (9). Tk. 2.5 million has been earmarked as minimum capital requirement for DSE members. (10). To create awareness, educational program on capital market is continuing. (11). Investors' Protection Fund (IPF) has been formed to protect the interest of the general investors. (12). Segregation of the customers' assets and liabilities from the members has been made obligatory. (13). Listing regulations of the exchange has been amended to bind the sponsors of the listed companies to inform in advance their intention to buy and sell the shares. (14). Trading of allotment letters has been declared band in the DSE; and (15). Margin Rules, 1999 enabling margin trading in DSE was introduced to enhance liquidity in the market.

3.13 Incentives Measures Taken for the Capital Market in 1998-99

The National Budget 1998-99 offered the following incentives for developing the Capital Market of Bangladesh. Undisclosed money invested in Primary and Secondary shares would be allowed without asking about its source. Only the Investors are required to pay @ 7.5% tax and have to retain these securities at least for one year. Corporate Tax Rate for listed Banks, Financial Institutions and Insurance Companies has been reduced from 40% to 35%. Private Mutual Funds are exempted from Income Tax. Dividend declared by companies enjoying tax holiday will count towards the statutory requirement of investment Tax deducted at source @ 10% on the amount of dividend shall be treated as final settlement of tax liability.

3.14 Capital Market Development Measures During 2000-2001

The multifarious institutional reforms were made by the government in 2001 to increase the confidence of the potential investors in the capital market of Bangladesh. The increase of average turnover, all share price index, and market capitalization during FY 2000-2001 in comparison to FY 1999-2000 indicates growth, stability, and strength of the capital market.

During the FY 2000-2001 till 30th June 2001 capital amounting to Tk. 712.00 million was raised by 11 (eleven)-issuer companies.⁶

To keep trend of reforms in the capital market and ensure good corporate governance and accountability of the listed companies the adoption and application of the International Accounting Standards and International Standards of Auditing in the financial statements of the listed companies have been made compulsory. The listed companies have been grouped into categories on the basis of holding Annual General Meeting, declaration of dividends and continuous operation of business. As a result demand for securities of companies having good fundamentals has increased and it is expected that the index will move to a satisfactory level. The rules and regulations have been relaxed to allow the commercial banks to operate as merchant banks and as a result institutional investment will be increased significantly. To decrease trend of investment and finance for industrialization through fund from commercial banks steps taken to frame regulation for issuance of bond in the capital market under the assistance of the World Bank.⁷

3.15 Steps Taken by the Government Through Budgetary Arrangement

In 2000-2001 budget it is argued that the development of capital market is essential for the growth of the economy and creation of employment opportunities. With this end in view, the last years' budget proposes to grant tax rebate to listed companies for declaring higher dividends, increase exemption limit of dividend income, allow purchase of secondary shares under investment allowance and increase the limit of investment allowance for investment in primary shares. Detail proposals were as follows: (Source: Annexure "KHA" of National Budget 2000-2001).

1. Tax rebate at the rate of 10% of Tax payable will be allowed to listed company which declares dividend of 25% or more;
2. Raising of exemption limit of dividend income from Tk. 30,000/- to Tk. 40,000/-;
3. Investment in secondary market share made eligible for tax credit ; and
4. Investment allowance up to 2,25,000/- in place of Tk. 2,00,000/- allowed if investment is made in IPOs.

It is stated in the proposed budget that capital market development programs has been implemented with the assistance of Asian Development Bank. With this end, five laws were amended and rules and regulations were promulgated.⁸ In the budget, only owing to these reforms and application of information technology to securities market, it was expected that a solid base for the development of capital market was made.⁹

⁶ GOB, *Annual Report, 2000-2001* (Dhaka : Securities and Exchange Commission, 2001).

⁷ Ibid.

⁸ *The Independent*, The then Finance Minister's budget speech, 8th June, 2001.

⁹ Afrauzzaman Khan Choudhury and Md. Hafizur Rahman, "Capital Market Development and Budgetary Provisions in 2000-2001 & 2001-2002 Budget : An Analysis", *The ICMA Journal*, No. 3, vol. XXIX, May-June 2001.

3.16 Other Measures Taken by the Government¹⁰

Separation of the settlement system in the stock exchanges based on the status of holding Annual General Meeting (AGM) and dividend payment by the listed companies was made effective. Imposition of penalty in the event of non payment of declared dividends by listed companies was also introduced ; Suspension/cancellation of licenses, penalty, and if necessary instituting criminal cases against listed companies/broker/dealer/merchant banks/auditors and related individuals for manipulation and violation of securities laws, etc. when the other important measures.

Pragmatic measure has been taken for application of International Accounting Standards as adopted by ICAB to improve the financial reporting of listed companies. To this end, the SEC has amended the Securities and Exchange Rules 1987 requiring financial statements of listed companies to be audited within 120 days after the end of the accounting year and submit to SEC and Stock Exchanges within 14 days. Amendments have also been made for making financial statements, which are audited by a partnership firm of at least two Chartered Accountants having not less than 7 years' of experience. New rule have also been made to ensure that financial reports transmit true and fair picture of the companies' state of affairs and is prepared in compliance with internationally accepted accounting and auditing standards. The new provision also empowers the SEC to order special audits at the cost of the companies involved in unfair practices. This will ensure greater accountability of the listed companies.

The SEC has directed the listed companies under provision of the Securities and Exchange Ordinance, 1969 to ensure immediate publication of all price sensitive information, as defined in the bylaws made by Securities and Exchange Commission, 1995. The listed companies are also required to transmit all price sensitive decisions within 30 minutes of taking such decisions by the respective company's board of directors to the SEC and the stock exchanges.

Proposal for shifting of functions of monitoring listed companies to the Securities and Exchange Commission from the Registrar of Joint Stock Companies and Firms is under consideration. Formulation and amendment of IPO Rules, Right Issue Rules, Depository Act, Market Maker, Stock Exchange Members Margin Rules, Net Capital Rules, and Capital Issue Rules and in the progressing process.

The listed companies have been reclassified into 3 different categories (A,B,&Z) by the DSE. 'A' group companies are those, which are regular in holding the current annual general meetings and have declared dividend at the rate of ten percent or more in the last English calendar year. B group companies are those, which are regular in holding the annual general meetings but have failed to declare dividend at least at the rate of ten percent in the last English calendar year. On the other hand Z group companies are those which have failed to hold current annual general meetings or have failed to declare any dividend or which are not in operation continuously for more

¹⁰ GOB, *Annual Report, 2000-2001*.

than six months or whose accumulated loss after adjustment of revenue reserve, if any, is negative and exceeded its paid up capital. Trading under re-arranged group has come into effect on 17 April 2001. Settlements of Z group companies are on T+7 basis instead of T+1.

The Dhaka Stock Exchange has also introduced a new selective index of 20 companies having good fundamentals titled DSE-20 from January 2001. Earlier the CSE has also introduced a new selective number of 30 companies having good fundamentals titled 'CSE-30' from January 2000.

The SEC has taken step to end disturbances in the holding of annual general meetings (AGMs) of listed companies. To this end, the Commission on 24 October, 2000 issued the following directives: (a) the issuer companies shall hold their annual general meetings in each year; (b) the issuer companies shall hold discussions in their annual general meetings strictly in conformity with the provisions of the Company Act 1994 (sec.18); (c) no benefit in cash or kind, other than in the form of cash dividend or stock dividend, shall be paid to the holders of equity securities; and (d) the issuer companies shall make full disclosure of all decisions, which when disclosed, may mean price sensitive information, as defined in the by laws made by securities and exchange commission 1995. In order to encourage mutual fund in the private sector, amendment is being made in the mutual fund rules. The main features are as follows. The net worth requirement of asset management company has been fixed at Tk. 1.25 crore instead of Tk. 3.0 crore and paid up capital was fixed at Tk. 1.50 crore. Rate of sponsors' contribution to the mutual funds will be decreased to 10% from the existing 40%. Registration and functioning of ICB Asset Management Company Ltd., ICB Capital Management Ltd. and ICB Securities Trading Company Ltd. will facilitate institutional investment. Listed companies which do not hold Annual General Meeting (AGM) during a certain period of time, and do not pay dividend, or not in operation for long time will be categorized as an alternative way and their trading of securities shall be under Over the Counter System and they will also be brought under merger and acquisition. The SEC will direct the stock exchanges in this regard in due course. Merger and Acquisition Rules are under preparation. If the companies under this category fail to improve their financial position the Commission will request Bangladesh Bank not to sanction any loan to them.

The Commercial Banks are allowed to conduct merchant banking by opening a separate wing without establishing a subsidiary company. Prime Bank Ltd. and Arab Bangladesh Bank Ltd. have already been accorded licenses as merchant bankers.

Offloading of shares of companies in the Gas, Power and Communication sector under government ownership in the capital market will increase supply of shares having good fundamentals. To this end, along with other measures, the SEC has taken initiative to sale government holding with the multinational and other companies in the capital market.

Reforms in the capital market sector, specially initiative for listing of profitable companies with good fundamentals, enhancing investors confidence by improving corporate governance, tax rebate for investors will make the capital market vibrant and development oriented. It is the prudent objective to industrialize the country through investment of general public in the capital market instead of bank loan based industrialization.

3.17 Measures to Gear up Stock Exchange Activities¹¹

In 1999-2000, to gear up the activities of stock exchanges of the country, the following notable measures were taken.

(a) In order to protect the small investors one year's lock-in provision was introduced; (b) The two bourses were created under SEC with a view to protecting investors' fund; and (c) In order to protect the interest of the investors some new provisions were imposed on public securities.

It is obligatory for all listed companies in the DSE to publish their all important information in two national dailies besides supplying those in the SEC. Half-yearly reports of the company should be circulated to the share holders. Counter party identification at the trading terminals through changes in securities and exchange rules has been prohibited; and the enlisted companies that fail to call annual general meetings in any calendar year or fail to declare dividends within four years from the date of enlistment shall be kept outside the netting system, and settlement with them shall be made in trade-for-trade method.

3.18 Monitoring Activities of DSE

The monitoring cell of DSE acts for the monitoring of the activities of the listed companies. To ensure holding of the AGM in time; sending of Annual Report, six months' un-audited reports as per provisions of Listing Regulations; issuance of Dividend Warrant, Bonus Share Certificate within the time limit; utilization of Fund brought up with the help of Right offer, etc. are the acts of monitoring by the DSE.

3.19 Encouragement of Foreign Investors

Foreigners and Non-residents are authorized to invest in Shares and Securities both in Primary and Secondary market. There is no ceiling on investments in the securities. Capital along with gains can be repatriated without any time restriction through normal Banking channels. Capital gains tax was exempted for local and foreign investors. Dividend is also repatriable. Tax deduction at source on dividend income is at par with locals i.e. 10% for individuals and 15% for companies. There is no tax deduction on dividend income up to Tk. 5000.

¹¹ Bangladesh Capital Market and Industrial Finance (Part-1), *Internet file*, bangladesh.net-everything about Bangladesh and Bangladeshi business. p. 1.

3.20 Incentives for Bangladeshi Nationals Living Abroad

Without disclosing the source of income Bangladeshi non-residents can willingly invest in the following areas: (a) they can make investment in Shares and Debentures; (b) can purchase industrial undertakings from BSB, Development Bank and any other banks and financial institutions; (c) can make investment in setting up of new industrial projects.

3.20.1 Foreign Investment Facilities

With the exception of a few sectors, foreign investors are allowed to make investment in Bangladesh. Any industry can be set up in collaboration with local investors. No prior permission is required to set up any industrial plant by the foreignness who will use their own sources of funds. To get the facilities and institutional support provided by the Government, the entrepreneurs are required to apply for registration to Board of Investment (BOI). Prior permission is not required for importing of raw and packing materials.

3.20.2 Investment Facilities to the Non-Residents

Non-residents are free to invest in shares/securities in Bangladesh. They can invest in new IPOs of Bangladeshi shares/securities. In those cases investors are not required to transact through any registered broker/member of the Stock Exchange. It is not necessary to obtain permission from the Bangladesh Bank in issuing transfer of shares. Non-resident shareholders can spontaneously transfer their shares to other non-residents also.

3.20.3 Remittance of Profit

Foreign companies or firms are free to remit their profits to their head offices through any bank without prior approval of Bangladesh Bank.

3.20.4 Remittance of Dividend or Capital Gain

It is not required to take prior permission of Bangladesh Bank for: (a) remittance of dividend income to non-residents in respect of their investment in joint ventures in Bangladesh; (b) remittance of dividend declared out of previous year's accumulated reserves; and (c) dividends including capital gain on shares or debentures purchased through Stock Exchange can also be remitted.

3.20.5 Local Currency Loans

Restriction on working capital loans to foreign controlled non-manufacturing companies has also been withdrawn. Bangladesh Bank permission is not obligatory in extending working capital loans to foreign companies or firms either manufacturing or non-manufacturing in nature. Term loans may also be outspread to foreign controlled industrial firms or companies on the ground of banker customer relation without referring to Bangladesh Bank. Now, the Banks are free to grant local currency to joint venture projects in Export Processing Zone (EPZ) for short-term foreign currency need.

3.20.6 Convertibility on Trade Account and Hotel Bills

Bangladesh currency is convertible for payment of any trade related transactions. Import license is not obligatory from the authority concern. For import of goods outside the control list an importer has automatic access to foreign exchange for payment for the import costs. Payment of Hotel bills of foreign guests may now be accepted in local currency.¹²

3.21 Instruments Traded in Stock Exchange Market

The most common tradable item in the stock exchange is stock and bond. In some exchanges, beneficiary certificates and other financial products such as financial futures and options are traded.

3.21.1 Stocks

Stocks are generally ranked as common stock or preferred stock. Common stocks represent ownership in a corporation and must be issued by a corporation. Unlike bonds or preferred stocks, common stock ownership carries no corporate commitment to a fixed periodic return or payment of principal. Preferred stocks offer a fixed rate of dividend per share, which must be paid to preferred stockholders before any dividends can be paid to common stockholders.

So for the viewpoint of the investors, stocks are much riskier than bonds but there is a chance of getting high returns.

3.21.2 Bonds

Bonds can be defined as obligation to borrower of funds to the holder of the instrument. A bondholder is a creditor who has a claim against the issuer equal to the face value of his bond on the maturity date, and in addition he can receive annual, semiannual, or quarterly interest payments. Bonds are classified, based on the issuer, as government bonds, municipal bonds and corporate bonds, and based on the maturity, as short-term bonds of which all payments of interest and principal occur within one year or long-term bonds which include all other obligations. This one-year distinction is obviously arbitrary, but is commonly employed.

3.21.3 Beneficiary Certificates and other Financial Instruments

Beneficiary Certificates are securities, which represent rights to participate in the principal or trusted assets, managed by an investment trust company. In addition to stocks, bonds, and beneficiary certificates, there are many other financial instruments traded on the exchange. Financial futures and options are traded on some stock exchanges. Futures are contracts for the delivery or purchase of underlying assets at a date in the future, and options are the right to buy or sell a specified asset or intangible at a pre-determined price at a time in the

¹² These investment policies of DSE, were reported in the *Fact Book of Dhaka Stock Exchange* (1994).

future. Futures and options are used as hedges and for speculative purposes with delivery of the underlying asset.

3.22 Present Status and Growth of the Stock Market in Bangladesh

The market capitalization ratio is the value of listed stocks divided by GDP and that can be used as a measure of stock market magnitude.

Among the most common developmental and institutional obstacles of emerging stock markets including the Bangladesh stock market are small capitalization in relation to GDP, limited liquidity in the market, and an outdated and inefficient regulatory framework. The natural consequences of such a situation are higher return required by the investors caused by higher uncertainty, higher transaction costs and fees etc. In addition, the usual problems associated with relatively thin market remains with the fact that prices are unduly influenced by the activities of small number of dominant participants.¹³

In a developing capital market, magnitude and liquidity of the company contribute some differentiating features. The market capitalization ratio is the value of listed stocks divided by GDP and that can be used as a measure of stock market magnitude.

Table 3.1
Key Indicators of Major Asian Stock Markets

(Figures in Million US \$)

Country	Market Capitalization	Turnover	Turnover ratio	Price Earnings Multiple	Number of Listed Co.	M.C. as % of GDP	Average Company Size
Bangladesh	865	789	83.0	8.6	211	2.42	4.1
Sri Lanka	1,584	209	12.7	8.7	239	10.86	6.6
Pakistan	6,965	21,057	340.1	13.2	765	8.55	9.1
India	184,605	122,247	84.4	25.5	5863	24.46	31.5
China	330,703	377,099	134.2	47.8	950	24.12	348.1
Indonesia	64,087	19,903	46.2	-7.4	277	23.48	231.4
Philippines	48,105	19,673	47.2	22.2	226	54.24	212.9
Thailand	58,365	41,604	89.2	-12.2	392	31.35	148.9
South Korea	308,534	733,591	346.7	-33.5	725	35.73	425.6
Malaysia	145,445	48,512	39.8	-18.0	757	135.96	192.1

Note : Figures relate to the countries' major stock exchanges. Average size of the company has been measured in terms of market capitalization.

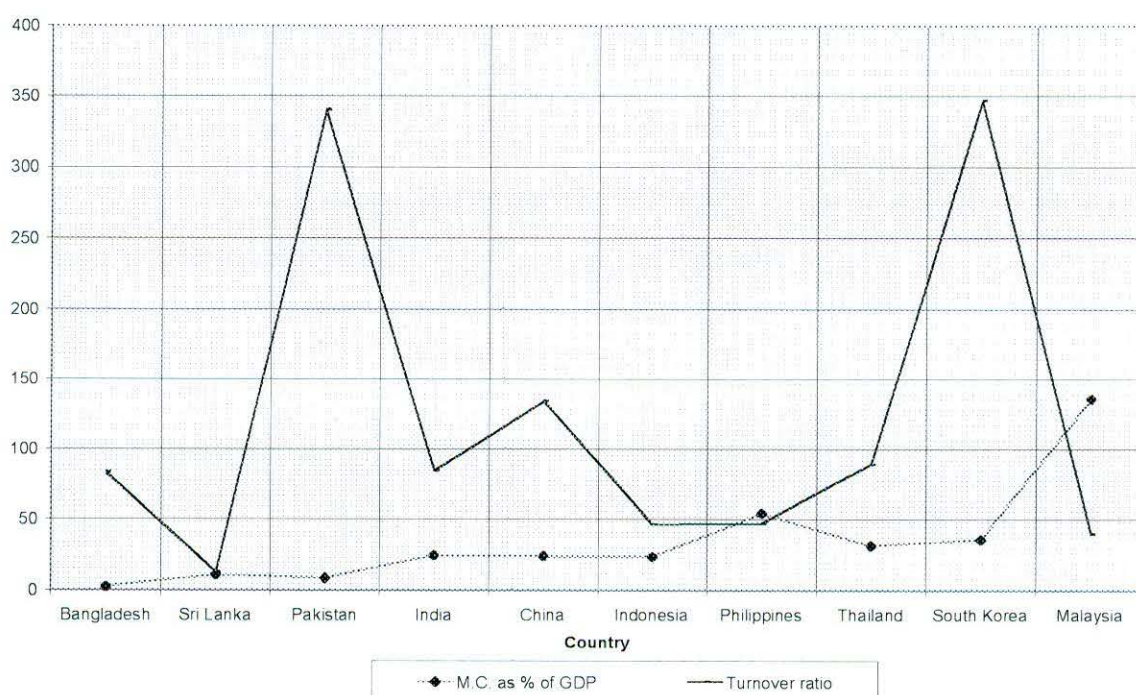
Source : *Emerging Stock Markets Fact Book, 2000.*

¹³ M. Farid Ahmed, "Emerging Stock Market and The Economy : The Case of Bangladesh", *Southeast Asian Studies*, Series, 33, Nagasaki University : The Research Institute of Southeast Asia, 2000, p. 7.

The market capitalization ratio has got commercial and financial importance in the economy because the market size is emphatically associated with the ability to mobilize capital and diversify risk. The stock markets of Bangladesh have grown considerably a couple of years ago. Nevertheless, the size of the capital market is comparatively insignificant in comparison to other Asian markets. Key Indicators of Major Asian Stock Markets are recorded in Table 3.1. The total market capitalization of DSE was US \$.865 billion in 1999 in comparison to US\$ 189.605 billion in India, US \$6.965 billion in Pakistan, US \$ 308.534 billion in South Korea and US \$ 145.445 billion in Malaysia. This is the indication of small market prevailing in Bangladesh in comparison with the size of the economy. On the other hand, Market capitalization in Bangladesh was only 2.42 percent of GDP in 1998 against 8.55 percent in Pakistan, 10.86 percent in Sri Lanka, 31.35 percent in Thailand and 135.96 percent in Malaysia.

Figure 3.1

Key Indicators of Major Asian Stock Markets



Source : Table 3.1

Low liquidity level in the emerging markets is termed thinness of trading securities across the board. It becomes worse during a bear market condition than a bull market condition. Many emerging markets suffer from very serious thinness of trading. If the market for a security is thin, any attempt at selling a relatively large quantity will cause a large decrease in price, i.e. an erosion of capital value, hence contributing to liquidity. It is observed that trading on some stocks takes place once a month or even at some longer intervals. High turn over is often considered to be indicative of low transaction costs. A small but active market will have small capitalization but high turnover ratio.¹⁴

¹⁴ M. Farid Ahmed, p. 47.

Turnover ratio shows the Liquidity and it was 83 percent for Bangladesh in 1999 in comparison to 84.4 percent in India, 26.9 percent in Pakistan, 89.2 percent in Thailand, 39.8 percent in Malaysia and 346.7 percent in South Korea. In terms of market capitalization the average size of companies in Bangladesh was only US \$ 4.1 million at the end of 1998. "Bangladesh indexed 98th by average size of companies among 100 stock markets listed by S and P in 1999. The price earnings multiple has come down to 8.06 in recent times from 10.1 indicating the bearish sentiments of investors that are willing to pay lower prices for the same one taka earnings generated by firms."¹⁵ In short, it can emphatically be said that, the capital market of Bangladesh is designated by a slim and thin stock market, which is maintaining small market capitalization ratio and low liquidity level, which is very alarming in a developing country like Bangladesh.

3.23 International Comparison

If we compare the Bangladesh stock market with the international perspective especially in terms of market capitalization, turnover ratio and number of listed companies, then we can easily understand the actual position of the stock market of Bangladesh with that of world stock markets. In India, particularly, the establishment and empowerment of SEBI, market determines allocation of resources, screen based nation-wide trading dematerialization and electronic transfer of securities, rolling settlement and ban on deferral products, sophisticated risk management and derivatives trading, have greatly improved the regulatory framework and efficiency of trading and settlement. Indian market is now comparable to many developed markets in terms of a number of qualitative parameters.¹⁶

It has been observed from Table 3.2 that there are very few countries, which have higher turnover ratio than India. At the end of 2001, Standard and Poor's (S&P) ranked India 25th in terms of market capitalization, 15th in term of total value traded in stock exchanges and 6th in terms of turnover ratio. Except for USA, India has highest number of securities listed on exchanges. These data, though quite impressive, do not reflect the full Indian market, as S and P (even other international publications) does not cover the whole market. For example, India has 9,644 listed companies at the end of March 2002, while S and P consider only 5,795 companies. If whole market is taken into consideration, India's position vis-a-vis other countries would look much better.¹⁷

¹⁵ M. Farid Ahmed, p. 47.

¹⁶ Government of India, *Indian Securities Market : A Review*, Vol. V (Bombay : National Stock Exchange of India Ltd., 2002), p. 4.

¹⁷ Ibid.

The stock markets worldwide have grown in size as well as depth over last one decade. Table 3.3 and 3.4 present selected indicators for major markets. As can be observed from Table 3.3, the turnover on all markets taken together has grown nearly nine times from US \$ 5.5 trillion in 1900. There has also been an increase in market capitalization as per cent of GDP in all major countries to US \$ 48 trillion in 2000 before depleting to about \$42 trillion in 2001. The turnover in developed markets has, however, grown more sharply than that in emerging markets. It is significant to note that US alone accounted for about 70% of worldwide turnover in 2001. Despite having a large number of companies listed on its stock exchanges, India accounted for a meager 0.59% in total turnover in 20021 down from 1.06% in 2000. The market capitalization of all listed companies taken together on all markets increased by 245% from US\$ 9.3 trillion as at end 1990 to US\$ 32 trillion as at end 2000, but fell to about \$28 trillion in end 2001. The share of US in worldwide market capitalization increased from 32.5% as at end 1990 to 49.6% as at end 2001 while Indian listed companies accounted for 0.4% of total market capitalization.

Table 3.2
International Comparison as on December 2001

Particulars	USA	UK	Japan	Germany	Singapore	Hong kong	China	India
No, of listed companies	6,355	1,923	2,471	988	386	857	1,160	5,795
Market Capitalization (\$ Bn.)	13,810	2,217	2,252	1,072	117	506	524	110
Market Capitalization Ratio (%)	143.8	151.9	49.8	51.9	118	287.3	49.3	24.3
Turnover (\$ Mn.)	29,041	1,872	1,826	1,420	63	196	449	249
Turnover Ratio (%)	201.3	78.4	67.9	124.7	46.9	34.8	81.3	191.4

Source : S and P Emerging Stock Market Fact Book, 2002.

Table 3.3
Market Capitalization and Turnover of Major Markets

(US \$ million)

Country/Region	Market Capitalization (end of period)			Turnover		
	1990	2000	2001	1990	2000	2001
Developed Markets	8,795,239	29614,264	25246,554	4,616,473	43,912,999	676,018
Australia	108,879	372,794	374,269	40,113	226,325	240,667
Japan	2,917,679	3,157,222	2,251,814	1,602,388	2,693,856	1,826,230
UK	848,866	2,576,992	2,217,324	278,740	1,835,278	1,871,894
USA	3,059,434	15,104,037	13,810,429	1,751,252	31,862,485	29,040,739
All Emerging Market	604,420	2,608,486	2,572,064	898,233	3,956,869	2,400,844
China	-	580,991	523,952	-	721,538	448,928
India	38,567	148,064	110,396	21,918	509,812	249,298
Indonesia	8,081	26,834	23,006	3,992	14,311	9,667
Korea	110,594	148,649	220,046	75,949	1,067,669	703,960
Malaysia	48,611	116,935	120,007	10,871	58,500	20,772
Philippines	5,927	51,554	41,523	1,216	8,196	3,148
Taiwan	100,710	247,602	292,621	715,005	983,491	544,808
World Total	9,399,659	32,222,750	27,818,618	5,514,706	47,869,867	42,076,862
US as % of World	32.55	46.87	49.64	31.76	66.56	69.02
India as % of World	0.41	0.46	0.4	0.4	1.06	0.59

Source : S and P Emerging Stock Market Fact Book, 2002.

Table 3.4
Selected Stock Market Indicators

Market	Market Capitalization as % of GDP		Turnover Ratio (%)		Listed Domestic Companies	
	1990	2000	1990	2001	1990	2001
High Income	51.7	120.6	59.5	129.9	17,078	25,548
Middle Income	21.2	41.2	78.3	84.9	4,900	15,364
Low & Middle Income	19.9	38.7	70.7	90.1	8,346	23,097
East Asia & Pacific	21.3	48.3	117.2	149.9	1,443	3,486
Europe & Central Asia	2.1	20.5	-	83.1	110	8,220
Latin America & Caribbean	7.6	34	29.7	26.9	1,734	1,567
Middle East & N. Africa	27.8	34.8	-	22.3	817	1,596
South Africa	10.8	27	54	161.6	3,231	7,159
Sub-Saharan Africa	51.9	102.3	-	22.5	1,011	1,069
Low Income	9.8	23.6	53.8	121.3	3,446	7,713
India	12.2	32.4	65.9	191.4	2,435	5,795
World	48	105.1	57.2	122.3	25,424	48,645

Source : World Development Indicators 2002, World Bank.

It is evident from Table 3.4 that the increase has, however, not been uniform across countries. As expected, the market capitalization as per cent of GDP was the highest at 120.6% for high-income countries as at end 2000 and lowest for low-income countries at 23.6%. Market capitalization as per cent of GDP for India stood at 32.4% as at end 2000. The turnover ratio, which is a measure of liquidity, was lower for low-income countries as 121.3% in 2001 as compared to 129.9% for high-income countries. The corresponding figure for India was only 191.4%. The total number of listed companies stood at 25,548 for high-income countries, 15,364 for middle-income countries and 7,733 for low-income countries as at end 2001. The number of listed companies in India was 5,795 as at end 2001.

It has been observed from the international capital market information that market capitalization of all emerging markets increased at least two times from the period beginning from 1990 to 2000. In India, market capitalization increased around three times, and the turnover increased around three times from 1990 to 2001.

Table 3.5
Funds Mobilized by Banking System, Govt. Saving Schemes and Stock Markets in Bangladesh
(In million Taka)

Year	Corporate Securities*	Bank Deposits (Time Deposits)	Government Saving Instruments	Total of Col. 3 and 4	Ratio (Col. 2 as a % of Col. 5)
(1)	(2)	(3)	(4)	(5)	(6)
1987-88	3663.7	113603	3600.4	117203.4	3.13
1988-89	4539.2	136174	4504.6	140678.6	3.23
1989-90	5361.1	159289	5831.5	165120.5	3.25
1990-91	5586.6	178807	8663.6	187470.6	2.98
1991-92	6020.3	202686	13206.1	215892.1	2.79
1992-93	8201.7	224730	26925.9	251655.9	3.26
1993-94	11673.0	252359	25822.4	278181.4	4.20
1994-95	19438.0	290330	27822.1	318212.1	6.11
1995-96	23052.4	312310	34614.7	346924.7	6.64
1996-97	26907.4 (June'97)	337700 (Feb'97)	31551.2	369251.2	7.28

* Figures are for calendar years.

Source : Table-6.2 of Emerging Stock market and the Economy: The Case of Bangladesh By M. Farid Ahmed, Southeast Asian Studies Series, 33. The Research Institute of Southeast Asia, Nagasaki University. Quoted From Dr. Mahmood Osman Imam, "Capital Market Development in Bangladesh: Problems and Prospects", *Portfolio, CSE Quarterly Bulletin*, October - December: (2000), p. 49.

It has been observed from the Table 3.5 that in Bangladesh bank deposit and government savings have been increasing over the years (See column 5). It is very interesting to note that the fund mobilized by corporate securities has also been increased. But the ratio column displays that from 1987-88 to 1993-94 the contribution of corporate securities investment was between 2.79% to 3.26%. But the period ranging from 1993-94 to 1996-97 indicates a higher ratio; i.e., fund mobilized by corporate securities has increased and it stood at 7.28%. If we compare this ratio with that of international market then it can be concluded that this increase is not at all significant.

3.24 Market Capitalization- GDP Ratio

The most commonly used standard to measure the size of a country's stock market is the ratio of market capitalization to GDP.

Table 3.6
Market Capitalization and GDP Ratio

Year	GDP (Tk. In Million)	Market Capitalization (Tk. In Million)	Market Capitalization % of GDP
1991-92	906,500	13,150	1.45
1992-93	948070	15,654	2.42
1993-94	103,070	32,175	3.12
1994-95	1,170,260	49,998	4.27
1995-96	1,301,600	67728	5.20
1996-97	1,403,050	107,827	7.69
1997-98	1,548,330	59,100	3.82
1998-99	1,74926.0	50,748	2.92
1999-2000	1,982,990	54,004	2.72

Source : For figures of GDP (Tk. in Million), *Bangladesh Economic Reviews*, June 1999, Ministry of finance, GOB, and *DSE Annual Reports*.

It is clear from Table 3.6 that the market capitalization percentage of GDP was highest during 1996-97 (7.69%). This is perhaps because of high market capitalization indicating Tk. 107,827 million. The previous year i.e., 1995-96 also indicated the higher market capitalization (5.20%) which is next highest amount among the years beginning from 1991-92 to 1999-2000. One remarkable indication in this regard is that 1997-98 marked a very declining trend indicating 3.82% market capitalization to GDP.

A small ratio of market capitalization to GDP reveals the small size of a stock market and vice versa. Generally, the ratios of market capitalization to GDP in advanced countries, newly industrialized countries and our neighboring countries are relatively high. The ratio of market capitalization to GDP is very insignificant in Bangladesh (2.72% in 1999-2000) as compared to 47 in India, 17 in Pakistan, 28 in Sri Lanka and 89 in Thailand (Table 3.7).

Table 3.7
Ratio of Market Capitalization to GDP of Some Selected Countries

Indicators	India	Pakistan	Sri Lanka	Malaysia	Thailand
Ratio of Market Capitalization to GDP	47	17	28	259	89

Source : Foreign Investment in Asian Markets, ESCAP, 1996

The Securities and Exchange Commission (SEC), a government watchdog is responsible for regulating stock exchanges. We can mention here that, in 1997 it was the failure of SEC, which was not in a position to control the share price index in the DSE. The trading system of DSE remains backdated and scopes for less transparent dealing and insiders' trading

exist. Although, some reforms were made in the DES in the recent past, but those were not so adequate as it was required.

The Stock Market of Bangladesh consists of two stock exchanges – Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). But these are underdeveloped in comparison with other stock markets of the neighboring countries. Its market capitalization of over 70 billion taka is considerably smaller as a percentage of GDP than those of other comparable countries in the region (5% in Bangladesh as against 26% in Sri Lanka and 54% in India).¹⁸ The securities market in Bangladesh have been facing short supply of security despite the increase of new listed companies in the Dhaka Stock Exchange (DSE) in recent times. A large number of them are over-subscribed, which indicates high demand for new issues. But the practical scenario shows that most of the listed companies are not paying satisfactory and reasonable dividend to the shareholders. There are some listed companies in the DSE, which are not paying any dividend to its shareholders over the years. Moreover, investors are not feeling secured in the stock market investment due to ups and downs of the market resulting from irregularities and manipulative activities.¹⁹

3.25 Growth Trend of Public Issue of Listed Securities

There is a dyadic relationship between the public issue of securities and public subscription in the stock market because public subscriptions are sometimes influenced by the number of public issues of securities in the capital market. This situation can be observed in the capital market, which is furnished in Table 3.8.

The size of public issue of listed securities can be divided into three phases, i.e., 1976 to 1983, 1983 to 1993 and 1993 to 2000 because these phases can be marked by three important characteristics i.e., to say very insignificant progress, slightly fluctuating progress and sharply high and declining progress.

The Figure 3.2 shows that there had been no progress of the size of public issues beginning from 1976 to 1983 excepting a particular year i.e., 1980 indicating slight progress, which was very insignificant. The next phase shows slightly fluctuating progress indicating a bit higher progress in 1994. But it is characterized by declining trend ended in 1986, then again, characterized by slight fluctuating progress till the beginning of 1993. The year 1994 is an exceptional year which shows high progress but suddenly after that it was characterized by declining trend continued up to 1995.

¹⁸ Md. Nazrul Huda, "Bangladesh's Financial Sector : An Overview", *Bank Parikrama*, Vol. XXII, Nos. 3 & 4, Dhaka, Sept., Dec., 1997, p. 36.

¹⁹ Abu Ahmed, "Bangladesh Stock Market : Investors are Indignant at Irregularities and Government inaction", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 15.

Table 3.8
Growth of Public Issue of Listed Securities (Shares & Debentures)

Year	No. of Public Issue of Securities	Size of Public Issues Value in Million Tk.	Absolute Growth	Simple Growth Rate (SGR)	Size of Public Issues Value in Million Tk. (LogY)	Public Subscription (in million) Value in Million Tk.	Percentage of Subscription Value %	Percentage of over/(under) Subscriptions Value %
1976	-	-	-	-	-	-	-	-
1977	2	17.50	-	-	1.24	5.192	29.67	-70.33
1978	1	14.70	-2.8	-16.00	1.17	0.100	55.10	-44.98
1979	2	9.20	-5.5	-37.41	0.96	3.1090	33.80	-66.20
1980	2	52.3	43.1	468.48	1.72	2.00	38.24	-61.76
1981	5	17.45	-34.85	-66.63	1.24	12.577	72.05	-27.95
1982	2	5.90	-11.55	-66.19	0.77	5.224	88.54	-11.46
1983	5	12.94	7.04	119.32	1.11	9.015	69.64	-30.36
1984	12	323.86	310.92	2402.78	2.51	412.165	127.27	27.27
1985	19	194.12	-129.74	-40.06	2.29	331.577	170.81	70.81
1986	9	81.15	-112.97	-58.20	1.91	122.614	151.1	51.10
1987	9	265.05	183.9	226.62	2.42	458.049	172.8	72.82
1988	21	302.95	37.9	14.30	2.48	721.543	238.1	138.17
1989	12	238.69	-64.26	-21.21	2.38	466.306	195.43	95.43
1990	11	158.39	-80.3	-33.64	2.20	194.734	122.9	22.94
1991	9	167.27	8.88	5.61	2.22	145.70	87.11	-12.89
1992	11	115.0	-52.27	-31.25	2.06	132.159	114.92	14.92
1993	4	142.5	27.5	23.91	2.15	152.165	106.78	6.78
1994	26	2558.08	2415.58	1695.14	3.41	5563.56	217.49	117.48
1995	24	1319.40	-1238.68	-48.42	3.12	5833.45	442.13	342.12
1996	24	2307.34	987.94	74.88	3.36	16909.59	732.86	632.86
1997	12	570.24	-1737.1	-75.29	2.76	2678.18	469.66	369.65
1998	6	352.10	-218.14	-38.25	2.55	593.45	168.55	68.54
1999	11	995.00	642.9	182.59	3.00	1476.16	148.36	48.35
2000	7	412.75	-582.25	-58.52	2.62	561.98	136.15	36.15
Average			17.18	200.98				
Compound Growth Rate (CGR)				14.01				

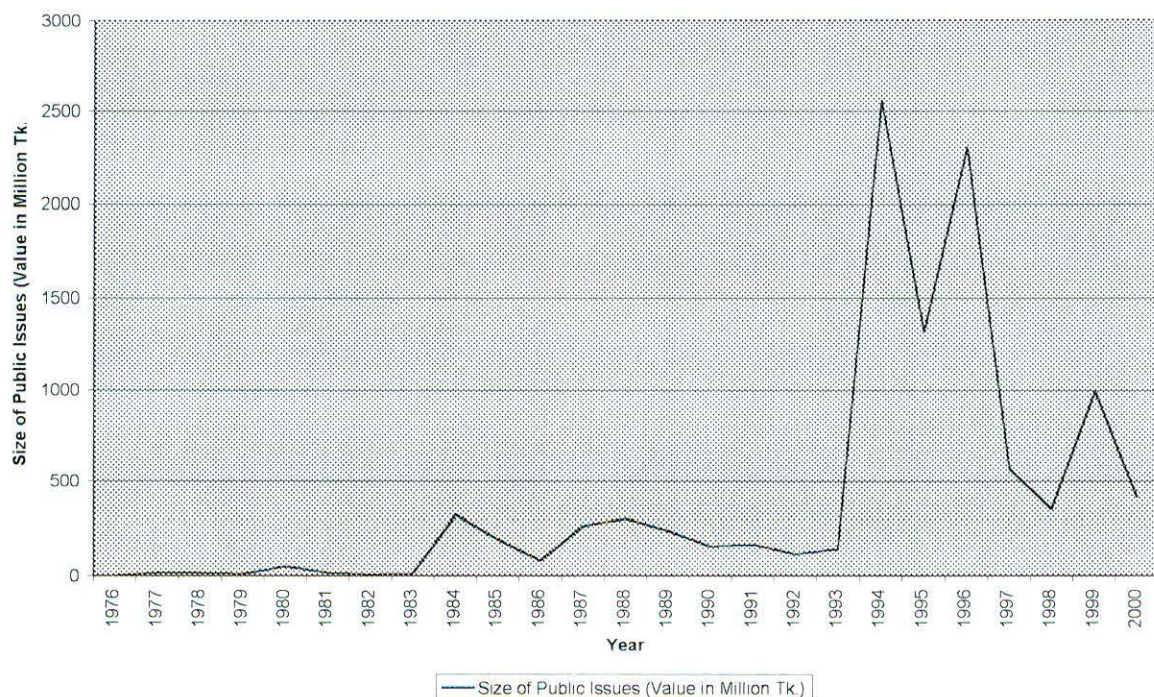
Source : Dhaka Stock Exchange Fact Book, 1994, DSE Annual Report, different issues and other related DSE Monthly Reviews.

The growth trend of public issue of listed securities is analyzed in Table 3.8. The table shows that the size of public issue of listed securities increased from Tk. 17.5 million in 1977 to Tk. 10633.88 million in 2000 registering an average annual simple growth rate (SGR) of 200.98 percent and a compound growth rate (CGR) of 14.01 percent. The table also shows the public subscription against public issues over the years. It is observed from the table that from 1977 to 1983 the levels of public subscriptions were less than 100% which indicate that general people were less interested to take part in the stock market investment at that period of time. But after 1983, the next seven years' performance was satisfactory and the public responses were more than 100% and it was exceptionally higher in 1988 (i.e., 138.17% over subscription were made). From the year 1991 to 2000 the subscription against public issues were more or less oversubscribed. But in recent years the rate of over subscription has been decreasing dramatically which is not at all a good sign for the stock market like ours.

A closer look into the table indicates that in 1996, the highest over subscriptions were made which was abnormal. This picture (Figure 3.2) of public issue of listed securities have been graphically shown for easy and comprehensive understudying of the problem.

Figure 3.2

Size of Public Issue of Listed Securities (Shares & Debentures)



Source : Table 3.8

3.25.1 Trend Equation of Public Issue of Listed Securities

To compare the growth trends of size of public issues of listed securities in the DSE, Semi-Logarithmic Trend Lines of Public Issue of Listed Securities in the DSE are estimated for the period of 1976 to 2000. The Semi-Logarithmic trend lines of public issue of listed securities showing the relationship between size of public issue (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique.

Summary Output

Regression Statistics	
Multiple R	0.820161
R Square	0.672665
Adjusted R Square	0.657786
Standard Error	0.441506
Observations	24

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	8.812551	8.812551	45.20934	9.3E-07
Residual	22	4.288409	0.194928		
Total	23	13.10096			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.970421	0.197519	4.913052	6.5E-05	0.560791	1.380051
X Variable 1	0.087539	0.013019	6.723789	9.3E-07	0.060539	0.114539

Table 3.9

Estimated Semi-Logarithmic Trend Lines of Public Issue of Listed Securities in the DSE

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+BX$						
	A	B	R ²	Trend Growth Rate (TGR)	CR _t of B	P	The t Test Result
DSE	970	.088	.673	22.46	6.72	0	S

Note :

Y = Dependent variable i.e., Size of Public Issues.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R² = Coefficient of Determination.

Trend Growth Rate (TGR) = {Anti-log of (B)-1}100.

CR_t = Critical Ratio for a *t* Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 24 degree freedom (df) and 0.05 level of significance is 1.711

Source : Table 3.8

The estimated Semi-Logarithmic Trend Lines for Public Issue of Listed Securities in the DSE is shown in table 3.9. The table shows that the trend line equation has positive slopes (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the size of public issues increased in the DSE over the years under study.

3.26 Growth Trend of Turnover of Shares and Debentures

The growth trend of Turnover of Shares and Debentures is analyzed in Table 3.10. The table shows that the size of public issue of listed securities increased from Tk. 3 crore in 1985 to 4036.47 crore in 2000 registering an average annual simple growth rate (SGR) of 115.55 % and a compound growth rate (CGR) of 61.66 percent. The table also shows that number of shares and debentures increased over the years. It is observed from the table that from 1985 to 2000 the level of turnover either in the form of absolute growth rate or simple growth rate has in the form of increased with the exception of the years 1988, 1991 and 1997, which indicates that general people were reluctant to take part in the stock market investment at that period of time. It is very interesting to note that in the year 1996, SGR was 372.30%, but after that it declined and in the year 1997 it became (-) 42.51.

Table 3.10

Growth Trend of Turnover of Shares and Debentures of Listed Companies in the DSE

(Tk. in Crore)

Year	No. of Shares and Debentures	Total Turnover (Amount in crore)	Absolute Growth in Amount	Simple Growth Rate (SGR)	Total Turnover (Amount in crore) (Log Y)
1985	591000	3	3	-	0.48
1986	849000	5	2	66.67	0.70
1987	1876000	17	12	240.00	1.23
1988	1023000	13	-4	-23.53	1.11
1989	2212000	17	4	30.77	1.23
1990	3107395	19.46	2.46	14.47	1.29
1991	1868757	11.57	-7.89	-40.54	1.06
1992	5676892	43.78	32.21	278.39	1.64
1993	5322113	57.88	14.1	32.21	1.76
1994	19355423	428.79	370.91	640.83	2.63
1995	38325072	638.09	209.3	48.81	2.80
1996	103252067	3013.71	2375.62	372.30	3.48
1997	91179241	1732.72	-1280.99	-42.51	3.24
1998	1015303319	3436.86	1704.14	98.35	3.54
1999	791081268	3896.47	459.61	13.37	3.59
2000	949043227	4036.47	140	3.59	3.61
Average			252.28	115.55	
Compound Growth Rate (CGR)				61.66	

Source : Dhaka Stock Exchange Fact Book, 1994, DSE *Annual Report*, different issues and other related DSE Monthly Reviews.

3.26.1 Trend Equation of Turnover of Shares and Debentures of Listed Companies in the DSE

To compare the growth trends of Turnover of Shares and Debentures of listed Companies in the DSE, Semi-Logarithmic Trend Lines of Turnover of Shares and Debentures in the DSE are estimated for the period from 1985 to 2000. The Semi-Logarithmic trend lines of Turnover of Shares and Debentures are showing the relationship between Turnover of Shares and Debentures (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Turnover of Shares and Debentures in the DSE is shown in Table 3.11.

Summary Output

Regression Statistics	
Multiple R	0.960959
R Square	0.923443
Adjusted R Square	0.917974
Standard Error	0.327939
Observations	16

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	18.16087	18.16087	168.8691	3.34E-09
Residual	14	1.505617	0.107544		
Total	15	19.66649			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.122707	0.171973	0.713524	0.487246	-0.24614	0.491552
X Variable 1	0.231115	0.017785	12.99496	3.34E-09	0.19297	0.26926

Table 3.11

Estimated Semi-Logarithmic Trend Lines of Turnover of Shares and Debentures of Listed Companies of the DSE

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+BX$							The t Test Result
	A	B	R^2	TGR	CR_t of B	P		
DSE	.123	.231	.923	70.22	12.99	0		S

Note :

Y= Dependent variable i.e., Total Turnover.

X= Time period in years.

A= Intercept of the Trend Line.

B= Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{\text{Anti-log of } (B)-1\}100$.

CR_t =Critical Ratio for a t Test for Slope.

P= Probability that sample comes from a population with a slope of zero.

S= Significant at 0.05 level of significance.

The t Table value at 15-degree freedom and 0.05 level of significance is 1.753

Source : Table 3.10.

The table shows that the trend line equation has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the Turnover of Shares and Debentures in the DSE increased over the years.

3.27 Growth Trend of Number of Shares, Debentures and Mutual Funds Certificates

The selling number of shares, debentures and mutual funds certificates are the indicators of the depth of the capital market of any developing and developed countries. Since it indicates the purchasing power of the investors and their attitudes towards capital market investment and the condition of the economy in general. However, the Table 3.12 gives a clear picture of the growth trends of shares, debentures and mutual funds certificates during the period 1976-2000.

Table 3.12

Growth Pattern of Number of Shares, Debentures and Mutual Funds Certificates (Million)

Year	Number of Shares, Debentures, Mutual Funds Certificates (Million)	Absolute Growth in Number	Simple Growth Rate (SGR)	Number of Shares, Debentures, Mutual Funds Certificates (Million) (Log y)
1976	13.61	-	-	1.13
1977	14.65	1.04	7.64	1.17
1978	18.45	3.8	25.94	1.27
1979	21.23	2.78	15.07	1.33
1980	22.23	1	4.71	1.35
1981	26.25	4.02	18.08	1.42
1982	32.42	6.17	23.50	1.51
1983	44.37	11.95	36.86	1.65
1984	62.35	17.98	40.52	1.79
1985	86.45	24.1	38.65	1.94
1986	99.59	13.14	15.20	2.00
1987	105.20	5.61	5.63	2.02
1988	123.06	17.86	16.98	2.09
1989	149.68	26.62	21.63	2.18
1990	161.30	11.62	7.76	2.21
1991	167.60	6.3	3.91	2.22
1992	172.30	4.7	2.80	2.24
1993	195.00	22.7	13.17	2.29
1994	241.50	46.5	23.85	2.38
1995	341.78	100.28	41.52	2.53
1996	379.43	37.65	11.02	2.58
1997	500.99	121.56	32.04	2.70
1998	504.16	3.17	0.63	2.70
1999	560.21	56.05	11.12	2.75
2000	713.19	152.98	27.31	2.85
Average		29.15	18.56	
Compound Growth Rate (CGR)			17.94	

Source : Dhaka Stock Exchange Fact Book, 1994, DSE *Annual Report*, different issues and other related DSE Monthly Review.

The growth trend of Number of Shares, debentures and Mutual Funds Certificates is analyzed in Table 3.12. The table shows that Number of Shares, debentures and Mutual Funds Certificates increased from Tk. 13.61 million in 1976 to tk. 713.19 million in 2000 registering an average annual simple growth rate (SGR) of 18.56% and a compound growth rate (CGR) of 17.94 percent. It is observed from the table that from 1976 to 2000 the Number of Shares, debentures and Mutual Funds Certificates either in the form of absolute growth rate or simple growth rate whatever we calculate that has been increasing over the years.

3.27.1 Trend Equation of Number of Shares, Debentures and Mutual Funds Certificates

To compare the growth trends of Number of Shares, debentures and Mutual Funds Certificates of listed Companies in the DSE, Semi-Logarithmic Trend Lines of Number of Shares, debentures and Mutual Funds Certificates in the DSE are estimated for the period from 1976 to 2000. The Semi-Logarithmic trend lines of Number of Shares, debentures and Mutual Funds Certificates are showing the relationship between Number of Shares, debentures and Mutual Funds Certificates (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Number of Shares, debentures and Mutual Funds Certificates in the DSE is shown in Table 3.13.

Summary Output

Regression Statistics	
Multiple R	0.991857
R Square	0.98378
Adjusted R Square	0.983074
Standard Error	0.069854
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	6.806899	6.806899	1394.965	4.32E-22
Residual	23	0.112231	0.00488		
Total	24	6.919131			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.070979	0.028802	37.18462	4.77E-22	1.011398	1.130559
X Variable 1	0.072361	0.001937	37.34923	4.32E-22	0.068353	0.076369

Table 3.13
Estimated Semi-Logarithmic Trend Lines of Shares, Debentures and Mutual Funds
Certificates of the DSE

Name of the stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R^2	TGR	CR_t of B	P	The t Test Result
DSE	1.071	0.072	984	18.03	37.35	0	S

Note :

Y = Dependent variable i.e., Number of Shares, debentures and Mutual Funds Certificates.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{ \text{Anti-log of } (B)-1 \} 100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

Source : Table 3.12.

The t Table value at 24 degree freedom and 0.05 level of significance is 1.711

The table shows that the trend line equations has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the number of Shares and Debentures in the DSE increased over the years.

3.28 Growth Trend of Listed Companies of the DSE

The growth trend of listed companies of the DSE is analyzed in Table 3.14. The table shows that number of listed companies of the DSE increased from 9 in 1976 to 241 in 2000 registering an average annual simple growth rate (SGR) of 15.27% and a compound growth rate (CGR) of 14.68 percent.

Table 3.14
Growth Pattern of Listed Companies of the DSE

Year	Number of Listed Securities	Absolute Growth in Number	Simple Growth Rate (SGR)	Number of Shares, Debentures, Mutual Funds Certificates (Million)	Number of Listed Securities (Log Y)
1976	9	-	-	13.61	0.95
1977	11	2	22.22%	14.65	1.04
1978	14	3	27.27%	18.45	1.15
1979	18	4	28.57%	21.23	1.26
1980	23	5	27.78%	22.23	1.36
1981	26	3	13.04%	26.25	1.41
1982	29	3	11.54%	32.42	1.46
1983	44	15	51.72%	44.37	1.64
1984	58	14	31.82%	62.35	1.76
1985	72	14	24.14%	86.45	1.86
1986	82	10	13.89%	99.59	1.91
1987	92	10	12.20%	105.20	1.96
1988	111	19	20.65%	123.06	2.05
1989	116	5	4.50%	149.68	2.06
1990	134	18	15.52%	161.30	2.13
1991	138	4	2.99%	167.60	2.14
1992	149	11	7.97%	172.30	2.17
1993	153	4	2.68%	195.00	2.18
1994	170	17	11.11%	241.50	2.23
1995	201	31	18.24%	341.78	2.30
1996	205	4	1.99%	379.43	2.31
1997	222	17	8.29%	500.99	2.35
1998	228	6	2.70%	504.16	2.36
1999	232	4	1.75%	560.21	2.37
2000	241	9	3.88%	713.19	2.38
Average		9.64	15.27		
Compound Growth Rate (CGR)			14.68		

Source : Dhaka Stock Exchange Fact Book, 1994, DSE *Annual Report*, different issues and other related DSE Monthly Review.

It is observed from the table that from the year 1976 to 2000 the number of listed companies of the DSE in the form of absolute growth rate or simple growth rate whatever we calculate that has been increasing over the years.

3.28.1 Trend Equation of Listed Companies of the DSE

To compare the growth trends of Number of Listed Companies of the DSE, Semi-Logarithmic Trend Lines of Listed Companies of the DSE are estimated for the period from 1976 to 2000. The Semi-Logarithmic trend lines of Listed Companies of the DSE are showing the relationship between Number of Listed Companies of the DSE (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Listed Companies of the DSE in the DSE is shown in Table 3.15.

Summary Output

Regression Statistics	
Multiple R	0.963245
R Square	0.92784
Adjusted R Square	0.924703
Standard Error	0.125446
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	4.653916	4.653916	295.7366	1.26E-14
Residual	23	0.361944	0.015737		
Total	24	5.01586			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.094568	0.051723	21.16224	1.41E-16	0.987572	1.201565
X Variable 1	0.059833	0.003479	17.19699	1.26E-14	0.052635	0.06703

Table 3.15
Estimated Semi-Logarithmic Trend Lines of Listed Companies of the DSE

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R^2	TGR	CR_t of B	P	The t Test Result
DSE	1.095	0.059	.928	14.55	17.20	0	S

Note :

Y = Dependent variable i.e., Number of Listed Securities.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{\text{Anti-log of } (B)-1\}100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 24-degree freedom and 0.05 level of significance is 1.711

Source : Table 3.14.

The table shows that the trend line equations has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the number of Listed Companies in the DSE increased over the years.

3.29 Growth Trend of Paid-up Capital of Listed Securities

The growth trend of Paid-up Capital of listed Securities is analyzed in Table 3.16. The table shows that Paid-up Capital of listed Securities increased from Tk. 137.52 million in 1976 to Tk. 31191.86 million in 2000 registering an average annual simple growth rate (SGR) of 26.59 % and a compound growth rate (CGR) of 25.36 percent. It is observed from the table that from 1985 to 2000 the amount of Paid-up Capital of listed Securities either in the form of absolute growth rate or simple growth rate whatever we calculate that has been increasing over the years. It is a good symptom for any stock market.

Table 3.16
Growth Trend of Paid-up Capital of Listed Securities

Year	Number of Listed Securities	Total Paid-up Capital Tk.(in million)	Absolute Growth in Amount	Simple Growth Rate (SGR)	Total Paid-up Capital (LogY)
1976	9	137.52	137.52	-	2.14
1977	11	230.05	92.53	67.28	2.36
1978	14	281.33	51.28	22.29	2.45
1979	18	365.00	83.67	29.74	2.56
1980	23	405.88	40.88	11.20	2.61
1981	26	528.13	122.25	30.12	2.72
1982	29	725.55	197.42	37.38	2.86
1983	44	1001.54	275.99	38.04	3.00
1984	58	1546.57	545.03	54.42	3.19
1985	72	2059.68	513.11	33.18	3.31
1986	82	2653.05	593.37	28.81	3.42
1987	92	3149.69	496.64	18.72	3.50
1988	111	3663.69	514	16.32	3.56
1989	116	4539.23	875.54	23.90	3.66
1990	134	5361.10	821.87	18.11	3.73
1991	138	5586.50	225.4	4.20	3.75
1992	149	6020.30	433.8	7.77	3.78
1993	153	8201.70	2181.4	36.23	3.91
1994	170	11673.80	3472.1	42.33	4.07
1995	201	19438.05	7764.25	66.51	4.29
1996	205	23052.41	3614.36	18.59	4.36
1997	222	28454.51	5402.1	23.43	4.45
1998	228	28625.71	171.2	0.60	4.46
1999	232	28774.57	148.86	0.52	4.46
2000	241	31191.86	2417.29	8.40	4.49
Average			1247.67	26.59	
Compound Growth Rate (CGR)				25.36	

Source : Dhaka Stock Exchange Fact Book, 1994, DSE *Annual Report*, different issues and other related DSE Monthly Review.

3.29.1 Trend Equation of Paid-up Capital of Listed Securities of DSE

To compare the growth trends of Paid-up Capital of listed Securities of DSE, Semi-Logarithmic Trend Lines of Paid-up Capital of listed Securities of DSE are estimated for the period from 1976 to 2000. The Semi-Logarithmic trend lines of Paid-up Capital of listed Securities of DSE are showing the relationship between Number of Paid-up Capital of listed Securities of DSE (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Paid-up Capital of listed Securities of DSE is shown in table 3.17.

Summary Output

Regression Statistics	
Multiple R	0.992363
R Square	0.984784
Adjusted R Square	0.984122
Standard Error	0.093217
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	12.93436	12.93436	1488.523	2.0702E-22
Residual	23	0.199856	0.008689		
Total	24	13.13422			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.187394	0.038434	56.91253	2.97E-26	2.10788694	2.266902
X Variable 1	0.099747	0.002585	38.58139	2.07E-22	0.094399	0.105095

Table 3.17

Estimated Semi-Logarithmic Trend Lines of Paid-up Capital of Listed Securities of DSE

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R^2	TGR	CR_t of B	P	The t Test Result
DSE	2.187	0.099	.985	25.60	38.58	0	S

Note :

Y = Dependent variable i.e., Total Paid-up Capital.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{\text{Anti-log of } (B)-1\}100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 24-degree freedom and 0.05 level of significance is 1.711

Source : Table 3.16.

The table shows that the trend line equations has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It is therefore, suggests that the **Paid-up Capital** in the DSE increased over the years.

3.30 Growth Trends of Market Capitalization of all Listed Companies of DSE

The growth trend of Market Capitalization of all listed Companies of DSE is analyzed in table 3.18. The table shows that Market Capitalization of all listed Companies of DSE increased from Tk147 million in 1976 to 62923 million in 2000 registering an average annual simple growth rate (SGR) of 39.76 % and a compound growth rate (CGR) of 28.72 percent.

Table 3.18
Growth Trends of Market Capitalization of all Listed Companies of DSE

Year	Market Capitalization of all listed Securities in Million Taka	Absolute Growth in Amount	Simple Growth Rate (SGR)	Market Capitalization (Log Y)
1976	147	147	-	2.17
1977	248	101	68.71	2.39
1978	305	57	22.98	2.48
1979	394	89	29.18	2.60
1980	437	43	10.91	2.64
1981	603	166	37.99	2.78
1982	812	209	34.66	2.91
1983	1211	399	49.14	3.08
1984	2256	1045	86.29	3.35
1985	3493	1237	54.83	3.54
1986	5731	2238	64.07	3.76
1987	12671	6940	121.10	4.10
1988	13557	886	6.99	4.13
1989	15350	1793	13.23	4.19
1990	11485	-3865	-25.18	4.06
1991	10397	-1088	-9.47	4.02
1992	12299	1902	18.29	4.09
1993	18098	5799	47.15	4.26
1994	41771	23673	130.80	4.62
1995	56518	14747	35.30	4.75
1996	168106	111588	197.44	5.23
1997	49969	-118137	-70.28	4.70
1998	50254	285	0.57	4.70
1999	44781	-5473	-10.89	4.65
2000	62923	18142	40.51	4.80
Average		2516.92	39.76	
Compound Growth Rate (CGR)			28.72	

Source : Dhaka Stock Exchange Fact Book, 1994, DSE *Annual Report*, different issues and other related DSE Monthly Review.

It is observed from the table that from 1985 to 2000 the level of turnover either in the form of absolute growth rate or simple growth rate whatever we calculate that has been increasing with the exception of the years 1991, 1997 and 1999, which indicates that general

people were reluctant to take part in the stock market investment at that period of time. It is very interesting to note that in the year 1996 SGR was 197.44%, but after that it drops and in the year 1997 it becomes (-) 70.28%. Although in 1998 SGR was positive but the trend is decreasing dramatically especially in the years 1999 and 2000, which is not at all a good symptom for the stock market, like DSE. This explanation can also be understood from the graphical representation for better understanding of the performance of the market capitalization of all listed companies of DSE over the years.

Figure 3.3



Source : Table 3.18

The growth trends of market capitalization can be analyzed in four phases. i.e., beginning from 1976 to 1986, 1986 to 1993, 1993 to 1996, and 1996 to 2000.

The first phase indicates a very steady progress, and the second phase indicates a slight higher progress. But a particular year i.e., 1996 is marked by very high progress indicating around 168 million Taka. But it is very surprising to note that the following year 1997 is marked by a sharply declining trend indicating around 50 million Taka market capitalization. We have noted that the debacle of 1996 share market crash was solely responsible for this abnormal ups and downs in market capitalization. But from the following year of that debacle again, the market capitalization showed more or less steady and stable position which continued till 2000.

3.30.1 Trend Equation of Market Capitalization of all Listed Companies of DSE

To compare the growth trends of Market Capitalization of all listed Companies of DSE, Semi-Logarithmic Trend Lines of Turnover of Market Capitalization of all listed Companies of DSE are estimated for the period from 1985 to 2000. The Semi-Logarithmic trend lines of Market Capitalization of all listed Companies of DSE are showing the relationship between Market Capitalization of all listed Companies of DSE (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Market Capitalization of all listed Companies of DSE is shown in Table 3.19.

Summary Output

Regression Statistics	
Multiple R	0.963167
R Square	0.927691
Adjusted R Square	0.924547
Standard Error	0.247316
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	18.04864	18.04864	295.0793	1.29E-14
Residual	23	1.406804	0.061165		
Total	24	19.45544			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.228384	0.101971	21.85308	6.95E-17	2.017441	2.439327
X Variable 1	0.117829	0.006859	17.17787	1.29E-14	0.103639	0.132018

Table 3.19
Estimated Semi-Logarithmic Trend Lines of Market Capitalization of all Listed Companies of DSE

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R^2	TGR	CR_t of B	P	The t Test Result
DSE	2.228	0.118	.928	31.22	17.18	0	S

Note :

Y = Dependent variable i.e., Market Capitalization of all listed Securities.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{ \text{Anti-log of } (B)-1 \} 100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 24-degree freedom and 0.05 level of significance is 1.711

Source : Table 3.18.

The table shows that the trend line equation has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It is therefore, suggests that the **Market Capitalization** in the DSE increased over the years.

3.31 Growth Trend of DSE all Share Price Index

The growth trend of All Share price Index of DSE is analyzed in Table 3.20. The table shows that All Share price Index of DSE increased from 209.14 in 1985 to 578.73 in 2000 registering an average annual simple growth rate (SGR) of 14.48 % and a compound growth rate (CGR) of 7.02 percent.

Table 3.20
Growth Trend of DSE all Share Price Index

Year	Share Price Index	Monthly Average Share Price Index	Absolute Growth	Simple Growth Rate (SGR)	Log of Monthly Average Share Price Index (Log Y)
1985	230	209.14	-	-	2.32
1986	244	219.52	10.38	4.96	2.34
1987	512	501.95	282.43	128.66	2.70
1988	534	510.60	8.65	1.72	2.71
1989	468	429.81	-80.79	-15.82	2.63
1990	351	315.84	-113.97	-26.52	2.50
1991	296	318.05	2.21	0.70	2.50
1992	370	337.53	19.48	6.12	2.53
1993	392	396.56	59.03	17.49	2.60
1994	846	714.52	317.96	80.18	2.85
1995	835	804.13	89.61	12.54	2.91
1996	2301	1391.46	587.33	73.04	3.14
1997	757	1098.92	-292.54	-21.02	3.04
1998	540	624.55	-474.37	-43.17	2.80
1999	488	470.13	-154.42	-24.73	2.67
2000	643	578.73	108.6	23.10	2.76
Average			24.64	14.48	
Compound Growth Rate (CGR)				7.02	

Note : Month Closing Index.

Source : Compiled from Various issues of Stock Exchange Review, Dhaka Stock Exchange.

It is observed from the table that from 1985 to 2000 all Share price Index either in the form of absolute growth rate or in the form of simple growth rate, whatever we calculate, has been increasing with the exception of the years 1989, 1990, 1997, 1998 and 1999, which indicates the fluctuating nature of the index in this regard. It has been observed from the table that in the year 1996 SGR was 73.04%, but after that it drops and in the year 1997 it becomes (-) 21.02 % and then in the next year SGR was (-) 43.17%. Although in 2000 SGR was positive but the trend since 1997, was declining, which was not at all a good symptom for the stock market, like DSE. This figure is however shown in the graph for easy comprehension of the share price index.

Figure 3.4



3.31.1 Trend Equation of DSE all Share Price Index

To compare the growth trends of All Share price Index of DSE, Semi-Logarithmic Trend Lines of All Share price Index of DSE are estimated for the period from 1985 to 2000. The Semi-Logarithmic trend lines of All Share price Index of DSE are showing the relationship between All Share price Index of DSE (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for All Share price Index of DSE is shown in Table 3.21.

Summary Output	
Regression Statistics	
Multiple R	0.663385
R Square	0.44008
Adjusted R Square	0.400086
Standard Error	0.17735
Observations	16

ANOVA						
	df	SS	MS	F	Significance F	
Regression	1	0.346096	0.346096	11.00358	0.005086	
Residual	14	0.440343	0.031453			
Total	15	0.786439				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.416717	0.093003	25.98532	3.02E-13	2.217245	2.616189
X Variable 1	0.031905	0.009618	3.317164	0.005086	0.011276	0.052534

Table 3.21
Estimated Semi-Logarithmic Trend Lines of DSE all Share Price Index

Name of the Stock Exchange	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R^2	TGR	CR_t of B	P	The t Test Result
DSE	2.417	0.032	0.440	7.65	3.32	0	S

Note :

Y = Dependent variable i.e., Monthly average Share Price Index.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{\text{Anti-log of } (B)-1\}100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 15-degree freedom and 0.05 level of significance is 1.753

Source : Table 3.20.

The table shows that the trend line equation has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It is therefore, suggests that the all Share Price Index in the DSE increased over the years.

From the above discussion and interpretations, it may be argued that the growth trends of DSE's different activities were uneven but not totally unsatisfactory. The average growth trends of different activities of DSE during 1976-77 to 1999-2000 are summarized in Table 3.22.

Table 3.22
Growth Trends of Different Activities of DSE During Past 25 Years

Sl. No.	Nature of Activities and Performance	Average Annual Growth Rate (%)		Sources of Data
		SGR	CGR	
1	Public Issue of Listed Securities	200.98	14.01	Table 3.8
2	Turnover of Shares and debentures	115.55	61.66	Table 3.10
3	Number of Shares, Debentures and Mutual Funds Certificates	18.56	17.94	Table 3.12
4	Listed Companies of DSE	15.27	14.68	Table 3.14
5	Paid-up Capital	26.59	25.36	Table 3.16
6	Market Capitalization of all listed companies of DSE	39.76	28.72	Table 3.18
7	DSE All Share Price Index	14.48	7.02	Table 3.20

We have seen that in the year 1996, there was an abnormal trading in the DSE in all the transactions. In this work each and every table contains the data of 1996 and the summary of the growth trends have been analyzed in Table 3.22. Since we have identified that 1996 is not at all a smooth and normal year, and that is why if we exclude the data of 1996 from our analysis of growth trend of DSE, then the actual SGR and CGR are changed and those changes are shown in Table 3.23.

Table 3.23
Growth Trends of Different Activities of DSE During Past 24 Years (Excluding the Year 1996)

Sl. No.	Nature of Activities and Performance	Average Annual Growth Rate (%)		Sources of Data
		SGR	CGR	
1	Public Issue of Listed Securities	197.73	14.72	Table 3.8
2	Turnover of Shares and debentures	90.73	61.65	Table 3.10
3	Number of Shares, Debentures and Mutual Funds Certificates	18.11	17.93	Table 3.12
4	Listed Companies of DSE	15.19	14.68	Table 3.14
5	Paid-up Capital	25.81	25.35	Table 3.16
6	Market Capitalization of all listed companies of DSE	31.54	28.71	Table 3.18
7	DSE All Share Price Index	9.61	6.57	Table 3.20

However, the findings of the study show that in case of CGR, a slight change occurred. It can further be noted that there is a significant change in case of SGR. These changes occurred because of the exclusion of data of 1996. Nevertheless, it can be argued that there had been significant growth in the DSE during the last two decades.

3.32 Recapitulation of the Chapter

In this chapter efforts have been made to tress out the historical profile and development of DSE as stock market in a developing country like ours. The preamble of DSE has been carefully examined in this chapter with a view to focus on the functions and objectives of this stock exchange. This chapter discussed on various activities of DSE such as functions, legal control, policy making body, listing requirements, trading and share price trading restrictions, trading management practice etc. These were analyzed here with a view to examine the role of DSE as a stock exchange, especially in the industrialization process of Bangladesh. In this regard it can be mentioned that this chapter was particularly designed to examine the growth trends of various aspects of DSE with a view to assess the successes and failure of DSE. In the next chapter, efforts are made to assess and evaluate the performance of mutual funds for the development of capital market of Bangladesh with particular emphasis on eight ICB mutual funds, one BSRS mutual fund and one Asset and Investment Management Services of Bangladesh (AIMS) mutual fund.

CHAPTER FOUR

Performance of Mutual Funds and Capital Market Development

A. Mutual Fund

4.1 Introduction

Mutual Funds have been playing a significant role in the growth and progress of capital market especially from the early eighties in Bangladesh. Development of capital market is directly related to the growth of Mutual Funds. Mutual Fund is an institutional arrangement for pooling of funds and it may be of two types i.e., open-end and closed-end. In an open-end Mutual Fund, it is possible for an individual to contribute funds to a central pool by procuring shares or units of the Fund. Any company can issue open-end Funds and acquire additional funds for investment as long as they can sell additional shares in the stock market. "Closed-end Funds differ from open-end Funds in that they authorize a limited number of shares to be sold in order to acquire a pool of Funds, which is then used to purchase a portfolio of securities".¹

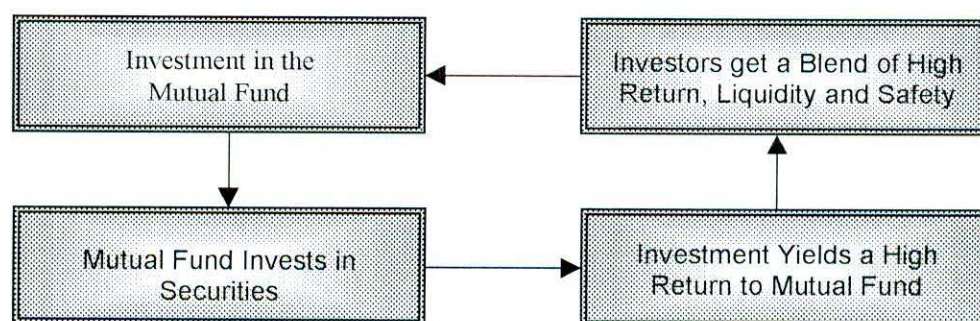
A mutual fund is a vehicle that enables number of investors to pool their money and have it jointly managed by a skilled and professional money manager. Mutual Fund is an institutional settlement for consolidation of funds to mobilize savings from the investors by selling financial instrument, and for the investing of the funds in the best possible portfolio to give maximum return for instrument holders. In these funds after meeting all expenses, net income is spread with the certificate holders each and every year. The size of the mutual funds are settled by the concerned authority earlier, which can not be magnified or contraction. Up to June 2000, ICB had floated as many as eight Mutual Funds. Other than ICB mutual funds, BSRS and AIMS introduced 1st Mutual Fund. Vekateswara, Narasaiah, and Mohan Reddy explain "A Mutual Fund is basically an institutional arrangement for pooling of funds from small investors and investing them in best possible portfolio. In addition to meeting the various investment objectives of various classes of small and medium investors, the Mutual Funds presumed to provide better returns,

¹ Muhammad Mohasin Ali and Warisuz Zaman, "Mutual Funds and Capital Market Developments", A Seminar on "Capital Market in Bangladesh : Development in 1994" Bangladesh Bank, Dhaka, May 2-3, 1995, p. 1.

liquidity, safety, stability and hedging against inflation through professional experts.² There are two basic types of mutual funds. "Open-ended" or "Open" mutual funds are the most common type of mutual funds. Investors may purchase units from the fund sponsor or redeem units at the valuation promised in the fund documents, usually on a daily basis. "Closed-ended" or "Closed" mutual funds are traded as financial securities, once they are issued, and holders must sell their units on the stock market to receive their funds back.

The Mutual Fund has been set up with a view to mobilize savings from the public and to invest them to get good return and achieve long term capital appreciation and in the process assist capital formation and industrial development of the country and to provide investment expertise for the benefit of the investors³. How Mutual Fund can give high return that can be shown in the following flow chart.⁴ This simple chart displays the process of generation of return through the Mutual Fund.

Figure 4.1
Mutual Fund Flow Chart



4.2 Objectives and Nature of Business of Mutual Fund

ICB came into operation in 1976 with a view to stimulating industrialization and boost up capital market of the country. It also aims at mobilizing savings and encouraging investment habits among the general investors and to create healthy capital market in the country. Keeping this view in consideration, the first ICB Mutual Fund (the Fund) was established in April 1980, under regulation 29A of ICB [General] Regulations with a total capital of Tk. 50,000,00 divided into 50000 Certificates of Tk.100 each. The management of the Fund is vested with ICB.⁵

² Si Vekateswara, P.V. Narasaiah, P. Mohan Reddy, "Mutual Fund : A Boon to Small Investor", *Journal of Banking and Finance*, Vol. X, No. 8, Dhaka, August 1997, p. 3.

³ N.R. Nagarajun, "Evaluation of Mutual Fund Schemes Introduced by Commercial Banks", *Journal of Banking and Finance*, Vol. V, No. 10, Dhaka, November 1992, p. 11.

⁴ Md. Hafizur Rahaman, "Investment Corporation of Bangladesh : A Study of Growth, Productivity and Performance", an unpublished M.Phil Thesis, Rajshahi University : Institute of Bangladesh Studies (IBS), February, 2000, p. 75.

⁵ ICB Mutual Funds, *Annual Report*, 1997-98, p. 37.

To ensure maximum return for the shareholders the business of the Fund is aimed at generating savings from the investors and investing the funds in securities. Income, after deduction of all expenses, is generally distributed among the certificate holders on a yearly basis.

4.3 Mutual Funds from the Viewpoint of the Investors

Bangladesh is one of the developing countries of the world. Large portions of the people are illiterate in Bangladesh. Many people do not understand what are the functions of Investment Banking and what is the role of mutual fund. Marginal investors are not taking any interest in investing their money in the stock market. The environment of this stock market is suspicious and the capital market is unfriendly with the small investors.⁶ Generally, the scattered funds of the general investors are pooled together and are invested in different securities. "Mutual Funds has been recognized as an investor friendly financial instrument and acts as an effective tool to mobilize the financial resources from a wide range of channels on to investment fields."⁷ The security market of Bangladesh is not meant for small and marginal investors because they do not want to take risk in investing their money in the security market. In selection of portfolios of an individual, ICB Mutual Fund can execute as an intermediary in this regard through which small investors' can get sensible dividend. Mutual Fund began its journey by the end of eighties. ICB launched 1st ICB Mutual Fund in April 1980, and then it further launched 2nd, 3rd, 4th, 5th, 6th, 7th and 8th Mutual Fund in the years 1984, 1985, 1986, 1987, 1988, 1995 and 1996 respectively. After that, Bangladesh Shilpa Rin Shangstha (BSRS) had taken an initiative to float a Mutual Fund in the capital market of Bangladesh. Their Board of Directors approved the floatation of the Fund on April 1, 1995 and the Fund was floated for public subscription. On 1st December 1996 and subscription closed on 7th December 1996. The fund was listed in the DSE on 30-01-1997. Another Mutual Fund named AIMS First Mutual Fund is introduced in the capital market of Bangladesh very recently. After completion of the formalities the Fund was floated share for public subscription, on 5th March 2000 and subscription closed on 16th March 2000. The fund was listed in the DSE on 25th May 2000.

Marginal investors, who are very careful about the protection and liquidity of their investments, consider that the public sector institutions are more or less safe for them because of government support. ICB is the only public sector investment Bank, which is managing successfully eight Mutual Funds in Bangladesh since long. Although, there are two private sector Mutual Funds are now available in the capital market of Bangladesh, which are almost new, namely, 1st BSRS Mutual Fund and AIMS First Mutual Fund. In India, Unit Trust of India (UTI), Life Insurance Company (LIC), and public sector banks introduced Mutual Funds and those are operating comfortably.

⁶ Abu Ahmed, "Capital Market in Bangladesh : The Required Reform Dimension", *Bank Parikrama, a Journal of BIBM*, Vol. XIX, Nos. 3 & 4, Dhaka, September & December, 1994, p. 39.

⁷ Vekateswara, Narasaiah, Reddy, *op.cit.*, p. 3.

4.4 Role of Mutual Funds and Capital Market Development

From 1980 to 1996 ICB floated eight Mutual Funds in the capital market of Bangladesh. The initial magnitude of the fund was Tk. 50 lac against which ICB received response of Tk. 82 lac, i.e., it received Tk. 32 lac more in its beginning year, which is an indication of high demand for mutual fund in this regard.

Table 4.1
ICB Mutual Funds Performance at a Glance

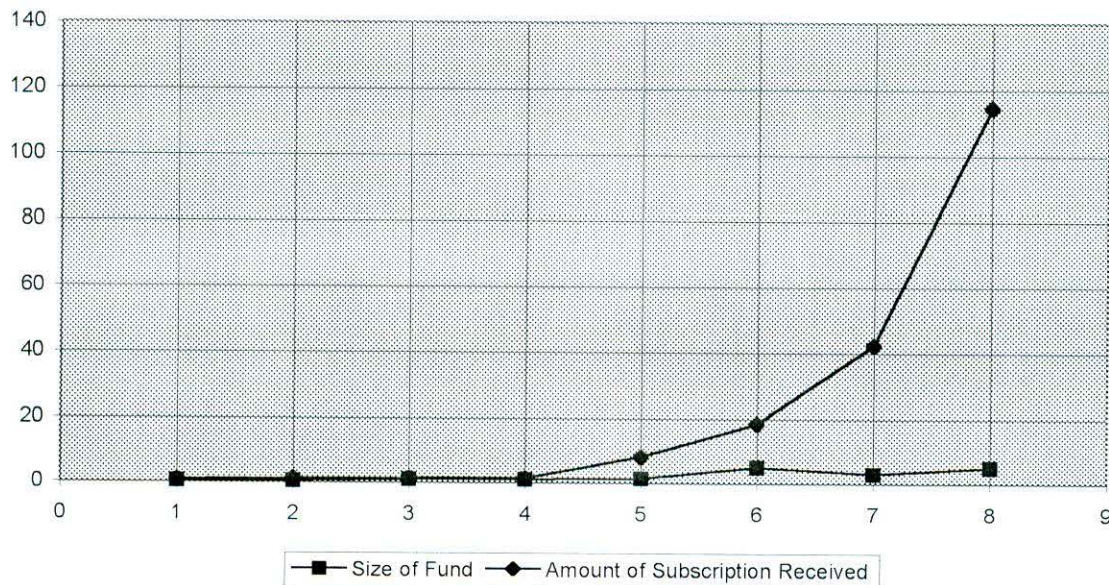
(Taka in crore)

ICB Mutual Funds	Date of Floatation	Size of Fund	Amount of Subscription Received	Cost Price of the Portfolio as on June 30, 2000	Market Value of the Portfolio as on June 30, 2000	No. Of Certificate Holders as on June 30, 2000	Amount Over Subscribed
First	25.04.80	.50	82	4.08	8.55	1135	.32
Second	17.06.84	.50	1.34	2.01	2.72	1203	.84
Third	19.05.85	1.00	1.40	2.58	3.65	3022	.40
Fourth	06.06.86	1.00	1.44	4.01	5.52	2712	.44
Fifth	08.06.87	1.50	8.11	4.57	5.07	4485	6.61
Sixth	16.05.88	5.00	18.50	6.95	6.51	11840	13.50
Seventh	30.06.95	3.00	42.39	8.54	7.89	3843	39.39
Eighth	23.07.96	5.00	114.52	10.83	9.97	9612	109.52
Total		17.50	188.52	43.57	49.88	37852	171.02

Source : ICB, *Annual Report*, 2000-2001, pp. 46-47.

In the next time, ICB floated its second Mutual Fund in 1984 and the volume of the fund was absolutely same but it received subscription to the tune of Tk. 134 lac, which is also a good response from the general public. Table 4.1 shows that ICB got spirited responses from the public for Mutual Funds in all cases. The subscription against fifth Mutual Fund was Tk. 6.61 crore. Again, the excess subscription derived against the sixth, seventh and eighth Mutual Funds were Tk. 13.50 crore, Tk. 39.39 crore and Tk. 109.52 crore separately. Table also shows that the demands for mutual funds have gradually increased over the years. This also proves that it can provide vital role in mobilizing savings and investing the fund in proper sectors by which industrialization process can be geared up. Table 4.1 shows that up till now ICB floated eight Mutual Funds of Tk. 17.50 crore, and against that, it got over subscription of Tk. 171.02 crore. This is invariably an indication of a high demand for the fund. This has also been presented in figure 4.2 for comprehensive view of the two indicators.

Figure 4.2
Mutual Funds Size and Subscription



Note : Logarithmic scale is being used in this graph for better understanding.

Source : Table 4.1

If we carefully examine the trend of subscription, then we observe that each Mutual Fund has got over subscription. In addition, in case of BSRS 1st Mutual Fund and AIMS 1st Mutual Fund also got over subscription. However, these Mutual Funds are very popular to the small and medium investors in Bangladesh, because of capital gain and side-by-side reasonable return in terms of dividend.

From figure 4.2 it has been observed that from the fourth mutual fund to eighth mutual fund the subscription trend sharply increased. It is interesting to note that figure 4.2 displays the highest over subscription of eighth mutual fund. From the graph it is clear that for the development of the capital market there is a positive role of mutual fund.

4.5 Dividend Payment Followed by ICB Mutual Funds

For industrialization and speedy development of the country, the establishment of ICB was a dominant step in Bangladesh. It catered to the avenues for the investments in Bangladesh to practice savings' habits and to invest it in good portfolios.

Dividend payment performance is indeed an important factor for the investors, because healthy dividend payment can largely attract the investors to invest in the capital market. However, ICB has been able to float as many as eight mutual funds in the capital market. This indicates that ICB got prompt response from the general investors because it introduced 1st mutual fund in 1980 and the 8th mutual fund came in the capital market in 1995-96. So, this is a

very good sign because within fifteen years of its operation it became successful to float its number eight mutual funds in the market.

The Table 4.2 shows that the 1st mutual fund has been able to give very handsome figure of dividend indicating on an average 48.10% dividend. On the other hand number eight mutual fund gave the lowest percentage of dividend indicating 13.63% only.

Table 4.2
Dividend Payment Performance of ICB Mutual Funds

(Amount in %)

FY	ICB Mutual Fund							
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth
1980-81	20	-	-	-	-	-	-	-
1981-82	20	-	-	-	-	-	-	-
1982-83	20	-	-	-	-	-	-	-
1983-84	25	-	-	-	-	-	-	-
1984-85	35	21	-	-	-	-	-	-
1985-86	38	23	21	-	-	-	-	-
1986-87	41	25.5	22.5	21.5	-	-	-	-
1987-88	48	28	25.5	23	20	-	-	-
1988-89	49	29	26	23.5	20.5	15.5	-	-
1989-90	49	29	26	23.5	20.5	13.25	-	-
1990-91	35	22	19	17	10	6	-	-
1991-92	31	22	19	18	11	6	-	-
1992-93	31	21	18	17	12	-	-	-
1993-94	45	27	22	40	25	16	-	-
1994-95	50	40	27	41	28	18	-	-
1995-96	60	42	28	41	30	20	18	-
1996-97	70	45	38	45	35	24	21	18
1997-98	70	30	35	32	22	18	14	12
1998-99	100	32	38	35	20	15	13	12
1999-2000	125	35	40	36	21	16	13.5	12.5
Average	48.10	29.47	27.00	29.54	21.15	18.14	15.90	13.63
S.D.	26.86	7.61	7.42	10.06	7.34	3.08	3.47	2.93

Note : Notation '-' means nil. (Here the sign implies ICB not started its activities in the respective years)

Source : ICB Mutual Fund, *Annual Report*, different issues.

"In view of the national policy of increasing the rate of marginal savings and investment to foster self-reliant economy, ICB assumes an indispensable and far-reaching role."⁸ ICB is indeed an investment bank, which is practicing in underwriting of public issue, and management of Mutual Funds. During its long period of journey, ICB has become successful in paying sound dividend payment that can be observed from the Table 4.2.

⁸ ICB, *Annual Report*, 1997-98, p. 10.

If we carefully analyze the dividend figures in the above table, then it can be opined that although the 1st mutual fund seems to be very healthy in terms of dividend performance but it bears highest risk indicating standard deviation of 26.86%. This means that 2nd mutual fund is by far the best mutual fund from the point of view of standard deviation.

4.6 Portfolio Management Practice

For the development of capital market of Bangladesh, ICB mutual fund started its operation from the early eighties. To procure savings, ICB started the Scheme in 1977 through which investors can make their savings in the capital market. ICB became flourishing in making this scheme widespread. ICB has been able to manage these portfolios of mutual funds very carefully and successfully. This can be seen from the Table 4.3.

Table 4.3
Consolidated Portfolio Statement of Mutual Funds (as on 30.06.1998)

(Tk. in lac)

FY	ICB Mutual Funds							
	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth
No. Of companies	23	33	44	43	49	96	57	47
No. Of securities	23	36	47	47	55	107	63	52
Total investment at cost	215.54	114.11	221.82	182.37	271.79	765.77	515.72	623.02
Market value	1049.21	272.25	469.85	507.66	454.13	852.73	496.61	618.82
Capital appreciation amount	833.67	158.14	248.03	325.29	182.34	86.96	(17.11)	(4.20)
Percentage	386.78	138.59	111.82	178.37	67.09	11.63	(3.43)	(0.76)
Dividend payment range	20-70%	21-45%	18-38%	17-45%	10-35%	0-24%	14-21%	12-18%
Average	48.10	29.47	27.00	29.54	21.15	18.14	15.90	13.63
S.D.	26.86	7.61	7.42	10.06	7.34	3.08	3.47	2.93

Source : ICB Mutual Funds, *Annual Report, 1997-98*, p. 113.

ICB generally develops the portfolio by investing people's savings in primary and secondary market shares and debentures. ICB makes in depth analysis in developing sound portfolios. In case of secondary purchase, a company's part performance is evaluated. DSE review, and DSE's daily quotation also helps in making portfolios. The Consolidated Portfolio Statement is analyzed in Table 4.3. Although the portfolio management of ICB appears to be satisfactory, but it is directly connected with the ups and downs of the share market of the country.

4.7 Mutual Funds in the Private Sector

In Bangladesh Share Market, there had been no mutual funds in the private sector. In view of present socio-economic changes and due to globalization, two private mutual funds have been introduced in Bangladesh very recently.

4.7.1 BSRS 1st Mutual Fund

Bangladesh Shilpa Rin Shangstha (BSRS) has taken an initiative to float a Mutual Fund namely 1st BSRS mutual fund in the capital market of Bangladesh which was approved by the Board of Directors on April 1, 1995. After completion of necessary formalities the Fund was floated for public subscription, on 1st December 1996 and subscription closed on 7th December 1996. The fund was listed in the DSE on 30-01-1997 and the issued capital was 50 lac. In this fund public subscription was Tk. 636,679,000 at that time and it was almost 12 times over subscribed. This is indeed an indication of higher demand of mutual fund in Bangladesh capital market in the private sector as well. Moreover, the 1st trading closing price was Tk.264.31; where as the face value of the share was Tk.100. Table 4.4 and 4.5 can give a clear vision about this BSRS 1st Mutual Fund.

Table 4.4
Dividend Payment Performance of BSRS 1st Mutual Fund

(Amount in Taka)

Year	Dividend
1999	5.00
2000	6.00
2001	7.50

Source : Compiled from various issues of Stock Exchange Review and different *Annual Reports* of DSE.

Table 4.5
High – Low Market Price of BSRS 1st Mutual Fund

(Amount in Taka)

Year	High	Low
1996	Not listed	
1997	281.00	114.00
1998	96.00	71.00
1999	67.50	45.00
2000	105.00	48.25
2001	106.25	65.00

Source : Compiled from various issues of Stock Exchange Review and different *Annual Reports* of DSE.

Although it is clear from the tables that dividend payment trend has been increasing over the years, but the existing alarming situation is the market value of the share. High – Low market price of BSRS 1st Mutual Fund shows that after 1997 the market price was lower than face value. In the year 1999 it was almost half. Although, the fund was not responsible for this, but overall market was perhaps responsible, because of 1996 share market crash.

4.7.2 AIMS First Guaranteed Mutual Fund

Very recently, another Mutual Fund namely AIMS First Mutual Fund has been introduced in the capital market of Bangladesh. After completion of the formalities the Fund was floated share for public subscription, on 5th March 2000 and subscription closed on 16th March 2000. The fund was listed in the DSE on 25th May 2000 and the issued capital was 70 lac and the general public portion was 30 lac and the face value of this share was Tk.1.00. In this fund public subscription was Tk. 82,393,000 at that time and it was over subscribed by 3 times. This is also a further indication of higher demand of mutual fund in Bangladesh capital market. This fund gave 10% dividend in the year 2000. However, Table 4.6 gives a clear vision about the market price of AIMS 1st guaranteed Mutual Fund.

Table 4.6
High – Low Market Price of AIMS 1st Mutual Fund

Year	High	Low
1 st trading Price	1.10	
2000	1.68	1.03
2001	1.27	0.91

Source : Compiled from various issues of Stock Exchange Review and different *Annual Reports* of DSE.

4.7.3 Nature & Style of AIMS First Guaranteed Mutual Fund

This team-managed all-weather Fund is a closed-end capital guaranteed balanced mutual fund. It mostly will focus on preservation of principal and at the same time earn moderate return for the shareholders. Because of the balanced nature, the Fund is less risky than the existing all-equity mutual funds available in the market. The portfolio will be a growth-value blend basket of large-cap as well as small-cap stocks and a mix of fixed income securities.

In order to increase the profit potential, the management of the company will have the flexibility to use market timing to move between stocks and Fixed Income Securities in any percentage they deem prudent when investment conditions change. The management of the company will adopt both fundamental and quantitative investing approach for the Fund. All investment decisions will be backed by thorough in-house fundamental and technical research.

B. Unit Fund

4.8 Introduction

Each and every unit holder has the interest to their share of the assets of the fund and any income that the fund procures. The fund must give out all of its income each year. Mutual funds are regulated by ICB in Bangladesh with the exception of BSRS and AIMS mutual fund, which ensure that adequate information is available to prospective purchasers and unit holders about the fund characteristics and its performance. The major fund disclosure document is called the prospectus. ICB unit certificate is a popular medium of investment to the marginal savers of Bangladesh. Unit Department does the operation of unit fund of ICB. Unit fund is an open-end Mutual Fund and the scheme is meant for reasonable profitability in a balanced portfolio with relatively lower risk. It contributes to the economic and industrial development of the country and broadens the base of ownership in securities. This scheme is also followed by Japan, U.S.A., Germany, Pakistan, India and other developed countries of the world. Unit Fund in Bangladesh has been able to draw the attention of all kinds of investors through its successful operations and sound dividend payments.

4.9 Nature of Business and Its Objectives

ICB was established in 1976 with the objectives of accelerating industrialization and economic development of the country through the development of capital market, ICB Unit Fund came into operation in April 1981 under Section 21(2) of ICB Ordinance, 1976. The management of the Fund is vested with ICB. "This is an open-ended fund invested in securities and money market as a single account. Income, net of expenses, is distributed to certificate holders on a yearly basis".

4.10 Stratification of Unit Holders

The occupations of the applicants are mentioned in the application form for purchasing the units. Government salaried and non-government service holders, defense personnel, professionals, legal, medical and engineering personnel, retired personnel, business/agriculture, house-wives/working women, workers/students, Bangladeshi is residing abroad/foreign nationals, and institutions' provident fund/non provident fund investments are the usual holders of this fund. The number of unit holders as on June 30, 2001 was 39913 whose occupation-wise classification is shown in Table 4.7.

Table 4.7
Occupation-wise Classification of Unit Holders

Sl. No.	Occupation/Institution	No. of Unit holders as on 30th June, 2001	Percentage (%)
1.	Salaried Government and non-government employees, etc.	23,272	58.31
2.	Housewives and working women	1,119	2.99
3.	Businessmen and agriculture	3,603	9.03
4.	Engineers, doctors, lawyers, etc.	3,201	8.02
5.	Retired personnel (all categories)	3,825	9.58
6.	Workers/students	428	1.07
7.	Defense personnel	2,328	5.83
8.	Bangladeshis residing abroad	399	1.00
9.	Institution-provident fund	42	0.11
10.	Miscellaneous	1,622	4.06
Total		39,913	100.00

Source : ICB Unit Fund, *Annual Report 2001-2002*, p. 20.

Table 4.7 shows that more than 61 percent of the total unit holders come from two groups, i.e., salaried persons, housewives and working women. Government service holder's and housewives want to invest in such schemes, which are safeguarded and risk less. In addition to that, they also want to maintain secrecy about their capital. The investments of businessmen and agriculturists are almost equal to the same of engineers, doctors and lawyers. The researcher feels that engineers, doctors and lawyers are more interested in investing their fund elsewhere other than ICB since their income is much higher than those of the agriculturists.

4.11 Sale and Repurchase of Units

Table 4.8 shows the year-wise gross sale, repurchase and net sale of the units. Endeavor is made here to examine how far ICB has become successful in generating gross sales, repurchase and net sale of units over the years.

Table 4.8
Statement of Gross Sale, Repurchase and Net Sale of Units

(Taka in lac)

FY	Gross Sale		Repurchase		Net Sale	
	Units	Value (Tk)	Units	Value (Tk)	Units	Value (Tk)
1980-81	30044	30	0	-0.44	30044	30.44
1981-82	204007	204	458	0.4	203549	203.6
1982-83	1388152	1484.7	38515	36.8	1349637	1447.9
1983-84	645228	681.3	80243	77.2	564985	604.1
1984-85	896521	993.2	121906	128.2	774615	865
1985-86	1226076	1428	78378	84.3	1147698	1343.7
1986-87	992980	1145.9	752367	778.7	140613	367.2
1987-88	2506372	2798.3	45843	49.3	2460529	2749
1988-89	3237679	3741.5	162559	189.4	3076120	3552.1
1989-90	5512835	6304.7	384166	473.9	5128669	5830.8
1990-91	4937873	5871.96	930158	1151.18	4007715	4720.8
1991-92	2078958	2372.35	3383689	3741.71	-1304731	-1369.36
1992-93	1434091	1627.29	1858186	2031.89	-424095	-404.6
1993-94	2650512	3077.38	721538	811.86	1928974	2265.52
1994-95	6180947	7566.22	721542	888.6	5455805	6677.62
1995-96	12174251	14785.67	1012343	1262.89	11161908	13522.78
1996-97	12106026	14989	3146428	3887	4959598	11102
1997-98	8011893	9805.67	2857682	3456.7	5154211	6348.97
1998-99	4031206	4581.72	5979532	6565.67	2154274	-1983.95
1999-2000	2796766	3033.43	7781194	8099.48	-4984428	-5066.05
2000-2001	2793232	3013.91	4063013	4198.12	-1269781	-1184.21
Total	7,58,35,649	89536.20	3,41,19,740	37912.84	4,17,15,909	51623.36
Average	3678635.83	4383.73	905533.39	1058.33	2773102.44	3325.40

Source : ICB Unit Fund, *Annual Report 1997-98*, p. 6 and 2000-2001, p. 14.

In the year 1995-96, ICB was able to sell the highest number of units which rose up to Tk. 13522.78 lac and after that it was declining trend; and even it experienced a very peculiar trend i.e., the number of repurchases became much more higher than its gross sales and that is why net sales became negative.

4.12 Opening and Closing Prices of ICB Unit

A careful observation on Table 4.9 shows that the trends of opening prices of ICB Unit, are increasing on the other hand the closing price of the unit were also increasing till 1990-91. With effect from 1991-92, the difference between opening and closing price of the units stood at Tk. 3, which indicates low demand for unit certificate during that period. It has been observed

from the table that the margins between the opening and closing prices began to reduce after 1996 and continued till now.

Table 4.9
Unit Price Over the Years

FY	Unit Price (Tk.)		Spread
	Opening (Tk.)	Closing (Tk.)	
1980-81	100	NA	-
1981-82	100	NA	-
1982-83	100	112	12
1983-84	100	115	15
1984-85	110	114	4
1985-86	112	119	7
1986-87	107	120	13
1987-88	105	123	18
1988-89	107	127	20
1989-90	108	132	24
1990-91	115	133	8
1991-92	114	117	3
1992-93	112	122	10
1993-94	112	127	15
1994-95	114	135	21
1995-96	117	136	19
1996-97	120	136	16
1997-98	120	129	9
1998-99	114	117	3
1999-2000	109	113	4

Note : 1. NA means not available and FY = Financial year.

2. Spread is the difference between closing price and opening price.

Source : ICB Unit Fund, *Annual Report*, 1997-98 and 1992-93.

4.13 Principles Followed by ICB Regarding Dividend Payment

It is clear from the Table 4.10 that from 1980-81 to 1989-90, the dividend payment per unit, increased, ranging from Tk. 15 to Tk. 25 and the yield on opening price also increased with the exception of the year 1989-90. In the year 1990-91, the dividend payment per unit sharply falls and came down to Tk. 18 (i.e., 15.65% on the basis of opening price). In the next year 1991-92 the dividend payment per unit further declined to Tk. 16.7 (i.e., 14.65% on the basis of opening price). From the year 1991-92 to 1999-2000 the dividend payment per unit ranged between Tk. 16.70 and Tk. 12.00. In the year 1999-2000, ICB gave Tk. 12 dividend per unit,

which was the lowest payment performance during the last 20 years of its unit fund operations. The average dividend payment per unit is Tk. 18.07 and the standard deviation is 3.85, which indicates low risk of investment in unit fund. Because of low dividend payment trend the investment in the sector of ICB unit fund is being diverted in other sectors, which is an alarming signal for ICB.

Table 4.10
Year-wise Dividend Payment Performance

(Tk. in amount)

FY	Opening Price (Tk.)	Dividend Per Unit (Tk.)	Yield on Opening Price (%)
1980-81	100	15	15.00
1981-82	100	16	16.00
1982-83	100	16.25	16.25
1983-84	100	17	17.00
1984-85	110	20	18.18
1985-86	112	21	18.75
1986-87	107	23	21.50
1987-88	105	24	22.86
1988-89	107	25	23.36
1989-90	108	25	23.14
1990-91	115	18	15.65
1991-92	114	16.7	14.65
1992-93	112	17	15.18
1993-94	112	17.4	15.54
1994-95	114	17.5	15.35
1995-96	117	17	14.53
1996-97	120	17.5	14.58
1997-98	120	14	11.66
1998-99	116	12	10.53
1999-2000	109	12	11.01
Mean		18.07	16.54
SD		3.85	3.78

Note : SD = Standard Deviation.

Source : ICB Unit Fund, *Annual Report 2000-2001*, p. 18.

4.14 Analysis of Portfolio of Unit Fund

ICB also manages its Unit Fund portfolios from the very beginning. It has been observed from Table 4.11 that the market value of the portfolio increased from the period starting from 1982-83 to 1987-88.

Table 4.11
Cost Price and Market Price of the Portfolio

FY	Investment (Tk.)		Capital appreciation	% increase or decrease
1980-81	NA	NA	-	-
1981-82	NA	NA	-	-
1982-83	5.49	7.37	1.88	34.24
1983-84	11.91	22.62	10.71	89.92
1984-85	14.73	36.59	21.86	148.40
1985-86	21.26	48.64	27.38	128.79
1986-87	31.41	244.28	212.87	677.71
1987-88	39.34	269.66	230.32	585.46
1988-89	50.02	239.69	189.67	379.19
1989-90	73.28	157.18	83.90	114.49
1990-91	98.70	151.99	53.29	53.99
1991-92	108.68	160.77	52.09	47.93
1992-93	107.09	159.01	51.92	48.48
1993-94	139.70	344.64	204.94	146.70
1994-95	224.44	411.42	186.98	83.31
1995-96	260.04	413.33	153.29	58.95
1996-97	343.79	556.32	212.53	61.82
1997-98	403.76	432.97	29.21	7.23
1998-99	442.88	413.33	29.55	6.67
1999-2000	407.92	345.57	64.35	15.78

Source: ICB Unit Fund, *Annual Report 2000-2001*.

But after 1987-88, the market value of the portfolio decreased up to 1992-93. In 1993-94 the market value of the portfolio increased and stood at Tk. 344.64 crore, which was 146.70 percent capital appreciation, compared to previous year. It further shows that after 1993-94, the market value of the portfolio decreased and it was continuing up till now with the exception of 1996-97. After 1996-97 it has been observed from the table that there is no significant capital appreciation because of poor portfolio management of the authority.

4.15 Rate of Return on Mutual Funds and the Market

The market pays a premium only for the systematic risk, because the systematic risk of a security can be reduced to zero through diversification. Harry M. Markowitz proves that portfolios are more desirable than individual assets because portfolios can benefit from risk-reducing power of diversification that individual assets cannot obtain. The investors should select diversified portfolio having maximum expected return with a given level of variance, or having minimum variance with a given expected return. The market rate of return r_m has been computed on the basis of closing all share price index (ASPI) as per following equation.

$$r_m = \frac{ASPI_{t+1} - ASPI_t}{ASPI_t}$$

4.16 Analysis of Rate of Return

The mutual funds' rate of return and the market rate of return can be shown in the Table 4.12 and the relationship between rates of return on the overall mutual funds and on the market can also be seen from Figure no. 4.3.

The general formula for calculating HPR is as follows. This has already been mentioned in the methodology section of the thesis.

Holding Period Return (HPR)

$$= \frac{\text{Income payments received during period in Taka} + \text{Price at end of period in Taka}}{\text{Price at beginning of period in Taka}}$$

and HPY = HPR – 1 Hence,

$$HPY = \frac{\text{Income payments during period} + \text{price at end of period} - \text{price at beginning of period}}{\text{Price at beginning of period}}$$

The one period rates of return (r_t) for a open-end mutual fund and for a closed-end mutual fund are defined in the following equation:

$$r_t = \frac{C_t + D_t + (NAV_{t+1} - NAV_t)}{NAV_t}$$

$$r_t = \frac{C_t + D_t + (P_{t+1} - P_t)}{P_t}$$

Where,

- C_t : denotes cash dividend disbursements during the period
- D_t : denotes capital gains disbursements during the period
- NAV : denotes net asset value
- P : denotes market price
- T and $(t+1)$: denote beginning and ending of the selected time period

All these variables are for per mutual fund share. The C_t and D_t are the “income payments” received by the investors and the $(NAV_{t+1}-NAV_t)$ and $(P_{t+1}-P_t)$ are the “capital change over the period” expected to be received by the investor. The “capital change” may be realized, if the investors sell the mutual funds, or may be unrealized, but accrued on the ending date of the relevant period, if the mutual funds held are not sold.

But in Bangladesh, only a cash dividend (both interim and final or final only) is distributed to the mutual fund shareholders out of the net profit earned by a mutual fund. There is no official disclosure of Net Asset Value (NAV) even in the yearly annual report, although market prices are available. But for the purpose of this study, annual rate of return (r_t) of a mutual fund has been computed according to the following equation:

$$r_t = \frac{\text{Annual Net Profit}}{\text{Average Total Asset}}$$

Where, average total asset is the arithmetic average of total asset reported as beginning and ending figures in the annual reports. Due to data availability in this regard, for all the eight ICB Mutual Funds (from First to Eighth) and one BSRS Mutual Fund for twelve years (from 1988-89 to 1999-2000), r_t has been computed. The overall return for all of these nine funds has been computed taking the aggregate figures for a particular year.

The arithmetic mean (AM), standard deviation (S.D.) with arithmetic mean [S.D. (AM)], coefficient of variation (C.V.) with respect to arithmetic mean [C.V. (AM)], the geometric mean (GM) and the standard deviation with geometric mean [S.D. (GM)] have been computed on the basis of annual rate of return for these twelve years for all the funds.

Table 4.12 shows that from 1988-89 to 1994-95 overall mutual funds' rate of return is very smooth and consistent ranging from around 14.34% to 26.74%. But in 1995-96, the overall mutual funds' rate of return stood at around 94% and then dropped to -6.49% in 1996-97 and up to 1999-2000 its rate of return is negative and comes down to -2.05%. Although the AM of mutual funds is 16.61%, but S.D of the same is 27.83%, which indicates very riskiness of the fund. But, actually this AM of overall mutual funds and SD is not giving actual picture. If we exclude the data in the year 1995-96, then we can get the present scenario of the fund. However, market rate of return has been experiencing a very fluctuating rate of return ranging from -39.14% to +57.57% return. It has been observed from the table that the AM of the market rate of return is 3.19%. Whereas SD of the same is 27.06% which indicates higher risk of the market.

Table 4.12
Rate of Return on Mutual Funds and Market

	1st ICB MF	2nd ICB MF	3rd ICB MF	4th ICB MF	5th ICB MF	6th ICB MF	7th ICB MF	8 th ICB MF	BSRS	Overall MF	Market
1988-89	32.65	22.83	20.68	18.98	16.9	14.43				21.07833	-14.36
1989-90	32.77	22.19	20.61	19.15	17.17	11.34				20.53833	-28.09
1990-91	24.71	17.47	15.42	14.02	8.54	5.42				14.26333	-11.41
1991-92	24.66	18.68	16.75	16.35	10.69	5.81				15.49	20.59
1992-93	25.71	16.99	14.37	13.85	11.9	3.23				14.34167	8.21
1993-94	32.97	23.78	18.91	12.21	25.86	16.9				21.77167	57.57
1994-95	34.11	50.03	28.54	17.49	18.23	12.08				26.74667	17.74
1995-96	118.45	159.78	93.75	99.04	51.83	40.69				93.92333	27.87
1996-97	30.45	-45.33	-15.8	24.29	4	12.51	19.5	-53.03	-35.06	-6.49667	15.9
1997-98	-52.67	-17.6	-3.38	-11.36	-17.39	-8.88	-2.91	15	-39.727	-15.4352	-39.14
1998-99	18.08	17.02	11.39	0.16	-3.93	-1.71	-29.89	-27.23	-26.8	-4.76778	-19.17
1999-00	6.51	-23.46	-15.57	-8.02	-3.6	-19.35	15.69	16.46	12.83	-2.05667	2.6
AM	27.36667	21.865	17.13917	18.01333	11.68333	7.705833	0.5975	-12.2	-22.1893	16.61642	3.1925
S.D(AM)	37.39701	50.47252025	28.03676	27.85712	17.33486	14.76403	22.56013	33.93241	23.9502	27.83118	27.06766
C.V.(AM)	1.366517	2.308370466	1.63583	1.546472	1.483726	1.915954	37.75754	-2.78135	-1.07936	1.67492	8.478516
GM	27.909	27.531	21.324	12.523	14.636	10.628	17.492	15.713	12.83	12.83	15.329
COV	501.6245	402.2029458	215.3685	280.8491	259.556	176.1286	265.3798	-337.791	165.3052	307.5142	671.6034
var	1398.536	2547.4753	786.0601	776.0192	300.4974	217.9765	508.9594	1151.408	573.6119	774.5744	732.6583
β_{MF}	0.358678	0.157882962	0.273985	0.36191	0.863755	0.808017	0.521416	-0.29337	0.288183	0.397011	0.916667
COR(r)	0.540605	0.321164905	0.309594	0.406326	0.60346	0.480798	0.647031	-0.54756	0.379644	0.445319	1

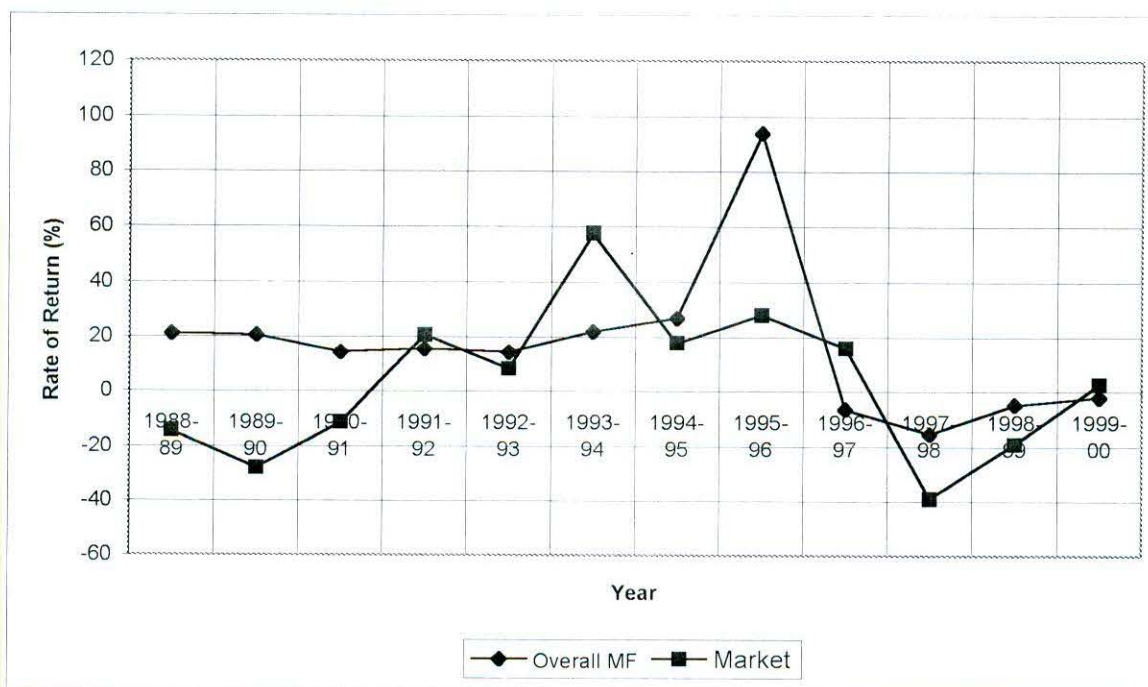
Note: Data from 1988-99 to 1994-95 have been collected from an Article captioned "Investment Performance Evaluation: A Study on Investment Corporation of Bangladesh (ICB) Mutual Funds". *Dhaka University Journal of Business Studies*, vol. 18(2), 1997 by Swapan Kumar Bala and Ahsan Habib.

Source: Appendix Table 4.1 has been used for 1995-2000 data calculation.

However, the comparative position of mutual funds return and market return relationship can be viewed from the figure no. 4.3.

Figure 4.3

Overall Mutual Funds and Market Return Relationship



Source : Table 4.12

However, the overall mutual funds return was more or less steady till 1994-95 but on the contrary the market return was comparatively less than the overall mutual funds return. Here, one thing can be interestingly noted that the overall mutual funds return trend was higher in 1995-96 and the same began to decline in 1996-97, which continued up to 1999-2000. Here, one thing can be interestingly marked that there was more or less dyadic relationship between overall mutual funds return and market return (indicating the reverse relationship).

This particular issue demands high intellectual attention. We were therefore, very much curious to reveal the reverse trend of dyadic relationship of overall mutual fund return and market return. After long query and observation we have been able to discover the truth of this kind of reverse trend. This means that the performance of eight mutual funds were always satisfactory indicating always higher trend on the other hand the performance of other listed securities floated in the market were not that much satisfactory compared to eight mutual funds and thereby it was always marked by lower trend.

From the table it has been observed that although the overall mutual funds' rate of return and market rate of return both are fluctuating in nature, but the fluctuation of the market rate of return is much more wider than overall mutual funds' rate of return.

Although the result of riskiness shows that the SD of overall MF and the market is more or less same i.e., around 27% but in practice and due to share market bubble in 1996, overall mutual funds have a 93.92% rate of return in 1995-96, which influenced the AM and SD.

4.17 Ranking of the Annual Rate of Returns from ICB Mutual Funds and BSRS MF

Table 4.13 explains the ranking of annual returns of ICB and BSRS mutual funds. It is clear from the table that from 1988-89 to 1992-93 the overall performance of the total ICB mutual funds' annual rate of return is very smooth and the ranking position is also the same. But in the year 1993-94, the ranking order have changed and 1st mutual fund hold 2nd ranking position. Actually, in these three years all mutual funds' ranking order have been changed with the exception of 6th mutual fund. But in the years from 1996-97 to 1999-2000, ranking of annual return show ups and downs in the performance in connection with the annual rate of return. We have seen in 1996 that the overall mutual funds' rate of return was 93% which was abnormal (See table 4.12) and that was the beginning year of anomaly in the stock market of Bangladesh. After 1996, several reforms were made in the DSE, like automation, CDS etc., but how far those reforms were effective remains unknown to the general investors.

Table 4.13
Ranking of the Annual Returns from Mutual Funds

FUNDS	AM	GM	Year-wise Annual Rate of Return											
			1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
1st ICB MF	27.367	27.909	1	1	1	1	1	2	2	2	1	9	1	4
2nd ICB MF	21.87	27.53	2	2	2	2	2	4	1	1	8	7	2	9
3rd ICB MF	17.14	21.32	3	3	3	3	3	5	3	4	6	3	3	7
4th ICB MF	18.01	12.52	4	4	4	4	4	1	5	3	2	5	4	6
5th ICB MF	11.68	14.64	5	5	5	5	5	3	4	5	5	6	6	5
6th ICB MF	7.71	10.63	6	6	6	6	6	6	6	6	4	4	5	8
7th ICB MF	0.6	17.49									3	2	9	2
8th ICB MF	-12.2	15.71									9	1	8	1
BSRS	-22.189	12.83									7	8	7	3

Source : Computed from Table 4.12

It is very interesting to note that although the year 1996-97 and 1997-98 shows a very consistent ranking which was the same as previous five years' ranking rate of return. But in year 1999-2000, the ranking order was changed and 1st ICB mutual fund had 4th ranking position while 2nd ICB mutual fund had 9th ranking position.

4.18 Risk-Adjusted Performance Measure Based on the Capital Asset Pricing Model (CAPM)

A risk-adjusted measure of performance evaluation is invariably a good measurement technique because of its insensitiveness to the portfolio risk. It is assumed that the stocks are priced according to a given pricing model that is CAPM. It is assumed that the Capital Asset Pricing Model (CAPM) holds for the Dhaka Stock Exchange (DSE) and systematic risk (β) of mutual funds can be found out with the help of the following formula:

$$\beta_{MF} = \frac{COV(r_{MF}, r_m)}{VAR(r_m)}$$

Where, COV is covariance, VAR is variance, r_{MF} is annual rate of return on mutual funds computed earlier, r_m is annual market rate of return computed earlier, and β_{MF} is systematic risk of mutual funds. We can take 7.14% as a risk free return (R) (see in Appendix 4.2) for the analysis of the study.

By taking AM, SD and the market returns over 12 years' period as the expected return, the three widely used performance measurement techniques i.e., Treynor Index, the Sharpe Index and the Jensen Index can be projected and evaluated in the Table 4.14. The formula has been used to evaluate the ICB mutual funds and BSRS mutual fund are as follows:

The Treynor Index ($\hat{T}_{MF}$)

$$\hat{T}_{MF} = \frac{\bar{r}_{MF} - \bar{R}}{\hat{\beta}_{MF}}$$

The Sharpe Index ($\hat{S}_{MF}$)

$$\hat{S}_{MF} = \frac{\bar{r}_{MF} - \bar{R}}{\hat{\sigma}_{MF}}$$

The Jensen Index ($\hat{J}_{MF}$)

$$\hat{J}_{MF} = \bar{r}_{MF} - [\bar{R} + (\bar{r}_m - R)\hat{\beta}_{MF}]$$

Where, $\bar{r}_{MF}$ is the arithmetic average rate of return to a mutual fund, $\bar{R}$ is the average return on risk-free rate of Treasury Bills, $\hat{\beta}_{MF}$ is the estimated beta for a mutual fund, $\hat{\sigma}_{MF}$ is the estimated standard deviation with arithmetic average or return to a mutual or unit fund, and $\bar{r}_m$ is the arithmetic average rate of return to the proxy market portfolio represented by the all share price index (ASPI).

It is given $R = 7.14$ (from appendix table 4.2)

$r_m = 3.19$ (from table 4.12)

The computed values of the other variables and the indices have been projected in the Table 4.14.

Table 4.14
Valuation of Treynor, Sharp and Jensen Indices for ICB and BSRS Mutual Funds

Name of Mutual Funds	$\bar{R}_{MF}$ (%)	σ_{MF}	$\hat{\beta}_{MF}$	$\hat{T}_{MF}$	$\hat{S}_{MF}$	$\hat{J}_{MF}$ (%)
1st MF	27.37	37.40	0.36	56.36	0.54	18.82
2nd MF	21.87	50.47	0.16	93.26	0.29	14.11
3rd MF	17.14	28.04	0.27	36.51	0.36	8.92
4th MF	18.01	27.86	0.36	30.04	0.39	9.45
5th MF	11.68	17.33	0.86	5.26	0.26	1.14
6th MF	7.71	14.76	0.81	0.71	0.04	-2.61
7th MF	0.60	22.56	0.52	-12.54	-0.29	-8.59
8th MF	-12.20	33.93	0.79	-24.38	-0.57	-22.46
BSRS	-22.19	23.95	0.29	-101.82	-1.22	-30.46

The β_{MF} for the 1st mutual fund to 8th ICB mutual fund and 1st BSRS mutual fund shows that the value is always lower than 1 (market Beta) with the exception of 8th mutual fund. But it is very interesting to note that the β_{MF} for 8th mutual fund stood at - 0.29337. This is due to the unusual negative correlation between market return and the 8th mutual fund. All mutual funds have positive and less than 1 β_{MF} . So this is abnormal indeed. But other than this mutual fund each and every mutual funds are positively correlated with market portfolio. The COV (see Table 4.12) also reveals the fact that the ASPI was much more volatile than the mutual funds' ranging from 1988-89 to 1999-2000. It has been observed from the table that COV is very unusual in case of 8th mutual fund i.e., negative return which implies something abnormal.

4.19 Recapitulation of the Chapter

Mutual Funds' performance evaluation in the context of Capital Market development is one of the core chapters of this thesis, which includes two major components. These are ICB Mutual Funds including unit fund and BSRS 1st Mutual Fund, and the rate of return from ICB and BSRS Mutual Fund and the market. In the first section, we carefully examine the objective and

nature of mutual funds of ICB and dividend payment practices followed by ICB Mutual Funds. This chapter also discusses the nature, characteristics and style of first AIMs Mutual Funds, but since it is a new mutual fund and the age of this mutual funds is very small that is why it has not been considered for detail analysis. In case of ICB unit fund, nature of business, objectives, sale and repurchase of units and dividend payment performance have been analyzed in this chapter.

The second component is analysis of rate of return of mutual funds and the market. The market rate of return r_m has been computed on the basis of closing all share price index (ASPI). Holding period return (HPR) has been used in calculating rate of return.

Since risk-adjusted is insensitive to the portfolio risk, a risk-adjusted measure of performance can be better performance measuring yardstick indeed. In constructing a risk-adjusted measure, it is required to assume that stocks are priced according to a given pricing model. For the purpose of our study, the Capital Asset Pricing Model (CAPM) has been used for the Dhaka Stock Exchange (DSE) and systematic risk (β) of mutual funds have been computed. The fifth chapter is on Role of ICB, DFIs and Other institutions in the Development of Capital Market of Bangladesh.

CHAPTER FIVE

Role of ICB, DFIs and Other Institutions in the Development of Capital Market

5.1 A Preview

It can not be ignored that due to frequent political changes Industrial development policy has changed several times in Bangladesh. In our country, there are three major Development Finance Institutions (DFIs) and two stock exchanges, namely the DSE and CSE. There are the major ingredients of the capital market of Bangladesh, which are working for industrial development in the country. BSB and the BSRS serve as financial intermediaries to help transfer resources from the surplus economic units to the deficit units. "Unfortunately, in the past the DFIs did not play any active role in collecting resource nor could they show mettle in setting dependable safeguards for return of money given on credit. After examining their activities one can not probably avoid remarking that what the DFIs did do or what their action turned out to be was playing the role of money changer converting dollar, yens etc. into Bangladesh currency."¹

5.2 Introduction of Investors' Scheme by ICB

To provide the means of the small investors to participate in the development of capital market as well as the country's economy, ICB established investors' scheme on June 13, 1977 with a view to encouraging the base of the investment, develop the capital market and generate savings in the community as a whole. With the help of this scheme, ICB provides the investors to invest efficiently in the stock market. The scheme provides institutional shelter to the investors in connection with purchase and sell of securities by providing necessary services also. An investor or an investment account holder can instantaneously participate in the industrialization operation of an economy like ours with this system.

5.3 Objectives of the Scheme

An investment account holder can get attractive returns, on investment in financially sound companies' shares, in the form of dividend, bonus, right shares, etc. Investors can also get

¹ Muhammad Mohsin Ali and Muhammad A. Quasem, "The Role of Financial Institutions in The Capital Market", a paper presented in a seminar on Capital Market of Bangladesh, Bangladesh Bank, Dhaka, May 2-3, 1995, p. 3.

institutional support for purchasing and selling of shares through this account. The objectives of investors' scheme are recapitulated as: (1) to grow savings' habits among small and medium savers for making investment in the productive avenues; (2) to mobilize savings from small and medium investors for investing in the capital market for accelerating economic development of the country; (3) to encourage the investors for purchasing shares and debentures; and (4) to create demand for the securities in the capital market of Bangladesh.

5.4 Operations of the Scheme

To encourage and amplify the base of investment, to develop the capital market and to mobilize savings, ICB introduced investment account program. This program has produced a new horizon of investment for various types of investors with the stock exchanges. Operations of investors' scheme can be divided into the following categories: (a) opening an investment account; (b) loan facilities for the account holders; (c) purchases and sales of securities; (d) withdrawals of funds and securities; (e) counseling the investors; (f) documentation; (g) internal transfer of funds; and (h) closing investment accounts.

5.5 Classification of Investors

Diversified investors with different occupations invested their savings under this scheme. Occupation-wise classification of the investment account holders (as on the 30th June 2001) is exhibited on Table 5.1. Table indicates that out of the total number of investment account holders, salaried government/non-government employees accounted for 47.0 percent who were mainly small and medium savers i.e., marginal savers. The next group (12%) represents Businessmen/agriculturists, which is followed by the group of Housewives/working women (11%).

Table 5.1
Occupation-wise Classification of the Investment Account Holders

Occupation	No. of account holders as on 30.06.01	Percentage (%)
Salaried Govt./Non-govt. employees	24,221	47.00
Retired personnel	4,028	8.00
Engineers, doctors and lawyers	5,145	10.00
Businessmen/agriculturists	6,622	12.00
Housewives/working women	5,936	11.00
Workers	3,930	08.00
Others	2,149	04.00
Total	52,031	100.00

Source : ICB, *Annual Report, 2000-2001*, p. 54.

5.6 Transaction of Securities

Purchase of shares and debenture against an investment account are usually made. It can also be done in both primary and secondary markets. In case of secondary market transaction, ICB acts as an intermediary agent on behalf of the investors. The selection of a portfolio for the investors is determined on the basis of past performance, such as cash dividend, bonus share, right share, etc. It should be borne in mind that the principle of diversification of stocks is followed in designing of portfolio with a view to minimizing the risk and maximizing the return.

Capital market includes all organized markets and institutions, such as stock exchanges, commercial banks, discount houses, investment banks etc., which deal in long-term credit instruments. The capital market promotes the purchases and sales, or exchange of long-term claims of securities. Secondary market permits investors as well as financial institutions to make compatible the prevailing shares or securities into cash which ultimately create demand for securities in the market as a whole. Primary market deals with the new issues, while the secondary market deals with existent issues. "There is no additional flow of funds for investment purpose in a secondary market; it only provides liquidity and marketability to the existing securities. A secondary market is very essential for a new issue market to develop."²

5.7 Trend of ICB Accounts

An investor can open an investment account with the ICB with a view to purchase and sale of securities. An investor may invest capital either in primary or in secondary market. It is necessary to have demand and supply of securities in the stock market. Sufficient supply of securities is necessary for healthy securities' market. For the development of capital market, ICB attracted a huge number of investors through this scheme. Growth trend of account opening can be observed from the Table 5.2.

² A.H.M. Nurul Islam Choudhury, Sujit Ranjan Saha, Toufic A. Choudhury, "Status of Capital Market in Bangladesh : An Overview", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 2.

Table 5.2
Accounts Opening Trend

FY	No. of Accounts Opened	No. of Accounts Closed	Net Operative Account	Absolute Growth in Net Operative Account	Simple Growth Rate (SGR)	Net Operative Account (Log Y)
1976-77	80	0	80	-	-	1.90
1977-78	23	0	103	23	28.75	2.01
1978-79	243	0	346	243	235.92	2.54
1979-80	227	0	573	227	65.61	2.76
1980-81	126	0	699	126	21.99	2.84
1981-82	85	0	784	85	12.16	2.89
1982-83	214	0	998	214	27.30	3.00
1983-84	595	0	1593	595	59.62	3.20
1984-85	6905	0	8498	6905	433.46	3.93
1985-86	2732	0	11230	2732	32.15	4.05
1986-87	9404	0	20634	9404	83.74	4.31
1987-88	17654	0	38288	17654	85.56	4.58
1988-89	1952	1493	38747	459	1.20	4.59
1989-90	1483	1421	38809	62	0.16	4.59
1990-91	555	1743	37621	-1188	-3.06	4.58
1991-92	205	1480	36346	-1275	-3.39	4.56
1992-93	392	1740	34992	-1354	-3.73	4.54
1993-94	2312	1213	36036	1044	2.98	4.56
1994-95	9132	976	44192	8156	22.63	4.65
1995-96	2588	2058	44722	530	1.20	4.65
1996-97	16801	2797	58726	14004	31.31	4.77
1997-98	1251	3044	56933	-1793	-3.05	4.76
1998-99	460	2820	54573	-2360	-4.15	4.74
1999-2000	236	2002	52807	-1766	-3.24	4.72
2000-2001	759	1535	52031	-776	-1.47	4.72
Average	2164.625				46.82	
Compound Growth Rate (CGR)					30.99	

Source : ICB, *Annual Report*, different issues.

The growth trend of net operative account of ICB is analyzed in table 5.2. The table shows that net operative account of ICB increased from 80 in 1976-1977 to 52031 in 2000-2001 registering an average annual simple growth rate (SGR) of 46.82 % and a compound growth rate (CGR) of 30.99 percent. It has been observed from the table that the responses of opening an investment account were invariably higher especially in the period from 1983-84 to 1987-88. But in the recent years, the rate of account opening trend has been decreasing dramatically which is

very alarming indeed. If we carefully examine the trend, then we can see that after 1996 the SGR is always negative and still is continues. A closer look into the table indicates that in the year 1996, the highest number of accounts was made which was abnormal.

5.7.1 Trend Equation of Net Operative Account

To compare the growth trends of size of Net Operative Account of ICB, Semi-Logarithmic Trend Lines of Net Operative Account are estimated for the period from 1976-77 to 2000-2001. The Semi-Logarithmic trend lines of Net Operative Account are showing the relationship between Net Operative Account (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Net Operative Account is shown in table 5.3.

It is clear from the table that the account opening trend was fluctuating but the performance of the years 1984-85, 1986-87, 1987-88, 1994-95 and 1996-97 were more than satisfactory. The performance of those years has been able to develop the capital market in general and ICB in particular. It has been exposed that there is perhaps a relationship between the bullish trend of share market and opening of ICB account. The analysis of the table indicates that ICB has been able to open a gross average of 3056.52 accounts annually which is indeed a good indication for the development of capital market. The net annual average operative accounts stood at 2081. Although the number of account closing trend has been increasing over the last five years and yet the average net operative account stood at 2082 per year which seems to be satisfactory. In a country like Bangladesh, this is also a positive sign that there is a huge number of public participation in the capital market transaction. So, it can be argued that ICB has become successful in creating large investor group within the country through this scheme, which indicates success of the scheme.

Summary Output

Regression Statistics	
Multiple R	0.921006
R Square	0.848251
Adjusted R Square	0.834456
Standard Error	0.390356
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	2	18.73887	9.369437	61.48819	9.83E-10
Residual	22	3.352312	0.152378		
Total	24	22.09119			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2.360382	0.162482	14.52708	9.34E-13	2.023415	2.697348
X Variable 1	0.112231	0.011023	10.18113	8.7E-10	0.08937	0.135092

Table 5.3

Estimated Semi-Logarithmic Trend Lines of Net Operative Account of ICB

Name of the Investment Bank	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R ²	Trend Growth Rate (TGR)	CR _t of B	P	The t Test Result
ICB	2.361	0.112	.848	29.42	10.18	0	S

Note :

Y = Dependent variable i.e., Trend Lines of Net Operative Account of ICB.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R² = Coefficient of Determination.

Trend Growth Rate (TGR) = {Anti-log of (B)-1} 100.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t value at 24 degree of freedom (df) and 0.05 level of significance is 1.711.

Source : Table 5.2

The Table 5.3 shows that the trend line equations have positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the net operative account increased in the ICB over the years under study.

5.8 Deposit, Sanction of Loans and Investment: A Trend Analysis

The objective of ICB investors' scheme is to attract small and medium savers' and to transfer their savings into the capital market. Through this objective, it helps to accelerate the security market.

Uninterrupted regular deposit receiving is a prerequisite for mobilization of savings. For generating demand for securities, it is important to sanction loan and subsequently invest these in right sector for assisting the strength of sound capital market. Table 5.3 furnishes the positions of comparative activities in connection with deposits, loans sanctioned and investment during the period under study covering the last 25 years.

The Table 5.4 indicates that ICB has been able to open 76413 accounts during the last 25 years since inception. ICB grants loan to the investors at an usual ratio of 1:1 or 1:2, which sometimes depends upon the policy of the management. These loan-giving facilities are beneficial in creating demand for the stock market transaction, which ultimately develops the capital market.

Table 5.4
Deposits, Loans Sanctioned and Application of Investment

(Tk. in crore)

FY	No. of A/Cs Opened	Deposit Received	Loans Sanctioned	Investable Fund	Investments Made	% of Investment Made
1976-77	80	0.03	0.08	0.11	0.1	90.91
1977-78	23	0.01	0.03	0.04	0.03	75.00
1978-79	243	0.21	0.22	0.43	0.6	139.53
1979-80	227	0.16	0.19	0.35	0.17	48.57
1980-81	85	0.10	0.14	0.24	0.23	65.85
1981-82	85	0.10	0.14	0.24	0.23	95.83
1982-83	214	0.32	0.25	0.57	0.33	57.89
1983-84	595	0.75	1.50	2.25	1.63	72.44
1984-85	6905	4.49	7.12	11.61	11.61	100.00
1985-86	2732	2.71	6.90	9.61	5.50	57.23
1986-87	9404	7.13	15.51	22.64	13.93	61.53
1987-88	17654	10.71	16.43	27.14	20.34	74.94
1988-89	1952	7.81	14.59	22.40	12.15	54.24
1989-90	1483	4.77	11.78	16.55	14.15	85.50
1990-91	555	2.49	4.81	7.30	4.94	67.67
1991-92	205	1.77	1.48	3.25	1.62	49.85
1992-93	392	2.87	1.94	4.81	1.87	38.88
1993-94	2312	5.68	4.26	9.94	6.57	66.10
1994-95	9132	23.37	41.85	65.22	50.67	77.69
1995-96	2588	22.27	37.40	59.67	56.02	93.88
1996-97	16801	88.81	156.16	244.97	163.78	66.86
1997-98	1251	18.72	31.52	50.24	47.52	94.59
1998-99	460	7.61	10.57	18.18	17.79	97.85
1999-2000	236	5.44	6.53	11.97	9.23	77.11
2000-2001	759	13.36	44.59	57.95	46.64	80.48
Total	76413	231.11	416.11	647.22	487.70	75.35
Average	3056.52	9.2444	16.6444	25.8888	19.508	3.014

Source : ICB, *Annual Report*, different issues.

The Table indicates that ICB received deposits to the tune of Tk. 231.11 crore during 1976-2001 against which it sanctioned loans amounting to Tk. 416.11 crore. The highest volume of deposit received in the year 1996-97 stood at Tk. 88.81 crore. It is also observed that in the years from 1994-95 to 1997-98, ICB received deposits amounting to Tk. 153.17 crore which was almost 75 percent of total deposits. The table shows that Tk. 487.70 crore have been invested in the capital market during the last 25 years and the average annual investment amounting to Tk. 19.508 crore is the direct contribution of ICB which is a milestone in the development of capital market in Bangladesh. The analysis shows that out of the total investable fund, more than 75%

fund have been used for the application of purchasing shares and securities in the capital market which is another good indication for the development of capital market in Bangladesh.

5.9 ICB Assisted Projects and Public Floatation

From 1976 to 2001, ninety companies with Underwriting/ Bridge finance assistance offered shares of Tk. 187.68 crore to the public. From the very beginning, the response of the public was not hopeful due to lack of knowledge in respect of investment in share market.

Table 5.5
Public Issue of ICB Assisted Companies

(Tk. in crore)

FY	No. of Companies	Size of Issue	Absolute Growth	Simple Growth Rate (SGR)	Size of Issue (Log Y)	Public Subscription	
						Amount	%
1976-77	1	0.5	0.5	-	-0.30	0.34	68
1977-78	0	0	-0.5	-100.00	0.00	0	0
1978-79	3	2.39	2.39	-	0.38	1.12	46.86
1979-80	2	0.52	-1.87	-78.24	-0.28	0.2	38.46
1980-81	4	1.5	0.98	188.46	0.18	1.16	77.33
1981-82	3	0.84	-0.66	-44.00	-0.08	0.62	73.81
1982-83	2	0.7	-0.14	-16.67	-0.15	0.08	11.43
1983-84	5	3.69	2.99	427.14	0.57	5.83	157.99
1984-85	12	10.62	6.93	187.80	1.03	14.56	137.1
1985-86	9	3.67	-6.95	-65.44	0.56	5.07	138.15
1986-87	4	1.89	-1.78	-48.50	0.28	4.65	246.03
1987-88	8	6	4.11	217.46	0.78	11.44	190.67
1988-89	4	4.21	-1.79	-29.83	0.62	5.83	138.48
1989-90	5	8.38	4.17	99.05	0.92	9.52	113.6
1990-91	5	6.85	-1.53	-18.26	0.84	4.89	71.39
1991-92	2	2.92	-3.93	-57.37	0.47	3.04	104.11
1992-93	0	0	-2.92	-100.00	0.00	0	0
1993-94	4	16.19	16.19	-	1.21	16.85	104.08
1994-95	3	29.48	13.29	82.09	1.47	59.45	201.66
1995-96	2	15.5	-13.98	-47.42	1.19	87.63	565.35
1996-97	4	39.83	24.33	156.97	1.60	195.26	490.23
1997-98	1	1	-38.83	-97.49	0.00	0.6	60
1998-99	2	18.75	17.75	1775.00	1.27	14.33	76.43
1999-2000	3	6.25	-12.5	-66.67	0.80	21.66	346.56
2000-2001	2	6	-0.25	-4.00	0.78	3.91	65.17
Average			0.24	256.93			
Compound Growth Rate (CGR)				10.91			

Source : ICB, Annual Report, different issues.

The investors were becoming alert and were searching avenues for investment in the prospective scheme and as a result they were inclined towards capital market. Because of attractive dividend and capital gain general people started showing keen interest in the share market gradually. The Table 5.5 can give a clear picture of ICB assisted components and their response from the public.

5.9.1 Trend Equation of Public Issue of ICB Assisted Companies

To compare the growth trends of Public Issue of ICB Assisted Companies, Semi-Logarithmic Trend Lines of Public Issue of ICB Assisted Companies are estimated for the period from 1976-77 to 2000-2001. The Semi-Logarithmic trend lines of Public Issue of ICB Assisted Companies are showing the relationship between Public Issue of ICB Assisted Companies (Y) as dependent variable and time (X) as independent variable.

It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Public Issue of ICB Assisted Companies is shown in Table 5.6.

Summary Output

Regression Statistics	
Multiple R	0.645378
R Square	0.416513
Adjusted R Square	0.391144
Standard Error	0.433151
Observations	25

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	3.080379	3.080379	16.4182	0.000494
Residual	23	4.315255	0.18762		
Total	24	7.395634			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.06816	0.178593	-0.38166	0.706216	-0.43761	0.301285
X Variable 1	0.048678	0.012013	4.051937	0.000494	0.023826	0.073529

Table 5.6

Estimated Semi-Logarithmic Trend Lines of Public Issue of ICB Assisted Companies

Name of the Investment Bank	Estimated Statistics of the Equation: $\text{Log}Y=A+BX$						
	A	B	R^2	Trend Growth Rate (TGR)	CR_t of B	P	The t Test Result
ICB	-0.068	0.0487	.417	11.87	4.05	0	S

Note :

Y = Dependent variable i.e., Public Issue of ICB Assisted Companies.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R^2 = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{\text{Anti-log of } (B)-1\} \times 100$.

CR_t = Critical Ratio for a t Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The t Table value at 24-degree freedom (df) and 0.05 level of significance is 1.711

Source : Table 5.5

It may be observed from Table 5.5 that the amount of public subscription during seven years from 1976-77 to 1982-83 was not satisfactory. From 1983-84 onwards the public subscription began to increase remarkably representing over-subscription in each year up to 1996-97 with the exception of FY 1990-91 and 1997-98. During the whole period, the number of companies offering shares to the public were the highest in 1996-97. The table further indicates that over subscription began to appear in the capital market beginning from 1983-84 and continued the trend up to 1996-97. But surprisingly, the trend began to decline with effect from 1997-98 and continued up to 2000-2001 with the exception of the year 1999-2000. The study reveals that because of the loss of the confidence of the investors regarding the share market crash in 1996-97, subscription began to decrease in the subsequent years with effect from 1997-98. Surprisingly, the year 1999-2000 was over subscribed. The reason behind this exception seems to be due to some reforms taken by the concerned authority such as CDs and Automation.

The Table 5.6 shows that the trend line equation has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the Public Issue of ICB Assisted Companies increased over the years under study.

5.10 Mobilization of Savings

ICB has been playing an important role in mobilization of savings from its very inception. It is observed from Table 5.7 that ICB has been able to contribute Tk. 17.50 crore through its mutual fund, Tk. 598.67 crore through its unit fund, Tk. 487.70 crore through its investors' scheme and Tk. 156.68 crore with the public issue which generated capital amounting to Tk. 1186.79 crore. It is indeed a healthy sign of generating capital for the development of capital market.

Table 5.7
Savings Mobilization by ICB

Sl. No.	Medium of Savings Mobilization	No. of Holders	Amount Mobilized (Tk. in crore)
1.	Mutual funds	42266	17.50
2.	Unit fund (Net Sale)	39913	512.23
3.	Investors' scheme	76413	487.70
4.	Public issue of shares (ICB)	NA	156.68
Grand Total			1174.11

Source : ICB, *Annual Report*, 2000-2001, p.143 & ICB Unit Fund *Annual Report*, 2000-2001, p. 20.

5.11 Financial Assistance

Investment Corporation of Bangladesh is the only government owned investment bank in Bangladesh. It provides Underwriting and Bridge financing facilities to the industrial sponsors. Theoretically, investment-banking house means "A financial institution that underwrites and distributes new investment securities and helps businesses obtain financing".³ Investment Bank acts as a middleman in the process of transferring capital from savers to businesses.

ICB is the only pioneering investment bank in the public sector and it is now playing a dynamic role in the development of Capital Market and in the industrial development of Bangladesh. Alam observes, "BSB and BSRS offer mostly debt financing with limited equity support for industrial investment activities. ICB provides Underwriting, Bridge and Debenture financing facilities to the industrial sponsors."⁴ ICB as an investment bank, performs mainly two types of functions such as, financial assistance operations and merchandising operations.

ICB has been providing its financial assistance to various industries in the form of underwriting-cum-bridge and debenture financing since its establishment. According to its business policy its efforts should be "To provide financial assistance to projects subject to their economic and financial viability".⁵ It is essential to have heavy investments in private and public sectors' industries for the promotion of industrialization of an economy. For diversification of

³ J. Fred Weston and Eugene F. Brigham, *Essentials of Managerial Finance*, 9th ed. (Orlando: The Dryden Press, 1990), p. 75.

⁴ Khurshid Alam, "Capital Market and Privatization : A New Horizon of Expanding Equity in the Development of Bangladesh", *Bank Parikrama*, Vol. XVII, Dhaka, 1992, p. 26.

⁵ ICB, *Annual Report 1997-98*, p. 10.

investments and to develop and encourage the entrepreneurs, ICB provides underwriting-cum-bridge and debenture financing for food and allied products, textile, specialized jute products, jute yarn, twine and carpet, forest products and allied, paper, board, printing and publishing, tannery, leather and rubber products, chemicals, pharmaceuticals and allied, glass, ceramics and other non-metallic mineral products, engineering, services, acquisition of ships and road and inland water transport, etc.

5.12 Loan Commitment and Disbursement by ICB

With a view to fulfilling the objectives of the Corporation, ICB provides underwriting, bridge financing and debenture financing to industrial projects regularly. During the last quarter century ICB made commitments of financial assistance in the form of underwriting, bridge financing and debenture financing to 362 projects (See Table- 5.10). Table-5.8 displays that ICB made commitments of Tk. 266.44 crore to 362 projects. The table further indicates that ICB made commitments to 286 projects out of total 362 projects (i.e., 80 percent of the projects) during the period from 1976-77 to 1984-85.

The Table 5.8 shows that ICB committed nearly 30 % of its loans beginning from 1976-77 to 1984-85. If we carefully scrutinize, we can find one thing i.e., there were to some extent parallelism in financing the number of projects in every year except in 1980-81. But there is a declining trend of project financing by ICB during the period beginning from 1985-86 to 1993-94. During this period the highest number of projects financed in a single year were 7 and the lowest number were 2 except in 1988-89 when no proposal was financed.

Again, there was an upward trend of project financing during the period from 1994-95 to 1996-97 and then further up to 1999-2000; but in the year 2000-2001, the commitment increased to Tk. 23.92 crore. During this period ICB committed Tk. 266.44 crore but in reality it actually disbursed Tk. 114.42 crore.

Table 5.8
Year wise Loan Commitment and Disbursement by ICB

(Tk. in crore)

FY	No. of Projects	Commitment	Disbursement	Absolute Growth	Simple Growth Rate (SGR)	Disbursement (Log Y)
1976-77	22	3.52	0.76	-	-	-0.12
1977-78	26	11.99	2.91	2.15	282.89	0.46
1978-79	34	12.98	6.79	3.88	133.33	0.83
1979-80	47	12.41	10.12	3.33	49.04	1.01
1980-81	68	14.01	16.56	6.44	63.64	1.22
1981-82	15	6.53	9.96	-6.6	-39.86	1.00
1982-83	23	7.92	8.38	-1.58	-15.86	0.92
1983-84	33	11.52	8.98	0.6	7.16	0.95
1985-86	3	1.55	2.86	-6.12	-68.15	0.46
1986-87	7	4.15	2.54	-0.32	-11.19	0.40
1987-88	3	1.88	3.91	1.37	53.94	0.59
1988-89	0	0.35	0.45	-3.46	-88.49	-0.35
1989-90	5	4.38	2.36	1.91	424.44	0.37
1990-91	3	6.50	1.64	-0.72	-30.51	0.21
1991-92	2	0.86	1.05	-0.59	-35.98	0.02
1992-93	3	2.10	0.64	-0.41	-39.05	-0.19
1993-94	7	6.85	0.47	-0.17	-26.56	-0.33
1994-95	15	24.88	4.42	3.95	840.43	0.65
1995-96	12	30.13	4.20	-0.22	-4.98	0.62
1996-97	9	34.12	4.05	-0.15	-3.57	0.61
1997-98	10	29.64	7.18	3.13	77.28	0.86
1998-99	5	18.39	6.57	-0.61	-8.50	0.82
1999-2000	6	8.25	0.54	-6.03	-91.78	-0.27
2000-2001	7	23.92	0.30	-0.24	-44.44	-0.52
Total	362^a	266.44^b	114.42^c			
Average				0.0125	61.88	
Compound Growth Rate (CGR)					-3.80	

Note :

^aNet of Cancellation & reduction figure was 344 as per 1997-98 Annual Report^bAs per Annual Report 1997-98 ICB's cumulative commitment was 234.84 crore, which indicates net of cancellation and reduction^cAnnual Report of 1997-98 indicates 107.01 crore as cumulative disbursement.

Source : ICB, Annual Report, different issues.

5.12.1 Trend Equation of Loan Disbursement by ICB

To compare the growth trends of Loan Disbursement by ICB, Semi-Logarithmic Trend Lines of Loan Disbursement by ICB are estimated for the period from 1976-77 to 2000-2001. The Semi-Logarithmic trend lines of Loan Disbursement by ICB are showing the relationship between Loan Disbursement by ICB (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Loan Disbursement by ICB is shown in table 5.9.

Summary Output

Regression Statistics	
Multiple R	0.381899
R Square	0.145847
Adjusted R Square	0.107021
Standard Error	0.479029
Observations	24

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.862	0.862	3.756497	0.065541
Residual	22	5.048319	0.229469		
Total	23	5.910319			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.768425	0.201839	3.807114	0.000964	0.349835	1.187014
X Variable 1	-0.02738	0.014126	-1.93817	0.065541	-0.05667	0.001917

Table 5.9

Estimated Semi-Logarithmic Trend Lines of Loan Disbursement by ICB

Name of the Investment Bank	Estimated Statistics of the Equation: $\text{Log}Y=A+BX$						
	A	B	R ²	Trend Growth Rate (TGR)	CR _t of B	P	The t Test Result
ICB	0.768	-0.027	.146	-6.03	-1.94	0	S

Note :

Y = Dependent Variable i.e., Monthly Average Share Price Index.

X = Time Period in Years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R² = Coefficient of Determination.

Trend Growth Rate (TGR) = $\{ \text{Anti-log of } (B)-1 \} 100$.

CR_t = Critical Ratio for a *t* Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The *t* Table value at 24-degree freedom (df) and 0.05 level of significance is 1.711

Source : Table 5.8

Table 5.10
Cumulative Commitment by ICB as on 30 June, 2001

(Tk. in Crore)

Nature of Commitment	No. of Projects	Amount of Commitment	% of Commitment
Bridging Loans	306	116.48	
Debenture Loans	44	6.80	
Sub Total	312^a	123.28	46.27
Direct Underwriting:			
Shares	40	69.59	
Debentures	5	12.00	
Sub Total	40^b	81.59	30.62
Pre_IPO Placement			
Share	16	17.17	
Debenture	9	29.50	
Sub Total	2^c	46.67	17.51
Purchase of preference share	3	9.75	
Direct equity participation	5 ^d	5.15	
Total	362	266.44	100.00

Note :

^a Includes 38 projects that were committed both bridging loans and debentures loans.^b Includes 5 projects which were committed both direct underwriting of shares and debentures^c Includes 23 projects which were committed direct underwriting of shares/debentures or underwriting cum bridging loan.^d 2 projects of Tk. 2.00 crore were not included earlier.

Source : ICB, Annual Report 2000-2001 p. 30.

The Table 5.10 indicates that ICB has contributed 114.42 crore in the Capital market out of total 266.44 crore commitment which is nearly around 45% of the total. It means that ICB has played a significant role in the total capital market by contributing a share of Tk. 114.42 crore.

ICB grant financial support in various ways such as, underwriting with bridge financing, direct share and debenture underwriting, and direct investment in shares and debentures. Table 5.10 indicates the nature of commitments, number of projects and amount of commitment by ICB as on 30 June 2001.

Table 5.10 displays that up to June 30, 2001, ICB committed Tk. 266.44 crore against 362 projects. Out of 362 projects, ICB committed bridging loans and debenture loans to 312 projects amounting to Tk. 123.28 crore which represents 46.27 percent of its total commitment. Again, ICB committed direct underwriting in shares and debentures to 40 projects amounting to Tk. 81.59 crore (i.e., it committed 30.62 percent fund as direct underwriting). The table further shows that ICB committed Tk. 46.67 crore to 25 projects representing 17.51 percent of its total

commitment as direct investment in share and debenture. It can therefore be argued that ICB's emphasis is primarily on underwriting and bridge financing investment.

5.13 Sector-wise Loan Commitment of ICB

ICB provides financial assistance through underwriting cum bridging loan, debenture loan, direct underwriting, and direct investment in shares and debentures. Table 5.11 shows the sector wise position of cumulative commitment of ICB as on 30 June 2001.

Table 5.11
Sector-wise Cumulative Commitment as on June 30, 2001

(Taka in crore)

Sector	No. of Project	Public Issue of Shares	Public Issue of Debenture	Debenture Loans	Purchases of Preference Share	Direct Equity Participation	Pre-IPO Placement		ICB's Total Commitment	% of Commitment
							Shares	Debenture		
Food & Allied Products	109	23.46	-	2.42	0.75	-	3.00	1.00	30.63	11.5
Textile	70	69.57	3.75	0.72	9.00	-	8.17	18.00	109.21	40.99
Specialized Jute products, Jute yarn, Twin and Carpets	33	18.66	-	0.85	-	-	-	-	19.51	7.32
Forest products and allied	1	-	-	0.15	-	-	-	-	0.15	0.06
Paper, Board, Printing and Publishing	16	13.93	-	0.10	-	-	-	-	14.03	5.27
Tannery, Lather and Rubber Products	14	3.78	-	0.28	-	-	-	-	4.06	1.52
Chemical, Pharmaceuticals and Allied	38	23.00	-	0.82	-	2.45	0.50	-	26.77	10.04
Glass, Ceramic and other non-metallic mineral products	10	7.34	3.75	-	-	-	-	1.00	12.09	4.54
Engineering	34	16.43	3.50	1.91	-	0.50	-	2.50	24.62	9.24
Services	6	1.67	-	0.07	-	-	-	-	1.74	0.65
Acquisition of Ships, Road and Inland Water Transport	16	1.75	-	-	-	-	-	-	1.75	0.66
Miscellaneous	15	6.48	1.00	0.20	-	2.20	-	7.00	21.88	8.21
Total	362	186.07	12.00	6.80	9.75	5.15	17.17	29.50	266.44	100

Note : Notation "-" means nil.

Source : ICB, *Annual Report 2000-2001*, p. 34.

Table 5.11 exhibits that ICB's cumulative commitment as on 30 June 2001 stood at Tk. 266.44 crore against the project of 12 different sectors. It also highlights that Tk. 109.21 crore i.e., 40.99 percent has been committed in Textile sector which was followed by food and allied

products' sector representing Tk. 30.63 crore i.e., 11.5 percent of its commitment. Corporation's commitment for Chemical, Pharmaceuticals and allied sector was Tk. 26.77 crore, which was 10.04 percent of its total commitment. So, it can be concluded that more than 60 percent of commitments for funds were made for Textile, Chemical, Pharmaceuticals, Food and allied products. Moreover, those three sectors included 217 projects, which was more than 60 percent of its total projects financed.

5.14 Sector-wise Position of Loan Disbursement

ICB provides bridging loan and debenture loan in various sectors. Over the last 25 years it was observed that it covered the following sectors: food and allied products, textile, specialized jute products, jute yarn, twine and carpet, forest products and allied, paper, board, printing and publishing, tannery, leather and rubber products, chemicals, pharmaceuticals and allied, glass, ceramics and other non-metallic mineral products, engineering, service, acquisition of ships, road and inland water transport etc. However, Table 5.12 indicates sector wise position of loans disbursed as on 30 June, 2001.

Table 5.12
Sector-Wise Position of Loans' Disbursement

(Tk. in crore)

Sector	No. of Projects	Bridging Loan	Debenture Loan	Total	Percentage
Food and Allied Products	99	17.22	2.10	19.32	16.89
Textile	58	43.72	1.00	44.72	39.08
Specialized Jute Products, Jute Yarn, Twine and Carpet	33	14.58	0.53	15.38	13.44
Forest Products and Allied	1	0	0.15	0.15	0.13
Paper, Board, Printing and Publishing	11	3.39	0.10	3.49	3.05
Tannery, Leather and Rubber Products	12	3.18	0.28	3.16	3.02
Chemicals, Pharmaceuticals and Allied	30	8.14	0.76	8.90	7.78
Glass, Ceramics and other Non-Metallic Mineral products	9	3.60	0	3.60	3.14
Engineering	29	9.61	1.21	10.82	9.46
Service	6	1.60	0	1.60	1.40
Acquisition of Ships, Road and Inland Water Transport	16	1.45	0	1.45	1.27
Miscellaneous	4	1.33	0.20	1.53	1.34
Total	308	108.09	6.33	114.42	100

Source : ICB, *Annual Report 2000-2001*, p. 35.

The Table 5.12 indicates that the disbursement in textile sector was the highest which is Tk. 44.72 (39.08 %) crore followed by Tk. 19.32 crore (16.89%) in food and allied products, Tk. 15.38 crore (13.44%) in specialized jute products, jute yarn, twine and carpet, Tk. 10.82 crore (9.46%) in engineering, Tk. 8.90 crore (7.78%) in chemicals, pharmaceuticals and allied products, Tk. 3.60 crore (3.14%) in glass, ceramics and other non-metallic mineral products, Tk. 3.49 crore (3.05%) in paper, board, printing and publishing, Tk. 3.16 crore (3.02%) in tannery, leather and rubber products, Tk. 1.60 crore (1.40%) in service, Tk. 1.53 crore (1.34%) in miscellaneous, Tk. 1.45 crore (1.27%) in acquisition of ships, road and inland water transport, Tk. 0.15 crore (0.13%) in forest products and allied. It is clear from the table that 69.41 percent of loan was disbursed against three sectors namely, food and allied products, textile and specialized jute products, jute yarn, twine and carpet. In conclusion it can therefore be argued that ICB has concentrated its major portion of disbursement program in the said three sectors. Out of 308 projects, 190 i.e., more than 61 percent were financed in the above three sectors.

5.15 Recovery Performance of Industrial Projects Financed by ICB

The relevant data of recovery and overdue performance of industrial projects financed by ICB, are examined in Table 5.13. A brief account of year-wise recovery and overdue loans is shown in Table 5.13. It may be observed that due to delayed implementation of the projects, the recovery of interest dues and recycling of bridging loans have not been up to the expectations.

ICB has disbursed loan to the tune of Tk. 114.42 corer (see Table 5.12) till 2000-2001. The interest calculated on principal amount stood up to 427.38 corer. The total overdue loan during the period ending 2000-2001 stood at Tk. 479.58 corer. On the other hand the recovery/recycling stood at Tk. 6.76 corer in 2000-2001, which is very insignificant compared to its outstanding amount. The absolute growth rate has been shown in Table no. 5.13 which stood at Tk. 5.645 corer.

The table shows that the principal amount has been increased steadily up to 1989-1990 and it sharply increased from 1999 and that continued up to 2000-2001. But it is surprising to note that the recovery/recycling began to decline since 1995-1996, which is not at all a good sign of ICB. The absolute growth rate and simple growth rate (SGR) seem to be very insignificant indicating 0.08% and 1.20% respectively.

Table 5.13
Year wise Picture of Recovery, Recycling and Overdue Loan

(Tk. in crore)

FY	Overdue Loans			Recovery/ Recycling Total Inflow	Absolute Growth	Simple Growth Rate (SGR)	Recovery/ Recycling Total Inflow (Log Y)
	Principal in Tk.	Interest in Tk.	Total in Tk.	in Tk.	%	%	
1976-77	-	-	-	0	-	-	-
1977-78	NA	NA	NA	0.11	0.11	-	-0.96
1978-79	NA	NA	NA	0.46	0.35	318.18	-0.34
1979-80	NA	NA	NA	0.86	0.4	86.96	-0.07
1980-81	NA	NA	NA	2.09	1.23	143.02	0.32
1981-82	NA	NA	NA	2.06	-0.03	-1.44	0.31
1982-83	NA	NA	NA	2	-0.06	-2.91	0.30
1983-84	2.70	24.50	27.20	4.2	2.2	110.00	0.62
1984-85	3.12	33.94	37.06	10.06	5.86	139.52	1.00
1985-86	3.92	48.49	52.41	4.64	-5.42	-53.88	0.67
1986-87	4.28	63.93	68.21	6.2	1.56	33.62	0.79
1987-88	4.32	86.93	91.25	5.67	-0.53	-8.55	0.75
1988-89	4.50	105.18	109.68	7.52	1.85	32.63	0.88
1989-90	4.45	122.97	127.42	10.09	2.57	34.18	1.00
1990-91	32.80	152.62	185.42	10	-0.09	-0.89	1.00
1991-92	51.86	172.10	223.96	14.53	4.53	45.30	1.16
1992-93	49.53	203.48	253.01	5.28	-9.25	-63.66	0.72
1993-94	45.45	233.56	279.01	10.08	4.8	90.91	1.00
1994-95	41.24	271.90	313.14	10.13	0.05	0.50	1.01
1995-96	39.14	320.07	359.21	5.58	-4.55	-44.92	0.75
1996-97	40.46	348.85	389.31	6.47	0.89	15.95	0.81
1997-98	38.92	390.94	429.86	4.88	-1.59	-24.57	0.69
1998-99	40.33	402.09	442.42	4.77	-0.11	-2.25	0.68
1999-2000	37.60	411.51	449.11	6.68	1.91	40.04	0.82
2000-2001	52.20	427.38	479.58	6.76	0.08	1.20	0.83
Average					5.645	38.65	
Compound Growth Rate (CGR)						30.54	

Note: "NA" means data are not available.

Source: Annual Reports and the Accounts of ICB, 1980-81 to 2000-2001.

5.15.1 Trend Equation of Loan Recovery by ICB

To compare the growth trends of Loan Recovery by ICB, Semi-Logarithmic Trend Lines of Loan Recovery by ICB are estimated for the period from 1976-77 to 2000-2001. The Semi-Logarithmic trend lines of Loan Recovery by ICB are showing the relationship between Loan

Recovery by ICB (Y) as dependent variable and time (X) as independent variable. It has been fitted by the least square method and the significance of the coefficient of time has been tested by the *t* test technique. The estimated Semi-Logarithmic Trend Lines for Loan Recovery by ICB is shown in Table 5.14.

Summary Output

Regression Statistics						
Multiple R						0.671839
R Square						0.451367
Adjusted R Square						0.42643
Standard Error						0.369118
Observations						24

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	2.466049	2.466049	18.09969	0.000324
Residual	22	2.997459	0.136248		
Total	23	5.463508			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.036377	0.155528	0.233892	0.817232	-0.28617	0.358923
X Variable 1	0.046308	0.010885	4.254373	0.000324	0.023734	0.068881

Table 5.14

Estimated Semi-Logarithmic Trend Lines of Recovery/ Recycling Total Inflow

Name of the Investment Bank	Estimated Statistics of the Equation: $\text{Log}Y=A+ BX$						
	A	B	R ²	Trend Growth Rate (TGR)	CR _t of B	P	The t Test Result
ICB	0.0364	0.0463	0.451	31.49	4.25	0	S

Note :

Y = Dependent variable i.e., Recovery/Recycling Total Inflow.

X = Time period in years.

A = Intercept of the Trend Line.

B = Estimated Trend Coefficient.

R² = Coefficient of Determination.

Trend Growth Rate (TGR) = {Anti-log of (B)-1} 100.

CR_t = Critical Ratio for a *t* Test for Slope.

P = Probability that sample comes from a population with a slope of zero.

S = Significant at 0.05 level of significance.

The *t* Table value at 24-degree freedom (df) and 0.05 level of significance is 1.711

Source : Table 5.13

Table 5.14 shows that the recovery positions have been decreasing in recent years. The maximum recovery was Tk. 14.53 crore in FY 1991-92. On the other side, overdue loans has been increasing distinctly and it has reached to the tune of Tk. 479.58 crore in 2000-2001. Due to chronic low recovery rate over the years, the overdue loan has increased.

The table further indicates that the recovery position of ICB was not satisfactory because a huge amount of public money remained unrecovered (Tk. 479.58 crore). If it continues over the years, financial institution may lose its goodwill and be subject of public criticism.

The table shows that the trend line equation has positive slope (i.e., the sign of the coefficient of time denoted by 'B' is positive) and the slopes were found statistically significant at 5% level of significance. It therefore, suggests that the recovery of loan by ICB increased over the years under study.

5.16 Measures for Improving Recovery Position

Timely disbursement of loan can largely ensure proper utilization of fund. Project appraisal procedure should be sound for an institution like ICB. Economic, Financial and Technical feasibilities are vital requirements for project appraisal. Not only feasibility test is important, but also 5Cs (character, creditability, capital conduct and creditworthiness) and 5Rs (responsibility, respectability, reliability, resource and return) should be judged before giving any loan. Contradictory government policies should be checked and avoided. However, for rapid recovery of loan, incentives can be given to the officers, and side by side, supervision of the projects should be strengthened.

5.17 Bangladesh Capital Market and Other DFIs⁶

5.17.1 Bangladesh Shilpa Bank (BSB)

Bangladesh Shilpa Bank (BSB) sanctioned a total loan of Tk. 18.35 crore in local currency during 1999-2000 as compared to Tk. 0.55 crore sanctioned in the preceding year. BSB disbursed loans of Tk. 38.47 crore during the year, the entire amount was also in local currency. Loans disbursed by BSB during the preceding year had stood at Tk. 10.56 crore in local currency.

Recovery of loans by the BSB increased from Tk. 99.70 crore in the preceding year to Tk. 122.44 crore during 1999-2000. Outstanding term loans of the BSB including overdue loans of Tk. 44.47 crore (excluding provisions for bad and doubtful loans and interest in suspense) stood at Tk. 906.49 crore as on 30th June 2000 compared to Tk. 937.79 crore including overdue loans of Tk. 105.69 crore (excluding provisions for bad and doubtful loans, and interest in suspense) as on 30th June 1999.

⁶ Bangladesh Capital Market and Industrial Finance (part-2), *Internet file*, bangladesh.net-everything about Bangladesh and Bangladeshi Business. p.1.

5.17.2 Bangladesh Shilpa Rin Sangstha (BSRS)

The Bangladesh Shilpa Rin Sangstha (BSRS) approved loans of Tk. 9.44 crore for three projects in 1999-2000 compared to Tk. 10.69 crore in the preceding year. Loans disbursed by the BSRS declined from Tk. 12.29 crore to Tk. 12.20 crore during 1999-2000 compared to the disbursement of Tk. 24.49 crore in 1998-99. Loans recovered by the BSRS during the year increased from Tk. 1.66 crore to Tk. 27.81 crore compared to Tk. 26.15 crore in the preceding year. The BSRS paid Tk. 0.72 crore as tax to the Government during the year compared to Tk. 0.66 crore in 1998-99.

5.17.3 Bank of Small Industries and Commerce Bank Limited (BASIC)

During 1999-2000 the Bank of Small Industries and Commerce Bangladesh Limited (BASIC) sanctioned loans of Tk. 1,655.49 crore including import and export loans, which was higher by Tk. 196.76 crore or 13.5 percent than Tk. 1,458.73 crore sanctioned in 1998-99. Loans disbursed by the BASIC stood at Tk. 1,627.50 crore which was higher by Tk. 184.47 crore or 12.8 percent than Tk. 1,443.03 crore disbursed in the previous year. Recovery of term loans increased to Tk. 16.82 crore in the year from Tk. 11.80 crore in the preceding year. Outstanding loans of the BASIC as on 30th June 2000 increased by Tk. 59.23 crore or 18.3 percent to Tk. 382.16 crore from Tk. 322.93 crore as on 30th June 1999. Of the total outstanding loans of the year, small and cottage industries accounted for Tk. 184.02 crore or 48.2 percent, medium scale industries for Tk. 53.23 crore or 13.9 percent, commercial loans (export and import) for Tk. 130.19 crore or 34.1 percent and other miscellaneous loans for Tk. 14.72 crore or 3.9 percent during 1999-2000. In the previous year, small and cottage industries, medium scale industries, commercial loans and other miscellaneous loans had accounted for Tk. 119.86 crore or 37.1 percent, Tk. 93.18 crore or 28.9 percent, Tk. 106.00 crore or 32.8 percent and Tk. 3.90 crore or 1.2 percent respectively.

5.17.4 Bangladesh Small and Cottage Industries Corporation (BSCIC)

Bangladesh Small and Cottage Industries Corporation (BSCIC) disbursed Tk. 14.43 crore against three projects and recovered Tk. 14.33 crore during 1999-2000 compared to Tk. 16.26 crore disbursed against four projects and Tk. 14.70 crore recovered in the preceding year. Overdue loans of the BSCIC against the three projects declined by Tk. 3.83 crore or 58.7 percent to Tk. 2.69 crore as on 30th June 2000.

5.17.5 Industrial Finance of the Scheduled Banks and Other Financial Institutions

The scheduled banks and other financial institutions as usual upheld priority for industrial finance in their loan policy during 1999-2000. Industrial term loans disbursed by these institutions during the year increased by Tk. 297.16 crore or 22.3 percent to Tk. 1,627.26 crore from Tk. 1,330.10 crore in the previous year. Disbursement of working capital for industries increased by Tk. 2,776.25 crore or 35.1 percent from Tk. 7,905.49 crore during 1998-99 to Tk. 10,681.74 crore

in the year. Outstanding industrial loans at end-June 2000 was Tk. 28,601.64 crore or 12.2 percent higher than Tk. 25,484.76 crore in the preceding year.

Refinance against foreign banks' industrial term loans was introduced from the 27th October 1997 in order to associate them more intensely with industrialization of the country. Since its inception till 30th June 2000 refinance to the tune of Tk. 23.57 crore was given to them against their application.

5.17.6 Projects Under Supervision of Bangladesh Bank

As in the preceding years, Bangladesh Bank continued to finance and supervise implementation of some projects in small and cottage industries as well as medium and large-scale industries under foreign credit/grants in addition to its own programs in 1999-2000. Some of the noteworthy programs are listed below.

Small and cottage industries projects; ADB Loan No.1070-BAN (SF); Industrial credit project in the private sector; IDA Credit No.2340-BD; Semi-intensive shrimp cultivation credit program; Industrial projects financed by Bangladesh Bank; Credit guarantee scheme for investors in small-scale industries; Self-employment small enterprise credit scheme for voluntarily retired officers/employees; Credit scheme for salt growers and millers; Tk.25.00 crore refinance to BASIC against loans to SCIs; Credit scheme for handloom; Industrial development bonds of Agrani Bank and Sonali Bank; and Financial institutions development project (FIDP), etc.

5.18 Recapitulation of the Chapter

At present in Bangladesh, there are three major Development Financing Institutions (DFIs) and two stock exchanges namely the DSE and CSE which form the major components of the capital market of Bangladesh. BSB and the BSRS have been performing as leading financial intermediaries to help transfer of resources from the surplus economic units to the deficit units. ICB is the major investment bank and provides the investor to invest efficiently in the stock market. From 1976, ICB has been playing paramount role in the areas of savings and investment.

Role of ICB and other financial institutions is one of the core chapters of this thesis and the chapter is divided into two parts. One major part is performance evaluation of ICB in the context of capital market development in Bangladesh and side by side the other part is devoted to evaluate the role of other DFIs in the development of capital market in Bangladesh namely, BSB, BSRS, BASIC, BSCIC, Scheduled Banks and projects under supervision of Bangladesh Bank.

The sixth chapter is on risk return relationship analysis. What is the impact on security pricing before and after automation that has been analyzed in the next chapter.

CHAPTER SIX

Risk Return Behavior Analysis

6.1 Introduction

One of the objectives of our study was to analyze risk return behavior analysis due to application of automation. This chapter is therefore, designed to reveal the impact of automation. The Securities and Exchange Commission (SEC) was established in 1993 under the Securities and Exchange Commission Act, 1993. After establishment of the SEC public interest has got momentum to invest in the Bangladesh capital market. Due to sound foreign portfolio investment rules and regulations such as, no restriction on repatriation of dividend and capital, the investment in the capital market has been increasing over the years. In October 1996 a group of brokers, foreign portfolio managers and sponsors of listed companies manipulated stock prices – pushing the DSE all share price index to cross 3600 from under 1000 within six weeks. But after some period the index came down to 700 points. Due to this chemical changes general and marginal investors have faced a huge loss in this capital market at that point of time.

In order to back the confidence and to ensure the sound performance of the market participants in the SEC and DSE tried to implement different reform measures including automated trading system, new settlement rules, daily netting system of settlements. DSE started automation on August 1998 while CSE launched automated screen based trading on June 1998.

6.2 Theoretical Background of Risk Return Relationship

In the very basic sense risk is the chance of financial loss. Assets having greater chances of loss are viewed as more risky than those with lesser chances of loss¹. "The return is the total gain or loss experienced on an investment over a given period of time. It is commonly measured as the change in value plus any cash distributions during the period, expressed as a percentage of the beginning-of-period investment value"². Risk in holding securities is generally associated with the variances of expected returns. Capital Assets Pricing Model (CAPM)

¹ Lawrence J. Gitman, *Principles of Managerial Finance*, Ninth Edition (New Delhi : Pearson Education Asia, 1990), p. 237.

² Ibid., p. 238.

stipulates that investors in general should expect to be compensated for the systematic component of the total risk as measured by the variance of returns of a stock or portfolio of stock. The CAPM links together non-diversifiable risk and return for all assets.

The Beta co-efficient, β , measures non-diversifiable or systematic risk. It is an index of the degree of movement of an asset's return in response to a change in the market return. The more responsive the return of a security is to changes in the market return, the higher will be its beta. Beta is calculated by regressing the return on a security with the returns for the market. In this work, researcher uses CAPM to understand the basic risk return trade-off involved in various types of investment decisions. By using the beta coefficient, we measure nondiversifiable risk. The CAPM can be defined mathematically by the following equation:

$$k_j = R_F + [b_j \times (k_m - R_F)]$$

where,

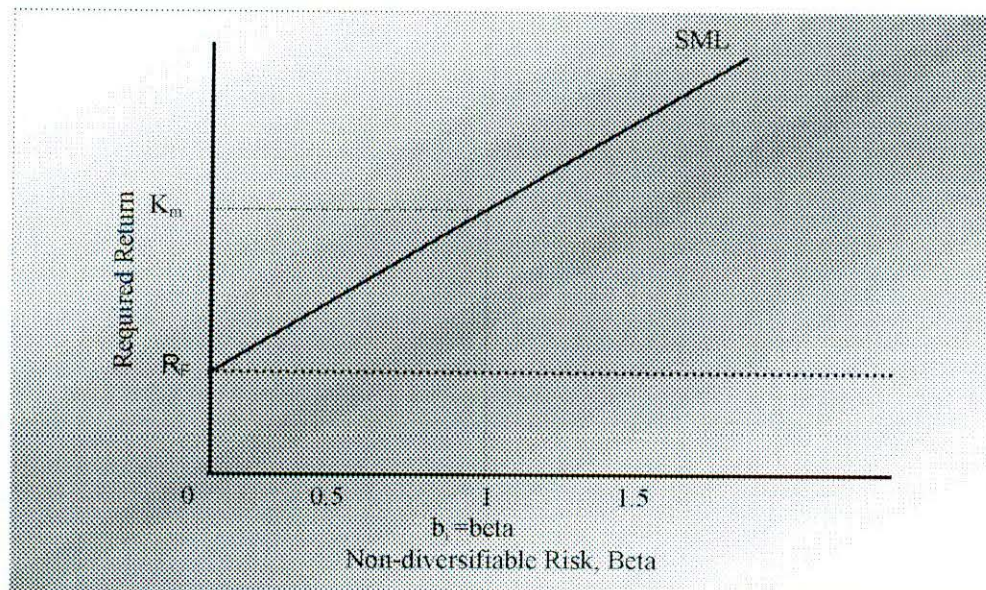
k_j = required return on asset j

R_F = risk-free rate of return

b_j = beta coefficient or index of nondiversifiable risk for asset j

k_m = market return; return on the market portfolio of assets.

Figure 6.1
Graphical Presentation of CAPM



Source : J. Fred Weston and Eugene F. Brigham, "Essentials of Managerial Finance", 9th Edition, The Dryden Press, 1990. p. 139.

Required rates of return are shown on the vertical axis, while risk as measured by beta is shown on the horizontal axis. Riskless securities have $b_i=0$; therefore, k_{RF} appears as the vertical axis intercept in the Figure. The slope of the SML reflects the degree of risk aversion in the economy; the greater the average investor's aversion to risk, (1) the steeper the slope of the line, (2) the greater the risk premium for any stock, and (3) the higher the required rate of return on stocks.

6.3 Methodological Development in Beta Calculation

In calculating risk-return relationship behavior before and after automation the researcher has used the following methodology. It should be mentioned here that Haque, Eunus, and Ahmed have already used this methodology in analyzing the risk-return relationship.³ The Beta (β) of each stock along with market β is calculated for both time periods: before automation and after automation. Beta (β) is a relative measure of the sensitivity of an asset's return to changes in the return on the market portfolio. β is calculated by using the following formula:

$$R_s = A + \beta R_m$$

Where

R_s	=	Estimated return on the stock
A	=	Estimated return when the market return is zero
β	=	Measure of stock sensitivity to the market index
R_m	=	Return on the market index.

Sector β and market β are simple average of the stock β .

6.4 Data Used for Risk-return Relationship Behavior in the DSE

The main sources of data are the secondary source. The SEC quarterly, SEC Annual Report, DSE Review, Portfolio Magazine (CSE Publication) are the main sources of data. Inquiry Committee report and market generated information such as every day price of stocks and market index available in daily newspaper, web site of DSE, CSE and SEC are also used as the sources of data.

For the purpose of the risk-return behavior analysis, eight stocks from each sector were selected. From each sector a total of eight stocks, 4 stocks having highest market capitalization and 4 stocks having lowest capitalization were chosen basing on market capitalization on 30 October, 2000. β of each sector (71 stocks from 9 sectors) were calculated. In the Jute Sector,

³ M Samsul Hauge, Rizwan Eunus and Mohiuddin Ahmed, "Risk Return and Market Efficiency in A Capital Market under Distress : Theory and Evidence from Dhaka Stock Exchange, Bangladesh", *Journal of Business Administration*, Vol. 24, No. 3 and 4, Dhaka, July and October, 1998.

only 7 companies' data were available and taken to the sample study. That is why, out of 72 stocks only 71 stocks have got final selection for the sample size.

Price of each stock is collected from August 1995 to July 1996 and then August 97 to July 1998. The period ranging from August 1996 to July 97 has not been taken to the sample size because that period was not normal period indeed in the DSE. In 1996, huge number of small and marginal investors lost their money and some of them ran into debt. In June 1996, the market behavior was not sound and it was going towards boom situation. Huge number of individual investors entered into the capital market. Trading volume rose sharply and all share price index of DSE reached 3648 points at that period of time. In November 1996, the inevitable consequence happened and the market collapsed. In recent times, the index has come down to 800 points. Share price index of DSE stood at 3648 points in November 1996 from 1000 points in January 1996 and then declined at around 500 points in 1998. Because of this fluctuation in the index of the DSE the period mentioned above has not been considered. The automation of DSE took place in August 1998. Due to this reason in this study the period August 1998, September 1998 and October 1998 were not considered. Holding period yields for selected daily transactions were computed. Trading did not take place for many stocks everyday. It is worthwhile to mention that the automation of DSE took place in August 1998, between the two time-periods under study. Since automation took place in August 1998 and due to this reason August, September and October, 1998 data were not considered for this analysis.

6.5 Method of Kruskal Wallis Test

The overall Efficient Market Hypothesis (EMH) and the test of hypothesis can be divided into three heads.

- a) Weak form of EMH
- b) Semi-strong form of EMH and
- c) Strong form of EMH

EMH theory describing the behavior of an assumed "perfect" market in which 1) securities are typically in equilibrium, 2) securities' prices fully reflect all public information available and react swiftly to new information, and 3) because stocks are fairly priced, investors need not waste time looking for mispriced securities.⁴ However the procedure of Kruskal Wallis Test can be define by the following formula:

K Statistic

$$K = \frac{12}{n(n+1)} \sum \frac{R_j^2}{n_j} - 3(n+1)$$

⁴ Ibid., p. 301.

where,

n_j = Number of items in sample j (before and after automation)

R_j = Sum of the ranks of all items in sample j

$n = n_1 + n_2 + \dots + n_k$, the total number of observations in all samples

k = Number of sample

Degree of freedom = $k - 1$

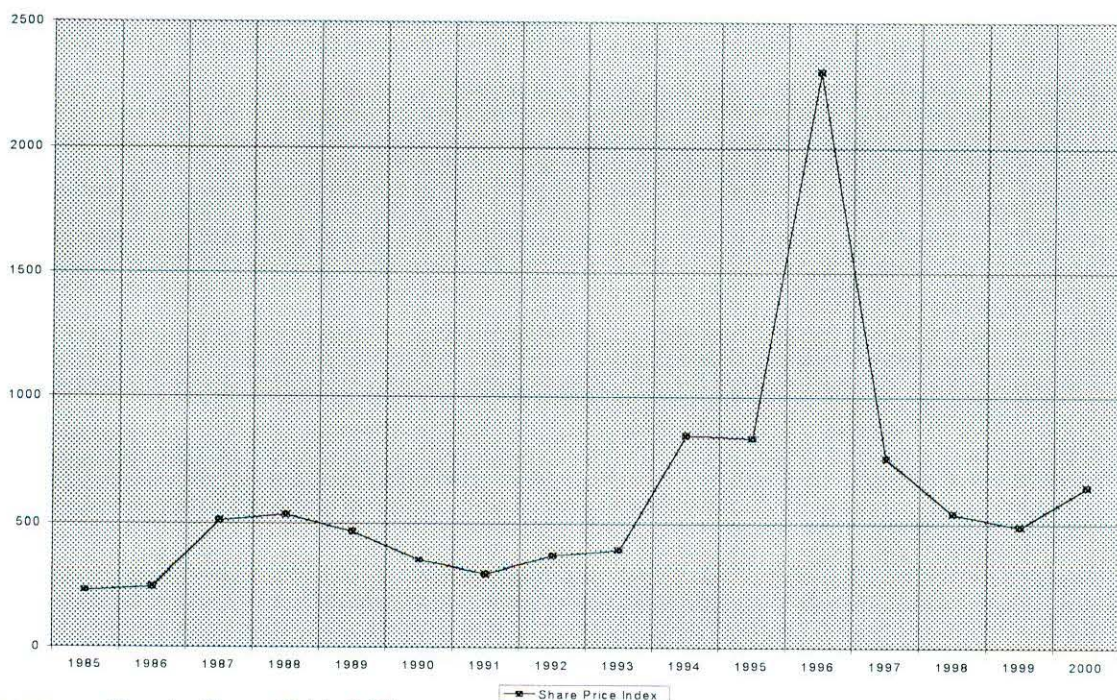
As long as k statistic is lower than the chi-square value for a given degree of freedom and level of significance, the null hypothesis will not be rejected.

6.6 DSE Index From 1985 to 2000

DSE started its operation in 1964 but actual trading began after war of liberation with full-fledged functioning in 1976. It has been observed from chapter three that the index of DSE from 1985 to 2000 was fluctuating. If we consider the index of 1996, then the nature of index seems to be very fluctuating indeed. From 1985 to 1995 the growth of the index of DSE was very smooth and sound. But in the year 1996 index suddenly rose and sharply fall within a year. This was very abnormal and unhealthy for a weak form of EMH like Bangladesh. The overall index performance and nature can be visualized from the following figure.

Figure 6.2

Share Price Index of DSE



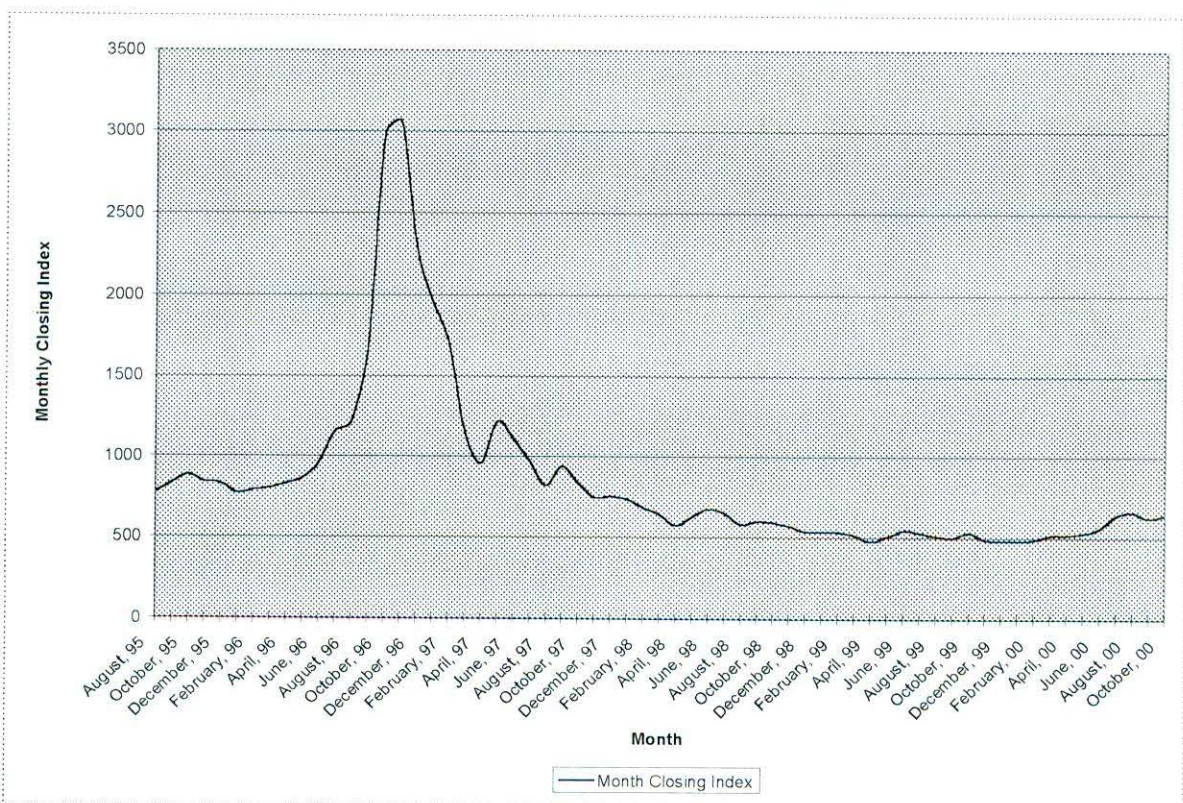
Source : Chapter Three, Table 3.20.

This graph also represents more or less same picture explained else where in other graphical representation.

6.7 DSE Index From August 1995 to October 2000

In this analysis the sample period was selected from August 1995 to October 2000. The month closing data were used to develop the graph. To develop the graphical representation of DSE index, the month's closing index data were used (see appendix-6.1). The growth of the index of DSE was very smooth and sound. But in the year 1996 index suddenly rose and sharply fall within a year. The overall index performance and nature can be visualized from the following graph.

Figure 6.3
DSE Month Closing Index From 1995-2000



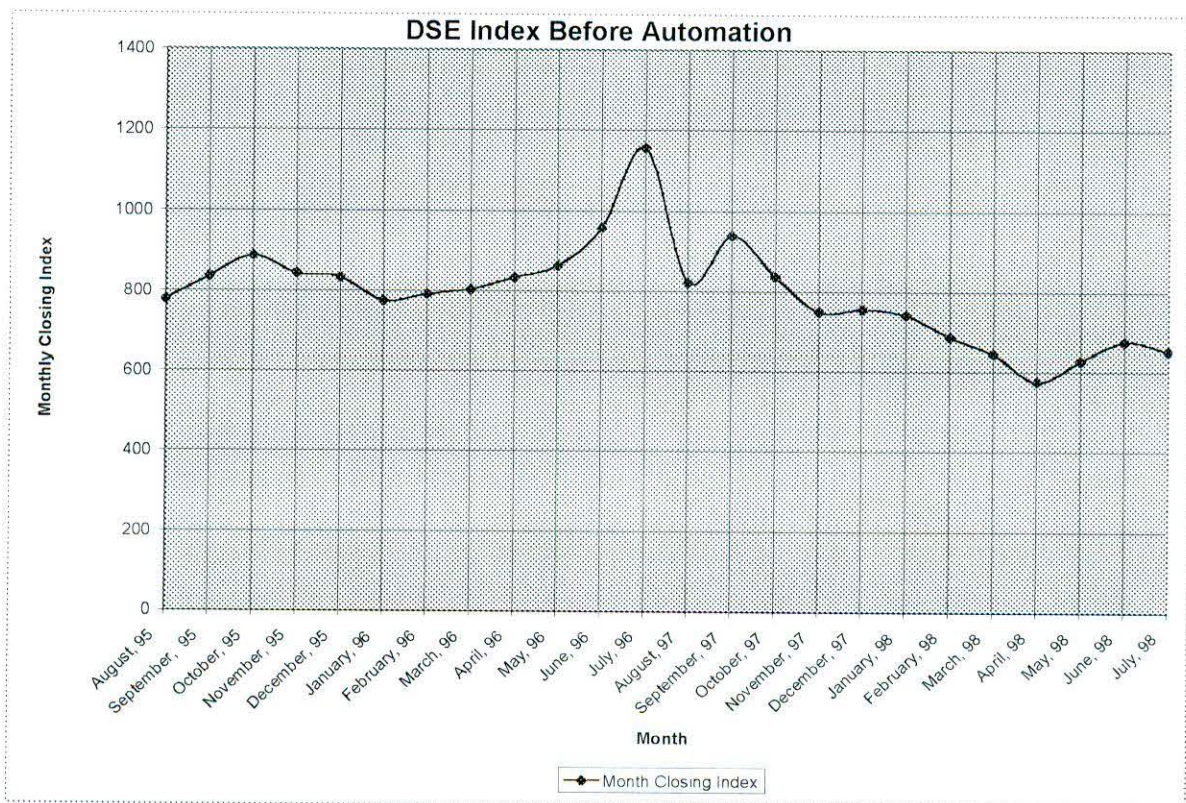
Source : Appendix Table 6.1

Figure 6.3 shows the index from 1995 to 2000. This period has been taken for showing automation effect. It has been observed from the figure that there had been sharp ups and downs in the index in a particular period. The DSE index before and after automation has been presented in figure 6.4 and 6.5. However, the year 1996, was excluded since it was an abnormal year.

6.8 DSE Index Before and After Automation

Price of each stock was collected before automation from August 1995 to July 1996 and then from August '97 to July 1998. The period ranging from August 1996 to July '97 was not been taken to the sample size because at that period DSE behavior regarding index was not normal. It has been observed that the DSE index over the last two years before automation was very smooth and mild fluctuation was observed. This is very positive indication that the nature of the index was fluctuated mildly. In case of after automation the index of DSE was showing the same nature of fluctuations starting from November 1998 to October 2000. This can be clearly viewed from the following figures.

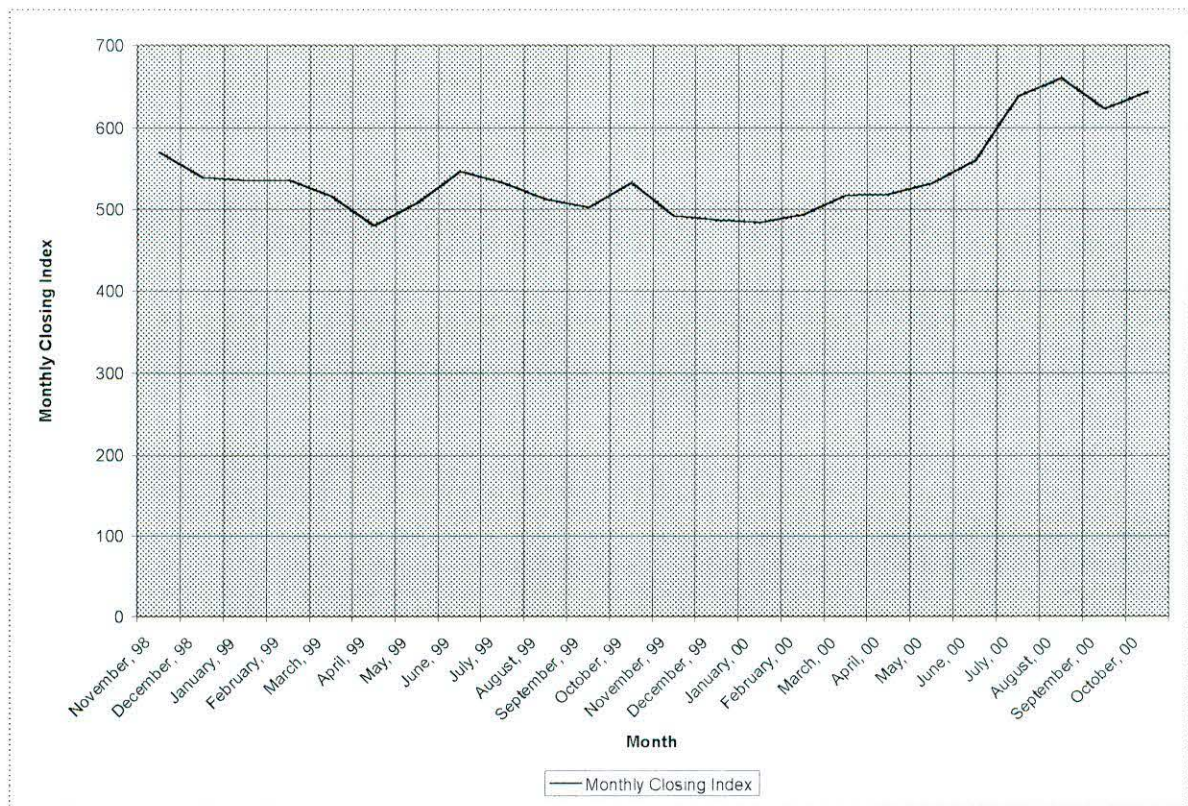
Figure 6.4



Source : Appendix Table 6.1

The figure 6.4 shows that there had been very good progress up to 1996. But there again, appeared a declining trend since 1997 and that continued up to 2000.

Figure 6.5
DSE Index After Automation



Source : Appendix Table 6.1

The figure 6.5 shows that after automation there had been a steady progress in the index having slight fluctuation in April 1999, September 1999 and July 2000, but indicating overall lower index. This means that after the automation the overall position indicated no progress at all. Therefore, it can be opined that although the result of the automation was supposed to be favorable but in reality it indicated lower index. The cause of which has been explained in this chapter.

6.9 Hypothesis

If the population under study is not normally distributed with equal variances then non-parametric tests are used to test the hypothesis that several population means are equal. The Kruskal Wallis Test is conducted in this study to determine whether two independent samples have been drawn from population with the same distribution for the test.

H_0 : There is no significant difference between before automation return and beta and after automation returns and beta for the securities in the sample.

H_1 : A difference exists between before automation return and beta and automation return and beta for the securities in the sample.

6.10 Relationship Between Risk (Beta) and Return (Actual Monthly Mean Return)

This section investigates into what relationship exists between Beta and Actual Monthly Mean Return among the sectors that have been selected for calculation (for the calculation of Beta and Actual Monthly Mean Return see Appendix Tables 6.2 to 6.72). In the DSE there are as many as 13 sectors containing all the listed companies, but, this study covers 9 sectors only. The sectors are Bank, Investment, Engineering, Food and Allied Product, Jute, Textile, Pharmaceutical and Chemical, Miscellaneous and Insurance. In the first section the relationship before automation has been furnished. Second section explains after automation relationship. And finally third section represents overall relationship between Beta and Actual Monthly Mean Return.

6.11 Sector Wise Relationship Between Risk and Return Before and After Automation : An Analysis

We in this study wanted to evaluate the risk return relationship of nine important sectors namely Banking, Investment, Engineering, Food and Allied Products, Jute, Textile, Pharmaceuticals, Insurance and Miscellaneous. The results of these sectors have been furnished in various tables, which have again been projected through graphical representation.

The result of the findings can be seen from three fold dimensions. Out of nine sectors, there have occurred dramatic changes in Engineering, Jute, Pharmaceuticals and Miscellaneous sectors. Because before automation there had been downwards (indicating risk return relationship reasonably good) trends but after automation there occurred upwards trends (meaning thereby reverse situation that is risk return relationship reasonably bad) which is in our opinion a dramatic change or positive change. Again, if we go through these tables and glimpse over the graphical representations of the tables, then we can see that there appeared no changes in the following sectors and these are Banking, Investment, Food and Allied products and Textile sectors, because there were upward trends before and after automation. But only exception appears in the Insurance sector, which was marked by downward trend before and after automation (indicating unchanged result).

The upward changes can be marked in four sectors namely Engineering, Jute, Pharmaceuticals and Miscellanies. So these are the sectors where automation can be proved ineffective or unfruitful. Therefore, the real interpretation of the data or graphical representatives of SML shows that it was more or less partially fruitful or insignificant. In this connection one thing should be clearly stated and i.e., automation is not itself responsible for its ineffective results rather the leakage of information, insider trading, sort selling etc. are some of the factors which are responsible for the ineffective results of automation.

6.11.1 Before Automation Results

6.11.1.1 Banking Sector: Part – I

In Table 6.1 we have taken eight banks into consideration and calculated beta and actual monthly mean return, which are furnished in columns A and B. This table has been prepared from appendix tables 6.2 to 6.9. The regression summary output of banking sector has been furnished in the second part of the Table 6.1.

Table 6.1
Banking Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Rupali Bank	0.3060	-2.3202
Eastern Bank	-0.0124	-0.0027
IDLC	0.8904	-2.7989
UCBL	0.3148	-0.8306
Pubali Bank	0.0462	0.3943
Uttara Bank	0.3989	-1.5863
NBL	0.4956	-1.0060
Al-Baraka Islami Bank	0.2047	0.2070

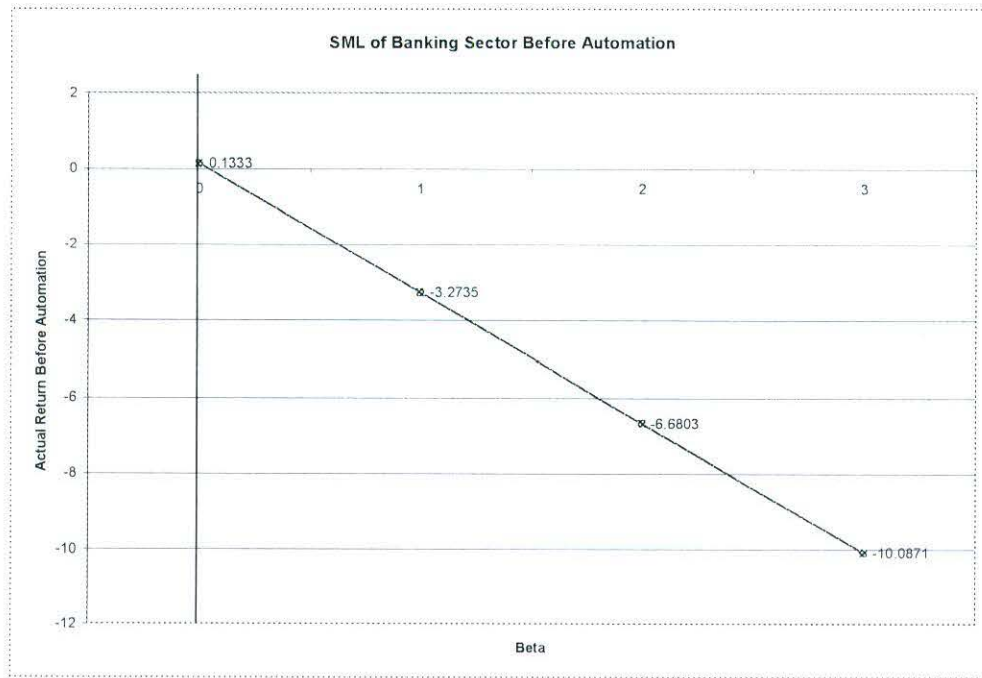
Source: Appendix Tables 6.2 to 6.9

Part – II

Summary Output for SML of Banking Sector Before Automation

Regression Statistics	
Multiple R	0.816902
R Square	0.667329
Adjusted R Square	0.611884
Standard Error	0.73512
Observations	8

Coefficients	
Intercept	0.133332
X Variable 1	-3.40675



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was 0.133332 and the slope was (-) 3.40675. It can be noted that the risk return relationship of banking sector was negative before automation.

6.11.1.2 Investment Sector: Part – I

In Table 6.2 we have taken seven mutual funds and one ICB share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.10 to 6.17. The regression summary output of investment sector has been furnished in the second part of the Table 6.2.

Table 6.2
Investment Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
ICB	0.1782	-0.8257
6th ICB M.F	1.2737	-1.0334
1st ICB M.F	0.4945	-2.065
4th ICB M.F	1.3815	-0.4536
5th ICB M.F	0.8524	0.7083
2nd ICB M.F	0.8301	-0.5863
7th ICB M.F	0.9035	1.3636
3rd ICB M.F	0.8217	1.1778

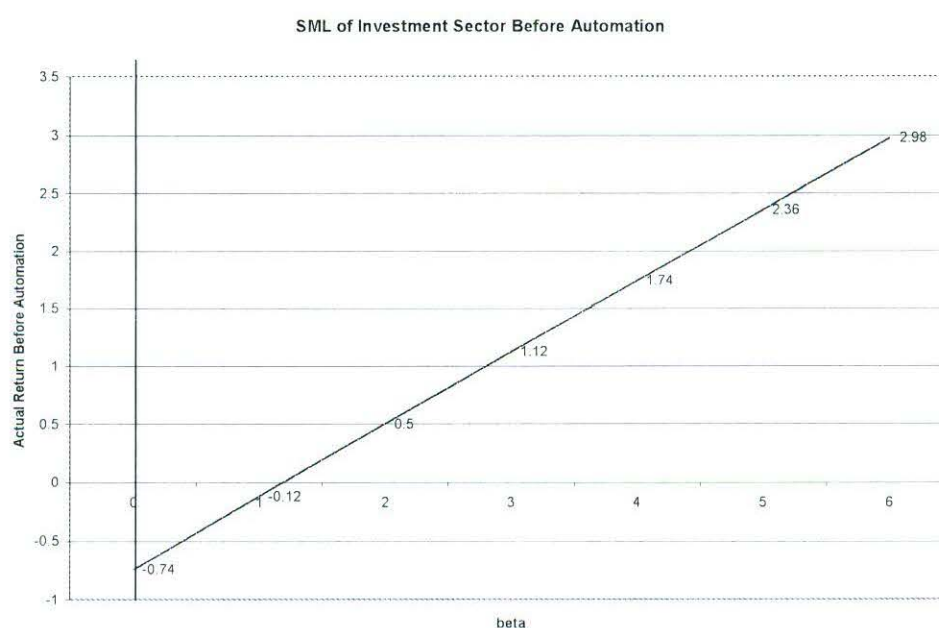
Source : Appendix Tables 6.10 to 6.17

Part – II

Summary Output for SML of Investment Sector Before Automation

Regression Statistics	
Multiple R	0.201523
R Square	0.040612
Adjusted R Square	-0.11929
Standard Error	1.260986
Observations	8

Coefficients	
Intercept	-0.73815
X Variable 1	0.622165



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (–) 0.73815 and the slope was 0.622165. It can be noted that the risk return relationship of investment sector was positive before automation.

6.11.1.3 Engineering Sector: Part – I

In Table 6.3 we have taken eight units of engineering sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.18 to 6.25. The regression summary output of engineering sector has been furnished in the second part of the Table-6.3.

Table 6.3
Engineering Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Singer Bangladesh	1.2422	-1.0947
Bangladesh Lamps	0.3985	-6.3772
Quasem Drycells	1.8862	-5.1536
Eastern Cables	1.5349	-1.4139
BEMCO	0.9875	-1.6508
Karim Pipe	1.8322	-4.0727
Renwick Jaineswar & Co.	1.0614	-0.0827
Metalex Corporation	1.1921	3.1775

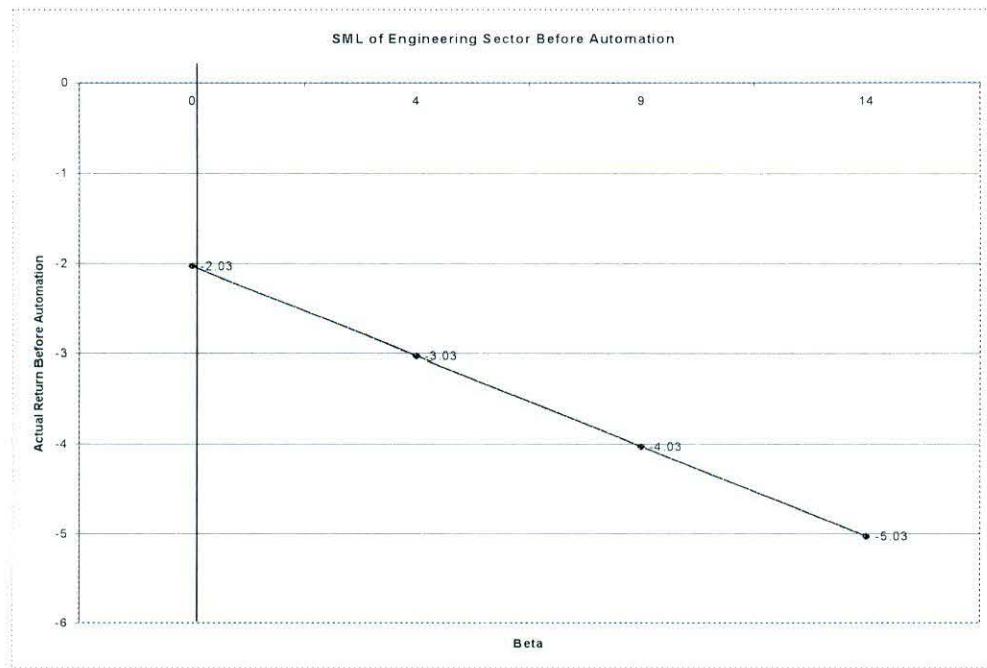
Source : Appendix Tables 6.18 to 6.25

Part – II

Summary Output for SML of Engineering Sector Before Automation

Regression Statistics	
Multiple R	0.006502
R Square	4.23E-05
Adjusted R Square	-0.16662
Standard Error	3.294191
Observations	8

Coefficients	
Intercept	-2.03185
X Variable 1	-0.04078



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (–) 2.03185 and the slope was (–) 0.04078. It can be noted that the risk return relationship of engineering sector was negative before automation.

6.11.1.4 Food and Allied Product Sector: Part – I

In Table 6.4 we have taken eight units of food and allied product sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.26 to 6.33. The regression summary output of food and allied product sector has been furnished in the second part of the Table-6.4.

Table 6.4

Food and Allied Product Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
BATBC	0.8807	-2.344
National Tea	0.2061	0.4126
Gemini Sea Food	0.4930	-1.3263
Hill Plantation	0.0111	0.2452
Bangladesh Plantation	0.0111	0
Alpha Tobacco	0.7115	1.0041
Meghna Shrimp	0.5362	-2.1675
Bangas	0.4386	-4.3518

Source : Appendix Tables 6.26 to 6.33

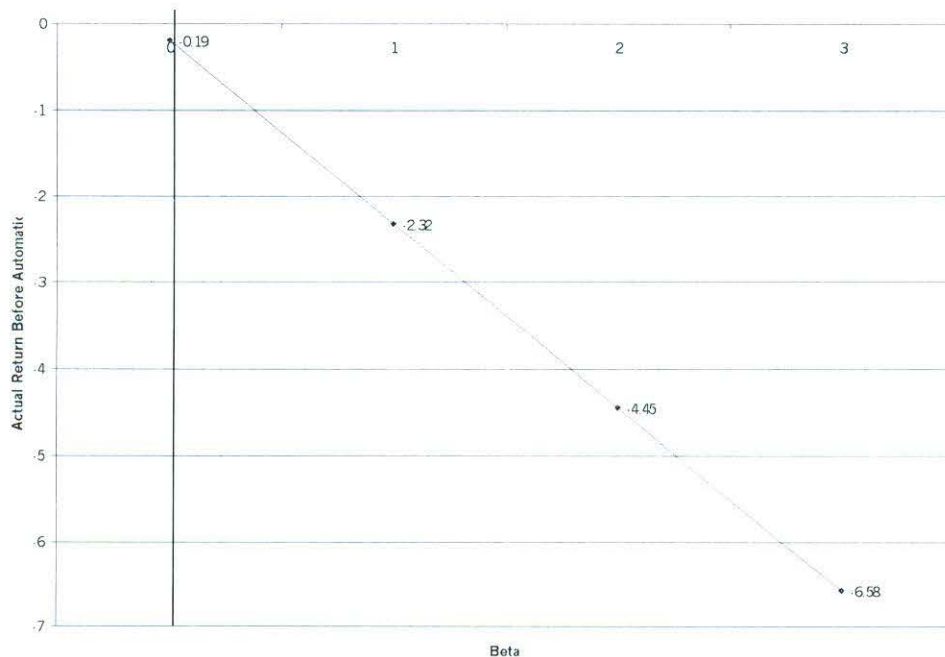
Part – II

Summary Output for SML of Food and Allied product Before Automation

Regression Statistics	
Multiple R	0.370071
R Square	0.136952
Adjusted R Square	-0.00689
Standard Error	1.820389
Observations	8

Coefficients	
Intercept	-0.19063
X Variable 1	-2.12934

SML of Food and Allied Product Sector Before Automation



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 0.19063 and the slope was (-) 2.12934. It can be noted that the risk return relationship of food and allied product sector was negative before automation.

6.11.1.5 Jute Sector: Part – I

In Table 6.5 we have taken seven units of jute sector shares into consideration and calculated beta and actual monthly mean return, which are furnished in columns A and B. This table has been prepared from appendix tables 6.34 to 6.40. The regression summary output of jute sector has been furnished in the second part of the Table-6.5.

Table 6.5
Jute Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Sonali Anash	0.0007	-0.0553
Northern Jute	0.7987	-1.795
Jute Spinners	-0.0174	0.0731
Saleh Carpet	1.0698	-7.8987
Mutual Jute	0.0163	0.1736
Islam Jute	0.0133	0.011
Ahad Jute	0	0

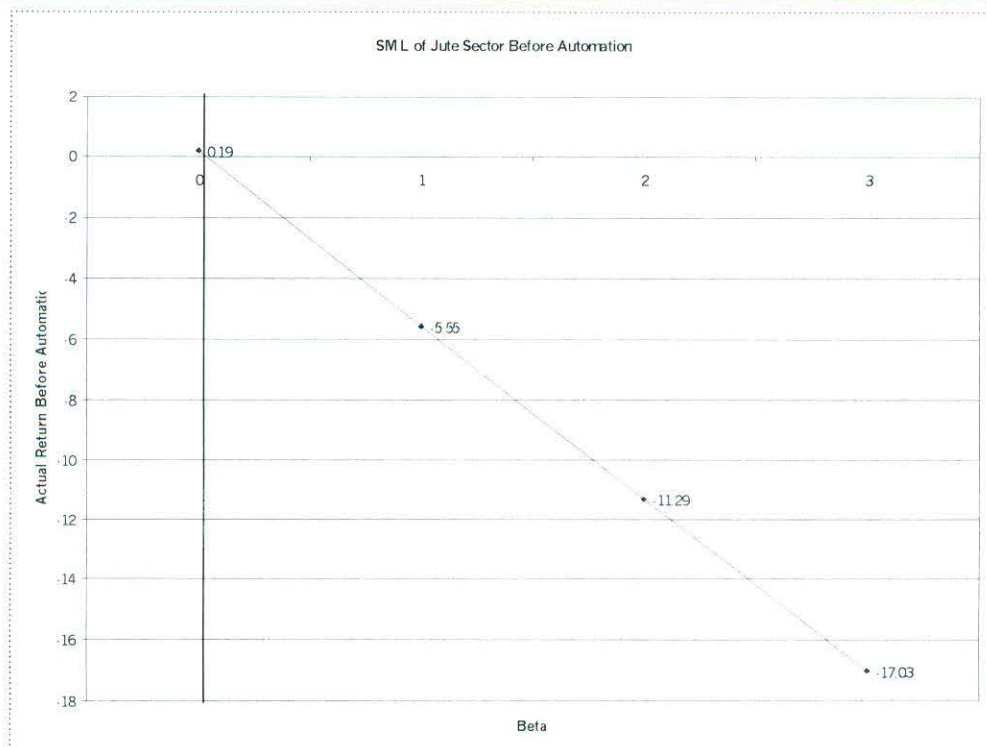
Source : Appendix Tables 6.34 to 6.40

Part – II

Summary Output for SML of Jute Before Automation

Regression Statistics	
Multiple R	0.892812
R Square	0.797112
Adjusted R Square	0.756535
Standard Error	1.463461
Observations	7

Coefficients	
Intercept	0.186659
X Variable 1	-5.73867



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was 0.186659 and the slope was (-) 5.73867. It can be noted that the risk return relationship of jute sector was negative before automation.

6.11.1.6 Textile Sector: Part – I

In Table 6.6 we have taken eight units of textile sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.41 to 6.48. The regression summary output of textile sector has been furnished in the second part of the Table-6.6.

Table 6.6
Textile Sector Beta and Actual Monthly Mean Return (Before Automation)

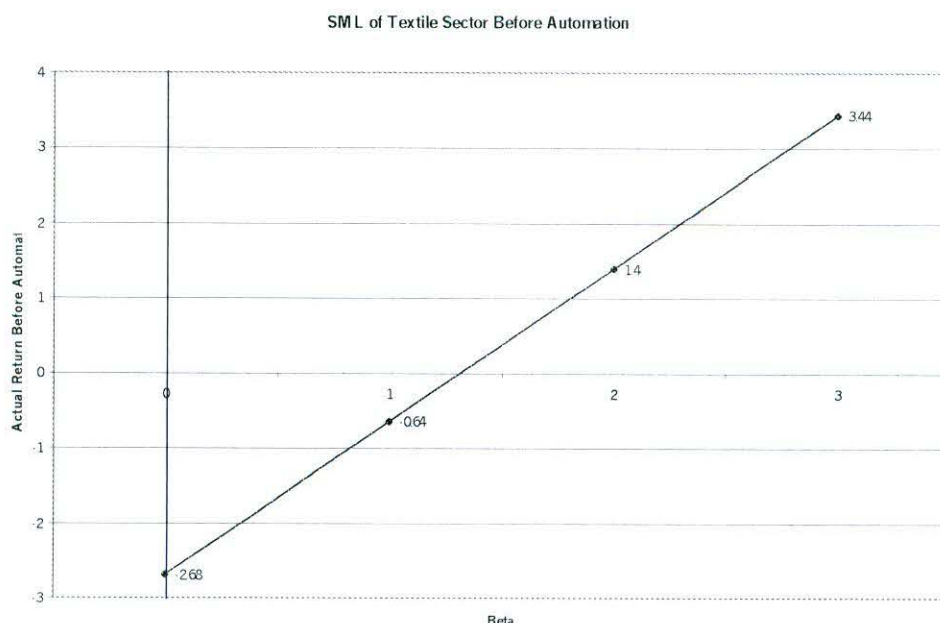
Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Beximco Textile	-0.0025	0.2537
Padma Textile	0.6364	-1.9835
Modern Dyeing	0.5614	-2.7519
Rahim Textile	0.0515	0.1435
Quasem Textile	-0.3683	-5.9619
Apex Weaving	0.7800	-2.7151
Beximco Knitting	0.6877	0.9642
Dulamia Cotton	0.1385	-4.3071

Source : Appendix Tables 6.41 to 6.48

Part – II

Summary Output for SML of Textile Before Automation

Regression Statistics	
Multiple R	0.349478
R Square	0.122135
Adjusted R Square	-0.02418
Standard Error	2.435472
Observations	8
Coefficients	
Intercept	-2.67906
X Variable 1	2.042069



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 2.67906 and the slope was 2.042069. It can be noted that the risk return relationship of textile sector was positive before automation.

6.11.1.7 Pharmaceuticals and Chemicals Sector: Part – I

In Table 6.7 we have taken eight units of Pharmaceuticals and Chemicals sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.49 to 6.56. The regression summary output of Pharmaceuticals and Chemicals sector has been furnished in the second part of the Table-6.7.

Table 6.7
Pharmaceuticals and Chemicals Sector Beta and Actual Monthly Mean Return
(Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Square Pharma	0.4938	-1.2458
Beximco Pharma	1.3397	-3.9708
Glaxo Wellcome	0.6741	-1.3187
ACI	1.2523	-6.4415
Bangla Process	0.2940	-0.8845
Therapeutics	0.8036	-4.8104
Pharma Aids	0.3143	-1.5055
Petro Synthetic	0.7062	-7.9581

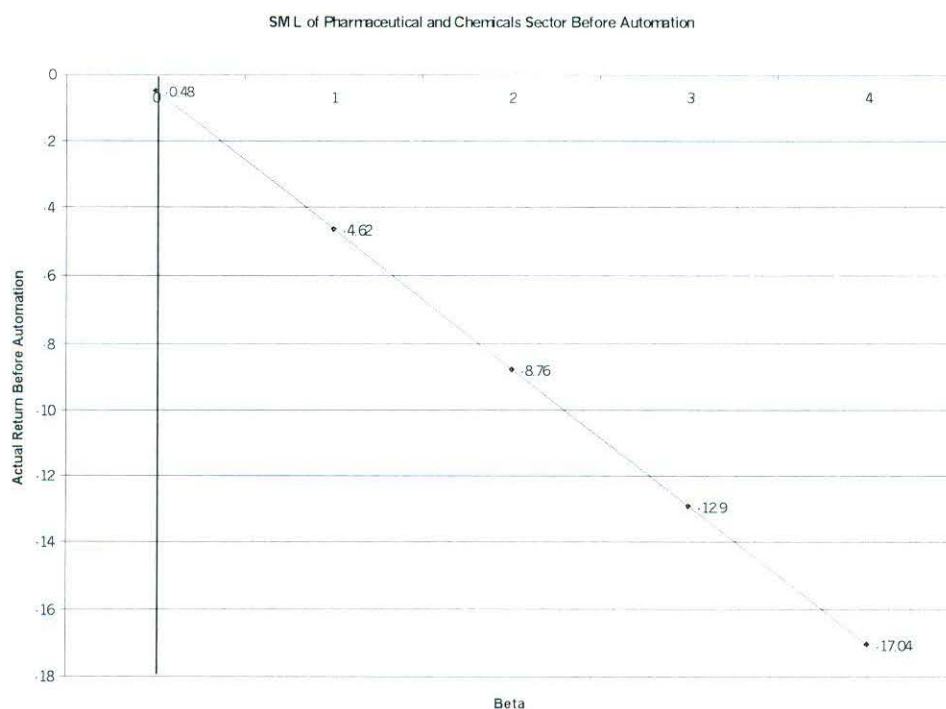
Source : Appendix Tables 6.49 to 6.56

Part – II

Summary Output for SML of Pharmaceuticals and Chemicals Before Automation

Regression Statistics	
Multiple R	0.599326
R Square	0.359191
Adjusted R Square	0.25239
Standard Error	2.336643
Observations	8

Coefficients	
Intercept	-0.47617
X Variable 1	-4.13821



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 0.47617 and the slope was (-) 4.13821. It can be noted that the risk return relationship of Pharmaceuticals and Chemicals sector was negative before automation.

6.11.1.8 Miscellaneous Sector: Part – I

In Table we have taken eight Miscellaneous sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.57 to 6.64. The regression summary output of Miscellaneous sector has been furnished in the second part of the Table-6.8.

Table 6.8
Miscellaneous Sector Beta and Actual Monthly Mean Return (Before Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Bata Shoes	0.4781	-1.023
Monno Ceramics	0.5616	-2.3124
BEXIMCO	1.6462	-4.1757
High Speed Ship	-0.0027	0.2934
Savar Refractories	1.4300	-1.4524
Texpick Industries	0.1731	0.0135
GQ Ball Pen	0.6782	-6.861
Phoenix Leather	-0.0450	-0.0439

Source: Appendix Tables 6.57 to 6.64

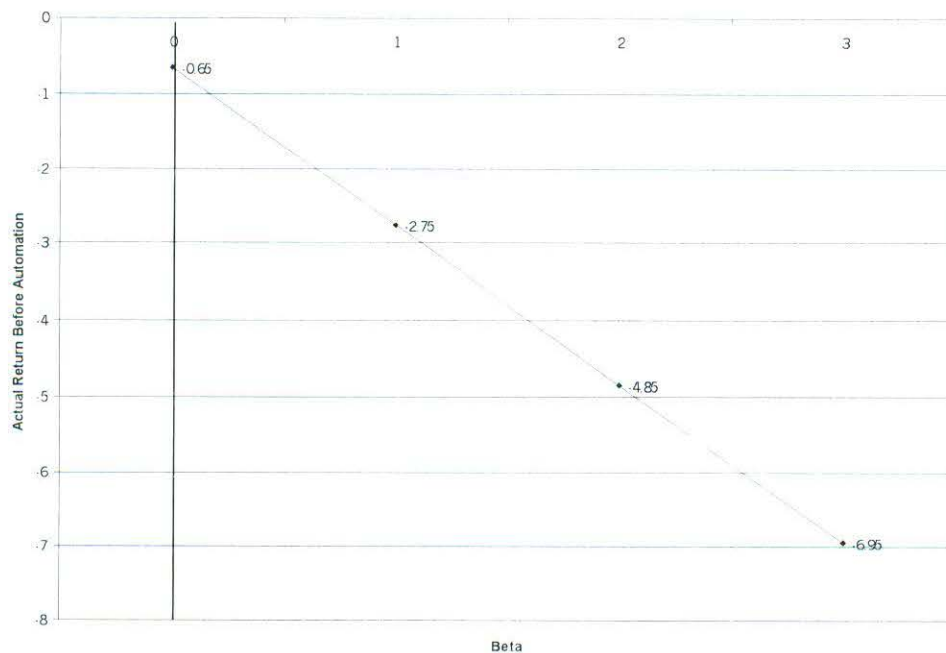
Part – II

Summary Output for SML of Miscellaneous Sector Before Automation

Regression Statistics	
Multiple R	0.534648
R Square	0.285849
Adjusted R Square	0.166823
Standard Error	2.257872
Observations	8

Coefficients	
Intercept	-0.65135
X Variable 1	-2.1039

SML of Miscellaneousbefore Sector Before Automation



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 0.65135 and the slope was (-) 2.1039. It can be noted that the risk return relationship of Miscellaneous sector was negative before automation.

6.11.1.9 Insurance Sector: Part – I

In Table 6.9 we have taken eight insurance sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.65 to 6.72. The regression summary output of insurance sector has been furnished in the second part of the Table-6.9.

Table 6.9
Insurance Sector Beta and Actual Monthly Mean Return (Before Automation)

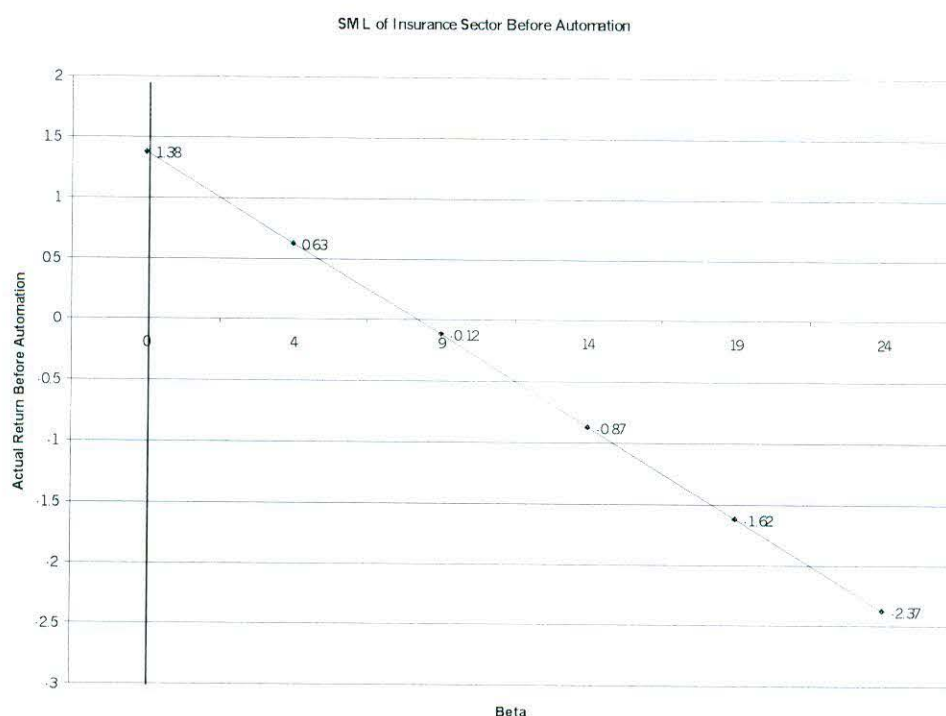
Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Green Delta Insurance	0.8216	2.4236
Peoples Insurance	0.3528	1.3927
Reliance Insurance	0.8787	2.568
National Life Insurance	1.3178	1.2168
Federal Insurance	0.8918	0.5144
Purabi General Insurance	0.7005	0.4666
BGIC	0.9239	-0.1245
Karnaphuli Insurance	0.9301	1.54

Source : Appendix Tables 6.65 to 6.72

Part – II

Summary Output for SML of Insurance Before Automation

Regression Statistics	
Multiple R	0.041704
R Square	0.001739
Adjusted R Square	-0.16464
Standard Error	1.020882
Observations	8
Coefficients	
Intercept	1.375033
X Variable 1	-0.14707



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was 1.375033 and the slope was $(-)$ 0.14707. It can be noted that the risk return relationship of insurance sector was negative before automation.

6.11.2 After Automation Results

6.11.2.1 Banking Sector: Part – I

Here (in Table 6.10) eight banks are taken into consideration and we calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.2 to 6.9. The regression summary output of banking sector is furnished in the second part of the Table – 6.10.

Table 6.10
Banking Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Rupali Bank	-1.3488	-2.045
Eastern Bank	-0.2690	0.1841
IDLC	1.3606	-2.4451
UCBL	0.6231	-0.7354
Pubali Bank	-0.1299	-0.4999
Uttara Bank	0.1770	1.2318
NBL	1.1249	2.9481
Al-Baraka Islami Bank	0.0254	0.874

Source : Appendix Tables 6.2 to 6.9

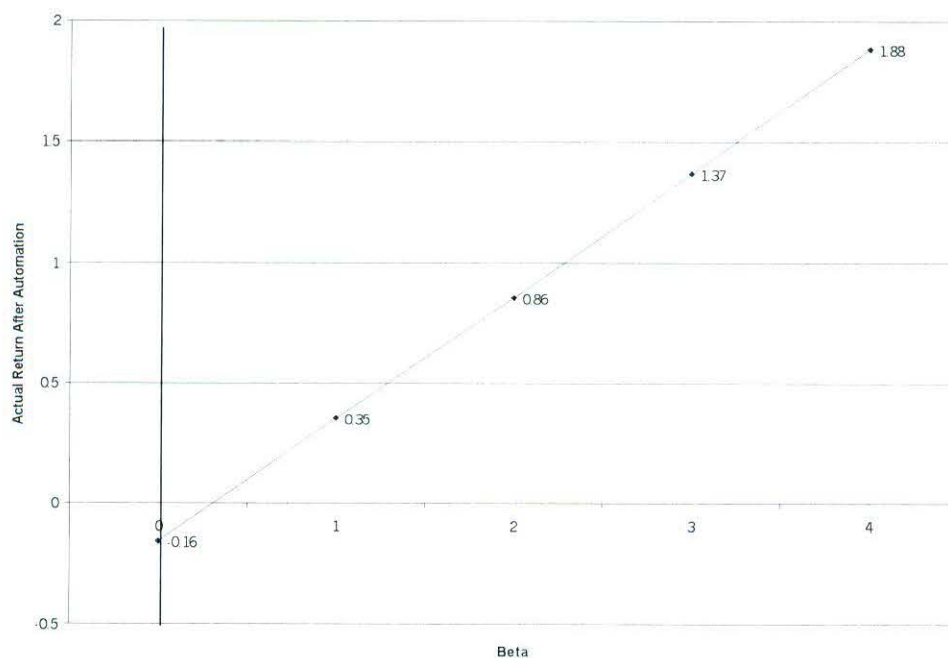
Part – II

Summary Output for SML of Banking Sector after automation.

Regression Statistics	
Multiple R	0.248738
R Square	0.061871
Adjusted R Square	-0.09448
Standard Error	1.851633
Observations	8

Coefficients	
Intercept	-0.16132
X Variable 1	0.513741

SML of Banking Sector After Automation



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 0.16132 and the slope was 0.513741. It can be noted that the risk return relationship of banking sector was positive after automation. On the contrary, the risk return relationship of this banking sector was negative before automation, which has been explained earlier. The combined result of the banking sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.19.

6.11.2.2 Investment Sector: Part – I

In the Table 6.11 we have taken eight units of Investment sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.10 to 6.17. The regression summary output of Investment sector has been furnished in the second part of the Table-6.11.

Table 6.11
Investment Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
ICB	0.8136	-3.8495
6 th ICB M.F	-0.3386	-3.7109
1 st ICB M.F	0.7819	-0.1654
4 th ICB M.F	1.4553	-0.8691
5 th ICB M.F	1.0969	-2.4577
2 nd ICB M.F	-3.2369	-10.2258
7 th ICB M.F	1.0875	-1.8228
3 rd ICB M.F	0.8150	-0.7401

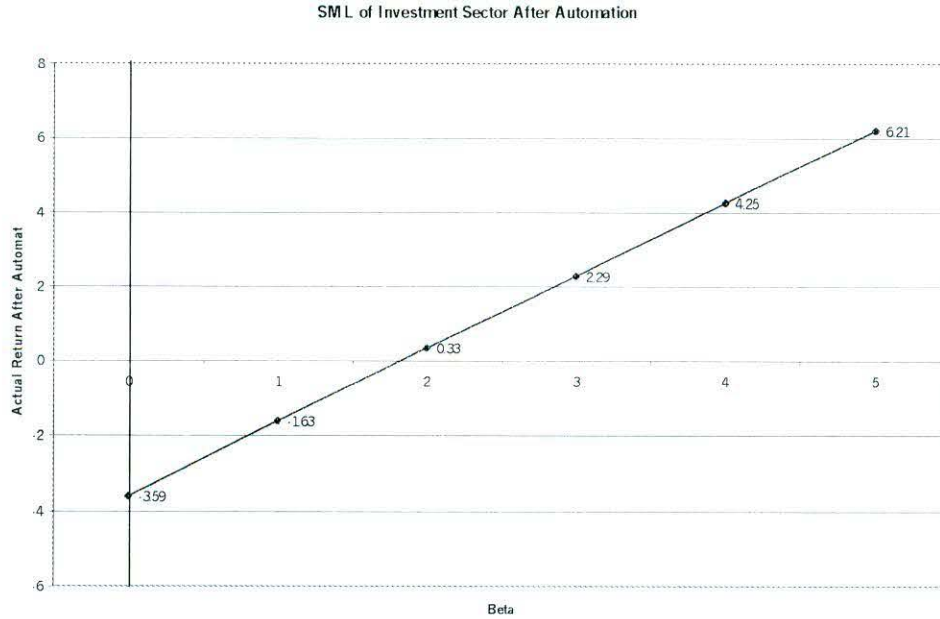
Source : Appendix Tables 6.10 to 6.17

Part – II

Summary Output for SML of Investment After Automation

Regression Statistics	
Multiple R	0.927661
R Square	0.860555
Adjusted R Square	0.837314
Standard Error	1.300731
Observations	8

Coefficients	
Intercept	-3.58723
X Variable 1	1.962347



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 3.58723 and the slope was 1.962347. It can be noted that the risk return relationship of Investment sector was positive after automation. On the contrary, the risk return relationship of this investment sector was positive before automation which has been explained earlier. The combined result of the investment sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.20.

6.11.2.3 Engineering Sector: Part – I

In this Table (6.12) we have taken eight units of engineering sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.18 to 6.25. The regression summary output of engineering sector has been furnished in the second part of the Table-6.12.

Table 6.12
Engineering Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Singer Bangladesh	1.5728	-3.3364
Bangladesh Lamps	2.3791	-4.2779
Quasem Drycells	1.2094	-1.7627
Eastern Cables	1.4819	-4.1557
BEMCO	-1.4266	-5.8763
Karim Pipe	0.0455	-4.7751
Renwick Jaineswar & Co.	-0.7012	-3.9823
Metalex Corporation	-0.3111	-1.5266

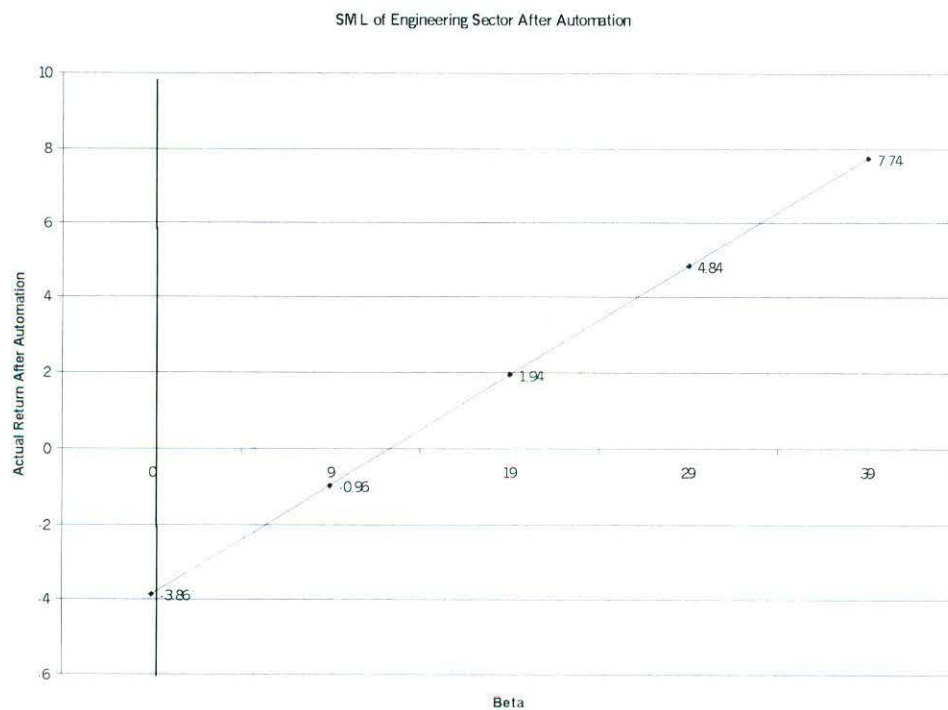
Source : Appendix Tables 6.18 to 6.25

Part – II

Summary Output for SML of Engineering After Automation

Regression Statistics	
Multiple R	0.257492
R Square	0.066302
Adjusted R Square	-0.08931
Standard Error	1.533992
Observations	8

Coefficients	
Intercept	-3.86416
X Variable 1	0.28712



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (–) 3.86416 and the slope was 0.28712. It can be noted that the risk return relationship of engineering sector was positive after automation. On the contrary, the risk return relationship of this engineering sector was negative before automation which has been explained earlier. The combined result of the engineering sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.21.

6.11.2.4 Food and Allied Product Sector: Part – I

In this table (6.13) we have taken eight units of food and allied product sector's shares into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.26 to 6.33. The regression summary output of food and allied product sector has been furnished in the second part of the Table-6.13.

Table 6.13

Food and Allied Product Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
BATBC	1.0125	-0.8946
National Tea	0.1802	1.8799
Gemini Sea Food	-0.1759	-1.0088
Hill Plantation	0.4473	-2.6567
Bangladesh Plantation	0.3836	-3.1575
Alpha Tobacco	0.0428	-0.8731
Meghna Shrimp	0.2895	-0.2312
Bangas	0.2487	1.0063

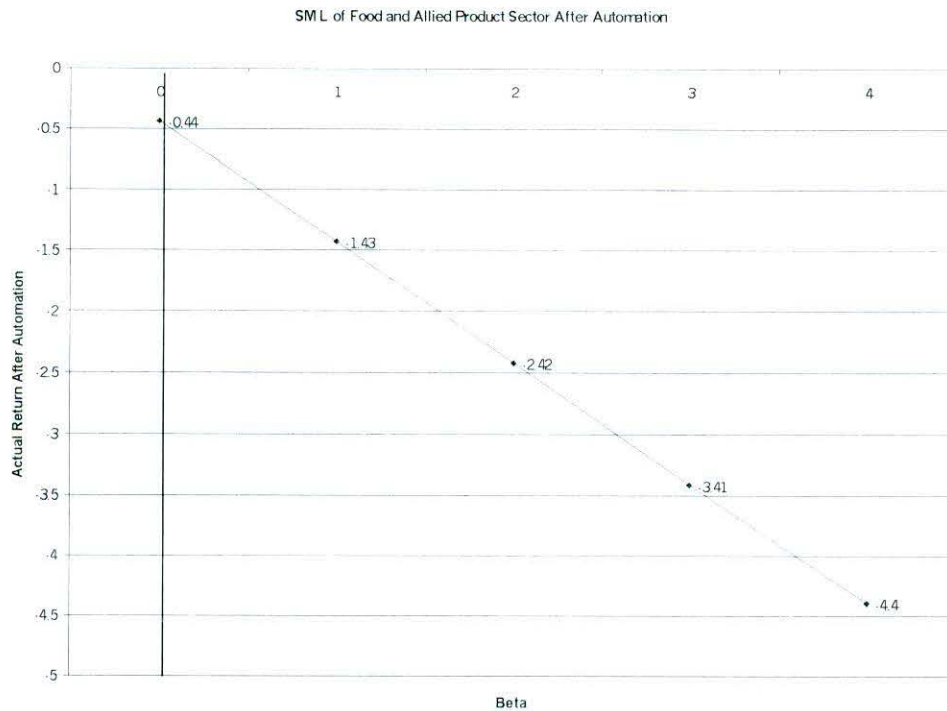
Source : Appendix Tables 6.26 to 6.33

Part – II

Summary Output for SML of Food and Allied product After Automation

Regression Statistics	
Multiple R	0.205472
R Square	0.042219
Adjusted R Square	-0.11741
Standard Error	1.778018
Observations	8

Coefficients	
Intercept	-0.44012
X Variable 1	-0.99414



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (–) 0.44012 and the slope was (–) 0.99414. It can be noted that the risk return relationship of food and allied product sector was negative after automation. On the contrary, the risk return relationship of this food and allied product sector was negative before automation which has been explained earlier. The combined result of the food and allied product sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.22.

6.11.2.5 Jute Sector: Part – I

In this table (6.14) we have taken seven units of jute sector's shares into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.34 to 6.40. The regression summary output of jute sector has been furnished in the second part of the Table-6.14.

Table 6.14
Jute Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Sonali Anash	-0.0067	0.2539
Northern Jute	-0.3320	-2.4865
Jute Spinners	0.5198	-1.5976
Saleh Carpet	-0.3463	-3.3018
Mutual Jute	-0.0374	0.6702
Islam Jute	-0.0291	-0.9548
Ahad Jute	0	0

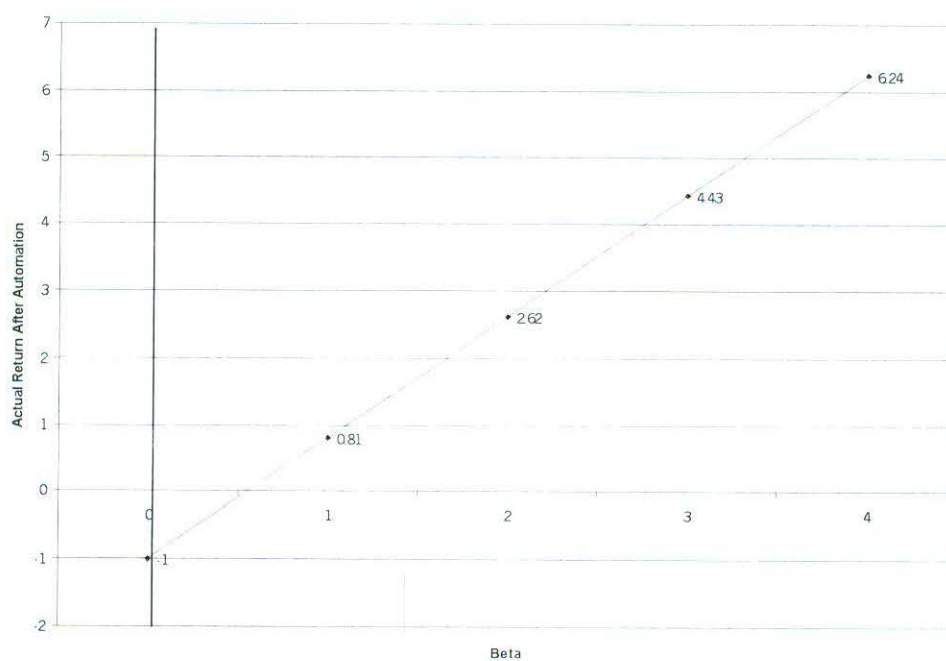
Source : Appendix Tables 6.34 to 6.40

Part – II

Summary Output for SML of Jute After Automation

Regression Statistics	
Multiple R	0.349659
R Square	0.122261
Adjusted R Square	-0.05329
Standard Error	1.522486
Observations	7
Coefficients	
Intercept	-0.99969
X Variable 1	1.805875

SML of Jute Sector After Automation



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 0.99969 and the slope was 1.805875. It can be noted that the risk return relationship of jute sector was positive after automation. On the contrary, the risk return relationship of this jute sector was negative before automation, which has been explained earlier. The combined result of the jute sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.23.

6.11.2.6 Textile Sector: Part – I

In this table (6.15) we have taken eight units of textile sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.41 to 6.48. The regression summary output of textile sector has been furnished in the second part of the Table-6.15.

Table 6.15
Textile Sector Beta and Actual Monthly Mean Return (After Automation)

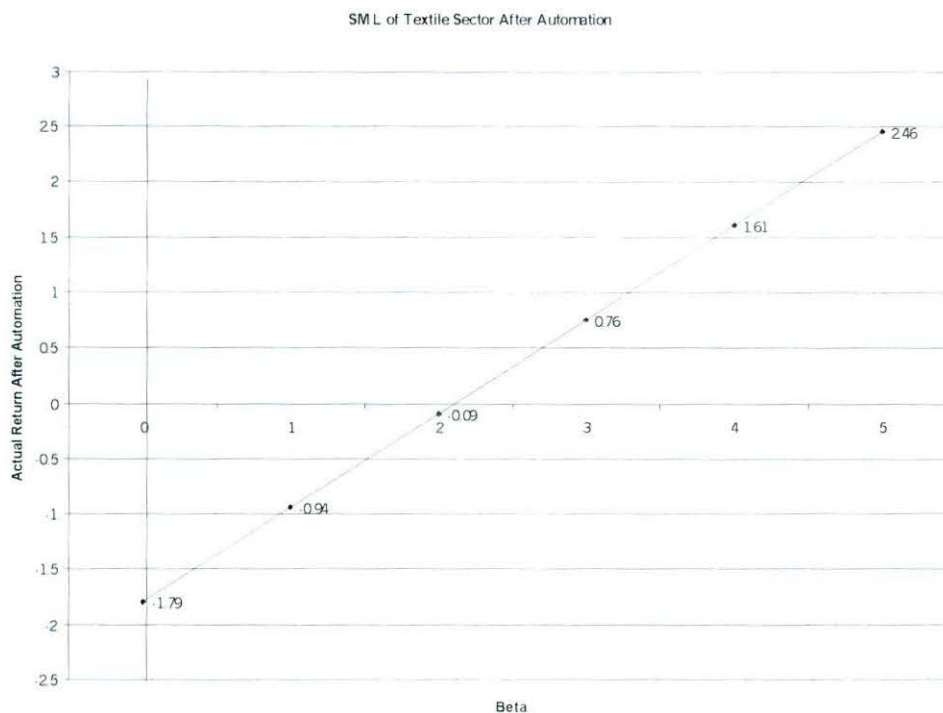
Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Beximco Textile	0.7253	-0.5688
Padma Textile	1.2294	-0.9324
Modern Dyeing	-0.4246	-0.3763
Rahim Textile	-0.6499	-2.599
Quasem Textile	-0.1770	-3.8276
Apex Weaving	0.9610	-0.2168
Beximco Knitting	1.0363	-0.6005
Dulamia Cotton	0.9150	-2.1156

Source: Appendix Tables 6.41 to 6.48

Part – II

Summary Output for SML of Textile After Automation

Regression Statistics	
Multiple R	0.484378
R Square	0.234622
Adjusted R Square	0.107059
Standard Error	1.228931
Observations	8
Coefficients	
Intercept	-1.78738
X Variable 1	0.846928



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 1.78738 and the slope was 0.846928. It can be noted that the risk return relationship of banking sector was positive after automation. On the contrary, the risk return relationship of this textile sector was positive before automation which has been explained earlier. The combined result of the banking sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.24.

6.11.2.7 Pharmaceuticals and Chemicals Sector: Part – I

In this table (6.16) we have taken eight units of pharmaceuticals and chemicals sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.49 to 6.56. The regression summary output of pharmaceuticals and chemicals sector has been furnished in the second part of the Table-6.16.

Table 6.16

Pharmaceuticals and Chemicals Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Square Pharma	0.5872	2.1832
Beximco Pharma	1.9000	-0.8729
Glaxo Wellcome	0.8715	-2.0741
ACI	1.3236	0.4472
Bangla Process	0.0590	1.1369
Therapeutics	0.0536	-3.1392
Pharma Aids	0.0062	-1.6346
Petro Synthetic	0.4736	-4.2453

Source : Appendix Tables 6.49 to 6.56

Part – II

Summary Output for SML of Pharmaceuticals and Chemicals After Automation

Regression Statistics	
Multiple R	0.162965
R Square	0.026558
Adjusted R Square	-0.13568
Standard Error	2.33025
Observations	8
Coefficients	
Intercept	-1.37135
X Variable 1	0.525472

SML of Pharmaceutical and Chemical Sector After Automation



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 1.37135 and the slope was 0.525472. It can be noted that the risk return relationship of pharmaceuticals and chemicals sector was positive after automation. On the contrary, the risk return relationship of this relationship of pharmaceuticals sector was negative before automation, which has been explained earlier. The combined result of the relationship of pharmaceuticals sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.25.

6.11.2.8 Miscellaneous Sector : Part – I

In this table (6.17) we have taken eight units of Miscellaneous sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.57 to 6.64. The regression summary output of Miscellaneous sector has been furnished in the second part of the Table-6.17.

Table 6.17
Miscellaneous Sector Beta and Actual Monthly Mean Return (After Automation)

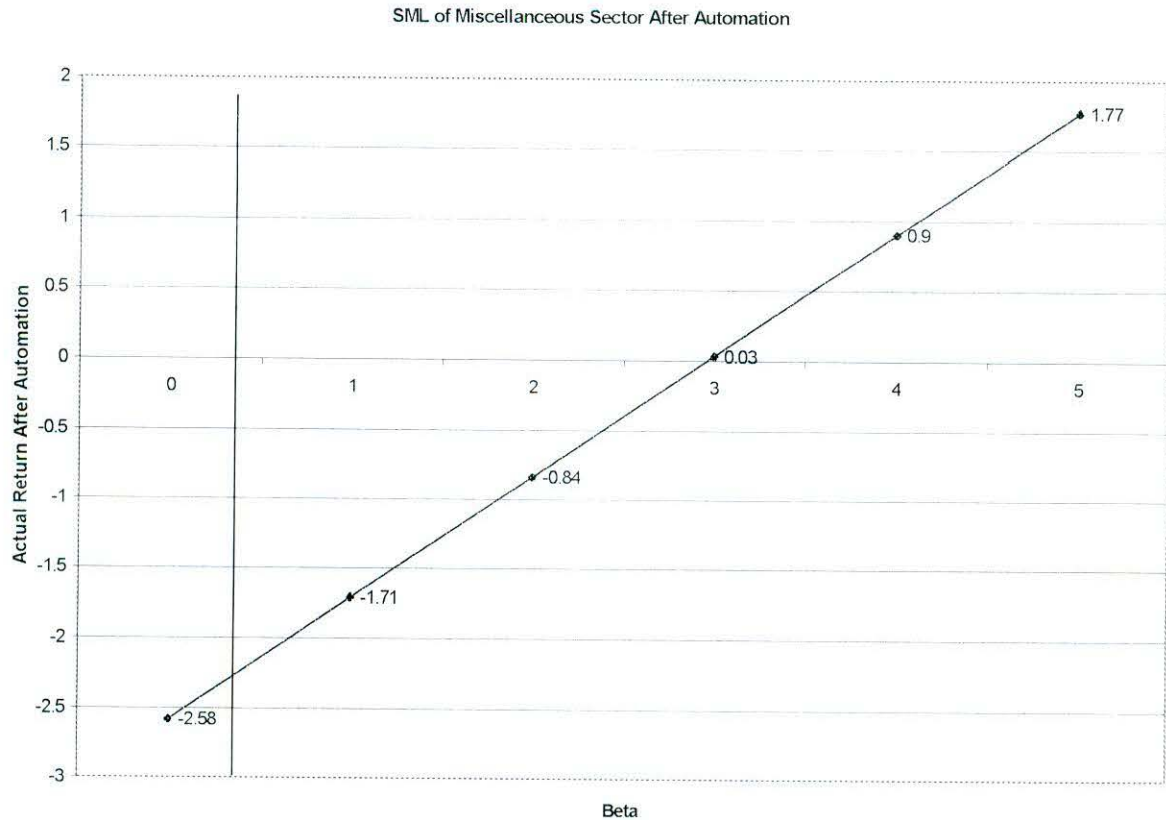
Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Bata Shoes	0.6208	-0.064
Monno Ceramics	1.5510	-3.1714
BEXIMCO	1.5287	-2.0951
High Speed Ship	-0.1047	0.2038
Savar Refractories	-0.1360	-2.0266
Texpick Industries	-2.0941	-7.5043
GQ Ball Pen	1.3771	-3.5944
Phoenix Leather	0	0

Source : Appendix Tables 6.57 to 6.64

Part – II

Summary Output for SML of Miscellaneous Sector After Automation

Regression Statistics	
Multiple R	0.413936
R Square	0.171343
Adjusted R Square	0.033234
Standard Error	2.525784
Observations	8
Coefficients	
Intercept	-2.57917
X Variable 1	0.868223



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was (-) 2.57917 and the slope was 0.868223. It can be noted that the risk return relationship of Miscellaneous sector was positive after automation. On the contrary, the risk-return relationship of this Miscellaneous sector was negative before automation which has been explained earlier. The combined result of the Miscellaneous sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.26.

6.11.2.9 Insurance Sector: Part – I

In this table (6.18) we have taken eight units of insurance sector's share into consideration and calculated beta and actual monthly mean return which are furnished in columns A and B. This table has been prepared from appendix tables 6.65 to 6.72. The regression summary output of insurance sector has been furnished in the second part of the Table-6.18.

Table 6.18
Insurance Sector Beta and Actual Monthly Mean Return (After Automation)

Name of the company	Column A	Column B
	β	Actual Monthly Mean Return (%)
Green Delta Insurance	0.7296	-0.3034
Peoples Insurance	0.2928	-2.932
Reliance Insurance	0.0692	-1.3594
National Life Insurance	0.7562	-0.1945
Federal Insurance	0.7855	-3.5527
Purabi General Insurance	0.2890	-0.048
BGIC	0.8263	-2.306
Karnaphuli Insurance	0.8241	-2.0017

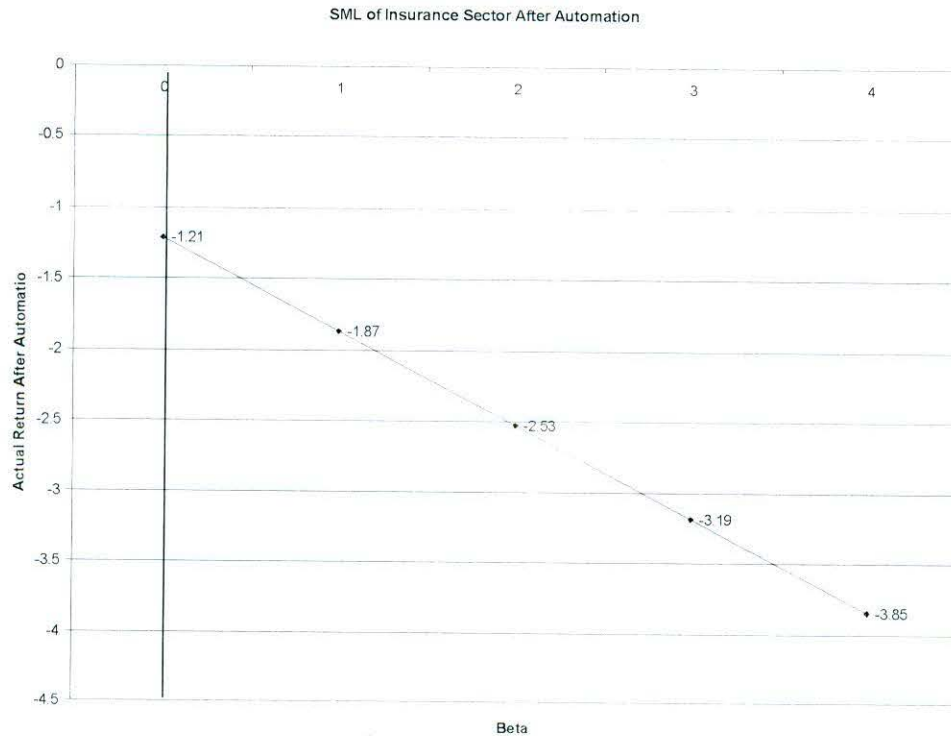
Source : Appendix Tables 6.65 to 6.72

Part – II

Summary Output for SML of Insurance After Automation

Regression Statistics	
Multiple R	0.149827
R Square	0.022448
Adjusted R Square	-0.14048
Standard Error	1.419582
Observations	8

Coefficients	
Intercept	-1.21169
X Variable 1	-0.65692



In the graphical representation of the table, x axis represents beta and y axis represents actual monthly mean return. The SML has been developed in the light of the regression statistics. The table shows that the intercept was $(-) 1.21169$ and the slope was $(-) 0.65692$. It can be noted that the risk return relationship of insurance sector was negative after automation. On the contrary, the risk return relationship of this insurance sector was also negative before automation which has been explained earlier. The combined result of the insurance sector according to their risk performance has been shown with the help of Kruskal-Wallis Test in Table 6.27.

6.12 Kruskal-Wallis Test Before and After Automation

Kruskal Wallis Test determines whether two independent samples have drawn from populations with the same distribution for the test.

H_0 : There is no significant difference between before automation beta and after automation beta for the securities in the sample.

H_1 : A difference exists between before automation beta and after automation beta for the securities in the sample.

K values of all 9 sectors before and after automation are lower than chi-square value for a given degree of freedom and level of significance. The K value of overall risk return analysis before and after automation also shows lower than chi-square value for a given degree of freedom and level of significance. So the null hypothesis is accepted for every test and there is no difference between before automation beta and after automation beta. Here the first section shows sector wise test findings and second section represents overall test findings.

6.13 Sector Wise Kruskal-Wallis Test Results

6.13.1 Banking Sector

In the following table (6.19) banking sector's risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.19
Banking Sector Risk Performance

Company Name	Automation	Rank	β
Rupali Bank	After Automation	1	-1.3488
Eastern Bank	After Automation	2	-0.2690
Pubali Bank	After Automation	3	-0.1299
Eastern Bank	Before Automation	4	-0.0123
Al-Baraka Islami Bank	After Automation	5	0.0254
Pubali Bank	Before Automation	6	0.0462
Uttara Bank	After Automation	7	0.1770
Al-Baraka Islami Bank	Before Automation	8	0.2047
Rupali Bank	Before Automation	9	0.3064
UCBL	Before Automation	10	0.3148
Uttara Bank	Before Automation	11	0.3989
NBL	Before Automation	12	0.4956
UCBL	After Automation	13	0.6231
IDLC	Before Automation	14	0.8903
NBL	After Automation	15	1.1249
IDLC	After Automation	16	1.3606
TOTAL	Before Automation	74	
TOTAL	After Automation	62	

Source : Appendix Tables 6.2 to 6.9

It has been observed that the slope of this sector was negative before automation and side by side it was positive after automation. But according to this test results the ranking value of before automation of this sector was 74 and after automation it was 62. However, the summary output of banking sector can be furnished in the following manner.

Summary Output of Banking Sector

N1	8
N2	8
R1	74
R2	62
N	136
K	16
Df	15
K	0.4856
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the banking sector before and after automation representing 74 and 62 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.2 Investment Sector

In the following table (6.20) Investment sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.20
Investment Sector Risk Performance

Company Name	Automation	Rank	β
2nd ICB M.F	After Automation	1	-3.2369
6th ICB M.F	After Automation	2	-0.3386
ICB	Before Automation	3	0.1782
1st ICB M.F	Before Automation	4	0.4945
1st ICB M.F	After Automation	5	0.7819
ICB	After Automation	6	0.8136
3rd ICB M.F	After Automation	7	0.8150
3rd ICB M.F	Before Automation	8	0.8217
2nd ICB M.F	Before Automation	9	0.8301
5th ICB M.F	Before Automation	10	0.8524
7th ICB M.F	Before Automation	11	0.9035
7th ICB M.F	After Automation	12	1.0875
5th ICB M.F	After Automation	13	1.0969
6th ICB M.F	Before Automation	14	1.2737
4th ICB M.F	Before Automation	15	1.3815
4th ICB M.F	After Automation	16	1.4553
TOTAL	Before Automation	74	
TOTAL	After Automation	62	

Source : Appendix Table 6.10 to 6.17

It has been observed that the slope of this sector was positive in both the cases before and after automation. But according to this test results the ranking value of before automation of this sector was 74 and after automation it was 62. However, the summary output of investment sector can be furnished in the following manner.

Summary Output of Investment Sector

N1	8
N2	8
R1	74
R2	62
N	136
K	16
Df	15
K	0.4856
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the investment sector before and after automation representing 74 and 62 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.3 Engineering Sector

In the following table (6.21) Engineering sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.21
Engineering Sector Risk Performance

Company Name	Automation	Rank	β
BEMCO	After Automation	1	-1.4266
Renwick Jaineswar & Co.	After Automation	2	-0.7013
Metalex Corporation	After Automation	3	-0.3111
Karim Pipe	After Automation	4	0.0455
Bangladesh Lamps	Before Automation	5	0.3985
BEMCO	Before Automation	6	0.9876
Renwick Jaineswar & Co.	Before Automation	7	1.0614
Metalex Corporation	Before Automation	8	1.1922
Quasem Drycell	After Automation	9	1.2095
Singer Bangladesh	Before Automation	10	1.2422
Eastern Cables	After Automation	11	1.4820
Eastern Cables	Before Automation	12	1.5350
Singer Bangladesh	After Automation	13	1.5728
Karim Pipe	Before Automation	14	1.8322
Quasem Drycell	Before Automation	15	1.8862
Bangladesh Lamps	After Automation	16	2.3792
TOTAL	Before Automation	77	
TOTAL	After Automation	56	

Source : Appendix Tables 6.18 to 6.25

It has been observed that the slope of this sector was negative before automation and side by side it was positive after automation. But according to this test results the ranking value

of before automation of this sector was 77 and after automation it was 56. However, the summary output of engineering sector can be furnished in the following manner.

Summary Output of Engineering Sector

N1	8
N2	8
R1	77
R2	59
n	136
k	16
df	15
K	0.5221
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the engineering sector before and after automation representing 77 and 56 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.4 Food and Allied Products Sector

In the following table (6.22) Food and Allied Products sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.22
Food and Allied Products Sector Risk Performance

Company Name	Automation	Rank	Beta
Gemini Sea Food	After Automation	1	-0.1760
Hill Plantation	Before Automation	2	0.0111
Bangladesh Plantation	Before Automation	3	0.0111
Alpha Tobacco	After Automation	4	0.0429
National Tea	After Automation	5	0.1803
National Tea	Before Automation	6	0.2062
Bangas	After Automation	7	0.2488
Meghna Shrimp	After Automation	8	0.2895
Bangladesh Plantation	After Automation	9	0.3836
Bangas	Before Automation	10	0.4386
Hill Plantation	After Automation	11	0.4473
Gemini Sea Food	Before Automation	12	0.4930
Meghna Shrimp	Before Automation	13	0.5363
Alpha Tobacco	Before Automation	14	0.7115
BATBC	Before Automation	15	0.8807
BATBC	After Automation	16	1.0125
TOTAL	Before Automation	75	
TOTAL	After Automation	61	

Source : Appendix Tables 6.26 to 6.33

It has been observed that the slope of this sector was negative before and after automation in both the cases. But according to this test results the ranking value of before automation of this sector was 75 and after automation it was 61. However the summary output of Food and Allied Products sector can be furnished in the following manner.

Summary Output of Food and Allied Products Sector

N1	8
N2	8
R1	75
R2	61
n	136
k	16
df	15
K	0.4877
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the food and allied product sector before and after automation representing 75 and 61 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.5 Jute Sector

In the following table (6.23) Jute sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.23
Jute Sector Risk Performance

Company Name	Automation	Rank	β
Saleh Carpet	After Automation	1	-0.3463
Northern Jute	After Automation	2	-0.3320
Mutual Jute	After Automation	3	-0.0375
Islam Jute	After Automation	4	-0.0292
Jute Spinners	Before Automation	5	-0.0175
Sonali Anash	After Automation	6	-0.0067
Ahad Jute	Before Automation	7	0.0000
Ahad Jute	After Automation	8	0.0000
Sonali Anash	Before Automation	9	0.0007
Islam Jute	Before Automation	10	0.0134
Mutual Jute	Before Automation	11	0.0164
Jute Spinners	After Automation	12	0.5198
Northern Jute	Before Automation	13	0.7987
Saleh Carpet	Before Automation	14	1.0699
TOTAL	Before Automation	69	
TOTAL	After Automation	36	

Source : Appendix Tables 6.34 to 6.40

It has been observed that the slope of this sector was negative before automation and side by side it was positive after automation. But according to this test results the ranking value of before automation of this sector was 69 and after automation it was 36. However, the summary output of Jute sector can be furnished in the following manner.

Summary Output of Jute Sector

N1	7
N2	7
R1	69
R2	36
n	105
k	14
df	13
K	0.6116
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the jute sector before and after automation representing 69 and 36 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.6 Textile Sector

In the following table (6.24) Textile sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.24
Textile Sector Risk Performance

Company Name	Automation	Rank	β
Rahim Textile	After Automation	1	-0.6500
Modern Dyeing	After Automation	2	-0.4246
Quasem Textile	Before Automation	3	-0.3683
Quasem Textile	After Automation	4	-0.1771
Beximco Textile	Before Automation	5	-0.0025
Rahim Textile	Before Automation	6	0.0515
Dulamia Cotton	Before Automation	7	0.1386
Modern Dyeing	Before Automation	8	0.5614
Padma Textile	Before Automation	9	0.6365
Beximco Knitting	Before Automation	10	0.6877
Beximco Textile	After Automation	11	0.7254
Apex Weaving	Before Automation	12	0.7800
Dulamia Cotton	After Automation	13	0.9150
Apex Weaving	After Automation	14	0.9610
Beximco Knitting	After Automation	15	1.0363
Padma Textile	After Automation	16	1.2294
TOTAL	Before Automation	60	
TOTAL	After Automation	76	

Source : Appendix Tables 6.41 to 6.48

It has been observed that the slope of this sector was positive before and after automation in both the cases. But according to this test results the ranking value of before automation of this sector was 60 and after automation it was 76. However, the summary output of Textile sector can be furnished in the following manner.

Summary Output of Textile Sector

N1	8
N2	8
R1	60
R2	76
n	136
k	16
df	15
K	0.4901
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the textile sector before and after automation representing 60 and 76 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.7 Pharmaceuticals and Chemicals Sector

In the following table (6.25) Pharmaceuticals and Chemicals sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.25
Pharmaceuticals and Chemicals Sector Risk Performance

Company Name	Automation	Rank	β
Pharma Aids	After Automation	1	0.0063
Therapeutics	After Automation	2	0.0536
Bangla Process	After Automation	3	0.0590
Bangla Process	Before Automation	4	0.2940
Pharma Aids	Before Automation	5	0.4938
Petro Synthetic	Before Automation	6	0.6741
Square Pharma	Before Automation	7	1.2524
Square Pharma	Before Automation	8	1.3398
Glaxo Wellcome	Before Automation	9	0.3143
Petro Synthetic	After Automation	10	0.4737
Therapeutics	After Automation	11	0.5873
Glaxo Wellcome	Before Automation	12	0.7062
ACI	Before Automation	13	0.8037
ACI	After Automation	14	0.8716
Beximco Pharma	After Automation	15	1.3236
Beximco Pharma	After Automation	16	1.9001
TOTAL	Before Automation	74	
TOTAL	After Automation	62	

Source : Appendix Tables 6.49 to 6.56

It has been observed that the slope of this sector was negative before automation and side by side it was positive after automation. But according to this test results the ranking value of before automation of this sector was 74 and after automation it was 62. However the summary output of Pharmaceuticals and Chemicals sector can be furnished in the following manner.

Summary Output of Pharmaceuticals and Chemicals Sector

N1	8
N2	8
R1	74
R2	62
n	136
k	16
df	15
K	0.4856
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the pharmaceuticals and chemical sector before and after automation representing 74 and 62 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.8 Miscellaneous Sector

In the following table (6.26) Miscellaneous sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.26
Miscellaneous Sector Risk Performance

Company Name	Automation	Rank	β
Texpick Industries	After Automation	1	-2.0942
Savar Refractories	After Automation	2	-0.1361
High Speed Ship	After Automation	3	-0.1047
Phoenix Leather	Before Automation	4	-0.0451
High Speed Ship	Before Automation	5	-0.0027
Phoenix Leather	After Automation	6	0.0000
Texpick Industries	Before Automation	7	0.1732
Bata Shoes	Before Automation	8	0.4781
Monno Ceramics	Before Automation	9	0.5617
Bata Shoes	After Automation	10	0.6209
GQ Ball Pen	Before Automation	11	0.6782
GQ Ball Pen	After Automation	12	1.3771
Savar Refractories	Before Automation	13	1.4301
BEXIMCO	After Automation	14	1.5287
Monno Ceramics	After Automation	15	1.5511
BEXIMCO	Before Automation	16	1.6463
TOTAL	Before Automation	73	
TOTAL	After Automation	63	

Source : Appendix Tables 6.57 to 6.64

It has been observed that the slope of this sector was negative before automation and side by side it was positive after automation. But according to this test results the ranking value of before automation of this sector was 73 and after automation it was 63. However, the summary output of Miscellaneous sector can be furnished in the following manner.

Summary Output of Miscellaneous Sector

N1	8
N2	8
R1	73
R2	63
N	136
K	16
Df	15
K	0.4838
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the miscellaneous sector before and after automation representing 73 and 63 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.13.9 Insurance Sector

In the following table (6.27) Insurance sector risk performance has been furnished according to their beta by using Kruskal-Wallis Test.

Table 6.27
Insurance Sector Risk Performance

Company Name	Automation	Rank	β
Reliance Insurance	After Automation	1	0.0693
Purabi General Insurance	After Automation	2	0.2890
Peoples Insurance	After Automation	3	0.2928
Peoples Insurance	Before Automation	4	0.3528
Purabi General Insurance	Before Automation	5	0.7005
Green Delta Insurance	After Automation	6	0.7296
National Life Insurance	After Automation	7	0.7563
Federal Insurance	After Automation	8	0.7855
Green Delta Insurance	Before Automation	9	0.8216
Karnaphuli Insurance	After Automation	10	0.8241
BGIC	After Automation	11	0.8264
Reliance Insurance	Before Automation	12	0.8787
Federal Insurance	Before Automation	13	0.8919
BGIC	Before Automation	14	0.9240
Karnaphuli Insurance	Before Automation	15	0.9301
National Life Insurance	Before Automation	16	1.3179
TOTAL	Before Automation	88	
TOTAL	After Automation	48	

Source : Appendix Tables 6.65 to 6.72

It has been observed that the slope of this sector was negative before and after automation. But according to this test results the ranking value of before automation of this sector was 88 and after automation it was 48. However, the summary output of Insurance sector can be furnished in the following manner.

Summary Output of Insurance Sector

N1	8
N2	8
R1	88
R2	48
n	136
k	16
df	15
K	0.5442
Level of significance	0.05
Decision	Accept the null hypothesis

According to Kruskal-Wallis Test, there was no significant change in the total value of the insurance sector before and after automation representing 88 and 48 respectively. This indicates to accept null hypothesis with a level of significance of 0.05.

6.14 Overall Kruskal-Wallis Test of Selected Companies

Risk and return are closely related to each other and these two components are guiding factors for undertaking any project by the entrepreneurs. There is a proverb where there is probability of high risk is the probability of high return and as such sometime the entrepreneurs are involved in highly risky investment projects. In our study, being influenced, by this proposition we made an inquiry on 71 listed companies regarding risk and return. We applied Kruskal Wallis Test and CAPM model and the results have been furnished in Table 6.28.

Table 6.28
Overall Kruskal-Wallis Test Result of Selected Companies

Company Name	Automation	Rank	β
2nd ICB M.F	After Automation	1	-3.2369
Texpick Industries	After Automation	2	-2.0942
BEMCO	After Automation	3	-1.4266
Rupali Bank	After Automation	4	-1.3489
Renwick Jaineswar & Co.	After Automation	5	-0.7013
Rahim Textile	After Automation	6	-0.6500
Modern Dyeing	After Automation	7	-0.4246
Quasem Textile	Before Automation	8	-0.3683
Saleh Carpet	After Automation	9	-0.3463
6th ICB M.F	After Automation	10	-0.3387
Northern Jute	After Automation	11	-0.3320
Metalex Corporation	After Automation	12	-0.3111
Eastern Bank	After Automation	13	-0.2690
Quasem Textile	After Automation	14	-0.1771

Company Name	Automation	Rank	β
Gemini Sea Food	After Automation	15	-0.1760
Savar Refractories	After Automation	16	-0.1361
Pubali Bank	After Automation	17	-0.1300
High Speed Ship	After Automation	18	-0.1047
Phoenix Leather	Before Automation	19	-0.0451
Mutual Jute	After Automation	20	-0.0375
Islam Jute	After Automation	21	-0.0292
Jute Spinners	Before Automation	22	-0.0175
Eastern Bank	Before Automation	23	-0.0124
Sonali Anash	After Automation	24	-0.0067
High Speed Ship	Before Automation	25	-0.0027
Beximco Textile	Before Automation	26	-0.0025
Ahad Jute	Before Automation	27	0.0000
Ahad Jute	After Automation	28	0.0000
Phoenix Leather	After Automation	29	0.0000
Sonali Anash	Before Automation	30	0.0007
Pharma Aids	After Automation	31	0.0063
Hill Plantation	Before Automation	32	0.0111
Bangladesh Plantation	Before Automation	33	0.0111
Islam Jute	Before Automation	34	0.0134
Mutual Jute	Before Automation	35	0.0164
Al-Baraka Islami Bank	After Automation	36	0.0254
Alpha Tobacco	After Automation	37	0.0429
Karim Pipe	After Automation	38	0.0455
Pubali Bank	Before Automation	39	0.0462
Rahim Textile	Before Automation	40	0.0515
Therapeutics	After Automation	41	0.0536
Bangla Process	After Automation	42	0.0590
Reliance Insurance	After Automation	43	0.0693
Dulamia Cotton	Before Automation	44	0.1386
Texpick Industries	Before Automation	45	0.1732
Uttara Bank	After Automation	46	0.1770
ICB	Before Automation	47	0.1782
National Tea	After Automation	48	0.1803
Al-Baraka Islami Bank	Before Automation	49	0.2048
Natioal Tea	Before Automation	50	0.2062
Bangas	After Automation	51	0.2488
Purabi General Insurance	After Automation	52	0.2890
Meghna Shrimp	After Automation	53	0.2895
Peoples Insurance	After Automation	54	0.2928
Bangla Process	Before Automation	55	0.2940
Rupali Bank	Before Automation	56	0.3064
Pharma Aids	Before Automation	57	0.3143
UCBL	Before Automation	58	0.3148

Company Name	Automation	Rank	β
Peoples Insurance	Before Automation	59	0.3528
Bangladesh Plantation	After Automation	60	0.3836
Bangladesh Lamps	Before Automation	61	0.3985
Uttara Bank	Before Automation	62	0.3989
Bangas	Before Automation	63	0.4386
Hill Plantation	After Automation	64	0.4473
Petro Synthetic	After Automation	65	0.4737
Bata Shoes	Before Automation	66	0.4781
Gemini Sea Food	Before Automation	67	0.4930
Square Pharma	Before Automation	68	0.4938
1st ICB M.F	Before Automation	69	0.4946
NBL	Before Automation	70	0.4956
Jute Spinners	After Automation	71	0.5198
Meghna Shrimp	Before Automation	72	0.5363
Modern Dyeing	Before Automation	73	0.5614
Monno Ceramics	Before Automation	74	0.5617
Square Pharma	After Automation	75	0.5873
Bata Shoes	After Automation	76	0.6209
UCBL	After Automation	77	0.6232
Padma Textile	Before Automation	78	0.6365
Glaxo Wellcome	Before Automation	79	0.6741
GQ Ball Pen	Before Automation	80	0.6782
Beximco Knitting	Before Automation	81	0.6877
Purabi General Insurance	Before Automation	82	0.7005
Petro Synthetic	Before Automation	83	0.7062
Alpha Tobacco	Before Automation	84	0.7115
Beximco Textile	After Automation	85	0.7254
Green Delta Insurance	After Automation	86	0.7296
National Life Insurance	After Automation	87	0.7563
Apex Weaving	Before Automation	88	0.7800
1st ICB M.F	After Automation	89	0.7820
Federal Insurance	After Automation	90	0.7855
Northern Jute	Before Automation	91	0.7987
Therapeutics	Before Automation	92	0.8037
ICB	After Automation	93	0.8137
3rd ICB M.F	After Automation	94	0.8151
Green Delta Insurance	Before Automation	95	0.8216
3rd ICB M.F	Before Automation	96	0.8218
Karnaphuli Insurance	After Automation	97	0.8241
BGIC	After Automation	98	0.8264
2nd ICB M.F	Before Automation	99	0.8301
5th ICB M.F	Before Automation	100	0.8525
Glaxo Wellcome	After Automation	101	0.8716
Reliance Insurance	Before Automation	102	0.8787

Company Name	Automation	Rank	β
BATBC	Before Automation	103	0.8807
IDLC	Before Automation	104	0.8904
Federal Insurance	Before Automation	105	0.8919
7th ICB M.F	Before Automation	106	0.9035
Dulamia Cotton	After Automation	107	0.9150
BGIC	Before Automation	108	0.9240
Karnaphuli Insurance	Before Automation	109	0.9301
Apex Weaving	After Automation	110	0.9610
BEMCO	Before Automation	111	0.9876
BATBC	After Automation	112	1.0125
Beximco Knitting	After Automation	113	1.0363
Renwick Jaineswar & Co.	Before Automation	114	1.0614
Saleh Carpet	Before Automation	115	1.0699
7th ICB M.F	After Automation	116	1.0875
5th ICB M.F	After Automation	117	1.0969
NBL	After Automation	118	1.1250
Metalex Corporation	Before Automation	119	1.1922
Quasem Drycells	After Automation	120	1.2095
Padma Textile	After Automation	121	1.2294
Singer Bangladesh	Before Automation	122	1.2422
ACI	Before Automation	123	1.2524
6th ICB M.F	Before Automation	124	1.2737
National Life Insurance	Before Automation	125	1.3179
ACI	After Automation	126	1.3236
Beximco Pharma	Before Automation	127	1.3398
IDLC	After Automation	128	1.3606
GQ Ball Pen	After Automation	129	1.3771
4th ICB M.F	Before Automation	130	1.3816
Savar Refractories	Before Automation	131	1.4301
4th ICB M.F	After Automation	132	1.4553
Eastern Cables	After Automation	133	1.4820
BEXIMCO	After Automation	134	1.5287
Eastern Cables	Before Automation	135	1.5350
Monno Ceramics	After Automation	136	1.5511
Singer Bangladesh	After Automation	137	1.5728
BEXIMCO	Before Automation	138	1.6463
Karim Pipe	Before Automation	139	1.8322
Quasem Drycells	Before Automation	140	1.8862
Beximco Pharma	After Automation	141	1.9001
Bangladesh Lamps	After Automation	142	2.3792
TOTAL	Before Automation	5516	
TOTAL	After Automation	4637	

Source : Appendix Tables From 6.2 to 6.72

As we know automation was applied with a view to improving overall situation of the DSE i.e., the objective of the automation was to reduce the risk and improve the rate of return. But this table presents different pictures because the overall risk have been increased after the introduction of automation. The table shows that out of 25 companies, 20 became highly risky after the automation was over. Again, if we categorically want to mention the degree of risk of the listed companies, then we can say that BEMCO position was 111 from the point of view of risk, which means it was not at all risky, but its position has become 3rd (-1.4266) after automation and that means it has become risky after automation. Similarly the position of 2nd ICB Mutual Fund was 2nd whose rank was 99 in terms of risk before automation. But it has become highly risky after automation, which has occupied number 1 position showing high Beta (-3.2369). Similarly the position of Rupali Bank and Texpick have been dramatically changed because their vulnerability as a risky business establishment has become higher after automation. However, the final summary output of 9 sectors, which represent 71 companies, is shown in the following manner.

Final Summary Output

N1	71
N2	71
R1	5517
R2	4636
N	10153
K	71
Df	70
K	0.0816
Level of significance	0.05
Decision	Accept the null hypothesis

The Kurskal Wallis Test demonstrates that there was no significant difference between the mean of the two populations. In other wards, automation did not make any significant impact on the risk return relationship on stock or investors' confidence. The same test when applied to different sectors, however shows the following results.

Sectors	Test results
Bank	Accept the null hypothesis
Investment	Accept the null hypothesis
Engineering	Accept the null hypothesis
Food and Allied Products	Accept the null hypothesis
Jute	Accept the null hypothesis
Textile	Accept the null hypothesis
Pharmaceutical and Chemicals	Accept the null hypothesis
Miscellaneous	Accept the null hypothesis
Insurance	Accept the null hypothesis

So, there is no significant difference between the risk and return of different sectors before and after automation in the DSE. Furthermore, the overall analysis also shows that the test results also accept the null hypothesis. So, the automation system did not make any significant impact on risk return relationship of the stocks of DSE.

6.15 Recapitulation of the Chapter

Risk return behavior is one of the components for evaluating the perfection of stock market. In this chapter we have discussed in detail the theoretical background of risk return relationship by applying CAPM model and Kruskal Wallis Test.

The study was based on nine important sectors namely Banking, Investment, Engineering, Food and Allied Products, Jute, Textile, Pharmaceuticals, Insurance and Miscellaneous. The data and information have been graphically presented in this chapter and finally it has been observed from the analysis that automation did not make insignificant impact on the risk return relationship on the stock market of Bangladesh specially in the Dhaka Stock Exchange.

In the next chapter efforts are made to analyze the dividend payment practices and its impact on security price in the DSE.

CHAPTER SEVEN

Dividend Payment Practices and Its Impact on Security Price

7.1 Introduction

One of the major objectives of the present work is to analyze and evaluate the dividend payment performance of listed companies in the DSE. Present chapter is therefore, designed to look into the detailed dividend payment practice and its impact on the security prices of the listed companies of the DSE. But prior to that we would like to have a glimpse over theoretical background in connection with dividend payment practices followed by different companies of the world. Dividend policy constitutes a major financial decision for corporate business undertaking. Firms are obligatory to take a judgment as to whether they should distribute the profits to the shareholders or plough them back into the business. The choice would obviously hinge on the effect of the decision on shareholders' wealth. Regardless of conflicting options in available literature on the impact of dividend on the valuation of firms wealth of shareholders, the broad consensus and evidence seems to be in the favor of relevance of dividends¹.

Up dated information is of paramount importance for decision making in corporate finance. Usually investors collect information at the time of taking investment decisions. This is the common phenomenon about the management - Investor relationship. There had been many studies and researches about the signaling devices that management uses to bring information to the market. Among several considerable issues, dividend attracts the focus of researcher and investors too. Dividend policy or dividend payout is very much important matter in connection to the finance. Theoretical devices state that dividend has no effect on share prices, on the other hand, dividend payment has a sharp impact on share prices as well as shareholders' wealth.

Several researchers worked on different capital markets of the world, but there are hardly a few empirical studies in connection with dividend announcement effect on security price in the Dhaka stock Exchange. Due to multifarious factors, share prices of a company changes. Transaction cost, personal tax, corporate tax, announcement of dividend on share price movement are the factors through which share prices may change. Effect of dividend announcement on security prices has great impact on investors in connection with holding of securities. The investors usually collect inside information about the firms' future prospects. The

¹ M.H. Miller and F. Modigliani, "Dividend Policy, Growth and Valuation of Shares", *Journal of Business*, pp. 411-33.

investors can use various signaling devices to convey this information to the public. Earning and dividend are very much important in connection with signaling devices. The information about dividend, indicates that managers use cash dividend announcement to signal changes in their expectation about future prospects of the firm. There are many signaling devices to convey information. It is necessary to state that the managers should not provide dividend with misleading information, which may alert the investors about the actual position of the company.

7.2 Dividend Payout (D/P) Ratio

The dominant aspect of the dividend policy for a firm is its dividend payout (D/P) ratio, that is, the percentage share of its net earnings after taxes distributed among shareholders as dividend payment. On the other hand, the dividend policy contains the decision to payout earnings or to retain them (fully or partially) for reinvestment in the firm itself for expansion or major replacement decision.

It is possible to develop retained earnings as a source of financing investment opportunities in a firm. When a firm is unable to raise external sources of funds, at that time retained earnings serve as an internal sources of fund to meet up the need of the firm; and that is why retention of retained earnings is important. It is also recognized that the decision of skipping dividends or paying fewer dividends might also have an adverse effect on the market price of the share of the corporate firm.²

The most common arguments, which are put forward by the authorities, are to increase the value of its shares by increasing the payout ratio. It is clear that the dividend policy of the firm affects both the shareholders' wealth and the long-term growth of the firm as well. Brigham³ notes that the optimum dividend policy should strike a balance between current dividends and future growth, which maximizes the price of the firm's shares. These objectives are not mutually exclusive, but interrelated.

7.3 Stable Dividend Policy

Stable dividend policy refers to the consistency or variability in dividend payments. The importance of the policy is that there is resistance on the part of corporate firms to reduce dividends below the amount paid in previous year. In that case, firms are cautious not to raise dividend per share (DPS). This cautions creep up of dividend per share results in a stable dividend per share pattern during periods of fluctuating earnings per share and a rising step-function pattern of dividends per share during periods of increasing earnings per share.⁴ A stable and sound dividend policy is adopted by the firm due to various reasons, like (a) desire for

² F.M. Black and M. Scholes, "The Effect of Dividend Yield and Dividend Policy on Common Stock Prices and Returns", *Journal of Financial Economics*, 1974, p. 19.

³ E. F. Brigham, *Readings in Managerial Finance* (New York : Rinehart and Winston, 1971), p. 736.

⁴ Joy O. M., *Introduction to Financial Management* (Illinois : Richard D. Irwin., 1971), p. 125.

7.4.2 Bird-in-the Hand Theory

The speculated dividend, which is not at all received by the investors rather imaginary basis is the foundation of this bird in the hand theory. In MM's dividend irrelevance theory it was assumed that dividend policy does not affect investors' required rate of return on equity k_s . This assumption has been subjected to face strong controversy in academic fields. Myron Gordon and John Lintner⁸ state that k_s increases as the dividend pay out is reduced, because investors are less certain of receiving the capital gains which should result from retained earnings than that they are of receiving dividend payments. Gordon and Lintner say that in effect that investors should value a dollar of expected dividends more highly than a dollar of expected capital gains because the dividend yield component, $D_1/P_0 + g$ is less risky than the g component in the total expected return equation, $k_s = D_1/P_0 + g$.

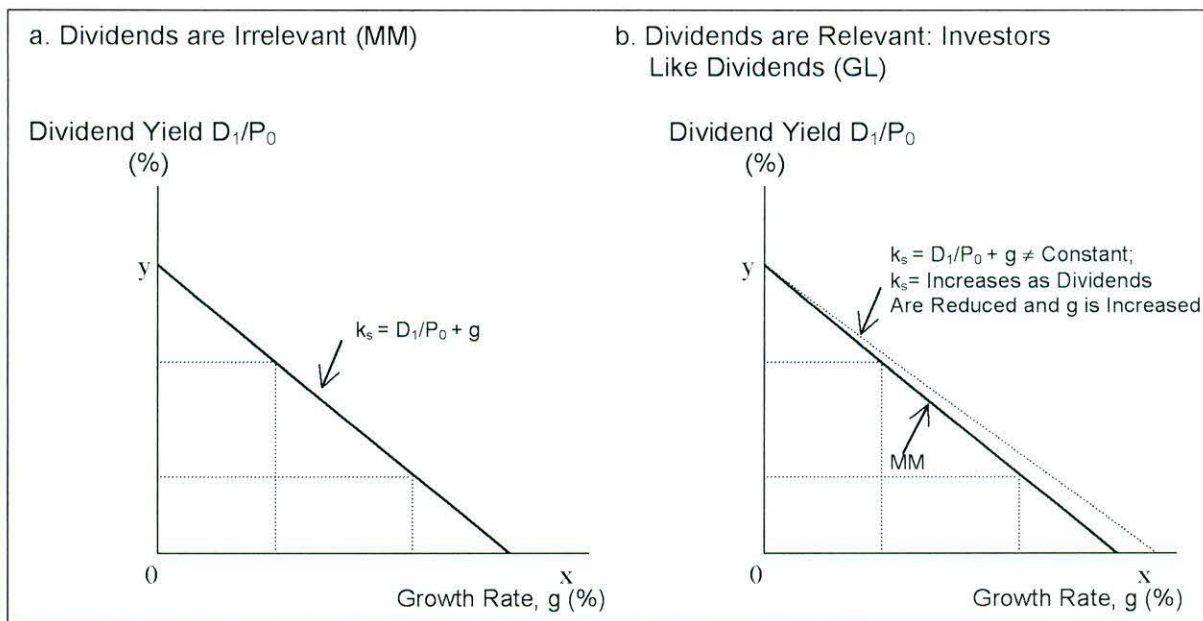
MM refused the agreement and say that k_s is independent of dividend policy, which implies that investors are indifferent between D_1/P_0 and g , and therefore, between dividends and capital gains. MM termed Gordon - Lintner argument the bird-in-the-hand fallacy because, in MM's view, most investors are interested to reinvest their dividends in the stock of the same or similar firms anyway.

7.5 Graphical View of MM and Gordon - Lintner

MM strongly say that dividend policy becomes irrelevant and according to them, there is no optimal dividend policy -- one dividend policy is better than any other policies. Gordon and Lintner reject this view by arguing that dividends are less risky than capital gains. Therefore, a firm should provide with a high dividend payout ratio and also offer a high dividend yield with a view to minimizing its cost of capital. MM are of the view that Gordon's and Lintner's theory is the bird-in-the-hand fallacy. However, this proposition has been graphically presented in Figure 7.1.

⁸ Myron J. Gordon, "Optimal Investment and Financing Policy", *Journal of Finance*, May 1963, pp. 264-272 and John Lintner, "Dividends, Earnings, Leverage, Stock Prices and the Supply of Capital to Corporations", *Review of Economics and Statistics*, August 1963, pp. 243-269.

Figure 7.1
Graphical Presentation of Dividend Relevant and Irrelevant Concept



Source : J. Fred Weston and Eugene F. Brigham, "Essentials of Managerial Finance", 9th Edition, The Dryden Press, 1990. p.714.

The Figure 7.1 shows the MM relationship in addition it also shows as the dashed line, the Gordon-Lintner view. Gordon-Lintner argued that a dividend "in the hand" is less risky than a possible capital gain "in the bush", so investors require a larger total return if that return has a larger capital gains component than dividend yield. In other words, Gordon-Lintner say that more than 1 percent of additional growth is required to offset a 1 percent reduction in dividend yield. Thus, the required rate of return, or cost of equity, would be the same if the firm paid all of its earnings out in dividends, but as it lowered the payout and hence the dividend portion of the total return, the cost of equity increase.⁹

7.6 Dividend Payment Performance of Listed Companies in the DSE

An investor can expect sound dividend from his investment. In the DSE there are 231 listed companies in 2000. There has been a rising trend of the listed companies in the DSE over the years. The number rose from 44 to 231 between 1983 and 2000. The following Table 7.1 can give a clear picture regarding the dividend payment over the years in the DSE.

⁹ Myron J. Gordon, "Optimal Investment and Financing Policy", , pp. 243-269.

Table 7.1
Dividend Payment Performance of Listed Companies in the DSE

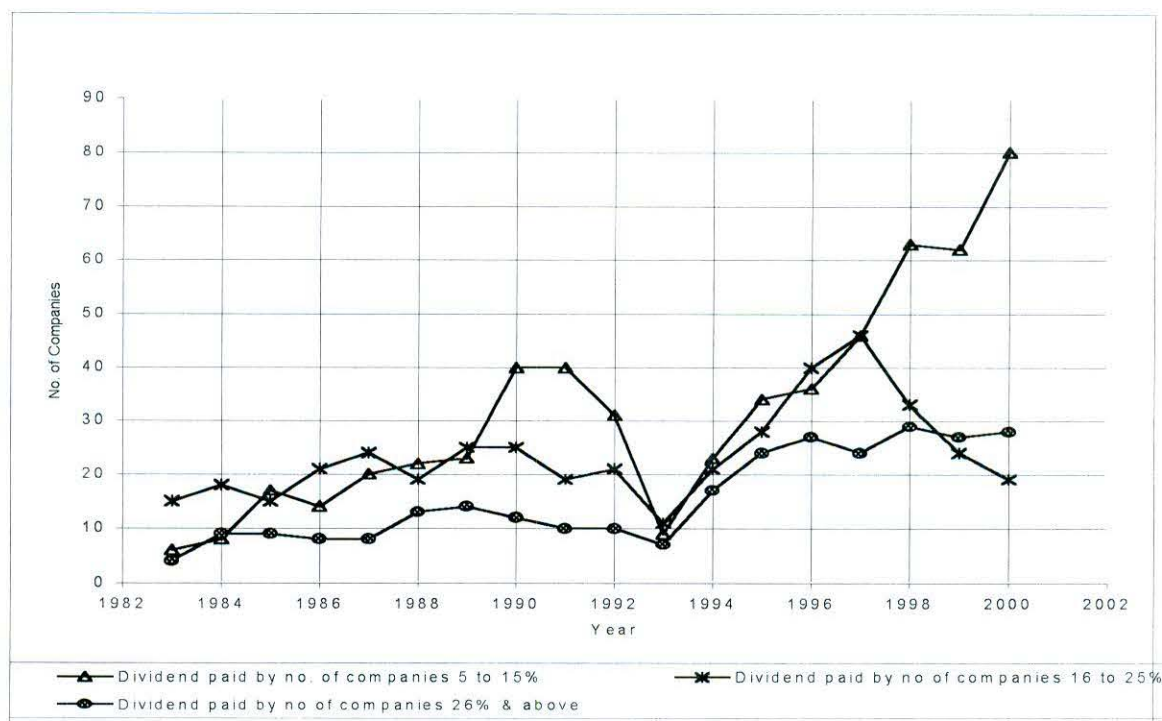
Year	Total Number of Listed Companies	Dividend Paid by Number of Companies	% of Total Listed Companies Paying Dividend	Dividend Paid by Number of Companies 5 to 15%	Dividend Paid by Number of Companies 16 to 25%	Dividend Paid by Number of Companies 26% and above
1983	44	25	56.82	6	15	4
1984	58	35	60.34	8	18	9
1985	72	41	56.94	17	15	9
1986	82	43	52.43	14	21	8
1987	92	52	56.52	20	24	8
1988	111	54	48.65	22	19	13
1989	116	62	53.45	23	25	14
1990	130	77	59.23	40	25	12
1991	133	69	51.88	40	19	10
1992	142	62	43.66	31	21	10
1993	147	27	18.37	9	11	7
1994	163	61	37.42	23	21	17
1995	190	86	45.26	34	28	24
1996	194	103	53.10	36	40	27
1997	211	116	54.98	46	46	24
1998	217	125	57.60	63	33	29
1999	220	113	51.36	62	24	27
2000	231	127	54.98	80	19	28
Average		71	50.70	31.89	23.56	15.56

Source : Compiled from the various issues of *Stock Exchange Review* and Fact Book, DSE.

From the table it appears to that the total number of listed companies in the DSE were 231 in 2000 and out of those 127 companies were paying dividend and the rest could not at all paying dividend i.e., 50.70 % companies were paying dividend regularly. It is very interesting to note that out of 50.70% companies, i.e., out of 71 companies only 31.89 companies (on the average) are paying dividend from 5 to 15%. This indicates that a major portion of listed companies in the DSE are paying 5 to 15% dividend among the share holders, which is not at all a good sign due to its poor dividend payment ratio for the DSE. If we compare the dividend payment of the listed companies with those of savings instruments which are almost risk free investment are usually paying 9.23% interest on average to the investors (See Appendix Table 4.2). It can therefore, be said that the general investors may be inclined to those sectors indicated earlier and hence, the fund may be diverted to those sectors, where there is no risk, and which is an alarming signal for the DSE.

The table further indicates that out of 71 companies, 15.56 companies pay more or less sound dividend i.e., around 26% and above. This table indicates that out of 71 companies only 15.56 companies are paying more or less handsome dividend. So, it can be said that most of the listed companies of the DSE, have failed to give sound dividend to its large number of shareholders.

Figure 7.2
Dividend Payment Performance of Listed Companies



Source : Table 7.1

The figure has presented the dividend payment performance of listed companies in the DSE beginning from 1983 to 2000. The figure shows that the dividend paid by the company ranging from 5 to 15% is the highest. On the other hand, the highest dividend paid by the companies ranging from 26% and above is the lowest number of companies.

7.7 Sector-wise Dividend Payment Analysis of Listed Securities in the DSE

The total number of listed securities in the DSE were 231 in 2000, which were categorized under 12 industrial sectors. The important sectors are Banking, Investment, Engineering, Food and Allied Products, Fuel and Power, Jute, Textile, Pharmaceuticals and chemicals, Paper and printing, Services and real Estate Sector, Insurance and miscellaneous. The following tables (from 7.2 to 7.13) show the sector-wise dividend payments starting from 1994-95 to 1998-99 and the average dividend payment over the 5 years.

7.7.1 Banking Sector

The Table 7.2 shows the dividend declared by the Banking Sectors' listed companies in the DSE. It is clear from the table that there are 6 listed companies in this sector paying dividend regularly starting from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that I.D.L.C. paid the highest dividend i.e., 30%, which is followed by United Leasing company, Islami Bank, and National Bank which are paying 17.8%, 14.2% and 8% dividend respectively.

Table 7.2
Dividend Declared by Banking Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	I. D. L. C	25	30	35	35	25	30
2	United Leasing	25	24	22	18	-	17.8
3	Islami Bank	21	20	-	15	15	14.2
4	National Bank	-	17.5	10	12.5	-	8
5	Uttara Finance and Investment	15	10	-	-	-	5
6	AB Bank	10	-	-	-	-	2

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.2 Investment Sector

The Table 7.3 shows the dividend declared by the Investment Sectors' listed securities in the DSE. It is clear from the table that there are 9 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it up to 1998-99, the average dividend column indicates that 1st ICB mutual fund paid the highest dividend on the average i.e., 59% which is followed by 4th ICB M. F., 2nd ICB M. F., 3rd ICB M. F and 5th ICB M. F which are paying 39.8%, 36.8% and 30% dividend respectively.

Table 7.3
Dividend Declared by Investment Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	1st ICB M. F.	70	70	60	50	45	59
2	4th ICB M. F.	32	45	41	41	40	39.8
3	2nd ICB M. F.	30	45	42	40	27	36.8
4	3rd ICB M. F.	35	38	28	27	22	30
5	5th ICB M. F.	22	35	30	28	25	28
6	6th ICB M. F.	18	24	20	18	16	19.2
7	7th ICB M. F.	14	21	18	-	-	10.6
8	I. C. B.	7	11	10	7.5	7	8.5
9	8th ICB M. F.	12	18	-	-	-	6

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.3 Engineering Sector

The Table 7.4 shows the dividend declared by the engineering sectors' listed securities in the DSE. It is clear from the table that there are 15 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it up to 1998-99, the average dividend column indicates that Singer Bangladesh paid the highest dividend on the average i.e., 69.4%. It is followed by Atlas Bangladesh and Monno Jutex, which are paying 65.4% and 60% dividend respectively.

Table 7.4
Dividend Declared by Engineering Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Singer Bangladesh	100	60	75	60	52	69.4
2	Atlas Bangladesh	50	150	50	36	41	65.4
3	Monno Jutex	75	75	50	50	50	60
4	Bangladesh Lamps	30	15	40	15	30	26
5	National Tubes	30	12.5	15	25	25	21.5
6	Aziz Pipes	15	15	30	20	27	21.4
7	Quasem Drycells	20	15	25	20	17.5	19.5
8	Monno Stafflers	20	12.5	20	20	20	18.5
9	Karim Pipe	-	0	10	15	50	15
10	Bd. Thai Aluminum	10	18	17	15	13.5	14.7
11	Eastern Cables	12	0	10	15	15	10.4
12	Aftab Automobiles	16	12	-	-	20	9.6
13	Olympic Inds.	-	20	-	20	-	8
14	Anwar Galvanizing	15	15	-	-	-	6
15	Kay and Que (Bd.)	-	12.5	-	-	-	2.5

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.4 Food and Allied Products Sector

The Table 7.5 shows the dividend declared by the food and allied product sectors' listed securities in the DSE. It is clear from the table that there are 18 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that BATBC paid the highest dividend on the average i.e., 70%. It is followed by Tobacco and BLTC, which are paying 37.55% and 34% dividend respectively.

Table 7.5
Dividend Declared by Food and Allied Products Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	BATBC	90	80	60	60	60	70
2	Tobacco	50.25	50	20	35	32.5	37.55
3	BLTC	45	42.5	25	27.5	30	34
4	Apex Foods	20	40	-	25	20	21
5	Beximco Fisheries	20	20	20	5	-	13
6	National Tea	10	30	14	10	-	12.8
7	Bangas	15	-	17.5	17	12.5	12.4
8	Meghna Shrimp	10	18	18	10	-	11.2
9	AMCL (Pran)	20	20	15	-	-	11
10	Bengal Biscuits	-	0	20	20	-	8
11	Meghna Vegetable Oil	15	20	-	-	-	7
12	Tripti Industries	-	17	17	-	-	6.8
13	Chittagong Vegetable Oil	-	-	10	10	12	6.4
14	Modern Industries	-	0	7	12.5	-	3.9
15	Hill Plantation	15	-	-	-	-	3
16	Raspit Inc.	-	0	10	-	-	2
17	Rahima Food Corporation	5	-	-	-	-	1
18	Mona Food	5	-	-	-	-	1

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.5 Fuel and Power Sector

The Table 7.6 shows the dividend declared by the Fuel and Power Sectors' listed securities in the DSE. It is clear from the table that there are 3 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that BOC Bangladesh paid the highest dividend on the average i.e., 39.6%. It is followed by Padma Oil and Eastern Lubricant which are paying 30% and 27% dividend respectively.

Table 7.6
Dividend Declared by Fuel and Power Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	BOC Bangladesh	38	30	30	40	60	39.6
2	Padma Oil	45	30	20	30	25	30
3	Eastern Lubricant	35	35	35	30	-	27

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.6 Jute Sector

The Table 7.7 shows the dividend declared by the Jute Sectors' listed securities in the DSE. It is clear from the table that there are 4 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that Mutual Jute paid the highest dividend on the average i.e., 15.8%. The next highest dividend paying company is Jute Spinners which is paying 11% dividend.

Table 7.7
Dividend Declared by Jute Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Mutual Jute	15	15	17	17	15	15.8
2	Jute Spinners	15	15	15	10	-	11
3	Islam Jute	-	0	-	15	15	6
4	Northern Jute	-	0	10	-	-	2

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.7 Textile Sector

The Table 7.8 shows the dividend declared by the Textile Sectors' listed securities in the DSE. It is clear from the table that there are 29 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that Padma Textile Bangladesh paid the highest dividend on the average i.e., 23%. It is followed by Stylecraft and Ashraf Textile which are paying 19.5% and 16% dividend respectively.

Table 7.8
Dividend Declared by Textile Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Padma Textile	25	35	20	20	15	23
2	Style craft	20	20	20	20	17.5	19.5
3	Ashraf Textile	-	15	20	15	30	16
4	Apex Spinning	12.5	12.5	10	10	10	11
5	Beximco Denims	30	20	-	-	-	10
6	B. D. Dyeing and Finishing	-	15	17	17	-	9.8
7	Saiham Textile	10	12.5	10	10	-	8.5
8	Tallu Spinning	-	0	10	15	12.5	7.5
9	Delta Millers	-	10	15	12.5	-	7.5
10	Mithun Knitting	12	0	12	12	-	7.2
11	Beximco knitting	20	15	-	-	-	7
12	Tamijuddin Textile	-	6 (I)	12	12	10	6.8
13	Sonargaon Textiles	8	12	12.5	-	-	6.5
14	Dulamia Cotton	-	10	10	10	-	6
15	Mita Textile	5	-	15	10	-	6
16	BD. Zipper	11	11	-	-	-	4.4
17	Al-Haj-Textile	10	10	-	-	-	4
18	Eagle Star Textile	-	0	10	10	-	4
19	Desh Garments	-	10	10	-	-	4
20	Rahim Textile	-	5	5	7.5	-	3.5
21	M. Hossain Garments	-	0	15	-	-	3
22	H. R. Textile	-	12.5	-	-	-	2.5
23	Chic Tex	5	6	-	-	-	2.2
24	Quasem Silk	-	0	10	-	-	2
25	Sajib Knitwear	5	5	-	-	-	2
26	Anlima Yearn and Dyeing	10	-	-	-	-	2
27	Beximco Textiles	5	-	-	-	-	1
28	Prime Textile	-	5	-	-	-	1
29	CMC Kamal Textile	5	-	-	-	-	1

Note : 'I' means interim dividend.

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.8 Pharmaceuticals and Chemicals Sector

The Table 7.9 shows the dividend declared by the Pharmaceuticals and Chemicals Sectors; listed securities in the DSE. There are 20 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that Beximco Pharma paid the highest dividend on the average i.e., 33.25%. The second and third positions are held by Square Pharmaceuticals and Reckitt and Colman, which are paying 28.9% and 27.5% dividend respectively. Other companies are also following this dividend practice.

Table 7.9
Dividend Declared by Pharmaceuticals and Chemicals Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Beximco Pharma	30	30	40	40	26.25	33.25
2	Square Pharmaceuticals	45	35	32.5	32	-	28.9
3	Reckitt and Colman	30	27.5	25	25	30	27.5
4	ACI	25	30	35	-	35	25
5	Beximco Infusions	25	25	20	20	20	22
6	National Polymer	-	20	40	40	10	22
7	Box. Synthetics	25	20	20	20	15	20
8	Wata Chemicals	10	25	25	20	17	19.4
9	Glaxo Wellcome	30	27.5	25	-	10	18.5
10	Renata	25	0	20	15	25	17
11	Libra Pharmaceuticals	22	20	20	20	-	16.4
12	B.C.I.L	10	8	15	15	18	13.2
13	The Ibn Sina	17	15	12	11.5	4	11.9
14	Ambee Pharma	25	15	-	-	-	8
15	Pharmaco International	-	0	11	11	15	7.4
16	Orion Infusion	-	-	17	15	-	6.4
17	Imam Button	5	10	-	-	-	3
18	Kohinoor Chemicals	-	-	-	-	10 (I)	2
19	Perfume Chemicals	-	7.50 (I)	-	-	-	1.5
20	Petro Synthetic	-	-	-	-	-	0

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.9 Paper and Printing Sector

The Table 7.10 shows the dividend declared by the Paper and Printing Sectors' listed securities in the DSE. It shows that there are only 2 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates that Maq paper paid the highest dividend on average i.e., 11.2 %. Sonali Paper is in the second position.

Table 7.10
Dividend Declared by Paper and Printing Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Maq Paper	10	16	15	15	-	11.2
2	Sonali Paper	-	-	15	5	-	4

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.10 Services and Real Estate Sector

The Table 7.11 shows the dividend declared by the Services and Real Estate Sectors' listed securities in the DSE. It exhibits that there are 4 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it upto 1998-99, the average dividend column indicates

that Bd. Hotels paid the highest dividend on average i.e., 28%. That is followed by Shine Pukur Holdings and Eastern Housing, which are paying 17% and 12.4% dividend respectively.

Table 7.11
Dividend Declared by Services and Real Estate Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Bd. Hotels	30	30	30	25	25	28
2	Shine Pukur Holdings	10	10	25	25	15	17
3	Eastern Housing	16	16	15	15	-	12.4
4	Bd. Services	10	10	-	-	-	4

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.11 Miscellaneous Sector

The Table 7.12 shows the dividend declared by the Miscellaneous Sector' listed securities in the DSE. There are 20 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market, and held it upto 1998-99, the average dividend column indicates that Bata shoe paid the highest dividend on average i.e., 87.8%. That is followed by GQ Ball Pen and Monno Ceramic which are paying 41% and 31% dividend respectively.

Table 7.12
Dividend Declared by Miscellaneous Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Bata Shoe	80	90	220	30	19	87.8
2	GQ Ball Pen	35	30	55	45	40	41
3	Monno Ceramic	35	30	30	30	30	31
4	Apex Tannery	25	25	30	30	25	27
5	Beximco	25	25	25	20	25	24
6	Chittagong Cement	40	30	20	16	10	23.2
7	Usmania Glass	15	15	25	25	35	23
8	Apex Footwear	-	25	25	20	-	14
9	Aramit	23	20	15	-	-	11.6
10	Lexco	10	18	22	-	-	10
11	Confidence Cement	25	10	5	5	-	9
12	The Engineers	10	10	10	-	8	7.6
13	Meghna Cement	10	10	-	-	-	4
14	Bengal Fine Ceramic	10	10	-	-	-	4
15	Standard Ceramic	10	10	-	-	-	4
16	Mark BD. Shilpa and Engine.	-	10	-	-	-	2
17	Rose Heaven Ball Pen	10	-	-	-	-	2
18	Himadri	7	-	-	-	-	1.4
19	Paragon Leather and Footwear	-	10 (I)	-	-	-	2
20	Fu-Wang Ceramic	5	-	-	-	-	1

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.7.12 Insurance Sector

The Table 7.13 shows the dividend declared by the Insurance Sectors' listed securities in the DSE. There are 18 listed securities in this sector and those are paying dividend regularly from 1994-95 to 1998-99. If an investor purchased the share in 1994 from the primary market and held it up to 1998-99, the average dividend column indicates that Green Delta Insurance paid the highest dividend on the average i.e., 23.6%. It is followed by Bangladesh General Insurance and Phoenix Insurance, which are paying 22.6% and 20.2% dividend respectively.

Table 7.13
Dividend Declared by Insurance Sector

Rank	Names of Companies	Dividend Per Share (%)					Average
		1998-99	1997-98	1996-97	1995-96	1994-95	
1	Green Delta Insurance	35	25	22	18	18	23.6
2	Bangladesh General Insurance	25	24	23	20	21	22.6
3	Phoenix Insurance	30	30	21	20	-	20.2
4	Peoples Insurance	21	20.5	20	20	18	19.9
5	United Insurance	22	20	20	17	15	18.8
6	Pragati Insurance	35	30	25	-	-	18
7	Reliance Insurance	30	30	20	-	-	16
8	Eastern Insurance	20	20	20	15	-	15
9	Delta Life Insurance	35	26	12	-	-	14.6
10	Rupali Insurance	25	25	20	-	-	14
11	Eastland Insurance	18	18	16	8	-	12
12	Karnaphuli Insurance	18	20	15	-	-	10.6
13	Janata Insurance	10	10	16	15	-	10.2
14	Central Insurance	20	18	12	-	-	10
15	National Life Insurance	20	25	-	-	-	9
16	Federal Insurance	15	-	15	-	-	6
17	Purabi Gen. Insurance	5	-	-	-	-	1
18	Sandhani Life Insurance	5	-	-	-	-	1

Source: Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

7.8 Analysis of Impact on Security Price to Dividend Announcement

According to the Efficient Markets Hypothesis (EMH) an efficient capital market is one in which security prices adjust rapidly to the arrival of new information, and therefore, the current prices of securities reflect all information about the security. Three sets are implied of assumptions in an efficient capital market: (a) an efficient market requires that a large number of competing profit-maximizing participants analyze and value securities, each independently of the others; (b) new information regarding securities come to the market in a random fashion, and the timing of one announcement is generally independent of others; and (c) the competing investors attempt to adjust security prices rapidly to reflect the effect of new information. Although the price adjustment may be imperfect, it is unbiased. This means that sometimes the market will over-adjust or under-

adjust, but an investor cannot predict which will occur at any given time. If we believe that efficient market hypothesis is a valid proposition, then the current asset prices should reflect all generally available information. The efficient market hypothesis implies that since market prices reflect all available information, including the information about the future, the only difference between the prices at P_t and P_{t+1} are events that we cannot possibly predict, i.e. a random event. Hence, in an efficient market, stock prices can be statistically tested for random walk hypothesis.

Recently, the efficient markets hypothesis and the notions connected with it have provided the basis for a great deal of research in financial economics. A voluminous literature has developed supporting this hypothesis. Briefly, the hypothesis claims that asset prices are rationally related to economic realities and always incorporate all the information available to the market. This implies the absence of exploitable excess profit opportunities. The early survey of Fama¹⁰ concluded that the stock market was efficient. Dividend policy has long been an issue of interest in the financial literature. The important aspect of dividend policy is to determine the earnings to be distributed to the shareholders and the amount to be retained in the firm. Dividend announcement conveys information about the organization to the investors. **The study tries to reveal, whether investors consider dividend announcement when evaluating their investment decisions. Specifically, this study focuses on identifying how security prices react to the dividend announcement in the Dhaka Stock Exchange Ltd.** However, in the past a study was conducted at very limited scale to find out the effect of dividend announcement on the prices of some selected securities in Dhaka Stock Exchange Limited.

7.9 Population and Sample Selection

Total number of securities enlisted on Dhaka Stock Exchange Ltd. on December 31, 2000 was 241, including 219 equity shares, 1 ICB unit Certificate, 10 Mutual funds, and 11 debentures. There were 12 industrial sectors in total.

This study was done by identifying actively traded securities in DSE Ltd. which included only those companies which declared dividend regularly (at least once in a year within five years) for the last five years starting from 1995-96 to 1999-2000. So, 50 securities were randomly selected within this category, which represent 12 industrial sectors (See Appendix Table 7.1).

7.10 Date of Announcement and Dividend Paid by the Listed Companies

Since the announcement date of the dividend of securities traded in the DSE was not readily available, the study recognized the dividend announcement date as the day before the announcement of AGM of any company first appearing in the daily Quotation of DSE Limited. The announcement date including dividend payment of the selected securities can be furnished in the Table 7.14.

¹⁰ E F Fama, "The Behaviour of Stock Market Prices", *Journal of Business*, 1965, p. 38.

Table 7.14
Date of Announcement and Dividend

SI.No.	Code No.	Company	Dividend (Tk.)	FV/ML	Announcement Date
1	702	Green Delta Insurance	35	100/10	18.7.99
2	705	Eastern Insurance	20	100/20	20.7.99
3	712	National Life Insurance	22	100/50	31.7.99
4	709	Central Life Insurance	15	100/20	9.9.99
5	708	Esland Insurance	16	100/20	22.8.99
6	451	Ambee Pharma	1	10/50	09.9.99
7	711	Rupali Insurance	15	100/20	14.9.99
8	710	Karnofuli Insurance	15	100/20	27.9.99
9	716	Delta Life Insurance	36	100/5	30.9.99
10	602	Aramit	2.5	10/50	30.10.99
11	152	1st ICB Mutual Fund	100	100/5	04.11.99
12	153	2nd ICB Mutual Fund	32	100/5	04.11.99
13	154	3rd ICB Mutual Fund	38	100/5	04.11.99
14	155	4th ICB Mutual Fund	35	100/10	04.11.99
15	156	5th ICB Mutual Fund	20	100/10	04.11.99
16	157	6th ICB Mutual Fund	15	100/10	04.11.99
17	158	7th ICB Mutual Fund	13	100/50	04.11.99
18	159	8th ICB Mutual Fund	12	100/50	04.11.99
19	151	ICB	7	100/5	04.11.99
20	408	Style Craft	22.5	100/50	11.11.99
21	209	Monno Staffler	10	100/5	29.11.99
22	415	Desh Garments	7.5	100/10	2.12.99
23	713	Federal Insurance	12	100/50	4.12.99
24	428	Mithun Knitting	12	100/20	3.12.99
25	277	AMCL (Pran)	20	100/10	9.12.99
26	471	Libra Pharma	15	100/20	9.12.99
27	620	Eastern Housing	12	100/20	23.12.99
28	412	Saiham Textile	10	100/5	23.12.99
29	278	Dhaka Fisheries	5	100/50	23.12.99
30	413	Modern Dying	5	100/5	23.12.99
31	275	Meghna Shrimp	12	100/20	26.12.99
32	609	The Engineers	10	100/5	25.12.99
33	356	Mutual Jute	15	100/5	26.12.99
34	282	Gulf Food	10	100/50	28.12.99
35	706	Janata Insurance	25	100/20	29.12.99
36	715	Purobi General Insurance	5	100/50	30.01.2000

Sl.No.	Code No.	Company	Dividend (Tk.)	FV/ML	Announcement Date
37	718	Sandani Life Insurance	10	100/50	31.01.2000
38	303	Estarn Lubricant	2.5	10/50	11.3.2000
39	464	The Ibsina	15	100/10	23.3.2000
40	608	Usmania Glass	10	100/5	14.4.2000
41	506	Paper Processing	5	100/10	30.4.2000
42	454	Glaxo Welcome	3.25	10/50	7.5.2000
43	113	United Leasing	27	100/20	18.5.2000
44	703	United Insurance	22	100/10	22.5.2000
45	433	Beximco Denims	10	100/50	17.6.2000
46	468	Beximco Infusion	15	100/10	17.6.2000
47	422	Beximco Knitting	10	100/20	22.6.2000
48	470	Beximco Synthetics	12.5	100/20	25.6.2000
49	273	Beximco Fisheries	5	100/20	25.6.2000
50	622	Meghna Cement	11	100/50	27.6.2000

Source : Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

We have selected 50 companies for this study, which have paid dividend. The table shows announcement date; face value (FV) and market lot (ML) including the dividend of the company. It has been observed from the table that 50 companies covered various sectors which are representative in nature.

7.11 Observation Period and Comparison Period

The announcement day is defined as day 0. Fifteen day (-15) before the announcement day was selected as the observation period whereas, Fifteen days (+15) after the announcement day was selected as the comparison period.

7.12 Statistical Tools Used

For testing Statistical significance, security price movement around dividend announcement date, the Student test was employed to measure the significance among the means of the samples, of observation period, and comparison period.

7.13 Limitations of the study

- 1) In conducting the research work huge uncontrollable factors affect the work.
- 2) Inadequacy of recognized research work in this field.
- 3) The major sources of information were collected from the DSE library and to collect the database from the library was a complicated procedure.
- 4) The study might have contained some calculation errors and due to that the result may differ very slightly.

7.14 Empirical Findings

By using the security prices, the return of the securities has been calculated before and after the announcement day of the dividend. The Mean Daily Returns (MDR) are presented in Table 7.15. The table containing security prices in observation and comparison period are presented in the Appendices- 7.2 and 7.3 and the calculation of return are presented in Appendices – 7.4 and 7.5.

Table 7.15
Calculation of Mean MDR

Event	Days	MDR(%)
Observation Period	-15	-0.08
	-14	0.02
	-13	-1.03
	-12	-0.67
	-11	0.02
	-10	0.23
	-9	-0.28
	-8	-0.37
	-7	0.80
	-6	-0.49
	-5	0.25
	-4	-0.03
	-3	0.11
	-2	-0.08
	-1	-0.28
Announcement Day	0	0.08
	1	0.88
	2	-0.13
	3	0.25
	4	-0.10
	5	0.37
	6	0.62
Comparison Period	7	-0.88
	8	1.88
	9	0.71
	10	-0.08
	11	0.72
	12	1.59
	13	-0.42
	14	-0.08
	15	0.56

Source : Appendix Table 7.4 and 7.5

Result:

Mean MDR (Observation Period) = - 0.1253

Mean MDR (Comparison Period) = 0.3927

T statistic = t = - 9.182

To achieve the objective, a statistical test is required to find out whether the mean return before and after the announcement day significantly differed or not on account of the announcement of dividend.

Observation period is considered as sample A and the comparison period as sample B. The mean MDR is - 0.1253 and 0.3927, for sample A and B respectively. The observed t value of the difference between mean MDRs of sample A and B is (-) 9.182. This is less than the critical value of t, which indicates that the difference between mean MDRs of the two samples is insignificant, at 5% level of significance with 28 degree of freedom.

The means of difference, t test and its computation has been shown in Table 7.16.

Table 7.16
Calculation of t- Statistics

X_{1i}	$\bar{X}_1$	$x_{1i} = (X_{1i} - \bar{X}_1)$	x_{1i}^2	X_{2i}	$\bar{X}_2$	$x_{2i} = (X_{2i} - \bar{X}_2)$	x_{2i}^2
-0.08	-0.125	0.045	0.002	0.88	0.393	0.487	0.237
0.02	-0.125	0.145	0.021	-0.13	0.393	-0.523	0.274
-1.03	-0.125	-0.905	0.819	0.25	0.393	-0.143	0.020
-0.67	-0.125	-0.545	0.297	-0.10	0.393	-0.493	0.243
0.02	-0.125	0.145	0.021	0.37	0.393	-0.023	0.001
0.23	-0.125	0.355	0.126	0.62	0.393	0.227	0.052
-0.28	-0.125	-0.155	0.024	-0.88	0.393	-1.273	1.621
-0.37	-0.125	-0.245	0.060	1.88	0.393	1.487	2.211
0.80	-0.125	0.925	0.856	0.71	0.393	0.317	0.100
-0.49	-0.125	-0.365	0.133	-0.08	0.393	-0.473	0.224
0.25	-0.125	0.375	0.141	0.72	0.393	0.327	0.107
-0.03	-0.125	0.095	0.009	1.59	0.393	1.197	1.433
0.11	-0.125	0.235	0.055	-0.42	0.393	-0.813	0.661
-0.08	-0.125	0.045	0.002	-0.08	0.393	-0.473	0.224
-0.28	-0.125	-0.155	0.024	0.56	0.393	0.167	0.028
-0.125		0.000	0.173	0.393		0.000	0.496

Source : Appendix Table 7.4 and 7.5

Summary Output

df= 28
6x1-x2*= 0.00318
6x1-x2= 0.056
t= -9.182

The statistical test and the results represent that there is no significant impact of dividend announcements on the security prices, on an average, on the basis of the developed samples. The mean MDR in the observation period was smaller than that of the comparison period. The MDR of securities increased after the announcement of dividend which also indicates the ineffectiveness of dividend announcement to influence security prices. However, this information could not influence the market price of the securities. Because, the positive effect of dividend announcement on the first day of announcement is cancelled out by the negative effect of the announcement on the second day of announcement, the MDR sharply declined to (–) 0.13% on the following day after first day of announcement.

7.15 Recapitulation of the Chapter

One of the major objectives of the present work is to analyze and evaluate the dividend payment performance of listed companies in the DSE. Dividend payment practice of DSE and its impact on security price is one of the core chapters of this work and the chapter has two major parts. Present chapter is therefore designed to look into the detailed dividend payment practice and its impact on the security prices of the listed companies of the DSE. The first part includes theoretical aspect of dividend payment procedure like dividend payout ratio, stable dividend policy etc. Two major theories of dividend policy such as (a) dividend irrelevance theory and (b) the “bird-in-the-hand” theory have been briefly discussed. From 1983 to 2000 the performance of dividend payment by the listed companies has been analyzed in the Table 7.1. In addition to that sector-wise dividend payment performance have also been analyzed in this chapter.

The second aspect of this chapter is the analysis of impact of dividend announcement on security prices. To test the effect of dividend announcement on the securities traded in the DSE Ltd., the years, 1999 and 2000, have been considered as the observation period. In fact, the study focused on the last AGM as well as the last dividend announcement date of the selected securities in the sample. The last AGM date of 50 securities in the sample was distributed between periods of 1999 and 2000. Data of one company's was taken once, but these were distributed over 1999 and 2000. Here, we have examined 50 companies' dividend announcement impact on their security prices. To examine the impact, mean daily return (MDR) and t-statistics have been used. The next chapter deals with the problems and their remedies.

CHAPTER EIGHT

Problems and Remedies

8.1 Introduction

Present study is based on capital market in Bangladesh. The study reviewed the chronological development of capital market with special reference to Dhaka Stock Exchange Limited. During the tenure of our study we have thoroughly studied DSE from various dimensions keeping in view our objectives of the study. However, after completion of the study we have been able to find out the problems of capital market with special emphasis on DSE. In doing so we have also studied some relevant literature and reviewed some of the important works related to our present study. However, we have identified some problems which may be of two types i.e., problems in general which are related to the stock exchanges of Bangladesh and other neighboring countries and specific problems which are more or less related to our present study. We, in this chapter would like to identify those problems and to recommend some policies in the light of the problems.

Problems in general are now recapitulated in the following paragraphs. Specific problems related to DSE are also furnished in this chapter. We also want to suggest some policies in the light of specific problems.

8.2 The Problem of Transparency

Transparency is a well discussed subject matter of modern world, which is connected with economic activity and administrative actions. Without transparency no administration or economic activity of modern democratic world can run successfully. But the transparency of DSE is questioned by the experts and common people. There is no administrative mechanism in the DSE or check and balance by which the transparency can be ensured. Due to absence of transparency, the 1996 share debacle could not be properly checked. Even the persons connected with such debacle were not taken into consideration for future prosecution in the court of law.

We therefore, suggest, that the DSE should thoroughly examine its position and control the activities of the key officials and make them accountable to the government. In this connection it may be pointed out that a committee was appointed by the government to look into the problems of 1996 share market crash with particular terms of reference. But the report

perhaps has not come to light as yet. This report should be published for the interest of general public and capital market development.

8.3 Lack of Knowledge of the Investors to Understand Prospectus

Usually an elaborate prospect is published in the national dailies inviting the common people to purchase shares. It is published so widely but confusing in some cases and as such the actual matter is not properly described and for this reason the investors fail to understand the realities. This creates the dilemma to the investors and as such they can not take wise decision in investing their capital in the Initial Public Offerings (IPOs).

It should be borne in mind that the general investors are the key stone to the capital market and as such, living aside their principal interest is not a healthy sign of development of capital market. During the time of our observation over the years, we have seen that majority of the investors, could not take proper decision in investing their money since they could not find out the actual position of the companies due to vague and large description of the companies.

It is therefore, suggested that a subsidiary body may be formed or created in the DSE which may play effective role in educating the common investors through the electronic media and newspaper. A particular chunk may be created in radio and television program in which an unbiased interpreter may explain the prospects of the company, which has already published its prospects in the national dailies. This sort of interpretations may help the investors to take wise decisions on the one hand, and help create a good and durable capital market of the companies, on the other. In these interpretations the interpreter may invite the key officials of the company who may replay questions or defend in regard to the question raised by the interpreter. This will create confidence for investment among the general investors, which may ultimately create a condition for further development of the capital market in Bangladesh.

8.4 Problem of Distribution of Sound Dividend

There are two types of investors in Bangladesh. One is risk free and number two is risk oriented i.e., risky investment. Risk free investments are attracted by the common people since there is no hazard of investment although it's rate of interest is a bit meager compared to risky investment. But in our study we have observed that only 127 company out of 231 had been able to distribute handsome dividend. So, 45% of the listed companies could not pay sound and reasonable dividend to the investors, which is not at all, a healthy sign of capital market.

It is therefore, suggested that proper efforts should be taken by those companies which could not pay sound dividend over the years so that the risk-free investors should be inclined towards risky investment. This can be achieved by two different ways.

(a) The listed companies should be guided by the principle of magnanimity so that their portion of profits should be reasonably reduced and the amount should be diverted towards distribution of dividend among the investors for healthy and competitive capital market.

(b) History of the development of capital market of the developed countries testifies that without generosity and magnanimity, no sound development of capital market took place, on the one hand, and no effective economic system established on the other. Those experiences should be implemented in Bangladesh also.

8.5 Exemption of Interest and Rescheduling of Loan

The most adverse effect of 1996 share market debacle is that most of the actual but small investors have been driven away from the capital market. This has created a great vacuum in the capital market. What was the reason of this debacle and who were the grand masters of this debacle is a different issue, but the fact is that the confidence of the small investors was lost and that should be regenerated at any cost. This is indeed a macro problem, which can not be solved over night by "Aladin's Prodip". But the question is that if we fail to create confidence among the investors, a healthy competitive share market can not be regenerated. In our opinion, this is not only because of 1996 share debacle but also because of economic depression created during the past regime.

We have observed that huge amount of interest have been generated against the loan amount of a good number of investors, which should either be reduced reasonably or exempted. This is for greater interest of the capital market because the aforesaid people are seriously connected with capital market, whose interest should be taken carefully.

In this connection it is not perhaps unwise and irrelevant to cite the examples of big loan defaulters of Bangladesh. If their loans are rescheduled, why not the interest of those small investors be considered sympathetically?

It is therefore, our humble suggestions that a list of seasoned investors should be prepared and a technical note of implementation should be prepared by a panel of experts, which should be created by the Ministry of Finance.

Ministry of Finance should take a pragmatic, well thought strong policy under which the persons/agencies connected with that debacle should be properly punished so that the same occurrence may not repeat in future. Ministry of Finance should remember that no criminal offence should go unpunished because this sort of ill instance which may endanger the future economic prospects.

8.6 Overall Poor Dividend Performance

We know that dividend payment is one of the important performance of the companies. Without sound dividend performance no investor can be attracted towards capital market. But our study shows that out of 231 listed companies, 51% companies have been able to give dividends and the rest 49% companies could not at all pay any dividend. So, this is one of the major problems of our share market.

Therefore, it is recommended that if the DSE wants to attract its investors, then it should give directives to the listed companies to the fact that they must have to raise the dividend performance at a reasonable level i.e., at least a bit higher than the percentage of risk free rate. Otherwise the overall condition of stock market can not be improved.

8.7 Delay in Dividend Payment

The study shows that most of the listed companies do not pay their dividend in due time. Not only that, it is surprising to note that the AGMs of some of the companies are not held regularly. Therefore, the decision regarding dividend payment can not be taken. Usually the listed companies take three to four months to send dividends to the share holders after the date of declaration of dividend. This is undoubtedly a big margin and as such the value of money goes down during this period. Our interviews with the investors reveal that the investors are not at all satisfied with their delayed receipt of dividend.

It is therefore, recommended that the authority of the respected companies should be alert so that the delay in the payment of dividend should not be lingered. Because this will hamper the prestige of the company.

In this study we have evaluated the performance of eight mutual funds floated by ICB by applying Jensen, Treynor and Sharpe Index. If we carefully analyze the dividend performance of eight mutual funds, then we can arrive at a concluding remark i.e., 1st and 2nd mutual funds are to be considered as very good which constitutes 25% of the total mutual fund. Another 25% mutual funds are to be considered as good and these are 3rd and 4th. But the performance of 5th mutual fund may be considered as poor, which offers 1.14% dividend. But around 37% mutual funds are poor, which show minus sign of dividend performance. The overall dividend performance is below average level particularly regarding 5th, 6th, 7th, and 8th mutual funds. The authority should give proper thought i.e., either to withdraw it from the market or reschedule with other mutual fund or funds. If this trend continues in the market, then it will seriously damage the goodwill of the ICB at least in terms of evaluation of Treynor, Jensen and Sharpe Index.

8.8 Share Market Drama of 1996

In the share market debacle of 1996, a section of stock brokers were indulged. In our opinion the code of ethics of share market was seriously ignored and influx of new unsophisticated investors were the main actors behind the screen of share market drama of 1996.

It should be borne in mind that if any evil deed is unchallenged or unbitten, then the same thing will repeat again and again. We, therefore, recommended that a neutral committee should be formed to reveal the truth of 1996 occurrences. Not only that, exemplary punishment should be given to those who were responsible for the debacle. However, whatever may be the reasons behind this debacle or drama, we can not deny the fact that it was the failure of the DSE and the government to control the unscrupulous situation of the DSE. The report of the SEC in 1997 identified some reasons, which are stated below. In brief, the following main reasons were responsible for the debacle of 1996:

(a) Insider-trading and Off-loading of Shares by directors of the company; (b) Activists of Syndicate – a handful of broker-members and issuers; (c) Impact of withdrawals of lock-in period causing a remittance of resources; (d) Disclosure of unregulated rumours and sensitive-information; (e) Drum-up euphoria caused by price manipulation by the certain quarters; (f) Influx of new and unsophisticated investors, and speculators; (g) Superior timing ability of issuers and unscrupulous siphoning of funds by the sponsors out of the business; (h) Code of ethics not being followed and dubious role played by professionals (CAs) in certifying financial statements along with the valuation of assets and property.¹

Correction of these problems is essential for the development of capital market in Bangladesh. Programs on capital market should regularly be broadcasted in radio and telecasted in the television for the benefit of all concerned related to capital market. However, the next chapter deals with summary, recommendations and conclusions.

¹ Mahmood Osman Imam, "Stock Market Development : A Perspective of Investment Corporation of Bangladesh", *The Dhaka University Studies*, Part-C, Vol. 10(I), Dhaka, 1989, p. 51.

CHAPTER NINE

Summary, Recommendations and Conclusions

9.1 The Preamble

This thesis entitled "Development of Capital Market in Bangladesh: A study on Dhaka Stock Exchange Limited" aims at studying four major aspects of DSE i.e., the chronological growth trends of its various activities, mutual fund performance, dividend payment practices and its impact on security price in the DSE and the role of ICB and other DFIs in the development of Capital Market of Bangladesh. To realize those objectives, this thesis is divided into nine chapters, which are as follows: (1) Introduction, (2) Conceptual Framework and Methodology, (3) Historical Profile of Capital Market and the Growth Trend of Dhaka Stock Exchange, (4) Performance of Mutual Funds and Capital Market Development, (5) Role of ICB and other DFIs in the development of Capital Market of Bangladesh, (6) Regulatory Institutions and their role in the Capital Market, (7) Dividend Payment Practices and Its Impact on Security Price, (8) The Problems and their Remedies, and finally (9) Summary, Recommendations and Conclusions.

9.1.1 Chapter-1: Introduction

The introductory chapter of the thesis was divided into seventeen sections, namely (a) Role of Financial System in Economic Development, (b) Role of Markets in the Economic Assemblage, (c) Financial Configuration of Bangladesh and its Progress, (d) Importance of Capital Market in the Development Process of an Economy, (e) Capital Markets From the Standpoint of Suppliers of Savings, (f) Capital Market from the view point of a company seeking financing, (g) Capital Market Scenario in Bangladesh, (h) Institutions active in the Capital Market of Bangladesh, (i) Savings and Investment alternatives, (j) Objectives of savings and investment, (k) Statement of the Problem, (l) Objectives of the Study, (m) Review of Literature, (n) Justification of the Study, (o) Scope and Limitations of the Study, and (p) Plan of the dissertation.

The first section of this chapter indicates that the financial system is one of the most important institutions of modern industrial societies. Savings and investment both are important in the national economy. The amount of savings and investment has a profound impact on the

economic growth potential of an economy. Even though economic growth is a complex issue involving many factors, one of the most important factors is substantial investment. Massive investment, however, we can not turn out without concrete savings. The total volume of savings and investment is one of the determining factors in affecting the long-run economic growth rates. The poorer a country is, the greater is the need for financial institutions to collect and invest the savings within its frontiers. Financial institutions will not only permit small amounts of savings invested conveniently but will allow the holders of savings to retain liquidity individually but finance long-term investment collectively. The financial system is one of the dominant aspects of a modern industrial society. Its main function is to move insufficient lending funds in the form of credit from those who save to those who borrow for productive expenditure and financing. The financial system contributes the ways whereby modern economies extend and multiply the standard of living of the common people. A huge amount of loanable fund exhausted for purchasing land, building, machinery and equipment, road, and school, colleges and so on. It is the financial system, which ascertains both the cost of credit and how much credit will be available to pay for the various different goods and services we generally use. In practice, financial institutions perform an important function as intermediaries between the savers and the users of savings.

If sufficient savings can not be mobilized for investment purpose, the rate of capital formation will be lowered. The financial markets are channelizing the savings within the economy- which come mainly from domestic arrangement - to those individuals and organizations who need more funds for disbursement than are provided by contemporary income. There are three types of markets in operation within the economic system: (1) factor markets, (2) product markets, and (3) financial markets. In factor markets consuming units sell their labor, managerial skills, and other resources to those producing units offering the highest prices. The factor markets allocate the so-called factors of production (land, labor and capital) and distribute incomes in the form of salaries, wages, rental income, etc. to the owners of productive resources. Financial markets may serve as an integral part in the system of economy. The financial market channelizes resources coming mainly from the internal resource base to serve human beings and organization to meet the requirements. The financial markets can be termed as the heart of the financial system of any country, which determine the volume of credit, mobilization of savings, interest rates and security prices indeed.

Capital market of Bangladesh started its function with the introduction of Dhaka Stock Exchange (DSE) and Investment Corporation of Bangladesh (ICB) in 1976. Two private investment companies, namely National Credit Limited (NCL) and Bangladesh Commerce and Investment Ltd. (BCI) got permission to participate in the capital market activities in Bangladesh in the eighties but due to abnormalities and irregularities NCL and BCI became inactive in the capital market operations of Bangladesh. In mid 1990s Chittagong Stock Exchange (CSE) was established. For healthy functioning of capital market in the economy, it is essential to have investment banks, the

broker members and organized stock exchanges. In Bangladesh, long term government owned Development Financing Institutions (DFIs) are Bangladesh Shilpa Bank (BSB), Bangladesh Shilpa Rin Sangstha (BSRS) and Investment Corporation of Bangladesh (ICB) from which new entrepreneur can get their financial supports. The pioneer Investment Bank ICB not only provides underwriting finance but also it provides bridge finance, finance for the purpose of sale and purchase of shares and debentures for the investors in general. ICB helps the investors in managing investors' portfolios and in formation of mutual fund of its own portfolio also.

When an individual investor procure newly issued shares or securities, their personal savings committed to be used only productive purpose for a long time. If there is no securities market for investment in the economy, individuals would not be responsive to the commitment of their savings to productive uses and the total amount of funds available to finance industry would be much lower than the needs. An individual can recover their funds by selling them on the stock exchanges. The presence of securities market or capital market decreased the uncertainty of the general investors to acquire securities when they are first time issued. However, there is a relationship among the variables like the level of economic development, industrial development and the development of capital market of a country. Almost all the developed countries have high degree of industrialization. It will be hard to find an industrially well-developed country not to have a developed capital market. An efficient capital market can only guarantee sufficient and excellent transformation of savings into creative investment. It is true that capital is generated from savings, and since the savings rate in Bangladesh is very low, its capital market is therefore, underdeveloped indeed. If the capital market can provide enough scope for the investors to increase their further income by way of savings, it is possible to make the maximum savings from certain level of income. In an economy, low-level of saving is mainly obligated for low per capita income.

In Bangladesh, the financial system consists of large variety of institutions, instruments and market. Due to these varieties, financial markets can be divided into money market and capital market. Capital Market ensures the flow of finance in the different sectors of the economy and plays a vital role in its growth and development. "The Capital Market is not one institution but a number of institutions through which supply and demand for long term capital is routed and regulated, for example, Stock Exchanges, Banks, Insurance Companies". In a modern economic system, it has been observed that the fitness of the economy is largely dependent on the capital market. Thus, it is suitably termed as a barometer of the economy indeed. So, this study aims at investigating into the growth and development of capital market and the DSE Ltd., performance of mutual funds, dividend payment practices and its impact on security prices in the DSE, and the role of ICB and other institutions in the development of capital market in Bangladesh.

However, the following specific objectives are set for this study.

1. To review and analyze the growth trend of the activities of DSE.

2. To evaluate the performance of Mutual Funds in the development of Capital Market of Bangladesh.
3. To evaluate the role of ICB and other Development Financing Institutions (DFIs) in the development of capital market of Bangladesh.
4. To analyze the risk return relationship in the Capital Market before and after automation in the DSE.
5. To analyze the dividend payment practices of listed companies and its impact on security prices in the DSE.
6. To identify the problems and to suggest measures for improving its performance.

Apart from the main objectives mentioned above, the present study attempts to analyze the historical background, origin and development of DSE.

The review of literatures covered the important works on DSE and such other works directly or indirectly related to this study. However, the works of Imam (1989), Rahman (1992), Ahmed (1992), Haque (1992), Jamal Munshi (1993), Khan, Islam, Khatun (1993), Chowdhury (1994), Jamal Munshi (1994), Haque, Eunus and Ahmed (1998), Chaudhury (1998), Jaman and Basher (2000), Amir Khosru (2000), Imam (2000), R. H. Patil (2001), Sankaran Venkateswar (2001), S. L. N. Simha (2001), J. Mulraj (2001), Mukherjee (2002) have been carefully reviewed in this study. In this connection it can be stated that none of the researchers highlighted their works exclusively on DSE's growth and its overall performance. But, nevertheless, those were important and related to the present study for a number of reasons explained in the review of literature section. However, the existing knowledge gap in the analysis of the evaluation of the development of capital market in Bangladesh has amply justified the undertaking of this study.

9.1.2 Chapter- 2 Methodology and Conceptual Framework

This chapter is mainly based on Methodology and Conceptual Framework, which covered the following points: (a) Selection of a method, (b) Sources and Nature of Data, (c) Types of Data and Their Sources, (d) Analysis of data, (e) Authenticity of Data Sources, (f) Techniques of Data Analysis, (g) Measure of Growth, (h) Simple Growth Rate (SGR), (i) Compound Growth Rate (CGR), (j) Trend Growth Rate (TGR), and (k) Ranking Mutual Funds Rates of Return and conceptual framework and operational definitions.

Key words namely, bank, broker, capital market, cash transaction, control, dealer, financial institution, investment adviser, investor, issuer, market maker, material information, public offering, purchase, secondary market, security etc. were explained and illustrated.

An event methodology is employed to measure security price performance around the time of the event of dividend announcement. Fifteen days (-15) before the announcement day was selected as the observation period whereas, Fifteen days (+15) after the announcement day was selected as the comparison period. To test for Statistical significant security price movement

around dividend announcement date, the **Student test** was employed to measure the significance among the means of the samples, observation period, and comparison period.

In calculating risk-return relationship behavior before and after automation the researcher has used the following formula:

$$R_s = A + \beta R_m$$

In this chapter the relationship between Beta and Actual Monthly Mean Return among the sectors have been analyzed. Kruskal Wallis Test determines whether two independent samples have drawn from populations with the same distribution for the test.

9.1.3 Chapter-3: Growth Trends of the Activities of DSE

This chapter deals with the growth trends of DSE and its activities. It covered the following specific aspects of DSE: (a) Legal Control and Members of DSE, (b) Major Functions of DSE, (c) Policy Making Body of DSE, (d) Listing Requirements, (e) Trading and Share Price Trading Restrictions, (f) Restrictions imposed in dealing securities, (g) Risk Management Mechanism Followed by the Stock Exchange, (h) Trading Management Practice, (i) Trading, Settlement and Clearance, (j) Reforms Made in DSE, (k) Incentive measures for the Capital Market in 1998-99, (l) Capital Market Development During FY 2000-2001, (m) Steps taken by the Government through budgetary arrangement, (n) Other measures taken by the Government, (o) Measures to Gear up Stock Exchange Activities, (p) Monitoring Activities of DSE, (q) Objectives of DSE, (r) Encouragement of Foreign Investors, (s) Incentives for Bangladeshi nationals living abroad, (t) Instruments Traded in Stock Exchange Market, (u) Present Status and Growth of the Stock Market in Bangladesh, (v) Market Capitalization- GDP Ratio, (w) Growth Trend of Public Issue of Listed Securities, (x) Growth Trend of Turnover of Shares and Debentures, (y) Growth Trend of Number of Shares, debentures and Mutual Funds Certificates, (z) Growth Trend of Listed Companies of the DSE, (z1) Growth Trend of Paid-up Capital of listed Securities, (z2) Growth Trends of Market Capitalization of all listed Companies of DSE, (z3) Growth Trend of DSE's all Share Price Index.

This chapter has carefully examined the historical profile of DSE including the basic principles and trading mechanism and the recent reforms made in the DSE. The objectives and functions of DSE have also been analyzed in this chapter.

The policy making body and listing requirements of DSE has been focused and analyzed keeping in view the structure, their power and functions etc. Table 3.1 shows the key indicators of major Asian Stock Markets. The table indicates that market capitalization of DSE was 865 million dollar in 1999 in comparison to US\$ 189.605 billion in India, US \$6.965 billion in Pakistan, US \$ 308.534 billion in South Korea and US \$ 145.445 in Malaysia. This is the indication of small market prevailing in Bangladesh in comparison with the size of the economy. On the other hand, Market

capitalization in Bangladesh was only 2.42 percent of GDP in 1998 against 8.55 percent in Pakistan, 10.86 percent in Sri Lanka, 31.35 percent in Thailand and 135.96 percent in Malaysia.

The growth of public issue of listed securities has been carefully analyzed in this chapter. We have seen that the size of public issue of listed securities increased from Tk. 17.5 million in 1977 to Tk. 412.75 million in 2000 registering an average annual simple growth rate (SGR) of 200.98 percent and a compound growth rate (CGR) of 14.01 percent. The table also shows the public subscription against public issues over the years. It is observed from the table that from 1977 to 1983 the label of public subscription were less than 100% which indicates that general people were less interested to take part in the stock market investment at that period of time.

The growth trend of Turnover of Shares and Debentures has been analyzed in this chapter. It has been observed that size of public issue of listed securities increased from Tk. 3 crore in 1985 to Tk. 4036.47 crore in 2000 registering an average annual simple growth rate (SGR) of 115.55 percent and a compound growth rate (CGR) of 61.66 percent. We have analyzed that from 1985 to 2000 the label of turnover either in the form of absolute growth rate or simple growth rate has been increasing with the exception of the years 1988, 1991 and 1997, which is the indication that general people were reluctant to take part in the stock market investment at that period of time.

The growth trend of listed companies of the DSE has been analyzed in chapter 3. It has been observed that the number of listed companies of the DSE increased from 9 in 1976 to 241 in 2000 registering an average annual simple growth rate (SGR) of 15.27 percent and a compound growth rate (CGR) of 14.68 percent.

The growth trend of Paid-up Capital of listed Securities has been analyzed in this chapter. Analysis shows that Paid-up Capital of listed Securities increased from Tk. 137.52 million in 1976 to 31191.86 million in 2000 registering an average annual simple growth rate (SGR) of 26.59 percent and a compound growth rate (CGR) of 25.36 percent. It is necessary and it is a good symptom for any stock market to have positive growth of Paid-up capital. Our analysis also represents that.

In this chapter we have also analyzed the growth trend of Market Capitalization of all listed Companies of DSE. The table indicates that Market Capitalization of all listed Companies of DSE increased from Tk. 147 million in 1976 to 62923 million in 2000 registering an average annual simple growth rate (SGR) of 39.76 percent and a compound growth rate (CGR) of 28.72 percent. It is observed from the table that from 1985 to 2000 the label of turnover either in the form of absolute growth rate or simple growth rate has been increasing with the exception of the years 1991, 1997 and 1999, which indicates that general people were reluctant to take part in the stock market investment at that period. It is very interesting to note that in the year 1996 SGR were 197.44%, but after that it drops and in year 1997 it becomes (-) 70.28 %. Although in 1998

SGR was positive but the trend was decreasing dramatically especially in the years 1999 and 2000, which is not at all a good symptom for the stock market, like DSE.

The growth trend of All Share price Index of DSE has been analyzed in this chapter. The table shows that All Share price Index of DSE increased from 209.14 in 1976 to 578.73 in 2000 registering an average annual simple growth rate (SGR) of 14.48 percent and a compound growth rate (CGR) of 7.02 percent. It is observed from the table that from 1976 to 2000 the All Share price Index either in the form of absolute growth rate or simple growth rate were increasing with the exception of the years 1989, 1990, 1997, 1998 and 1999, which indicates the fluctuating nature in this regard indeed. It has been observed from the table that in the year 1996 SGR was 73.04%, but after that it drops and in the year 1997 it becomes (-) 21.02 % and then in the next year SGR was (-) 43.17%. Although in 2000 SGR was positive but the trend since 1997, was not at all a good symptom for the stock market, like DSE.

9.1.4 Chapter 4: Performance of Mutual Funds and Capital Market Development

This Chapter deals with eight ICB mutual funds, one BSRS mutual fund and one AIMS mutual fund. The background, objectives, nature of business of mutual funds has been carefully analyzed in this chapter. A mutual fund is a vehicle that enables number of investors to pool their money and have it jointly managed by a skilled and professional money manager. Mutual Fund is an institutional settlement for consolidation of funds to mobilize savings from the investors by selling financial instrument, and for the investing of the funds in the best possible portfolio to give maximum return for instrument holders.

The role of mutual funds in the development of capital market has also been analyzed and highlighted. Table 4.1 indicates that all ICB mutual funds have been over subscribed (from 1982 to 1996). Table 4.2 indicates that dividend payment performance of ICB mutual funds was comparatively higher than those of post office saving rates, fixed deposit interest rates, bank rates etc.

To procure sound savings within the country, ICB started mutual fund scheme in 1977 through which investors can make their savings in the capital market. ICB has been able to manage these portfolios of mutual funds very carefully and successfully over the years. DSE review, and DSE's daily quotation also help in making portfolios. The Consolidated Portfolio Statement is analyzed in Table 4.3. ICB generally develops the portfolio by investing people's savings in primary and secondary markets. ICB generally makes in-depth analysis in developing sound portfolio. Although the portfolio management of ICB appears to be satisfactory, but it is directly connected with the ups and downs of the share market of the country.

The arithmetic mean (AM), standard deviation (S.D.) with arithmetic mean [S.D. (AM)], coefficient of variation (C.V.) with respect to arithmetic mean [C.V. (AM)], the geometric mean (GM) and the standard deviation with geometric mean [S.D. (GM)] have been computed on the basis of annual rate of return for seven years for all the funds.

Table 4.14 shows that from 1988-89 to 1999-2000 overall mutual funds' rate of return is very smooth and consistent ranging from around 14.34% to 26.74%, but in 1995-96 the overall mutual funds' rate of return stood at around 94% and then dropped to (-) 6.49% in 1996-97 and up to 1999-2000 its rate of return was negative and came down to (-) 2.05%. Although the AM of mutual funds is 16.61%, but S.D of the same is 27.83% which indicates very riskiness of the fund. But, actually this AM of overall mutual funds and SD is not giving actual picture. If we exclude the data of the year 1995-96, then we can get the present scenario of the fund. However, market rate of return has been experiencing a very fluctuating rate of return ranging from (-) 39.14% to +57.57% return. It has been observed from the table that the AM of the market rate of return is 3.19%. Whereas SD of the same is 27.06% which indicates higher risk of the market. From the table it has been observed that although the overall mutual funds' rate of return and market rate of return both are fluctuating in nature, but the fluctuation of the market rate of return is much more wider than overall mutual funds' rate of return.

For the purpose of our study, it is assumed that the Capital Asset Pricing Model (CAPM) holds for the Dhaka Stock Exchange (DSE) and systematic risk (β) of mutual funds have been computed in the following way:

By taking AM, SD and the market returns for 12 years period as the expected return, the three widely used performance measurement techniques i.e., Treynor Index, the Sharp Index and the Jensen Index can be projected and evaluated in the table.

The β_{MF} for the 1st mutual fund to 8th ICB mutual fund and 1st BSRS mutual fund shows that the value is always lower than 1 (market Beta) with the exception of 8th mutual fund. But it is very interesting to note that the β_{MF} for 8th mutual fund stood at (-) 0.29337. This is due to the unusual negative correlation between market return and the 8th mutual fund, but all mutual funds have positive and less than 1 β_{MF} . So this is abnormal indeed. But other than this mutual fund each and every mutual funds have positively correlated with market portfolio. The COV (see Table 4.14) also reveals the fact that the ASPI was much more volatile than the mutual funds starting from 1988-89 to 1999-2000.

9.1.5 Chapter- 5: Role of ICB, DFIs and Other Institutions in the Development of Capital Market

In Bangladesh, there are three major Development Financing Institutions (DFIs) and two stock exchanges namely the DSE and CSE which are the main ingredients of the capital market of Bangladesh and they are working for industrial development in the country. BSB and the BSRS serve as financial intermediaries to help transfer resources from the surplus economic units to the deficit units. To provide the means of the small investors to participate in the development of capital market as well as the country's economy, ICB established investors' scheme on June 13, 1977 with a view to encouraging the base of the investment, develop the

capital market and generate savings in the community as a whole. With the help of this scheme, ICB provides the investors to invest efficiently in the stock market. The scheme provides institutional shelter to the investors in connection with purchase and selling of securities by providing necessary services also.

The growth trend of net operative account of ICB was analyzed in Table 5.2. The table shows that net operative account of ICB increased from 80 in 1976-1977 to 52031 in 2000-2001 registering an average annual simple growth rate (SGR) of 46.82 % and a compound growth rate (CGR) of 30.99 percent. It has been observed from the table that the responses of opening an investment account were invariably higher especially in the period from 1983-84 to 1987-88. But in recent years the rate of account opening trend has been decreasing dramatically which is very alarming indeed.

Table 5.4 indicates that ICB received deposits to the tune of Tk. 231.11 crore during 1976-2001 against which it sanctioned loans amounting to Tk. 416.11 crore. The highest volume of deposit received in the year 1996-97 stood at Tk. 88.81 crore. It is also observed that in the years from 1994-95 to 1997-98, ICB received deposits amounting to Tk. 153.17 crore which was almost 75 percent of total deposits. The table shows that Tk. 487.70 crore have been invested in the capital market during the last 25 years and the average annual investment amounting to Tk. 19.508 crore is the direct contribution of ICB which is a milestone in the development of capital market in Bangladesh. The analysis shows that out of the total investable fund, more than 75% fund have been used for the application of purchasing shares and securities in the capital market which is another good indication for the development of capital market in Bangladesh.

ICB has been providing its financial assistance to various industries in the form of underwriting-cum-bridge and debenture financing since its establishment. According to its business policy its efforts should be "To provide financial assistance to projects subject to their economic and financial viability". It is essential to have heavy investments in private and public sectors' industries for the promotion of industrialization of an economy. For diversification of investments and to develop and encourage the entrepreneurs, ICB provides underwriting-cum-bridge and debenture financing for food and allied products, textile, specialized jute products, jute yarn, twine and carpet, forest products and allied, paper, board, printing and publishing, tannery, leather and rubber products, chemicals, pharmaceuticals and allied, glass, ceramics and other non-metallic mineral products, engineering, services, acquisition of ships and road and inland water transport, etc.

Table 5.10 displays that up to June 30, 2001, ICB committed Tk. 266.44 crore against 362 projects. Out of 362 projects, ICB committed bridging loans and debenture loans to 312 projects amounting to Tk. 123.28 crore which represents 46.27 percent of its total commitment. Again, ICB committed direct underwriting in shares and debentures to 40 projects amounting to Tk. 81.59 crore (i.e., it committed 30.62 percent fund as direct underwriting). The table further

shows that ICB committed Tk. 46.67 crore to 25 projects representing 17.51 percent of its total commitment as direct investment in share and debenture. It can therefore be said that ICB's emphasis is primarily on underwriting and bridge financing investment.

Table 5.11 exhibits that ICB's cumulative commitment as on 30 June 2001 stood at Tk. 266.44 crore against the 12 different sectors. It also highlights that Tk. 109.21 crore i.e., 40.99 percent Taka has been committed in Textile sector which was followed by food and allied products' sector representing Tk. 30.63 crore i.e., 11.5 percent of its commitment. Corporation's commitment for Chemical, Pharmaceuticals and allied sector was Tk. 26.77 crore, which was 10.04 percent of its total commitment. So, it can be concluded that more than 60 percent of commitments for funds were made for Textile, Chemical, Pharmaceuticals, Food and allied products. Moreover, those three sectors included 217 projects, which was more than 60 percent of its total projects financed.

Table 5.13 displays that the recovery positions have been decreasing in recent years. The maximum recovery was Tk. 14.53 crore in FY 1991-92. On the other side, overdue loans has been increasing distinctly and it has reached to the tune of Tk. 479.58 crore in 2000-2001. Due to chronic low recovery rate over the years, the overdue loan has been increased. The table further indicates that the recovery position of ICB was not adequate because a huge amount of public money remained unrecovered (Tk. 479.58 crore). If it continues over the years, financial institution may lose its goodwill and be subject of public criticism.

Table 5.15 indicates the Market Capitalization of DSE and the contribution of ICB. It is reflected from the table that during 1991-92 to 1999-2000, every year DSE's market capitalization and number of listed securities increased at a higher rate than that of the previous year. It is also observed from Table-5.15 that ICB's contribution is more than 10% in the DSE's market Capitalization in the Financial Years from 1991-92 to 1994-95.

In addition to ICB's contribution in the stock market of Bangladesh, the financial institutions like Bangladesh Shilpa Bank (BSB), Bangladesh Shilpa Rin Sangstha (BSRS), Bank Of Small Industries and Commerce Limited (BASIC), Bangladesh Small and Cottage Industries Corporation (BSCIC), Industrial Finance of The Scheduled Banks and Other Financial Institution are financing in the capital market. These aspects and the recovery position have been analyzed to evaluate their contribution into the stock market.

9.1.6 Chapter- 6: Risk Return Behavior Analysis

This chapter deals with risk and return behavior analysis in the DSE before and after automation. Risk in holding securities is generally associated with the variances of expected returns. Capital Assets Pricing Model (CAPM) stipulates that investors in general should expect to be compensated for the systematic component of the total risk as measured by the variance of returns of a stock or portfolio of stock. The CAPM links together non-diversifiable risk and return for

all assets. The Beta co-efficient, β , measures non-diversifiable or systematic risk. It is an index of the degree of movement of an asset's return in response to a change in the market return.

The Kruskal Wallis Test is conducted in this chapter to determine whether two independent samples have been drawn from population with the same distribution for the test. The hypotheses are:

Null hypothesis: H_0 : There is no significant difference between before automation return and beta and after automation returns and beta for the securities in the sample.

Alternate hypothesis: H_1 : A difference exists between before automation return and beta and after automation return and beta for the securities in the sample.

In this chapter what is the relationship between Beta and Actual Monthly Mean Return among the different sectors that have been calculated. In the DSE there are as many as 12 sectors containing all the listed companies, but this study covers 9 sectors. The sectors are Bank, Investment, Engineering, Food and Allied Product, Jute, Textile, Pharmaceutical and Chemical, Miscellaneous and Insurance. In the first section before automation relationship has been furnished. Second section contains after automation relationship. And finally third section represents overall relationship between Beta and Actual Monthly Mean Return.

In this analysis Kruskal Wallis Test have been used to determine whether two independent samples have drawn from populations with the same distribution for the test. It has been observed that K values of all 9 sectors before and after automation are lower than chi-square value for a given degree of freedom and level of significance. The K value of overall risk return analysis before and after automation also shows lower than chi-square value for a given degree of freedom and level of significance. Therefore, the null hypothesis is accepted for every test and there is no difference between before automation beta and after automation beta that has been found out.

The result shows that there is no significant difference between the risk and return of different sectors before and after automation in the DSE. Furthermore, the overall analysis also shows that the test results also accept the null hypothesis. So, the automation system did not make any significant impact on risk return relationship of stocks of DSE.

9.1.7 Chapter- 7: Dividend Payment Practices and Its Impact on Security Price

This chapter deals with the dividend payment performance of DSE and it's impact on security price. It has been observed from the analysis that the total number of listed companies in the DSE were 231 in 2000 and out of those 127 companies were paying dividend and the rest could not at all paying dividend i.e., 50.70 % companies paying dividend regularly on the average. Out of that 32 companies pay 5% to 15% dividend, 24 companies pay 16% to 25% dividend, and

16 companies pay 26% and above dividend. This indicates that a major portion of listed companies in the DSE are paying 5 to 15% dividend among the share holders, which is not at all a good sign due to its poor dividend payment ratio for the DSE. If we compare the dividend payment of the listed companies with those of savings instruments which is almost risk free investment, usually pays 9.23% on average interest to the investors. We can therefore say that this investment which involves risk it is not giving at all a good indication because post office savings are risk free. Therefore, the investors may be inclined to those sectors, which are risk free, and hence the fund may be diverted to those sectors, which is an alarming signal for the DSE.

The chapter further indicates that out of 71 companies, only 15.56 companies are paying more or less handsome dividend. So, it can be said that the most of the listed companies of the DSE have failed to give sound dividend to its large number of shareholders. In addition to that Sector-wise Dividend Payment Analysis of listed securities in the DSE has also been analyzed in this chapter.

In this chapter dividend irrelevance theory and "Bird-in-the-hand" theory have been analyzed. What is the dividend announcement's effect on security price in the DSE that has also been analyzed. Total number of securities enlisted on Dhaka Stock Exchange Ltd. on December 31, 2000 was 241, including 219 equity shares, 1 ICB unit Certificate, 10 Mutual funds, and 11 debentures. There were 12 industrial sectors in total.

In this study actively traded securities in the DSE, which included only those companies which declared dividend regularly (Once in a year minimum within five years) for the last five years starting from 1995-96 to 1999-2000, have been selected for the sample size. So, 146 securities were randomly selected within this category, which represent 12 industrial sectors.

The announcement day is defined as day 0. Fifteen day (-15) before the announcement day was selected as the observation period whereas, Fifteen days (+15) after the announcement day was selected as the comparison period. To test for Statistical significance security price movement around dividend announcement date, the Student test was employed to measure the significance among the means of the samples, observation period, and comparison period.

In this chapter the statistical test represents that there is no significant impact of dividend announcements on the security prices on an average on the basis of the developed sample. The mean MDR in the observation period was smaller than the comparison period, The MDR of securities increased after the announcement of dividend which also indicates the ineffectiveness of dividend announcement to influence security prices. However, this information could not influence the market price of the securities. Because the positive effect of dividend announcement on the first day of announcement is cancelled out by the negative effect of the announcement on the second day of announcement, the MDR sharply declined to (-) 0.13% on the following day after first day of announcement.

9.1.8 Chapter- 8: Problems and Their Remedies

The study indicates that the DSE is not above criticism because it suffers from the problem of transparency particularly due to 1996 debacle. It further shows that the prospectus, which is published by the companies, suffers from vagueness because of its complicated nature and huge irrelevant information. It has been observed that majority of the companies could not pay sound dividend over the years; only 126 companies out of 231 could distribute handsome dividend i.e., more than the risk free rate.

It may be further noted that delay in dividend payment creates dissatisfaction among the investors and that has been practiced by majority of the companies over the years. Share market drama of 1996 is a great failure on the part of DSE, due to which it has lost the confidence of small and marginal investors. But the DSE or SEC could take up no serious and tangible action.

To save the small and marginal investors from huge capital loss in the year 1996, the study suggests that the small investors may be exempted from huge interest; and their loan may also be rescheduled so that they may not refrain themselves from the business of capital market.

The SEC report on the 1996 debacle should be published without any further delay for the interest of the general public and capital market development. For wider publicity of capital market, and for imparting sound knowledge regarding capital market a program should regularly be broadcasted and telecasted in the radio and television, which can be participated by the investors and the experts on the capital market. For popularizing the capital market sound and lucrative dividend should be paid by the listed companies failing which their registration may be cancelled. Strong exemplary punishment should be given to the actors of 1996 drama so that this type of evil game may not be generated further. It is further suggested that the DSE and SEC should be much more alert to check this sort of evil drama, if at all created by the persons connected with it.

9.2 Recommendations

The study shows that during the last 25 years growth trends of different activities of DSE were more or less sound and smooth. The analysis indicates that DSE has got sound and healthy growth over the years.

9.2.1 The size and the liquidity of a company provides some distribution features of a capital market. The market capitalization ratio, defined as the value of listed stocks dividend by GDP is used as a measure of stock market size. It has got economic significance because the market size is positively correlated with the ability to mobilize capital and diversify risk. Bangladesh stock markets have grown significantly during the last two decades. Still, the size of the market is relatively small compared to other Asian markets. Moreover, liquidity represented by the turnover ratio, measured as the value of total shares traded divided by market capitalization, was very

insignificant in Bangladesh. So, a thin market having small market capitalization ratio and low level of liquidity can characterize Bangladesh's capital market. Adequate measures are to be taken to expand this market.

9.2.2 The study shows that the β_{MF} for the 1st mutual fund to 8th ICB mutual funds' and for 1st BSRS mutual fund's values are always lower than 1 (market Beta) with the exception of 8th mutual fund. But it is very interesting to note that the β_{MF} for 8th mutual fund stood at (-) 0.29337. This is due to the unusual negative correlation between market return and the 8th mutual funds though all mutual funds have positive and less than 1 β_{MF} . So this is abnormal indeed. But other than this mutual fund, each and every mutual fund has positively correlated with market portfolio. The COV (see Table 4.14) also reveals the fact that the ASPI was much more volatile than the mutual funds starting from 1988-89 to 1999-2000. It has been observed from the table that COV is very unusual in case of 8th mutual fund i.e., negative return which implies something abnormal. These abnormalities should strictly be checked by the controlling authority.

9.2.3 The study shows that the risk adjustment performance measures of the 1st ICB Mutual Fund has been performing better than the market and achieved best consistence performance. On the other hand, other mutual funds were also performing better than the market but with a limited degree of fluctuations. So, it is recommended that for the development of capital market of Bangladesh, ICB should take adequate measures in investment sectors through which ICB can ensure smooth and healthy return for all the mutual funds for the benefits of the general public.

9.2.4 The study indicates that more than 60 percent of the commitment for funds were made on textile, chemical, pharmaceuticals, food and allied products. Sector-wise position of loan disbursement has also been carefully evaluated. The study indicates that major disbursements were made in textile, food and allied products which constituted (35.14+18.05=) 53.19 percent of the total disbursements. The recovery performance of ICB indicates that in total Tk. 122.91 crore were recovered during the period under study. On the other hand, Tk. 429.86 crore were calculated as overdue loans during the same period. It indicates that the overall performance of recovery was very poor which consequently increased the volume of overdue loans during the same period. Moreover, the study indicates that only 83 companies offered shares for public subscription although 295 projects were commercially operating during the period under study. In spite of the operations, about 70 percent companies did not enter into the stock market of Bangladesh, which was indeed a weakness of ICB's operations. The study also indicates that a large portion of the outstanding loans of ICB was stuck-up in two particular sectors i.e. (a) food and allied products (26.8%) and (b) specialized jute products, jute and textiles sector (43.00%). In total 121 cases were filed against the defaulters for realization of overdue loans of Tk. 181.75 crore. The study indicates that only 67 decrees were obtained for realization of Tk. 99.12 crore during the period under study. It is therefore suggested that the ICB should be much more

cautious and vigilant in regard to its investment policy and recovery. The healthy growth of ICB is depended mainly upon two aspects i.e., investment and recovery. Therefore, ICB should undertake feasibility studies for identification of proper investment project in different sectors of the economy and take adequate measures for recovery. Proper monitoring and evaluation of investment projects is a pre-requisite for ensuring good returns.

9.2.5 In the risk return analysis of the thesis Kruskal Wallis Test have been used to determine whether two independent samples have drawn from populations with the same distribution for the test. It has been observed that K values of all 9 sectors before and after automation are lower than chi-square value for a given degree of freedom and level of significance. The K value of overall risk return analysis before and after automation also shows lower than chi-square value for a given degree of freedom and level of significance. The result shows that there is no significant difference between the risk and return of different sectors before and after automation in the DSE. In addition to that the overall analysis also shows that the test results also accept the null hypothesis. So, the automation system did not make any significant impact on risk return relationship of stocks of DSE. But it was expected that the automation measure would improve the situation. So, the authority should take more care in attaining better results.

9.2.6 Since stock price manipulation in 1996, heavily damaged the scope of emerging stock market and lost the confidence of the marginal investors, it was essential to develop the confidence level of the investors through various reforms including automation. But it has been observed that all reforms program and regulatory measures to improve the unhealthy situation of DSE failed to achieve the desired result. This was evident in the study which reveals that even after automation of trading, the bearish trend still continues in DSE. If stock markets are considered leading indicators of an economy, then one should conclude that the economic fundamentals are not healthy for the economy as a whole. But this situation should not be allowed to continue for long. Attempts should be made at both public and private levels to improve the situation.

9.2.7 Dividend relevance and irrelevance theory reveals that issue of effect of dividend on security price is still inconclusive. Those who believe in market incompleteness and the existence of asymmetry of information among participants regarding the dividend announcements as instruments of conveying information about the company should properly be guided and informed about the reforms. Hence, in this category, researchers found dividend announcement as a strong signaling device, which influences the security prices. The study shows that the Dhaka Stock Exchange's, dividend announcement does not carry positive information about the company. This effect may be a result of many factors. But those evil factors should immediately be removed.

9.2.8 Investors usually expect on an average that the market price of stock will fall by more than the amount of dividend declared on the first day of closing period in an imperfect DSE

market. Hence, they prefer top selling the stock with cum-dividend price after the announcement date before the closing period. This price-pressure effect after the dividend announcement date may nullify the effect of dividend announcement on the stock price. So, this tendency should be reduced by proper training and motivation.

9.2.9 Asymmetric information sometimes misleads both management and the shareholders. This kind of situation is a common phenomenon in inefficient markets like DSE. The ineffectiveness of the regulatory agencies sometimes also causes distortions in the market. Under the present context, presence of unorganized Kerb market is an example of ineffectiveness of the regulatory agency and the government. Capital market of Dhaka is still an infant market, which still needs proper care and nursing to accommodate all the avenues of security trading here. So, the regulatory body should be stronger and effective enough to reduce the effect of kerb market.

9.2.10 It is therefore, suggested that all the listed companies in the DSE should maintain a good and healthy dividend policy through which capital market investment can be geared up. Out of total 12 sectors, only a few sectors has been providing a handsome and sound dividend payment to the shareholders, namely investment, engineering and pharmaceuticals and chemicals. Since the test result shows that there is no dividend announcement effect in the security price in the DSE, it is therefore suggested that manipulation, insider trading and presence of kerb market should be abolished to develop the capital market very smoothly.

9.3 Conclusions

This study on Dhaka Stock Exchange was basically designed to examine the trends of its growth, mutual funds' performance, risk return behavior analysis and dividend payment practices by the listed companies and its impact on security price and finally to appraise its performance. Although the study was based on the secondary data, but some primary data and information were collected for this work. Personal experiences and observations of the researcher were also utilized here.

In evaluating the role of DSE as a pioneer stock exchange, objectivity was given priority and personal bias was completely avoided with a view to making the study genuine, sound and authentic. In the growth trend analysis, regression analysis has been used as a statistical tool. In mutual funds' performance analysis Treynor Index, Sharp Index and Jensen Index have been used. What is the role of ICB and other DFIs in the development of capital market in Bangladesh has also been analyzed with the help of regression analysis. To examine the risk return relationship before and after automation in the DSE, Kurskal Wallis Test was applied. To evaluate dividend payment performance and its impact on security price, mean daily return and t-statistic has been used to make the evaluation sound and healthy. These tools were helpful for carrying on meaningful analysis.

The findings suggest that the overall growth trend of DSE has been increased over the years. Risk adjusted performance measures show that the 1st ICB Mutual Fund has been performing the best, while the other mutual funds performing better than the market but with a limited degree of fluctuations. ICB has been playing a significant and positive role for the development of capital market of Bangladesh since long. In the DSE, ICB's participation can not be ignored for a while. ICB has been providing a major contribution in the total turnover of the DSE but the analysis indicates that the recovery position of ICB is not sound. A huge amount of public money remained unrecovered.

The Kurskal Wallis Test demonstrates that there was no significant difference between the mean of the two populations. In other words, automation did not make any significant impact on the risk-return relationship on stock or investors' confidence. It has been observed in the analysis that there is no significant difference between the risk and return of different sectors before and after automation in the DSE. Furthermore, the overall analysis also shows that the test results also accept the null hypothesis. So, the automation system did not make any significant impact on risk return relationship of stocks of DSE. Therefore, the authority should take effective measures and reforms to improve the situation.

In the dividend payment performance analysis the statistical test and the result represent that there is no significant impact of dividend announcements. The mean MDR in the observation period was smaller than that of the of comparison period, The MDR of securities increased after the announcement of dividend which also indicates the ineffectiveness of dividend announcement to influence security prices. However, this information could not influence the market price of the securities. Because the positive effect of dividend announcement on the first day of announcement is cancelled out by the negative effect of the announcement on the second day of announcement. The MDR sharply declined to (-) 0.13% on the following day after first day of announcement.

In fine, it can be stated that DSE as a pioneer stock exchange and financial institution has developed a mechanism of its own through trial and error method which now needs a thorough checkup for its modification and improvement to face the challenges of globalization. DSE has been passing through a crucial juncture due to the share market crisis in 1996. To improve its functioning and for its survival it will have to do the following tasks through which the goodwill it has lost in the recent past that can be recovered.

It is therefore, suggested that the following measures can be taken for the development of capital market. (a) The listed companies that pay regular dividends should be given tax incentives and tax rebates as well. (b) The mode of privatization of industries should be implemented through the public issuance of shares. This will deepen the securities market, diffuse ownership and bring in market disciplines. (c) The government should off-load its equity holdings in State-Owned Enterprises (SOEs) and Multinational Companies (MNCs) through the stock market. This will improve the supply of securities in the market. (d) The bond market needs to be developed. The

implementation of government securities with medium-term and long-term maturities will also broaden the base of the bond market. (e) Establishment of separate judicial security tribunal for dealing with cases related to securities market will improve recovery situation.

9.4 Limitations of the Study

In evaluating the growth performance we used data of the last two decades. But the interpretation of the data may be questioned due to a particular year i.e., 1996, which was an abnormal year. However, considering this particular limitation, we were very much careful in analyzing the growth trend keeping in view this year's activities into consideration. This particular limitation is because of the abnormality of the year 1996 and not because of our weak tools or techniques of interpretation. However, some calculations were made excluding this year's data for reflecting the real position.

Normally, we used, in this study, a period of about two decades beginning from 1976. But because of paucity of data of certain initial years, we could not use those for interpretation of our problem. This is one of the limitations of our present study. However, as far as possible we tried to cover this particular limitation by cross-examining other relevant records and by discussion with the key officials of DSE.

This study was particularly based on Bangladesh with special emphasis on DSE. This study could be much wider, if a comparative study on India, Pakistan or Sri Lanka could be done. We had a mind to do it, but due to shortage of time, money and other constraints, we could not do it. Future researchers may undertake such wider study.

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Appendices

Appendix Table 4.1

Closing Price of Eight ICB Mutual Funds and BSRS MF

Serial No.	Code No.	Name of the company	Closing Price						FV/ML
			26.06.95	30.06.96	30.06.97	30.06.98	30.06.99	29.06.00	
			1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	
1	151	1st ICB MF	1030	2200	2810	1260	1417.75	1410	100/5
2	153	2nd ICB MF	485	1219.98	625	470	520	366	100/5
3	154	3rd ICB MF	336	624	497.4	442.6	485	371.5	100/5
4	155	4th ICB MF	420	795	561	452.28	421	352.25	100/10
5	156	5th ICB MF	309	441.25	428.89	319.31	284.75	254.5	100/10
6	157	6th ICB MF	196	257.76	270.01	222.04	200.25	146.5	100/10
7	158	7th ICB MF		222.78	248.22	220	140.25	149.25	100/50
8	159	8th ICB MF		504.53	237	183.46	121.5	129.5	100/50
9	160	1st BSRS		231.22	150.15	90.5	66.25	69.75	100/50
		Market Index	750	959.05	1111.55	676.47	546.79	561	

Source: DSE Monthly Review, various issues.

Appendix Table 4.2

Bank Rate and Interest Rates on Savings Deposit and Treasury Bill (%).

On 1st July	Treasury Bill	Bank Rate	Post Office Savings Bank Rate
1988	8	10.75	11.5
1989	8	10.75	11.5
1990	7.5	9.75	11.5
1991	7.5	9.75	11.5
1992	7	8.5	8
1993	4.25	6.5	8
1994	3.5	5.5	8
1995	8	6	8
1996	7	6.5	8
1997	9	7.5	8.5
1998	9	8	8.5
1999	9	7	8.5
2000	5	7	8.5
Average	7.135	7.96	9.23

Source: Economic Trends- Monthly (September 1989 to September 1994), Statistics Department,
Bangladesh Bank and Internet file: Economic Trends-Table-XIV 2.htm

Appendix Table 6.1

Market Index

Before Automation					After Automation				
Month	Opening Index	Closing Index	Return (%)	Rm	Month	Opening Index	Closing Index	Return (%)	Rm
August, 95	772.00	778.53	0.838760228	0.8388	November, 98	597.25	570.64	-4.6632	-4.6632
September, 95	778.53	836.78	6.961208442	6.9612	December, 98	563.17	540.22	-4.2483	-4.2483
October, 95	834.17	887.99	6.060879064	6.0609	January, 99	535.45	537.18	0.3221	0.3221
November, 95	888.42	844.14	-5.245575378	-5.2456	February, 99	540.13	535.79	-0.8100	-0.81
December, 95	843.78	834.73	-1.084182909	-1.0842	March, 99	536.13	516.94	-3.7122	-3.7122
January, 96	832.56	775.65	-7.337072133	-7.3371	April, 99	517.39	480.55	-7.6662	-7.6662
February, 96	775.57	792.60	2.148624779	2.1486	May, 99	471.61	508.64	7.2802	7.2802
March, 96	793.44	804.81	1.412755806	1.4127	June, 99	510.59	546.79	6.6205	6.6205
April, 96	813.95	834.93	2.512785503	2.5128	July, 99	546.79	529.40	-3.2849	-3.2849
May, 96	841.07	864.87	2.751858661	2.7519	August, 99	529.40	512.63	-3.2714	-3.2714
June, 96	859.89	959.05	10.33939836	10.3394	September, 99	507.72	502.33	-1.0730	-1.073
July, 96	956.70	1156.80	17.29771784	17.2977	October, 99	502.34	533.76	5.8865	5.8865
August, 97	963.98	823.82	-17.01342526	-17.0134	November, 99	533.76	487.27	-9.5409	-9.5409
September, 97	818.88	939.91	12.8767648	12.8768	December, 99	487.27	487.77	0.1025	0.1025
October, 97	956.56	839.61	-13.92908612	-13.9291	January, 00	489.16	484.44	-0.9743	-0.9743
November, 97	841.58	763.64	-10.20637997	-10.2064	February, 00	486.53	493.55	1.4223	1.4223
December, 97	724.63	756.78	4.248262375	4.2483	March, 00	493.55	517.24	4.5801	4.5801
January, 98	752.61	741.83	-1.453163124	-1.4532	April, 00	517.24	519.47	0.4293	0.4293
February, 98	758.27	687.53	-10.28900557	-10.289	May, 00	512.80	532.91	3.7736	3.7736
March, 98	678.76	644.77	-5.271647254	-5.2716	June, 00	531.18	561.00	5.3155	5.3155
April, 98	641.49	574.39	-11.68195825	-11.6819	July, 00	565.90	639.23	11.4716	11.4716
May, 98	592.95	628.18	5.608265147	5.6083	August, 00	639.23	660.93	3.2833	3.2833
June, 98	613.68	676.47	9.282008071	9.282	September, 00	660.93	623.20	-6.0542	-6.0542
July, 98	676.47	597.25	-13.26412725	-13.2641	October, 00	623.20	644.11	3.2463	3.2463

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Banking Sector

Appendix Table 6.2

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	74.00	73.00	-1.3699	0.8388	November, 98	71.00	75.00	5.33333333	-4.663
September, 95	73.00	73.00	0.0000	6.9612	December, 98	75.00	85.00	11.7647059	-4.248
October, 95	73.00	73.00	0.0000	6.0609	January, 99	85.00	85.00	0	0.3221
November, 95	73.00	80.00	8.7500	-5.2456	February, 99	85.00	85.00	0	-0.81
December, 95	80.00	83.00	3.6145	-1.0842	March, 99	85.00	65.00	-30.769231	-3.712
January, 96	83.00	82.00	-1.2195	-7.3371	April, 99	65.00	77.25	15.8576052	-7.666
February, 96	82.00	80.00	-2.5000	2.1486	May, 99	77.25	78.75	1.9047619	7.2802
March, 96	80.00	80.00	0.0000	1.4127	June, 99	78.75	88.00	10.5113636	6.6205
April, 96	80.00	80.00	0.0000	2.5128	July, 99	88.00	87.50	-0.5714286	-3.285
May, 96	80.00	80.00	0.0000	2.7519	August, 99	87.50	69.00	-26.811594	-3.271
June, 96	80.00	90.00	11.1111	10.339	September, 99	69.00	72.50	4.82758621	-1.073
July, 96	90.00	90.00	0.0000	17.298	October, 99	72.50	73.00	0.68493151	5.8865
August, 97	125.00	125.00	0.0000	-17.013	November, 99	73.00	125.75	41.9483101	-9.541
September, 97	125.00	125.00	0.0000	12.877	December, 99	125.75	120.25	-4.5738046	0.1025
October, 97	125.00	125.00	0.0000	-13.929	January, 00	120.25	118.25	-1.6913319	-0.974
November, 97	125.00	76.25	-63.9344	-10.206	February, 00	118.25	125.00	5.4	1.4223
December, 97	76.25	72.00	-5.9028	4.2483	March, 00	125.00	65.00	-92.307692	4.5801
January, 98	72.00	76.25	5.5738	-1.4532	April, 00	65.00	80.00	18.75	0.4293
February, 98	76.25	70.00	-8.9286	-10.289	May, 00	80.00	78.00	-2.5641026	3.7736
March, 98	70.00	62.92	-11.2524	-5.2716	June, 00	78.00	90.25	13.5734072	5.3155
April, 98	62.92	75.00	16.1067	-11.682	July, 00	90.25	75.96	-18.812533	11.472
May, 98	75.00	70.00	-7.1429	5.6083	August, 00	75.96	73.50	-3.3469388	3.2833
June, 98	70.00	71.00	1.4085	9.282	September, 00	73.50	71.00	-3.5211268	-6.054
July, 98	71.00	71.00	0.0000	-13.264	October, 00	71.00	75.00	5.33333333	3.2463
Average			-2.3202					-2.0450	

Regression Analysis (Rupali Bank)

0.194663						0.288112					
0.037894						0.083008					
-0.00584						0.041327					
14.43667						23.63628					
24						24					

Df	SS	MS	F	Significance F		Df	SS	MS	F	Significance F
1	180.5926	180.5926	0.866494479	0.36203059		1	1112.594	1112.594	1.991492	0.1721711
22	4585.185	208.4175				22	12290.82	558.6736		
23	4765.777					23	13403.41			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-2.13595	2.953517	-0.7231	0.477184112	-8.26117098	3.989281		-1.57094	4.836416	-0.3248	0.74839	-11.601062	8.459187137
X Variable 1	0.3064	0.329159	0.93085	0.36203059	-0.37623493	0.989035	X Variable 1	-1.34887	0.955827	-1.4112	0.172171	-3.3311321	0.633400962

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.3

Eastern Bank

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	100.00	100.00	0.0000	0.8388	November, 98	100.00	100.00	0	-4.663
September, 95	100.00	100.00	0.0000	6.9612	December, 98	100.00	104.50	4.3062201	-4.248
October, 95	100.00	100.00	0.0000	6.0609	January, 99	104.50	104.50	0	0.3221
November, 95	100.00	100.00	0.0000	-5.2456	February, 99	104.50	104.50	0	-0.81
December, 95	100.00	100.00	0.0000	-1.0842	March, 99	104.50	104.50	0	-3.712
January, 96	100.00	97.50	-2.5641	-7.3371	April, 99	104.50	104.50	0	-7.666
February, 96	97.50	97.50	0.0000	2.1486	May, 99	104.50	104.50	0	7.2802
March, 96	97.50	97.50	0.0000	1.4127	June, 99	104.50	104.50	0	6.6205
April, 96	97.50	97.50	0.0000	2.5128	July, 99	104.50	104.50	0	-3.285
May, 96	97.50	97.50	0.0000	2.7519	August, 99	104.50	104.50	0	-3.271
June, 96	97.50	97.50	0.0000	10.339	September, 99	104.50	104.50	0	-1.073
July, 96	97.50	97.50	0.0000	17.298	October, 99	104.50	114.00	8.33333333	5.8865
August, 97	97.50	100.00	2.5000	-17.013	November, 99	114.00	114.00	0	-9.541
September, 97	100.00	100.00	0.0000	12.877	December, 99	114.00	103.25	-10.411622	0.1025
October, 97	100.00	100.00	0.0000	-13.929	January, 00	103.25	103.25	0	-0.974
November, 97	100.00	100.00	0.0000	-10.206	February, 00	103.25	103.25	0	1.4223
December, 97	100.00	100.00	0.0000	4.2483	March, 00	103.25	112.00	7.8125	4.5801
January, 98	100.00	100.00	0.0000	-1.4532	April, 00	112.00	106.00	-5.6603774	0.4293
February, 98	100.00	100.00	0.0000	-10.289	May, 00	106.00	108.00	1.85185185	3.7736
March, 98	100.00	100.00	0.0000	-5.2716	June, 00	108.00	120.00	10	5.3155
April, 98	100.00	100.00	0.0000	-11.682	July, 00	120.00	120.00	0	11.472
May, 98	100.00	100.00	0.0000	5.6083	August, 00	120.00	140.00	14.2857143	3.2833
June, 98	100.00	100.00	0.0000	9.282	September, 00	140.00	191.00	26.7015707	-6.054
July, 98	100.00	100.00	0.0000	-13.264	October, 00	191.00	125.00	-52.8	3.2463
Average			-0.0027		Average			0.1841	

Regression Analysis (Eastern Bank)

0.15127					0.10394				
0.02288					0.0108				
-0.0215					-0.0342				
0.75471					13.5726				
24					24				

Df	SS	MS	F	Significance F	df	SS	MS	F	Significance F
1	0.29345	0.29345	0.51519325	0.480452417	1	44.2639	44.2639	0.24028	0.628853
22	12.531	0.56959			22	4052.71	184.214		
23	12.8245				23	4096.98			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.0101	0.1544	-0.0654	0.9484344	-0.33031147	0.31011		0.27869	2.77719	0.10035	0.92097	-5.48086	6.038246397
X Variable 1	-0.0124	0.01721	-0.7178	0.48045242	-0.04803751	0.02334	X Variable 1	-0.269	0.54886	-0.4902	0.62885	-1.407313	0.869222875

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.4

IDLC

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	1955.75	1837.25	-6.4499	0.8388	November, 98	727.00	511.25	-42.200489	-4.663
September, 95	1837.25	1776.67	-3.4097	6.9612	December, 98	511.25	595.00	14.0756303	-4.248
October, 95	1776.67	2111.64	15.8630	6.0609	January, 99	595.00	481.50	-23.57217	0.3221
November, 95	2111.64	2063.33	-2.3414	-5.2456	February, 99	481.50	465.00	-3.5483871	-0.81
December, 95	2063.33	1816.43	-13.5926	-1.0842	March, 99	465.00	420.00	-10.714286	-3.712
January, 96	1816.43	1595.00	-13.8828	-7.3371	April, 99	420.00	373.50	-12.449799	-7.666
February, 96	1595.00	1558.75	-2.3256	2.1486	May, 99	373.50	415.00	10	7.2802
March, 96	1558.75	1590.00	1.9654	1.4127	June, 99	415.00	435.50	4.70723307	6.6205
April, 96	1590.00	2161.00	26.4230	2.5128	July, 99	435.50	400.00	-8.875	-3.285
May, 96	2161.00	2036.67	-6.1046	2.7519	August, 99	400.00	376.00	-6.3829787	-3.271
June, 96	2036.67	2608.60	21.9248	10.339	September, 99	376.00	366.00	-2.7322404	-1.073
July, 96	2608.60	2985.00	12.6097	17.298	October, 99	366.00	451.00	18.8470067	5.8865
August, 97	1719.00	1595.47	-7.7425	-17.013	November, 99	451.00	420.00	-7.3809524	-9.541
September, 97	1595.47	1376.95	-15.8699	12.877	December, 99	420.00	446.25	5.88235294	0.1025
October, 97	1376.95	961.00	-43.2830	-13.929	January, 00	446.25	426.00	-4.7535211	-0.974
November, 97	961.00	839.00	-14.5411	-10.206	February, 00	426.00	444.75	4.2158516	1.4223
December, 97	839.00	924.24	9.2227	4.2483	March, 00	444.75	450.00	1.16666667	4.5801
January, 98	924.24	898.00	-2.9220	-1.4532	April, 00	450.00	470.75	4.4078598	0.4293
February, 98	898.00	877.00	-2.3945	-10.289	May, 00	470.75	434.00	-8.4677419	3.7736
March, 98	877.00	813.00	-7.8721	-5.2716	June, 00	434.00	501.00	13.3732535	5.3155
April, 98	813.00	704.88	-15.3388	-11.682	July, 00	501.00	560.75	10.6553723	11.472
May, 98	704.88	737.53	4.4269	5.6083	August, 00	560.75	540.00	-3.8425926	3.2833
June, 98	737.53	755.10	2.3268	9.282	September, 00	540.00	500.00	-8	-6.054
July, 98	755.10	727.00	-3.8652	-13.264	October, 00	500.00	485.00	-3.0927835	3.2463
Average			-2.7989		Average			-2.4451	

Regression Analysis (IDLC)

0.568574					0.540116					
0.323277					0.291726					
0.292517					0.259532					
12.04611					11.17728					
24					24					

df	SS	MS	F	Significance F	df	SS	MS	F	Significance F
1	1525.036	1525.036	10.50960112	0.003743551	1	1132.057	1132.057	9.061417	0.0064402
22	3192.394	145.1088			22	2748.494	124.9315		
23	4717.43				23	3880.551			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-2.26331	2.464446	-0.9183	0.36837669	-7.37426532	2.847642		-2.92328	2.287076	-1.2781	0.21451	-7.6663925	1.819829697
X Variable 1	0.890387	0.274654	3.24185	0.003743551	0.32078917	1.459985	X Variable 1	1.360613	0.451998	3.01021	0.00644	0.4232253	2.29799974

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.5

UCBL

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	112.50	120.00	6.2500	0.8388	November, 98	90.00	89.00	-1.1235955	-4.663
September, 95	120.00	125.00	4.0000	6.9612	December, 98	89.00	70.50	-26.241135	-4.248
October, 95	125.00	100.00	-25.0000	6.0609	January, 99	70.50	77.00	8.44155844	0.3221
November, 95	100.00	96.25	-3.8961	-5.2456	February, 99	77.00	70.00	-10	-0.81
December, 95	96.25	90.00	-6.9444	-1.0842	March, 99	70.00	70.00	0	-3.712
January, 96	90.00	90.00	0.0000	-7.3371	April, 99	70.00	65.00	-7.6923077	-7.666
February, 96	90.00	90.00	0.0000	2.1486	May, 99	65.00	68.25	4.76190476	7.2802
March, 96	90.00	85.00	-5.8824	1.4127	June, 99	68.25	76.50	10.7843137	6.6205
April, 96	85.00	90.00	5.5556	2.5128	July, 99	76.50	77.75	1.60771704	-3.285
May, 96	90.00	90.00	0.0000	2.7519	August, 99	77.75	69.00	-12.681159	-3.271
June, 96	90.00	95.00	5.2632	10.339	September, 99	69.00	72.50	4.82758621	-1.073
July, 96	95.00	105.00	9.5238	17.298	October, 99	72.50	73.00	0.68493151	5.8865
August, 97	92.40	93.50	1.1765	-17.013	November, 99	73.00	68.25	-6.959707	-9.541
September, 97	93.50	93.00	-0.5376	12.877	December, 99	68.25	64.50	-5.8139535	0.1025
October, 97	93.00	95.64	2.7604	-13.929	January, 00	64.50	64.00	-0.78125	-0.974
November, 97	95.64	83.00	-15.2289	-10.206	February, 00	64.00	69.00	7.24637681	1.4223
December, 97	83.00	83.00	0.0000	4.2483	March, 00	69.00	70.50	2.12765957	4.5801
January, 98	83.00	88.00	5.6818	-1.4532	April, 00	70.50	75.00	6	0.4293
February, 98	88.00	85.00	-3.5294	-10.289	May, 00	75.00	75.25	0.33222591	3.7736
March, 98	85.00	81.00	-4.9383	-5.2716	June, 00	75.25	76.00	0.98684211	5.3155
April, 98	81.00	81.00	0.0000	-11.682	July, 00	76.00	79.00	3.79746835	11.472
May, 98	81.00	75.00	-8.0000	5.6083	August, 00	79.00	80.00	1.25	3.2833
June, 98	75.00	100.21	25.1572	9.282	September, 00	80.00	89.50	10.6145251	-6.054
July, 98	100.21	90.00	-11.3444	-13.264	October, 00	89.50	81.50	-9.8159509	3.2463
Average			-0.8306		Average			-0.7352	

Regression Analysis (UCBL)

0.305209					0.38105				
0.093153					0.145199				
0.051932					0.106345				
9.185079					7.971472				
24					24				

df	SS	MS	F	Significance F	df	SS	MS	F	Significance F
1	190.6554	190.6554	2.259869404	0.146985592	1	237.4649	237.4649	3.736994	0.0661924
22	1856.045	84.36568			22	1397.976	63.54436		
23	2046.7				23	1635.441			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.64118	1.879123	-0.3412	0.736179309	-4.53825224	3.255883		-0.95427	1.631109	-0.5850	0.564472	-4.3369857	2.428449575
X Variable 1	0.314821	0.209422	1.50328	0.146985592	-0.11949374	0.749135	X Variable 1	0.623161	0.322358	1.93313	0.066192	-0.0453702	1.291691559

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.6

Pubali Bank

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	90.00	90.00	0.0000	0.8388	November, 98	115.00	100.00	-15	-4.663
September, 95	90.00	90.00	0.0000	6.9612	December, 98	100.00	109.50	8.67579909	-4.248
October, 95	90.00	90.00	0.0000	6.0609	January, 99	109.50	105.00	-4.2857143	0.3221
November, 95	90.00	90.00	0.0000	-5.2456	February, 99	105.00	100.00	-5	-0.81
December, 95	90.00	90.00	0.0000	-1.0842	March, 99	100.00	125.00	20	-3.712
January, 96	90.00	91.00	1.0989	-7.3371	April, 99	125.00	115.00	-8.6956522	-7.666
February, 96	91.00	91.00	0.0000	2.1486	May, 99	115.00	110.00	-4.5454545	7.2802
March, 96	91.00	91.00	0.0000	1.4127	June, 99	110.00	115.00	4.34782609	6.6205
April, 96	91.00	90.00	-1.1111	2.5128	July, 99	115.00	140.00	17.8571429	-3.285
May, 96	90.00	90.00	0.0000	2.7519	August, 99	140.00	122.50	-14.285714	-3.271
June, 96	90.00	80.00	-12.5000	10.339	September, 99	122.50	121.00	-1.2396694	-1.073
July, 96	80.00	85.00	5.8824	17.298	October, 99	121.00	120.00	-0.8333333	5.8865
August, 97	95.00	95.00	0.0000	-17.013	November, 99	120.00	125.75	4.57256461	-9.541
September, 97	95.00	95.00	0.0000	12.877	December, 99	125.75	120.25	-4.5738046	0.1025
October, 97	95.00	90.00	-5.5556	-13.929	January, 00	120.25	118.25	-1.6913319	-0.974
November, 97	90.00	90.00	0.0000	-10.206	February, 00	118.25	125.00	5.4	1.4223
December, 97	90.00	115.00	21.7391	4.2483	March, 00	125.00	120.00	-4.1666667	4.5801
January, 98	115.00	115.00	0.0000	-1.4532	April, 00	120.00	117.00	-2.5641026	0.4293
February, 98	115.00	113.25	-1.5453	-10.289	May, 00	117.00	111.50	-4.9327354	3.7736
March, 98	113.25	113.25	0.0000	-5.2716	June, 00	111.50	109.00	-2.293578	5.3155
April, 98	113.25	113.25	0.0000	-11.682	July, 00	109.00	112.64	3.23153409	11.472
May, 98	113.25	113.00	-0.2212	5.6083	August, 00	112.64	120.00	6.13333333	3.2833
June, 98	113.00	111.00	-1.8018	9.282	September, 00	120.00	125.00	4	-6.054
July, 98	111.00	115.00	3.4783	-13.264	October, 00	125.00	111.50	-12.107623	3.2463
Average			0.3943		Average			-0.4999	

Regression Analysis (Pubali Bank)

0.0760121					0.0775899				
0.0057778					0.0060202				
-0.039414					-0.039161				
5.6676561					8.8052416				
24					24				

df	SS	MS	F	Significance F	Df	SS	MS	F	Significance F
1	4.106878	4.106878	0.127851204	0.724077943	1	10.3309	10.3309	0.1332464	0.71857524
22	706.69116	32.122326			22	1705.7102	77.53228		
23	710.79804				23	1716.0411			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.4221132	1.1595137	0.36404	0.719301045	-1.98257361	2.8268001		-0.4542	1.8017141	-0.2520	0.8033093	-4.19073006	3.282330805
X Variable 1	0.0462056	0.1292237	0.35756	0.724077943	-0.22178830	0.3141995	X Variable 1	-0.129978	0.3560751	-0.3650	0.7185752	-0.86843325	0.608477506

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.7

Uttara Bank

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	97.00	93.50	-3.7433	0.8388	November, 98	80.00	91.50	12.568306	-4.663
September, 95	93.50	100.00	6.5000	6.9612	December, 98	91.50	80.00	-14.375	-4.248
October, 95	100.00	95.15	-5.0972	6.0609	January, 99	80.00	87.00	8.04597701	0.3221
November, 95	95.15	90.00	-5.7222	-5.2456	February, 99	87.00	84.00	-3.5714286	-0.81
December, 95	90.00	80.00	-12.5000	-1.0842	March, 99	84.00	85.00	1.17647059	-3.712
January, 96	80.00	82.00	2.4390	-7.3371	April, 99	85.00	75.00	-13.333333	-7.666
February, 96	82.00	80.00	-2.5000	2.1486	May, 99	75.00	85.25	12.0234604	7.2802
March, 96	80.00	75.00	-6.6667	1.4127	June, 99	85.25	86.00	0.87209302	6.6205
April, 96	75.00	76.00	1.3158	2.5128	July, 99	86.00	81.25	-5.8461538	-3.285
May, 96	76.00	76.00	0.0000	2.7519	August, 99	81.25	87.75	7.40740741	-3.271
June, 96	76.00	80.00	5.0000	10.339	September, 99	87.75	89.25	1.68067227	-1.073
July, 96	80.00	80.00	0.0000	17.298	October, 99	89.25	80.25	-11.214953	5.8865
August, 97	89.54	88.00	-1.7500	-17.013	November, 99	80.25	77.00	-4.2207792	-9.541
September, 97	88.00	110.47	20.3404	12.877	December, 99	77.00	65.00	-18.461538	0.1025
October, 97	110.47	90.00	-22.7444	-13.929	January, 00	65.00	77.00	15.5844156	-0.974
November, 97	90.00	90.00	0.0000	-10.206	February, 00	77.00	76.00	-1.3157895	1.4223
December, 97	90.00	90.00	0.0000	4.2483	March, 00	76.00	75.00	-1.3333333	4.5801
January, 98	90.00	88.67	-1.4999	-1.4532	April, 00	75.00	84.25	10.9792285	0.4293
February, 98	88.67	90.50	2.0221	-10.289	May, 00	84.25	77.75	-8.3601286	3.7736
March, 98	90.50	82.00	-10.3659	-5.2716	June, 00	77.75	83.50	6.88622754	5.3155
April, 98	82.00	77.33	-6.0391	-11.682	July, 00	83.50	85.26	2.06427399	11.472
May, 98	77.33	84.00	7.9405	5.6083	August, 00	85.26	90.50	5.79005525	3.2833
June, 98	84.00	80.00	-5.0000	9.282	September, 00	90.50	109.50	17.3515982	-6.054
July, 98	80.00	80.00	0.0000	-13.264	October, 00	109.50	120.55	9.16632103	3.2463
Average			-1.5863		Average			1.2318	

Regression Analysis (Uttara Bank)

	0.456873						0.0930371					
	0.208733						0.0086559					
	0.1727663						-0.036405					
	7.2629179						9.9873042					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	306.13497	306.13497	5.803508973	0.024808357			1	19.16051	19.16051	0.1920925	0.66545421
	22	1160.4995	52.749977					22	2194.4174	99.746246		
	23	1466.6345						23	2213.5779			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.346331	1.4858793	-0.9060	0.374708782	-4.42785951	1.7351973		1.1696222	2.0435859	0.57233	0.5728958	-3.06852	5.407764416
X Variable 1	0.3989287	0.165596	2.40904	0.024808357	0.05550316	0.7423542	X Variable 1	0.1770125	0.4038765	0.43828	0.6654542	-0.66057709	1.014602041

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.8

NBL

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	133.00	135.00	1.4815	0.8388	November, 98	77.29	70.75	-9.2438163	-4.663
September, 95	135.00	135.00	0.0000	6.9612	December, 98	70.75	65.25	-8.4291188	-4.248
October, 95	135.00	135.00	0.0000	6.0609	January, 99	65.25	63.00	-3.5714286	0.3221
November, 95	135.00	112.00	-20.5357	-5.2456	February, 99	63.00	67.00	5.97014925	-0.81
December, 95	112.00	112.25	0.2227	-1.0842	March, 99	67.00	61.75	-8.5020243	-3.712
January, 96	112.25	121.33	7.4837	-7.3371	April, 99	61.75	56.25	-9.7777778	-7.666
February, 96	121.33	125.00	2.9360	2.1486	May, 99	56.25	55.75	-0.896861	7.2802
March, 96	125.00	121.00	-3.3058	1.4127	June, 99	55.75	57.75	3.46320346	6.6205
April, 96	121.00	150.00	19.3333	2.5128	July, 99	57.75	62.75	7.96812749	-3.285
May, 96	150.00	117.33	-27.8445	2.7519	August, 99	62.75	70.00	10.3571429	-3.271
June, 96	117.33	142.13	17.4488	10.339	September, 99	70.00	71.50	2.0979021	-1.073
July, 96	142.13	159.19	10.7168	17.298	October, 99	71.50	69.00	-3.6231884	5.8865
August, 97	103.53	101.06	-2.4441	-17.013	November, 99	69.00	61.75	-11.740891	-9.541
September, 97	101.06	100.92	-0.1387	12.877	December, 99	61.75	61.00	-1.2295082	0.1025
October, 97	100.92	94.51	-6.7824	-13.929	January, 00	61.00	62.25	2.00803213	-0.974
November, 97	94.51	86.77	-8.9201	-10.206	February, 00	62.25	65.75	5.32319392	1.4223
December, 97	86.77	84.12	-3.1503	4.2483	March, 00	65.75	77.25	14.8867314	4.5801
January, 98	84.12	88.13	4.5501	-1.4532	April, 00	77.25	106.25	27.2941176	0.4293
February, 98	88.13	81.53	-8.0952	-10.289	May, 00	106.25	108.00	1.62037037	3.7736
March, 98	81.53	74.43	-9.5392	-5.2716	June, 00	108.00	113.00	4.42477876	5.3155
April, 98	74.43	70.00	-6.3286	-11.682	July, 00	113.00	163.75	30.9923664	11.472
May, 98	70.00	79.93	12.4234	5.6083	August, 00	163.75	168.00	2.5297619	3.2833
June, 98	79.93	81.57	2.0105	9.282	September, 00	168.00	171.50	2.04081633	-6.054
July, 98	81.57	77.29	-5.5376	-13.264	October, 00	171.50	184.00	6.79347826	3.2463
Average			-1.0006		Average			2.9481	

Regression Analysis (NBL)

	0.4269746						0.5516493				
	0.1823073						0.304317				
	0.1451394						0.272695				
	9.8146885						8.9674826				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	472.48668	472.48668	4.904971944	0.037443398		1	773.88879	773.88879	9.6235978	0.0051984
	22	2119.2184	96.32811				22	1769.1464	80.415745		
	23	2591.7051					23	2543.0352			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.702527	2.0079316	-0.3498	0.729758977	-4.8667270	3.4616725		2.55276	1.8349116	1.39121	0.1780702	-1.25261787	6.358137897
X Variable 1	0.4956026	0.2237769	2.21471	0.037443398	0.0315171	0.9596881	X Variable 1	1.1249666	0.362636	3.10219	0.0051984	0.37290478	1.877028364

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.9

Al-Baraka Islami Bank

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	1125.25	1120.00	-0.4688	0.8388	November, 98	800.00	1050.00	23.8095238	-4.663
September, 95	1120.00	1100.00	-1.8182	6.9612	December, 98	1050.00	1050.00	0	-4.248
October, 95	1100.00	1100.00	0.0000	6.0609	January, 99	1050.00	1045.00	-0.4784689	0.3221
November, 95	1100.00	1150.00	4.3478	-5.2456	February, 99	1045.00	1010.00	-3.4653465	-0.81
December, 95	1150.00	1200.00	4.1667	-1.0842	March, 99	1010.00	1002.25	-0.7732602	-3.712
January, 96	1200.00	1210.00	0.8264	-7.3371	April, 99	1002.25	980.00	-2.2704082	-7.666
February, 96	1210.00	1200.00	-0.8333	2.1486	May, 99	980.00	900.00	-8.8888889	7.2802
March, 96	1200.00	1180.00	-1.6949	1.4127	June, 99	900.00	900.00	0	6.6205
April, 96	1180.00	1180.00	0.0000	2.5128	July, 99	900.00	962.00	6.44490644	-3.285
May, 96	1180.00	1100.00	-7.2727	2.7519	August, 99	962.00	1020.00	5.68627451	-3.271
June, 96	1100.00	1050.00	-4.7619	10.339	September, 99	1020.00	908.25	-12.303881	-1.073
July, 96	1050.00	1300.00	19.2308	17.298	October, 99	908.25	1085.00	16.2903226	5.8865
August, 97	830.00	830.00	0.0000	-17.013	November, 99	1085.00	897.00	-20.958751	-9.541
September, 97	830.00	800.00	-3.7500	12.877	December, 99	897.00	900.00	0.33333333	0.1025
October, 97	800.00	828.00	3.3816	-13.929	January, 00	900.00	1050.00	14.2857143	-0.974
November, 97	828.00	940.00	11.9149	-10.206	February, 00	1050.00	1050.00	0	1.4223
December, 97	940.00	940.00	0.0000	4.2483	March, 00	1050.00	960.00	-9.375	4.5801
January, 98	940.00	1010.00	6.9307	-1.4532	April, 00	960.00	960.00	0	0.4293
February, 98	1010.00	950.00	-6.3158	-10.289	May, 00	960.00	1205.00	20.3319502	3.7736
March, 98	950.00	950.00	0.0000	-5.2716	June, 00	1205.00	1205.00	0	5.3155
April, 98	950.00	840.00	-13.0952	-11.682	July, 00	1205.00	1109.00	-8.6564472	11.472
May, 98	840.00	805.33	-4.3051	5.6083	August, 00	1109.00	1153.00	3.81613183	3.2833
June, 98	805.33	880.00	8.4852	9.282	September, 00	1153.00	1175.00	1.87234043	-6.054
July, 98	880.00	800.00	-10.0000	-13.264	October, 00	1175.00	1122.00	-4.7237077	3.2463
Average			0.2070		Average			0.8740	

Regression Analysis (Al-Baraka Islami Bank)

	0.2700827						0.0128543					
	0.0729447						0.0001652					
	0.0308058						-0.045282					
	6.8262339						10.435634					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	80.662726	80.662726	1.731053782	0.201823136			1	0.3959382	0.3959382	0.0036357	0.95246359
	22	1025.1443	46.59747					22	2395.8539	108.90245		
	23	1105.8071						23	2396.2499			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.3301841	1.3965406	0.23643	0.81528643	-2.5660669	3.2264352		0.8650707	2.1353223	0.40512	0.6892987	-3.56332142	5.293462922
X Variable 1	0.2047742	0.1556396	1.31569	0.201823136	-0.1180028	0.5275512	X Variable 1	0.0254457	0.4220065	0.06029	0.9524636	-0.84974324	0.900634593

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Investment Sector

Appendix Table 6.10

ICB									
Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	132.00	128.00	-3.125	0.8388	November, 98	240.00	240.00	0	-4.663
September, 95	128.00	130.00	1.538462	6.9612	December, 98	240.00	210.00	-14.285714	-4.248
October, 95	130.00	135.00	3.703704	6.0609	January, 99	210.00	200.00	-5	0.3221
November, 95	135.00	144.00	6.25	-5.2456	February, 99	200.00	200.00	0	-0.81
December, 95	144.00	155.00	7.096774	-1.0842	March, 99	200.00	200.00	0	-3.712
January, 96	155.00	150.00	-3.33333	-7.3371	April, 99	200.00	180.00	-11.111111	-7.666
February, 96	150.00	150.00	0	2.1486	May, 99	180.00	180.00	0	7.2802
March, 96	150.00	150.00	0	1.4127	June, 99	180.00	178.00	-1.1235955	6.6205
April, 96	150.00	155.00	3.225806	2.5128	July, 99	178.00	170.00	-4.7058824	-3.285
May, 96	155.00	160.00	3.125	2.7519	August, 99	170.00	106.50	-59.624413	-3.271
June, 96	160.00	160.00	0	10.339	September, 99	106.50	115.00	7.39130435	-1.073
July, 96	160.00	153.00	-4.57516	17.298	October, 99	115.00	164.00	29.8780488	5.8865
August, 97	325.00	280.00	-16.0714	-17.013	November, 99	164.00	164.00	0	-9.541
September, 97	280.00	270.00	-3.7037	12.877	December, 99	164.00	165.00	0.60606061	0.1025
October, 97	270.00	279.00	3.225806	-13.929	January, 00	165.00	165.00	0	-0.974
November, 97	279.00	230.00	-21.3043	-10.206	February, 00	165.00	120.00	-37.5	1.4223
December, 97	230.00	230.50	0.21692	4.2483	March, 00	120.00	115.00	-4.3478261	4.5801
January, 98	230.50	230.50	0	-1.4532	April, 00	115.00	127.50	9.80392157	0.4293
February, 98	230.50	240.00	3.958333	-10.289	May, 00	127.50	127.75	0.19569472	3.7736
March, 98	240.00	240.00	0	-5.2716	June, 00	127.75	134.50	5.01858736	5.3155
April, 98	240.00	235.00	-2.12766	-11.682	July, 00	134.50	136.00	1.10294118	11.472
May, 98	235.00	235.00	0	5.6083	August, 00	136.00	135.00	-0.7407407	3.2833
June, 98	235.00	240.00	2.083333	9.282	September, 00	135.00	134.00	-0.7462687	-6.054
July, 98	240.00	240.00	0	-13.264	October, 00	134.00	125.00	-7.2	3.2463
Average			-0.8257		Average			-3.8495	

Regression Analysis (ICB)

0.2588048							0.2571181					
0.0669799							0.0661097					
0.0245699							0.0236601					
6.2191613							16.122934					
24							24					

df	SS	MS	F	Significance F		Df	SS	MS	F	Significance F	
1	61.085764	61.085764	1.579342679	0.222035517		1	404.83693	404.83693	1.5573706	0.2251703	
22	850.91527	38.677967				22	5718.8782	259.94901			
23	912.00104					23	6123.7152				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.718498	1.272343	-0.5647	0.577987654	-3.3571791	1.9201825		-4.135514	3.2990484	-1.2535	0.2231649	-10.9773291	2.706300984
X Variable 1	0.1782005	0.1417982	1.2567	0.222035517	-0.1158712	0.4722722	X Variable 1	0.8136552	0.6519952	1.2479	0.2251703	-0.53850162	2.165812026

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.11

6th ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	190.00	185.00	-2.7027	0.8388	November, 98	187.00	142.25	-31.458699	-4.663
September, 95	185.00	183.00	-1.0929	6.9612	December, 98	142.25	155.00	8.22580645	-4.248
October, 95	183.00	210.83	13.20021	6.0609	January, 99	155.00	147.50	-5.0847458	0.3221
November, 95	210.83	210.38	-0.2139	-5.2456	February, 99	147.50	141.75	-4.0564374	-0.81
December, 95	210.38	207.30	-1.48577	-1.0842	March, 99	141.75	139.00	-1.9784173	-3.712
January, 96	207.30	194.41	-6.63032	-7.3371	April, 99	139.00	122.00	-13.934426	-7.666
February, 96	194.41	200.00	2.795	2.1486	May, 99	122.00	135.00	9.62962963	7.2802
March, 96	200.00	198.00	-1.0101	1.4127	June, 99	135.00	200.25	32.5842697	6.6205
April, 96	198.00	234.97	15.73392	2.5128	July, 99	200.25	160.00	-25.15625	-3.285
May, 96	234.97	239.97	2.083594	2.7519	August, 99	160.00	148.25	-7.925801	-3.271
June, 96	239.97	257.76	6.901769	10.339	September, 99	148.25	140.00	-5.8928571	-1.073
July, 96	257.76	297.00	13.21212	17.298	October, 99	140.00	73.00	-91.780822	5.8865
August, 97	261.00	185.00	-41.0811	-17.013	November, 99	73.00	135.00	45.9259259	-9.541
September, 97	185.00	215.00	13.95349	12.877	December, 99	135.00	129.00	-4.6511628	0.1025
October, 97	215.00	196.66	-9.32574	-13.929	January, 00	129.00	130.00	0.76923077	-0.974
November, 97	196.66	180.00	-9.25556	-10.206	February, 00	130.00	130.75	0.57361377	1.4223
December, 97	180.00	197.00	8.629442	4.2483	March, 00	130.75	144.50	9.51557093	4.5801
January, 98	197.00	311.00	36.65595	-1.4532	April, 00	144.50	142.75	-1.2259194	0.4293
February, 98	311.00	196.30	-58.431	-10.289	May, 00	142.75	144.75	1.38169257	3.7736
March, 98	196.30	199.50	1.60401	-5.2716	June, 00	144.75	146.50	1.19453925	5.3155
April, 98	199.50	199.93	0.215075	-11.682	July, 00	146.50	153.00	4.24836601	11.472
May, 98	199.93	215.00	7.009302	5.6083	August, 00	153.00	147.00	-4.0816327	3.2833
June, 98	215.00	222.04	3.1706	9.282	September, 00	147.00	140.75	-4.4404973	-6.054
July, 98	222.04	187.00	-18.738	-13.264	October, 00	140.75	138.75	-1.4414414	3.2463
Average			-1.0334		Average			-3.7109	

Regression Analysis (6th ICB MF)

	0.6251227						0.0719242					
	0.3907784						0.0051731					
	0.3630865						-0.040046					
	14.871454						24.761838					
	24						24					

	df	SS	MS	F	Significance F		Df	SS	MS	F	Significance F
	1	3120.9361	3120.9361	14.11165651	0.001090113		1	70.143977	70.143977	0.1143996	0.73839627
	22	4865.5233	221.16015				22	13489.27	613.14862		
	23	7986.4594					23	13559.414			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.267272	3.0424667	-0.0878	0.930792825	-6.57696891	6.0424243		-3.591816	5.0667268	-0.7089	0.4858299	-14.0995758	6.915943127
X Variable 1	1.2737414	0.3390723	3.7565	0.001090113	0.57054778	1.9769349	X Variable 1	-0.338685	1.0013438	-0.3382	0.7383963	-2.41534686	1.737977528

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.12

1st ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	1330.00	1275.00	-4.31373	0.8388	November, 98	1200.00	1010.00	-18.811881	-4.663
September, 95	1275.00	1250.00	-2	6.9612	December, 98	1010.00	1010.00	0	-4.248
October, 95	1250.00	1650.00	24.24242	6.0609	January, 99	1010.00	1010.00	0	0.3221
November, 95	1650.00	1983.33	16.80658	-5.2456	February, 99	1010.00	1010.00	0	-0.81
December, 95	1983.33	1950.00	-1.70923	-1.0842	March, 99	1010.00	990.00	-2.020202	-3.712
January, 96	1950.00	1700.00	-14.7059	-7.3371	April, 99	990.00	1050.00	5.71428571	-7.666
February, 96	1700.00	1600.00	-6.25	2.1486	May, 99	1050.00	1030.00	-1.9417476	7.2802
March, 96	1600.00	1550.00	-3.22581	1.4127	June, 99	1030.00	1417.75	27.3496738	6.6205
April, 96	1550.00	1951.30	20.56578	2.5128	July, 99	1417.75	1300.00	-9.0576923	-3.285
May, 96	1951.30	1930.00	-1.10363	2.7519	August, 99	1300.00	1300.00	0	-3.271
June, 96	1930.00	2200.00	12.27273	10.339	September, 99	1300.00	990.00	-31.313131	-1.073
July, 96	2200.00	2150.00	-2.32558	17.298	October, 99	990.00	1067.75	7.28166706	5.8865
August, 97	2610.00	2106.00	-23.9316	-17.013	November, 99	1067.75	1050.00	-1.6904762	-9.541
September, 97	2106.00	2350.00	10.38298	12.877	December, 99	1050.00	1050.00	0	0.1025
October, 97	2350.00	2280.00	-3.07018	-13.929	January, 00	1050.00	955.00	-9.947644	-0.974
November, 97	2280.00	2280.00	0	-10.206	February, 00	955.00	1076.00	11.2453532	1.4223
December, 97	2280.00	2200.00	-3.63636	4.2483	March, 00	1076.00	1105.00	2.62443439	4.5801
January, 98	2200.00	1730.00	-27.1676	-1.4532	April, 00	1105.00	1200.00	7.91666667	0.4293
February, 98	1730.00	1695.00	-2.0649	-10.289	May, 00	1200.00	1325.00	9.43396226	3.7736
March, 98	1695.00	1550.00	-9.35484	-5.2716	June, 00	1325.00	1410.00	6.02836879	5.3155
April, 98	1550.00	1483.00	-4.51787	-11.682	July, 00	1410.00	1500.00	6	11.472
May, 98	1483.00	1175.50	-26.1591	5.6083	August, 00	1500.00	1500.00	0	3.2833
June, 98	1175.50	1260.00	6.706349	9.282	September, 00	1500.00	1500.00	0	-6.054
July, 98	1260.00	1200.00	-5	-13.264	October, 00	1500.00	1330.00	-12.781955	3.2463
Average			-2.0650		Average			-0.1654	

Regression Analysis (1st ICB MF)

	0.3452576						0.3603289					
	0.1192028						0.1298369					
	0.0791665						0.090284					
	12.570712						10.672724					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	470.49265	470.49265	2.977372093	0.098457326			1	373.91307	373.91307	3.2826162	0.08369143
	22	3476.5014	158.02279					22	2505.9548	113.90704		
	23	3946.9941						23	2879.8678			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.7675	2.5717708	-0.6872	0.499094688	-7.1010314	3.5660325		-0.440263	2.1838353	-0.2016	0.8420811	-4.96926557	4.088738585
X Variable 1	0.4945557	0.2866148	1.72550	0.098457326	-0.0998477	1.0889592	X Variable 1	0.781962	0.4315942	1.81179	0.0836914	-0.11311055	1.677034615

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.13

4th ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	430.00	455.00	5.494505	0.8388	November, 98	362.00	276.00	-31.15942	-4.663
September, 95	455.00	460.00	1.086957	6.9612	December, 98	276.00	260.00	-6.1538462	-4.248
October, 95	460.00	622.50	26.10442	6.0609	January, 99	260.00	240.00	-8.3333333	0.3221
November, 95	622.50	592.50	-5.06329	-5.2456	February, 99	240.00	229.75	-4.4613711	-0.81
December, 95	592.50	600.00	1.25	-1.0842	March, 99	229.75	280.00	17.9464286	-3.712
January, 96	600.00	545.00	-10.0917	-7.3371	April, 99	280.00	270.00	-3.7037037	-7.666
February, 96	545.00	561.25	2.895323	2.1486	May, 99	270.00	328.00	17.6829268	7.2802
March, 96	561.25	559.13	-0.37916	1.4127	June, 99	328.00	421.00	22.0902613	6.6205
April, 96	559.13	635.00	11.94803	2.5128	July, 99	421.00	370.00	-13.783784	-3.285
May, 96	635.00	657.64	3.442613	2.7519	August, 99	370.00	286.00	-29.370629	-3.271
June, 96	657.64	795.30	17.30919	10.339	September, 99	286.00	271.00	-5.5350554	-1.073
July, 96	795.30	770.00	-3.28571	17.298	October, 99	271.00	310.00	12.5806452	5.8865
August, 97	530.00	350.00	-51.4286	-17.013	November, 99	310.00	280.75	-10.418522	-9.541
September, 97	350.00	520.00	32.69231	12.877	December, 99	280.75	234.00	-19.978632	0.1025
October, 97	520.00	438.00	-18.7215	-13.929	January, 00	234.00	270.00	13.3333333	-0.974
November, 97	438.00	414.00	-5.7971	-10.206	February, 00	270.00	281.00	3.91459075	1.4223
December, 97	414.00	412.50	-0.36364	4.2483	March, 00	281.00	339.50	17.2312224	4.5801
January, 98	412.50	386.00	-6.86528	-1.4532	April, 00	339.50	350.00	3	0.4293
February, 98	386.00	390.00	1.025641	-10.289	May, 00	350.00	345.00	-1.4492754	3.7736
March, 98	390.00	382.50	-1.96078	-5.2716	June, 00	345.00	352.25	2.0581973	5.3155
April, 98	382.50	351.00	-8.97436	-11.682	July, 00	352.25	369.40	4.64266378	11.472
May, 98	351.00	410.00	14.39024	5.6083	August, 00	369.40	360.00	-2.6111111	3.2833
June, 98	410.00	452.28	9.348191	9.282	September, 00	360.00	350.00	-2.8571429	-6.054
July, 98	452.28	362.00	-24.9392	-13.264	October, 00	350.00	366.40	4.47598253	3.2463
Average			-0.4535		Average			-0.8691	

Regression Analysis (4th ICB MF)

	0.7540561						0.5348466					
	0.5686005						0.2860609					
	0.5489915						0.2536091					
	11.252692						12.121421					
	24						24					

	df	SS	MS	F	Significance F		Df	SS	MS	F	Significance F
	1	3671.6667	3671.6667	28.99681915	2.08551E-05		1	1295.1708	1295.1708	8.8149526	0.00708512
	22	2785.7079	126.62308				22	3232.4346	146.92885		
	23	6457.3746					23	4527.6055			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.3775665	2.3021247	0.16400	0.871222411	-4.3967530	5.1518861		-1.380652	2.4802653	-0.5566	0.5833821	-6.52441274	3.763109256
X Variable 1	1.3815622	0.2565637	5.38486	2.08551E-05	0.8494810	1.9136434	X Variable 1	1.455338	0.4901781	2.9689	0.0070851	0.43876981	2.471906183

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.14

5th ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	280.00	292.00	4.109589	0.8388	November, 98	275.00	180.25	-52.565881	-4.663
September, 95	292.00	295.00	1.016949	6.9612	December, 98	180.25	180.00	-0.138889	-4.248
October, 95	295.00	360.00	18.05556	6.0609	January, 99	180.00	150.00	-20	0.3221
November, 95	360.00	335.00	-7.46269	-5.2456	February, 99	150.00	170.00	11.7647059	-0.81
December, 95	335.00	350.00	4.285714	-1.0842	March, 99	170.00	175.00	2.85714286	-3.712
January, 96	350.00	325.81	-7.42457	-7.3371	April, 99	175.00	190.00	7.89473684	-7.666
February, 96	325.81	330.00	1.269697	2.1486	May, 99	190.00	200.00	5	7.2802
March, 96	330.00	325.57	-1.36069	1.4127	June, 99	200.00	284.75	29.76295	6.6205
April, 96	325.57	370.00	12.00811	2.5128	July, 99	284.75	260.00	-9.5192308	-3.285
May, 96	370.00	381.96	3.131218	2.7519	August, 99	260.00	206.00	-26.213592	-3.271
June, 96	381.96	441.25	13.43683	10.339	September, 99	206.00	190.00	-8.4210526	-1.073
July, 96	441.25	499.46	11.65459	17.298	October, 99	190.00	187.00	-1.6042781	5.8865
August, 97	373.00	331.00	-12.6888	-17.013	November, 99	187.00	175.25	-6.7047076	-9.541
September, 97	331.00	379.67	12.81903	12.877	December, 99	175.25	170.00	-3.0882353	0.1025
October, 97	379.67	316.27	-20.0462	-13.929	January, 00	170.00	180.00	5.5555556	-0.974
November, 97	316.27	290.91	-8.71747	-10.206	February, 00	180.00	184.50	2.43902439	1.4223
December, 97	290.91	297.00	2.050505	4.2483	March, 00	184.50	188.00	1.86170213	4.5801
January, 98	297.00	300.00	1	-1.4532	April, 00	188.00	230.25	18.34962	0.4293
February, 98	300.00	292.00	-2.73973	-10.289	May, 00	230.25	255.00	9.70588235	3.7736
March, 98	292.00	300.09	2.695858	-5.2716	June, 00	255.00	245.50	-3.8696538	5.3155
April, 98	300.09	300.00	-0.03	-11.682	July, 00	245.50	264.00	7.00757576	11.472
May, 98	300.00	300.00	0	5.6083	August, 00	264.00	203.25	-29.889299	3.2833
June, 98	300.00	319.31	6.047415	9.282	September, 00	203.25	190.50	-6.6929134	-6.054
July, 98	319.31	275.00	-16.1127	-13.264	October, 00	190.50	206.00	7.52427184	3.2463
Average			0.7083		Average			-2.4577	

Regression Analysis (5th ICB MF)

	0.8249355						0.334559						
	0.6805186						0.1119297						
	0.6659968						0.0715629						
	5.4618391						16.289925						
	24						24						
	df	SS	MS	F	Significance F		Df	SS	MS	F	Significance F		
	1	1397.9607	1397.9607	46.86160541	7.08158E-07		1	735.79851	735.79851	2.7728139	0.1100558		
	22	656.29709	29.831686				22	5837.9567	265.36167				
	23	2054.2578					23	6573.7552					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	1.2210342	1.1174068	1.09273	0.286330246	-1.0963281	3.5383965		-2.843225	3.3332179	-0.8529	0.4028525	-9.75590351	4.06945289
X Variable 1	0.8524841	0.1245311	6.84555	7.08158E-07	0.5942222	1.110746	X Variable 1	1.0969322	0.6587482	1.66517	0.1100558	-0.26922938	2.46309382

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.15

2nd ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	510.00	530.00	3.773585	0.8388	November, 98	371.67	400.00	7.0825	-4.663
September, 95	530.00	540.00	1.851852	6.9612	December, 98	400.00	400.00	0	-4.248
October, 95	540.00	650.00	16.92308	6.0609	January, 99	400.00	594.00	32.6599327	0.3221
November, 95	650.00	740.00	12.16216	-5.2456	February, 99	594.00	420.00	-41.428571	-0.81
December, 95	740.00	730.00	-1.36986	-1.0842	March, 99	420.00	400.00	-5	-3.712
January, 96	730.00	640.00	-14.0625	-7.3371	April, 99	400.00	419.00	4.53460621	-7.666
February, 96	640.00	591.75	-8.15378	2.1486	May, 99	419.00	520.00	19.4230769	7.2802
March, 96	591.75	606.67	2.459327	1.4127	June, 99	520.00	123.25	-321.90669	6.6205
April, 96	606.67	688.43	11.8763	2.5128	July, 99	123.25	400.00	69.1875	-3.285
May, 96	688.43	960.00	28.28854	2.7519	August, 99	400.00	400.00	0	-3.271
June, 96	960.00	1219.98	21.31019	10.339	September, 99	400.00	381.14	-4.948313	-1.073
July, 96	1219.98	964.00	-26.5539	17.298	October, 99	381.14	349.00	-9.2091691	5.8865
August, 97	625.00	490.00	-27.551	-17.013	November, 99	349.00	320.00	-9.0625	-9.541
September, 97	490.00	535.00	8.411215	12.877	December, 99	320.00	310.00	-3.2258065	0.1025
October, 97	535.00	460.00	-16.3043	-13.929	January, 00	310.00	317.50	2.36220472	-0.974
November, 97	460.00	452.00	-1.76991	-10.206	February, 00	317.50	335.00	5.2238806	1.4223
December, 97	452.00	470.00	3.829787	4.2483	March, 00	335.00	375.00	10.6666667	4.5801
January, 98	470.00	478.60	1.796908	-1.4532	April, 00	375.00	365.00	-2.739726	0.4293
February, 98	478.60	465.00	-2.92473	-10.289	May, 00	365.00	364.00	-0.2747253	3.7736
March, 98	465.00	418.00	-11.244	-5.2716	June, 00	364.00	366.00	0.54644809	5.3155
April, 98	418.00	373.00	-12.0643	-11.682	July, 00	366.00	384.50	4.81144343	11.472
May, 98	373.00	403.00	7.444169	5.6083	August, 00	384.50	374.00	-2.8074866	3.2833
June, 98	403.00	470.00	14.25532	9.282	September, 00	374.00	365.00	-2.4657534	-6.054
July, 98	470.00	371.67	-26.4563	-13.264	October, 00	365.00	369.25	1.15098172	3.2463
Average			-0.5863		Average			-10.2258	

Regression Analysis (2nd ICB MF)

	0.5062497						0.2418375				
	0.2562888						0.0584854				
	0.2224837						0.0156892				
	13.222922						68.471892				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1325.5705	1325.5705	7.581374192	0.011596318		1	6407.1877	6407.1877	1.3666043	0.25490724
	22	3846.6049	174.84568				22	103144.8	4688.4		
	23	5172.1754					23	109551.99			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.087022	2.7052029	-0.0321	0.974627717	-5.6972759	5.5232311		-9.088138	14.010606	-0.6486	0.5232713	-38.1443883	19.9681129
X Variable 1	0.8301188	0.3014854	2.7534	0.011596318	0.2048756	1.4553618	X Variable 1	-3.236936	2.7689344	-1.1690	0.2549072	-8.97936032	2.505489006

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.16

7th ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	140.00	142.25	1.581722	0.8388	November, 98	182.20	131.00	-39.083969	-4.663
September, 95	142.25	139.36	-2.07377	6.9612	December, 98	131.00	117.25	-11.727079	-4.248
October, 95	139.36	165.10	15.59055	6.0609	January, 99	117.25	123.50	5.06072874	0.3221
November, 95	165.10	168.86	2.226697	-5.2456	February, 99	123.50	122.00	-1.2295082	-0.81
December, 95	168.86	169.50	0.377581	-1.0842	March, 99	122.00	116.75	-4.496788	-3.712
January, 96	169.50	169.50	0	-7.3371	April, 99	116.75	109.50	-6.6210046	-7.666
February, 96	169.50	170.00	0.294118	2.1486	May, 99	109.50	108.00	-1.3888889	7.2802
March, 96	170.00	169.00	-0.59172	1.4127	June, 99	108.00	140.25	22.9946524	6.6205
April, 96	169.00	185.81	9.046876	2.5128	July, 99	140.25	120.25	-16.632017	-3.285
May, 96	185.81	184.00	-0.9837	2.7519	August, 99	120.25	117.75	-2.1231423	-3.271
June, 96	184.00	228.78	19.57339	10.339	September, 99	117.75	114.50	-2.8384279	-1.073
July, 96	228.78	258.13	11.37024	17.298	October, 99	114.50	110.75	-3.3860045	5.8865
August, 97	215.00	181.00	-18.7845	-17.013	November, 99	110.75	112.25	1.3363029	-9.541
September, 97	181.00	200.00	9.5	12.877	December, 99	112.25	111.50	-0.6726457	0.1025
October, 97	200.00	188.75	-5.96026	-13.929	January, 00	111.50	116.00	3.87931034	-0.974
November, 97	188.75	165.00	-14.3939	-10.206	February, 00	116.00	114.00	-1.754386	1.4223
December, 97	165.00	183.33	9.998364	4.2483	March, 00	114.00	125.00	8.8	4.5801
January, 98	183.33	190.00	3.510526	-1.4532	April, 00	125.00	134.00	6.71641791	0.4293
February, 98	190.00	186.00	-2.15054	-10.289	May, 00	134.00	144.50	7.26643599	3.7736
March, 98	186.00	180.50	-3.04709	-5.2716	June, 00	144.50	149.25	3.18257956	5.3155
April, 98	180.50	175.00	-3.14286	-11.682	July, 00	149.25	155.60	4.08097686	11.472
May, 98	175.00	190.00	7.894737	5.6083	August, 00	155.60	143.25	-8.6212914	3.2833
June, 98	190.00	220.00	13.63636	9.282	September, 00	143.25	130.00	-10.192308	-6.054
July, 98	220.00	182.20	-20.7464	-13.264	October, 00	130.00	135.00	3.7037037	3.2463
Average			1.3636		Average			-1.8228	

Regression Analysis (7th ICB MF)

	0.8251037						0.4974768					
	0.6807961						0.2474832					
	0.6662868						0.2132778					
	5.7850513						9.9978858					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1570.3118	1570.3118	46.92145326	7.01296E-07		1	723.21668	723.21668	7.2352259	0.0133801
	22	736.27001	33.466819				22	2199.0698	99.95772		
	23	2306.5818					23	2922.2865			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	1.9070645	1.1835309	1.61133	0.12136205	-0.5474310	4.3615601		-2.204989	2.045751	-1.0778	0.2927828	-6.44762184	2.037643203
X Variable 1	0.9035075	0.1319004	6.84992	7.01296E-07	0.6299625	1.1770524	X Variable 1	1.0875133	0.4043044	2.68983	0.0133801	0.24903626	1.925990249

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.17

3rd ICB MF

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return	Rm
August, 95	320.00	345.00	7.246377	0.8388	November, 98	401.00	320.00	-25.3125	-4.663
September, 95	345.00	330.00	-4.54545	6.9612	December, 98	320.00	330.00	3.030303	-4.248
October, 95	330.00	458.00	27.9476	6.0609	January, 99	330.00	330.00	0	0.3221
November, 95	458.00	440.00	-4.09091	-5.2456	February, 99	330.00	277.50	-18.918919	-0.81
December, 95	440.00	466.00	5.579399	-1.0842	March, 99	277.50	300.00	7.5	-3.712
January, 96	466.00	431.00	-8.12065	-7.3371	April, 99	300.00	321.00	6.54205607	-7.666
February, 96	431.00	420.00	-2.61905	2.1486	May, 99	321.00	344.00	6.68604651	7.2802
March, 96	420.00	429.78	2.275583	1.4127	June, 99	344.00	458.00	24.8908297	6.6205
April, 96	429.78	445.00	3.420225	2.5128	July, 99	458.00	399.50	-14.643304	-3.285
May, 96	445.00	498.16	10.67127	2.7519	August, 99	399.50	399.50	0	-3.271
June, 96	498.16	624.00	20.16667	10.339	September, 99	399.50	397.50	-0.5031447	-1.073
July, 96	624.00	597.78	-4.38623	17.298	October, 99	397.50	350.00	-13.571429	5.8865
August, 97	485.00	394.78	-22.8532	-17.013	November, 99	350.00	310.00	-12.903226	-9.541
September, 97	394.78	460.00	14.17826	12.877	December, 99	310.00	310.00	0	0.1025
October, 97	460.00	427.33	-7.64515	-13.929	January, 00	310.00	329.00	5.77507599	-0.974
November, 97	427.33	420.83	-1.54457	-10.206	February, 00	329.00	330.00	0.3030303	1.4223
December, 97	420.83	440.00	4.356818	4.2483	March, 00	330.00	354.00	6.77966102	4.5801
January, 98	440.00	435.00	-1.14943	-1.4532	April, 00	354.00	346.00	-2.3121387	0.4293
February, 98	435.00	393.50	-10.5464	-10.289	May, 00	346.00	357.00	3.08123249	3.7736
March, 98	393.50	370.00	-6.35135	-5.2716	June, 00	357.00	371.50	3.90309556	5.3155
April, 98	370.00	357.00	-3.64146	-11.682	July, 00	371.50	396.00	6.18686869	11.472
May, 98	357.00	410.00	12.92683	5.6083	August, 00	396.00	382.00	-3.6649215	3.2833
June, 98	410.00	442.60	7.365567	9.282	September, 00	382.00	370.00	-3.2432432	-6.054
July, 98	442.60	401.00	-10.3741	-13.264	October, 00	370.00	380.00	2.63157895	3.2463
Average			1.1778		Average			-0.7401	

Regression Analysis (3rd ICB MF)

	0.6815719						0.4029526					
	0.4645403						0.1623708					
	0.4402012						0.1242968					
	8.2501564						9.7601489					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1299.1031	1299.1031	19.08619063	0.000245094		1	406.24846	406.24846	4.2646053	0.05089577
	22	1497.4318	68.06508				22	2095.7311	95.260507		
	23	2796.5348					23	2501.9796			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	1.6720916	1.6878528	0.99066	0.332622167	-1.8283046	5.1724879		-1.026598	1.9971057	-0.5140	0.6123471	-5.16834593	3.11515041
X Variable 1	0.8217896	0.1881053	4.36877	0.000245094	0.4316826	1.2118965	X Variable 1	0.8150724	0.3946906	2.06509	0.0508958	-0.00346665	1.633611526

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Engineering Sector

Appendix Table 6.18

Singer Bangladesh

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	5015.00	5112.25	1.90229351	0.8388	November, 98	2361.00	1562.25	-51.128181	-4.663
September, 95	5112.25	4934.88	-3.594211	6.9612	December, 98	1562.25	1431.75	-9.1147197	-4.248
October, 95	4934.88	6305.77	21.7402474	6.0609	January, 99	1431.75	1376.25	-4.0326975	0.3221
November, 95	6305.77	5855.86	-7.683073	-5.2456	February, 99	1376.25	1270.75	-8.3021837	-0.81
December, 95	5855.86	5936.58	1.35970542	-1.0842	March, 99	1270.75	1071.75	-18.567763	-3.712
January, 96	5936.58	5982.68	0.77055768	-7.3371	April, 99	1071.75	1075.50	0.34867503	-7.666
February, 96	5982.68	6519.01	8.22716946	2.1486	May, 99	1075.50	1220.75	11.8984231	7.2802
March, 96	6519.01	6965.33	6.4077366	1.4127	June, 99	1220.75	1132.50	-7.7924945	6.6205
April, 96	6965.33	8547.63	18.511564	2.5128	July, 99	1132.50	1108.00	-2.2111913	-3.285
May, 96	8547.63	7926.90	-7.8306778	2.7519	August, 99	1108.00	1074.50	-3.1177292	-3.271
June, 96	7926.90	10350.00	23.4115942	10.339	September, 99	1074.50	1006.00	-6.8091451	-1.073
July, 96	10350.00	10977.22	5.71383283	17.298	October, 99	1006.00	1320.00	23.7878788	5.8865
August, 97	5089.25	3838.72	-32.576744	-17.013	November, 99	1320.00	1168.75	-12.941176	-9.541
September, 97	3838.72	4397.23	12.7014052	12.877	December, 99	1168.75	1186.00	1.4544688	0.1025
October, 97	4397.23	4017.77	-9.4445426	-13.929	January, 00	1186.00	1139.25	-4.1035769	-0.974
November, 97	4017.77	3531.06	-13.78368	-10.206	February, 00	1139.25	1198.25	4.92384728	1.4223
December, 97	3531.06	3756.89	6.01108896	4.2483	March, 00	1198.25	1346.00	10.9769688	4.5801
January, 98	3756.89	3775.70	0.49818577	-1.4532	April, 00	1346.00	1201.00	-12.073272	0.4293
February, 98	3775.70	3402.82	-10.95797	-10.289	May, 00	1201.00	1121.00	-7.1364853	3.7736
March, 98	3402.82	2464.44	-38.076804	-5.2716	June, 00	1121.00	1239.00	9.52380952	5.3155
April, 98	2464.44	1952.73	-26.204852	-11.682	July, 00	1239.00	1504.00	17.6196809	11.472
May, 98	1952.73	2406.75	18.8644438	5.6083	August, 00	1504.00	1322.00	-13.76702	3.2833
June, 98	2406.75	2520.00	4.49404762	9.282	September, 00	1322.00	1290.00	-2.4806202	-6.054
July, 98	2520.00	2361.00	-6.7344346	-13.264	October, 00	1290.00	1329.50	2.97104175	3.2463
Average			-1.0947		Average			-3.3364	

Regression Analysis (Singer Bangladesh)

	0.7134583						0.5600586				
	0.5090227						0.3136656				
	0.4867055						0.2824686				
	11.40805						12.26602				
	24						24				

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	2968.3918	2968.3918	22.80858848	9.07866E-05		1	1512.7295	1512.7295	10.054348	0.00442539
	22	2863.1591	130.1436				22	3310.0156	150.45526		
	23	5831.5509					23	4822.7451			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.347506	2.3339084	-0.1488	0.882993355	-5.1877408	4.492729		-3.889191	2.509853	-1.5495	0.1355118	-9.0943127	1.315931662
X Variable 1	1.2422226	0.2601059	4.77583	9.07866E-05	0.7027953	1.7816498	X Variable 1	1.5728271	0.4960255	3.17085	0.0044254	0.54413199	2.601522152

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.19

Bangladesh Lamps

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	2799.00	2812.25	0.47115299	0.8388	November, 98	1113.77	651.00	-71.086022	-4.663
September, 95	2812.25	2848.93	1.28750092	6.9612	December, 98	651.00	625.00	-4.16	-4.248
October, 95	2848.93	2883.88	1.21190896	6.0609	January, 99	625.00	581.00	-7.5731497	0.3221
November, 95	2883.88	3107.69	7.20181228	-5.2456	February, 99	581.00	493.00	-17.849899	-0.81
December, 95	3107.69	3000.00	-3.5896667	-1.0842	March, 99	493.00	485.00	-1.6494845	-3.712
January, 96	3000.00	2757.08	-8.8107708	-7.3371	April, 99	485.00	452.00	-7.300885	-7.666
February, 96	2757.08	2690.29	-2.482632	2.1486	May, 99	452.00	532.50	15.1173709	7.2802
March, 96	2690.29	2693.61	0.12325467	1.4127	June, 99	532.50	567.50	6.16740088	6.6205
April, 96	2693.61	2720.35	0.98296175	2.5128	July, 99	567.50	484.25	-17.191533	-3.285
May, 96	2720.35	2971.44	8.45011173	2.7519	August, 99	484.25	441.50	-9.6828992	-3.271
June, 96	2971.44	2910.91	-2.0794185	10.339	September, 99	441.50	457.50	3.49726776	-1.073
July, 96	2910.91	3296.84	11.7060579	17.298	October, 99	457.50	688.75	33.5753176	5.8865
August, 97	4366.79	3995.16	-9.3020054	-17.013	November, 99	688.75	547.00	-25.914077	-9.541
September, 97	3995.16	2332.81	-71.259554	12.877	December, 99	547.00	535.00	-2.2429907	0.1025
October, 97	2332.81	1946.02	-19.875952	-13.929	January, 00	535.00	510.75	-4.7479197	-0.974
November, 97	1946.02	1380.95	-40.918933	-10.206	February, 00	510.75	536.75	4.84396833	1.4223
December, 97	1380.95	1484.65	6.98481123	4.2483	March, 00	536.75	520.00	-3.2211538	4.5801
January, 98	1484.65	1514.44	1.96706373	-1.4532	April, 00	520.00	511.00	-1.7612524	0.4293
February, 98	1514.44	1448.76	-4.5335321	-10.289	May, 00	511.00	502.00	-1.7928287	3.7736
March, 98	1448.76	1337.51	-8.3176948	-5.2716	June, 00	502.00	516.50	2.80735721	5.3155
April, 98	1337.51	1083.05	-23.49476	-11.682	July, 00	516.50	710.75	27.3302849	11.472
May, 98	1083.05	1090.00	0.63761468	5.6083	August, 00	710.75	633.00	-12.28278	3.2833
June, 98	1090.00	1249.00	12.7301841	9.282	September, 00	633.00	593.00	-6.7453626	-6.054
July, 98	1249.00	1113.77	-12.141645	-13.264	October, 00	593.00	588.25	-0.8074798	3.2463
Average			-6.3772		Average			-4.2779	

Regression Analysis (Bangladesh Lamps)

	0.200145						0.6362777					
	0.040058						0.4048493					
	-0.003576						0.3777969					
	18.243539						15.208307					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	305.55232	305.55232	0.918052251	0.348399029		1	3461.3917	3461.3917	14.965425	0.00083068
	22	7322.188	332.82673				22	5088.4369	231.29259		
	23	7627.7403					23	8549.8287			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-6.137442	3.7323426	-1.6443	0.114310114	-13.8778545	1.6029715		-5.114147	3.1118988	-1.6434	0.1145135	-11.5678373	1.33954272
X Variable 1	0.3985489	0.4159565	0.9581	0.348399029	-0.46409301	1.2611908	X Variable 1	2.3791713	0.6150086	3.8685	0.0008307	1.10372017	3.65462250

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.20

Quasem Dry Cell

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	28.50	27.75	-2.7027027	0.8388	November, 98	25.34	24.00	-5.5833333	-4.663
September, 95	27.75	27.50	-0.9090909	6.9612	December, 98	24.00	22.30	-7.6233184	-4.248
October, 95	27.50	28.50	3.50877193	6.0609	January, 99	22.30	21.10	-5.6872038	0.3221
November, 95	28.50	26.17	-8.9033244	-5.2456	February, 99	21.10	21.70	2.76497696	-0.81
December, 95	26.17	27.00	3.07407407	-1.0842	March, 99	21.70	20.25	-7.1604938	-3.712
January, 96	27.00	24.00	-12.5	-7.3371	April, 99	20.25	17.10	-18.421053	-7.666
February, 96	24.00	25.50	5.88235294	2.1486	May, 99	17.10	17.20	0.58139535	7.2802
March, 96	25.50	25.50	0	1.4127	June, 99	17.20	16.30	-5.5214724	6.6205
April, 96	25.50	25.70	0.77821012	2.5128	July, 99	16.30	16.10	-1.242236	-3.285
May, 96	25.70	23.00	-11.73913	2.7519	August, 99	16.10	15.90	-1.2578616	-3.271
June, 96	23.00	23.58	2.45971162	10.339	September, 99	15.90	15.40	-3.2467532	-1.073
July, 96	23.58	35.96	34.4271413	17.298	October, 99	15.40	15.50	0.64516129	5.8865
August, 97	69.89	39.83	-75.470751	-17.013	November, 99	15.50	12.90	-20.155039	-9.541
September, 97	39.83	49.84	20.0842697	12.877	December, 99	12.90	12.90	0	0.1025
October, 97	49.84	35.99	-38.482912	-13.929	January, 00	12.90	12.70	-1.5748031	-0.974
November, 97	35.99	27.11	-32.755441	-10.206	February, 00	12.70	13.90	8.63309353	1.4223
December, 97	27.11	28.22	3.93338058	4.2483	March, 00	13.90	13.40	-3.7313433	4.5801
January, 98	28.22	27.78	-1.5838733	-1.4532	April, 00	13.40	12.80	-4.6875	0.4293
February, 98	27.78	24.14	-15.078708	-10.289	May, 00	12.80	13.10	2.29007634	3.7736
March, 98	24.14	22.20	-8.7387387	-5.2716	June, 00	13.10	15.80	17.0886076	5.3155
April, 98	22.20	19.80	-12.121212	-11.682	July, 00	15.80	19.30	18.134715	11.472
May, 98	19.80	22.69	12.7368885	5.6083	August, 00	19.30	19.00	-1.5789474	3.2833
June, 98	22.69	25.44	10.8097484	9.282	September, 00	19.00	18.10	-4.9723757	-6.054
July, 98	25.44	25.34	-0.394633	-13.264	October, 00	18.10	18.10	0	3.2463
Average			-5.1536		Average			-1.7627	

Regression Analysis (Quasem Dry Cell)

	0.8114814						0.7334966					
	0.6585021						0.5380173					
	0.6429795						0.5170181					
	12.701577						5.9089276					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	6843.9551	6843.9551	42.42207311	1.49563E-06		1	894.56221	894.56221	25.620831	4.5378E-05	
	22	3549.261	161.33005				22	768.13935	34.915425			
	23	10393.216					23	1662.7016				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-4.019005	2.5985437	-1.5466	0.136215965	-9.4080604	1.3700508		-2.187836	1.2090751	-1.8095	0.0840565	-4.69530746	0.319634474
X Variable 1	1.8862202	0.2895986	6.5132	1.49563E-06	1.2856288	2.4868115	X Variable 1	1.2094993	0.2389511	5.0617	4.538E-05	0.71394453	1.705054038

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.21

Eastern Cables

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	229.00	235.00	2.55319149	0.8388	November, 98	257.86	132.00	-95.348485	-4.663
September, 95	235.00	232.18	-1.2145749	6.9612	December, 98	132.00	113.25	-16.556291	-4.248
October, 95	232.18	250.19	7.19852912	6.0609	January, 99	113.25	117.00	3.20512821	0.3221
November, 95	250.19	234.18	-6.8366214	-5.2456	February, 99	117.00	123.25	5.07099391	-0.81
December, 95	234.18	291.00	19.5257732	-1.0842	March, 99	123.25	117.75	-4.670913	-3.712
January, 96	291.00	223.35	-30.288784	-7.3371	April, 99	117.75	107.25	-9.7902098	-7.666
February, 96	223.35	227.09	1.64692413	2.1486	May, 99	107.25	108.25	0.92378753	7.2802
March, 96	227.09	215.00	-5.6232558	1.4127	June, 99	108.25	103.25	-4.842615	6.6205
April, 96	215.00	228.11	5.74722721	2.5128	July, 99	103.25	100.50	-2.7363184	-3.285
May, 96	228.11	246.75	7.55420466	2.7519	August, 99	100.50	95.00	-5.7894737	-3.271
June, 96	246.75	233.70	-5.5840822	10.339	September, 99	95.00	87.75	-8.2621083	-1.073
July, 96	233.70	572.94	59.2103885	17.298	October, 99	87.75	92.50	5.13513514	5.8865
August, 97	327.07	263.59	-24.082856	-17.013	November, 99	92.50	89.75	-3.0640669	-9.541
September, 97	263.59	316.66	16.7593002	12.877	December, 99	89.75	89.25	-0.5602241	0.1025
October, 97	316.66	294.75	-7.4334182	-13.929	January, 00	89.25	92.25	3.25203252	-0.974
November, 97	294.75	254.26	-15.924644	-10.206	February, 00	92.25	95.00	2.89473684	1.4223
December, 97	254.26	266.25	4.50328638	4.2483	March, 00	95.00	98.25	3.30788804	4.5801
January, 98	266.25	244.54	-8.8778932	-1.4532	April, 00	98.25	101.00	2.72277228	0.4293
February, 98	244.54	187.25	-30.595461	-10.289	May, 00	101.00	95.25	-6.0367454	3.7736
March, 98	187.25	154.58	-21.134688	-5.2716	June, 00	95.25	102.75	7.29927007	5.3155
April, 98	154.58	133.10	-16.138242	-11.682	July, 00	102.75	123.00	16.4634146	11.472
May, 98	133.10	162.60	18.1426814	5.6083	August, 00	123.00	125.00	1.6	3.2833
June, 98	162.60	164.14	0.93822347	9.282	September, 00	125.00	132.25	5.48204159	-6.054
July, 98	164.14	157.86	-3.9782085	-13.264	October, 00	132.25	133.00	0.56390977	3.2463
Average			-1.4139		Average			-4.1557	

Regression Analysis (Eastern Cables)

	0.7400079						0.3719985					
	0.5476117						0.1383828					
	0.5270486						0.0992184					
	13.045782						19.496192					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	4532.3581	4532.3581	26.63078523	3.57489E-05		1	1343.0438	1343.0438	3.5333821	0.0734544
	22	3744.2335	170.19243				22	8362.233	380.1015		
	23	8276.5916					23	9705.2768			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.490576	2.6689628	-0.1838	0.855848052	-6.0256715	5.0445205		-4.676551	3.9892789	-1.1722	0.2536232	-12.9498181	3.596715813
X Variable 1	1.5349736	0.2974465	5.16050	3.57489E-05	0.9181065	2.1518407	X Variable 1	1.4819906	0.7884064	1.8797	0.0734544	-0.15306597	3.117047082

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.22

BEMCO

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	240.00	245.00	2.04081633	0.8388	November, 98	50.00	103.00	51.4563107	-4.663
September, 95	245.00	255.00	3.92156863	6.9612	December, 98	103.00	90.00	-14.444444	-4.248
October, 95	255.00	211.33	-20.664364	6.0609	January, 99	90.00	82.00	-9.7560976	0.3221
November, 95	211.33	200.00	-5.665	-5.2456	February, 99	82.00	75.50	-8.6092715	-0.81
December, 95	200.00	190.00	-5.2631579	-1.0842	March, 99	75.50	59.00	-27.966102	-3.712
January, 96	190.00	175.17	-8.4660615	-7.3371	April, 99	59.00	51.75	-14.009662	-7.666
February, 96	175.17	176.00	0.47159091	2.1486	May, 99	51.75	32.50	-59.230769	7.2802
March, 96	176.00	176.00	0	1.4127	June, 99	32.50	36.50	10.9589041	6.6205
April, 96	176.00	175.00	-0.5714286	2.5128	July, 99	36.50	49.50	26.2626263	-3.285
May, 96	175.00	175.00	0	2.7519	August, 99	49.50	72.50	31.7241379	-3.271
June, 96	175.00	241.25	27.4611399	10.339	September, 99	72.50	81.25	10.7692308	-1.073
July, 96	241.25	406.84	40.7015043	17.298	October, 99	81.25	99.25	18.1360202	5.8865
August, 97	91.00	77.00	-18.181818	-17.013	November, 99	99.25	83.00	-19.578313	-9.541
September, 97	77.00	77.00	0	12.877	December, 99	83.00	94.75	12.4010554	0.1025
October, 97	77.00	59.50	-29.411765	-13.929	January, 00	94.75	67.50	-40.37037	-0.974
November, 97	59.50	59.00	-0.8474576	-10.206	February, 00	67.50	65.75	-2.661597	1.4223
December, 97	59.00	47.00	-25.531915	4.2483	March, 00	65.75	44.25	-48.587571	4.5801
January, 98	47.00	40.00	-17.5	-1.4532	April, 00	44.25	46.25	4.32432432	0.4293
February, 98	40.00	38.00	-5.2631579	-10.289	May, 00	46.25	52.00	11.0576923	3.7736
March, 98	38.00	38.00	0	-5.2716	June, 00	52.00	42.00	-23.809524	5.3155
April, 98	38.00	36.00	-5.5555556	-11.682	July, 00	42.00	32.04	-31.086142	11.472
May, 98	36.00	48.64	25.9868421	5.6083	August, 00	32.04	30.00	-6.8	3.2833
June, 98	48.64	50.00	2.72	9.282	September, 00	30.00	30.25	0.82644628	-6.054
July, 98	50.00	50.00	0	-13.264	October, 00	30.25	27.00	-12.037037	3.2463
Average			-1.6508		Average			-5.8763	

Regression Analysis (BEMCO)

	0.5677717						0.2847881				
	0.3223647						0.0811043				
	0.2915631						0.0393363				
	13.388608						25.316991				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1876.0525	1876.0525	10.46584039	0.003803781		1	1244.5845	1244.5845	1.9417808	0.17739478
	22	3943.6064	179.25484				22	14100.901	640.95004		
	23	5819.6589					23	15345.485			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.056737	2.7390997	-0.3857	0.70335243	-6.73728773	4.6238147		-5.374842	5.1803213	-1.0375	0.3107497	-16.1181825	5.368498273
X Variable 1	0.987555	0.3052631	3.2350	0.003803781	0.35447751	1.6206326	X Variable 1	-1.426634	1.0237936	-1.3934	0.1773948	-3.54985424	0.696586473

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.23

Karim Pipe

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	150.00	155.00	3.22580645	0.8388	November, 98	75.82	105.00	27.7904762	-4.663
September, 95	155.00	157.50	1.58730159	6.9612	December, 98	105.00	84.25	-24.62908	-4.248
October, 95	157.50	160.00	1.5625	6.0609	January, 99	84.25	85.00	0.88235294	0.3221
November, 95	160.00	135.00	-18.518519	-5.2456	February, 99	85.00	108.00	21.2962963	-0.81
December, 95	135.00	157.56	14.3183549	-1.0842	March, 99	108.00	99.00	-9.0909091	-3.712
January, 96	157.56	133.45	-18.066692	-7.3371	April, 99	99.00	88.00	-12.5	-7.666
February, 96	133.45	143.00	6.67832168	2.1486	May, 99	88.00	74.00	-18.918919	7.2802
March, 96	143.00	149.00	4.02684564	1.4127	June, 99	74.00	73.75	-0.3389831	6.6205
April, 96	149.00	150.00	0.66666667	2.5128	July, 99	73.75	73.75	0	-3.285
May, 96	150.00	180.00	16.6666667	2.7519	August, 99	73.75	86.75	14.9855908	-3.271
June, 96	180.00	210.00	14.2857143	10.339	September, 99	86.75	87.75	1.13960114	-1.073
July, 96	210.00	339.47	38.1388635	17.298	October, 99	87.75	97.50	10	5.8865
August, 97	281.65	176.00	-60.028409	-17.013	November, 99	97.50	75.25	-29.568106	-9.541
September, 97	176.00	217.05	18.9126929	12.877	December, 99	75.25	72.75	-3.4364261	0.1025
October, 97	217.05	192.82	-12.566124	-13.929	January, 00	72.75	71.00	-2.4647887	-0.974
November, 97	192.82	164.63	-17.123246	-10.206	February, 00	71.00	68.50	-3.649635	1.4223
December, 97	164.63	138.50	-18.866426	4.2483	March, 00	68.50	68.75	0.36363636	4.5801
January, 98	138.50	112.00	-23.660714	-1.4532	April, 00	68.75	64.50	-6.5891473	0.4293
February, 98	112.00	99.12	-12.99435	-10.289	May, 00	64.50	72.00	10.4166667	3.7736
March, 98	99.12	99.00	-0.1212121	-5.2716	June, 00	72.00	64.00	-12.5	5.3155
April, 98	99.00	69.00	-43.478261	-11.682	July, 00	64.00	63.00	-1.5873016	11.472
May, 98	69.00	80.91	14.7200593	5.6083	August, 00	63.00	52.00	-21.153846	3.2833
June, 98	80.91	84.00	3.67857143	9.282	September, 00	52.00	49.50	-5.0505051	-6.054
July, 98	84.00	75.82	-10.78871	-13.264	October, 00	49.50	33.00	-50	3.2463
Average			-4.0727		Average			-4.7751	

Regression Analysis (Karim Pipe)

	0.7947765						0.014071				
	0.6316696						0.000198				
	0.6149274						-0.045248				
	13.082775						17.051792				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	6457.6558	6457.6558	37.728989	3.50059E-06		1	1.2667804	1.2667804	0.0043567	0.94796954
	22	3765.4978	171.15899				22	6396.7992	290.7636		
	23	10223.154					23	6398.066			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-2.970587	2.6765309	-1.1098	0.279041896	-8.5213782	2.5802044		-4.791123	3.4891097	-1.3731	0.1835358	-12.0271015	2.444855454
X Variable 1	1.8322143	0.29829	6.1423	3.50059E-06	1.2135980	2.4508305	X Variable 1	0.0455146	0.6895573	0.0660	0.9479695	-1.38454122	1.475570481

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.24

Renwick Jaineswar

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	69.00	69.00	0	0.8388	November, 98	46.00	65.00	29.2307692	-4.663
September, 95	69.00	70.00	1.42857143	6.9612	December, 98	65.00	50.00	-30	-4.248
October, 95	70.00	70.00	0	6.0609	January, 99	50.00	50.25	0.49751244	0.3221
November, 95	70.00	70.00	0	-5.2456	February, 99	50.25	86.00	41.5697674	-0.81
December, 95	70.00	70.00	0	-1.0842	March, 99	86.00	85.75	-0.2915452	-3.712
January, 96	70.00	70.00	0	-7.3371	April, 99	85.75	77.00	-11.363636	-7.666
February, 96	70.00	70.00	0	2.1486	May, 99	77.00	50.00	-54	7.2802
March, 96	70.00	70.00	0	1.4127	June, 99	50.00	46.50	-7.5268817	6.6205
April, 96	70.00	72.00	2.77777778	2.5128	July, 99	46.50	50.25	7.46268657	-3.285
May, 96	72.00	70.95	-1.4799154	2.7519	August, 99	50.25	69.00	27.173913	-3.271
June, 96	70.95	89.68	20.8853702	10.339	September, 99	69.00	84.00	17.8571429	-1.073
July, 96	89.68	220.11	59.2567353	17.298	October, 99	84.00	104.25	19.4244604	5.8865
August, 97	95.00	72.00	-31.944444	-17.013	November, 99	104.25	98.00	-6.377551	-9.541
September, 97	72.00	82.14	12.3447772	12.877	December, 99	98.00	89.25	-9.8039216	0.1025
October, 97	82.14	95.00	13.5368421	-13.929	January, 00	89.25	83.50	-6.8862275	-0.974
November, 97	95.00	89.00	-6.741573	-10.206	February, 00	83.50	73.00	-14.383562	1.4223
December, 97	89.00	84.00	-5.952381	4.2483	March, 00	73.00	62.25	-17.269076	4.5801
January, 98	84.00	90.00	6.66666667	-1.4532	April, 00	62.25	72.50	14.137931	0.4293
February, 98	90.00	79.25	-13.564669	-10.289	May, 00	72.50	73.00	0.68493151	3.7736
March, 98	79.25	80.00	0.9375	-5.2716	June, 00	73.00	52.00	-40.384615	5.3155
April, 98	80.00	70.00	-14.285714	-11.682	July, 00	52.00	54.73	4.98812352	11.472
May, 98	70.00	55.50	-26.126126	5.6083	August, 00	54.73	38.00	-44.026316	3.2833
June, 98	55.50	51.50	-7.7669903	9.282	September, 00	38.00	28.00	-35.714286	-6.054
July, 98	51.50	46.00	-11.956522	-13.264	October, 00	28.00	34.75	19.4244604	3.2463
Average			-0.0827		Average			-3.9823	

Regression Analysis (Renwick Jaineswar)

	0.5680845						0.1474568						
	0.32272						0.0217435						
	0.2919345						-0.022723						
	14.378525						24.799339						
	24						24						
	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F		
	1	2167.2498	2167.2498	10.48287266	0.003780213		1	300.73215	300.73215	0.4889896	0.49170617		
	22	4548.3235	206.74198				22	13530.159	615.00721				
	23	6715.5734					23	13830.891					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.5557912	2.9416211	0.18894	0.851871651	-5.5447641	6.6563466		-3.735854	5.0744002	-0.7362	0.4693773	-14.2595273	6.787819023
X Variable 1	1.0614348	0.3278334	3.23772	0.003780213	0.3815492	1.7413203	X Variable 1	-0.701278	1.0028603	-0.6992	0.4917062	-2.78108533	1.378529144

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.25

Metalex Corporation

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	87.22	91.50	4.67759563	0.8388	November, 98	111.50	138.25	19.3490054	-4.663
September, 95	91.50	90.67	-0.9154075	6.9612	December, 98	138.25	120.00	-15.208333	-4.248
October, 95	90.67	110.00	17.5727273	6.0609	January, 99	120.00	112.00	-7.1428571	0.3221
November, 95	110.00	112.00	1.78571429	-5.2456	February, 99	112.00	104.00	-7.6923077	-0.81
December, 95	112.00	115.00	2.60869565	-1.0842	March, 99	104.00	102.00	-1.9607843	-3.712
January, 96	115.00	130.00	11.5384615	-7.3371	April, 99	102.00	100.00	-2	-7.666
February, 96	130.00	120.00	-8.3333333	2.1486	May, 99	100.00	91.00	-9.8901099	7.2802
March, 96	120.00	110.00	-9.0909091	1.4127	June, 99	91.00	70.00	-30	6.6205
April, 96	110.00	165.00	33.3333333	2.5128	July, 99	70.00	102.00	31.372549	-3.285
May, 96	165.00	220.00	25	2.7519	August, 99	102.00	135.25	24.5841035	-3.271
June, 96	220.00	350.00	37.1428571	10.339	September, 99	135.25	130.00	-4.0384615	-1.073
July, 96	350.00	700.88	50.0627782	17.298	October, 99	130.00	163.25	20.3675345	5.8865
August, 97	244.50	193.00	-26.683938	-17.013	November, 99	163.25	123.75	-31.919192	-9.541
September, 97	193.00	193.08	0.0414336	12.877	December, 99	123.75	101.00	-22.524752	0.1025
October, 97	193.08	168.15	-14.826048	-13.929	January, 00	101.00	105.50	4.26540284	-0.974
November, 97	168.15	154.60	-8.7645537	-10.206	February, 00	105.50	104.75	-0.7159905	1.4223
December, 97	154.60	150.00	-3.0666667	4.2483	March, 00	104.75	98.00	-6.8877551	4.5801
January, 98	150.00	137.73	-8.9087345	-1.4532	April, 00	98.00	106.00	7.54716981	0.4293
February, 98	137.73	138.00	0.19565217	-10.289	May, 00	106.00	113.75	6.81318681	3.7736
March, 98	138.00	130.00	-6.1538462	-5.2716	June, 00	113.75	93.00	-22.311828	5.3155
April, 98	130.00	130.00	0	-11.682	July, 00	93.00	93.23	0.24670171	11.472
May, 98	130.00	100.00	-30	5.6083	August, 00	93.23	99.23	6.0465585	3.2833
June, 98	100.00	120.00	16.6666667	9.282	September, 00	99.23	109.75	9.58542141	-6.054
July, 98	120.00	111.50	-7.6233184	-13.264	October, 00	109.75	105.00	-4.5238095	3.2463
Average			3.1775		Average			-1.5266	

Regression Analysis (Metalex Corporation)

	0.5712636						0.0990907				
	0.3263421						0.009819				
	0.2957213						-0.035189				
	16.016565						16.471297				
	24						24				

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	2733.9783	2733.9783	10.65752407	0.003547602			1	59.187438	59.187438	0.2181594	0.64503881
	22	5643.6676	255.53035					22	5968.6795	271.30361		
	23	8377.646						23	6027.8669			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	3.8945622	3.2767384	1.18854	0.247289572	-2.9009847	10.690109		-1.417261	3.3703298	-0.4205	0.6781912	-8.40690473	5.572382577
X Variable 1	1.1921649	0.365181	3.26458	0.003547602	0.4348250	1.9495048	X Variable 1	-0.311111	0.6660827	-0.4670	0.6450388	-1.6924832	1.070261565

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Food and Allied Product Sector

Appendix Table 6.26

BATBC

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	190.00	185.00	-2.702702703	0.8388	November, 98	113.50	91.30	-24.31544359	-4.6632
September, 95	185.00	180.00	-2.777777778	6.9612	December, 98	91.30	94.00	2.872340426	-4.2483
October, 95	180.00	175.00	-2.857142857	6.0609	January, 99	94.00	94.90	0.948366702	0.3221
November, 95	175.00	170.00	-2.941176471	-5.2456	February, 99	94.90	90.70	-4.630650496	-0.81
December, 95	170.00	171.40	0.8168028	-1.0842	March, 99	90.70	94.50	4.021164021	-3.7122
January, 96	171.40	150.00	-14.26666667	-7.3371	April, 99	94.50	93.70	-0.853788687	-7.6662
February, 96	150.00	153.71	2.413636068	2.1486	May, 99	93.70	108.90	13.95775941	7.2802
March, 96	153.71	159.78	3.798973589	1.4127	June, 99	108.90	154.50	29.51456311	6.6205
April, 96	159.78	140.00	-14.12857143	2.5128	July, 99	154.50	144.00	-7.291666667	-3.2849
May, 96	140.00	143.00	2.097902098	2.7519	August, 99	144.00	122.70	-17.3594132	-3.2714
June, 96	143.00	135.00	-5.925925926	10.3394	September, 99	122.70	112.60	-8.969804618	-1.073
July, 96	135.00	154.67	12.71739833	17.2977	October, 99	112.60	116.00	2.931034483	5.8865
August, 97	128.69	104.60	-23.03059273	-17.0134	November, 99	116.00	103.00	-12.62135922	-9.5409
September, 97	104.60	130.00	19.53846154	12.8768	December, 99	103.00	100.00	-3	0.1025
October, 97	130.00	131.38	1.050388187	-13.9291	January, 00	100.00	104.00	3.846153846	-0.9743
November, 97	131.38	130.05	-1.022683583	-10.2064	February, 00	104.00	99.10	-4.944500505	1.4223
December, 97	130.05	130.00	-0.038461538	4.2483	March, 00	99.10	100.00	0.9	4.5801
January, 98	130.00	142.12	8.528004503	-1.4532	April, 00	100.00	97.70	-2.354145343	0.4293
February, 98	142.12	135.67	-4.754182944	-10.289	May, 00	97.70	117.80	17.06281834	3.7736
March, 98	135.67	154.25	12.04538088	-5.2716	June, 00	117.80	101.20	-16.40316206	5.3155
April, 98	154.25	97.56	-58.10783108	-11.6819	July, 00	101.20	104.00	2.692307692	11.4716
May, 98	97.56	116.98	16.6011284	5.6083	August, 00	104.00	103.00	-0.970873786	3.2833
June, 98	116.98	121.30	3.561417972	9.282	September, 00	103.00	105.10	1.99809705	-6.0542
July, 98	121.30	113.50	-6.872246696	-13.2641	October, 00	105.10	106.70	1.499531396	3.2463
Average			-2.3440		Average			-0.8946	

Regression Analysis (BATBC)

	0.5260519						0.463541					
	0.2767306						0.2148703					
	0.2438547						0.1791826					
	13.314227						10.203948					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	1492.147	1492.147	8.41743359	0.008281007			1	626.89392	626.89392	6.0208472	0.0225243
	22	3899.9101	177.26864					22	2290.6521	104.12055		
	23	5392.0571						23	2917.546			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.814251	2.7238824	-0.6660	0.512301302	-7.4632433	3.8347416		-1.250473	2.0879151	-0.5989	0.5553504	-5.58054878	3.079602309
X Variable 1	0.8807337	0.3035671	2.9012	0.008281007	0.2511733	1.5102941	X Variable 1	1.0125055	0.4126374	2.4537	0.0225243	0.15674698	1.868263925

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.27

National Tea

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	220.00	225.00	2.222222222	0.8388	November, 98	344.33	333.75	-3.170037453	-4.6632
September, 95	225.00	230.00	2.173913043	6.9612	December, 98	333.75	390.00	14.42307692	-4.2483
October, 95	230.00	230.00	0	6.0609	January, 99	390.00	415.00	6.024096386	0.3221
November, 95	230.00	230.00	0	-5.2456	February, 99	415.00	447.00	7.158836689	-0.81
December, 95	230.00	195.00	-17.94871795	-1.0842	March, 99	447.00	470.00	4.893617021	-3.7122
January, 96	195.00	215.00	9.302325581	-7.3371	April, 99	470.00	481.75	2.43902439	-7.6662
February, 96	215.00	208.00	-3.365384615	2.1486	May, 99	481.75	512.50	6	7.2802
March, 96	208.00	228.41	8.935685828	1.4127	June, 99	512.50	671.85	23.71809184	6.6205
April, 96	228.41	250.00	8.636	2.5128	July, 99	671.85	670.00	-0.276119403	-3.2849
May, 96	250.00	250.00	0	2.7519	August, 99	670.00	635.25	-5.470287288	-3.2714
June, 96	250.00	240.00	-4.166666667	10.3394	September, 99	635.25	645.50	1.587916344	-1.073
July, 96	240.00	240.00	0	17.2977	October, 99	645.50	668.50	3.440538519	5.8865
August, 97	297.00	265.00	-12.0754717	-17.0134	November, 99	668.50	667.00	-0.224887556	-9.5409
September, 97	265.00	297.00	10.77441077	12.8768	December, 99	667.00	672.25	0.780959464	0.1025
October, 97	297.00	340.00	12.64705882	-13.9291	January, 00	672.25	661.25	-1.663516068	-0.9743
November, 97	340.00	330.00	-3.03030303	-10.2064	February, 00	661.25	695.00	4.856115108	1.4223
December, 97	330.00	310.00	-6.451612903	4.2483	March, 00	695.00	793.00	12.35813367	4.5801
January, 98	310.00	372.00	16.66666667	-1.4532	April, 00	793.00	687.00	-15.4294032	0.4293
February, 98	372.00	458.23	18.8180608	-10.289	May, 00	687.00	498.00	-37.95180723	3.7736
March, 98	458.23	387.40	-18.28342798	-5.2716	June, 00	498.00	688.75	27.69509982	5.3155
April, 98	387.40	310.00	-24.96774194	-11.6819	July, 00	688.75	640.00	-7.6171875	11.4716
May, 98	310.00	341.00	9.090909091	5.6083	August, 00	640.00	645.00	0.775193798	3.2833
June, 98	341.00	350.00	2.571428571	9.282	September, 00	645.00	650.00	0.769230769	-6.0542
July, 98	350.00	344.33	-1.646676154	-13.2641	October, 00	650.00	650.00	0	3.2463
Average			0.4126		Average			1.8799	

Regression Analysis (National Tea)

	0.1723964						0.0745173					
	0.0297205						0.0055528					
	-0.014383						-0.039649					
	11.016104						12.717395					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	81.778359	81.778359	0.673879635	0.420508946		1	19.867897	19.867897	0.1228445	0.72930338
	22	2669.8001	121.35455				22	3558.1072	161.73214		
	23	2751.5784					23	3577.9751			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.5366339	2.2537224	0.23811	0.813999513	-4.13730541	5.2105732		1.8165099	2.6022126	0.69806	0.4924505	-3.58015462	7.213174348
X Variable 1	0.2061854	0.2511695	0.82090	0.420508946	-0.31470870	0.7270796	X Variable 1	0.1802504	0.5142787	0.35049	0.7293034	-0.88629941	1.246800255

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.28

Gemini Sea Food

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	155.00	145.00	-6.896551724	0.8388	November, 98	148.39	170.00	12.71176471	-4.6632
September, 95	145.00	140.00	-3.571428571	6.9612	December, 98	170.00	160.00	-6.25	-4.2483
October, 95	140.00	190.00	26.31578947	6.0609	January, 99	160.00	136.00	-17.64705882	0.3221
November, 95	190.00	205.00	7.317073171	-5.2456	February, 99	136.00	169.50	19.7640118	-0.81
December, 95	205.00	550.00	62.72727273	-1.0842	March, 99	169.50	160.75	-5.443234837	-3.7122
January, 96	550.00	500.00	-10	-7.3371	April, 99	160.75	135.25	-18.85397412	-7.6662
February, 96	500.00	380.00	-31.57894737	2.1486	May, 99	135.25	138.00	1.992753623	7.2802
March, 96	380.00	310.00	-22.58064516	1.4127	June, 99	138.00	125.00	-10.4	6.6205
April, 96	310.00	298.00	-4.026845638	2.5128	July, 99	125.00	139.25	10.23339318	-3.2849
May, 96	298.00	556.00	46.4028777	2.7519	August, 99	139.25	158.00	11.86708861	-3.2714
June, 96	556.00	900.00	38.22222222	10.3394	September, 99	158.00	150.00	-5.333333333	-1.073
July, 96	900.00	707.50	-27.20848057	17.2977	October, 99	150.00	150.00	0	5.8865
August, 97	285.43	260.00	-9.780769231	-17.0134	November, 99	150.00	143.50	-4.529616725	-9.5409
September, 97	260.00	277.80	6.407487401	12.8768	December, 99	143.50	125.00	-14.8	0.1025
October, 97	277.80	255.00	-8.941176471	-13.9291	January, 00	125.00	132.50	5.660377358	-0.9743
November, 97	255.00	255.00	0	-10.2064	February, 00	132.50	137.25	3.460837887	1.4223
December, 97	255.00	230.00	-10.86956522	4.2483	March, 00	137.25	111.00	-23.64864865	4.5801
January, 98	230.00	113.33	-102.9471455	-1.4532	April, 00	111.00	116.25	4.516129032	0.4293
February, 98	113.33	125.40	9.625199362	-10.289	May, 00	116.25	119.50	2.719665272	3.7736
March, 98	125.40	135.50	7.453874539	-5.2716	June, 00	119.50	123.25	3.042596349	5.3155
April, 98	135.50	115.00	-17.82608696	-11.6819	July, 00	123.25	120.00	-2.708333333	11.4716
May, 98	115.00	158.20	27.30720607	5.6083	August, 00	120.00	127.00	5.511811024	3.2833
June, 98	158.20	168.00	5.833333333	9.282	September, 00	127.00	136.75	7.129798903	-6.0542
July, 98	168.00	148.39	-13.21517622	-13.2641	October, 00	136.75	132.50	-3.20754717	3.2463
Average			-1.3263		Average			-1.0088	

Regression Analysis (Gemini Sea Food)

	0.1424955						0.0848805						
	0.020305						0.0072047						
	-0.024227						-0.037922						
	32.024352						10.890515						
	24						24						

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F	
	1	467.62173	467.62173	0.455967587	0.506550386			1	18.935455	18.935455	0.1596537	0.69332826	
	22	22562.301	1025.5591					22	2609.2729	118.60332			
	23	23029.923						23	2628.2084				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.0297	6.5516812	-0.1571	0.876547731	-14.617069	12.55767		-0.946966	2.2283993	-0.4249	0.6749982	-5.56838812	3.67445657
X Variable 1	0.4930445	0.7301619	0.6752	0.506550386	-1.021220	2.0073093	X Variable 1	-0.17597	0.4404015	-0.3995	0.6933283	-1.08930755	0.73736789

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.29

Hill Plantation

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	1200.00	1275.00	5.882352941	0.8388	November, 98	1200.00	1200.00	0	-4.6632
September, 95	1275.00	1211.43	-5.247517397	6.9612	December, 98	1200.00	910.00	-31.86813187	-4.2483
October, 95	1211.43	1300.00	6.813076923	6.0609	January, 99	910.00	910.00	0	0.3221
November, 95	1300.00	1280.00	-1.5625	-5.2456	February, 99	910.00	750.00	-21.33333333	-0.81
December, 95	1280.00	1280.00	0	-1.0842	March, 99	750.00	750.00	0	-3.7122
January, 96	1280.00	1280.00	0	-7.3371	April, 99	750.00	750.00	0	-7.6662
February, 96	1280.00	1280.00	0	2.1486	May, 99	750.00	750.00	0	7.2802
March, 96	1280.00	1280.00	0	1.4127	June, 99	750.00	680.00	-10.29411765	6.6205
April, 96	1280.00	1280.00	0	2.5128	July, 99	680.00	750.00	9.333333333	-3.2849
May, 96	1280.00	1280.00	0	2.7519	August, 99	750.00	750.00	0	-3.2714
June, 96	1280.00	1280.00	0	10.3394	September, 99	750.00	660.00	-13.63636364	-1.073
July, 96	1280.00	1280.00	0	17.2977	October, 99	660.00	785.00	15.92356688	5.8865
August, 97	1200.00	1200.00	0	-17.0134	November, 99	785.00	720.00	-9.027777778	-9.5409
September, 97	1200.00	1200.00	0	12.8768	December, 99	720.00	720.00	0	0.1025
October, 97	1200.00	1200.00	0	-13.9291	January, 00	720.00	700.00	-2.857142857	-0.9743
November, 97	1200.00	1200.00	0	-10.2064	February, 00	700.00	700.00	0	1.4223
December, 97	1200.00	1200.00	0	4.2483	March, 00	700.00	700.00	0	4.5801
January, 98	1200.00	1200.00	0	-1.4532	April, 00	700.00	700.00	0	0.4293
February, 98	1200.00	1200.00	0	-10.289	May, 00	700.00	700.00	0	3.7736
March, 98	1200.00	1200.00	0	-5.2716	June, 00	700.00	700.00	0	5.3155
April, 98	1200.00	1200.00	0	-11.6819	July, 00	700.00	700.00	0	11.4716
May, 98	1200.00	1200.00	0	5.6083	August, 00	700.00	700.00	0	3.2833
June, 98	1200.00	1200.00	0	9.282	September, 00	700.00	700.00	0	-6.0542
July, 98	1200.00	1200.00	0	-13.2641	October, 00	700.00	700.00	0	3.2463
Average			0.2452		Average			-2.6567	

Regression Analysis (Hill Plantation)

	0.0466921						0.2459087				
	0.0021802						0.0604711				
	-0.043175						0.0177652				
	2.2291034						9.2961086				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	0.2388463	0.2388463	0.048068237	0.828480788		1	122.3665	122.3665	1.4159899	0.24674805
	22	109.31584	4.9689018				22	1901.188	86.417634		
	23	109.55469					23	2023.5545			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.2519281	0.4560397	0.55242	0.58622601	-0.6938413	1.1976974		-2.813888	1.9021545	-1.4793	0.1532333	-6.75871944	1.130943102
X Variable 1	0.0111429	0.050824	0.21924	0.828480788	-0.0942593	0.1165456	X Variable 1	0.4473337	0.3759253	1.1899	0.2467481	-0.33228846	1.226955833

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.30

Bangladesh Plantation

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	870.00	870.00	0	0.8388	November, 98	870.00	870.00	0	-4.6632
September, 95	870.00	870.00	0	6.9612	December, 98	870.00	806.67	-7.850794005	-4.2483
October, 95	870.00	870.00	0	6.0609	January, 99	806.67	810.00	0.411111111	0.3221
November, 95	870.00	870.00	0	-5.2456	February, 99	810.00	810.00	0	-0.81
December, 95	870.00	870.00	0	-1.0842	March, 99	810.00	810.00	0	-3.7122
January, 96	870.00	870.00	0	-7.3371	April, 99	810.00	810.00	0	-7.6662
February, 96	870.00	870.00	0	2.1486	May, 99	810.00	810.00	0	7.2802
March, 96	870.00	870.00	0	1.4127	June, 99	810.00	729.00	-11.11111111	6.6205
April, 96	870.00	870.00	0	2.5128	July, 99	729.00	590.00	-23.55932203	-3.2849
May, 96	870.00	870.00	0	2.7519	August, 99	590.00	590.00	0	-3.2714
June, 96	870.00	870.00	0	10.3394	September, 99	590.00	442.00	-33.4841629	-1.073
July, 96	870.00	870.00	0	17.2977	October, 99	442.00	545.00	18.99908257	5.8865
August, 97	870.00	870.00	0	-17.0134	November, 99	545.00	531.00	-2.63653484	-9.5409
September, 97	870.00	870.00	0	12.8768	December, 99	531.00	456.00	-16.44736842	0.1025
October, 97	870.00	870.00	0	-13.9291	January, 00	456.00	456.00	0	-0.9743
November, 97	870.00	870.00	0	-10.2064	February, 00	456.00	456.00	0	1.4223
December, 97	870.00	870.00	0	4.2483	March, 00	456.00	456.00	0	4.5801
January, 98	870.00	870.00	0	-1.4532	April, 00	456.00	456.00	0	0.4293
February, 98	870.00	870.00	0	-10.289	May, 00	456.00	456.00	0	3.7736
March, 98	870.00	870.00	0	-5.2716	June, 00	456.00	456.00	0	5.3155
April, 98	870.00	870.00	0	-11.6819	July, 00	456.00	456.00	0	11.4716
May, 98	870.00	870.00	0	5.6083	August, 00	456.00	456.00	0	3.2833
June, 98	870.00	870.00	0	9.282	September, 00	456.00	456.00	0	-6.0542
July, 98	870.00	870.00	0	-13.2641	October, 00	456.00	456.00	0	3.2463
Average			0.0000		Average			-3.1575	

Regression Analysis (Bangladesh Plantation)

	0.0466921						0.1996944					
	0.0021802						0.0398778					
	-0.043175						-0.003764					
	2.2291034						9.9244089					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	0.2388463	0.2388463	0.048068237	0.828480788			1	89.998872	89.998872	0.9137508	0.34950809
	22	109.31584	4.9689018					22	2166.8656	98.493892		
	23	109.55469						23	2256.8645			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.2519281	0.4560397	0.55242	0.58622601	-0.6938413	1.1976974		-3.292298	2.0307163	-1.6212	0.1192099	-7.50374998	0.91915478
X Variable 1	0.0111429	0.050824	0.21924	0.828480788	-0.0942593	0.1165456	X Variable 1	0.3836356	0.4013331	0.9559	0.3495081	-0.44867925	1.21595039

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.31

ALFA Tobacco

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	87.00	93.00	6.451612903	0.8388	November, 98	71.80	75.00	4.266666667	-4.6632
September, 95	93.00	95.33	2.444141404	6.9612	December, 98	75.00	67.80	-10.61946903	-4.2483
October, 95	95.33	105.00	9.20952381	6.0609	January, 99	67.80	70.00	3.142857143	0.3221
November, 95	105.00	95.00	-10.52631579	-5.2456	February, 99	70.00	71.60	2.234636872	-0.81
December, 95	95.00	88.67	-7.138829367	-1.0842	March, 99	71.60	63.50	-12.75590551	-3.7122
January, 96	88.67	74.50	-19.02013423	-7.3371	April, 99	63.50	59.20	-7.263513514	-7.6662
February, 96	74.50	75.00	0.666666667	2.1486	May, 99	59.20	58.50	-1.196581197	7.2802
March, 96	75.00	76.42	1.858152316	1.4127	June, 99	58.50	60.90	3.9408867	6.6205
April, 96	76.42	76.00	-0.552631579	2.5128	July, 99	60.90	57.00	-6.842105263	-3.2849
May, 96	76.00	80.25	5.295950156	2.7519	August, 99	57.00	56.20	-1.423487544	-3.2714
June, 96	80.25	91.11	11.91965756	10.3394	September, 99	56.20	55.00	-2.181818182	-1.073
July, 96	91.11	125.32	27.29811682	17.2977	October, 99	55.00	55.50	0.909090901	5.8865
August, 97	107.00	94.00	-13.82978723	-17.0134	November, 99	55.50	72.00	22.91666667	-9.5409
September, 97	94.00	115.00	18.26086957	12.8768	December, 99	72.00	59.00	-22.03389831	0.1025
October, 97	115.00	115.00	0	-13.9291	January, 00	59.00	59.00	0	-0.9743
November, 97	115.00	115.00	0	-10.2064	February, 00	59.00	60.25	2.074688797	1.4223
December, 97	115.00	78.10	-47.24711908	4.2483	March, 00	60.25	55.20	-9.148550725	4.5801
January, 98	78.10	79.75	2.068965517	-1.4532	April, 00	55.20	57.00	3.157894737	0.4293
February, 98	79.75	73.10	-9.097127223	-10.289	May, 00	57.00	58.00	1.724137931	3.7736
March, 98	73.10	74.00	1.216216216	-5.2716	June, 00	58.00	59.00	1.694915254	5.3155
April, 98	74.00	72.00	-2.777777778	-11.6819	July, 00	59.00	64.50	8.527131783	11.4716
May, 98	72.00	70.38	-2.301790281	5.6083	August, 00	64.50	63.00	-2.380952381	3.2833
June, 98	70.38	75.00	6.16	9.282	September, 00	63.00	63.60	0.943396226	-6.0542
July, 98	75.00	71.80	-4.456824513	-13.2641	October, 00	63.60	63.20	-0.632911392	3.2463
Average			-1.0041		Average			-0.8731	

Regression Analysis (ALFA Tobacco)

	0.4668727						0.0264476				
	0.2179701						0.0006995				
	0.1824233						-0.044723				
	12.601963						8.547809				
	24						24				

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	973.80671	973.80671	6.131918035	0.021448446		1	1.1251493	1.1251493	0.0153993	0.9023678
	22	3493.8085	158.80948				22	1607.4309	73.065039		
	23	4467.6153					23	1608.556			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.576129	2.5781644	-0.2234	0.825235699	-5.9229207	4.7706623		-0.888177	1.7490387	-0.5078	0.6166412	-4.51546481	2.739111461
X Variable 1	0.7115005	0.2873274	2.4762	0.021448446	0.1156193	1.3073816	X Variable 1	0.0428949	0.3456648	0.1240	0.9023678	-0.6739708	0.759760558

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.32

Meghna Shrimp

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	160.00	157.00	-1.910828025	0.8388	November, 98	103.14	127.00	18.78740157	-4.6632
September, 95	157.00	152.80	-2.748691099	6.9612	December, 98	127.00	83.00	-53.01204819	-4.2483
October, 95	152.80	149.73	-2.05035731	6.0609	January, 99	83.00	105.50	21.32701422	0.3221
November, 95	149.73	184.00	18.625	-5.2456	February, 99	105.50	118.50	10.97046414	-0.81
December, 95	184.00	131.00	-40.45801527	-1.0842	March, 99	118.50	105.75	-12.05673759	-3.7122
January, 96	131.00	105.64	-24.00605831	-7.3371	April, 99	105.75	105.00	-0.714285714	-7.6662
February, 96	105.64	105.55	-0.085267646	2.1486	May, 99	105.00	86.25	-21.73913043	7.2802
March, 96	105.55	106.40	0.79887218	1.4127	June, 99	86.25	80.25	-7.476635514	6.6205
April, 96	106.40	103.96	-2.34705656	2.5128	July, 99	80.25	86.25	6.956521739	-3.2849
May, 96	103.96	94.29	-10.25559444	2.7519	August, 99	86.25	89.75	3.899721448	-3.2714
June, 96	94.29	98.34	4.118364857	10.3394	September, 99	89.75	90.25	0.55401662	-1.073
July, 96	98.34	136.99	28.21373823	17.2977	October, 99	90.25	94.75	4.749340369	5.8865
August, 97	122.65	119.92	-2.276517678	-17.0134	November, 99	94.75	96.25	1.558441558	-9.5409
September, 97	119.92	115.98	-3.397137437	12.8768	December, 99	96.25	81.00	-18.82716049	0.1025
October, 97	115.98	96.08	-20.71190674	-13.9291	January, 00	81.00	81.75	0.917431193	-0.9743
November, 97	96.08	95.02	-1.11555462	-10.2064	February, 00	81.75	83.00	1.506024096	1.4223
December, 97	95.02	95.40	0.398322851	4.2483	March, 00	83.00	82.50	-0.606060606	4.5801
January, 98	95.40	96.34	0.975711023	-1.4532	April, 00	82.50	81.75	-0.917431193	0.4293
February, 98	96.34	95.59	-0.7846009	-10.289	May, 00	81.75	82.75	1.208459215	3.7736
March, 98	95.59	93.99	-1.702308756	-5.2716	June, 00	82.75	95.60	13.44142259	5.3155
April, 98	93.99	91.48	-2.74376913	-11.6819	July, 00	95.60	111.00	13.87387387	11.4716
May, 98	91.48	95.32	4.02853546	5.6083	August, 00	111.00	116.00	4.310344828	3.2833
June, 98	95.32	105.00	9.219047619	9.282	September, 00	116.00	121.75	4.722792608	-6.0542
July, 98	105.00	103.14	-1.803374055	-13.2641	October, 00	121.75	123.00	1.016260163	3.2463
Average			-2.1675		Average			-0.2312	

Regression Analysis (Meghna Shrimp)

	0.3742193						0.0985778					
	0.1400401						0.0097176					
	0.100951						-0.035295					
	12.42676						15.410235					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	553.23865	553.23865	3.582586771	0.071619114		1	51.26726	51.26726	0.2158846	0.64675931
	22	3397.3358	154.42436				22	5224.4575	237.47534		
	23	3950.5745					23	5275.7248			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.844897	2.5423205	-0.7256	0.475687718	-7.1173531	3.4275582		-0.333015	3.1532171	-0.1056	0.916848	-6.87239373	6.206364246
X Variable 1	0.5362843	0.2833327	1.8927	0.071619114	-0.0513124	1.123881	X Variable 1	0.2895479	0.6231744	0.4646	0.6467593	-1.00283811	1.581933873

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.33

Bangas

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	295.00	297.00	0.673400673	0.8388	November, 98	141.00	154.00	8.441558442	-4.6632
September, 95	297.00	300.00	1	6.9612	December, 98	154.00	151.00	-1.986754967	-4.2483
October, 95	300.00	300.00	0	6.0609	January, 99	151.00	145.75	-3.602058319	0.3221
November, 95	300.00	290.00	-3.448275862	-5.2456	February, 99	145.75	160.00	8.90625	-0.81
December, 95	290.00	290.00	0	-1.0842	March, 99	160.00	164.00	2.43902439	-3.7122
January, 96	290.00	290.00	0	-7.3371	April, 99	164.00	149.25	-9.882747069	-7.6662
February, 96	290.00	290.00	0	2.1486	May, 99	149.25	148.25	-0.674536256	7.2802
March, 96	290.00	290.00	0	1.4127	June, 99	148.25	158.00	6.170886076	6.6205
April, 96	290.00	310.00	6.451612903	2.5128	July, 99	158.00	155.25	-1.771336554	-3.2849
May, 96	310.00	310.00	0	2.7519	August, 99	155.25	160.25	3.120124805	-3.2714
June, 96	310.00	310.00	0	10.3394	September, 99	160.25	160.50	0.15576324	-1.073
July, 96	310.00	310.00	0	17.2977	October, 99	160.50	160.25	-0.15600624	5.8865
August, 97	350.00	260.00	-34.61538462	-17.0134	November, 99	160.25	154.00	-4.058441558	-9.5409
September, 97	260.00	240.00	-8.333333333	12.8768	December, 99	154.00	149.00	-3.355704698	0.1025
October, 97	240.00	236.00	-1.694915254	-13.9291	January, 00	149.00	158.00	5.696202532	-0.9743
November, 97	236.00	265.00	10.94339623	-10.2064	February, 00	158.00	157.50	-0.317460317	1.4223
December, 97	265.00	236.00	-12.28813559	4.2483	March, 00	157.50	160.25	1.716068643	4.5801
January, 98	236.00	236.00	0	-1.4532	April, 00	160.25	168.25	4.754829123	0.4293
February, 98	236.00	236.00	0	-10.289	May, 00	168.25	177.25	5.077574048	3.7736
March, 98	236.00	158.29	-49.0934361	-5.2716	June, 00	177.25	181.25	2.206896552	5.3155
April, 98	158.29	140.00	-13.06428571	-11.6819	July, 00	181.25	189.25	4.227212682	11.4716
May, 98	140.00	125.92	-11.18170267	5.6083	August, 00	189.25	195.00	2.948717949	3.2833
June, 98	125.92	146.00	13.75342466	9.282	September, 00	195.00	197.00	1.015228426	-6.0542
July, 98	146.00	141.00	-3.546099291	-13.2641	October, 00	197.00	184.25	-6.919945726	3.2463
Average			-4.3518		Average			1.0063	

Regression Analysis (Bangas)

	0.3023097						0.2778393					
	0.0913912						0.0771947					
	0.0500908						0.035249					
	12.932119						4.5346885					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	370.07461	370.07461	2.212839474	0.151060256		1	37.843805	37.843805	1.8403477	0.18866907	
	22	3679.2734	167.2397				22	452.39479	20.5634			
	23	4049.3481					23	490.2386				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-4.087992	2.6457091	-1.5451	0.136576732	-9.5748624	1.3988791		0.9188717	0.9278805	0.9902	0.3327994	-1.00543679	2.84318026
X Variable 1	0.438615	0.294855	1.4875	0.151060256	-0.1728775	1.0501075	X Variable 1	0.2487698	0.1833782	1.3565	0.1886691	-0.13153375	0.62907345

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Jute Sector

Appendix Table 6.34

Sonali Aansh

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	145.00	145.00	0	0.8388	November, 98	147.75	230.00	35.76086957	-4.6632
September, 95	145.00	150.00	3.333333333	6.9612	December, 98	230.00	224.00	-2.678571429	-4.2483
October, 95	150.00	150.00	0	6.0609	January, 99	224.00	230.00	2.608695652	0.3221
November, 95	150.00	150.00	0	-5.2456	February, 99	230.00	275.00	16.36363636	-0.81
December, 95	150.00	150.00	0	-1.0842	March, 99	275.00	275.00	0	-3.7122
January, 96	150.00	150.00	0	-7.3371	April, 99	275.00	275.00	0	-7.6662
February, 96	150.00	150.00	0	2.1486	May, 99	275.00	275.00	0	7.2802
March, 96	150.00	150.00	0	1.4127	June, 99	275.00	275.00	0	6.6205
April, 96	150.00	150.00	0	2.5128	July, 99	275.00	258.75	-6.280193237	-3.2849
May, 96	150.00	150.00	0	2.7519	August, 99	258.75	258.75	0	-3.2714
June, 96	150.00	150.00	0	10.3394	September, 99	258.75	275.00	5.909090909	-1.073
July, 96	150.00	150.00	0	17.2977	October, 99	275.00	235.00	-17.0212766	5.8865
August, 97	150.00	150.00	0	-17.0134	November, 99	235.00	199.50	-17.79448622	-9.5409
September, 97	150.00	150.00	0	12.8768	December, 99	199.50	215.00	7.209302326	0.1025
October, 97	150.00	150.00	0	-13.9291	January, 00	215.00	155.00	-38.70967742	-0.9743
November, 97	150.00	165.00	9.090909091	-10.2064	February, 00	155.00	155.00	0	1.4223
December, 97	165.00	181.50	9.090909091	4.2483	March, 00	155.00	155.00	0	4.5801
January, 98	181.50	147.75	-22.84263959	-1.4532	April, 00	155.00	212.25	26.97290931	0.4293
February, 98	147.75	147.75	0	-10.289	May, 00	212.25	212.25	0	3.7736
March, 98	147.75	147.75	0	-5.2716	June, 00	212.25	220.50	3.741496599	5.3155
April, 98	147.75	147.75	0	-11.6819	July, 00	220.50	220.00	-0.227272727	11.4716
May, 98	147.75	147.75	0	5.6083	August, 00	220.00	210.00	-4.761904762	3.2833
June, 98	147.75	147.75	0	9.282	September, 00	210.00	200.00	-5	-6.0542
July, 98	147.75	147.75	0	-13.2641	October, 00	200.00	200.00	0	3.2463
Average			-0.0553		Average			0.2539	

Regression Analysis (Sonali Aansh)

	0.0012391						0.0024603						
	1.535E-06						6.053E-06						
	-0.045453						-0.045448						
	5.6331489						14.427589						
	24						24						
	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F		
	1	0.0010718	0.0010718	3.37764E-05	0.995415302		1	0.0277192	0.0277192	0.0001332	0.99089683		
	22	698.11205	31.732366				22	4579.417	208.15532				
	23	698.11312					23	4579.4447					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.054863	1.1524541	-0.0476	0.96246027	-2.4449090	2.335183		0.2562254	2.9521496	0.0867	0.9316213	-5.86616473	6.378615573
X Variable 1	0.0007464	0.128437	0.0058	0.995415302	-0.2656158	0.2671087	X Variable 1	-0.006733	0.5834372	-0.0115	0.9908968	-1.21670866	1.203243225

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.35

Northern Jute

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	25.00	23.00	-8.695652174	0.8388	November, 98	12.80	28.80	55.55555556	-4.6632
September, 95	23.00	24.50	6.12244898	6.9612	December, 98	28.80	29.90	3.678929766	-4.2483
October, 95	24.50	26.31	6.879513493	6.0609	January, 99	29.90	25.60	-16.796875	0.3221
November, 95	26.31	23.00	-14.39130435	-5.2456	February, 99	25.60	30.00	14.66666667	-0.81
December, 95	23.00	21.00	-9.523809524	-1.0842	March, 99	30.00	35.20	14.77272727	-3.7122
January, 96	21.00	21.00	0	-7.3371	April, 99	35.20	27.00	-30.37037037	-7.6662
February, 96	21.00	19.00	-10.52631579	2.1486	May, 99	27.00	33.60	19.64285714	7.2802
March, 96	19.00	19.00	0	1.4127	June, 99	33.60	30.60	-9.803921569	6.6205
April, 96	19.00	18.00	-5.555555556	2.5128	July, 99	30.60	31.00	1.290322581	-3.2849
May, 96	18.00	17.00	-5.882352941	2.7519	August, 99	31.00	31.40	1.27388535	-3.2714
June, 96	17.00	18.50	8.108108108	10.3394	September, 99	31.40	33.40	5.988023952	-1.073
July, 96	18.50	22.00	15.90909091	17.2977	October, 99	33.40	37.90	11.87335092	5.8865
August, 97	15.07	13.14	-14.68797565	-17.0134	November, 99	37.90	34.40	-10.1744186	-9.5409
September, 97	13.14	15.47	15.06140918	12.8768	December, 99	34.40	31.10	-10.61093248	0.1025
October, 97	15.47	11.50	-34.52173913	-13.9291	January, 00	31.10	32.00	2.8125	-0.9743
November, 97	11.50	10.20	-12.74509804	-10.2064	February, 00	32.00	30.10	-6.312292359	1.4223
December, 97	10.20	12.00	15	4.2483	March, 00	30.10	46.60	35.40772532	4.5801
January, 98	12.00	12.40	3.225806452	-1.4532	April, 00	46.60	29.80	-56.37583893	0.4293
February, 98	12.40	12.50	0.8	-10.289	May, 00	29.80	28.30	-5.300353357	3.7736
March, 98	12.50	12.80	2.34375	-5.2716	June, 00	28.30	19.10	-48.16753927	5.3155
April, 98	12.80	12.80	0	-11.6819	July, 00	19.10	17.00	-12.35294118	11.4716
May, 98	12.80	12.80	0	5.6083	August, 00	17.00	15.00	-13.33333333	3.2833
June, 98	12.80	12.80	0	9.282	September, 00	15.00	14.70	-2.040816327	-6.0542
July, 98	12.80	12.80	0	-13.2641	October, 00	14.70	14.00	-5	3.2463
Average			-1.7950		Average			-2.4865	

Regression Analysis (Northern Jute)

	0.6488974						0.0729836					
	0.4210679						0.0053266					
	0.3947528						-0.039886					
	8.7573347						23.919967					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	1227.1314	1227.1314	16.00100154	0.00060296		1	67.408443	67.408443	0.117813	0.73467704	
	22	1687.2001	76.690912				22	12587.626	572.16481			
	23	2914.3315					23	12655.034				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.314561	1.7916136	-0.7337	0.470860848	-5.0301442	2.4010221		-2.369853	4.8944645	-0.4841	0.6330359	-12.5203622	7.78065576
X Variable 1	0.7987012	0.1996691	4.0001	0.00060296	0.3846124	1.2127899	X Variable 1	-0.332015	0.9672994	-0.3432	0.734677	-2.33807315	1.67404347

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.36

Jute Spinner

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	142.33	145.00	1.84137931	0.8388	November, 98	145.00	234.00	38.03418803	-4.6632
September, 95	145.00	140.77	-3.004901613	6.9612	December, 98	234.00	224.00	-4.464285714	-4.2483
October, 95	140.77	140.77	0	6.0609	January, 99	224.00	224.00	0	0.3221
November, 95	140.77	145.00	2.917241379	-5.2456	February, 99	224.00	240.00	6.666666667	-0.81
December, 95	145.00	145.00	0	-1.0842	March, 99	240.00	224.00	-7.142857143	-3.7122
January, 96	145.00	145.00	0	-7.3371	April, 99	224.00	160.00	-40	-7.6662
February, 96	145.00	145.00	0	2.1486	May, 99	160.00	136.00	-17.64705882	7.2802
March, 96	145.00	145.00	0	1.4127	June, 99	136.00	174.50	22.06303725	6.6205
April, 96	145.00	145.00	0	2.5128	July, 99	174.50	174.50	0	-3.2849
May, 96	145.00	145.00	0	2.7519	August, 99	174.50	142.00	-22.88732394	-3.2714
June, 96	145.00	145.00	0	10.3394	September, 99	142.00	128.00	-10.9375	-1.073
July, 96	145.00	145.00	0	17.2977	October, 99	128.00	128.00	0	5.8865
August, 97	145.00	145.00	0	-17.0134	November, 99	128.00	128.00	0	-9.5409
September, 97	145.00	145.00	0	12.8768	December, 99	128.00	128.00	0	0.1025
October, 97	145.00	145.00	0	-13.9291	January, 00	128.00	128.00	0	-0.9743
November, 97	145.00	145.00	0	-10.2064	February, 00	128.00	125.00	-2.4	1.4223
December, 97	145.00	145.00	0	4.2483	March, 00	125.00	100.25	-24.6882793	4.5801
January, 98	145.00	145.00	0	-1.4532	April, 00	100.25	130.00	22.88461538	0.4293
February, 98	145.00	145.00	0	-10.289	May, 00	130.00	132.00	1.515151515	3.7736
March, 98	145.00	145.00	0	-5.2716	June, 00	132.00	159.25	17.11145997	5.3155
April, 98	145.00	145.00	0	-11.6819	July, 00	159.25	159.00	-0.157232704	11.4716
May, 98	145.00	145.00	0	5.6083	August, 00	159.00	150.00	-6	3.2833
June, 98	145.00	145.00	0	9.282	September, 00	150.00	136.00	-10.29411765	-6.0542
July, 98	145.00	145.00	0	-13.2641	October, 00	136.00	136.00	0	3.2463
Average			0.0731		Average			-1.5976	

Regression Analysis (Jute Spinner)

	0.1680714						0.1643383						
	0.028248						0.0270071						
	-0.015923						-0.01722						
	0.9585652						16.449946						
	24						24						
	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F		
	1	0.5876223	0.5876223	0.639521228	0.432434672		1	165.24169	165.24169	0.6106476	0.4428729		
	22	20.214639	0.9188472				22	5953.2159	270.60072				
	23	20.802262					23	6118.4576					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.0625586	0.1961074	0.3190	0.752734483	-0.3441438	0.4692609		-1.78035	3.365961	-0.5289	0.602152	-8.7609332	5.20023365
X Variable 1	-0.017478	0.0218555	-0.7997	0.432434672	-0.0628034	0.0278477	X Variable 1	0.5198286	0.6652193	0.7814	0.4428729	-0.85975321	1.899410389

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.37

Saleh Carpet

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	9.77	9.32	-4.82832618	0.8388	November, 98	3.83	8.90	56.96629213	-4.6632
September, 95	9.32	10.00	6.8	6.9612	December, 98	8.90	8.90	0	-4.2483
October, 95	10.00	7.80	-28.20512821	6.0609	January, 99	8.90	7.10	-25.35211268	0.3221
November, 95	7.80	7.80	0	-5.2456	February, 99	7.10	7.20	1.388888889	-0.81
December, 95	7.80	6.00	-30	-1.0842	March, 99	7.20	7.20	0	-3.7122
January, 96	6.00	6.00	0	-7.3371	April, 99	7.20	6.20	-16.12903226	-7.6662
February, 96	6.00	5.50	-9.090909091	2.1486	May, 99	6.20	5.50	-12.72727273	7.2802
March, 96	5.50	5.50	0	1.4127	June, 99	5.50	4.90	-12.24489796	6.6205
April, 96	5.50	5.00	-10	2.5128	July, 99	4.90	4.80	-2.083333333	-3.2849
May, 96	5.00	5.90	15.25423729	2.7519	August, 99	4.80	5.00	4	-3.2714
June, 96	5.90	5.50	-7.272727273	10.3394	September, 99	5.00	5.20	3.846153846	-1.073
July, 96	5.50	8.50	35.29411765	17.2977	October, 99	5.20	5.30	1.886792453	5.8865
August, 97	9.50	9.50	0	-17.0134	November, 99	5.30	4.40	-20.45454545	-9.5409
September, 97	9.50	7.90	-20.25316456	12.8768	December, 99	4.40	4.60	4.347826087	0.1025
October, 97	7.90	6.40	-23.4375	-13.9291	January, 00	4.60	4.50	-2.222222222	-0.9743
November, 97	6.40	5.60	-14.28571429	-10.2064	February, 00	4.50	4.30	-4.651162791	1.4223
December, 97	5.60	5.80	3.448275862	4.2483	March, 00	4.30	4.00	-7.5	4.5801
January, 98	5.80	9.50	38.94736842	-1.4532	April, 00	4.00	3.90	-2.564102564	0.4293
February, 98	9.50	9.50	0	-10.289	May, 00	3.90	3.90	0	3.7736
March, 98	9.50	9.50	0	-5.2716	June, 00	3.90	3.20	-21.875	5.3155
April, 98	9.50	4.00	-137.5	-11.6819	July, 00	3.20	3.60	11.11111111	11.4716
May, 98	4.00	4.00	0	5.6083	August, 00	3.60	3.00	-20	3.2833
June, 98	4.00	3.83	-4.438642298	9.282	September, 00	3.00	2.90	-3.448275862	-6.0542
July, 98	3.83	3.83	0	-13.2641	October, 00	2.90	2.60	-11.53846154	3.2463
Average			-7.8987		Average			-3.3018	

Regression Analysis (Saleh Carpet)

	0.3054494						0.1113799					
	0.0932993						0.0124055					
	0.0520857						-0.032485					
	31.187203						16.291756					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	2201.8621	2201.8621	2.263795894	0.146651404		1	73.34888	73.34888	0.2763489	0.6043633
	22	21398.116	972.64162				22	5839.2692	265.42133		
	23	23599.978					23	5912.618			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-7.255131	6.3804135	-1.1370	0.267732787	-20.4873132	5.9770505		-3.180081	3.3335925	-0.9539	0.3504738	-10.0935362	3.73337414
X Variable 1	1.0698771	0.7110747	1.5045	0.146651404	-0.4048032	2.5445573	X Variable 1	-0.346336	0.6588222	-0.5256	0.6043633	-1.71265072	1.01997959

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.38

Mutual Jute

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	115.00	115.00	0	0.8388	November, 98	120.00	120.00	0	-4.6632
September, 95	115.00	120.00	4.166666667	6.9612	December, 98	120.00	120.00	0	-4.2483
October, 95	120.00	120.00	0	6.0609	January, 99	120.00	120.00	0	0.3221
November, 95	120.00	120.00	0	-5.2456	February, 99	120.00	120.00	0	-0.81
December, 95	120.00	120.00	0	-1.0842	March, 99	120.00	120.00	0	-3.7122
January, 96	120.00	120.00	0	-7.3371	April, 99	120.00	120.00	0	-7.6662
February, 96	120.00	120.00	0	2.1486	May, 99	120.00	120.00	0	7.2802
March, 96	120.00	120.00	0	1.4127	June, 99	120.00	120.00	0	6.6205
April, 96	120.00	120.00	0	2.5128	July, 99	120.00	120.00	0	-3.2849
May, 96	120.00	120.00	0	2.7519	August, 99	120.00	120.00	0	-3.2714
June, 96	120.00	120.00	0	10.3394	September, 99	120.00	143.00	16.08391608	-1.073
July, 96	120.00	120.00	0	17.2977	October, 99	143.00	143.00	0	5.8865
August, 97	120.00	120.00	0	-17.0134	November, 99	143.00	143.00	0	-9.5409
September, 97	120.00	120.00	0	12.8768	December, 99	143.00	143.00	0	0.1025
October, 97	120.00	120.00	0	-13.9291	January, 00	143.00	143.00	0	-0.9743
November, 97	120.00	120.00	0	-10.2064	February, 00	143.00	143.00	0	1.4223
December, 97	120.00	120.00	0	4.2483	March, 00	143.00	143.00	0	4.5801
January, 98	120.00	120.00	0	-1.4532	April, 00	143.00	143.00	0	0.4293
February, 98	120.00	120.00	0	-10.289	May, 00	143.00	143.00	0	3.7736
March, 98	120.00	120.00	0	-5.2716	June, 00	143.00	143.00	0	5.3155
April, 98	120.00	120.00	0	-11.6819	July, 00	143.00	143.00	0	11.4716
May, 98	120.00	120.00	0	5.6083	August, 00	143.00	143.00	0	3.2833
June, 98	120.00	120.00	0	9.282	September, 00	143.00	143.00	0	-6.0542
July, 98	120.00	120.00	0	-13.2641	October, 00	143.00	143.00	0	3.2463
Average			0.1736		Average			0.6702	

Regression Analysis (Mutual Jute)

	0.1761399						0.0588429					
	0.0310253						0.0034625					
	-0.013019						-0.041835					
	0.8560358						3.3510861					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	0.5161903	0.5161903	0.704410739	0.410333352			1	0.8583983	0.8583983	0.0764395	0.7847626
	22	16.121541	0.7327973					22	247.05511	11.229778		
	23	16.637731						23	247.91351			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%			Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.1834645	0.1751315	1.04758	0.306204963	-0.1797364	0.5466654			0.6833314	0.6856937	0.9965	0.3298161	-0.73871187	2.10537476
X Variable 1	0.0163811	0.0195178	0.83929	0.410333352	-0.0240963	0.0568586	X Variable 1		-0.037467	0.1355145	-0.2764	0.7847626	-0.31850692	0.24357363

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.39

Islam Jute

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	100.00	95.00	-5.263157895	0.8388	November, 98	130.00	130.00	0	-4.6632
September, 95	95.00	95.00	0	6.9612	December, 98	130.00	130.00	0	-4.2483
October, 95	95.00	100.00	5	6.0609	January, 99	130.00	130.00	0	0.3221
November, 95	100.00	100.00	0	-5.2456	February, 99	130.00	130.00	0	-0.81
December, 95	100.00	100.00	0	-1.0842	March, 99	130.00	130.00	0	-3.7122
January, 96	100.00	100.00	0	-7.3371	April, 99	130.00	130.00	0	-7.6662
February, 96	100.00	100.00	0	2.1486	May, 99	130.00	130.00	0	7.2802
March, 96	100.00	100.00	0	1.4127	June, 99	130.00	130.00	0	6.6205
April, 96	100.00	100.00	0	2.5128	July, 99	130.00	130.00	0	-3.2849
May, 96	100.00	100.00	0	2.7519	August, 99	130.00	130.00	0	-3.2714
June, 96	100.00	100.00	0	10.3394	September, 99	130.00	130.00	0	-1.073
July, 96	100.00	100.00	0	17.2977	October, 99	130.00	130.00	0	5.8865
August, 97	130.00	130.00	0	-17.0134	November, 99	130.00	130.00	0	-9.5409
September, 97	130.00	130.00	0	12.8768	December, 99	130.00	110.00	-18.181818	0.1025
October, 97	130.00	130.00	0	-13.9291	January, 00	110.00	110.00	0	-0.9743
November, 97	130.00	130.00	0	-10.2064	February, 00	110.00	110.00	0	1.4223
December, 97	130.00	130.00	0	4.2483	March, 00	110.00	110.00	0	4.5801
January, 98	130.00	130.00	0	-1.4532	April, 00	110.00	110.00	0	0.4293
February, 98	130.00	130.00	0	-10.289	May, 00	110.00	109.20	-0.732600733	3.7736
March, 98	130.00	130.00	0	-5.2716	June, 00	109.20	105.00	-4	5.3155
April, 98	130.00	130.00	0	-11.6819	July, 00	105.00	105.00	0	11.4716
May, 98	130.00	130.00	0	5.6083	August, 00	105.00	105.00	0	3.2833
June, 98	130.00	130.00	0	9.282	September, 00	105.00	105.00	0	-6.0542
July, 98	130.00	130.00	0	-13.2641	October, 00	105.00	105.00	0	3.2463
Average			-0.0110		Average			-0.9548	

Regression Analysis (Islam Jute)

	0.0808177						0.0399954					
	0.0065315						0.0015996					
	-0.038626						-0.043782					
	1.5426328						3.8418569					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	0.3441968	0.3441968	0.144637786	0.70736041		1	0.5202608	0.5202608	0.0352483	0.85279707
	22	52.353749	2.3797158				22	324.71701	14.759864		
	23	52.697946					23	325.23727			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.002919	0.3155985	-0.0092	0.992704156	-0.6574308	0.6515931		-0.944516	0.7861145	-1.2014	0.2423329	-2.57481915	0.6857876
X Variable 1	0.0133765	0.0351723	0.3803	0.70736041	-0.0595665	0.0863196	X Variable 1	-0.029168	0.1553608	-0.1877	0.8527971	-0.35136727	0.293030694

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.40

Ahad Jute

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	NT(SAME PRICE)	NT(SAME PRICE)	0.00	0.8388	November, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-4.6632
September, 95	NT(SAME PRICE)	NT(SAME PRICE)	0.00	6.9612	December, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-4.2483
October, 95	NT(SAME PRICE)	NT(SAME PRICE)	0.00	6.0609	January, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	0.3221
November, 95	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-5.2456	February, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-0.81
December, 95	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-1.0842	March, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-3.7122
January, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-7.3371	April, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-7.6662
February, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	2.1486	May, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	7.2802
March, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	1.4127	June, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	6.6205
April, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	2.5128	July, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-3.2849
May, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	2.7519	August, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-3.2714
June, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	10.3394	September, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-1.073
July, 96	NT(SAME PRICE)	NT(SAME PRICE)	0.00	17.2977	October, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	5.8865
August, 97	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-17.0134	November, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-9.5409
September, 97	NT(SAME PRICE)	NT(SAME PRICE)	0.00	12.8768	December, 99	NT(SAME PRICE)	NT(SAME PRICE)	0.00	0.1025
October, 97	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-13.9291	January, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-0.9743
November, 97	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-10.2064	February, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	1.4223
December, 97	NT(SAME PRICE)	NT(SAME PRICE)	0.00	4.2483	March, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	4.5801
January, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-1.4532	April, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	0.4293
February, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-10.289	May, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	3.7736
March, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-5.2716	June, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	5.3155
April, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-11.6819	July, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	11.4716
May, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	5.6083	August, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	3.2833
June, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	9.282	September, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-6.0542
July, 98	NT(SAME PRICE)	NT(SAME PRICE)	0.00	-13.2641	October, 00	NT(SAME PRICE)	NT(SAME PRICE)	0.00	3.2463
Average			0.0000		Average			0.0000	

Regression Analysis (Ahad Jute)

1							1						
1							1						
1							1						
0							0						
24							24						
df	SS	MS	F	Significance F			df	SS	MS	F	Significance F		
1	0	0	#NUM!	#NUM!			1	0	0	#NUM!	#NUM!		
22	0	0					22	0	0				
23	0						23	0					
Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	
0	0	65535	#NUM!	0	0		0	0	65535	#NUM!	0	0	
X Variable 1	0	0	65535	#NUM!	0		X Variable 1	0	0	65535	#NUM!	0	0

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Textile Sector

Appendix Table 6.41

Beximco Textile

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	120.00	121.00	0.826446281	0.8388	November, 98	145.56	122.50	-18.8244898	-4.6632
September, 95	121.00	123.59	2.095638806	6.9612	December, 98	122.50	128.75	4.854368932	-4.2483
October, 95	123.59	136.29	9.318365251	6.0609	January, 99	128.75	133.25	3.377110694	0.3221
November, 95	136.29	129.56	-5.194504477	-5.2456	February, 99	133.25	133.25	0	-0.81
December, 95	129.56	127.46	-1.64757571	-1.0842	March, 99	133.25	129.50	-2.895752896	-3.7122
January, 96	127.46	114.85	-10.97953853	-7.3371	April, 99	129.50	121.25	-6.804123711	-7.6662
February, 96	114.85	118.00	2.669491525	2.1486	May, 99	121.25	124.50	2.610441767	7.2802
March, 96	118.00	116.52	-1.270168211	1.4127	June, 99	124.50	128.75	3.300970874	6.6205
April, 96	116.52	107.00	-8.897196262	2.5128	July, 99	128.75	129.50	0.579150579	-3.2849
May, 96	107.00	100.48	-6.488853503	2.7519	August, 99	129.50	121.75	-6.36550308	-3.2714
June, 96	100.48	100.84	0.35700119	10.3394	September, 99	121.75	118.00	-3.177966102	-1.073
July, 96	100.84	106.17	5.020250542	17.2977	October, 99	118.00	109.50	-7.762557078	5.8865
August, 97	115.50	133.28	13.34033613	-17.0134	November, 99	109.50	101.75	-7.616707617	-9.5409
September, 97	133.28	123.96	-7.518554372	12.8768	December, 99	101.75	113.25	10.15452539	0.1025
October, 97	123.96	130.50	5.011494253	-13.9291	January, 00	113.25	107.50	-5.348837209	-0.9743
November, 97	130.50	133.53	2.269152999	-10.2064	February, 00	107.50	109.00	1.376146789	1.4223
December, 97	133.53	131.31	-1.6906557	4.2483	March, 00	109.00	106.75	-2.107728337	4.5801
January, 98	131.31	123.68	-6.169146184	-1.4532	April, 00	106.75	112.25	4.899777283	0.4293
February, 98	123.68	120.84	-2.350215161	-10.289	May, 00	112.25	106.75	-5.152224824	3.7736
March, 98	120.84	122.00	0.950819672	-5.2716	June, 00	106.75	121.00	11.7768595	5.3155
April, 98	122.00	123.45	1.174564601	-11.6819	July, 00	121.00	145.75	16.98113208	11.4716
May, 98	123.45	126.04	2.054903205	5.6083	August, 00	145.75	145.00	-0.517241379	3.2833
June, 98	126.04	147.58	14.59547364	9.282	September, 00	145.00	144.50	-0.346020761	-6.0542
July, 98	147.58	145.56	-1.387743886	-13.2641	October, 00	144.50	135.50	-6.642066421	3.2463
Average			0.2537		Average			-0.5688	

Regression Analysis (Beximco Textile)

	0.0036177						0.5007183				
	1.309E-05						0.2507188				
	-0.045441						0.2166605				
	6.4968161						6.6112685				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	0.0121533	0.0121533	0.000287935	0.986614585		1	321.76165	321.76165	7.3614723	0.01269647
	22	928.58963	42.20862				22	961.59517	43.708872		
	23	928.60179					23	1283.3568			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.2522292	1.3291469	0.1897	0.851231157	-2.5042556	3.008714		-0.823729	1.352787	-0.6089	0.5488192	-3.62924008	1.981782788
X Variable 1	-0.002514	0.1481288	-0.0169	0.986614585	-0.3097141	0.304687	X Variable 1	0.7253832	0.267353	2.7132	0.0126965	0.1709263	1.279840056

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.42

Padma Textile

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	380.00	385.00	1.298701299	0.8388	November, 98	296.00	220.50	-34.24036281	-4.6632
September, 95	385.00	393.33	2.117814558	6.9612	December, 98	220.50	214.25	-2.917152859	-4.2483
October, 95	393.33	390.00	-0.853846154	6.0609	January, 99	214.25	206.25	-3.878787879	0.3221
November, 95	390.00	380.00	-2.631578947	-5.2456	February, 99	206.25	211.00	2.251184834	-0.81
December, 95	380.00	360.00	-5.555555556	-1.0842	March, 99	211.00	207.25	-1.809408926	-3.7122
January, 96	360.00	346.68	-3.842159917	-7.3371	April, 99	207.25	177.00	-17.09039548	-7.6662
February, 96	346.68	343.00	-1.072886297	2.1486	May, 99	177.00	183.25	3.410641201	7.2802
March, 96	343.00	335.00	-2.388059701	1.4127	June, 99	183.25	174.50	-5.014326648	6.6205
April, 96	335.00	325.00	-3.076923077	2.5128	July, 99	174.50	168.00	-3.869047619	-3.2849
May, 96	325.00	369.93	12.14554105	2.7519	August, 99	168.00	155.00	-8.387096774	-3.2714
June, 96	369.93	351.00	-5.393162393	10.3394	September, 99	155.00	161.25	3.875968992	-1.073
July, 96	351.00	375.37	6.492260969	17.2977	October, 99	161.25	163.75	1.526717557	5.8865
August, 97	431.95	333.30	-29.5979598	-17.0134	November, 99	163.75	146.00	-12.15753425	-9.5409
September, 97	333.30	390.21	14.58445452	12.8768	December, 99	146.00	144.75	-0.863557858	0.1025
October, 97	390.21	350.49	-11.33270564	-13.9291	January, 00	144.75	147.25	1.697792869	-0.9743
November, 97	350.49	350.25	-0.068522484	-10.2064	February, 00	147.25	157.25	6.359300477	1.4223
December, 97	350.25	350.69	0.125466937	4.2483	March, 00	157.25	161.25	2.480620155	4.5801
January, 98	350.69	330.75	-6.0287226	-1.4532	April, 00	161.25	162.25	0.61633282	0.4293
February, 98	330.75	297.66	-11.11671034	-10.289	May, 00	162.25	172.00	5.668604651	3.7736
March, 98	297.66	302.74	1.678007531	-5.2716	June, 00	172.00	186.00	7.52688172	5.3155
April, 98	302.74	275.72	-9.799796895	-11.6819	July, 00	186.00	232.75	20.08592911	11.4716
May, 98	275.72	301.08	8.423010496	5.6083	August, 00	232.75	250.00	6.9	3.2833
June, 98	301.08	296.94	-1.394221055	9.282	September, 00	250.00	269.25	7.149489322	-6.0542
July, 98	296.94	296.00	-0.317567568	-13.2641	October, 00	269.25	264.75	-1.699716714	3.2463
Average			-1.9835		Average			-0.9324	

Regression Analysis (Padma Textile)

	0.6674725						0.6196409				
	0.4455195						0.3839548				
	0.4203159						0.3559528				
	6.6394871						8.2101687				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	779.24174	779.24174	17.67677936	0.000366263		1	924.2606	924.2606	13.711667	0.00124126
	22	969.82136	44.082789				22	1482.9512	67.406871		
	23	1749.0631					23	2407.2118			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.600707	1.3583351	-1.1784	0.251213454	-4.4177250	1.2163103		-1.364511	1.6799513	-0.8122	0.4253603	-4.84852044	2.119498528
X Variable 1	0.6364656	0.1513817	4.2043	0.000366263	0.3225188	0.9504123	X Variable 1	1.2294123	0.332011	3.7029	0.0012413	0.54086299	1.917961654

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.43

Modern Dyeing

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	65.00	67.00	2.985074627	0.8388	November, 98	44.33	110.00	59.7	-4.6632
September, 95	67.00	68.00	1.470588235	6.9612	December, 98	110.00	110.00	0	-4.2483
October, 95	68.00	62.00	-9.677419355	6.0609	January, 99	110.00	76.25	-44.26229508	0.3221
November, 95	62.00	50.10	-23.75249501	-5.2456	February, 99	76.25	93.75	18.66666667	-0.81
December, 95	50.10	56.00	10.53571429	-1.0842	March, 99	93.75	85.00	-10.29411765	-3.7122
January, 96	56.00	50.00	-12	-7.3371	April, 99	85.00	83.50	-1.796407186	-7.6662
February, 96	50.00	50.00	0	2.1486	May, 99	83.50	75.00	-11.33333333	7.2802
March, 96	50.00	48.00	-4.166666667	1.4127	June, 99	75.00	75.00	0	6.6205
April, 96	48.00	48.00	0	2.5128	July, 99	75.00	72.00	-4.166666667	-3.2849
May, 96	48.00	45.00	-6.666666667	2.7519	August, 99	72.00	103.00	30.09708738	-3.2714
June, 96	45.00	48.29	6.813004763	10.3394	September, 99	103.00	107.25	3.962703963	-1.073
July, 96	48.29	62.00	22.11290323	17.2977	October, 99	107.25	139.25	22.98025135	5.8865
August, 97	69.00	60.00	-15	-17.0134	November, 99	139.25	111.25	-25.16853933	-9.5409
September, 97	60.00	52.00	-15.38461538	12.8768	December, 99	111.25	104.00	-6.971153846	0.1025
October, 97	52.00	51.00	-1.960784314	-13.9291	January, 00	104.00	101.25	-2.716049383	-0.9743
November, 97	51.00	50.00	-2	-10.2064	February, 00	101.25	104.75	3.341288783	1.4223
December, 97	50.00	56.00	10.71428571	4.2483	March, 00	104.75	102.00	-2.696078431	4.5801
January, 98	56.00	66.00	15.15151515	-1.4532	April, 00	102.00	94.25	-8.222811671	0.4293
February, 98	66.00	65.00	-1.538461538	-10.289	May, 00	94.25	85.00	-10.88235294	3.7736
March, 98	65.00	65.00	0	-5.2716	June, 00	85.00	87.00	2.298850575	5.3155
April, 98	65.00	65.00	0	-11.6819	July, 00	87.00	80.00	-8.75	11.4716
May, 98	65.00	65.00	0	5.6083	August, 00	80.00	80.00	0	3.2833
June, 98	65.00	60.00	-8.333333333	9.282	September, 00	80.00	82.75	3.32326284	-6.0542
July, 98	60.00	44.33	-35.34852245	-13.2641	October, 00	82.75	71.25	-16.14035088	3.2463
Average			-2.7519		Average			-0.3763	

Regression Analysis (Modern Dyeing)

	0.4177283						0.1118119				
	0.1744969						0.0125019				
	0.136974						-0.032384				
	11.418246						19.897412				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	606.30407	606.30407	4.650415065	0.04224074		1	110.26961	110.26961	0.278524	0.60295303
	22	2868.2794	130.37633				22	8709.9539	395.907		
	23	3474.5834					23	8820.2236			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-2.414216	2.3359943	-1.0334	0.312604709	-7.2587767	2.4303451		-0.227003	4.0713759	-0.0557	0.9560397	-8.67052833	8.216523266
X Variable 1	0.5614151	0.2603384	2.1564	0.04224074	0.0215057	1.1013244	X Variable 1	-0.424647	0.8046313	-0.5277	0.602953	-2.09335221	1.244057804

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.44

Rahim Textile

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	104.25	104.00	-0.240384615	0.8388	November, 98	70.00	70.00	0	-4.6632
September, 95	104.00	105.00	0.952380952	6.9612	December, 98	70.00	60.00	-16.66666667	-4.2483
October, 95	105.00	100.68	-4.290822408	6.0609	January, 99	60.00	60.00	0	0.3221
November, 95	100.68	105.00	4.114285714	-5.2456	February, 99	60.00	67.00	10.44776119	-0.81
December, 95	105.00	110.00	4.545454545	-1.0842	March, 99	67.00	69.00	2.898550725	-3.7122
January, 96	110.00	110.00	0	-7.3371	April, 99	69.00	66.00	-4.545454545	-7.6662
February, 96	110.00	120.00	8.333333333	2.1486	May, 99	66.00	39.00	-69.23076923	7.2802
March, 96	120.00	105.00	-14.28571429	1.4127	June, 99	39.00	40.50	3.703703704	6.6205
April, 96	105.00	100.00	-5	2.5128	July, 99	40.50	52.50	22.85714286	-3.2849
May, 96	100.00	85.00	-17.64705882	2.7519	August, 99	52.50	58.50	10.25641026	-3.2714
June, 96	85.00	95.00	10.52631579	10.3394	September, 99	58.50	71.50	18.18181818	-1.073
July, 96	95.00	102.22	7.063197026	17.2977	October, 99	71.50	98.00	27.04081633	5.8865
August, 97	60.00	70.00	14.28571429	-17.0134	November, 99	98.00	83.00	-18.07228916	-9.5409
September, 97	70.00	74.00	5.405405405	12.8768	December, 99	83.00	78.50	-5.732484076	0.1025
October, 97	74.00	68.00	-8.823529412	-13.9291	January, 00	78.50	98.00	19.89795918	-0.9743
November, 97	68.00	60.00	-13.33333333	-10.2064	February, 00	98.00	75.75	-29.37293729	1.4223
December, 97	60.00	56.50	-6.194690265	4.2483	March, 00	75.75	68.00	-11.39705882	4.5801
January, 98	56.50	73.75	23.38983051	-1.4532	April, 00	68.00	70.25	3.202846975	0.4293
February, 98	73.75	73.75	0	-10.289	May, 00	70.25	71.25	1.403508772	3.7736
March, 98	73.75	73.75	0	-5.2716	June, 00	71.25	74.75	4.682274247	5.3155
April, 98	73.75	73.75	0	-11.6819	July, 00	74.75	65.00	-15	11.4716
May, 98	73.75	73.75	0	5.6083	August, 00	65.00	60.00	-8.333333333	3.2833
June, 98	73.75	70.00	-5.357142857	9.282	September, 00	60.00	55.25	-8.597285068	-6.0542
July, 98	70.00	70.00	0	-13.2641	October, 00	55.25	55.25	0	3.2463
Average			0.1435		Average			-2.5990	

Regression Analysis (Rahim Textile)

	0.0514322						0.1703682					
	0.0026453						0.0290253					
	-0.042689						-0.01511					
	9.3543652						19.819822					
	24						24					

	Df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	5.1058873	5.1058873	0.058350232	0.811360009			1	258.33987	258.33987	0.6576456	0.42607898
	22	1925.0913	87.504148					22	8642.1575	392.82534		
	23	1930.1971						23	8900.4974			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.174458	1.9137567	0.09116	0.928190424	-3.7944346	4.1433507		-2.370534	4.0554995	-0.5845	0.564815	-10.7811346	6.040065969
X Variable 1	0.0515198	0.2132815	0.24155	0.811360009	-0.3907993	0.493839	X Variable 1	-0.649974	0.8014937	-0.8109	0.426079	-2.31217201	1.012223784

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.45

Quasem Textile

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	16.00	15.50	-3.225806452	0.8388	November, 98	6.60	6.60	0	-4.6632
September, 95	15.50	15.00	-3.333333333	6.9612	December, 98	6.60	20.10	67.1641791	-4.2483
October, 95	15.00	17.00	11.76470588	6.0609	January, 99	20.10	14.10	-42.55319149	0.3221
November, 95	17.00	17.00	0	-5.2456	February, 99	14.10	18.80	25	-0.81
December, 95	17.00	18.00	5.555555556	-1.0842	March, 99	18.80	22.40	16.07142857	-3.7122
January, 96	18.00	20.00	10	-7.3371	April, 99	22.40	15.60	-43.58974359	-7.6662
February, 96	20.00	23.00	13.04347826	2.1486	May, 99	15.60	13.20	-18.18181818	7.2802
March, 96	23.00	23.00	0	1.4127	June, 99	13.20	13.10	-0.763358779	6.6205
April, 96	23.00	24.00	4.166666667	2.5128	July, 99	13.10	12.80	-2.34375	-3.2849
May, 96	24.00	24.00	0	2.7519	August, 99	12.80	13.20	3.03030303	-3.2714
June, 96	24.00	21.00	-14.28571429	10.3394	September, 99	13.20	13.40	1.492537313	-1.073
July, 96	21.00	15.00	-40	17.2977	October, 99	13.40	15.00	10.66666667	5.8865
August, 97	20.25	20.00	-1.25	-17.0134	November, 99	15.00	12.00	-25	-9.5409
September, 97	20.00	15.00	-33.33333333	12.8768	December, 99	12.00	11.20	-7.142857143	0.1025
October, 97	15.00	12.00	-25	-13.9291	January, 00	11.20	11.60	3.448275862	-0.9743
November, 97	12.00	12.00	0	-10.2064	February, 00	11.60	11.40	-1.754385965	1.4223
December, 97	12.00	12.00	0	4.2483	March, 00	11.40	9.20	-23.91304348	4.5801
January, 98	12.00	12.00	0	-1.4532	April, 00	9.20	8.80	-4.545454545	0.4293
February, 98	12.00	12.00	0	-10.289	May, 00	8.80	9.20	4.347826087	3.7736
March, 98	12.00	12.00	0	-5.2716	June, 00	9.20	7.80	-17.94871795	5.3155
April, 98	12.00	8.72	-37.6146789	-11.6819	July, 00	7.80	7.80	0	11.4716
May, 98	8.72	7.88	-10.65989848	5.6083	August, 00	7.80	7.00	-11.42857143	3.2833
June, 98	7.88	6.80	-15.88235294	9.282	September, 00	7.00	6.60	-6.060606061	-6.0542
July, 98	6.80	6.60	-3.03030303	-13.2641	October, 00	6.60	5.60	-17.85714286	3.2463
Average			-5.9619		Average			-3.8276	

Regression Analysis (Quasem Textile)

	0.2294472						0.0411458					
	0.052646						0.001693					
	0.0095845						-0.043685					
	14.610007						22.67055					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	260.96175	260.96175	1.222576403	0.280801024		1	19.174893	19.174893	0.0373086	0.84861023
	22	4695.9507	213.4523				22	11306.985	513.95385		
	23	4956.9124					23	11326.16			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-6.183424	2.9889787	-2.0687	0.050521761	-12.382193	0.015345		-3.765322	4.6388109	-0.8117	0.4256595	-13.3856374	5.854993316
X Variable 1	-0.368322	0.3331112	-1.1057	0.280801024	-1.0591527	0.3225094	X Variable 1	-0.177079	0.9167742	-0.1931	0.8486102	-2.07835436	1.72419656

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.46

Apex Weaving

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	135.00	137.00	1.459854015	0.8388	November, 98	63.42	59.50	-6.588235294	-4.6632
September, 95	137.00	143.61	4.602743542	6.9612	December, 98	59.50	52.25	-13.87559809	-4.2483
October, 95	143.61	170.17	15.60792149	6.0609	January, 99	52.25	51.75	-0.966183575	0.3221
November, 95	170.17	158.15	-7.600379387	-5.2456	February, 99	51.75	59.50	13.02521008	-0.81
December, 95	158.15	134.46	-17.61862264	-1.0842	March, 99	59.50	56.00	-6.25	-3.7122
January, 96	134.46	120.70	-11.4001657	-7.3371	April, 99	56.00	50.50	-10.89108911	-7.6662
February, 96	120.70	127.74	5.511194614	2.1486	May, 99	50.50	50.00	-1	7.2802
March, 96	127.74	122.48	-4.294578707	1.4127	June, 99	50.00	49.25	-1.52284264	6.6205
April, 96	122.48	104.00	-17.76923077	2.5128	July, 99	49.25	48.00	-2.604166667	-3.2849
May, 96	104.00	109.60	5.109489051	2.7519	August, 99	48.00	46.50	-3.225806452	-3.2714
June, 96	109.60	102.38	-7.052158625	10.3394	September, 99	46.50	46.75	0.534759358	-1.073
July, 96	102.38	129.96	21.22191444	17.2977	October, 99	46.75	49.50	5.555555556	5.8865
August, 97	101.00	88.40	-14.25339367	-17.0134	November, 99	49.50	44.00	-12.5	-9.5409
September, 97	88.40	96.87	8.743677093	12.8768	December, 99	44.00	43.25	-1.734104046	0.1025
October, 97	96.87	77.95	-24.27196921	-13.9291	January, 00	43.25	40.25	-7.453416149	-0.9743
November, 97	77.95	74.36	-4.827864443	-10.2064	February, 00	40.25	41.50	3.012048193	1.4223
December, 97	74.36	75.18	1.090715616	4.2483	March, 00	41.50	48.50	14.43298969	4.5801
January, 98	75.18	71.50	-5.146853147	-1.4532	April, 00	48.50	42.75	-13.4502924	0.4293
February, 98	71.50	60.42	-18.33829858	-10.289	May, 00	42.75	44.75	4.469273743	3.7736
March, 98	60.42	54.98	-9.894507093	-5.2716	June, 00	44.75	43.00	-4.069767442	5.3155
April, 98	54.98	55.17	0.344390067	-11.6819	July, 00	43.00	53.61	19.79108375	11.4716
May, 98	55.17	57.37	3.834756842	5.6083	August, 00	53.61	60.00	10.65	3.2833
June, 98	57.37	60.50	5.173553719	9.282	September, 00	60.00	68.25	12.08791209	-6.0542
July, 98	60.50	63.42	4.604225796	-13.2641	October, 00	68.25	66.50	-2.631578947	3.2463
Average			-2.7151		Average			-0.2168	

Regression Analysis (Apex Weaving)

	0.6357678						0.5420027					
	0.4042007						0.2937669					
	0.3771189						0.2616654					
	8.8554295						7.8559545					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	1170.4126	1170.4126	14.92518512	0.000841253			1	564.77502	564.77502	9.1511897	0.00622164
	22	1725.2099	78.418632					22	1357.7525	61.716021		
	23	2895.6225						23	1922.5275			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-2.245958	1.8116823	-1.2397	0.228144733	-6.0031611	1.511245		-0.554615	1.6074726	-0.3450	0.7333541	-3.88831219	2.779083037
X Variable 1	0.7800246	0.2019056	3.8633	0.000841253	0.3612975	1.1987517	X Variable 1	0.9610325	0.3176869	3.0250	0.0062216	0.30218951	1.619875514

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.47

Beximco Knitting

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	145.00	147.00	1.360544218	0.8388	November, 98	152.39	135.75	-12.25782689	-4.6632
September, 95	147.00	152.00	3.289473684	6.9612	December, 98	135.75	135.75	0	-4.2483
October, 95	152.00	143.59	-5.856953827	6.0609	January, 99	135.75	136.50	0.549450549	0.3221
November, 95	143.59	135.00	-6.362962963	-5.2456	February, 99	136.50	142.50	4.210526316	-0.81
December, 95	135.00	138.69	2.660609994	-1.0842	March, 99	142.50	138.00	-3.260869565	-3.7122
January, 96	138.69	120.55	-15.04769805	-7.3371	April, 99	138.00	130.00	-6.153846154	-7.6662
February, 96	120.55	120.74	0.157362929	2.1486	May, 99	130.00	135.75	4.23572744	7.2802
March, 96	120.74	119.88	-0.717384051	1.4127	June, 99	135.75	135.00	-0.555555556	6.6205
April, 96	119.88	118.00	-1.593220339	2.5128	July, 99	135.00	129.00	-4.651162791	-3.2849
May, 96	118.00	103.27	-14.2635809	2.7519	August, 99	129.00	126.25	-2.178217822	-3.2714
June, 96	103.27	111.00	6.963963964	10.3394	September, 99	126.25	124.75	-1.20240481	-1.073
July, 96	111.00	157.91	29.70679501	17.2977	October, 99	124.75	115.50	-8.008658009	5.8865
August, 97	115.27	112.21	-2.727029676	-17.0134	November, 99	115.50	97.25	-18.76606684	-9.5409
September, 97	112.21	143.19	21.63558908	12.8768	December, 99	97.25	101.50	4.187192118	0.1025
October, 97	143.19	130.27	-9.9178629	-13.9291	January, 00	101.50	99.00	-2.525252525	-0.9743
November, 97	130.27	134.50	3.144981413	-10.2064	February, 00	99.00	101.00	1.98019802	1.4223
December, 97	134.50	141.22	4.758532786	4.2483	March, 00	101.00	106.75	5.386416862	4.5801
January, 98	141.22	145.19	2.734348096	-1.4532	April, 00	106.75	107.25	0.466200466	0.4293
February, 98	145.19	142.68	-1.759181385	-10.289	May, 00	107.25	103.75	-3.373493976	3.7736
March, 98	142.68	131.97	-8.115480791	-5.2716	June, 00	103.75	110.50	6.108597285	5.3155
April, 98	131.97	130.34	-1.250575418	-11.6819	July, 00	110.50	151.00	26.82119205	11.4716
May, 98	130.34	153.54	15.11006904	5.6083	August, 00	151.00	150.00	-0.666666667	3.2833
June, 98	153.54	154.91	0.884384481	9.282	September, 00	150.00	151.25	0.826446281	-6.0542
July, 98	154.91	152.39	-1.653651814	-13.2641	October, 00	151.25	143.25	-5.584642234	3.2463
Average			0.9642		Average			-0.6005	

Regression Analysis (Beximco Knitting)

0.6219038						0.6555907							
0.3867644						0.4297992							
0.35889						0.403881							
8.097701						6.2930102							
24						24							
Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F			
1	909.84048	909.84048	13.87528068	0.001176818		1	656.71563	656.71563	16.5829	0.00050575			
22	1442.6008	65.572762				22	871.24351	39.601978					
23	2352.4412					23	1527.9591						
Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		
1.37789	1.6566629	0.83172	0.414500457	-2.0578222	4.8136022	-0.964758	1.2876655	-0.7492	0.4616552	-3.63521529	1.705699869		
X Variable 1	0.6877355	0.1846293	3.72495	0.001176818	0.3048374	1.0706336	X Variable 1	1.0363084	0.254483	4.0722	0.0005058	0.50854239	1.56407441

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.48

Dulamia Cotton

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	120.00	122.00	1.639344262	0.8388	November, 98	28.00	61.25	54.28571429	-4.6632
September, 95	122.00	123.00	0.81300813	6.9612	December, 98	61.25	61.25	0	-4.2483
October, 95	123.00	123.00	0	6.0609	January, 99	61.25	46.00	-33.15217391	0.3221
November, 95	123.00	120.00	-2.5	-5.2456	February, 99	46.00	56.75	18.94273128	-0.81
December, 95	120.00	111.47	-7.652283126	-1.0842	March, 99	56.75	50.00	-13.5	-3.7122
January, 96	111.47	113.00	1.353982301	-7.3371	April, 99	50.00	42.00	-19.04761905	-7.6662
February, 96	113.00	108.00	-4.62962963	2.1486	May, 99	42.00	44.50	5.617977528	7.2802
March, 96	108.00	108.00	0	1.4127	June, 99	44.50	73.00	39.04109589	6.6205
April, 96	108.00	107.00	-0.934579439	2.5128	July, 99	73.00	43.00	-69.76744186	-3.2849
May, 96	107.00	101.00	-5.940594059	2.7519	August, 99	43.00	47.25	8.994708995	-3.2714
June, 96	101.00	103.00	1.941747573	10.3394	September, 99	47.25	45.50	-3.846153846	-1.073
July, 96	103.00	108.00	4.62962963	17.2977	October, 99	45.50	49.50	8.080808081	5.8865
August, 97	65.00	66.00	1.515151515	-17.0134	November, 99	49.50	41.50	-19.27710843	-9.5409
September, 97	66.00	64.00	-3.125	12.8768	December, 99	41.50	41.25	-0.606060606	0.1025
October, 97	64.00	55.00	-16.36363636	-13.9291	January, 00	41.25	38.00	-8.552631579	-0.9743
November, 97	55.00	55.00	0	-10.2064	February, 00	38.00	34.50	-10.14492754	1.4223
December, 97	55.00	55.00	0	4.2483	March, 00	34.50	34.00	-1.470588235	4.5801
January, 98	55.00	50.00	-10	-1.4532	April, 00	34.00	35.75	4.895104895	0.4293
February, 98	50.00	39.50	-26.58227848	-10.289	May, 00	35.75	38.00	5.921052632	3.7736
March, 98	39.50	34.17	-15.5984782	-5.2716	June, 00	38.00	38.00	0	5.3155
April, 98	34.17	34.17	0	-11.6819	July, 00	38.00	32.75	-16.03053435	11.4716
May, 98	34.17	30.00	-13.9	5.6083	August, 00	32.75	30.00	-9.166666667	3.2833
June, 98	30.00	26.25	-14.28571429	9.282	September, 00	30.00	28.00	-7.142857143	-6.0542
July, 98	26.25	28.00	6.25	-13.2641	October, 00	28.00	33.00	15.15151515	3.2463
Average			-4.3071		Average			-2.1156	

Regression Analysis (Dulamia Cotton)

	0.1583249						0.2011227					
	0.0250668						0.0404503					
	-0.019248						-0.003166					
	8.0812539						23.496186					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	36.940592	36.940592	0.565648127	0.45996504			1	512.00261	512.00261	0.9274221	0.34600036
	22	1436.7466	65.306665					22	12145.556	552.07074		
	23	1473.6872						23	12657.559			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-4.2237	1.653298	-2.5547	0.018064722	-7.6524342	-0.794966		-2.437189	4.807751	-0.5069	0.6172481	-12.4078651	7.533487157
X Variable 1	0.1385769	0.1842543	0.7520	0.45996504	-0.2435435	0.5206972	X Variable 1	0.9150323	0.9501621	0.9630	0.3460004	-1.0554854	2.885550022

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Pharmaceuticals and Chemical Sector

Appendix Table 6.49

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	800.00	805.00	0.621118012	0.8388	November, 98	757.64	698.75	-8.427906977	-4.6632
September, 95	805.00	805.00	0	6.9612	December, 98	698.75	699.25	0.071505184	-4.2483
October, 95	805.00	825.45	2.47743655	6.0609	January, 99	699.25	677.50	-3.210332103	0.3221
November, 95	825.45	821.19	-0.518759361	-5.2456	February, 99	677.50	682.25	0.696225724	-0.81
December, 95	821.19	810.00	-1.381481481	-1.0842	March, 99	682.25	687.50	0.763636364	-3.7122
January, 96	810.00	760.00	-6.578947368	-7.3371	April, 99	687.50	645.25	-6.547849671	-7.6662
February, 96	760.00	900.00	15.55555556	2.1486	May, 99	645.25	624.25	-3.364036844	7.2802
March, 96	900.00	788.00	-14.21319797	1.4127	June, 99	624.25	631.50	1.148060174	6.6205
April, 96	788.00	748.07	-5.337735773	2.5128	July, 99	631.50	641.50	1.558846454	-3.2849
May, 96	748.07	730.00	-2.475342466	2.7519	August, 99	641.50	640.00	-0.234375	-3.2714
June, 96	730.00	659.83	-10.63455739	10.3394	September, 99	640.00	594.00	-7.744107744	-1.073
July, 96	659.83	702.77	6.110107147	17.2977	October, 99	594.00	639.50	7.114933542	5.8865
August, 97	824.89	792.93	-4.03062061	-17.0134	November, 99	639.50	641.50	0.311769291	-9.5409
September, 97	792.93	909.84	12.849512	12.8768	December, 99	641.50	652.00	1.610429448	0.1025
October, 97	909.84	759.55	-19.78671582	-13.9291	January, 00	652.00	671.25	2.867783985	-0.9743
November, 97	759.55	788.97	3.728912379	-10.2064	February, 00	671.25	855.00	21.49122807	1.4223
December, 97	788.97	820.10	3.795878551	4.2483	March, 00	855.00	815.00	-4.90797546	4.5801
January, 98	820.10	816.71	-0.415080016	-1.4532	April, 00	815.00	903.50	9.79524073	0.4293
February, 98	816.71	784.68	-4.081918744	-10.289	May, 00	903.50	904.75	0.138159713	3.7736
March, 98	784.68	786.43	0.222524573	-5.2716	June, 00	904.75	940.00	3.75	5.3155
April, 98	786.43	681.15	-15.45621376	-11.6819	July, 00	940.00	1091.00	13.84051329	11.4716
May, 98	681.15	701.62	2.917533708	5.6083	August, 00	1091.00	1080.00	-1.018518519	3.2833
June, 98	701.62	798.79	12.16464903	9.282	September, 00	1080.00	1071.25	-0.8168028	-6.0542
July, 98	798.79	757.64	-5.431339422	-13.2641	October, 00	1071.25	1400.50	23.50946091	3.2463
Average			-1.2458		Average			2.1832	

Regression Analysis (Square Pharma)

	0.5273522						0.3763017					
	0.2781004						0.141603					
	0.2452868						0.1025849					
	7.439593						7.6234015					
	24						24					

	Df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	469.0788	469.0788	8.475151121	0.008094292			1	210.91355	210.91355	3.6291665	0.06993008
	22	1217.646	55.347544					22	1278.5575	58.116251		
	23	1686.7248						23	1489.4711			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.948746	1.5220243	-0.6233	0.53946713	-4.1052348	2.2077422		1.9767491	1.559888	1.26723	0.2183209	-1.25826394	5.21176222
X Variable 1	0.4938121	0.1696243	2.9112	0.008094292	0.1420325	0.8455917	X Variable 1	0.58729	0.3082827	1.90503	0.0699301	-0.05204988	1.22662981

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.50

Beximco Pharma

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	75.00	76.00	1.315789474	0.8388	November, 98	65.57	53.70	-22.10428305	-4.6632
September, 95	76.00	77.55	1.998710509	6.9612	December, 98	53.70	51.70	-3.868471954	-4.2483
October, 95	77.55	90.39	14.20511118	6.0609	January, 99	51.70	47.00	-10	0.3221
November, 95	90.39	86.82	-4.111955771	-5.2456	February, 99	47.00	44.20	-6.334841629	-0.81
December, 95	86.82	87.26	0.504240202	-1.0842	March, 99	44.20	42.00	-5.238095238	-3.7122
January, 96	87.26	76.89	-13.48679932	-7.3371	April, 99	42.00	36.00	-16.66666667	-7.6662
February, 96	76.89	81.23	5.342853626	2.1486	May, 99	36.00	37.00	2.702702703	7.2802
March, 96	81.23	48.60	-67.1399177	1.4127	June, 99	37.00	36.40	-1.648351648	6.6205
April, 96	48.60	46.44	-4.651162791	2.5128	July, 99	36.40	35.60	-2.247191011	-3.2849
May, 96	46.44	65.88	29.50819672	2.7519	August, 99	35.60	36.30	1.928374656	-3.2714
June, 96	65.88	67.44	2.31316726	10.3394	September, 99	36.30	33.40	-8.682634731	-1.073
July, 96	67.44	90.97	25.86567	17.2977	October, 99	33.40	34.40	2.906976744	5.8865
August, 97	123.68	104.72	-18.10542399	-17.0134	November, 99	34.40	29.10	-18.21305842	-9.5409
September, 97	104.72	141.72	26.10781823	12.8768	December, 99	29.10	32.60	10.73619632	0.1025
October, 97	141.72	123.16	-15.06982787	-13.9291	January, 00	32.60	29.90	-9.030100334	-0.9743
November, 97	123.16	77.19	-59.55434642	-10.2064	February, 00	29.90	30.70	2.605863192	1.4223
December, 97	77.19	80.23	3.789106319	4.2483	March, 00	30.70	34.80	11.7816092	4.5801
January, 98	80.23	75.98	-5.593577257	-1.4532	April, 00	34.80	34.40	-1.162790698	0.4293
February, 98	75.98	62.89	-20.81411989	-10.289	May, 00	34.40	32.80	-4.87804878	3.7736
March, 98	62.89	62.99	0.158755358	-5.2716	June, 00	32.80	39.60	17.17171717	5.3155
April, 98	62.99	54.37	-15.85433143	-11.6819	July, 00	39.60	68.30	42.0204978	11.4716
May, 98	54.37	56.37	3.547986518	5.6083	August, 00	68.30	63.00	-8.412698413	3.2833
June, 98	56.37	63.17	10.76460345	9.282	September, 00	63.00	59.00	-6.779661017	-6.0542
July, 98	63.17	65.57	3.660210462	-13.2641	October, 00	59.00	67.40	12.46290801	3.2463
Average			-3.9708		Average			-0.8729	

Regression Analysis (Beximco Pharma)

	0.5412505						0.7369315					
	0.2929521						0.543068					
	0.2608136						0.5222984					
	19.462877						9.1886953					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	3452.9045	3452.9045	9.115290404	0.006308048		1	2207.6644	2207.6644	26.14721	4.0047E-05	
	22	8333.6784	378.80356				22	1857.5067	84.432121			
	23	11786.583					23	4065.1711				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-3.164917	3.9817999	-0.7948	0.435194737	-11.422673	5.092839		-1.540726	1.8801758	-0.8194	0.4213143	-5.43997585	2.35852439
X Variable 1	1.3397726	0.4437576	3.0191	0.006308048	0.419474	2.2600706	X Variable 1	1.900058	0.3715816	5.1134	4.005E-05	1.12944416	2.67067193

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.51

Glaxo Wellcome

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	120.00	120.00	0	0.8388	November, 98	102.00	66.00	-54.54545455	-4.6632
September, 95	120.00	125.00	4	6.9612	December, 98	66.00	66.80	1.19760479	-4.2483
October, 95	125.00	125.00	0	6.0609	January, 99	66.80	56.90	-17.39894552	0.3221
November, 95	125.00	122.64	-1.924331376	-5.2456	February, 99	56.90	73.20	22.26775956	-0.81
December, 95	122.64	122.64	0	-1.0842	March, 99	73.20	73.40	0.272479564	-3.7122
January, 96	122.64	122.64	0	-7.3371	April, 99	73.40	72.20	-1.662049861	-7.6662
February, 96	122.64	122.64	0	2.1486	May, 99	72.20	73.00	1.095890411	7.2802
March, 96	122.64	122.64	0	1.4127	June, 99	73.00	145.60	49.86263736	6.6205
April, 96	122.64	125.00	1.888	2.5128	July, 99	145.60	150.00	2.933333333	-3.2849
May, 96	125.00	120.00	-4.166666667	2.7519	August, 99	150.00	134.80	-11.27596439	-3.2714
June, 96	120.00	120.00	0	10.3394	September, 99	134.80	150.00	10.13333333	-1.073
July, 96	120.00	130.00	7.692307692	17.2977	October, 99	150.00	137.80	-8.85341074	5.8865
August, 97	120.00	115.50	-3.896103896	-17.0134	November, 99	137.80	137.80	0	-9.5409
September, 97	115.50	130.00	11.15384615	12.8768	December, 99	137.80	138.00	0.144927536	0.1025
October, 97	130.00	130.00	0	-13.9291	January, 00	138.00	132.90	-3.837471783	-0.9743
November, 97	130.00	130.00	0	-10.2064	February, 00	132.90	132.90	0	1.4223
December, 97	130.00	102.34	-27.02755521	4.2483	March, 00	132.90	107.50	-23.62790698	4.5801
January, 98	102.34	92.00	-11.23913043	-1.4532	April, 00	107.50	100.00	-7.5	0.4293
February, 98	92.00	92.00	0	-10.289	May, 00	100.00	120.70	17.14995857	3.7736
March, 98	92.00	69.33	-32.69868744	-5.2716	June, 00	120.70	117.10	-3.074295474	5.3155
April, 98	69.33	60.00	-15.55	-11.6819	July, 00	117.10	120.00	2.416666667	11.4716
May, 98	60.00	75.31	20.32930554	5.6083	August, 00	120.00	113.00	-6.194690265	3.2833
June, 98	75.31	119.57	37.01597391	9.282	September, 00	113.00	103.00	-9.708737864	-6.0542
July, 98	119.57	102.00	-17.2254902	-13.2641	October, 00	103.00	94.00	-9.574468085	3.2463
Average			-1.3187		Average			-2.0741	

Regression Analysis (Glaxo Wellcome)

	0.4434381						0.2465515				
	0.1966374						0.0607876				
	0.1601209						0.0180962				
	12.741248						18.062463				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	874.18053	874.18053	5.384894015	0.029975957		1	464.54527	464.54527	1.4238823	0.24547548
	22	3571.4671	162.33941				22	7177.5564	326.25256		
	23	4445.6476					23	7642.1017			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.913198	2.60666	-0.3503	0.729421116	-6.3190857	4.4926897		-2.380453	3.6959116	-0.6440	0.5261839	-10.0453129	5.28440656
X Variable 1	0.6741234	0.2905031	2.3205	0.029975957	0.0716561	1.2765906	X Variable 1	0.8715943	0.7304278	1.1932	0.2454755	-0.64322196	2.38641047

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.52

ACI Limited

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	131.00	130.00	-0.769230769	0.8388	November, 98	40.28	33.70	-19.52522255	-4.6632
September, 95	130.00	129.27	-0.564709523	6.9612	December, 98	33.70	31.00	-8.709677419	-4.2483
October, 95	129.27	132.00	2.068181818	6.0609	January, 99	31.00	29.90	-3.678929766	0.3221
November, 95	132.00	126.00	-4.761904762	-5.2456	February, 99	29.90	29.90	0	-0.81
December, 95	126.00	127.00	0.787401575	-1.0842	March, 99	29.90	27.60	-8.333333333	-3.7122
January, 96	127.00	115.55	-9.909130247	-7.3371	April, 99	27.60	26.10	-5.747126437	-7.6662
February, 96	115.55	120.00	3.708333333	2.1486	May, 99	26.10	26.00	-0.384615385	7.2802
March, 96	120.00	116.03	-3.421528915	1.4127	June, 99	26.00	25.80	-0.775193798	6.6205
April, 96	116.03	114.20	-1.602451839	2.5128	July, 99	25.80	18.90	-36.50793651	-3.2849
May, 96	114.20	109.00	-4.770642202	2.7519	August, 99	18.90	26.80	29.47761194	-3.2714
June, 96	109.00	109.00	0	10.3394	September, 99	26.80	26.90	0.371747212	-1.073
July, 96	109.00	152.39	28.47299692	17.2977	October, 99	26.90	28.30	4.946996466	5.8865
August, 97	124.94	100.59	-24.20717765	-17.0134	November, 99	28.30	26.90	-5.204460967	-9.5409
September, 97	100.59	116.72	13.81939685	12.8768	December, 99	26.90	27.50	2.181818182	0.1025
October, 97	116.72	118.70	1.668070767	-13.9291	January, 00	27.50	27.90	1.433691756	-0.9743
November, 97	118.70	53.18	-123.2042121	-10.2064	February, 00	27.90	30.10	7.3089701	1.4223
December, 97	53.18	49.92	-6.530448718	4.2483	March, 00	30.10	31.80	5.34591195	4.5801
January, 98	49.92	38.48	-29.72972973	-1.4532	April, 00	31.80	31.60	-0.632911392	0.4293
February, 98	38.48	38.84	0.926879506	-10.289	May, 00	31.60	32.20	1.863354037	3.7736
March, 98	38.84	38.84	0	-5.2716	June, 00	32.20	37.70	14.58885942	5.3155
April, 98	38.84	38.84	0	-11.6819	July, 00	37.70	55.00	31.45454545	11.4716
May, 98	38.84	38.84	0	5.6083	August, 00	55.00	53.00	-3.773584906	3.2833
June, 98	38.84	41.30	5.956416465	9.282	September, 00	53.00	51.10	-3.718199609	-6.0542
July, 98	41.30	40.28	-2.532274081	-13.2641	October, 00	51.10	56.00	8.75	3.2463
Average			-6.4415		Average			0.4472	

Regression Analysis (ACI Limited)

	0.42227						0.503734					
	0.1783119						0.2537479					
	0.1409625						0.2198274					
	25.139134						11.967211					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	3017.1485	3017.1485	4.774149871	0.039827349			1	1071.3354	1071.3354	7.4806541	0.01208651
	22	13903.474	631.97607					22	3150.7108	143.21413		
	23	16920.622						23	4222.0462			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-5.688171	5.1430733	-1.1059	0.28068031	-16.354264	4.9779214		-0.018028	2.4487111	-0.0073	0.9941921	-5.09634962	5.060293089
X Variable 1	1.252383	0.5731775	2.1849	0.039827349	0.063684	2.4410816	X Variable 1	1.3236192	0.483942	2.7350	0.0120865	0.31998395	2.327254479

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.53

Bangla Process

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	75.00	76.00	1.315789474	0.8388	November, 98	46.68	100.00	53.32	-4.6632
September, 95	76.00	73.00	-4.109589041	6.9612	December, 98	100.00	67.50	-48.14814815	-4.2483
October, 95	73.00	70.00	-4.285714286	6.0609	January, 99	67.50	68.00	0.735294118	0.3221
November, 95	70.00	70.00	0	-5.2456	February, 99	68.00	78.00	12.82051282	-0.81
December, 95	70.00	90.00	22.22222222	-1.0842	March, 99	78.00	68.25	-14.28571429	-3.7122
January, 96	90.00	90.00	0	-7.3371	April, 99	68.25	60.25	-13.2780083	-7.6662
February, 96	90.00	90.00	0	2.1486	May, 99	60.25	61.25	1.632653061	7.2802
March, 96	90.00	90.00	0	1.4127	June, 99	61.25	55.25	-10.85972851	6.6205
April, 96	90.00	90.00	0	2.5128	July, 99	55.25	64.25	14.0077821	-3.2849
May, 96	90.00	90.00	0	2.7519	August, 99	64.25	78.00	17.62820513	-3.2714
June, 96	90.00	90.00	0	10.3394	September, 99	78.00	95.25	18.11023622	-1.073
July, 96	90.00	90.00	0	17.2977	October, 99	95.25	137.00	30.47445255	5.8865
August, 97	63.00	55.00	-14.54545455	-17.0134	November, 99	137.00	112.75	-21.50776053	-9.5409
September, 97	55.00	60.50	9.090909091	12.8768	December, 99	112.75	102.75	-9.732360097	0.1025
October, 97	60.50	60.00	-0.833333333	-13.9291	January, 00	102.75	95.00	-8.157894737	-0.9743
November, 97	60.00	60.00	0	-10.2064	February, 00	95.00	88.00	-7.954545455	1.4223
December, 97	60.00	75.00	20	4.2483	March, 00	88.00	90.25	2.493074792	4.5801
January, 98	75.00	70.00	-7.142857143	-1.4532	April, 00	90.25	89.00	-1.404494382	0.4293
February, 98	70.00	65.00	-7.692307692	-10.289	May, 00	89.00	86.50	-2.89017341	3.7736
March, 98	65.00	65.00	0	-5.2716	June, 00	86.50	66.50	-30.07518797	5.3155
April, 98	65.00	65.00	0	-11.6819	July, 00	66.50	66.50	0	11.4716
May, 98	65.00	60.00	-8.333333333	5.6083	August, 00	66.50	82.00	18.90243902	3.2833
June, 98	60.00	55.00	-9.090909091	9.282	September, 00	82.00	110.00	25.45454545	-6.0542
July, 98	55.00	46.68	-17.82347901	-13.2641	October, 00	110.00	110.00	0	3.2463
Average			-0.8845		Average			1.1369	

Regression Analysis (Bangla Process)

	0.3050591						0.0144711					
	0.0930611						0.0002094					
	0.0518366						-0.045236					
	8.5827887						21.501666					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F	
	1	166.2913	166.2913	2.257421678	0.147194382			1	2.1304116	2.1304116	0.0046081	0.94649213	
	22	1620.6138	73.664262					22	10171.076	462.32164			
	23	1786.9051						23	10173.206				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.707648	1.7559042	-0.4030	0.690830053	-4.3491745	2.9338781		1.1161373	4.3996357	0.25368	0.802092	-8.00815843	10.24043311
X Variable 1	0.2940178	0.1956894	1.5024	0.147194382	-0.1118175	0.6998531	X Variable 1	0.0590245	0.8695057	0.06788	0.9464921	-1.74422199	1.862270933

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.54

Therapeutics

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	110.00	117.00	5.982905983	0.8388	November, 98	60.00	63.50	5.511811024	-4.6632
September, 95	117.00	124.00	5.64516129	6.9612	December, 98	63.50	59.00	-7.627118644	-4.2483
October, 95	124.00	124.00	0	6.0609	January, 99	59.00	57.75	-2.164502165	0.3221
November, 95	124.00	125.25	0.998003992	-5.2456	February, 99	57.75	68.75	16	-0.81
December, 95	125.25	110.00	-13.86363636	-1.0842	March, 99	68.75	53.25	-29.10798122	-3.7122
January, 96	110.00	100.00	-10	-7.3371	April, 99	53.25	48.00	-10.9375	-7.6662
February, 96	100.00	90.00	-11.11111111	2.1486	May, 99	48.00	35.75	-34.26573427	7.2802
March, 96	90.00	90.00	0	1.4127	June, 99	35.75	47.50	24.73684211	6.6205
April, 96	90.00	90.00	0	2.5128	July, 99	47.50	62.00	23.38709677	-3.2849
May, 96	90.00	90.00	0	2.7519	August, 99	62.00	65.75	5.703422053	-3.2714
June, 96	90.00	90.00	0	10.3394	September, 99	65.75	82.75	20.54380665	-1.073
July, 96	90.00	90.00	0	17.2977	October, 99	82.75	101.50	18.4729064	5.8865
August, 97	120.00	65.00	-84.61538462	-17.0134	November, 99	101.50	76.25	-33.1147541	-9.5409
September, 97	65.00	66.00	1.515151515	12.8768	December, 99	76.25	63.00	-21.03174603	0.1025
October, 97	66.00	66.00	0	-13.9291	January, 00	63.00	67.25	6.319702602	-0.9743
November, 97	66.00	66.00	0	-10.2064	February, 00	67.25	64.00	-5.078125	1.4223
December, 97	66.00	66.00	0	4.2483	March, 00	64.00	51.50	-24.27184466	4.5801
January, 98	66.00	66.00	0	-1.4532	April, 00	51.50	52.00	0.961538462	0.4293
February, 98	66.00	66.00	0	-10.289	May, 00	52.00	56.00	7.142857143	3.7736
March, 98	66.00	60.00	-10	-5.2716	June, 00	56.00	35.25	-58.86524823	5.3155
April, 98	60.00	60.00	0	-11.6819	July, 00	35.25	36.52	3.47754655	11.4716
May, 98	60.00	60.00	0	5.6083	August, 00	36.52	40.00	8.7	3.2833
June, 98	60.00	60.00	0	9.282	September, 00	40.00	44.25	9.604519774	-6.0542
July, 98	60.00	60.00	0	-13.2641	October, 00	44.25	44.50	0.561797753	3.2463
Average			-4.8104		Average			-3.1392	

Regression Analysis (Therapeutics)

	0.4156707						0.0131958					
	0.1727821						0.0001741					
	0.1351813						-0.045273					
	16.443489						21.424163					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1242.4801	1242.4801	4.595169323	0.04337128		1	1.7586523	1.7586523	0.0038315	0.95120191
	22	5948.543	270.38832				22	10097.885	458.99477		
	23	7191.0231					23	10099.644			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-4.326951	3.3640804	-1.2862	0.211738268	-11.303633	2.6497326		-3.158045	4.3837772	-0.7203	0.4788678	-12.2494518	5.93336278
X Variable 1	0.8036807	0.374915	2.1436	0.04337128	0.026153	1.5812076	X Variable 1	0.0536278	0.8663716	0.0618	0.9512019	-1.74311883	1.85037451

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.55

Pharma Aids

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	180.00	190.00	5.263157895	0.8388	November, 98	69.00	91.00	24.17582418	-4.6632
September, 95	190.00	185.00	-2.702702703	6.9612	December, 98	91.00	99.00	8.080808081	-4.2483
October, 95	185.00	185.00	0	6.0609	January, 99	99.00	56.00	-76.78571429	0.3221
November, 95	185.00	184.00	-0.543478261	-5.2456	February, 99	56.00	100.00	44	-0.81
December, 95	184.00	184.00	0	-1.0842	March, 99	100.00	105.00	4.761904762	-3.7122
January, 96	184.00	140.00	-31.42857143	-7.3371	April, 99	105.00	98.00	-7.142857143	-7.6662
February, 96	140.00	120.00	-16.66666667	2.1486	May, 99	98.00	103.00	4.854368932	7.2802
March, 96	120.00	120.00	0	1.4127	June, 99	103.00	90.00	-14.44444444	6.6205
April, 96	120.00	120.00	0	2.5128	July, 99	90.00	88.00	-2.272727273	-3.2849
May, 96	120.00	100.00	-20	2.7519	August, 99	88.00	140.00	37.14285714	-3.2714
June, 96	100.00	121.17	17.47132128	10.3394	September, 99	140.00	111.75	-25.27964206	-1.073
July, 96	121.17	170.00	28.72352941	17.2977	October, 99	111.75	160.00	30.15625	5.8865
August, 97	74.00	103.40	28.43326886	-17.0134	November, 99	160.00	123.25	-29.81744422	-9.5409
September, 97	103.40	106.00	2.452830189	12.8768	December, 99	123.25	130.00	5.192307692	0.1025
October, 97	106.00	109.00	2.752293578	-13.9291	January, 00	130.00	150.00	13.33333333	-0.9743
November, 97	109.00	99.59	-9.448739833	-10.2064	February, 00	150.00	101.25	-48.14814815	1.4223
December, 97	99.59	100.00	0.41	4.2483	March, 00	101.25	90.00	-12.5	4.5801
January, 98	100.00	81.00	-23.45679012	-1.4532	April, 00	90.00	105.00	14.28571429	0.4293
February, 98	81.00	69.00	-17.39130435	-10.289	May, 00	105.00	107.75	2.552204176	3.7736
March, 98	69.00	69.00	0	-5.2716	June, 00	107.75	100.25	-7.481296758	5.3155
April, 98	69.00	69.00	0	-11.6819	July, 00	100.25	101.63	1.357866772	11.4716
May, 98	69.00	69.00	0	5.6083	August, 00	101.63	101.00	-0.623762376	3.2833
June, 98	69.00	69.00	0	9.282	September, 00	101.00	100.00	-1	-6.0542
July, 98	69.00	69.00	0	-13.2641	October, 00	100.00	96.50	-3.626943005	3.2463
Average			-1.5055		Average			-1.6346	

Regression Analysis (Pharma Aids)

	0.2045895						0.0012464						
	0.0418569						1.554E-06						
	-0.001695						-0.045453						
	14.062887						26.55017						
	24						24						
	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F		
	1	190.06756	190.06756	0.961078839	0.337573812		1	0.0240928	0.0240928	3.418E-05	0.9953881		
	22	4350.8256	197.7648				22	15508.053	704.91151				
	23	4540.8931					23	15508.077					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.316419	2.8770466	-0.4575	0.651755996	-7.2830545	4.6502172		-1.63677	5.4326523	-0.3012	0.7660273	-12.9034136	9.62987303
X Variable 1	0.3143351	0.3206368	0.9803	0.337573812	-0.3506255	0.9792957	X Variable 1	0.0062769	1.0736621	0.0058	0.9953881	-2.22036452	2.23291828

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.56

Petro Synthetic

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	12.50	12.00	-4.166666667	0.8388	November, 98	12.90	32.00	59.6875	-4.6632
September, 95	12.00	13.07	8.18668707	6.9612	December, 98	32.00	21.70	-47.46543779	-4.2483
October, 95	13.07	13.07	0	6.0609	January, 99	21.70	19.00	-14.21052632	0.3221
November, 95	13.07	13.07	0	-5.2456	February, 99	19.00	29.80	36.24161074	-0.81
December, 95	13.07	11.00	-18.81818182	-1.0842	March, 99	29.80	24.60	-21.13821138	-3.7122
January, 96	11.00	6.00	-83.33333333	-7.3371	April, 99	24.60	18.60	-32.25806452	-7.6662
February, 96	6.00	7.00	14.28571429	2.1486	May, 99	18.60	19.00	2.105263158	7.2802
March, 96	7.00	7.00	0	1.4127	June, 99	19.00	19.30	1.554404145	6.6205
April, 96	7.00	6.00	-16.66666667	2.5128	July, 99	19.30	18.90	-2.116402116	-3.2849
May, 96	6.00	6.00	0	2.7519	August, 99	18.90	21.40	11.68224299	-3.2714
June, 96	6.00	5.50	-9.090909091	10.3394	September, 99	21.40	20.70	-3.381642512	-1.073
July, 96	5.50	10.00	45	17.2977	October, 99	20.70	23.30	11.15879828	5.8865
August, 97	34.00	34.00	0	-17.0134	November, 99	23.30	18.50	-25.94594595	-9.5409
September, 97	34.00	30.60	-11.11111111	12.8768	December, 99	18.50	17.50	-5.714285714	0.1025
October, 97	30.60	30.60	0	-13.9291	January, 00	17.50	17.40	-0.574712644	-0.9743
November, 97	30.60	30.60	0	-10.2064	February, 00	17.40	16.30	-6.748466258	1.4223
December, 97	30.60	30.60	0	4.2483	March, 00	16.30	13.50	-20.74074074	4.5801
January, 98	30.60	30.60	0	-1.4532	April, 00	13.50	13.50	0	0.4293
February, 98	30.60	30.60	0	-10.289	May, 00	13.50	14.80	8.783783784	3.7736
March, 98	30.60	16.00	-91.25	-5.2716	June, 00	14.80	10.00	-48	5.3155
April, 98	16.00	16.00	0	-11.6819	July, 00	10.00	10.80	7.407407407	11.4716
May, 98	16.00	16.00	0	5.6083	August, 00	10.80	10.60	-1.886792453	3.2833
June, 98	16.00	12.90	-24.03100775	9.282	September, 00	10.60	10.50	-0.952380952	-6.0542
July, 98	12.90	12.90	0	-13.2641	October, 00	10.50	9.60	-9.375	3.2463
Average			-7.9581		Average			-4.2453	

Regression Analysis (Petro Synthetic)

	0.2342855						0.1052787					
	0.0548897						0.0110836					
	0.0119301						-0.033867					
	27.403154						23.589907					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	959.47126	959.47126	1.277705776	0.270499311		1	137.21347	137.21347	0.2465723	0.62442437
	22	16520.523	750.93287				22	12242.641	556.48369		
	23	17479.994					23	12379.855			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-7.533333	5.6062564	-1.3437	0.192729513	-19.160009	4.0933435		-4.411805	4.8269281	-0.9139	0.3706267	-14.4222515	5.598642344
X Variable 1	0.706244	0.6247976	1.1303	0.270499311	-0.589508	2.0019964	X Variable 1	0.4736949	0.9539521	0.4965	0.6244244	-1.50468276	2.452072579

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Miscellaneous Sector

Appendix Table 6.57

Bata Shoes

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	139.33	140.00	0.478571429	0.8388	November, 98	114.89	104.20	-10.25911708	-4.6632
September, 95	140.00	140.97	0.688089664	6.9612	December, 98	104.20	103.00	-1.165048544	-4.2483
October, 95	140.97	148.00	4.75	6.0609	January, 99	103.00	101.20	-1.778656126	0.3221
November, 95	148.00	140.40	-5.413105413	-5.2456	February, 99	101.20	102.00	0.784313725	-0.81
December, 95	140.40	137.04	-2.451838879	-1.0842	March, 99	102.00	95.30	-7.03043022	-3.7122
January, 96	137.04	124.74	-9.860509861	-7.3371	April, 99	95.30	88.50	-7.683615819	-7.6662
February, 96	124.74	126.50	1.391304348	2.1486	May, 99	88.50	98.80	10.42510121	7.2802
March, 96	126.50	127.88	1.079136691	1.4127	June, 99	98.80	107.00	7.663551402	6.6205
April, 96	127.88	132.25	3.304347826	2.5128	July, 99	107.00	103.10	-3.782735209	-3.2849
May, 96	132.25	108.55	-21.83325656	2.7519	August, 99	103.10	100.50	-2.587064677	-3.2714
June, 96	108.55	110.00	1.318181818	10.3394	September, 99	100.50	103.40	2.804642166	-1.073
July, 96	110.00	124.57	11.69623505	17.2977	October, 99	103.40	102.40	-0.9765625	5.8865
August, 97	123.56	107.27	-15.1859793	-17.0134	November, 99	102.40	99.00	-3.434343434	-9.5409
September, 97	107.27	117.86	8.985236722	12.8768	December, 99	99.00	98.90	-0.101112235	0.1025
October, 97	117.86	108.02	-9.109424181	-13.9291	January, 00	98.90	98.90	0	-0.9743
November, 97	108.02	107.00	-0.953271028	-10.2064	February, 00	98.90	97.40	-1.540041068	1.4223
December, 97	107.00	108.96	1.798825257	4.2483	March, 00	97.40	99.50	2.110552764	4.5801
January, 98	108.96	113.87	4.311934662	-1.4532	April, 00	99.50	100.00	0.5	0.4293
February, 98	113.87	109.85	-3.659535731	-10.289	May, 00	100.00	105.90	5.571293673	3.7736
March, 98	109.85	108.43	-1.309600664	-5.2716	June, 00	105.90	111.50	5.022421525	5.3155
April, 98	108.43	105.06	-3.207690843	-11.6819	July, 00	111.50	113.90	2.107111501	11.4716
May, 98	105.06	113.81	7.68825235	5.6083	August, 00	113.90	114.00	0.087719298	3.2833
June, 98	113.81	114.00	0.166666667	9.282	September, 00	114.00	115.80	1.554404145	-6.0542
July, 98	114.00	114.89	0.774654017	-13.2641	October, 00	115.80	116.00	0.172413793	3.2463
Average			-1.0230		Average			-0.0640	

Regression Analysis (Bata Shoes)

	0.5902885						0.687979				
	0.3484405						0.4733151				
	0.3188242						0.4493748				
	6.1139162						3.4529464				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	439.78078	439.78078	11.76514485	0.002393309		1	235.72291	235.72291	19.770703	0.00020274
	22	822.35937	37.379971				22	262.30245	11.922839		
	23	1262.1401					23	498.02536			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.735426	1.2508115	-0.5879	0.562547283	-3.3294530	1.8586013		-0.282182	0.7065362	-0.3993	0.6934581	-1.74745019	1.183085927
X Variable 1	0.478142	0.1393986	3.4300	0.002393309	0.1890468	0.7672373	X Variable 1	0.6208708	0.1396337	4.4464	0.0002027	0.33128797	0.910453641

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.58

Monno Ceramic

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	985.00	956.00	-3.033472803	0.8388	November, 98	623.31	437.75	-42.38949172	-4.6632
September, 95	956.00	945.14	-1.149036122	6.9612	December, 98	437.75	405.00	-8.086419753	-4.2483
October, 95	945.14	1114.67	15.20898562	6.0609	January, 99	405.00	396.50	-2.143757881	0.3221
November, 95	1114.67	1113.55	-0.100579229	-5.2456	February, 99	396.50	385.50	-2.853437095	-0.81
December, 95	1113.55	795.41	-39.99698269	-1.0842	March, 99	385.50	341.25	-12.96703297	-3.7122
January, 96	795.41	676.47	-17.58245007	-7.3371	April, 99	341.25	294.25	-15.97281223	-7.6662
February, 96	676.47	712.89	5.108782561	2.1486	May, 99	294.25	400.00	26.4375	7.2802
March, 96	712.89	711.07	-0.255952297	1.4127	June, 99	400.00	414.00	3.381642512	6.6205
April, 96	711.07	703.86	-1.024351434	2.5128	July, 99	414.00	400.00	-3.5	-3.2849
May, 96	703.86	653.07	-7.777114245	2.7519	August, 99	400.00	388.00	-3.092783505	-3.2714
June, 96	653.07	723.66	9.754580881	10.3394	September, 99	388.00	385.00	-0.779220779	-1.073
July, 96	723.66	823.85	12.16119439	17.2977	October, 99	385.00	400.00	3.75	5.8865
August, 97	785.51	800.00	1.81125	-17.0134	November, 99	400.00	332.25	-20.39127163	-9.5409
September, 97	800.00	786.89	-1.666052434	12.8768	December, 99	332.25	329.00	-0.987841945	0.1025
October, 97	786.89	709.59	-10.89361462	-13.9291	January, 00	329.00	319.50	-2.973395931	-0.9743
November, 97	709.59	626.31	-13.29692964	-10.2064	February, 00	319.50	317.75	-0.550747443	1.4223
December, 97	626.31	640.97	2.287158525	4.2483	March, 00	317.75	328.00	3.125	4.5801
January, 98	640.97	648.00	1.084876543	-1.4532	April, 00	328.00	328.00	0	0.4293
February, 98	648.00	642.00	-0.934579439	-10.289	May, 00	328.00	323.75	-1.312741313	3.7736
March, 98	642.00	619.82	-3.578458262	-5.2716	June, 00	323.75	366.25	11.60409556	5.3155
April, 98	619.82	550.67	-12.55743004	-11.6819	July, 00	366.25	374.75	2.268178786	11.4716
May, 98	550.67	652.62	15.62164813	5.6083	August, 00	374.75	377.00	0.596816976	3.2833
June, 98	652.62	650.63	-0.3058574	9.282	September, 00	377.00	380.00	0.789473684	-6.0542
July, 98	650.63	623.31	-4.383051772	-13.2641	October, 00	380.00	345.25	-10.06517017	3.2463
Average			-2.3124		Average			-3.1714	

Regression Analysis (Monno Ceramic)

	0.4427332						0.6498958						
	0.1960127						0.4223646						
	0.1594678						0.3961084						
	10.636543						9.5632996						
	24						24						
	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F		
	1	606.81834	606.81834	5.363616282	0.03026916		1	1471.2006	1471.2006	16.086307	0.00058751		
	22	2488.993	113.13605				22	2012.0474	91.4567				
	23	3095.8114					23	3483.248					
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-1.974554	2.1760702	-0.9073	0.374030699	-6.4874523	2.5383441		-3.716548	1.9568267	-1.8992	0.0707195	-7.7747625	0.341666697
X Variable 1	0.5616531	0.2425154	2.3159	0.03026916	0.0587064	1.0645998	X Variable 1	1.5510874	0.3867302	4.0107	0.0005875	0.74905721	2.353117683

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.59

BEXIMCO

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	63.25	62.00	-2.016129032	0.8388	November, 98	72.41	66.30	-9.215686275	-4.6632
September, 95	62.00	61.94	-0.096867937	6.9612	December, 98	66.30	61.70	-7.455429498	-4.2483
October, 95	61.94	68.71	9.853005385	6.0609	January, 99	61.70	58.40	-5.650684932	0.3221
November, 95	68.71	66.13	-3.901406321	-5.2456	February, 99	58.40	56.10	-4.099821747	-0.81
December, 95	66.13	65.15	-1.504221028	-1.0842	March, 99	56.10	54.30	-3.314917127	-3.7122
January, 96	65.15	56.45	-15.41186891	-7.3371	April, 99	54.30	40.20	-35.07462687	-7.6662
February, 96	56.45	59.94	5.822489156	2.1486	May, 99	40.20	43.20	6.944444444	7.2802
March, 96	59.94	59.64	-0.503018109	1.4127	June, 99	43.20	42.90	-0.699300699	6.6205
April, 96	59.64	64.06	6.899781455	2.5128	July, 99	42.90	40.40	-6.188118812	-3.2849
May, 96	64.06	57.89	-10.65814476	2.7519	August, 99	40.40	40.80	0.980392157	-3.2714
June, 96	57.89	74.78	22.58625301	10.3394	September, 99	40.80	39.60	-3.03030303	-1.073
July, 96	74.78	79.70	6.17314931	17.2977	October, 99	39.60	35.50	-11.54929577	5.8865
August, 97	164.70	86.15	-91.1781776	-17.0134	November, 99	35.50	32.50	-9.230769231	-9.5409
September, 97	86.15	111.99	23.0734887	12.8768	December, 99	32.50	32.00	-1.5625	0.1025
October, 97	111.99	89.39	-25.28247007	-13.9291	January, 00	32.00	31.20	-2.564102564	-0.9743
November, 97	89.39	79.70	-12.15809285	-10.2064	February, 00	31.20	32.40	3.703703704	1.4223
December, 97	79.70	80.33	0.784264907	4.2483	March, 00	32.40	33.70	3.857566766	4.5801
January, 98	80.33	80.15	-0.224578915	-1.4532	April, 00	33.70	32.40	-4.012345679	0.4293
February, 98	80.15	70.60	-13.52691218	-10.289	May, 00	32.40	31.40	-3.184713376	3.7736
March, 98	70.60	67.43	-4.701171585	-5.2716	June, 00	31.40	37.00	15.13513514	5.3155
April, 98	67.43	61.21	-10.16173828	-11.6819	July, 00	37.00	55.80	33.69175627	11.4716
May, 98	61.21	69.93	12.46961247	5.6083	August, 00	55.80	51.00	-9.411764706	3.2833
June, 98	69.93	71.82	2.631578947	9.282	September, 00	51.00	49.90	-2.204408818	-6.0542
July, 98	71.82	72.41	0.814804585	-13.2641	October, 00	49.90	51.90	3.853564547	3.2463
Average			-4.1757		Average			-2.0951	

Regression Analysis (BEXIMCO)

	0.6952359						0.670675					
	0.483353						0.449805					
	0.4598691						0.4247961					
	15.915522						8.9139601					
	24						24					

	df	SS	MS	F	Significance F			df	SS	MS	F	Significance F
	1	5213.5669	5213.5669	20.58226641	0.000162599			1	1429.1296	1429.1296	17.98582	0.00033494
	22	5572.6843	253.30383					22	1748.0911	79.458686		
	23	10786.251						23	3177.2207			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-3.185425	3.2560666	-0.9783	0.338559803	-9.9381010	3.567251		-2.632397	1.8239599	-1.4432	0.1630441	-6.41506249	1.150268432
X Variable 1	1.6462898	0.3628772	4.5367	0.000162599	0.8937277	2.3988519	X Variable 1	1.5287489	0.3604716	4.2409	0.0003349	0.78117578	2.276321983

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.60

HighSpeed Ship

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	54.00	55.00	1.818181818	0.8388	November, 98	58.00	58.00	0	-4.6632
September, 95	55.00	55.75	1.34529148	6.9612	December, 98	58.00	58.00	0	-4.2483
October, 95	55.75	55.75	0	6.0609	January, 99	58.00	58.00	0	0.3221
November, 95	55.75	58.00	3.879310345	-5.2456	February, 99	58.00	58.00	0	-0.81
December, 95	58.00	58.00	0	-1.0842	March, 99	58.00	58.00	0	-3.7122
January, 96	58.00	58.00	0	-7.3371	April, 99	58.00	58.00	0	-7.6662
February, 96	58.00	58.00	0	2.1486	May, 99	58.00	58.00	0	7.2802
March, 96	58.00	58.00	0	1.4127	June, 99	58.00	58.00	0	6.6205
April, 96	58.00	58.00	0	2.5128	July, 99	58.00	58.00	0	-3.2849
May, 96	58.00	58.00	0	2.7519	August, 99	58.00	58.00	0	-3.2714
June, 96	58.00	58.00	0	10.3394	September, 99	58.00	58.00	0	-1.073
July, 96	58.00	58.00	0	17.2977	October, 99	58.00	58.00	0	5.8865
August, 97	58.00	58.00	0	-17.0134	November, 99	58.00	61.00	4.918032787	-9.5409
September, 97	58.00	58.00	0	12.8768	December, 99	61.00	61.00	0	0.1025
October, 97	58.00	58.00	0	-13.9291	January, 00	61.00	61.00	0	-0.9743
November, 97	58.00	58.00	0	-10.2064	February, 00	61.00	61.00	0	1.4223
December, 97	58.00	58.00	0	4.2483	March, 00	61.00	61.00	0	4.5801
January, 98	58.00	58.00	0	-1.4532	April, 00	61.00	61.00	0	0.4293
February, 98	58.00	58.00	0	-10.289	May, 00	61.00	61.00	0	3.7736
March, 98	58.00	58.00	0	-5.2716	June, 00	61.00	61.00	0	5.3155
April, 98	58.00	58.00	0	-11.6819	July, 00	61.00	61.00	0	11.4716
May, 98	58.00	58.00	0	5.6083	August, 00	61.00	60.00	-1.666666667	3.2833
June, 98	58.00	58.00	0	9.282	September, 00	60.00	61.00	1.639344262	-6.0542
July, 98	58.00	58.00	0	-13.2641	October, 00	61.00	61.00	0	3.2463
Average			0.2934		Average			0.2038	

Regression Analysis (HighSpeed Ship)

	0.0279931						0.4837669					
	0.0007836						0.2340304					
	-0.044635						0.1992136					
	0.9066362						0.9988483					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	0.0141818	0.0141818	0.017253033	0.896691605		1	6.7062929	6.7062929	6.721767	0.01661418
	22	18.083761	0.8219891				22	21.949354	0.9976979		
	23	18.097943					23	28.655647			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.2918161	0.1854836	1.5732	0.129928082	-0.0928536	0.6764859		0.2405862	0.2043827	1.1771	0.2517201	-0.18327804	0.664450441
X Variable 1	-0.002715	0.0206715	-0.1313	0.896691605	-0.0455853	0.0401549	X Variable 1	-0.104723	0.0403924	-2.5926	0.0166142	-0.18849173	-0.020954044

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.61

Savar Refractories

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	67.00	67.50	0.740740741	0.8388	November, 98	47.50	107.25	55.71095571	-4.6632
September, 95	67.50	68.00	0.735294118	6.9612	December, 98	107.25	88.00	-21.875	-4.2483
October, 95	68.00	60.00	-13.33333333	6.0609	January, 99	88.00	89.25	1.400560224	0.3221
November, 95	60.00	52.00	-15.38461538	-5.2456	February, 99	89.25	98.50	9.390862944	-0.81
December, 95	52.00	52.00	0	-1.0842	March, 99	98.50	85.00	-15.88235294	-3.7122
January, 96	52.00	40.00	-30	-7.3371	April, 99	85.00	75.25	-12.95681063	-7.6662
February, 96	40.00	40.00	0	2.1486	May, 99	75.25	70.00	-7.5	7.2802
March, 96	40.00	55.00	27.27272727	1.4127	June, 99	70.00	73.75	5.084745763	6.6205
April, 96	55.00	55.00	0	2.5128	July, 99	73.75	83.25	11.41141141	-3.2849
May, 96	55.00	75.75	27.39273927	2.7519	August, 99	83.25	116.25	28.38709677	-3.2714
June, 96	75.75	79.80	5.07518797	10.3394	September, 99	116.25	118.75	2.105263158	-1.073
July, 96	79.80	85.00	6.117647059	17.2977	October, 99	118.75	137.75	13.79310345	5.8865
August, 97	57.71	45.55	-26.69593853	-17.0134	November, 99	137.75	109.50	-25.79908676	-9.5409
September, 97	45.55	58.00	21.46551724	12.8768	December, 99	109.50	103.25	-6.053268765	0.1025
October, 97	58.00	40.00	-45	-13.9291	January, 00	103.25	100.50	-2.736318408	-0.9743
November, 97	40.00	38.27	-4.520512151	-10.2064	February, 00	100.50	91.50	-9.836065574	1.4223
December, 97	38.27	41.72	8.269415149	4.2483	March, 00	91.50	70.00	-30.71428571	4.5801
January, 98	41.72	39.22	-6.374298827	-1.4532	April, 00	70.00	61.75	-13.36032389	0.4293
February, 98	39.22	34.85	-12.53945481	-10.289	May, 00	61.75	68.00	9.191176471	3.7736
March, 98	34.85	37.00	5.810810811	-5.2716	June, 00	68.00	56.50	-20.3539823	5.3155
April, 98	37.00	32.00	-15.625	-11.6819	July, 00	56.50	55.39	-2.003971836	11.4716
May, 98	32.00	38.00	15.78947368	5.6083	August, 00	55.39	50.00	-10.78	3.2833
June, 98	38.00	54.00	29.62962963	9.282	September, 00	50.00	47.50	-5.263157895	-6.0542
July, 98	54.00	47.50	-13.68421053	-13.2641	October, 00	47.50	47.50	0	3.2463
Average			-1.4524		Average			-2.0266	

Regression Analysis (Savar Refractories)

	0.7056814						0.0381499					
	0.4979862						0.0014554					
	0.4751674						-0.043933					
	13.426233						18.79369					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	3933.985	3933.985	21.82349635	0.000117033		1	11.325734	11.325734	0.0320658	0.8595222	
	22	3965.8022	180.26374				22	7770.4613	353.20278			
	23	7899.7872					23	7781.787				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.592229	2.7467971	-0.2156	0.831280297	-6.2887441	5.1042853		-1.978812	3.8455341	-0.5145	0.6119818	-9.95396997	5.996346376
X Variable 1	1.430063	0.3061209	4.6715	0.000117033	0.7952063	2.0649196	X Variable 1	-0.136092	0.7599979	-0.1790	0.8595222	-1.71223319	1.44004861

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.62

Texpick Industries

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	83.00	83.00	0	0.8388	November, 98	98.00	85.00	-15.29411765	-4.6632
September, 95	83.00	85.00	2.352941176	6.9612	December, 98	85.00	85.00	0	-4.2483
October, 95	85.00	85.00	0	6.0609	January, 99	85.00	85.00	0	0.3221
November, 95	85.00	85.00	0	-5.2456	February, 99	85.00	85.00	0	-0.81
December, 95	85.00	85.00	0	-1.0842	March, 99	85.00	85.00	0	-3.7122
January, 96	85.00	85.00	0	-7.3371	April, 99	85.00	85.00	0	-7.6662
February, 96	85.00	85.00	0	2.1486	May, 99	85.00	76.50	-11.11111111	7.2802
March, 96	85.00	85.00	0	1.4127	June, 99	76.50	35.50	-115.4929577	6.6205
April, 96	85.00	85.00	0	2.5128	July, 99	35.50	42.00	15.47619048	-3.2849
May, 96	85.00	85.00	0	2.7519	August, 99	42.00	121.25	65.36082474	-3.2714
June, 96	85.00	85.00	0	10.3394	September, 99	121.25	126.25	3.96039604	-1.073
July, 96	85.00	85.00	0	17.2977	October, 99	126.25	151.25	16.52892562	5.8865
August, 97	98.00	85.00	-15.29411765	-17.0134	November, 99	151.25	158.25	4.423380727	-9.5409
September, 97	85.00	85.00	0	12.8768	December, 99	158.25	132.25	-19.65973535	0.1025
October, 97	85.00	85.00	0	-13.9291	January, 00	132.25	118.00	-12.07627119	-0.9743
November, 97	85.00	85.00	0	-10.2064	February, 00	118.00	121.75	3.080082136	1.4223
December, 97	85.00	98.00	13.26530612	4.2483	March, 00	121.75	97.50	-24.87179487	4.5801
January, 98	98.00	98.00	0	-1.4532	April, 00	97.50	88.25	-10.4815864	0.4293
February, 98	98.00	98.00	0	-10.289	May, 00	88.25	94.25	6.366047745	3.7736
March, 98	98.00	98.00	0	-5.2716	June, 00	94.25	61.25	-53.87755102	5.3155
April, 98	98.00	98.00	0	-11.6819	July, 00	61.25	64.07	4.401435929	11.4716
May, 98	98.00	98.00	0	5.6083	August, 00	64.07	50.00	-28.14	3.2833
June, 98	98.00	98.00	0	9.282	September, 00	50.00	46.00	-8.695652174	-6.0542
July, 98	98.00	98.00	0	-13.2641	October, 00	46.00	46.00	0	3.2463
Average			0.0135		Average			-7.5043	

Regression Analysis (Texpick Industries)

	0.3726657						0.3470614				
	0.1388797						0.1204516				
	0.0997379						0.0804721				
	4.0323593						29.8352				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	57.692063	57.692063	3.548114496	0.07289929		1	2681.8435	2681.8435	3.0128362	0.09659481
	22	357.71827	16.259921				22	19583.062	890.13918		
	23	415.41034					23	22264.905			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.1176744	0.8249576	0.1426	0.887870504	-1.59318476	1.8285336		-6.768273	6.1048299	-1.1086	0.2795438	-19.4289285	5.892383245
X Variable 1	0.1731796	0.0919386	1.8836	0.07289929	-0.01748961	0.3638489	X Variable 1	-2.094195	1.2065055	-1.7357	0.0965948	-4.59633664	0.407947191

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.63

GQ Ball Pen

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	170.00	170.55	0.322486074	0.8388	November, 98	159.67	112.80	-41.55141844	-4.6632
September, 95	170.55	169.55	-0.58979652	6.9612	December, 98	112.80	100.00	-12.8	-4.2483
October, 95	169.55	186.23	8.956666488	6.0609	January, 99	100.00	104.70	4.489016237	0.3221
November, 95	186.23	175.00	-6.417142857	-5.2456	February, 99	104.70	90.40	-15.81858407	-0.81
December, 95	175.00	191.00	8.376963351	-1.0842	March, 99	90.40	86.00	-5.11627907	-3.7122
January, 96	191.00	176.00	-8.522727273	-7.3371	April, 99	86.00	68.10	-26.28487518	-7.6662
February, 96	176.00	185.22	4.977864162	2.1486	May, 99	68.10	77.10	11.67315175	7.2802
March, 96	185.22	181.73	-1.920431409	1.4127	June, 99	77.10	80.00	3.625	6.6205
April, 96	181.73	167.75	-8.333830104	2.5128	July, 99	80.00	79.30	-0.882723834	-3.2849
May, 96	167.75	205.40	18.33008763	2.7519	August, 99	79.30	78.00	-1.666666667	-3.2714
June, 96	205.40	233.90	12.18469431	10.3394	September, 99	78.00	82.80	5.797101449	-1.073
July, 96	233.90	297.98	21.50479898	17.2977	October, 99	82.80	88.20	6.12244898	5.8865
August, 97	266.25	161.51	-64.85047365	-17.0134	November, 99	88.20	79.60	-10.8040201	-9.5409
September, 97	161.51	250.58	35.54553436	12.8768	December, 99	79.60	77.80	-2.313624679	0.1025
October, 97	250.58	208.50	-20.1822542	-13.9291	January, 00	77.80	73.50	-5.850340136	-0.9743
November, 97	208.50	626.31	66.70977631	-10.2064	February, 00	73.50	74.25	1.01010101	1.4223
December, 97	626.31	208.18	-200.8502258	4.2483	March, 00	74.25	68.00	-9.191176471	4.5801
January, 98	208.18	216.21	3.713981777	-1.4532	April, 00	68.00	68.00	0	0.4293
February, 98	216.21	201.00	-7.567164179	-10.289	May, 00	68.00	67.90	-0.147275405	3.7736
March, 98	201.00	194.69	-3.241049874	-5.2716	June, 00	67.90	71.70	5.29986053	5.3155
April, 98	194.69	171.94	-13.23135978	-11.6819	July, 00	71.70	77.20	7.124352332	11.4716
May, 98	171.94	197.68	13.02104411	5.6083	August, 00	77.20	77.00	-0.25974026	3.2833
June, 98	197.68	182.00	-8.615384615	9.282	September, 00	77.00	76.90	-0.130039012	-6.0542
July, 98	182.00	159.67	-13.98509426	-13.2641	October, 00	76.90	78.00	1.41025641	3.2463
Average			-6.8610		Average			-3.5944	

Regression Analysis (GQ Ball Pen)

	0.1310239						0.6102005					
	0.0171673						0.3723446					
	-0.027507						0.3438149					
	47.985927						9.4263974					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	884.85419	884.85419	0.384276596	0.541691393		1	1159.6796	1159.6796	13.051083	0.00154376
	22	50658.282	2302.6492				22	1954.8533	88.856967		
	23	51543.137					23	3114.5329			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-6.453001	9.8171695	-0.6573	0.517795069	-26.812586	13.906584		-4.078404	1.928814	-2.1144	0.0460404	-8.07852356	-0.078284136
X Variable 1	0.6782264	1.0940891	0.6199	0.541691393	-1.590778	2.9472308	X Variable 1	1.3771123	0.381194	3.6126	0.0015438	0.58656343	2.167661171

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.64

Phoenix Leather

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	300.00	300.00	0	0.8388	November, 98	300.00	300.00	0	-4.6632
September, 95	300.00	300.00	0	6.9612	December, 98	300.00	300.00	0	-4.2483
October, 95	300.00	300.00	0	6.0609	January, 99	300.00	300.00	0	0.3221
November, 95	300.00	300.00	0	-5.2456	February, 99	300.00	300.00	0	-0.81
December, 95	300.00	300.00	0	-1.0842	March, 99	300.00	300.00	0	-3.7122
January, 96	300.00	300.00	0	-7.3371	April, 99	300.00	300.00	0	-7.6662
February, 96	300.00	300.00	0	2.1486	May, 99	300.00	300.00	0	7.2802
March, 96	300.00	300.00	0	1.4127	June, 99	300.00	300.00	0	6.6205
April, 96	300.00	300.00	0	2.5128	July, 99	300.00	300.00	0	-3.2849
May, 96	300.00	300.00	0	2.7519	August, 99	300.00	300.00	0	-3.2714
June, 96	300.00	332.42	9.75272246	10.3394	September, 99	300.00	300.00	0	-1.073
July, 96	332.42	300.00	-10.80666667	17.2977	October, 99	300.00	300.00	0	5.8865
August, 97	300.00	300.00	0	-17.0134	November, 99	300.00	300.00	0	-9.5409
September, 97	300.00	300.00	0	12.8768	December, 99	300.00	300.00	0	0.1025
October, 97	300.00	300.00	0	-13.9291	January, 00	300.00	300.00	0	-0.9743
November, 97	300.00	300.00	0	-10.2064	February, 00	300.00	300.00	0	1.4223
December, 97	300.00	300.00	0	4.2483	March, 00	300.00	300.00	0	4.5801
January, 98	300.00	300.00	0	-1.4532	April, 00	300.00	300.00	0	0.4293
February, 98	300.00	300.00	0	-10.289	May, 00	300.00	300.00	0	3.7736
March, 98	300.00	300.00	0	-5.2716	June, 00	300.00	300.00	0	5.3155
April, 98	300.00	300.00	0	-11.6819	July, 00	300.00	300.00	0	11.4716
May, 98	300.00	300.00	0	5.6083	August, 00	300.00	300.00	0	3.2833
June, 98	300.00	300.00	0	9.282	September, 00	300.00	300.00	0	-6.0542
July, 98	300.00	300.00	0	-13.2641	October, 00	300.00	300.00	0	3.2463
Average			-0.0439		Average			0.0000	

Regression Analysis (Phoenix Leather)

	0.1358552						1					
	0.0184566						1					
	-0.026159						1					
	3.074405						0					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	3.9100979	3.9100979	0.413680896	0.526754947		1	0	0	#NUM!	#NUM!
	22	207.94326	9.4519663				22	0	0		
	23	211.85336					23	0			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	-0.071033	0.6289751	-0.1129	0.911106202	-1.3754493	1.2333826		0	0	65535	#NUM!	0	0
X Variable 1	-0.045085	0.0700971	-0.6431	0.526754947	-0.1904576	0.1002875	X Variable 1	0	0	65535	#NUM!	0	0

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Insurance Sector

Appendix Table 6.65

Green Delta Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	355.00	350.00	-1.4285714	0.8388	November, 98	492.00	420.00	-17.14285714	-4.6632
September, 95	350.00	345.00	-1.4492754	6.9612	December, 98	420.00	380.25	-10.45364892	-4.2483
October, 95	345.00	390.00	11.5384615	6.0609	January, 99	380.25	382.00	0.458115183	0.3221
November, 95	390.00	380.00	-2.6315789	-5.2456	February, 99	382.00	381.00	-0.262467192	-0.81
December, 95	380.00	390.00	2.56410256	-1.0842	March, 99	381.00	385.00	1.038961039	-3.7122
January, 96	390.00	352.00	-10.795455	-7.3371	April, 99	385.00	402.00	4.228855721	-7.6662
February, 96	352.00	360.00	2.22222222	2.1486	May, 99	402.00	402.00	0	7.2802
March, 96	360.00	360.00	0	1.4127	June, 99	402.00	450.00	10.66666667	6.6205
April, 96	360.00	350.00	-2.8571429	2.5128	July, 99	450.00	397.00	-13.35012594	-3.2849
May, 96	350.00	350.00	0	2.7519	August, 99	397.00	365.00	-8.767123288	-3.2714
June, 96	350.00	411.33	14.9101695	10.3394	September, 99	365.00	354.00	-3.107344633	-1.073
July, 96	411.33	1039.12	60.4155439	17.2977	October, 99	354.00	460.00	23.04347826	5.8865
August, 97	530.00	539.50	1.76088971	-17.0134	November, 99	460.00	455.00	-1.098901099	-9.5409
September, 97	539.50	597.50	9.70711297	12.8768	December, 99	455.00	455.00	0	0.1025
October, 97	597.50	579.32	-3.138162	-13.9291	January, 00	455.00	424.00	-7.311320755	-0.9743
November, 97	579.32	511.00	-13.369863	-10.2064	February, 00	424.00	450.00	5.777777778	1.4223
December, 97	511.00	511.00	0	4.2483	March, 00	450.00	450.00	0	4.5801
January, 98	511.00	630.00	18.8888889	-1.4532	April, 00	450.00	460.00	2.173913043	0.4293
February, 98	630.00	612.00	-2.9411765	-10.289	May, 00	460.00	466.00	1.287553648	3.7736
March, 98	612.00	598.00	-2.3411371	-5.2716	June, 00	466.00	511.75	8.939912066	5.3155
April, 98	598.00	525.00	-13.904762	-11.6819	July, 00	511.75	502.50	-1.84079602	11.4716
May, 98	525.00	560.00	6.25	5.6083	August, 00	502.50	495.00	-1.515151515	3.2833
June, 98	560.00	460.00	-21.73913	9.282	September, 00	495.00	484.50	-2.167182663	-6.0542
July, 98	460.00	492.00	6.50406504	-13.2641	October, 00	484.50	495.00	2.121212121	3.2463
Average			2.4236		Average			-0.3034	

Regression Analysis (Green Delta Insurance)

0.489651						0.4629551					
0.2397581						0.2143274					
0.2052017						0.1786151					
13.680503						7.3651301					
24						24					

df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
1	1298.5191	1298.5191	6.938158844	0.015155795		1	325.55153	325.55153	6.0014874	0.02271792	
22	4117.4354	187.15615				22	1193.3931	54.245141			
23	5415.9545					23	1518.9446				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	2.9177523	2.7988167	1.0424	0.30850341	-2.8866445	8.7221491		-0.559798	1.5070409	-0.3714	0.7138519	-3.68521296	2.565616681
X Variable 1	0.8216048	0.3119183	2.6340	0.015155795	0.1747251	1.4684845	X Variable 1	0.7296426	0.2978385	2.4497	0.0227179	0.11196285	1.347322451

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.66

Peoples Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	595.00	595.00	0	0.8388	November, 98	570.00	635.00	10.23622047	-4.6632
September, 95	595.00	600.00	0.83333333	6.9612	December, 98	635.00	650.00	2.307692308	-4.2483
October, 95	600.00	630.00	4.76190476	6.0609	January, 99	650.00	640.00	-1.5625	0.3221
November, 95	630.00	643.00	2.02177294	-5.2456	February, 99	640.00	640.00	0	-0.81
December, 95	643.00	670.00	4.02985075	-1.0842	March, 99	640.00	640.00	0	-3.7122
January, 96	670.00	680.00	1.47058824	-7.3371	April, 99	640.00	660.00	3.03030303	-7.6662
February, 96	680.00	675.00	-0.7407407	2.1486	May, 99	660.00	660.00	0	7.2802
March, 96	675.00	677.50	0.36900369	1.4127	June, 99	660.00	650.00	-1.538461538	6.6205
April, 96	677.50	785.00	13.6942675	2.5128	July, 99	650.00	680.00	4.411764706	-3.2849
May, 96	785.00	740.00	-6.0810811	2.7519	August, 99	680.00	612.00	-11.11111111	-3.2714
June, 96	740.00	844.44	12.3679598	10.3394	September, 99	612.00	555.00	-10.27027027	-1.073
July, 96	844.44	880.00	4.04090909	17.2977	October, 99	555.00	410.00	-35.36585366	5.8865
August, 97	580.00	550.00	-5.4545455	-17.0134	November, 99	410.00	338.00	-21.30177515	-9.5409
September, 97	550.00	600.00	8.33333333	12.8768	December, 99	338.00	475.00	28.84210526	0.1025
October, 97	600.00	530.00	-13.207547	-13.9291	January, 00	475.00	300.25	-58.20149875	-0.9743
November, 97	530.00	550.00	3.63636364	-10.2064	February, 00	300.25	445.00	32.52808989	1.4223
December, 97	550.00	550.00	0	4.2483	March, 00	445.00	388.25	-14.61687057	4.5801
January, 98	550.00	570.00	3.50877193	-1.4532	April, 00	388.25	425.00	8.647058824	0.4293
February, 98	570.00	570.00	0	-10.289	May, 00	425.00	594.00	28.45117845	3.7736
March, 98	570.00	563.50	-1.1535049	-5.2716	June, 00	594.00	590.00	-0.677966102	5.3155
April, 98	563.50	563.50	0	-11.6819	July, 00	590.00	575.00	-2.608695652	11.4716
May, 98	563.50	565.00	0.26548673	5.6083	August, 00	575.00	573.00	-0.34904014	3.2833
June, 98	565.00	590.00	4.23728814	9.282	September, 00	573.00	470.00	-21.91489362	-6.0542
July, 98	590.00	570.00	-3.5087719	-13.2641	October, 00	470.00	430.00	-9.302325581	3.2463
Average			1.3927		Average			-2.9320	

Regression Analysis (Peoples Insurance)

	0.5748421						0.0771044					
	0.3304434						0.0059451					
	0.300009						-0.039239					
	4.6961665						19.963251					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	239.45256	239.45256	10.85756656	0.003300345		1	52.436464	52.436464	0.1315742	0.72026699
	22	485.18756	22.05398				22	8767.6909	398.5314		
	23	724.64012					23	8820.1274			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	1.6049153	0.9607622	1.6704	0.108995759	-0.3875855	3.5974163		-3.034872	4.0848478	-0.7429	0.465367	-11.5063374	5.436592612
X Variable 1	0.3528162	0.1070736	3.2950	0.003300345	0.1307589	0.5748735	X Variable 1	0.292831	0.8072938	0.3627	0.720267	-1.38139567	1.967057658

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.67

Reliance Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	315.00	312.00	-0.9615385	0.8388	November, 98	410.00	280.00	-46.42857143	-4.6632
September, 95	312.00	310.48	-0.4895645	6.9612	December, 98	280.00	273.25	-2.470265325	-4.2483
October, 95	310.48	371.81	16.494984	6.0609	January, 99	273.25	256.00	-6.73828125	0.3221
November, 95	371.81	385.00	3.42597403	-5.2456	February, 99	256.00	315.00	18.73015873	-0.81
December, 95	385.00	400.00	3.75	-1.0842	March, 99	315.00	292.00	-7.876712329	-3.7122
January, 96	400.00	390.00	-2.5641026	-7.3371	April, 99	292.00	305.00	4.262295082	-7.6662
February, 96	390.00	400.00	2.5	2.1486	May, 99	305.00	320.00	4.6875	7.2802
March, 96	400.00	400.00	0	1.4127	June, 99	320.00	325.00	1.538461538	6.6205
April, 96	400.00	390.00	-2.5641026	2.5128	July, 99	325.00	325.00	0	-3.2849
May, 96	390.00	380.00	-2.6315789	2.7519	August, 99	325.00	280.00	-16.07142857	-3.2714
June, 96	380.00	390.00	2.56410256	10.3394	September, 99	280.00	334.00	16.16766467	-1.073
July, 96	390.00	680.00	42.6470588	17.2977	October, 99	334.00	323.75	-3.166023166	5.8865
August, 97	390.00	375.00	-4	-17.0134	November, 99	323.75	323.75	0	-9.5409
September, 97	375.00	430.00	12.7906977	12.8768	December, 99	323.75	318.00	-1.808176101	0.1025
October, 97	430.00	367.50	-17.006803	-13.9291	January, 00	318.00	320.00	0.625	-0.9743
November, 97	367.50	350.00	-5	-10.2064	February, 00	320.00	320.25	0.078064012	1.4223
December, 97	350.00	350.00	0	4.2483	March, 00	320.25	326.00	1.763803681	4.5801
January, 98	350.00	417.17	16.1013496	-1.4532	April, 00	326.00	350.00	6.857142857	0.4293
February, 98	417.17	365.00	-14.293151	-10.289	May, 00	350.00	385.00	9.090909091	3.7736
March, 98	365.00	367.00	0.54495913	-5.2716	June, 00	385.00	405.00	4.938271605	5.3155
April, 98	367.00	350.00	-4.8571429	-11.6819	July, 00	405.00	316.50	-27.96208531	11.4716
May, 98	350.00	386.00	9.32642487	5.6083	August, 00	316.50	321.00	1.401869159	3.2833
June, 98	386.00	410.00	5.85365854	9.282	September, 00	321.00	329.00	2.431610942	-6.0542
July, 98	410.00	410.00	0	-13.2641	October, 00	329.00	355.00	7.323943662	3.2463
Average			2.5680		Average			-1.3594	

Regression Analysis (Reliance Insurance)

	0.6927673						0.0265923				
	0.4799266						0.0007071				
	0.4562869						-0.044715				
	8.5536046						13.733063				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1485.3581	1485.3581	20.30171996	0.000175394		1	2.936128	2.936128	0.0155683	0.90183649
	22	1609.6113	73.164152				22	4149.1347	188.59703		
	23	3094.9695					23	4152.0708			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	3.0965299	1.7499336	1.7695	0.0906697	-0.5326141	6.7256739		-1.383723	2.810037	-0.4924	0.6272997	-7.21138904	4.44394348
X Variable 1	0.8787279	0.195024	4.5057	0.000175394	0.4742724	1.2831833	X Variable 1	0.0692928	0.5553513	0.1247	0.9018365	-1.08243652	1.22102203

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.68

National Life Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	133.00	136.00	2.20588235	0.8388	November, 98	235.00	185.00	-27.02702703	-4.6632
September, 95	136.00	134.88	-0.8303677	6.9612	December, 98	185.00	185.00	0	-4.2483
October, 95	134.88	139.69	3.44333882	6.0609	January, 99	185.00	185.00	0	0.3221
November, 95	139.69	132.00	-5.8257576	-5.2456	February, 99	185.00	190.00	2.631578947	-0.81
December, 95	132.00	133.00	0.7518797	-1.0842	March, 99	190.00	176.00	-7.954545455	-3.7122
January, 96	133.00	112.50	-18.222222	-7.3371	April, 99	176.00	170.00	-3.529411765	-7.6662
February, 96	112.50	114.00	1.31578947	2.1486	May, 99	170.00	180.00	5.555555556	7.2802
March, 96	114.00	114.00	0	1.4127	June, 99	180.00	218.00	17.43119266	6.6205
April, 96	114.00	112.00	-1.7857143	2.5128	July, 99	218.00	167.00	-30.53892216	-3.2849
May, 96	112.00	105.25	-6.4133017	2.7519	August, 99	167.00	184.00	9.239130435	-3.2714
June, 96	105.25	167.63	37.2129094	10.3394	September, 99	184.00	175.00	-5.142857143	-1.073
July, 96	167.63	350.00	52.1057143	17.2977	October, 99	175.00	200.00	12.5	5.8865
August, 97	277.00	286.00	3.14685315	-17.0134	November, 99	200.00	190.00	-5.263157895	-9.5409
September, 97	286.00	367.00	22.0708447	12.8768	December, 99	190.00	190.00	0	0.1025
October, 97	367.00	337.00	-8.9020772	-13.9291	January, 00	190.00	190.00	0	-0.9743
November, 97	337.00	315.00	-6.984127	-10.2064	February, 00	190.00	190.00	0	1.4223
December, 97	315.00	315.00	0	4.2483	March, 00	190.00	204.00	6.862745098	4.5801
January, 98	315.00	332.00	5.12048193	-1.4532	April, 00	204.00	234.00	12.82051282	0.4293
February, 98	332.00	288.67	-15.010219	-10.289	May, 00	234.00	262.00	10.6870229	3.7736
March, 98	288.67	360.00	19.8138889	-5.2716	June, 00	262.00	295.00	11.18644068	5.3155
April, 98	360.00	236.50	-52.219873	-11.6819	July, 00	295.00	250.00	-18	11.4716
May, 98	236.50	265.00	10.754717	5.6083	August, 00	250.00	256.00	2.34375	3.2833
June, 98	265.00	240.00	-10.416667	9.282	September, 00	256.00	261.00	1.915708812	-6.0542
July, 98	240.00	235.00	-2.1276596	-13.2641	October, 00	261.00	260.00	-0.384615385	3.2463
Average			1.2168		Average			-0.1945	

Regression Analysis (National Life Insurance)

	0.6190063						0.3327197					
	0.3831688						0.1107024					
	0.3551311						0.0702798					
	15.63532						11.300993					
	24						24					

	Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	3340.8738	3340.8738	13.66616158	0.001259859		1	349.75644	349.75644	2.7386248	0.11214678
	22	5378.1908	244.46322				22	2809.6735	127.71243		
	23	8719.0647					23	3159.43			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	2.0095494	3.1987416	0.6282	0.536320458	-4.6242418	8.6433406		-0.460262	2.3123906	-0.1990	0.8440583	-5.25587147	4.335348082
X Variable 1	1.3178587	0.3564885	3.6967	0.001259859	0.5785459	2.0571715	X Variable 1	0.756281	0.4570008	1.6548	0.1121468	-0.19148159	1.704043631

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.69

Federal Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	150.00	155.00	3.22580645	0.8388	November, 98	220.00	144.00	-52.77777778	-4.6632
September, 95	155.00	156.24	0.79365079	6.9612	December, 98	144.00	132.00	-9.090909091	-4.2483
October, 95	156.24	167.65	6.80584551	6.0609	January, 99	132.00	150.00	12	0.3221
November, 95	167.65	159.00	-5.4402516	-5.2456	February, 99	150.00	140.00	-7.142857143	-0.81
December, 95	159.00	158.10	-0.56926	-1.0842	March, 99	140.00	126.00	-11.11111111	-3.7122
January, 96	158.10	149.11	-6.029106	-7.3371	April, 99	126.00	121.50	-3.703703704	-7.6662
February, 96	149.11	153.00	2.54248366	2.1486	May, 99	121.50	125.00	2.8	7.2802
March, 96	153.00	189.00	19.047619	1.4127	June, 99	125.00	127.25	1.768172888	6.6205
April, 96	189.00	189.00	0	2.5128	July, 99	127.25	124.75	-2.004008016	-3.2849
May, 96	189.00	146.00	-29.452055	2.7519	August, 99	124.75	117.50	-6.170212766	-3.2714
June, 96	146.00	156.00	6.41025641	10.3394	September, 99	117.50	112.00	-4.910714286	-1.073
July, 96	156.00	270.00	42.2222222	17.2977	October, 99	112.00	128.75	13.00970874	5.8865
August, 97	273.81	235.00	-16.514894	-17.0134	November, 99	128.75	132.00	2.462121212	-9.5409
September, 97	235.00	249.00	5.62248996	12.8768	December, 99	132.00	108.00	-22.22222222	0.1025
October, 97	249.00	223.50	-11.409396	-13.9291	January, 00	108.00	107.00	-0.934579439	-0.9743
November, 97	223.50	200.00	-11.75	-10.2064	February, 00	107.00	110.50	3.167420814	1.4223
December, 97	200.00	200.00	0	4.2483	March, 00	110.50	114.50	3.493449782	4.5801
January, 98	200.00	232.00	13.7931034	-1.4532	April, 00	114.50	107.50	-6.511627907	0.4293
February, 98	232.00	209.60	-10.687023	-10.289	May, 00	107.50	109.00	1.376146789	3.7736
March, 98	209.60	234.00	10.4273504	-5.2716	June, 00	109.00	118.00	7.627118644	5.3155
April, 98	234.00	214.00	-9.3457944	-11.6819	July, 00	118.00	110.00	-7.272727273	11.4716
May, 98	214.00	223.00	4.03587444	5.6083	August, 00	110.00	111.00	0.900900901	3.2833
June, 98	223.00	225.00	0.88888889	9.282	September, 00	111.00	112.50	1.333333333	-6.0542
July, 98	225.00	220.00	-2.2727273	-13.2641	October, 00	112.50	111.00	-1.351351351	3.2463
Average			0.5144		Average			-3.5527	

Regression Analysis (Federal Insurance)

	0.5983917						0.3140213					
	0.3580726						0.0986094					
	0.3288941						0.0576371					
	11.166211						12.521375					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1530.0991	1530.0991	12.27178985	0.002009045		1	377.33927	377.33927	2.4067333	0.13508187
	22	2743.0539	124.68427				22	3449.2662	156.78483		
	23	4273.153					23	3826.6055			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	1.0508421	2.284432	0.4600	0.650029058	-3.6867848	5.7884691		-3.828816	2.5621032	-1.4944	0.1492762	-9.14229871	1.484666536
X Variable 1	0.8918639	0.2545919	3.5031	0.002009045	0.3638719	1.4198558	X Variable 1	0.7855364	0.5063518	1.5513	0.1350819	-0.26457404	1.835646944

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.70

Purabi General Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	130.00	131.00	0.76335878	0.8388	November, 98	90.00	72.50	-24.13793103	-4.6632
September, 95	131.00	129.72	-0.9867407	6.9612	December, 98	72.50	90.00	19.44444444	-4.2483
October, 95	129.72	143.00	9.28671329	6.0609	January, 99	90.00	81.00	-11.11111111	0.3221
November, 95	143.00	137.00	-4.379562	-5.2456	February, 99	81.00	80.00	-1.25	-0.81
December, 95	137.00	147.00	6.80272109	-1.0842	March, 99	80.00	80.00	0	-3.7122
January, 96	147.00	120.00	-22.5	-7.3371	April, 99	80.00	83.25	3.903903904	-7.6662
February, 96	120.00	131.00	8.39694656	2.1486	May, 99	83.25	83.25	0	7.2802
March, 96	131.00	131.00	0	1.4127	June, 99	83.25	85.00	2.058823529	6.6205
April, 96	131.00	111.00	-18.018018	2.5128	July, 99	85.00	82.75	-2.719033233	-3.2849
May, 96	111.00	109.00	-1.8348624	2.7519	August, 99	82.75	100.50	17.66169154	-3.2714
June, 96	109.00	124.59	12.5130428	10.3394	September, 99	100.50	100.00	-0.5	-1.073
July, 96	124.59	271.04	54.0326151	17.2977	October, 99	100.00	102.00	1.960784314	5.8865
August, 97	122.00	113.67	-7.3282308	-17.0134	November, 99	102.00	100.00	-2	-9.5409
September, 97	113.67	105.29	-7.9589705	12.8768	December, 99	100.00	90.50	-10.49723757	0.1025
October, 97	105.29	106.00	0.66981132	-13.9291	January, 00	90.50	100.00	9.5	-0.9743
November, 97	106.00	92.33	-14.805589	-10.2064	February, 00	100.00	90.00	-11.11111111	1.4223
December, 97	92.33	92.33	0	4.2483	March, 00	90.00	90.00	0	4.5801
January, 98	92.33	100.00	7.67	-1.4532	April, 00	90.00	91.00	1.098901099	0.4293
February, 98	100.00	96.90	-3.1991744	-10.289	May, 00	91.00	85.00	-7.058823529	3.7736
March, 98	96.90	100.00	3.1	-5.2716	June, 00	85.00	88.75	4.225352113	5.3155
April, 98	100.00	100.00	0	-11.6819	July, 00	88.75	111.00	20.04504505	11.4716
May, 98	100.00	91.00	-9.8901099	5.6083	August, 00	111.00	108.00	-2.777777778	3.2833
June, 98	91.00	89.00	-2.247191	9.282	September, 00	108.00	106.00	-1.886792453	-6.0542
July, 98	89.00	90.00	1.11111111	-13.2641	October, 00	106.00	100.00	-6	3.2463
Average			0.4666		Average			-0.0480	

Regression Analysis (Purabi General Insurance)

	0.4506428						0.1498647					
	0.2030789						0.0224594					
	0.1668552						-0.021974					
	12.976189						10.052988					
	24						24					

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F	
	1	943.98823	943.98823	5.606246935	0.02710747		1	51.08306	51.08306	0.5054598	0.48458097	
	22	3704.3928	168.38149				22	2223.3764	101.06256			
	23	4648.3811					23	2274.4594				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.8879481	2.6547252	0.3344	0.741186426	-4.6176209	6.3935172		-0.149536	2.0570259	-0.0726	0.9427053	-4.41555165	4.116478776
X Variable 1	0.7005225	0.2958598	2.3677	0.02710747	0.0869461	1.3140989	X Variable 1	0.2890273	0.4065327	0.7109	0.484581	-0.55407089	1.132125396

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.71

BGIC

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	340.00	339.00	-0.2949853	0.8388	November, 98	348.17	281.00	-23.90391459	-4.6632
September, 95	339.00	336.00	-0.8928571	6.9612	December, 98	281.00	267.25	-5.144995323	-4.2483
October, 95	336.00	355.00	5.35211268	6.0609	January, 99	267.25	285.00	6.228070175	0.3221
November, 95	355.00	330.00	-7.5757576	-5.2456	February, 99	285.00	227.00	-25.55066079	-0.81
December, 95	330.00	315.00	-4.7619048	-1.0842	March, 99	227.00	260.00	12.69230769	-3.7122
January, 96	315.00	290.00	-8.6206897	-7.3371	April, 99	260.00	278.00	6.474820144	-7.6662
February, 96	290.00	300.00	3.33333333	2.1486	May, 99	278.00	285.50	2.626970228	7.2802
March, 96	300.00	300.00	0	1.4127	June, 99	285.50	311.75	8.4202085	6.6205
April, 96	300.00	300.00	0	2.5128	July, 99	311.75	265.00	-17.64150943	-3.2849
May, 96	300.00	295.00	-1.6949153	2.7519	August, 99	265.00	222.25	-19.23509561	-3.2714
June, 96	295.00	370.00	20.2702703	10.3394	September, 99	222.25	222.00	-0.112612613	-1.073
July, 96	370.00	560.00	33.9285714	17.2977	October, 99	222.00	280.00	20.71428571	5.8865
August, 97	497.76	374.43	-32.938066	-17.0134	November, 99	280.00	235.00	-19.14893617	-9.5409
September, 97	374.43	394.67	5.12833506	12.8768	December, 99	235.00	210.00	-11.9047619	0.1025
October, 97	394.67	355.00	-11.174648	-13.9291	January, 00	210.00	221.00	4.977375566	-0.9743
November, 97	355.00	348.75	-1.7921147	-10.2064	February, 00	221.00	240.00	7.916666667	1.4223
December, 97	348.75	348.75	0	4.2483	March, 00	240.00	240.00	0	4.5801
January, 98	348.75	360.00	3.125	-1.4532	April, 00	240.00	250.00	4	0.4293
February, 98	360.00	340.00	-5.8823529	-10.289	May, 00	250.00	271.00	7.749077491	3.7736
March, 98	340.00	349.50	2.71816881	-5.2716	June, 00	271.00	235.25	-15.19659936	5.3155
April, 98	349.50	341.00	-2.4926686	-11.6819	July, 00	235.25	229.75	-2.39390642	11.4716
May, 98	341.00	311.00	-9.6463023	5.6083	August, 00	229.75	232.00	0.969827586	3.2833
June, 98	311.00	337.00	7.71513353	9.282	September, 00	232.00	235.00	1.276595745	-6.0542
July, 98	337.00	348.17	3.20820289	-13.2641	October, 00	235.00	237.00	0.843881857	3.2463
Average			-0.1245		Average			-2.3060	

Regression Analysis (BGIC)

	0.7141939						0.3471637				
	0.5100729						0.1205226				
	0.4878035						0.0805464				
	8.4676263						11.769101				
	24						24				

	df	SS	MS	F	Significance F		df	SS	MS	F	Significance F
	1	1642.2787	1642.2787	22.90464152	8.85945E-05		1	417.59297	417.59297	3.0148564	0.09648996
	22	1577.4153	71.700696				22	3047.258	138.51173		
	23	3219.694					23	3464.851			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
	0.4312757	1.7323438	0.2489	0.805705045	-3.1613893	4.0239407		-2.596397	2.4081741	-1.0781	0.2926424	-7.59065023	2.397855273
X Variable 1	0.9239793	0.1930636	4.7858	8.85945E-05	0.5235893	1.3243692	X Variable 1	0.8263745	0.4759306	1.7363	0.09649	-0.16064613	1.813395225

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 6.72

Karnaphuli Life Insurance

Before Automation					After Automation				
Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm	Month	Opening Price (Tk.)	Closing Price (Tk.)	Return (%)	Rm
August, 95	150.00	152.00	1.31578947	0.8388	November, 98	196.02	147.25	-33.12054329	-4.6632
September, 95	152.00	150.00	-1.33333333	6.9612	December, 98	147.25	142.00	-3.697183099	-4.2483
October, 95	150.00	154.95	3.1945789	6.0609	January, 99	142.00	141.00	-0.709219858	0.3221
November, 95	154.95	156.00	0.67307692	-5.2456	February, 99	141.00	135.00	-4.444444444	-0.81
December, 95	156.00	152.00	-2.6315789	-1.0842	March, 99	135.00	136.50	1.098901099	-3.7122
January, 96	152.00	140.00	-8.5714286	-7.3371	April, 99	136.50	136.50	0	-7.6662
February, 96	140.00	142.00	1.4084507	2.1486	May, 99	136.50	134.25	-1.675977654	7.2802
March, 96	142.00	142.00	0	1.4127	June, 99	134.25	154.25	12.96596434	6.6205
April, 96	142.00	141.00	-0.7092199	2.5128	July, 99	154.25	146.00	-5.650684932	-3.2849
May, 96	141.00	135.86	-3.7833063	2.7519	August, 99	146.00	145.25	-0.516351119	-3.2714
June, 96	135.86	157.32	13.6409865	10.3394	September, 99	145.25	125.00	-16.2	-1.073
July, 96	157.32	277.79	43.3672918	17.2977	October, 99	125.00	130.00	3.846153846	5.8865
August, 97	205.00	166.86	-22.857485	-17.0134	November, 99	130.00	124.75	-4.208416834	-9.5409
September, 97	166.86	200.00	16.57	12.8768	December, 99	124.75	120.00	-3.958333333	0.1025
October, 97	200.00	186.38	-7.307651	-13.9291	January, 00	120.00	122.00	1.639344262	-0.9743
November, 97	186.38	177.50	-5.0028169	-10.2064	February, 00	122.00	118.00	-3.389830508	1.4223
December, 97	177.50	177.50	0	4.2483	March, 00	118.00	125.25	5.788423154	4.5801
January, 98	177.50	179.00	0.83798883	-1.4532	April, 00	125.25	128.25	2.339181287	0.4293
February, 98	179.00	163.39	-9.5538283	-10.289	May, 00	128.25	128.00	-0.1953125	3.7736
March, 98	163.39	169.22	3.44521924	-5.2716	June, 00	128.00	138.25	7.414104882	5.3155
April, 98	169.22	167.50	-1.0268657	-11.6819	July, 00	138.25	149.00	7.214765101	11.4716
May, 98	167.50	174.65	4.09390209	5.6083	August, 00	149.00	137.00	-8.759124088	3.2833
June, 98	174.65	182.00	4.03846154	9.282	September, 00	137.00	131.00	-4.580152672	-6.0542
July, 98	182.00	196.02	7.15233139	-13.2641	October, 00	131.00	132.00	0.757575758	3.2463
Average			1.5400		Average			-2.0017	

Regression Analysis (Karnaphuli Life Insurance)

0.7227669						0.4792635							
0.5223919						0.2296935							
0.5006825						0.1946795							
8.316404						7.9568134							
24						24							
Df	SS	MS	F	Significance F		df	SS	MS	F	Significance F			
1	1664.2503	1664.2503	24.06287297	6.62649E-05		1	415.32313	415.32313	6.5600594	0.01780604			
22	1521.5767	69.162576				22	1392.8394	63.31088					
23	3185.8269					23	1808.1625						
Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%		
2.0995102	1.7014061	1.2339	0.23022876	-1.4289938	5.6280142	-2.291368	1.6281101	-1.4073	0.1732874	-5.6678651	1.085129701		
X Variable 1	0.9301396	0.1896157	4.9053	6.62649E-05	0.5369001	1.323379	X Variable 1	0.8241256	0.3217655	2.5612	0.017806	0.15682401	1.491427175

Source: Compiled from various issues of Dhaka Stock Exchange Monthly Review.

Appendix Table 7.1

Sample Selection of the Study

Sl. No.	Code No.	Company	Dividend (Tk.)	FV/ML	Announcement Date
1	702	Green Delta Insurance	35	100/10	18.7.99
2	705	Eastern Insurance	20	100/20	20.7.99
3	712	National Life Insurance	22	100/50	31.7.99
4	709	Central Life Insurance	15	100/20	9.9.99
5	708	Esland Insurance	16	100/20	22.8.99
6	451	Ambee Pharma	1	10/50	09.9.99
7	711	Rupali Insurance	15	100/20	14.9.99
8	710	Karnofuli Insurance	15	100/20	27.9.99
9	716	Delta Life Insurance	36	100/5	30.9.99
10	602	Aramit	2.5	10/50	30.10.99
11	152	1st ICB Mutual Fund	100	100/5	04.11.99
12	153	2nd ICB Mutual Fund	32	100/5	04.11.99
13	154	3rd ICB Mutual Fund	38	100/5	04.11.99
14	155	4th ICB Mutual Fund	35	100/10	04.11.99
15	156	5th ICB Mutual Fund	20	100/10	04.11.99
16	157	6th ICB Mutual Fund	15	100/10	04.11.99
17	158	7th ICB Mutual Fund	13	100/50	04.11.99

Sample Selection of the Study

Sl. No.	Code No.	Company	Dividend (Tk.)	FV/ML	Announcement Date
18	159	8th ICB Mutual Fund		100/50	04.11.99
19	151	ICB	7	100/5	04.11.99
20	408	Style Craft	22.5	100/50	11.11.99
21	209	Munno Staflar	10	100/5	29.11.99
22	415	Desh Gurments	7.5	100/10	2.12.99
23	713	Federal Insurance	12	100/50	4.12.99
24	428	Mithun Kniting	12	100/20	3.12.99
25	277	AMCL (Pran)	20	100/10	9.12.99
26	471	Libra Pharma	15	100/20	9.12.99
27	620	Estarn Housing	12	100/20	23.12.99
28	412	Saiham Textile	10	100/5	23.12.99
29	278	Dhaka Fisheries	5	100/50	23.12.99
30	413	Modern Dying	5	100/5	23.12.99
31	275	Meghna Shrimp	12	100/20	26.12.99
32	609	The Engineers	10	100/5	25.12.99
33	356	Mutual Jute	15	100/5	26.12.99
34	282	Gulf Food	10	100/50	28.12.99
35	706	Janata Insurance	25	100/20	29.12.99

Sample Selection of the Study

Sl. No.	Code No.	Company	Dividend (Tk.)	FV/ML	Announcement Date
36	715	Purobi General Insurance	5	100/50	30.01.2000
37	718	Sandani Life Insurance	10	100/50	31.01.2000
38	303	Estart Lubricant	2.5	10/50	11.3.2000
39	464	The Ibsina	15	100/10	23.3.2000
40	608	Usmania Glass	10	100/5	14.4.2000
41	506	Paper Processing	5	100/10	30.4.2000
42	454	Glaxo Welcome	3.25	10/50	7.5.2000
43	113	United Leasing	27	100/20	18.5.2000
44	703	United Insurance	22	100/10	22.5.2000
45	433	Beximco Denims	10	100/50	17.6.2000
46	468	Beximco Infusion	15	100/10	17.6.2000
47	422	Beximco Knitting	10	100/20	22.6.2000
48	470	Beximco Synthetics	12.5	100/20	25.6.2000
49	273	Beximco Fisheries	5	100/20	25.6.2000
50	622	Meghna Cement	11	100/50	27.6.2000

Source: Compiled from the various issues of Stock Exchange Review and different *Annual Report* of DSE.

Appendix Table 7.2

Security Prices in Observation Period

Company	Divident	FV/ML	Announcement Date	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Green Delta Insurance	Tk.35	100/10	18.7.99	450	450	450	450	450	440	440	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5
Estern Insurance	Tk.20	100/20	20.7.99	175	170	170	159.25	151	151	151	151	151.25	151	151	151	151	151	151	151	151
National Life Insurance	22	100/50	31.7.99	210	210	210	210	210	210	210	190	190	190	180.25	180.25	180.25	165	171.5	167	167
Central Life Insurance	15	100/20	9.9.99	160.5	160.5	155	140	140	140	140	140	140	140	140	140	135	135	135	135	135
Esland Insurance	16	100/20	22.8.99	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	160
Ambee Pharmaceuticals	1	Oct-50	9.9.99	33.8	34	33.8	33.7	33	33	33	32.7	31.9	32.9	32.1	32.4	32	32.9	32	32	32.6
Rupali Insurance	15	100/20	14.9.99	205	200	200	200	203	206.5	209	209	200	200	200	200	200	200	200	185	185
Karnofuli Insurance	15	100/20	27.9.99	127	127	127	127	134.25	134.25	126	124.75	124	134	125	125	125	127.75	126	126	123.25
Delta Life Insurance	36	100/5	30.9.99	523	530	535	517.5	517.5	517.5	517.5	517.5	481	483.75	483.75	483.75	494.75	498.25	498.25	495	507.25
Aramit	2.5	Oct-50	30.10.99	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1
1st ICB Mutual Fund	100	100/5	4.11.99	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.75	1067.8	1067.75
2nd ICB Mutual Fund	32	100/5	4.11.99	360	360	353.25	350	347.25	347.25	350	350	350	350	350	349	349	350	350	350	350
3rd ICB Mutual Fund	38	100/5	4.11.99	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
4th ICB Mutual Fund	35	100/10	4.11.99	272	275	280	280	290	290	290	290	310	310	310	310	310	310	310	310	310
5th ICB Mutual Fund	20	100/10	4.11.99	190	190	190	190	174.5	176.75	176.75	176.75	176.75	187.5	187.5	187	187	187.5	187.5	187.5	195
6th ICB Mutual Fund	15	100/10	4.11.99	141.75	141.75	141.75	141.75	142	142	142	142	132	135.5	136.25	137	137	138.75	136	136.25	135.75
7th ICB Mutual Fund	13	100/50	4.11.99	120.75	120.75	120.75	120.75	115	120	120	120	120	113	110.5	110.75	110.75	110.75	113	109	107.75

Appendix Table 7.2 (Cont.)

Security Prices in Observation Period

Company	Divident	FV/ML	Announcement Date	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
8th ICB Mutual Fund			4.11.99	105.75	106.25	108.25	110.25	110	107	108	108	105	105	104.75	105.25	105.25	105.25	105.5	105	104
ICB	7	100/5	4.11.99	115	115	150	150	150	150	150	150	150	150	150	150	150	164	164	164	164
Style Craft	22.5	100/50	11.11.99	1200	1200	1200	1200	1200	1200	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Munno Staflar	10	100/5	29.11.99			261	235	235	235	226.25	235	235	235	235	235	243.25	243.25	243.25	260	280
Desh Gurments	7.5	100/10	2.12.99	97	96.75	96.75	96.75	96.75	96.75	88	80	80	80	80	80	80	80	80	84	78.25
Federal Insurance	12	100/50	4.12.99	128.75	128.75	128.75	128.75	112.5	112.5	110	121	121	132	132	132	132	132	132	132	114.5
Mithun Kniting	12	100/20	3.12.99	71.75	70.25	68.5	67.5	68.25	69	68.25	67.5	68	69.75	68.75	70.25	70.25	67.75	65.25	64.25	64.5
AMCL (Pran)	20	100/10	9.12.99	267.25	263	263.5	259	252.75	261.75	265	268	268.25	263	259	260.75	258.5	254.5	259.5	258	260
Libra Pharma	15	100/20	9.12.99	280	299.75	250.75	231	230	230	240	240	240	240	240	240	240	240	240	240	240
Estarn Housing	12	100/20	23.12.99	109.5	108.25	107.5	106.75	106.75	106	106	106.25	106	106.75	106	106.5	106.75	106.75	106.25	106	106
Saiham Textile	10	100/5	23.12.99	89.25	88.5	86	82.5	84	81.25	84.75	84	86	85.75	82.5	82.5	83	80	81.75	80.5	80
Dhaka Fisheries	5	100/50	23.12.99	135	140.5	136.75	134.25	136	134.5	140.25	134.5	135.5	134	128.5	129.75	124.25	120.5	118.5	113.5	115.75
Modern Dying	5	100/5	23.12.99	109.75	109.75	109.75	109.75	101	104.25	100	105	105	105	105	105	101.25	105.5	96.5	96.5	102.5
Meghna Shrimp	12	100/20	26.12.99	97	96.25	95	90.5	90.25	90.5	92	92.25	92	101	97	86.5	82.75	81.75	78.5	79.5	80
The Engineers	10	100/5	25.12.99	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Mutual Jute	15	100/5	26.12.99	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143
Gulf Food	10	100/50	28.12.99	133	136.75	133	133.25	130	129.75	130.75	131.5	133.75	131.5	131.5	131.5	128.75	128.25	126.75	127.25	130
Janata Insurance	25	100/20	29.12.99	170	170	170	158	158	158	158	151	151	151	151	160	155	155	155	150	149
Purobi General Insurance	5	100/50	30.01.2000	96	96	96	96	96	96	96	96	96	96	96	96	100	100	100	100	100

Appendix Table 7.2 (Cont.)

Security Prices in Observation Period

Company	Divident	FV/ML	Announcement Date	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Sandani Life Insurance	10	100/50	31.01.2000	115	115	115	115	115	120	120	120	120	120	120	120	120	120	120	120	120
Estarn Lubricant	2.5	Oct-50	11.3.2000	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
The Ibsina	15	100/10	23.3.2000	176.75	177.25	180	175	171.5	175.5	175.25	175.25	175.25	175.25	175.25	175.25	175.25	175.25	175.25	159.5	159.5
Usmania Glass	10	100/5	14.4.2000	211.5	207.5	207.5	207	207	205	210	209.25	208	206.5	206.5	206.5	212	210.75	213.75	214.5	215
Paper Processing	5	100/10	30.4.2000	66.75	65.25	64	63.75	63	64	64	64	63.5	63.25	63	62.75	61.75	61	63.25	62.75	63
Glaxo Wellcome	3.25	Oct-50	7.5.2000	107.5	107.5	102.3	103	103	103	103	100	100	100	100	100	100	100	100	100	100
United Leasing	27	100/20	18.5.2000	537.25	537.25	537.25	537.25	537.25	547.5	570	570	570	580	580	580	627.75	635.75	632.5	632.5	632.5
United Insurance	22	100/10	22.5.2000	225.25	225.25	226.25	226.25	222.25	210	220	220	203.75	213.25	207.75	209	211.5	211.5	214	214	214
Beximco Denims	10	100/50	17.6.2000	137.75	139	139.75	140.75	140.5	138	138	140.25	141.25	141.75	142.5	143	143.25	144.5	145.5	145.75	146.25
Beximco Infusion	15	100/10	17.6.2000	226	230	235	236.25	230.5	230.5	230.5	235	238.5	240	242.25	243.5	243	246.5	249	251.15	251.25
Beximco Kniting	10	100/20	22.6.2000	105.5	106.25	107	106.5	107	105.75	106.25	106.25	107.25	106.5	107.75	109	108.25	107.75	108.5	108.5	110.25
Beximco Synthetics	12.5	100/20	25.6.2000	124.5	125.5	124	123	123	124	124.75	125.75	125.75	130.25	131.75	137.25	134.25	137.25	140	137.5	134.25
Beximco Fisherish	5	100/20	25.6.2000	68.5	68.75	68.25	69	69.5	69.75	70	71	70	69.75	73.25	75.25	76.25	77	79.75	83.25	82.25
Meghna Cement	11	100/50	27.6.2000	232.5	209	217	234	245.75	230.5	224	231	232	230.5	234	239	243.75	247.75	241	250.75	263.75

Source : Compiled from various issues of Dhaka Stock Exchange Monthly Review and different *Annual Reports* of DSE.

Appendix Table 7.3

Securities Prices in Comparison Period

Company	Dividend	FV/ML	Date	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8	+ 9	+ 10	+ 11	+ 12	+ 13	+ 14	+ 15
Green Delta Insurance	Tk.35	100/10	18.7.99	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	397.5	371	371	371
Estern Insurance	Tk.20	100/20	20.7.99	151	151	151	150	150	150	150	150	150	150	150	150	150	141.5	141.5
National Life Insurance	22	100/50	31.7.99	184	184	184	184	184	184	185.25	188.75	188.75	188.75	188.75	188.75	188.75	188.75	199.5
Central Life Insurance	15	100/20	9.9.99	135	135	135	131.5	131.5	130.75	132	132	132	132	132	132	132	132	132
Esland Insurance	16	100/20	22.8.99	160	160	160	160	160	160	160	160	145	145	148	148	148	148	148
Ambee Pharma	1	Oct-50	09.9.99	31.9	31.7	31.4	31.5	31.1	31.1	31.3	31.4	31.3	30.3	30.2	30.2	30.2	29.7	29.5
Rupali Insurance	15	100/20	14.9.99	185	187	187	187	187	187	187	187	187	187	187	187	187	170	170
Karnofuli Insurance	15	100/20	27.9.99	123.5	123.5	123.5	123.5	125	125	123.5	124	124	124	124	126.25	128.75	129.75	128
Delta Life Insurance	36	100/5	30.9.99	506	509.25	513.5	520	523.25	523.75	529	528	528	531	528.25	530	523.25	523	523
Aramit	2.5	Oct-50	30.10.99	44.5	45	45.4	44.8	53.4	63.2	62.5	74.4	86.5	69.2	59.8	61.9	58	55.96	
1st ICB Mutual Fund	100	100/5	04.11.99	1067.75	1067.75	1067.75	1067.75	990	990	990	990	990	990	1016	1016.25	1016.25	1016.25	1016.25
2nd ICB Mutual Fund	32	100/5	04.11.99	350	350	350	350	350	350	350	350	350	350	340	340	320	320	320
3rd ICB Mutual Fund	38	100/5	04.11.99	400	400	400	400	360	350	340	328.25	328.25	328.25	325.75	325.75	310	310	310
4th ICB Mutual Fund	35	100/10	04.11.99	310	310	280	280	279	279	275.75	275.75	275.75	275.75	275.75	275.75	275.75	275.75	275.75
5th ICB Mutual Fund	20	100/10	04.11.99	195	195	195	185.25	185.25	180.25	183	183	183	183	183	183	175.25	175.25	175.25
6th ICB Mutual Fund	15	100/10	04.11.99	135.75	135	135	130	130.25	128.5	129.25	129.25	130	130	133	130	133.25	135	135

Appendix Table 7.3 (Cont.)

Securities Prices in Comparison Period

Company	Dividend	FV/ML	Date	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8	+ 9	+ 10	+ 11	+ 12	+ 13	+ 14	+ 15
7th ICB Mutual Fund	13	100/50	04.11.99	107.25	107	109.25	109.25	108	108	108	108.5	108.5	108.5	109	109	109	113	112.25
8th ICB Mutual Fund			04.11.99	144	104	105.25	106	106.75	106	106.5	107.5	106.25	107.25	106.75	107	109.5	108	108.75
ICB	7	100/5	04.11.99	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
Style Craft	22.5	100/50	11.11.99	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1260	1260	1185	1185
Munno Staflar	10	100/5	29.11.99	251	251	251	237	231	226.75	226.75	226.75	226.75	226.75	226.75	226.75	226.75	226.75	226.75
Desh Gurments	7.5	100/10	2.12.99	73.5	78.75	78.75	78.75	78.75	78.75	78.75	73.25	73.25	73.25	73	73	80	80	80
Federal Insurance	12	100/50	4.12.99	114.5	109.5	109.5	109.5	109.5	114	114	114	114	109	109	109	109	108	108
Mithun Kniting	12	100/20	3.12.99	63	63	64.25	63	62.25	61.75	61.75	61.75	60.5	61.5	59.75	60	59	61	62.75
AMCL (Pran)	20	100/10	9.12.99	258	257	257.75	258.75	254.75	251	244.75	248.75	247.75	250	253.25	256.75	258.75	265.25	261.75
Libra Pharma	15	100/20	9.12.99	240	240	225.25	225	225	225.25	245	245	245	230	250	250	244	244	244
Estarn Housing	12	100/20	23.12.99	106.5	106.5	107.5	107.25	108.25	107.75	108.5	109.25	107.75	107.75	113.75	111.75	112.75	112.5	112.5
Saiham Textile	10	100/5	23.12.99	80.5	82.75	83.5	82.75	84	85.5	85.25	84.75	85	87.5	86.75	86.25	86.25	86	85.75
Dhaka Fisheries	5	100/50	23.12.99	119.25	117.75	124	120	122.25	142.5	141.5	141.5	139.25	149.25	145.5	143.75	137	135.25	132.75
Modern Dying	5	100/5	23.12.99	102.5	102.5	100.75	107	105.5	106.25	106.25	106.25	106.25	100.5	106.75	109	109	106.75	106.25
Meghna Shrimp	12	100/20	26.12.99	79.75	80.25	81	81.75	82.75	84	83.75	85.75	88	85.5	85.25	84.75	84.5	84	84
The Engineers	10	100/5	25.12.99	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Mutual Jute	15	100/5	26.12.99	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143
Gulf Food	10	100/50	28.12.99	128.35	129.5	147.25	156.25	153.25	153.75	148	148.25	147.5	148.25	147.75	146	145.75	143.25	139

Appendix Table 7.3 (Cont.)

Securities Prices in Comparison Period

Company	Dividend	FV/ML	Date	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8	+ 9	+ 10	+ 11	+ 12	+ 13	+ 14	+ 15
Janata Insurance	25	100/20	29.12.99	150	150	150	150	142	142	142	141.75	141.75	139.5	145.75	143.25	143.25	143.25	143.25
Purobi General Insurance	5	100/50	30.01.2000	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90
Sandani Life Insurance	10	100/50	31.01.2000	120	120	120	120	120	120	108	108	108	108	108	108	108	108	108
Estarn Lubricant	2.5	Oct-50	11.3.2000	136	136	136	136	136	136	136	136	136	137.5	137	137	137	137.5	137.5
The Ibsina	15	100/10	23.3.2000	159.5	157	157	159.75	162.75	162.75	162.75	160	162.5	160.25	160	161.75	161.75	167	165
Usmania Glass	10	100/5	14.4.2000	226.5	244.75	235	226.75	227.5	228.25	239.75	234.25	238	235.5	235	240	227.5	230.25	233
Paper Processing	5	100/10	30.4.2000	60.75	61.5	61.5	61.25	61.5	61	61	60.25	60.25	60.75	61	60.5	60.5	60.5	60.25
Glaxo Wellcome	3.25	Oct-50	7.5.2000	100	100	99	99	102.5	102.5	100	100.6	100.7	104.7	105	110.7	115.3	126	129.5
United Leasing	27	100/20	18.5.2000	628.25	622.25	622.25	622.25	622.25	623	623	600	576	546.25	562.25	599	599	615	615
United Insurance	22	100/10	22.5.2000	213	217.5	219.75	221	220	221	220	221.25	221.25	217	221.5	222.25	220.25	218.5	222
Beximco Denims	10	100/50	17.6.2000	151.5	149.75	148.25	150.5	152.25	152.75	150.75	147.75	148.75	147.25	146.5	148.75	150.5	152.5	159.75
Beximco Infusion	15	100/10	17.6.2000	256.5	261.25	268.25	271.5	311	290.5	296.25	285.5	298	288	293	288.5	292	300	308.5
Beximco Kniting	10	100/20	22.6.2000	110.5	109.5	109.75	111.25	111.25	110.5	111.75	111.75	114	116.25	126	143.75	172.25	156.75	159.75
Beximco Synthetics	12.5	100/20	25.6.2000	138.5	137.75	138	136.25	136.25	138.25	140.5	143.25	145.75	159	188.5	222.75	187	200	213.25
Beximco Fisherish	5	100/20	25.6.2000	85.5	90.75	94	92.75	92.75	93.25	50	94.25	99.75	104.25	114	136.5	110	110	119.5
Meghna Cement	11	100/50	27.6.2000	257.5	258.25	258.25	269.25	278.75	293	308	309.25	398	466	398.25	459	525	528	527

Source : Compiled from various issues of Dhaka Stock Exchange Monthly Review and different Annual Reports of DSE.

Appendix Table 7.4

Calculation of Return (Observation Period)

Company	r-15	r-14	r-13	r-12	r-11	r-10	r-9	r-8	r-7	r-6	r-5	r-4	r-3	r-2	r-1	r-0
Green Delta Insurance	0.00	0.00	0.00	0.00	-2.22	0.00	-9.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estern Insurance	-2.86	0.00	-6.32	-5.18	0.00	0.00	0.00	0.17	-0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Life Insurance	0.00	0.00	0.00	0.00	0.00	0.00	-9.52	0.00	0.00	-5.13	0.00	0.00	-8.46	3.94	-2.62	0.00
Central Life Insurance	0.00	-3.43	-9.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.57	0.00	0.00	0.00	0.00
Esland Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.44
Ambee Pharmaceuticals	0.59	-0.59	-0.30	-2.08	0.00	0.00	-0.91	-2.45	3.13	-2.43	0.93	-1.23	2.81	-2.74	0.00	1.88
Rupali Insurance	-2.44	0.00	0.00	1.50	1.72	1.21	0.00	-4.31	0.00	0.00	0.00	0.00	0.00	0.00	-7.50	0.00
Karnofuli Insurance	0.00	0.00	0.00	5.71	0.00	-6.15	-0.99	-0.60	8.06	-6.72	0.00	0.00	2.20	-1.37	0.00	-2.18
Delta Life Insurance	1.34	0.94	-3.27	0.00	0.00	0.00	0.00	-7.05	0.57	0.00	0.00	2.27	0.71	0.00	-0.65	2.47
Aramit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1st ICB Mutual Fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd ICB Mutual Fund	0.00	-1.88	-0.92	-0.79	0.00	0.79	0.00	0.00	0.00	0.00	-0.29	0.00	0.29	0.00	0.00	0.00
3rd ICB Mutual Fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4th ICB Mutual Fund	1.10	1.82	0.00	3.57	0.00	0.00	0.00	6.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5th ICB Mutual Fund	0.00	0.00	0.00	-8.16	1.29	0.00	0.00	0.00	6.08	0.00	-0.27	0.00	0.27	0.00	0.00	4.00
6th ICB Mutual Fund	0.00	0.00	0.00	0.18	0.00	0.00	0.00	-7.04	2.65	0.55	0.55	0.00	1.28	-1.98	0.18	-0.37
7th ICB Mutual Fund	0.00	0.00	0.00	-4.76	4.35	0.00	0.00	0.00	-5.83	-2.21	0.23	0.00	0.00	2.03	-3.54	-1.15
8th ICB Mutual Fund	0.47	1.88	1.85	-0.23	-2.73	0.93	0.00	-2.78	0.00	-0.24	0.48	0.00	0.00	0.24	-0.47	-0.95
ICB	0.00	30.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.33	0.00	0.00	0.00
Style Craft	0.00	0.00	0.00	0.00	0.00	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Munno Staflar	0.00	0.00	-9.96	0.00	0.00	-3.72	3.87	0.00	0.00	0.00	0.00	3.51	0.00	0.00	6.89	7.69
Desh Gurments	-0.26	0.00	0.00	0.00	0.00	-9.04	-9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	-6.85
Federal Insurance	0.00	0.00	0.00	-12.62	0.00	-2.22	10.00	0.00	9.09	0.00	0.00	0.00	0.00	0.00	0.00	-13.26
Mithun Kniting	-2.09	-2.49	-1.46	1.11	1.10	-1.09	-1.10	0.74	2.57	-1.43	2.18	0.00	-3.56	-3.69	-1.53	0.39
AMCL (Pran)	-1.59	0.19	-1.71	-2.41	3.56	1.24	1.13	0.09	-1.96	-1.52	0.68	-0.86	-1.55	1.96	-0.58	0.78
Libra Pharma	7.05	-16.35	-7.88	-0.43	0.00	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix Table 7.4 (Cont.)

Calculation of Return (Observation Period)

Company	r-15	r-14	r-13	r-12	r-11	r-10	r-9	r-8	r-7	r-6	r-5	r-4	r-3	r-2	r-1	r-0
Estarn Housing	-1.14	-0.69	-0.70	0.00	-0.70	0.00	0.24	-0.24	0.71	-0.70	0.47	0.23	0.00	-0.47	-0.24	0.00
Saiham Textile	-0.84	-2.82	-4.07	1.82	-3.27	4.31	-0.88	2.38	-0.29	-3.79	0.00	0.61	-3.61	2.19	-1.53	-0.62
Dhaka Fisheries	4.07	-2.67	-1.83	1.30	-1.10	4.28	-4.10	0.74	-1.11	-4.10	0.97	-4.24	-3.02	-1.66	-4.22	1.98
Modern Dying	0.00	0.00	0.00	-7.97	3.22	-4.08	5.00	0.00	0.00	0.00	0.00	-3.57	4.20	-8.53	0.00	6.22
Meghna Shrimp	-0.77	-1.30	-4.74	-0.28	0.28	1.66	0.27	-0.27	9.78	-3.96	-10.82	-4.34	-1.21	-3.98	1.27	0.63
The Engineers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutual Jute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gulf Food	2.82	-2.74	0.19	-2.44	-0.19	0.77	0.57	1.71	-1.68	0.00	0.00	-2.09	-0.39	-1.17	0.39	2.16
Janata Insurance	0.00	0.00	-7.06	0.00	0.00	0.00	-4.43	0.00	0.00	0.00	5.96	-3.13	0.00	0.00	-3.23	-0.67
Purobi General Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.17	0.00	0.00	0.00	0.00
Sandani Life Insurance	0.00	0.00	0.00	0.00	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estarn Lubricant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
The Ibsina	0.28	1.55	-2.78	-2.00	2.33	-0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.99	0.00
Usmania Glass	-1.89	0.00	-0.24	0.00	-0.97	2.44	-0.36	-0.60	-0.72	0.00	0.00	2.66	-0.59	1.42	0.35	0.23
Paper Processing	-2.25	-1.92	-0.39	-1.18	1.59	0.00	0.00	-0.78	-0.39	-0.40	-0.40	-1.59	-1.21	3.69	-0.79	0.40
Glaxo Wellcome	0.00	-4.84	0.68	0.00	0.00	0.00	-2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
United Leasing	0.00	0.00	0.00	0.00	1.91	4.11	0.00	0.00	1.75	0.00	0.00	8.23	1.27	-0.51	0.00	0.00
United Insurance	0.00	0.44	0.00	-1.77	-5.51	4.76	0.00	-7.39	4.66	-2.58	0.60	1.20	0.00	1.18	0.00	0.00
Beximco Denims	0.91	0.54	0.72	-0.18	-1.78	0.00	1.63	0.71	0.35	0.53	0.35	0.17	0.87	0.69	0.17	0.34
Beximco Infusion	1.77	2.17	0.53	-2.43	0.00	0.00	1.95	1.49	0.63	0.94	0.52	-0.21	1.44	1.01	0.86	0.04
Beximco Kniting	0.71	0.71	-0.47	0.47	-1.17	0.47	0.00	0.94	-0.70	1.17	1.16	-0.69	-0.46	0.70	0.00	1.61
Beximco Synthetics	0.80	-1.20	-0.81	0.00	0.81	0.60	0.80	0.00	3.58	1.15	4.17	-2.19	2.23	2.00	-1.79	-2.36
Beximco Fisherish	0.36	-0.73	1.10	0.72	0.36	0.36	1.43	-1.41	-0.36	5.02	2.73	1.33	0.98	3.57	4.39	-1.20
Meghna Cement	-10.11	3.83	7.83	5.02	-6.21	-2.82	3.13	0.43	-0.65	1.52	2.14	1.99	1.64	-2.72	4.05	5.18
Average	-0.08	0.02	-1.03	-0.67	0.02	0.23	-0.28	-0.37	0.80	-0.49	0.25	-0.03	0.11	-0.08	-0.28	0.08

Source : Appendix Table 7.2

Appendix Table 7.5

Calculation of Return (Comparison Period)

Company	r-1	r-2	r-3	r-4	r-5	r-6	r-7	r-8	r-9	r-10	r-11	r-12	r-13	r-14	r-15
Green Delta Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-6.67	0.00	0.00
Estern Insurance	0.00	0.00	0.00	-0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5.67	0.00
National Life Insurance	10.18	0.00	0.00	0.00	0.00	0.00	0.68	1.89	0.00	0.00	0.00	0.00	0.00	0.00	5.70
Central Life Insurance	0.00	0.00	0.00	-2.59	0.00	-0.57	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Esland Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-9.38	0.00	2.07	0.00	0.00	0.00	0.00
Ambee Pharmaceuticals	-2.15	-0.63	-0.95	0.32	-1.27	0.00	0.64	0.32	-0.32	-3.19	-0.33	0.00	0.00	-1.66	-0.67
Rupali Insurance	0.00	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-9.09	0.00
Karnofuli Insurance	0.20	0.00	0.00	0.00	1.21	0.00	-1.20	0.40	0.00	0.00	0.00	1.81	1.98	0.78	-1.35
Delta Life Insurance	-0.25	0.64	0.83	1.27	0.63	0.10	1.00	-0.19	0.00	0.57	-0.52	0.33	-1.27	-0.05	0.00
Aramit	3.25	1.12	0.89	-1.32	19.20	18.35	-1.11	19.04	16.26	-20.00	-13.58	3.51	-6.30	-3.52	0.00
1st ICB Mutual Fund	0.00	0.00	0.00	0.00	-7.28	0.00	0.00	0.00	0.00	0.00	2.63	0.02	0.00	0.00	0.00
2nd ICB Mutual Fund	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.86	0.00	-5.88	0.00	0.00
3rd ICB Mutual Fund	0.00	0.00	0.00	0.00	-10.00	-2.78	-2.86	-3.46	0.00	0.00	-0.76	0.00	-4.83	0.00	0.00
4th ICB Mutual Fund	0.00	0.00	-9.68	0.00	-0.36	0.00	-1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5th ICB Mutual Fund	0.00	0.00	0.00	-5.00	0.00	-2.70	1.53	0.00	0.00	0.00	0.00	0.00	-4.23	0.00	0.00
6th ICB Mutual Fund	0.00	-0.55	0.00	-3.70	0.19	-1.34	0.58	0.00	0.58	0.00	2.31	-2.26	2.50	1.31	0.00
7th ICB Mutual Fund	-0.46	-0.23	2.10	0.00	-1.14	0.00	0.00	0.46	0.00	0.00	0.46	0.00	0.00	3.67	-0.66
8th ICB Mutual Fund	38.46	-27.78	1.20	0.71	0.71	-0.70	0.47	0.94	-1.16	0.94	-0.47	0.23	2.34	-1.37	0.69
ICB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Style Craft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3.08	0.00	-5.95	0.00
Munno Stafiar	-10.36	0.00	0.00	-5.58	-2.53	-1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Desh Gurments	-6.07	7.14	0.00	0.00	0.00	0.00	0.00	-6.98	0.00	0.00	-0.34	0.00	9.59	0.00	0.00
Federal Insurance	0.00	-4.37	0.00	0.00	0.00	4.11	0.00	0.00	0.00	-4.39	0.00	0.00	0.00	-0.92	0.00
Mithun Kniting	-2.33	0.00	1.98	-1.95	-1.19	-0.80	0.00	0.00	-2.02	1.65	-2.85	0.42	-1.67	3.39	2.87
AMCL (Pran)	-0.77	-0.39	0.29	0.39	-1.55	-1.47	-2.49	1.63	-0.40	0.91	1.30	1.38	0.78	2.51	-1.32
Libra Pharma	0.00	0.00	-6.15	-0.11	0.00	0.11	8.77	0.00	0.00	-6.12	8.70	0.00	-2.40	0.00	0.00

Appendix Table 7.5 (Cont.)

Calculation of Return (Comparison Period)

Company	r-1	r-2	r-3	r-4	r-5	r-6	r-7	r-8	r-9	r-10	r-11	r-12	r-13	r-14	r-15
Estarn Housing	0.47	0.00	0.94	-0.23	0.93	-0.46	0.70	0.69	-1.37	0.00	5.57	-1.76	0.89	-0.22	0.00
Saiham Textile	0.63	2.80	0.91	-0.90	1.51	1.79	-0.29	-0.59	0.29	2.94	-0.86	-0.58	0.00	-0.29	-0.29
Dhaka Fisheries	3.02	-1.26	5.31	-3.23	1.88	16.56	-0.70	0.00	-1.59	7.18	-2.51	-1.20	-4.70	-1.28	-1.85
Modern Dying	0.00	0.00	-1.71	6.20	-1.40	0.71	0.00	0.00	0.00	-5.41	6.22	2.11	0.00	-2.06	-0.47
Meghna Shrimp	-0.31	0.63	0.93	0.93	1.22	1.51	-0.30	2.39	2.62	-2.84	-0.29	-0.59	-0.29	-0.59	0.00
The Engineers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutual Jute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gulf Food	-1.27	0.90	13.71	6.11	-1.92	0.33	-3.74	0.17	-0.51	0.51	-0.34	-1.18	-0.17	-1.72	-2.97
Janata Insurance	0.67	0.00	0.00	0.00	-5.33	0.00	0.00	-0.18	0.00	-1.59	4.48	-1.72	0.00	0.00	0.00
Purobi General Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-10.00	0.00	0.00	0.00	0.00	0.00	0.00
Sandani Life Insurance	0.00	0.00	0.00	0.00	0.00	0.00	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Estarn Lubricant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	-0.36	0.00	0.00	0.36	0.00
The Ibsina	0.00	-1.57	0.00	1.75	1.88	0.00	0.00	-1.69	1.56	-1.38	-0.16	1.09	0.00	3.25	-1.20
Usmania Glass	5.35	8.06	-3.98	-3.51	0.33	0.33	5.04	-2.29	1.60	-1.05	-0.21	2.13	-5.21	1.21	1.19
Paper Processing	-3.57	1.23	0.00	-0.41	0.41	-0.81	0.00	-1.23	0.00	0.83	0.41	-0.82	0.00	0.00	-0.41
Glaxo Wellcome	0.00	0.00	-1.00	0.00	3.54	0.00	-2.44	0.60	0.10	3.97	0.29	5.43	4.16	9.28	2.78
United Leasing	-0.67	-0.96	0.00	0.00	0.00	0.12	0.00	-3.69	-4.00	-5.16	2.93	6.54	0.00	2.67	0.00
United Insurance	-0.47	2.11	1.03	0.57	-0.45	0.45	-0.45	0.57	0.00	-1.92	2.07	0.34	-0.90	-0.79	1.60
Beximco Denims	3.59	-1.16	-1.00	1.52	1.16	0.33	-1.31	-1.99	0.68	-1.01	-0.51	1.54	1.18	1.33	4.75
Beximco Infusion	2.09	1.85	2.68	1.21	14.55	-6.59	1.98	-3.63	4.38	-3.36	1.74	-1.54	1.21	2.74	2.83
Beximco Kniting	0.23	-0.90	0.23	1.37	0.00	-0.67	1.13	0.00	2.01	1.97	8.39	14.09	19.83	-9.00	1.91
Beximco Synthetics	3.17	-0.54	0.18	-1.27	0.00	1.47	1.63	1.96	1.75	9.09	18.55	18.17	-16.05	6.95	6.63
Beximco Fisherish	3.95	6.14	3.58	-1.33	0.00	0.54	-46.38	88.50	5.84	4.51	9.35	19.74	-19.41	0.00	8.64
Meghna Cement	-2.37	0.29	0.00	4.26	3.53	5.11	5.12	0.41	28.70	17.09	-14.54	15.25	14.38	0.57	-0.19
Average	0.88	-0.13	0.25	-0.10	0.37	0.62	-0.88	1.88	0.71	-0.08	0.72	1.59	-0.42	-0.08	0.56

Source : Appendix Table 7.3