Project Report

Neamul Mowla

September 28, 2020

Project Report

On

Efficient Market Hypothesis (EMH)

Of

Dhaka Stock Exchange (DSE)

September 28, 2020

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Subject: **Submission of Project Report**

Respected Sir,

With the grace of almighty Allah and your support, I am very happy to inform you that I have been able to finish my project report that is a prerequisite to the completion of BBA program at UIU.

I have put my utmost efforts in the preparation of this report. However, I seek for your kind consideration on my report and accept it for evaluation.

Yours Sincerely,

Neamul Mowla

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Acknowledgment

Completion of this report is a mandatory requirement of BBA program at United International University (UIU). On top of that, it is my highest pleasure that I am this much opportune to write this project report on Efficient Market Hypothesis (EMH).

I show my heartiest gratitude towards my supervisor **Muhammad Musa**, Professor at United International University, who has walked me through the entire report writing process.

Executive Summary

For every business student it is every crucial to know the real face of the business industry. That's the reason why private universities organize their courses along with an internship/project report. This last 3 credit program helps students to relate the real world with their bookish knowledge.

To accomplish my project report, I have chosen the topic on "Efficient Market Hypothesis (EMH)" of Dhaka Stock Exchange (DSE). I sorted the report into total 3 chapters. The first chapter contains basic introduction about EMH. Objectives of this report, the implicit objective is to complete the BBA Degree & the Explicit Objective is to know the reflection of market price efficiency of DSE. The limitations of the study, it is almost impossible for an outsider to figure out each details of the company. Confidentiality and limitation of the project time is the main problem for this report. Then Methodology, for the purpose to complete this report I have used all the secondary data I manage to found through different magazines, books and websites. Chapter 2 is designed with the introductory information of Dhaka stock exchange & about "The Efficient Market." It also contains descriptive information about Efficient Market Hypothesis (EMH), comparison of stock price return and the market anomaly. Chapter 3 is the ending part of this report with conclusion and references.

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Chapter 01

1.1 Introduction

The most crucial implication of the EMH can be put in the form of a slogan: Trust market prices! At any point in time, prices of securities in efficient markets reflect all known information available to investors. There is no room for fooling investors, and as a result, all investments in efficient markets are fairly priced, i.e. on average investors get exactly what they pay for.

The efficient markets hypothesis predicts that market prices should incorporate all available information at any point in time. There are, however, different kinds of information that influence security values. Consequently, financial researchers distinguish among three versions of the Efficient Markets Hypothesis, depending on what is meant by the term "all available information".

The weak form of the efficient markets hypothesis asserts that the current price fully incorporates information contained in the past history of prices only. That is, nobody can detect mispriced securities and "beat" the market by analyzing past prices.

The semi-strong-form of market efficiency hypothesis suggests that the current price fully incorporates all publicly available information. The strong form of market efficiency hypothesis states that the current price fully incorporates all existing information, both public and private (sometimes called inside information).

1.2 Objectives of the report

The report has two major objectives:

I. Implicit Objective: The general objective is that the report is a prerequisite to the completion of BBA program for every student at UIU. The whole internship program equals to 3 credit hours that is aimed at making student more practical and knowledgeable in real world corporate environment.
II. Explicit Objective: The explicit objective is to understand the market efficiency in price reflection of Dhaka Stock Exchange.

1.3 Scope of the study

This report especially focuses on the 'Efficient Market Hypothesis' (EMH) of Dhaka Stock Exchange (DSE). Under this study, I am going to analyze the difference of price reflection between large stock and small stock.

1.4 Limitation of the study

Preparing this project, I faced some limitations. First of all, I needed data of listed companies' closing prices for 8 years (2011-2018). From there I have selected 60 companies with closing prices from 2011-2018. Selecting those companies was very difficult and time consuming for me. On top of that, not all the listed companies publish all the information.

1.5 Data

There are two kinds of data. The one is "Primary Data", and the second is "Secondary Data". For my report, I used the primary data. To conduct the efficient market hypothesis test, first I select 100 listed companies (2011–2018) from Dhaka and Chattogram Stock Exchange. Then I have calculated that market capitalization of the shares by taking their 8 years (2011-2018) last closing prices of the listed companies under Dhaka and Chattogram Stock Exchange and multiplied by the total number of shares outstanding. After finding the market capitalization I was going to sort all the 100 companies. After sorting those companies' market capitalization, I selected the first 30 large stock companies and last 30 small stock companies.

Then I separated those 30 small stock companies and 30 large stock companies for rest of the calculations. For knowing the differences between the 30 small stock companies and 30 large stock companies I have to calculated their returns. Then I separated those 8 years one by one. Now to calculated the return by taking their December 31st and subtract by January 1st and percent them. After doing this, I calculated each year all 30 small stock companies average return. Average return is calculated by adding all 30 small stock companies of one year and divided them to 30. I also calculated the standard deviation, minimum return price and maximum return price. All those calculations is doing for 8 years of all 30 small stock companies and also for the 8 years 30 large stock companies.

When all the 30 small stock companies and 30 large stock companies return, average return, standard deviation, minimum return price and maximum return price are calculation are done. Then I found the difference between the average small stocks and average large stocks. To know the differences, subtract the average large stocks to average small stocks. I found the differences.

1.6 Methodology

This project report has been written completely based on the secondary data which I have collected from the publicly available information sources i.e. DSE website, company website etc. Here, I have discussed about the difference between the large stock companies' return and small stock companies' return, market capitalization, average standard deviation, minimum, and maximum.

To calculate the portfolio, return or the market return, I have taken the current year's return subtracting the previous year's return for both the small companies and for the large companies. Then I compared the return ratio for both the stocks to understand the trend of market return in between the two categories of stocks. Later on, I have calculated the market capitalization of both the stocks by taking the latest market price of the stocks and multiplying by the total number of shares outstanding. As sample companies, I have taken 100 random companies out of which I have separated 60 companies based on the market capitalization. Of the 60 companies, I have categorized in two categories based on smallest 30 and largest 30. For day's changes in stock return, I have taken closing price of the stock divided by the opening price and averaged the changes to find out the standard deviation of the changes. Among all the price changes, I have also identified the minimum change in the stock prices and maximum change in the prices for the day.

Chapter 02

2.1 Dhaka stock exchange (DSE)

In 1952, the necessity of establishing a stock exchange in the then East Pakistan was first recognized by the government. When, it was learnt that the Calcutta Stock exchange had prohibited transactions of Pakistani shares and securities. The Provincial Industrial Advisory Council of Pakistan soon set up an organizing committee for the formation of a stock exchange in East Pakistan. In 1953, March 13 a decisive step was taken in the second meeting of the organizing committee. In the cabinet room, Eden Building, under the chairmanship of A. Khaleeli, Secretary of the Government of East Bengal, Commerce, Labor and Industries Department, various aspect of the issue was discussed in detail. The central government proposal regarding the opening a branch of Karachi Stock Exchange at Dhaka did not find favor with the meeting who felt that East Pakistan should have an independent stock exchange. It was suggested that the Dacca Narayanganj Chamber of Commerce & Industry should approach its members for purchasing the membership cards at RS 2000 each for the proposed Stock Exchange. There was a thought that the location of the stock exchange should be either at Dhaka or Narayanganj or Chittagong.

Originally; the exchange was called the East Pakistan Stock Exchange Association ltd. The name was revised to: East Pakistan Stock Exchange ltd in 1962. And after two years later, the name again changed to the current Dhaka Stock Exchange ltd. The Dhaka Stock Exchange is registered as a Public Limited Company (PLC) and is regulated by the Bangladesh Securities and Exchange Ordinance of 1969, the Companies Act of 1994 (Bangladesh) and the Securities and Exchange Commission (SEC) Act of 1993 (Bangladesh).

Now the Dhaka Stock Exchange (DSE), located in Motijheel, Dhaka, is one of two financial marketplaces in Bangladesh. And the other is located in Chittagong Stock Exchange. In 1954, Dhaka Stock Exchange was incorporated, and in 1956 the formal trading began at Narayanganj after obtaining the certificate of commencement of business. But, it was shifted to Dhaka and started functioning at the Narayanganj Chamber Building in Motijheel C/A.

2.2 Dhaka Stock Exchange Statistics:

Bangladesh's, the then East Pakistan, first stock exchange market was first established back in 1952 when Calcutta Stock Exchange prohibited transactions & trading of Pakistani stock & securities in the Calcutta Stock Exchange market. Felt by the need, The Provincial Industrial Advisory Council of Pakistan soon set up an organizing committee for the formation of a stock

exchange in East Pakistan. On April 28, 1954, with the registration of company act 1913, the first stock exchange was formed in Bangladesh under the name of 'East Pakistan Stock Exchange Association Limited' which was later revised to 'East Pakistan Stock Exchange Limited'. In 1964, the name was further revised to 'Dacca Stock Exchange Limited'. Then established stock exchange with Rs. 300,000 market value divided into 150 members and 8 promoters now stands at USD 47 billion with turnover of around USD 17 billion (*DSE report FY 2019*). At present, FY 2019, DSE holds a total of 584 million of shares in security. Although the market capitalization of DSE has been in uptrend since 2016, but the turnover has been in downtrend from the very same year. As per 2019 annual report published by the DSE shows that total market capitalization in the year 2019 stands at 18.75 percent of total GDP of Bangladesh. At present, out of 259 shareholders at DSE, 241 are corporate shareholders holding 70.87 percent shares, 16 individual shareholders are holding 0.43 percent shares, Shenzhen Stock Exchange (SZSE) is holding 13.75 percent shares & Shanghai Stock Exchange (SSE) is holding 11.25 percent shares. However, a total of 2.7 percent shares has not been credited to 9 shareholders.

At present, the DSE has market capitalization of around $47 billion, the highest among the last five years, which is equal to 18.75% of total GDP of Bangladesh (DSE Annual Report 2019). With the aforementioned market capitalization, DSE reported price earning ratio of 14.25 times in the last financial year. In last year, DSE issued a total of 14 million in IPOs valuing $5.7 billion. As per their audited financial statement for the financial year 2019, the current DSE shareholding pattern is as follows:

Pattern of DSE Shareholding

(Amount in million)

Particulars	No. of shares in own account	% of shares in own account	No. of shares in blocked account	% of shares in blocked account	% of total shares
241 Corporate Shareholders hold	687.76	38.13	608.59	33.74	71.87
16 Individual Shareholders hold	7.77	0.43	0.00	0.00	0.43
Shenzhen Stock Exchange (SZSE)	248.02	13.75	0.00	0.00	13.75
Shanghai Stock Exchange (SSE)	202.92	11.25	0.00	0.00	11.25
Total 259 Shareholders hold	1146.48	63.56	608.59	33.74	97.30
Shares have not been credited to 9 Shareholders	25.97	1.44	22.73	1.26	2.70
Total 268 Shareholders hold	**1172.45**	**65.00**	**631.32**	**35.00**	**100.00**

Apart from the large stocks and stocks of the structured companies, DSE's very recent addition is the Small and Medium Enterprise (DSE-SME). This is the first time in history of Bangladesh to add SMEs. The main goal for this initiative is to foster business growth of the fast growing and enterprises with promising future that initially face significant fund crisis. The launching of the initiative had come into live in the late 2019.

2.3 Efficient Market Hypothesis (EMH):

Evolution of computer enabled economists to analyze economic time series in 1950s. During that time, business cycle theorists felt that tracing the evolution of several economic variables over time would clarify and predict the progress of the economy through boom and bust periods. A natural candidate for analysis was the behavior of stock market prices over time. It was from the assumption that stock prices reflect prospect of the firm, recurrent patterns of troughs in economic performance ought to show up in those prices.

The first person to study this was Maurice Kendal. He examined the proposition in 1953. Surprisingly, he found that he could identify no predictable patterns in stock prices. Prices seemed to evolve randomly. They were as likely to go up as they were to go down on any particular day, regardless of past performance. The data provided no way to predict price movements. At the first impression, the results were very much shocking to some financial economists. They seemed to imply that stock market is dominated by erratic market psychology, or 'animal spirit' – that it follows no logical rules. Hence, the interpretation appeared to confirm that market is irrational in regards to the price movement. However, later on, the financial economists changed their interpretation and it became apparent that irrationality of market in regards of price movement actually represents a well-functioning market, or in other words, an efficient market, not an irrational one.

According to Kendall's formula, suppose, stock price of ABC company is to rise by 10% in 2-3 days. What would happen to the investors? Any investors holding that particular stock would be ready to sell the stock. And the price would not wait for 2-3 days to rise. It would immediately increase as the stockholders already knew that the price would go up. Same thing would happen in case of price fall for any stock. So, from this simple illustration, we can understand very easily why Kendall's model did not work. Therefore, if any stock is underpriced in the market and investors have the information that the price will increase, then the stock price will be automatically adjusted by the increased demand for the stock by the investors.

In the investment community, the Efficient Market Hypothesis (EMH) is one of the underlying reasons investors may choose a passive investing strategy. Although fans of index funds may not know it, EMH helps to explain the valid rationale of buying these passive mutual funds and Exchange-Traded Funds (ETFs).

The Efficient Market Hypothesis (EMH) essentially says that all known information about investment securities, such as stocks, is already factored into the prices of those securities. Therefore, assuming this is true; no amount of analysis can give an investor an edge over other investors, collectively known as "the market."

EMH does not require that investors be rational; it says that individual investors will act randomly, but as a whole, the market is always "right." In simple terms, "efficient" implies "normal." For example, an unusual reaction to unusual information is normal. If a crowd suddenly starts running in one direction, it's normal for you to run in that direction as well, even if there isn't a rational reason for doing so.

2.3.1 Types of efficient market hypothesis

As per our previous discussion, we assumed that the market responds immediately to all available information. But in actuality, certain information may affect stock prices more quickly than other information. To handle differential response rates, researchers separate information into different types. The most effective and classification system for identify that three types are: information about past prices, publicly available information, and all the information. And the effect of these three information sets on prices is examined next.

There are three form of efficient market hypothesis. They are:

1. Weak form
2. Semi strong form
3. Strong form

2.3.1.1 Weak Form:

The concept of weak form efficiency was pioneered by Princeton University economics professor Burton G. Malkiel in his 1973 book, "A Random Walk Down Wall Street." The book, in addition to touching on random walk theory, describes the efficient market hypothesis and the other two degrees of efficient market hypothesis: semi-strong form efficiency and strong

form efficiency. Unlike weak form efficiency, the other forms believe that past, present and future information affects stock price movements to varying degrees.

Weak form hypothesis asserts that the stock prices already reflect all information that can be extracted by examining the market trading data such as the past price movements, volume and earnings data do not affect a stock's price and can't be used to predict its future direction. This version of the hypothesis hinted that the trend analysis is pointless.

For example, a trading strategy that proposes buying a stock after it has gone up three days in a row and also proposes selling a stock after it has gone down three days in a row. So, this strategy uses information based on only the past prices. It does not use any other information, such as earnings forecasts, merger announcements, or money supply figures. To get the past stock price data are publicly virtually low cast and also easily available in the local market. A capital market is said to be weakly efficient, or to satisfy weak form efficient, if it fully incorporates the information in past stock prices. Thus, the preceding strategy would be able to generate profits if weak form efficiency holds. Weak form efficiency is one of the three different degrees of efficient market hypothesis (EMH).

The weak form hypothesis holds that if such past data ever conveyed reliable signals about the future performance, than all the investors are already would have learned to utilize the signals. But ultimately, the signals lose their value as they become expand known because a buy signal, for instance, the price will increase instantly.

Weak form efficiency, also known as the random walk theory, states that future securities' prices are random and not influenced by past events. Advocates of weak form efficiency believe all current information is reflected in stock prices and past information has no relationship with current market prices.

The weak form efficiency is represented mathematically as:

$$P_t = P_{t-1} + \text{Expected return} + \text{Random error}$$

The weakest type of efficiency is weak form efficiency, that about we would expect a financial market to display. Because historical price information is the easiest kind of information about a stock to come by. By finding patterns in the stock price movements, it was possible to make extraordinary profits, so that everyone would do it and also any profits would disappear in the scramble.

We clearly know that the weak form of efficiency is the weakest type of efficiency. So that, in this type of efficiency the technical analysis does not work. Because in technical analysis, they use the past stock prices, so that they cannot find the future stock prices. For understand the stock intrinsic prices fundamental analysis, they use the financial statement and other publicly known information weather the stock prices in undervalued or overvalued. In the weak form efficiency, insider trading refers to the treading of stock based on non-public and material information about the company. Active management refers to trading of stocks by the management itself when all the present information is available to them.

2.3.1.2 Semi-Strong Form:

Semi-strong form efficiency is an aspect of the Efficient Market Hypothesis (EMH) that assumes that current stock prices adjust rapidly to the release of all new public information.

Semi-strong form efficiency contends that security prices have factored in publicly-available market and that price changes to new equilibrium levels are reflections of that information. It is considered the most practical of all EMH hypotheses but is unable to explain the context for material nonpublic information (MNPI). It concludes that neither fundamental nor technical analysis can be used to achieve superior gains and suggests that only MNPI would benefit investors seeking to earn above average returns on investments.

EMH states that at any given time and in a liquid market, security prices fully reflect all available information. This theory evolved from a 1960s PhD dissertation by U. S. economist Eugene Fama. The EMH exists in three forms: weak, semi-strong and strong, and it evaluates the influence of MNPI on market prices. EMH contends that since markets are efficient and current prices reflect all information, attempts to outperform the market are subject to chance not skill. The logic behind this is the Random Walk Theory, where all price changes reflect a random departure from previous prices. Because share prices instantly reflect all available information, then tomorrow's prices are independent of today's prices and will only reflect tomorrow's news. Assuming news and price changes are unpredictable then novice and expert investor, holding a diversified portfolio, would obtain comparable returns regardless of their expertise.

The semi-strong form efficiency does not use historical prices, trading volume, earnings, rates of return, dividend payments, stock splits, profitability ratios or any other element of functional analysis. This hypothesis concludes that investors, who trade their securities based on current

available information. This should expect an average risk rate of return. To outperform the market, investors should accept a higher level of risk.

This efficiency means an economic condition where the market adjusted prices of investments almost immediately as information is available. When the market is semi-strong form efficiency, neither use the technical analysis, which is based on past pattern of return, nor fundamental analysis, which is integrate the current information. That can help forecast the future price movements. On the other hand, the non-public information can be used to earn above average return. Generally, the semi-strong form of efficiency tested by studying how the prices and the volume are respond to specific events. Such events are: special dividend, stock split, lawsuits, tax changes etc. Market is semi-strong from of efficiency when the price reflects that new information quickly. All this evident shows that the developed markets might be semi strong efficient, where the developing market do not do this.

In the semi-strong form of efficiency, the technical analysis does not work. Because in technical analysis, they use the past stock prices, so that they cannot find the future stock prices as well. In this efficiency, the fundamental analysis they refer to the company's financial statement and other publicly available information whether the share stock prices are overvalued or the share stock prices are undervalued. So, we understand that in the semi- strong form of efficiency fundamental analysis do not work at all.

But in the semi-strong form of efficiency, insider trading is work. Because, insider trading refers to the treading of stock based on non-public and material information about the company. So, we understand that in the semi-strong form of efficiency the insider trading is work. But for the active management the semi-strong form of efficiency it does not work. active management refers to trading of stocks by the management itself when all the present information is available to them.

Semi-strong form of efficiency means an economic condition where the market adjusts prices of investments almost immediately as information in available.

2.3.1.3 Strong form:

The strong form of efficiency was developed by Princeton economic professor Burton G. Malkiel in in his book published in 1973 entitled "A Random Walk Down Wall Street".

There Malkiel described that technical analysis, earnings estimate and investment advisory services as "useless". He also said that the best way to maximize returns by following a buy and hold strategy. Adding these portfolios build by experts should fare no better than a basket of stocks put together by a blindfolded monkey.

Strong form efficiency is the most stringent version of the efficient market hypothesis (EMH) investment theory, stating that all information in a market, whether public or private, is accounted for in a stock's price.

Practitioners of strong form efficiency believe that even insider information cannot give an investor an advantage. This degree of market efficiency implies that profits exceeding normal returns cannot be realized regardless of the amount of research or information investors have access to.

Strong form efficiency is a component of the EMH and is considered part of the random walk theory. It states that the price of securities and, therefore the overall market, are not random and are influenced by past events.

Strong form efficiency is one of the three different degrees of the EMH, the others being weak and semi-strong efficiency. Each one is based on the same basic theory but varies slightly in terms of stringency.

The strong form of efficiency is the only part of "Efficiency Market Hypothesis' that takes into account proprietary information. The theory states that awkward to public belief, bear insider information will not help an investor earn high returns, in the market.

By using the past share stock prices, the technical analysis cannot find the future share stock prices. That's the reason, strong form of efficiency does not work at all. In the fundamental analysis, they also refer to a company's financial statement or documents and also the other publicly available information either the stock prices are underrated or the stock prices are overrated. So that, the fundamental analysis is also not working in the strong form of efficiency in efficient market.

The trading of stock based on the material and non-public information about a company is called the insider trading in a market of efficiency. This insider trading is also not working in the strong form of efficiency in the efficient market hypothesis (EMH). The active management mentions that the trading of share stocks by the management, itself when all the present or current information are available to them. So, the active management is also not working in the strong form of efficiency in market.

Strong form of efficiency is when the prices are already reflecting both the publicly known information and also the insider information. In this form of efficiency, it is not possible to earn access return by any means. Strong form of efficiency is the strongest form of other efficiency in the market. So that, when a market is strong form efficient neither the technical analysis nor fundamental analysis nor the insider trading can help estimate the future stock prices.

The market rarely exhibits the characteristics of strong form of efficiency.

2.4 Test of efficient market hypothesis:

In an efficient market, the return on a security is compensating the investor for time value of money and risk. The efficient market theory relies on the fact that stock prices follow a random walk, which means that price changes are independent of one another. Thus, stock prices follow a random walk. For a random walk in stock prices follows some basic principles such as the movement of stock prices from day to day do not reflect any pattern and time series of stock returns has low autocorrelation. Moreover, in an efficient market competition ensures that new information is quickly and fully assimilated into prices, all available information is reflected in the stock price, prices reflect the known and expected, and price changes occur in an unpredictable way.

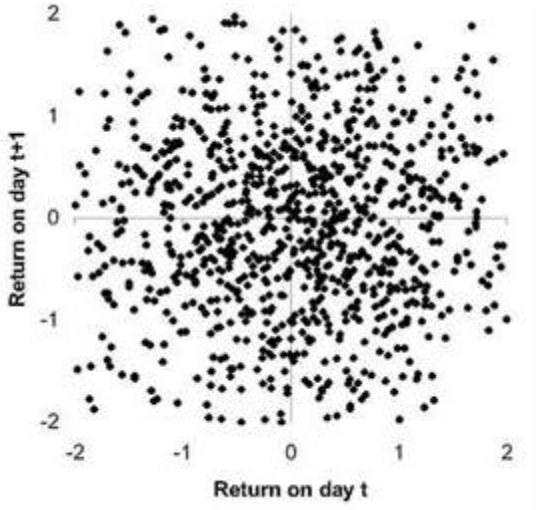
Efficient market theory has been subject to close scrutiny in the academic finance literature, which has attempted to test and validate the theory. In the following, I have tried to explained how each of the market efficiency can be tested.

There are four types of strategies in every form of efficiency in the efficient market. They are: technical analysis, fundamental analysis, insider trading and active management. All these strategies details are given bellow with their form of efficiency.

2.4.1 Weak form of efficient market hypothesis test:

The weak form of market efficiency has been tested by constructing trading rules based on patterns in stock prices. A very direct test of the weak form of market efficient is to test whether a time series of stock returns has zero autocorrelation. A simple way to detect autocorrelation is to plot the return on a stock on day t against the return on day t+1 over a sufficiently long time period. The time series of returns will have zero autocorrelation if the scatter diagram shows no significant relationship between returns on two successive days.

Consider the following scatter diagram of the return on the FTSE 100 index on London Stock Exchange for two successive days in the period from 2005-6. As there is no significant relationship between the return on successive days, the evidence is supportive of the weak form of market efficiency.



2.4.1.1. Technical Analysis:

The key principle of the weak form efficiency is that the randomness of stock prices makes it impossible to find price patterns and take advantage of price movements. Particularly, the daily stock price fluctuation is totally independent of each other. It assumes that price progress does not exit. Additionally, the past earnings growth does not forecast current or future earnings growth.

Technical analysis is considered by the weak form efficiency, to be accurate and asserts that even fundamental analysis can be incurrent. According to the weak form efficiency, it is extremely difficult to outperform the market especially in the short term. Technical analysis attempt to forecast the price movement of virtually any tradable instrument that is generally subject to forces of supply and demand, including stocks, bonds, futures and currency pairs.

Suppose, a person agrees with this type of efficiency, they believe that there is no point in having financial advisor or portfolio manager. Rather investors who advocate the weak form efficiency, assume they can randomly pick an investment or portfolio that will provide the similar return.

2.4.1.2. Fundamental Analysis:

Fundamental analysis is a method of measuring a securities natural value by examining related economic and financial factors. From macroeconomic factor, the fundamental analysis study anything that can affect the security's value. For using this analysis, the end goads are to arrive at a number that an investor can compare with the security's current price with a view to see whether the security is overvalued or the security is undervalued.

This fundamental analysis is considered to be a go against to technical analysis which forecasts the detraction of prices through an analysis history market. Like: the prices and the values. All the stock analysis tries to discover whether a security is currently valued within the broader market. The fundamental analysis method done this thing properly.

In a weak form efficient market, abnormal returns from the analysis of historical prices would be quickly arbitraged. Technical analysis would not be able to earn consistent abnormal return. Active management that utilizes fundamental analysis could also be capable of earning abnormal return.

2.4.1.3. Insider Trading Act:

Material or public information is any information that could directly impact an investor's decision to buy or sell the security. And the non-public information is any information that is not legally arrive or available in front of the public. An individual investor who has access to insider information would have an unfair edge over the other investors, who don't have this same access and could poetically make large unfair profit than other investors.

Fundamental analysis and the insider trading act can still earn the abnormal return in the weak form efficient. Because the public information and the non-public information would not necessary be fully reflected in the market prices.

2.4.1.4. Active management:

The term of active management suggests that a professional money manager or a team of professionals is tracking the performance of a client's investment portfolio and regularly making buy, hold, sell decisions about the assets in it. The main goal of the active manage is to outperform the overall market.

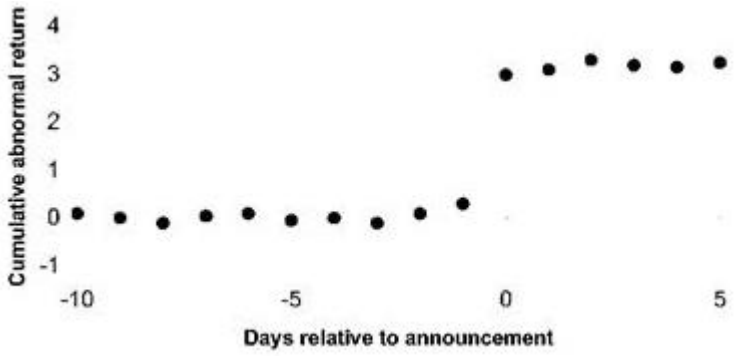
The active managers may depend on the investment research, analysis, forecasts and their own common sense and also their own experience in making decisions on which assets to buy and which assets to sell.

So active management should be able to the best perform of passive management gross of fees in the weak form efficient market. But, its ability to the best perform net of fees depends on how these high abnormal returns are related to additional management fees.

2.4.2 Semi-strong form of efficient market hypothesis test:

The semi-strong form of market efficiency states that all publicly available information should be reflected in the current stock price. A common way to test the semi-strong form is to look at how rapid security prices respond to news such as earnings announcements, takeover bids, etc. This is done by examining how releases of news affect abnormal returns where "Abnormal stock return = actual stock return - expected stock return".

As the semi-strong form of market efficiency predicts that stocks prices should react quickly to the release of new information, one should expect the abnormal stock return to occur around the news release. Figure 7 illustrates the stock price reaction to a news event by plotting the abnormal return around the news release. Prior to the news release the actual stock return is equal to the expected (thus zero abnormal return), whereas at day 0 when the new information is released the abnormal return is equal to 3 percent. The adjustment in the stock price is immediate. In the days following the release of information there is no further drift in the stock price, either upward or downward.



2.4.2.1. Technical Analysis:

In the semi strong form of efficiency, the technical analysis cannot earn the abnormal return. In the semi strong form efficiency theory, it goes one step further, help the ideas that all information in the public domain is used in the calculation of a stock's current prices. For that reason, we can understand that it is impossible for all the investors to identify undervalued securities. And also generate higher returns in the market by utilizing the technical analysis.

The technical analysis refers to the past information or past share stock prices. So that, this analysis cannot find the future share stock prices. And also, cannot earn any kind of abnormal returns. But in the semi-strong form of efficiency, it is a type of efficient market hypothesis, which holds that security prices adjust quickly to currently available information, thus

eliminating the use of fundamental analysis and also the technical analysis to achieving a higher return.

The semi-strong form of efficiency does not use historical information or prices, trading volume, earnings, rate of return, dividend payment, stock split. So that, I semi-strong for of efficiency the technical analysis does not work at all.

2.4.2.2. Fundamental Analysis:

All stock analysis tries to determine whether a security is recently valued within the broader market. Fundamental analysis is usually done from a macro to micro outlook in order to identify securities that are not recently priced by the market. Fundamental analysis uses public data to evaluate the value of a share stock or any other type of security.

Fundamental analysis usually starts with the study of past earnings and also an examination of company balance sheets. They added this analysis with further detailed economic analysis. Ordinarily including an evaluation of the quality of the firm's management, the firm's standing within its industry and as a whole the prospects for the industry.

This semi-strong form of efficiency does not use the past prices, rate of return, earnings, stock split, trading volume, dividend payment or the semi-strong form of efficiency or any other element of fundamental analysis. Fundamental analysis loses their abilities to earn the abnormal returns, due to prices fully reflecting public information. The hypothesis assumes that the investors, who trade their securities based on currently available information, should expect the average risk rate of return. To outperform the market, investors should accept a higher level of risk.

2.4.2.3. Insider Trading Act:

The semi strong form efficient market hypothesis using insider sale and purchase statement and their effect on the risk adjusted rate of return of the firm's stock price. A semi strong form of efficient market would not be allowing any investor to earn an above normal risk adjusted return or to consistently outperform the market on the basis of publicly available information. In the semi strong form information, market reaction to an insider trading statement to understand what is the reaction? If the reaction occurs either on or before the event, thus upholding the semi strong form efficient market hypothesis.

The analysis of two sample groups: sale and purchase. The insider trading report, was used to understand if and when the risk adjusted return of the stock price is significantly affected both on the statement date and during the define event period.

Evidence of pre statement trading and an overreaction effect were also observer. For the insider sales and purchases, the insiders follow a pattern of "buying low and selling high".

2.4.2.4. Active Management:

Active management suggest that a professional money manager or a term of professionals is tracking the performance of a client's investment portfolio and regularly making buy, hold and sell decisions about the assets in it. The goal of the active manager is to outperform the overall market. Active managers may rely on investment analysis, research, forecast and their own judgment and experience in market decisions on which assets to buy and sell.

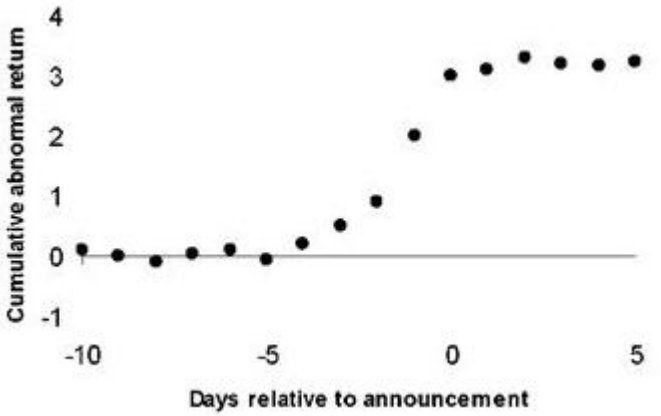
In the semi strong efficiency market, active management loses their abilities to earn the abnormal return, due to prices fully reflecting the public information. In spite of active movement's inability to outperform passive management at the same risk level. The active management may still be a rational investment option as a way for investors to manage certain risk and achieve financial goals.

In this efficiency active management system do not work at all. Because all the share prices information is than available in publicly. So that, it reflects in the stock market. For that reason, investors are not to buy the shares in a lower rate and not to sale the shares in the higher prices.

2.4.3 Strong form of efficient market hypothesis test:

Tests of the strong form of market efficiency have analyzed whether professional money managers can consistently outperform the market. The general finding is that although professional money managers on average slightly outperform the market, the outperformance is not large enough to offset the fees paid for their services. Thus, net of fees the recommendations from security analysts, and the investment performance of mutual and pension funds fail to beat the average. Taken at face value, one natural recommendation in line with these findings is to follow a passive investment strategy and "buy the index". Investing in the broad stock index would both maximize diversification and minimize the cost of managing the portfolio.

Another, perhaps simpler, test for strong form of market efficiency is based upon price changes close to an event. The strong form predicts that the release of private information should not move stock prices. For example, consider a merger between two firms. Normally, a merger or an acquisition is known about by an "inner circle" of lawyers and investment bankers and firm managers before the public release of the information. If these insiders trade on the private information, we should see a pattern close to the one illustrated in Figure 8. Prior to the announcement of the merger a price run-up occurs, since insiders have an incentive to take advantage of the private information.



2.4.3.1. Technical Analysis:

Technical analysis is a trading regulation employed to evaluate investments and identify trading opportunities by analyzing statistical trades collated from trading activity, such as price movement and value.

Technical analysis tools are used to look over the ways supply and demand for a security will affect changes in price, volume implied volatility. This method is often used to generate short-term trading signals from various charting tools, but can also help improve the evaluation of a security's weakness and strength relative to the broader market this information helps analysts improve their overall estimate valuation.

Technical analysis can be used on any security with historical trading data, includes share stock, futures, fixed income, commodities, currencies and other securities. These concepts s can be applied to any type of security. In fact, technical analysis is far more common in commodities and foreign exchange markets where traders focus on short-term price movement.

By knowing the technical analysis and the strong form of efficiency, we can clearly understand that in the strong form of efficiency technical analysis does not work in the efficient market hypothesis (EMH).

2.4.3.2. Fundamental Analysis:

Measuring a security's intrinsic value by examining related economic and the financial statements, is the method of the fundamental analysis. Fundamental analysts' study anything that can affect the security's value, from the macroeconomic factors such as the state of the economy and industry conditions to microeconomic factors like the effectiveness of the company's management.

Fundamental analysis which attempts to evaluate a securities value based on business results such as earnings and sales. This method of stock analysis is considered to be in difference to the technical analysis, which forecasts the distraction of prices through the analysis of historical market data. Such as, value and price.

The end goal is to arrive at a number that an investor can compare with the security's recent price in order to see whether the security is overvalued or the security is undervalued.

By seeing that thing, now we can understand that the fundamental analysis cannot work in the strong form of efficiency in the efficient market hypothesis.

2.4.3.3. Insider Trading Act:

Specialist of strong form of efficiency, believe that ever insider information cannot give an investor an advantage. This degree of market efficiency implies that profits exceeding normal returns cannot be realize regardless of the amount of information investors have access to.

In the strong-form of efficient markets, the insider trading act cannot even earn the abnormal profits. Most of the market are not the strong-form efficient due to regulations against trading on non-public information.

Those who believe in this version of the efficient market hypothesis, that only information that is not easily available to the public can help investors boost their returns to a performance level above that of the general market. The strong form efficiency theory rejects this idea, revel that no information, inside or public information, will benefit an investor. Because, even though the insider information is reflected in the current stock or share price.

2.4.3.4. Active Management:

Active management suggest that a professional money manager or a term of professionals is tracking the performance of a client's investment portfolio and regularly making buy, hold and sell decisions about the assets in it. The goal of the active manager is to outperform the overall market. Stock pickers who spend their days buying and selling stocks to exploit their frequent

fluctuations will, over time, do no better than investors who buy the components of the major indexes that are used to track the performance of the wider market over time.

No rational investors are allowed to invest in an actively managed fund. Since, the fund would change its pays and fees most transactional costs, without being able to earn the abnormal return.

In active management, all the share rates information is available in the publics. That's why, this publicly known information is directly reflect in the share market. For that, the investors cannot buy shares in lower price and also cannot sale shares in higher price. So here we understand that, in the strong-form efficiency market active management do not work at all.

2.5 Hypothesis test:

Source- calculated from Index Values provided in Table 7.3 of Ibbotson SBBI 2011 Classic Yearbook, Chicago: Morningstar (2011). In this source, they have calculated and also graphically showed that the average return on the small stocks is higher than the average return on the large stocks. From the inspiration of this method, I have tried to replicated the above model in the prospective of Bangladeshi stocks to understand the refection oh historical trend of stock return as this is the first time in Bangladesh.

As per the study conducted with the model, it has been found that the stock market of Bangladesh is of weak form of efficient market hypothesis. To conduct the test first I select 100 listed companies (2011–2018) from Dhaka and Chattogram Stock Exchange. Then I have calculated that market capitalization of the shares by taking their 8 years (2011-2018) last closing prices of the listed companies under Dhaka and Chattogram Stock Exchange and multiplied by the total number of shares outstanding. After finding the market capitalization I was going to sort all the 100 companies. After sorting those companies' market capitalization, I selected the first 30 large stock companies and last 30 small stock companies.

Then I separated those 30 small stock companies and 30 large stock companies for rest of the calculations. For knowing the differences between the 30 small stock companies and 30 large stock companies I have to calculated their returns. Then I separated those 8 years one by one. Now to calculated the return by taking their December 31st and subtract by January 1st and percent them. After doing this, I calculated each year all 30 small stock companies' average return. Average return is calculated by adding all 30 small stock companies of one year and divided them to 30. I also calculated the standard deviation, minimum return price and

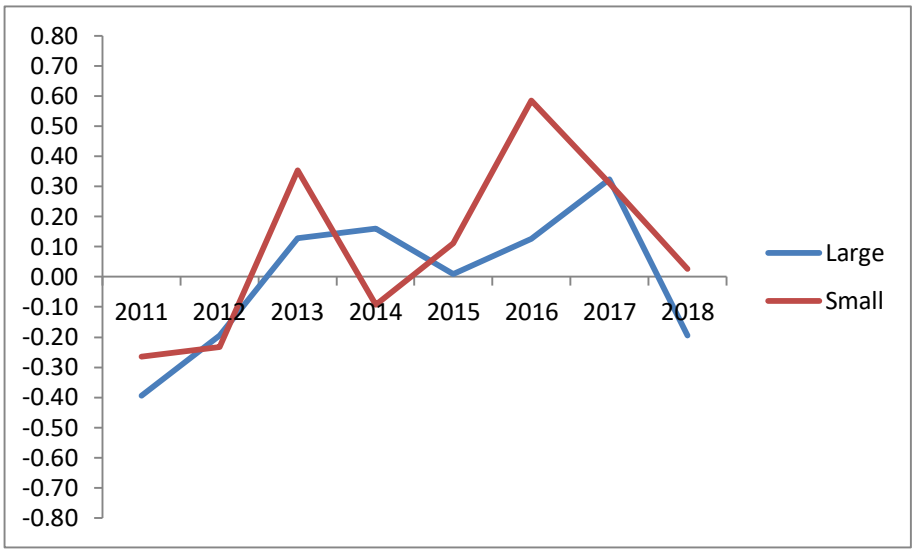
maximum return price. All those calculations are done for 8 years of all 30 small stock companies and also for 30 large stock companies.

When all the 30 small stock companies and 30 large stock companies return, average return, standard deviation, minimum return price and maximum return price are calculation are done. Then I found the difference between the average small stocks and average large stocks. To know the differences, subtract the average large stocks to average small stocks. I found the differences. Now I found that in Bangladesh small stock companies is higher than the large stock companies. That's why, Bangladeshi capital market in not efficient. Bangladeshi capital market is in weak form of efficient market hypothesis.

The Dhaka Stock Exchange (DSE), located in Motijheel, Dhaka, is one of two financial marketplaces in Bangladesh. And the other is located in Chittagong Stock Exchange. In 1954, Dhaka Stock Exchange was incorporated, and in 1956 the formal trading began at Narayanganj after obtaining the certificate of commencement of business. But it was shifted to Dhaka and started functioning at the Narayanganj Chamber Building in Motijheel C/A.

Originally; the exchange was called the East Pakistan Stock Exchange Association ltd. The name was revised to: East Pakistan Stock Exchange ltd in 1962. And after two years later, the name again changed to the current Dhaka Stock Exchange ltd. The Dhaka Stock Exchange is registered as a Public Limited Company (PLC) and is regulated by the Bangladesh Securities and Exchange Ordinance of 1969, the Companies Act of 1994 (Bangladesh) and the Securities and Exchange Commission (SEC) Act of 1993 (Bangladesh).

2.6 Comparison of stock price return



Graph 01: Historical trend of stock return

For better comparison of stock return reflection, I have taken 60 (sixty) random stocks with complete price information that comprise of 30 (thirty) large stocks and 30 (thirty) small stock.

As per the study, it is evident that the stock market of Bangladesh follows a random walk, resembling to a weak form of efficient market, where neither technical nor fundamental analysis works as price reflects immediately to the new information in the market. In a market like this, usage only insider information can be capitalized the abnormal returns.

We have to be skeptic in deciding whether Bangladeshi stock market follows the trend of an international market due to not having actual reflection of being the small stocks' return higher than the large stocks. On top of that, the randomness in stock price movement makes it more difficult to predict the near future possible return.

Despite the high price volatility, it is to some extent evident that the small stocks tend to provide greater return than that of large stocks.

Besides, in 2018, Russell 2000 index shows that small stocks' return remains higher at 13.4% than S&P 500 large stock at 8.5%.

Graph 02: Trend of average difference in stock return

From the analysis with the current existing data from the stock market, it is evident that the return of small stock tends to be higher than that of large stocks.

Comparison of Average Return on Stocks Based on Stock Size								
Year	2011	2012	2013	2014	2015	2016	2017	2018
Large Stock	-0.39	-0.19	0.13	0.16	0.01	0.13	0.32	-0.20
Small Stock	-0.26	-0.23	0.35	-0.09	0.11	0.58	0.31	0.03
Average Difference	-0.13	0.04	-0.22	0.25	-0.10	-0.46	0.01	-0.22

N.B: A detail data table has been given in annexure A1

Chapter 03

3.1 The Market Anomaly:

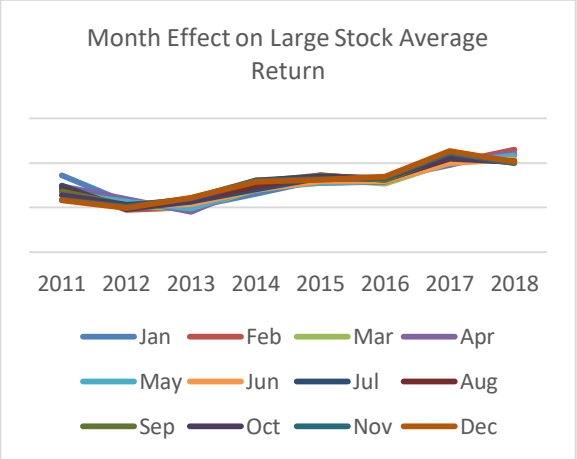
According to market anomaly of size effect, empirical researches suggest that market return is linear with the risk of the assets, not with the size. Considering the concept, here we find the exact same reflection. Return of small capitalized stocks is higher than return of large capitalized stock. This scenario prevails due to the level of risk associated with the small sized stock. In the long run, small sized stocks are seen as vulnerable as they are usually not established in the market.

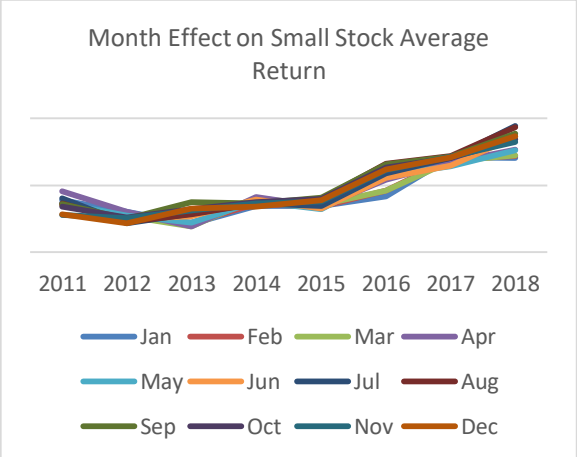
3.1.1 Calendar Effects:

A colander effect is any market anomaly where stock market behaves differently than expected. It can be associated with certain types of investors or in other words behavioral investors who analyze the trend when stock prices rise or fall based upon certain dates. For example, for any given stock market, if stock prices tend to rise in January or any particular period during the year, investor tend to capitalize the opportunity before anyone else to gain abnormal return.

3.1.1.1 January Effect:

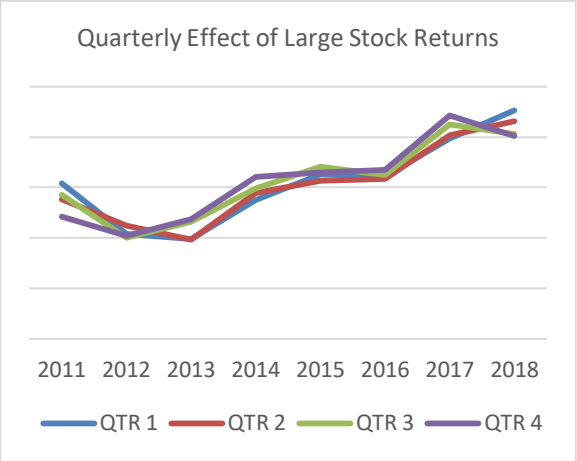
As per the dataset I have worked with nothing shows a consistent trend of January effect on the stock price movement for both the large and stock prices. However, during the 2014 till 2017 stock prices seems to get higher as like a trend, but fallen in 2018. So, it is unbeatable opportunity for abnormal return seekers.

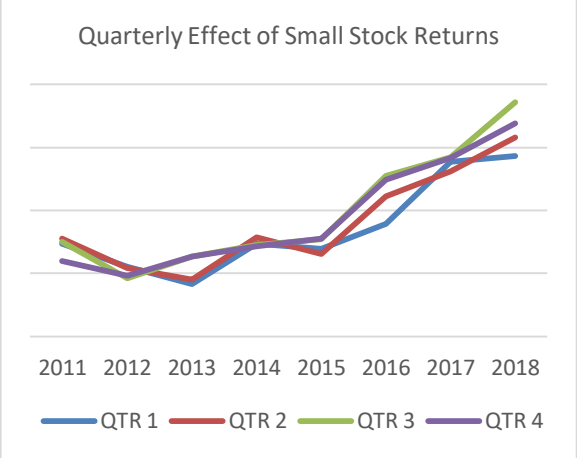




3.1.1.2 Quarter Effect:

As like January effect, there is no such absolute hard evidence found from the data that quarter effect also exists. But it gives an opportunity for the investors to maximize their return if they sell off securities during second and third quarters. This is because, according to the data I have studied shows that stock prices take a bit time to pick up to second quarter of the year and falls down in the last quarter.





N.B: Dataset for the above charts has been provided in annexure A2

3.1.2 Size & Earning Effect:

Size effect anomaly is a stock market behavior where efficient market hypothesis gets rejected. According to the EMH theory, portfolio return for both small and large stocks should be risk adjusted. Hence, return rate for both the stocks should be same based on their market beta. However, different scholars in in multiple stock market studies have found that small stock outperforms the large stock due to the investment size and return on investment ratio. According to those studies, small can perform 8 times better than large stocks at a given amount of investment. Among them, US stock market's S&P 500 index study is the most popular. In addition, the case of Amman Stock Exchange study also found the same.

As per the data I have studied of Bangladeshi stock market, the scenario is a bit different than found by the other scholars. In Bangladesh, it is evident that large stocks outperform the small stocks. To study is there any correlation in between stock size and market return, I have used the correlation coefficient model for both the stocks. According to the data, I have found that, correlation of stock size and market return is 0.84 for large stocks which demonstrate a strong correlation in between these two variables. On the other hand, the result is 0.04 for small stocks which states insignificant or no correlation between stock size and market return.

Stock Size	Market Return Correlation
Small	0.04
Large	0.84

N.B: Data table has been provided in annexure A3

3.1.3 Price to Book Value Effect:

Extensive academic research has shown that stocks with below-average price-to-book ratios tend to outperform the market. Numerous test portfolios have shown that buying a collection of stocks with low price/book ratios will deliver market-beating performance. Although this anomaly makes sense to a point when unusually cheap stocks should attract buyers' attention and revert to the mean. This is, unfortunately, a relatively weak anomaly. According to data, I have found it true that low price-to-book stocks outperform as a group, individual performance still depends on the firm. Below table is the outcome of my study.

Index	Book Value Status	Average M/B Ratio
Small 30	High Value	1.11 Times
	Low Value	12.06 Times
Large 30	High Value	50.31 Times
	Low Value	85.69 Times

N.B: A detail data table has been given in annexure A4

Chapter 04

4.1 Conclusion

In conclusion, it is evident that stocks price in Bangladeshi capital market is too swift to predict the future price. It is constant and continuously moves randomly leaving the investors to the state of uncertainty. In other words, price of the stock in the stock market is very sensitive to any new information. It takes no time to reflect the information in prices. Moreover, it is also understandable that risk and return maintains a linear relationship in Bangladeshi stock market where large stock size is immaterial to stock return. In fact, small stock tends to give higher return considering the risk prevails with the small stock.

References:

1. Small Cap Stocks vs. Large Cap Stocks. (1919, August 20). Retrieved January 13, 2020, from https://www.investopedia.com/articles/markets/022316/small-cap-vs-mid-cap-vs-large-cap-stocks-2016.asp.
2. Dhaka Stock Exchange. (1919, November 12). Retrieved January 13, 2020, from https://www.dsebd.org/.
3. Dhaka Stock Exchange (DSE). (2018, August 17). Retrieved January 13, 2020, from https://www.investopedia.com/terms/d/dse.asp.
4. Bodie, Z., Kane, A., & Marcus, A. J. (2014). Investments. New York: McGraw-Hill Education.
5. (n.d.). Stock Market Overreaction to Bad News in Good Time: A Rational Expectation Model.
6. Market efficiency. (n.d.). Retrieved June 12, 2020, from https://ebrary.net/732/business_finance/market_efficiency
7. Canady, D. (2020, May 27). Making Sense of Market Anomalies. Retrieved June 12, 2020, from https://www.investopedia.com/articles/stocks/08/market-anomaly-efficient-market.asp

Annexures:

1. Annexure A1: Index Data Tables (2011 to 2018)

Small Index 2011					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	AZIZPIPES	197,522,798	-0.27	36.94	27.05
2	DSHGARME	200,175,776	0.19	30.10	35.95
3	BDAUTOCA	220,929,484	0.02	51.07	52.21
4	GEMINISEA	225,892,631	0.58	52.91	83.73
5	DULAMIACOT	272,037,600	-0.55	36.00	16.30
6	BANGAS	287,921,092	-0.04	39.65	38.23
7	AL-HAJTEX	498,149,585	0.06	22.34	23.73
8	ANWARGALV	604,612,800	-0.33	41.64	28.09
9	EASTRNLUB	682,878,000	-0.56	687.00	299.70
10	APEXFOODS	685,542,528	-0.31	120.22	83.00
11	1STPRIMFMF	848,000,000	-0.50	42.40	21.30
12	ICBAMCL2ND	865,000,000	-0.49	17.30	8.90
13	AMBEEPHA	993,192,000	-0.16	413.83	347.75
14	GQBALLPEN	1,022,623,543	-0.11	114.54	101.42
15	FINEFOODS	1,037,283,933	-0.37	74.23	46.60
16	ICBEPMF1S1	1,237,500,000	-0.48	16.50	8.60
17	HAKKANIPUL	1,252,100,000	-0.38	65.90	40.70
18	BDCOM	1,377,520,453	-0.47	28.20	14.96
19	AMCL(PRAN)	1,399,600,000	-0.21	174.95	138.50
20	APEXSPINN	1,401,960,000	-0.34	166.90	109.60
21	ICB3RDNRB	1,410,000,000	-0.45	14.10	7.70
22	AGRANINS	1,718,503,115	-0.52	56.82	27.45
23	DAFODILCOM	1,762,901,094	-0.43	35.32	20.10
24	IBNSINA	1,832,126,346	0.01	58.64	58.97
25	BDLAMPS	1,853,225,144	-0.25	197.77	148.85
26	DBH1STMF	1,872,000,000	-0.47	15.60	8.30
27	ECABLES	1,875,720,000	-0.22	71.05	55.10
28	GREENDELMF	1,950,000,000	-0.48	13.00	6.80
29	HRTEX	1,966,316,000	0.00	77.72	77.72
30	CONTININS	2,119,508,730	-0.41	55.63	32.55
Average			-0.26		
Standard Deviation			0.26		
Minimum			-0.56		
Maximum			0.58		

Small Index 2012					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	123,172,580	-0.49	17.90	9.10
2	AZIZPIPES	144,639,731	-0.42	28.76	16.67
3	BDAUTOCA	225,861,139	-0.52	57.20	27.62
4	DSHGARME	239,080,370	-0.59	36.57	14.88
5	BANGAS	277,609,668	0.70	37.96	64.55
6	EASTRNLUB	297,901,800	-0.33	315.90	213.20
7	GEMINISEA	357,474,769	-0.32	81.84	55.44
8	ANWARGALV	407,866,800	-0.49	30.73	15.82
9	1STPRIMFMF	426,000,000	0.26	22.20	28.00
10	ICBAMCL2ND	445,000,000	-0.20	9.10	7.30
11	APEXFOODS	473,299,200	-0.15	86.70	73.70
12	AL-HAJTEX	529,144,568	-0.35	24.14	15.77
13	ICBEPMF1S1	645,000,000	-0.07	8.70	8.10
14	FINEFOODS	651,184,579	-0.62	44.46	16.96
15	BDCOM	730,769,715	-0.22	15.37	11.95
16	ICB3RDNRB	770,000,000	-0.12	7.80	6.90
17	HAKKANIPUL	773,300,000	-0.51	38.90	19.10
18	AGRANINS	830,216,658	-0.21	28.77	22.63
19	AMBEEPHA	834,600,000	-0.46	341.50	185.92
20	HRTEX	882,211,000	-0.21	38.35	30.30
21	GQBALLPEN	905,486,989	0.00	111.62	111.68
22	APEXSPINN	920,640,000	-0.44	118.70	66.30
23	DBH1STMF	996,000,000	-0.14	8.30	7.10
24	DAFODILCOM	1,003,236,466	-0.32	20.70	14.10
25	GREENDELMF	1,020,000,000	0.00	6.90	6.90
26	AMCL(PRAN)	1,108,000,000	-0.14	141.20	122.00
27	CONTININS	1,240,158,353	-0.19	33.02	26.71
28	IFIC1STMF	1,324,361,106	-0.02	7.45	7.27
29	EBL1STMF	1,341,871,638	-0.14	9.45	8.09
30	BDLAMPS	1,394,815,001	-0.29	161.77	114.80
Average			-0.23		
Standard Deviation			0.27		
Minimum			-0.62		
Maximum			0.70		

Small Index 2013					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	68,765,060	-0.15	9.20	7.80
2	AZIZPIPES	89,136,574	0.17	16.86	19.81
3	DSHGARME	98,957,327	1.29	15.00	34.33
4	BDAUTOCA	119,484,479	-0.01	27.34	26.96
5	EASTRNLUB	211,920,800	0.32	217.00	287.50
6	ANWARGALV	229,706,400	0.84	15.45	28.45
7	GEMINISEA	236,694,150	-0.20	55.38	44.27
8	FINEFOODS	236,997,649	0.36	16.77	22.87
9	AL-HAJTEX	351,648,118	1.83	15.77	44.65
10	HAKKANIPUL	362,900,000	0.96	18.50	36.30
11	ICBAMCL2ND	365,000,000	-0.19	7.20	5.80
12	APEXFOODS	420,266,880	0.30	73.20	95.40
13	AMBEEPHA	446,208,000	0.13	188.17	213.25
14	BANGAS	468,734,085	3.25	65.13	276.63
15	APEXSPINN	556,920,000	0.04	65.70	68.30
16	1STPRIMFMF	560,000,000	-0.12	28.20	24.80
17	BDCOM	583,736,504	0.79	11.88	21.28
18	ICBEPMF1S1	607,500,000	-0.29	8.00	5.70
19	AGRANINS	684,437,267	-0.03	21.82	21.09
20	ICB3RDNRB	690,000,000	-0.26	6.90	5.10
21	DAFODILCOM	703,762,894	-0.13	14.00	12.20
22	HRTEX	766,590,000	0.29	30.50	39.20
23	DBH1STMF	852,000,000	-0.20	7.00	5.60
24	BEACHHATCH	871,077,482	0.41	20.78	29.24
25	BDWELDING	903,468,189	0.08	20.77	22.38
26	AMCL(PRAN)	976,000,000	0.58	118.90	188.00
27	GQBALLPEN	997,089,203	0.10	112.11	122.91
28	APEXTANRY	1,016,508,000	0.76	66.10	116.60
29	CONTININS	1,017,653,751	-0.12	26.97	23.60
30	GREENDELMF	1,035,000,000	-0.21	6.70	5.30
Average			0.35		
Standard Deviation			0.74		
Minimum			-0.29		
Maximum			3.25		

Small Index 2014					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	58,941,480	-0.11	7.90	7.00
2	AZIZPIPES	105,926,546	-0.05	20.57	19.52
3	BDAUTOCA	116,629,310	-0.19	26.30	21.40
4	GEMINISEA	189,005,231	0.44	43.17	62.04
5	DSHGARME	228,306,790	0.30	34.79	45.20
6	EASTRNLUB	285,775,000	0.34	287.50	385.30
7	ICBAMCL2ND	290,000,000	-0.21	5.80	4.60
8	FINEFOODS	319,583,505	-0.55	22.97	10.28
9	ANWARGALV	413,094,000	0.31	28.00	36.55
10	ICBEPMF1S1	427,500,000	-0.24	5.90	4.50
11	1STPRIMFMF	496,000,000	-0.35	24.30	15.80
12	ICB3RDNRB	510,000,000	-0.16	5.10	4.30
13	AMBEEPHA	511,800,000	0.19	213.83	253.70
14	APEXFOODS	544,008,960	0.02	95.20	96.70
15	APEXSPINN	573,720,000	-0.03	68.90	67.10
16	DAFODILCOM	608,929,596	-0.06	11.70	11.00
17	AGRANINS	637,860,449	-0.36	21.54	13.87
18	DBH1STMF	672,000,000	-0.18	5.60	4.60
19	HAKKANIPUL	689,700,000	-0.16	36.20	30.40
20	GREENDELMF	795,000,000	-0.13	5.30	4.60
21	CONTININS	899,162,431	-0.32	23.95	16.35
22	BDWELDING	960,551,928	-0.29	22.10	15.60
23	HRTEX	991,760,000	-0.33	39.50	26.60
24	AL-HAJTEX	995,630,213	0.55	44.65	69.25
25	EBL1STMF	1,013,279,554	-0.24	7.00	5.30
26	BDCOM	1,039,490,611	-0.09	21.21	19.28
27	CENTRALINS	1,047,123,674	-0.21	22.68	17.83
28	ASIAPACINS	1,079,925,000	-0.43	25.70	14.70
29	GQBALLPEN	1,097,351,665	-0.15	123.35	105.30
30	BDLAMPS	1,132,906,507	-0.06	120.60	113.40
Average			-0.09		
Standard Deviation			0.26		
Minimum			-0.55		
Maximum			0.55		

Small Index 2015					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	52,896,200	-0.04	7.20	6.90
2	BDAUTOCA	92,576,678	0.56	21.68	33.75
3	AZIZPIPES	104,375,880	0.70	20.48	34.76
4	FINEFOODS	143,651,877	-0.25	10.57	7.88
5	ICBAMCL2ND	230,000,000	-0.06	4.70	4.40
6	GEMINISEA	264,872,025	0.47	63.64	93.39
7	DSHGARME	300,596,182	1.60	45.87	119.10
8	1STPRIMFMF	316,000,000	-0.39	16.20	9.90
9	ICBEPMF1S1	337,500,000	0.31	4.50	5.90
10	EASTRNLUB	382,988,200	-0.26	385.20	285.60
11	AGRANINS	419,493,809	-0.05	13.96	13.33
12	ICB3RDNRB	430,000,000	-0.07	4.40	4.10
13	ANWARGALV	530,706,000	1.07	36.00	74.55
14	DAFODILCOM	549,034,882	0.47	11.90	17.50
15	APEXFOODS	551,422,080	0.23	98.10	120.70
16	DBH1STMF	552,000,000	0.04	4.70	4.90
17	APEXSPINN	563,640,000	0.64	67.90	111.30
18	HAKKANIPUL	577,600,000	0.68	30.10	50.60
19	AMBEEPHA	608,880,000	0.06	257.30	272.60
20	ASIAPACINS	622,545,000	-0.18	15.20	12.50
21	CONTININS	622,936,684	-0.33	16.35	10.99
22	BDWELDING	669,553,622	0.06	15.80	16.70
23	HRTEX	672,980,000	-0.26	27.20	20.00
24	GREENDELMF	690,000,000	0.04	4.50	4.70
25	EBL1STMF	767,197,377	-0.21	5.30	4.20
26	DHAKAINS	786,851,250	-0.32	20.17	13.70
27	CENTRALINS	839,488,089	-0.27	17.65	12.81
28	ASIAINS	870,792,373	-0.39	18.50	11.20
29	CITYGENINS	890,249,553	-0.27	13.29	9.75
30	BGIC	918,463,335	-0.22	17.20	13.40
Average			0.11		
Standard Deviation			0.48		
Minimum			-0.39		
Maximum			1.60		

Small Index 2016					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	52,140,540	0.17	7.00	8.20
2	FINEFOODS	110,114,474	1.84	8.26	23.43
3	BDAUTOCA	146,002,939	1.25	33.17	74.47
4	AZIZPIPES	185,866,065	0.94	34.38	66.67
5	1STPRIMFMF	198,000,000	0.22	9.80	12.00
6	ICBAMCL2ND	220,000,000	0.40	4.30	6.00
7	EASTRNLUB	283,886,400	3.18	284.60	1189.50
8	GEMINISEA	398,716,931	2.34	94.88	317.02
9	AGRANINS	403,161,678	0.55	13.60	21.02
10	ICB3RDNRB	410,000,000	0.37	4.10	5.60
11	CONTININS	418,720,132	0.43	10.99	15.71
12	ICBEPMF1S1	442,500,000	0.08	6.00	6.50
13	HRTEX	506,000,000	0.46	19.80	28.90
14	ASIAINS	527,182,410	0.53	11.40	17.40
15	ASIAPACINS	529,375,000	0.36	12.30	16.70
16	BEACHHATCH	542,353,375	-0.17	13.30	11.10
17	DHAKAINS	549,712,500	0.51	13.40	20.25
18	DBH1STMF	588,000,000	0.49	4.90	7.30
19	CENTRALINS	603,131,936	0.19	12.81	15.24
20	EBL1STMF	607,967,732	0.48	4.20	6.20
21	FEDERALINS	644,092,784	0.36	9.25	12.57
22	AMBEEPHA	654,240,000	0.43	268.40	384.70
23	CITYGENINS	664,619,690	0.43	9.75	13.91
24	BXSYNTH	685,027,636	0.09	7.90	8.60
25	APEXFOODS	688,279,680	0.11	124.20	137.50
26	GREENDELMF	705,000,000	0.55	4.70	7.30
27	BDWELDING	716,765,737	-0.27	16.80	12.20
28	BGIC	723,965,217	0.27	13.50	17.10
29	GQBALLPEN	753,530,880	-0.17	82.20	68.60
30	DSHGARME	792,057,638	1.13	120.37	256.28
Average			0.58		
Standard Deviation			0.74		
Minimum			-0.27		
Maximum			3.18		

Small Index 2017					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	61,964,120	1.94	9.00	26.50
2	1STPRIMFMF	240,000,000	0.27	11.90	15.10
3	ICBAMCL2ND	300,000,000	0.28	6.40	8.20
4	BDAUTOCA	322,158,188	0.36	79.03	107.50
5	FINEFOODS	327,408,899	0.39	25.69	35.60
6	AZIZPIPES	356,492,824	1.23	66.67	149.00
7	BEACHHATCH	459,551,333	0.42	11.80	16.70
8	ICBEPMF1S1	487,500,000	0.03	6.90	7.10
9	BDWELDING	523,625,269	0.79	13.40	24.00
10	ICB3RDNRB	560,000,000	0.05	6.10	6.40
11	CONTININS	598,552,618	0.30	15.99	20.74
12	GQBALLPEN	612,467,043	0.30	69.40	90.00
13	AGRANINS	635,743,321	-0.09	21.02	19.12
14	ASIAPACINS	707,245,000	0.43	16.60	23.70
15	CENTRALINS	717,543,381	0.35	15.72	21.20
16	HRTEX	731,170,000	0.11	29.00	32.10
17	BXSYNTH	745,726,287	-0.02	9.10	8.90
18	APEXFOODS	784,080,000	0.01	140.40	141.20
19	DACCADYE	784,381,077	-0.03	9.20	8.90
20	DHAKAINS	812,531,250	0.12	20.85	23.35
21	ASIAINS	819,015,529	0.31	17.50	22.90
22	FEDERALINS	850,446,039	-0.07	12.95	12.10
23	DBH1STMF	876,000,000	0.24	7.60	9.40
24	APEXSPINN	884,520,000	0.08	107.60	116.50
25	EBL1STMF	897,476,176	0.47	6.60	9.70
26	BANGAS	916,409,629	0.40	125.20	175.50
27	AMBEEPHA	923,280,000	0.01	383.60	387.20
28	BGIC	923,866,061	0.20	17.60	21.20
29	ANWARGALV	925,359,600	0.26	63.91	80.60
30	HAKKANIPUL	927,200,000	0.20	48.80	58.60
Average			0.31		
Standard Deviation			0.41		
Minimum			-0.09		
Maximum			1.94		

Small Index 2018					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DULAMIACOT	200,249,900	0.15	29.10	33.40
2	1STPRIMFMF	302,000,000	-0.29	15.20	10.80
3	ICBAMCL2ND	410,000,000	-0.25	8.50	6.40
4	BDAUTOCA	465,046,398	1.77	108.60	301.30
5	FINEFOODS	497,471,481	0.16	35.70	41.40
6	ICBEPMF1S1	532,500,000	-0.25	7.20	5.40
7	AGRANINS	578,278,415	-0.10	19.12	17.30
8	ICB3RDNRB	640,000,000	-0.17	6.50	5.40
9	BEACHHATCH	691,397,051	-0.14	16.00	13.80
10	BXSYNTH	771,739,995	-0.17	8.80	7.30
11	DACCADYE	775,665,732	-0.38	8.90	5.50
12	CONTININS	790,196,136	-0.06	20.45	19.20
13	AZIZPIPES	796,721,625	0.12	155.20	173.10
14	GQBALLPEN	803,528,190	-0.16	90.00	75.70
15	APEXFOODS	805,178,880	0.16	145.40	168.70
16	HRTEX	812,130,000	0.35	32.40	43.60
17	FEDERALINS	818,647,341	-0.20	12.19	9.70
18	AMBEEPHA	929,280,000	0.99	389.10	773.10
19	DHAKAINS	936,918,750	-0.13	23.25	20.30
20	EASTRNLUB	968,553,600	0.40	960.30	1345.00
21	APEXSPINN	978,600,000	0.12	117.90	131.80
22	CENTRALINS	998,157,459	-0.17	22.50	18.70
23	ASIAPACINS	1,003,695,000	0.11	23.90	26.50
24	ARAMITCEM	1,026,564,000	-0.28	30.70	22.10
25	BDWELDING	1,030,082,496	-0.34	24.40	16.00
26	BIFC	1,077,275,401	-0.03	20.60	20.00
27	ASIAINS	1,077,899,748	-0.19	21.70	17.50
28	IFIC1STMF	1,111,224,587	-0.33	6.30	4.20
29	HAKKANIPUL	1,113,400,000	0.25	58.80	73.60
30	DBH1STMF	1,128,000,000	-0.12	9.20	8.10
Average			0.03		
Standard Deviation			0.43		
Minimum			-0.38		
Maximum			1.77		

Large Index 2011					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DBH	12,650,414,608	-0.31	94.38	65.36
2	ICBIBANK	12,895,224,620	-0.48	19.40	10.00
3	BEACONPHAR	14,382,060,000	-0.51	62.26	30.50
4	GREENDELT	16,096,681,312	-0.55	181.35	81.81
5	HEIDELBCEM	16,679,859,768	-0.41	295.20	172.90
6	BDFINANCE	18,254,026,088	-0.70	108.96	33.15
7	BAYLEASING	18,429,582,931	-0.65	134.08	47.38
8	FIRSTSBANK	18,914,828,401	-0.28	21.93	15.75
9	BERGERPBL	18,987,104,072	-0.40	409.40	245.00
10	DHAKABANK	19,820,110,555	-0.21	23.23	18.24
11	BANKASIA	26,069,677,412	-0.25	22.36	16.75
12	BRACBANK	26,135,223,179	-0.31	21.19	14.53
13	ALARABANK	26,228,540,817	-0.31	24.63	16.98
14	IDLC	29,198,812,403	-0.52	77.44	37.53
15	BXPHARMA	29,220,341,862	-0.21	72.05	56.86
16	CITYBANK	35,207,633,937	-0.35	34.64	22.63
17	IFIC	37,713,608,916	-0.33	25.61	17.22
18	EXIMBANK	38,130,778,836	-0.47	27.00	14.20
19	EBL	40,573,741,409	-0.19	49.98	40.38
20	ICB1STNRB	40,712,927,306	-0.48	58.33	30.40
21	DESCO	42,078,788,055	-0.31	105.84	73.30
22	BSC	42,313,220,096	-0.82	277.40	49.41
23	ABBANK	51,082,820,692	-0.51	67.38	33.21
24	BSRMSTEEL	61,028,369,325	-0.33	162.33	108.55
25	DSEX	66,436,692,000	-0.37	7909.13	5007.25
26	DUTCHBANGL	82,125,000,000	-0.08	164.25	151.30
27	BEXIMCO	85,432,327,611	-0.47	97.49	51.69
28	BATBC	95,598,000,000	-0.15	531.10	451.30
29	ICB	111,663,008,749	-0.46	160.05	85.95
30	GP	277,891,744,528	-0.41	205.80	121.50
Average			-0.39		
Standard Deviation			0.16		
Minimum			-0.82		
Maximum			-0.08		

Large Index 2012					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	GREENDELT	7,261,480,552	-0.42	82.96	48.45
2	BATASHOE	7,277,760,000	-0.13	536.30	469.20
3	GOLDENSON	7,298,515,310	-0.19	43.62	35.27
4	BSC	7,536,756,326	-0.50	48.78	24.32
5	CVOPRL	7,829,231,850	-0.44	300.66	167.45
6	DELTALIFE	8,197,200,000	0.51	67.96	102.54
7	DBH	8,760,660,085	-0.39	69.75	42.83
8	HEIDELBCEM	9,769,470,711	0.05	173.50	181.70
9	BERGERPBL	11,362,580,600	-0.06	251.05	235.15
10	FIRSTSBANK	13,584,521,081	-0.26	16.14	11.87
11	IDLC	14,150,715,773	-0.19	38.48	31.33
12	DHAKABANK	15,562,583,579	-0.29	18.16	12.83
13	BRACBANK	17,920,943,501	-0.09	14.38	13.03
14	ALARABANK	18,082,039,101	-0.26	17.20	12.79
15	BANKASIA	19,528,939,922	-0.35	16.75	10.87
16	EXIMBANK	20,053,965,166	-0.20	14.47	11.54
17	ICB1STNRB	21,218,463,742	-0.12	30.80	27.00
18	CITYBANK	23,000,830,138	-0.48	23.35	12.13
19	BXPHARMA	23,059,939,463	-0.29	57.54	40.75
20	ABBANK	25,177,507,794	-0.41	33.40	19.66
21	IFIC	25,358,389,127	-0.02	7.45	7.27
22	DESCO	29,141,866,633	-0.29	74.61	53.29
23	EBL	32,780,465,748	-0.38	41.03	25.57
24	BSRMSTEEL	40,809,643,875	-0.44	106.64	60.17
25	DSEX	42,060,900,000	-0.21	5096.90	4018.39
26	BEXIMCO	45,296,922,907	-0.31	53.19	36.83
27	ICB	59,965,233,377	0.13	91.00	102.43
28	DUTCHBANGL	75,650,000,000	-0.31	154.30	107.00
29	BATBC	81,234,000,000	0.47	451.80	664.50
30	GP	164,061,452,673	0.03	129.10	133.00
Average			-0.19		
Standard Deviation			0.25		
Minimum			-0.50		
Maximum			0.51		

Large Index 2013					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	DELTASPINN	5,175,924,261	0.19	31.36	37.18
2	CONFIDCEM	5,566,814,280	0.19	85.83	101.75
3	DBH	5,740,805,866	0.00	41.98	41.88
4	ACTIVEFINE	5,964,823,379	0.47	23.86	35.17
5	GOLDENSON	6,056,909,058	0.51	34.78	52.48
6	BATASHOE	6,418,656,000	0.36	456.80	623.50
7	FIRSTSBANK	10,237,985,094	-0.11	11.81	10.53
8	HEIDELBCEM	10,266,702,303	0.65	180.50	297.70
9	BERGERPBL	10,905,758,482	0.75	233.75	408.45
10	DHAKABANK	10,946,707,638	-0.14	12.93	11.10
11	IDLC	11,813,000,937	-0.11	31.33	28.01
12	CITYBANK	12,328,770,198	-0.26	12.13	8.99
13	BANKASIA	12,673,407,579	0.18	11.05	13.03
14	DELTALIFE	12,689,325,000	1.09	98.26	205.06
15	ALARABANK	13,620,098,946	-0.15	12.79	10.91
16	ABBANK	14,904,842,013	-0.10	19.02	17.20
17	BRACBANK	16,070,880,511	0.09	13.03	14.26
18	EXIMBANK	16,297,377,325	-0.44	11.90	6.61
19	BXPHARMA	16,526,425,134	0.00	39.68	39.52
20	ICB1STNRB	18,845,346,087	-0.07	27.40	25.40
21	IFIC	18,908,345,900	-0.09	7.27	6.60
22	EBL	20,757,714,442	-0.09	25.74	23.30
23	DESCO	21,186,494,855	-0.04	51.78	49.56
24	BSRMSTEEL	22,621,061,925	0.09	58.74	64.20
25	BEXIMCO	32,274,824,350	-0.40	35.50	21.17
26	DSEX	33,754,476,000	0.07	3991.42	4266.55
27	DUTCHBANGL	53,500,000,000	-0.11	106.20	94.70
28	ICB	71,462,930,248	-0.02	101.76	99.48
29	BATBC	119,610,000,000	1.15	663.30	1428.10
30	GP	179,589,902,926	0.22	130.60	158.90
Average			0.13		
Standard Deviation			0.39		
Minimum			-0.44		
Maximum			1.15		

Large Index 2014					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	GREENDELT	6,481,277,471	-0.11	73.73	65.36
2	CONFIDCEM	6,592,450,571	-0.15	102.42	87.42
3	ACTIVEFINE	8,438,569,519	0.03	36.92	37.90
4	BATASHOE	8,529,480,000	0.73	638.50	1105.60
5	GOLDENSON	9,012,378,435	-0.11	51.04	45.30
6	FIRSTSBANK	9,082,222,666	-0.32	10.60	7.22
7	CITYBANK	9,137,316,082	0.55	8.68	13.49
8	EXIMBANK	9,334,979,559	-0.05	6.45	6.14
9	DHAKABANK	9,470,651,191	0.02	11.16	11.39
10	IDLC	10,561,192,348	0.36	30.22	41.01
11	ALARABANK	11,618,082,838	-0.16	10.91	9.16
12	ABBANK	13,039,841,435	0.23	17.13	21.00
13	BANKASIA	15,191,766,399	-0.18	12.41	10.14
14	CVOPRL	15,208,850,250	-0.23	647.25	496.57
15	BXPHARMA	16,027,590,706	0.32	39.26	51.99
16	HEIDELBCEM	16,821,118,743	0.36	305.10	416.40
17	BRACBANK	17,587,932,163	0.57	13.99	22.00
18	ICB1STNRB	17,728,584,837	-0.18	25.40	20.90
19	BEXIMCO	18,551,670,690	0.30	21.24	27.52
20	EBL	18,914,929,468	-0.06	22.96	21.65
21	BERGERPBL	18,943,045,086	0.66	411.80	682.55
22	IFIC	19,467,938,691	-0.21	6.60	5.20
23	DESCO	19,703,559,486	0.32	49.56	65.19
24	BSRMSTEEL	24,136,150,500	0.29	64.50	83.20
25	DELTALIFE	25,376,175,000	-0.31	206.26	141.60
26	DSEX	35,839,020,000	0.14	4286.15	4864.96
27	DUTCHBANGL	47,350,000,000	0.00	95.40	95.80
28	ICB	69,404,786,694	0.24	98.71	121.96
29	GP	214,562,673,496	1.00	160.00	319.90
30	BATBC	257,058,000,000	0.74	1420.20	2475.30
Average			0.16		
Standard Deviation			0.35		
Minimum			-0.32		
Maximum			1.00		

Large Index 2015					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	BSC	6,896,109,158	-0.35	45.39	29.58
2	DBH	7,732,596,088	0.79	57.60	102.88
3	GOLDENSON	7,779,358,672	-0.44	46.50	26.00
4	EXIMBANK	8,671,221,558	-0.26	6.32	4.65
5	ACTIVEFINE	9,093,596,382	-0.09	37.95	34.58
6	DHAKABANK	9,718,082,618	0.16	11.87	13.74
7	ALARABANK	9,754,504,015	-0.06	9.52	8.98
8	BANKASIA	11,822,295,571	0.08	10.28	11.14
9	CVOPRL	12,535,909,650	-0.31	480.49	329.71
10	CITYBANK	13,711,056,057	-0.04	13.67	13.15
11	ICB1STNRB	14,587,693,823	-0.12	21.30	18.70
12	BATASHOE	15,124,608,000	0.14	1098.50	1251.20
13	ACI	15,157,436,093	0.68	301.76	506.15
14	IDLC	15,462,852,488	0.04	41.81	43.57
15	ABBANK	15,920,736,636	-0.24	21.64	16.52
16	DELTALIFE	17,523,000,000	-0.20	144.60	115.90
17	EBL	17,575,460,214	0.06	21.65	22.87
18	IFIC	17,774,434,191	-0.15	5.20	4.40
19	BXPHARMA	21,084,879,576	0.43	55.07	78.85
20	HEIDELBCEM	23,528,094,876	0.23	421.00	517.10
21	BEXIMCO	24,116,295,578	-0.11	28.20	25.22
22	DESCO	25,917,575,523	-0.24	66.52	50.80
23	BRACBANK	27,134,257,194	0.36	21.86	29.66
24	BSRMSTEEL	31,279,248,000	0.08	85.10	91.80
25	BERGERPBL	31,655,221,994	0.34	685.65	921.80
26	DSEX	40,865,664,000	-0.06	4941.52	4629.00
27	DUTCHBANGL	47,900,000,000	0.01	96.60	97.60
28	ICB	85,088,538,251	-0.22	122.25	95.95
29	GP	431,960,977,038	-0.35	322.30	211.00
30	BATBC	445,554,000,000	0.12	2486.00	2775.50
Average			0.01		
Standard Deviation			0.29		
Minimum			-0.44		
Maximum			0.79		

Large Index 2016					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	FIRSTSBANK	5,390,682,969	0.93	6.00	11.58
2	EXIMBANK	6,566,967,466	0.88	4.75	8.95
3	ACTIVEFINE	8,297,006,936	0.01	34.34	34.64
4	CVOPRL	8,323,528,950	-0.38	328.82	202.65
5	ACIFORMULA	8,469,000,000	-0.22	192.90	150.50
6	ALARABANK	9,562,821,621	0.36	8.61	11.74
7	DHAKABANK	11,723,130,393	0.03	13.89	14.27
8	ABBANK	12,524,312,820	0.19	16.60	19.82
9	BANKASIA	12,988,202,432	0.31	10.84	14.20
10	ICB1STNRB	13,052,147,105	0.12	18.30	20.50
11	CITYBANK	13,365,484,592	0.69	12.86	21.72
12	DBH	13,789,729,338	-0.05	103.17	97.70
13	DELTALIFE	14,342,625,000	-0.18	117.30	96.10
14	IDLC	16,428,102,485	0.26	42.83	54.00
15	IFIC	16,993,949,508	0.23	4.40	5.40
16	BATASHOE	17,116,416,000	-0.12	1251.60	1098.00
17	EBL	18,565,855,663	0.22	22.17	27.00
18	DESCO	20,196,546,043	-0.10	50.30	45.30
19	BEXIMCO	22,100,762,154	-0.02	26.61	26.00
20	ACI	25,251,584,091	-0.25	511.51	381.10
21	HEIDELBCEM	29,218,006,389	0.04	514.20	537.30
22	BXPHARMA	31,978,125,688	-0.02	81.04	79.55
23	BSRMSTEEL	34,512,439,500	0.00	91.00	91.30
24	BRACBANK	36,581,912,199	0.42	29.54	41.94
25	DSEX	38,883,600,000	0.09	4624.00	5036.00
26	BERGERPBL	42,751,129,784	0.21	930.25	1128.90
27	DUTCHBANGL	48,800,000,000	0.16	95.80	110.70
28	ICB	66,941,991,187	0.01	95.19	96.52
29	GP	284,913,304,642	0.15	211.30	242.10
30	BATBC	499,590,000,000	-0.15	2775.50	2363.00
Average			0.13		
Standard Deviation			0.31		
Minimum			-0.38		
Maximum			0.93		

Large Index 2017					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	BSC	6,388,167,475	0.08	42.21	45.70
2	ACIFORMULA	6,772,500,000	0.15	151.20	173.60
3	ACTIVEFINE	8,311,403,131	0.00	35.20	35.20
4	FIRSTSBANK	9,987,857,405	0.22	11.41	13.91
5	DELTALIFE	11,892,375,000	0.08	97.40	105.10
6	DHAKABANK	12,175,332,657	0.35	14.52	19.56
7	ALARABANK	12,501,951,652	0.81	11.83	21.45
8	EXIMBANK	12,639,647,059	0.74	9.15	15.95
9	DBH	13,095,417,538	0.35	98.60	133.00
10	ICB1STNRB	14,308,503,511	0.14	20.90	23.90
11	BATASHOE	15,020,640,000	0.05	1108.00	1161.30
12	ABBANK	15,026,142,863	0.12	19.73	22.10
13	BANKASIA	16,555,877,426	0.43	14.36	20.53
14	DESCO	18,009,912,121	0.00	45.50	45.40
15	IFIC	18,142,587,343	0.03	5.90	6.10
16	ACI	19,012,898,740	0.20	382.30	459.80
17	IDLC	20,360,742,120	0.56	54.70	85.30
18	EBL	21,918,587,796	0.81	27.10	49.10
19	CITYBANK	22,075,918,277	1.28	21.43	48.77
20	BEXIMCO	22,784,290,880	0.03	26.30	27.00
21	HEIDELBCEM	30,359,378,907	-0.23	529.00	409.90
22	BXPHARMA	32,262,015,200	0.30	79.95	103.80
23	BSRMSTEEL	34,324,463,250	-0.14	91.30	78.50
24	DSEX	42,302,400,000	0.23	5083.00	6244.00
25	BRACBANK	51,727,761,214	1.06	42.00	86.72
26	BERGERPBL	52,355,988,732	-0.09	1128.90	1031.50
27	DUTCHBANGL	55,350,000,000	0.35	111.30	150.10
28	ICB	67,339,666,382	0.56	102.71	160.00
29	GP	326,907,635,326	0.86	241.00	448.30
30	BATBC	425,340,000,000	0.40	2380.10	3341.60
Average			0.32		
Standard Deviation			0.37		
Minimum			-0.23		
Maximum			1.28		

Large Index 2018					
Sl.	**Ticker**	**Market Value**	**Change**	**OP**	**CP**
1	ACIFORMULA	7,812,000,000	-0.13	176.50	153.80
2	ACTIVEFINE	8,445,767,616	-0.20	35.10	28.20
3	CONFIDCEM	9,880,577,023	0.19	150.50	179.40
4	FIRSTSBANK	11,997,504,015	-0.22	14.00	10.90
5	DELTALIFE	13,006,125,000	0.06	103.80	109.80
6	BATASHOE	15,886,584,000	-0.04	1157.80	1116.40
7	ICB1STNRB	16,681,621,166	-0.56	23.90	10.60
8	DHAKABANK	16,688,823,180	-0.26	19.29	14.20
9	ABBANK	16,754,679,984	-0.44	21.60	12.00
10	DBH	17,826,924,591	-0.94	131.70	8.10
11	DESCO	18,049,669,102	-0.12	46.00	40.40
12	EXIMBANK	22,525,404,535	-0.26	16.05	11.80
13	ALARABANK	22,842,151,868	-0.08	21.64	19.90
14	ACI	22,939,204,515	-0.29	460.40	326.20
15	HEIDELBCEM	23,160,821,541	-0.19	414.80	334.70
16	BEXIMCO	23,660,609,760	-0.17	28.30	23.50
17	IFIC	23,664,884,627	-0.33	6.30	4.20
18	BANKASIA	23,936,067,856	-0.14	20.53	17.70
19	BSRMSTEEL	29,512,271,250	-0.24	78.90	59.90
20	IDLC	32,162,431,534	-0.19	85.90	69.70
21	EBL	39,859,357,807	-0.27	49.10	36.00
22	BXPHARMA	42,096,758,991	-0.24	104.00	79.10
23	BERGERPBL	47,838,783,220	0.27	1057.15	1344.10
24	CITYBANK	49,569,177,457	-0.37	47.91	30.20
25	DSEX	52,449,600,000	-0.14	6254.00	5385.00
26	DUTCHBANGL	75,050,000,000	-0.01	145.90	144.40
27	BRACBANK	106,958,308,357	-0.15	85.44	72.70
28	ICB	111,628,124,960	-0.28	160.80	116.20
29	BATBC	601,488,000,000	0.06	3340.30	3541.70
30	GP	605,339,499,863	-0.18	449.50	367.30
Average			-0.20		
Standard Deviation			0.22		
Minimum			-0.94		
Maximum			0.27		

2. Annexure A2: Calendar effect of anomaly based on the stocks' average market return

Quarter Effect of Small Stocks				
Year	QTR 1	QTR 2	QTR 3	QTR 4
2011	307.83	276.32	285.37	241.70
2012	207.92	224.03	199.99	203.62
2013	197.49	197.02	231.99	236.99
2014	274.51	288.80	298.55	320.30
2015	325.98	313.44	340.90	329.59
2016	322.09	316.69	324.99	334.42
2017	397.29	402.91	424.55	442.07
2018	452.48	431.71	405.85	402.35

Quarter Effect of Large Stocks				
Year	QTR 1	QTR 2	QTR 3	QTR 4
2011	73.42	77.71	75.13	60.02
2012	55.27	54.51	45.96	48.39
2013	41.58	45.29	63.37	63.69
2014	73.81	78.69	72.76	71.41
2015	69.36	65.65	77.10	77.44
2016	89.23	111.27	127.22	124.21
2017	138.81	130.80	142.25	141.58
2018	142.95	158.13	185.86	168.89

Month Effect of Large Stocks												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	344.54	294.50	284.94	294.36	266.46	270.13	299.34	284.29	272.28	254.18	235.65	233.23
2012	223.85	188.78	208.50	237.22	226.74	206.93	192.39	196.24	210.00	210.98	202.95	196.98
2013	200.67	199.23	191.45	181.43	193.84	216.14	227.14	231.96	236.84	225.81	240.75	243.35
2014	260.14	282.38	281.13	299.96	287.35	279.53	281.14	294.85	315.35	322.51	322.60	316.11
2015	325.34	325.89	326.68	309.98	310.30	319.70	333.82	343.16	344.62	338.08	326.45	324.79
2016	329.31	330.23	308.34	314.52	317.57	317.72	325.75	324.27	325.11	332.40	332.60	338.67
2017	391.66	398.21	402.66	407.39	401.73	399.16	417.87	423.27	433.66	428.36	445.82	453.58
2018	459.48	459.45	437.71	442.46	432.79	417.09	404.45	406.22	408.26	402.35	399.47	405.56
Month Effect of Small Stocks												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	77.58	70.52	72.04	90.91	73.03	70.58	80.36	72.57	72.01	67.45	55.16	56.02
2012	60.45	50.76	53.84	59.85	54.44	48.54	42.77	45.13	49.63	51.15	50.90	42.70
2013	42.42	44.05	37.84	38.52	44.19	53.14	57.12	56.31	74.17	63.97	62.19	64.91
2014	68.89	71.97	80.53	81.92	75.82	78.13	73.12	72.81	72.43	74.18	72.39	68.09
2015	68.90	67.98	71.10	67.73	64.29	64.96	68.98	79.41	81.71	79.30	75.53	77.66
2016	83.59	91.88	91.70	107.87	114.47	111.15	117.44	132.17	130.88	126.49	122.97	123.25
2017	141.68	138.46	135.97	134.34	128.71	129.13	140.39	143.69	142.86	140.32	143.12	141.28
2018	140.94	143.94	144.32	153.12	151.82	172.11	188.75	187.17	177.16	168.76	164.99	173.38

3. Annexure A3: Size Effect of Market Anomaly

Size Effect of Market Anomaly	
Small Stock	Large Stock

Year	Average Price	Average Market Capitalization	Year	Average Price	Average Market Capitalization
2011	72	1,122,358,088	2011	278	47,065,038,316
2012	51	710,630,071	2012	209	29,433,099,301
2013	53	550,938,760	2013	216	26,557,210,358
2014	74	624,365,415	2014	295	32,639,074,477
2015	72	511,976,370	2015	327	48,764,190,108
2016	113	491,680,379	2016	325	46,307,312,165
2017	138	657,057,121	2017	417	47,175,002,067
2018	162	802,346,739	2018	427	70,323,724,461

4. Annexure A4: Market to Book Value Effect

Above Average No. of Shares of Small Stocks in 2018				
Company	Shares	Total Book Value	Market Cap	M/B Ratio
ICBAMCL2ND	50,000,000	500,000,000	410,000,000	0.82
ICBEPMF1S1	75,000,000	750,000,000	532,500,000	0.71
ICB3RDNRB	100,000,000	1,000,000,000	640,000,000	0.64
BXSYNTH	86,712,359	867,123,590	771,739,995	0.89
DACCADYE	87,153,453	871,534,530	775,665,732	0.89
FEDERALINS	67,656,805	676,568,050	818,647,341	1.21
CENTRALINS	47,082,899	470,828,990	998,157,459	2.12
BIFC	100,679,944	1,006,799,440	1,077,275,401	1.07
ASIAINS	47,069,858	470,698,580	1,077,899,748	2.29
IFIC1STMF	182,167,965	1,821,679,650	1,111,224,587	0.61
DBH1STMF	120,000,000	1,200,000,000	1,128,000,000	0.94
Average M/B ratio for the index				**1.11**
Below Average No. of Shares of Small Stocks in 2018				
Company	Shares	Total Book Value	Market Cap	M/B Ratio
DULAMIACOT	7,556,600	75,566,000	200,249,900	2.65
1STPRIMFMF	20,000,000	200,000,000	302,000,000	1.51
BDAUTOCA	4,326,013	43,260,130	465,046,398	10.75
FINEFOODS	13,973,918	139,739,180	497,471,481	3.56
AGRANINS	30,244,687	302,446,870	578,278,415	1.91
BEACHHATCH	41,401,021	414,010,210	691,397,051	1.67
CONTININS	38,100,103	381,001,030	790,196,136	2.07
AZIZPIPES	5,347,125	53,471,250	796,721,625	14.90
GQBALLPEN	8,928,091	89,280,910	803,528,190	9.00
APEXFOODS	5,702,400	57,024,000	805,178,880	14.12
HRTEX	25,300,000	253,000,000	812,130,000	3.21
AMBEEPHA	2,400,000	24,000,000	929,280,000	38.72
DHAKAINS	40,125,000	401,250,000	936,918,750	2.34
EASTRNLUB	994,000	9,940,000	968,553,600	97.44
APEXSPINN	8,400,000	84,000,000	978,600,000	11.65
ASIAPACINS	42,350,000	423,500,000	1,003,695,000	2.37
ARAMITCEM	33,880,000	338,800,000	1,026,564,000	3.03
BDWELDING	42,920,104	429,201,040	1,030,082,496	2.40
HAKKANIPUL	19,000,000	190,000,000	1,113,400,000	5.86

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Average M/B ratio for the index				12.06
Above Average No. of Shares of Large Stocks in 2018				
Company	Shares	Total Book Value	Market Cap	M/B Ratio
ACIFORMULA	45,000,000	450,000,000	7,812,000,000	17.36
FIRSTSBANK	862,509,275	8,625,092,750	11,997,504,015	1.39
BATASHOE	13,680,000	136,800,000	15,886,584,000	116.13
ICB1STNRB	697,975,781	6,979,757,810	16,681,621,166	2.39
DHAKABANK	853,211,819	8,532,118,190	16,688,823,180	1.96
ABBANK	758,130,316	7,581,303,160	16,754,679,984	2.21
EXIMBANK	1,412,251,068	14,122,510,680	22,525,404,535	1.60
ALARABANK	1,064,902,185	10,649,021,850	22,842,151,868	2.15
BEXIMCO	876,318,880	8,763,188,800	23,660,609,760	2.70
IFIC	1,472,612,609	14,726,126,090	23,664,884,627	1.61
BANKASIA	1,165,906,861	11,659,068,610	23,936,067,856	2.05
EBL	811,799,548	8,117,995,480	39,859,357,807	4.91
CITYBANK	1,016,386,661	10,163,866,610	49,569,177,457	4.88
DSEX	8,400,000	84,000,000	52,449,600,000	624.40
BRACBANK	1,233,375,327	12,333,753,270	106,958,308,357	8.67
ICB	697,675,781	6,976,757,810	111,628,124,960	16.00
GP	1,350,300,022	13,503,000,220	605,339,499,863	44.83
Average M/B ratio for the index				**50.31**
Below Average No. of Shares of Large Stocks in 2018				
Company	Shares	Total Book Value	Market Cap	M/B Ratio
ACIFORMULA	45,000,000	450,000,000	7,812,000,000	17.36
ACTIVEFINE	239,936,580	2,399,365,800	8,445,767,616	3.52
CONFIDCEM	64,790,669	647,906,690	9,880,577,023	15.25
DELTALIFE	123,750,000	1,237,500,000	13,006,125,000	10.51
BATASHOE	13,680,000	136,800,000	15,886,584,000	116.13
DBH	134,037,027	1,340,370,270	17,826,924,591	13.30
DESCO	397,569,804	3,975,698,040	18,049,669,102	4.54
ACI	49,889,527	498,895,270	22,939,204,515	45.98
HEIDELBCEM	56,503,590	565,035,900	23,160,821,541	40.99
BSRMSTEEL	375,952,500	3,759,525,000	29,512,271,250	7.85
IDLC	377,050,780	3,770,507,800	32,162,431,534	8.53
BXPHARMA	405,556,445	4,055,564,450	42,096,758,991	10.38
BERGERPBL	46,377,880	463,778,800	47,838,783,220	103.15
DSEX	8,400,000	84,000,000	52,449,600,000	624.40
DUTCHBANGL	500,000,000	5,000,000,000	75,050,000,000	15.01
BATBC	180,000,000	1,800,000,000	601,488,000,000	334.16
Average M/B ratio for the index				**85.69**