

PROJECT REPORT ON

Use of Technical Analysis

In

Bangladesh Capital Market



UNITED INTERNATIONAL UNIVERSITY



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Submitted to

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Submission Date

05 September, 2019

LETTER OF AUTHORIZATION

Dear Reader,

The report prepared on “Use of Technical Analysis in Bangladesh Capital Market” was authorized by Mosabbir Uddin Ahmad, Assistant Professor, School of Business Administration (Finance), United International University on 05 September, 2019.

The report extensively covers all the aspects of Technical Analysis conducted on securities in the stock market.

Sincerely,

Mahammad Talha

ID: 111 142 077

ACKNOWLEDGMENT

I would like to begin by expressing my deepest gratitude and honor to Mosabbir Uddin Ahmad, Assistant Professor, School of Business Administration (Finance), United International University for his cordial moral and intellectual support as well as keen supervision and guidelines in all stages of my project period. He has been a great mentor and a source of inspiration throughout my BBA program. I was lucky enough to get him as my project supervisor and like always, he guided me smoothly to prepare my entire project report on “Use of Technical Analysis in Bangladesh Capital Market”. I strongly believe that works like this one will surely help me develop and better adapted as well as capable to cope with the issues & practical exposures in the field of finance as well as to the whole of the financial tools that are being extensively exploited in today’s world. Thank you very much for all your guidance and support, regardless of your busy schedule.

I would also like to thank my parents who have always given me enough support to reach at this position and tried their level best so that I achieve success at every step of my life. Furthermore, I would like to recall all those people with warm gratefulness, who were generous enough to help me from every aspect possible to complete this report. It would not be possible for me to effectively accomplish this report without their cordial support.

Finally, I would like to finish by remembering the almighty Allah for blessing me with the strength, ability and patience to accomplish this report.

Mahammad Talha – 111 142 077

LETTER OF TRANSMITTAL

05 September, 2019

Mosabbir Uddin Ahmad
Assistant Professor
School of Business and Economics
United International University

Subject: Submission of Final Project Report.

Dear Sir,

It is my great pleasure to submit this report to you for your consideration as a binding requirement for the successful completion of my final project report on “Use of Technical Analysis in Bangladesh Capital Market”, under the BBA Program of United International University. My main inducement was to prepare this report as per your proficient guidance and directions while considering the guidelines of BBA Program.

I made ardent efforts to study and scrutinize the related materials, documents as well as observe the activities performed at Bangladeshi Stock Exchanges and I hope that I have been able to relate the fundamental aspects with practical and rational applications considering my level of competence and experience.

Therefore, I am submitting my project report, hoping that you will appreciate my instructive and comprehensive approach. I earnestly hope that this report fulfills the objectives and requirements and that it finds your acceptance. Your kind feedback will be highly appreciated and in case of any further elaboration or clarification or any kind of queries regarding the report, I shall be glad to assist you.

Sincerely yours,
Mahammad Talha
ID: 111 142 077
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Executive Summary

Security Analysis means valuation of securities by forecasting future price movements. Analysis involves collecting information, processing them and providing an outcome. To analyze a security, we must have proper knowledge about its past sales, trade volumes, patterns, financial data, price and macroeconomic factors. The objective is always to determine the intrinsic value of a security so that investors can earn abnormal return and limit losses by trading securities.

Technical Analysis, one of the two renowned methods of security analysis, refers to the analysis conducted by the technical analysts/chartists/traders to predict the future price of a security through its past prices, volume of transactions, patterns and trends. This kind of analysis includes analyzing the charts i.e. identifying trends, classifying different patterns, considering trade volumes and using various technical indicators in graphs for different shorter and longer time frames. However, the three very important and basic assumptions or principles of technical analysis are the market discounts everything, price moves in trends and history tends to repeat itself.

According to EMH theory, a fully functional and efficient security market has to be either strong form efficient, semi-strong form efficient or weak form efficient. If a market is not at least weak-form efficient, it is not efficient at all. In this case, technical analysis is beneficial for investors. If the market is efficient, intrinsic value of securities equals their market value. On the other hand, if the market is inefficient, it is considered either bullish or bearish. Bullish market refers to the situation where most of the securities in the market are overbought or overvalued. In contrast, Bearish market refers to the situation where most of the securities in the market are oversold or undervalued.

Support and Resistance Level is one of the very basic and important concepts of technical analysis determined by market psychology as well as demand and supply. Support Level refers to the point below which it is difficult for the stock price to drop down. Resistance Level, on the other hand, is the point above which it is hard for stock price to climb up.

Trend is a general direction formed by a series of high/peek and low/through of stock movements. Trends are primarily classified into upward trends, downward trends and horizontal/sideways trends. Based on their lengths, they can be further classified into long term, intermediate term and short term trends.

Chart Patterns are different shapes or forms that are usually repetitive in nature and provides continual or reversal signals that help technical analysts understand future trends and movement in the direction of prices. Furthermore, a chart is the graphical representation of movements in

the stock prices over a single period of time where closing price of each trading day is usually plotted in the graph. In technical analysis, chartists, also known as technical analysts, use charts to identify patterns and movements of future stock prices.

Indicators refer to the tools or techniques used by the chartists conducting technical analysis in the trading market to predict the movement and identify trends in share prices. Some of the famous indicators are Moving Average, Simple Moving Average, Exponential Moving Average, Moving Average Convergence Divergence, Relative Strength Index, Elliott Wave Theory, Bollinger Bands, Breadth of Market Theory, TRIN Statistic or ARMS Index, Put/Call Ratio and so on.

If we observe, we can see that many important technical indicators have been used by analysts to identify security values and predict future prices in Bangladesh capital market. Some of the notable ones are Moving Average, Exponential Moving Average, Relative Strength Index, Bollinger Bands and Moving Average Convergence Divergence or MACD.

By conducting technical analysis using all five indicators mentioned above on three renowned Bangladeshi companies like Square Pharmaceuticals Limited, Mutual Trust Bank Limited and IDLC Finance Limited), we have come to this realization that the movement in the stock prices of Mutual Trust Bank Limited has been stable throughout the better part of July, August and September but there is a chance they might have to face bearish signal in the upcoming future. Moreover, Square Pharmaceuticals Limited might have experienced short term upward trend in the movement of stock prices in the last couple of months but is currently in bearish position. Finally, IDLC Finance Limited has been in bearish position for quite a time now. This situation is getting more severe and extreme every day since January 2019. Their stock prices have decreased around 50% approximately within last 8 months.

In conclusion, we can say that Bangladesh Capital Market i.e. Stock Exchange is highly volatile, full of uncertainty and mostly bearish. Thus, stock prices are depreciating rapidly and the market is considered highly inefficient. Therefore, Investors should do their home works and analyze the market as well as individual company stocks properly before throwing away all their life's savings in the market.

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Chapter 1

INTRODUCTION

Chapter One: Introduction

1.1 Introduction of the report

The main goal of conducting any security analysis is to acquire a complete set of knowledge about the securities that we are interested to invest in. Keeping that in mind, we approach towards either Technical Analysis or Fundamental Analysis.

If we conduct fundamental analysis, we must know about the market, different competitors and listed organizations. To do so, we go through their financial reports and records to calculate different ratios considering different economic and accounting factors. Once we find the underlying value, we come to a conclusion about the securities.

If we are interested in conducting technical analysis, we completely ignore knowing about the companies and markets and do not bother about economic factors as well. Because the complete focus must be on predicting the future price of the security. In order to do so, we emphasize on the past records of the security which includes past prices, volumes, transactions, patterns, movements and trends. We use different tools to analyze these factors and come up with a result that indicates a possible future value and gives us a clear option to decide if that security is worth the risk.

Like technical analysts, my report completely ignores the fundamental part of analysis and discusses almost all the aspects of technical analysis of stock trading. In addition to that, it also examines the Bangladesh stock market through indicators used in technical analysis.

1.2 Origin of the Report

The project report is an integral part to complete of the BBA program. When all the courses of BBA program are completed, students are required to conduct a research work on a significant topic assigned by the faculty supervisor and prepare a report on it. It is important for a student to understand the real world implications of the theories and learned concepts.

I got the opportunity to do my project report on “Use of Technical Analysis in Bangladesh Capital Market. During my project, I have worked with different approaches, tools and concepts related to Technical Analysis and Dhaka stock Exchange.

1.3 Objective of the Report

◆ **Broad Objective:**

The broad objective refers to the ultimate motive of any research. It shows the aim for which the research is being conducted. For this report the broad objective are:

- ➔ To fulfill the requirement for the completion of BBA program.
- ➔ To get an overall idea about Technical Analysis
- ➔ To examine the theories of the analysis on Bangladesh capital market

◆ **Specific Objectives:**

The research should be split into different specific objectives for making up a proper direction to the project. In case of this report, the specific objectives for this study are-

- ➔ Accumulating practical knowledge about all aspects of technical analysis out of bookish knowledge. .
- ➔ Identifying the relationship between practical operations and theoretical lessons about different aspects of technical analysis
- ➔ Learning about different trends, chart patterns and technical indicators
- ➔ Understanding the interpretation of different charts and indicators of technical analysis
- ➔ Understanding the financial decision making process from those interpretations
- ➔ Comparing the practical findings of the analysis from different companies to the stock market

1.4 Methodology

Picking an effective and efficient methodology for any report is very important in order to make an ideal report. I used both primary and secondary data in order to accomplish the paper. The ways of collecting information are presented below:

◆ **Primary Data:**

- ➔ Discussion with real life investors
- ➔ Discussion with my project supervisor
- ➔ Discussion with my friends and colleagues
- ➔ Following research articles of different experts
- ➔ Watching YouTube videos of different stock analysis experts
- ➔ Material reports and papers provided by the supervisor of mine

◆ **Secondary Data:**

- ➔ Research Papers, Journals and articles
- ➔ Websites and online articles related to stock trading
- ➔ Relevant books and research papers on stock trading

1.5 Limitations of the Report

As we know, nothing in this world is pitched perfect. Even though I have tried my level best to make this project report a flawless one, still there are some limitations that prevented this paper from becoming the best one. Those limitations are as follows -

- ➔ A complete capital market is consisted of stock market, bond market and derivative market. Unfortunately, the proper practice of financial products such as bonds and financial derivatives are still unavailable in Bangladesh. Therefore, I was unable to make in depth research for my selected topic.
- ➔ To carry out a proper research work, it is imperative that we gather some firsthand experience. Even though I have conducted technical analysis on Bangladeshi companies through websites like amarstock.com and stockbangladesh.com, I could not go to Dhaka stock exchange myself or open a B/O account and invest myself.
- ➔ Many practical information were either unavailable or hard to track and access over internet

However, despite all those limitations, I tried my level best to come up with an informative and analytical report. I believe, for any further research regarding this topic, this report of mine will be really helpful.

Chapter 2

TECHNICAL ANALYSIS

Chapter Two: Technical Analysis

2.1 Security Analysis: Technical & Fundamental Analysis

Security is a contract between investors and issuers. Securities are considered to be the vehicles that transfer funds from the saver group to the issuer group. It simply means "Today you offer me money; tomorrow I will return it with reward". Analysis is basically predicting or forecasting.

Security Analysis refers to valuation of securities by forecasting future price. Analysis involves collecting information, processing them and providing an outcome. To analyze a security, we must have proper knowledge about its past sales, trade volumes, patterns, financial data, price and macroeconomic factors. The purpose is to determine the intrinsic value of a security so that investors can earn abnormal return and limit losses by trading securities. There are two renowned methods used in analyzing securities and making investment decisions –

- ➔ **Technical Analysis:** Technical Analysis helps to predict the future price of a security by using its past prices, volume of transactions, patterns and trends. This kind of analysis is beneficial for investors only if the market is inefficient.
- ➔ **Fundamental Analysis:** Fundamental Analysis helps to determine the future value of a security by analyzing information of the company, its products, competitors, country and the greater economy. This includes financial and accounting information as well as macroeconomic variables such as financial data, dividends, sales, inflation, interest rates, exchange rates etc. Fundamental Analysis is beneficial for investors if the market is inefficient or weak form efficient.

2.2 Fundamental Analysis vs Technical Analysis

- ➔ **Technical Analysis (TA) and Fundamental Analysis (FA)** are considered the two sides of a coin for security analysis. TA considers price movements in the stock market as a basis to predict the future price. Conversely, FA considers the fundamentals such as accounting and economic factors to predict the future stock price.
- ➔ **Technical Analysts**, also known as **Chartists**, try to find the future stock prices by analyzing the charts i.e. identifying trends, classifying different patterns, considering trade volumes and using various technical indicators. **Fundamental Analysts**, on the other hand, try to find future stock prices by analyzing financial statements i.e. balance sheets, income statements of companies and calculating ratios of different items from those statements.

- Conducting FA is time consuming because the financial statements are released in 3 months, 6 months or on annual basis. Besides, it also takes time to analyze competitors, market etc. variables. Finally, it sometimes requires years of data. Conversely, TA can be conducted quickly because there is variety of options such as Charts on the basis of a year, month, week, hour or even a minute.
- Technical Analysts are usually traders who trade securities to sell them to someone else. Fundamental Analysts are investors looking for securities as fixed assets hoping to increase in value.
- TA is possible only when the market is believed to be inefficient since this kind of analysis is even impossible in market that is considered weak form efficient. In contrast, FA is possible in markets that are weak form efficient as well as sometimes semi strong form efficient.

Can TA and FA coexist?

Even though they are completely opposite school of thoughts, it is considered by many that combining TA with FA can be beneficial in security analysis. For example – Some fundamental analysts use TA to identify which securities are oversold so that they can buy those undervalued securities. Similarly, some traders also use fundamentals for their analysis purposes.

2.3 Technical Analysis: The Assumptions

Technical Analysis is the analysis conducted by the chartists/traders to predict the future price of a security through its past prices, volume of transactions, patterns and trends. This kind of analysis includes analyzing the charts i.e. identifying trends, classifying different patterns, considering trade volumes and using various technical indicators in the graph for different shorter and longer time frames.

However, there are three very important and basic assumptions or principles that literally laid the foundation for technical analysis -

→ The market discounts everything:

The first and foremost assumption of Technical Analysis (TA) is that it only focuses on stock prices ignoring all the other accounting, economic, competitor or industry factors. Advocates of TA claim that all the fundamental elements and other factors are already reflected in stock's price, so there's no need to actually consider them individually.

→ Price moves in trends:

According to Charles Dow, the stock prices do not move randomly. Rather, it follows some identifiable patterns known as trends. These trends could be either upwards or downwards or horizontal/sideways. This is a really important assumption because it set the objective for

technical analysts to identify patterns of trends and predict which direction the stock price is heading up to in the future.

➔ **History tends to repeat itself:**

The third and final assumption for technical analysis is that the identifiable patterns and trends as well as human reaction to it are all repetitive in nature. More specifically, the chart patterns and trends that we witness in the charts while tracking stock prices tend to repeat over and over with time. Interestingly, people also tend to react to these events in the same way they had reacted in previous occurrence.

2.4 Efficient Market Hypothesis (EMH) & Investment Decision

According to Efficient Market Hypothesis, all the information of past prices and patterns of stocks are already reflected in the current market price of the security. EMH suggests that securities are rightly priced in efficient market so it is impossible to determine the undervalued securities.

There are three forms of market efficiency –

- ✓ Weak form efficiency: All the past prices and trade volumes information is reflected in the current price of the security. So there would be no pattern or trend. No investor will be able to earn abnormal return using past prices and volumes of transaction. Therefore, Technical Analysis to predict the future movements is of no value here.
- ✓ Semi-strong form efficiency: A market is called semi form efficient if current price of securities fully reflect all the publicly available information.
- ✓ Strong form efficiency: A market is strong form efficient if current price of securities fully reflect all the information available including both public and private information.

If a market is not at least weak form efficient, it is not efficient at all. In this case, technical analysis is beneficial for investors. Therefore, investors need to be actively conducting technical analysis to determine if the securities are overvalued or undervalued and make appropriate decisions.

2.5 Bullish vs Bearish Market

If the market is efficient, intrinsic value = Market value. On the other hand, if the market is inefficient, sometimes the market will be Bullish and sometimes Bearish.

Bullish market refers to the situation where most of the securities in the market are overbought or overvalued. This happens when the stock prices of different companies are upward trending i.e. appreciating. The strategy for investors is to sell or short sell their securities with higher return. In contrast, Bearish market refers to the situation where most of the securities in the market are oversold or undervalued. This happens when the stock prices of different companies are

downward trending i.e. depreciating. The strategy for investors is to buy securities, hold them till they sell those securities off with higher return.

2.6 Trends

A trend simply refers to a general direction followed by a security or trading market. A trend is formed by series of high/peek and low/through of stock movements. Trends can be classified into different categories based on types and lengths.

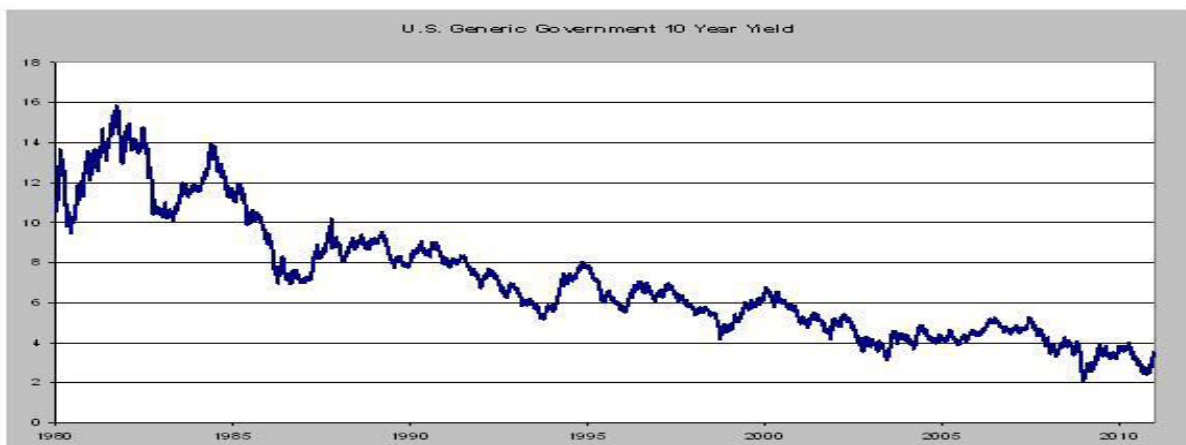
2.6.1 Types of Trends

There are literally three type of trends found in the stock market –

- ➔ **Upward Trends:** Uptrend or upward trend refers to a series of higher highs and higher lows movements in the direction of stock prices. More specifically, if peaks and troughs of a trend are higher, it is an upward trend.



- ➔ **Downward Trends:** Downtrend or downward trend refers to a series of lower highs and lower lows movements in the direction of stock prices. More specifically, if peaks and troughs of a trend are lower, it is an upward trend.



➔ **Horizontal Trends:** Sideways or horizontal trend refers to a situation where very little or no movement is observed in the peaks and troughs of a trend. Technically, horizontal trend is not a real trend. Rather, it is lack of activities of a trend in either direction.



2.6.2 Lengths of Trends

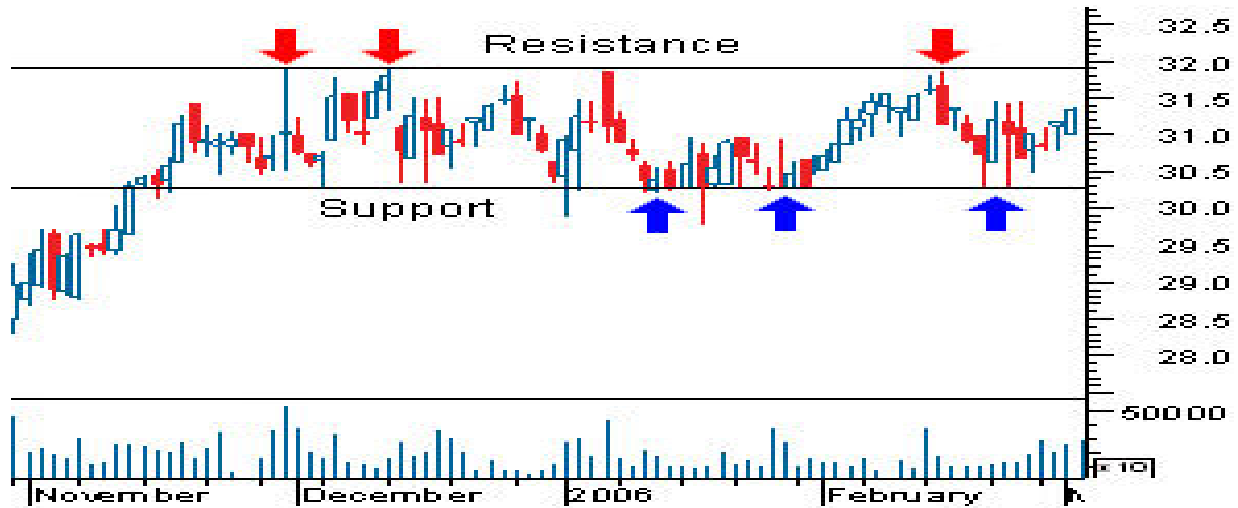
Upward, Downward and Sideways Trends can be further categorized into three more categories based on their lengths – Long term, Intermediate term and Short term trends. Trends that last longer than a year are known as long term trends. An intermediate trend lasts between one and three months. Finally, the trends that last less than a month are known as short term trends. A long term trend is consisted of two or more intermediate trends. Similarly, short term trends become part of both intermediate and long term trends.



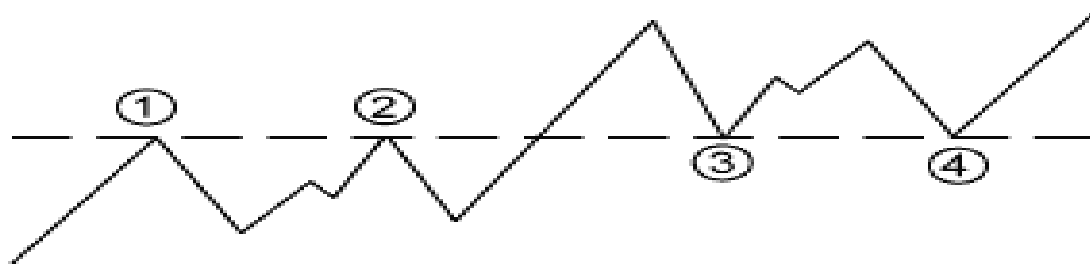
2.7 Support and Resistance Levels

Support and Resistance Levels are one of the very basic and important concepts of technical analysis determined by market psychology as well as demand and supply. Support Level refers to the point below which it is difficult for the stock price to drop down. Resistance Level, on the other hand, is the point above which it is hard for stock price to climb up. Traders usually are willing to buy (support level) and sell (resistance level) stock at the support and resistance level.

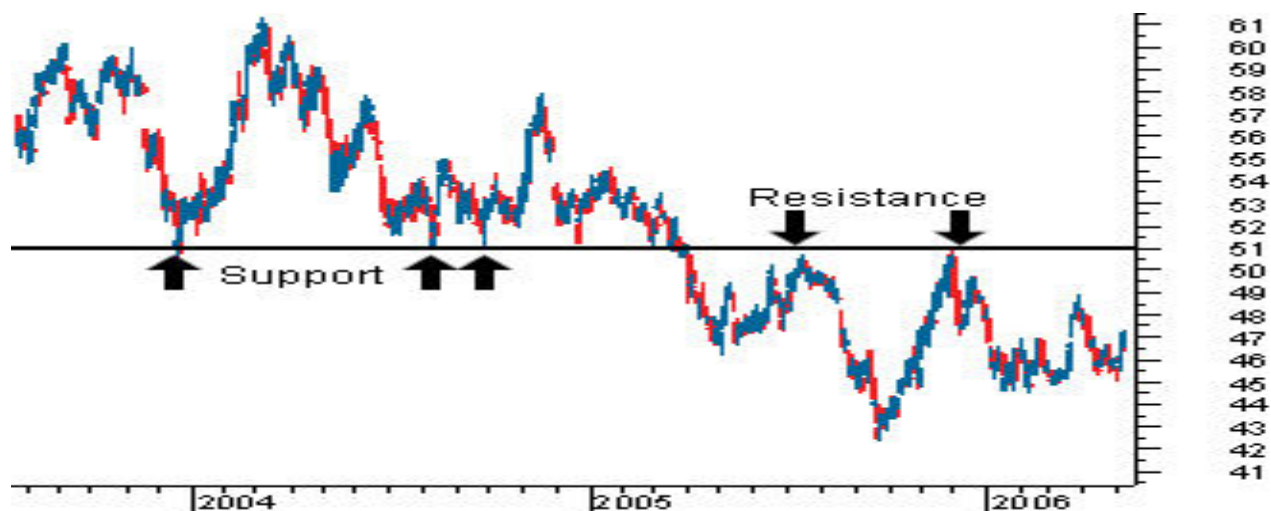
But not below or above that level. In the picture below, \$30.3 is the support level and 31.9 is the resistance level -



The support and resistance level is usually like a rock that is very hard to break. But sometimes the chain of activities of the traders makes the demand and supply condition restless which compels the support and resistance level to break and take a new reversal role. In the picture below you can see that the resistance level for point 1 and 2 becomes the support level for point 3 and 4 -



Usually the resistance level prevents the price from going up further. But once the level is broken, it becomes a support level making it difficult for the price to drop below the newly created level. Likewise, if a support level is broken, it becomes a new resistance level for the share price preventing it from going up the newly formed level which we can observe in the picture below -



In the picture, the support level of Wal-Mart stock price was previously \$51 which becomes the new resistance level once the support level was broken on March 2005.

2.8 Chart Patterns & Charts

When we plot stock prices in a graph, it can take different shapes or forms that are usually repetitive in nature and provides continual or reversal signals that help technical analysts understand future trends and movement in the direction of prices. These shapes or forms are known as Chart Patterns. Some of the famous chart patterns are Candlestick pattern, Head and shoulders, Cup and handle, Price channels, Wedge pattern, Triangle and so on.

In technical analysis, chartists, also known as technical analysts, use charts to identify patterns and movements of future stock prices. A chart is the graphical representation of movements in the stock prices over a single period of time where closing price of each trading day is usually plotted in the graph. There are various different charts used in technical analysis which are discussed below –

➔ **Candlestick Chart:** Candlestick Chart is a special type chart that combines the Bar Chart and Line Chart together representing the opening, high, low and closing price over a period of time in order to predict the movements of prices of a stock, bond, derivative or a currency within a given time interval. Each Candlestick chart can be structurally divided into two categories – Real Body and Shadows.

The real body or thick part represents the opening and closing prices of the stock. If the stock price is upward moving and closing price of the stock finishes above the opening price for the day, the color of the main body should be green or white. On the other hand, if the stock price is downward moving and closing price of the stock finishes below the opening price for the day, the color of the main body should be red or black. Finally, the

upper shadow or upper thin part represents the highest price and lower shadow or thin part represents the lowest price of the day. Candlestick Chart of Square Pharmaceuticals Limited is provided below –



➔ **Line Chart:** These charts show the closing prices of securities connected by straight line segments over a period of time. The purpose is to visualize trends in stocks in time intervals. It does not include visual representation of high, low or opening prices because it considers closing price of stocks as the most important value of charts. The closing prices are plotted in the graph and a chronological line is drawn through the data set. Here, the X axis represents the time and Y axis represents the prices. Line Chart of Square Pharmaceuticals Limited is provided below –

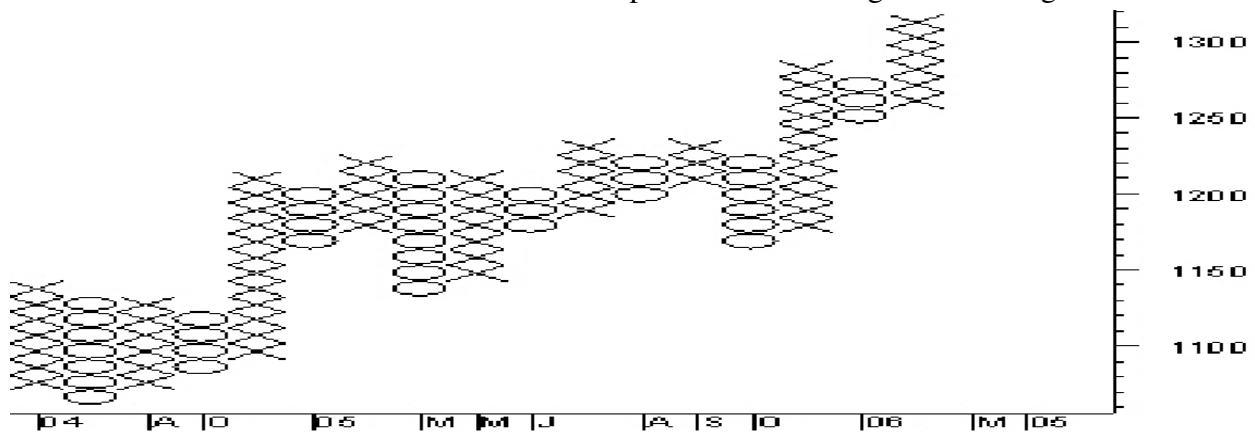


➔ **Bar Chart:** Bar Chart, also known as OHLC Chart, represents the price ranges i.e. opening price, high price, low price and closing price of stocks over a period of time. The vertical lines in the graph represent the high and low prices. Again, a left dash on the left side and a right dash on the right side on the vertical bars or lines represent the opening

and closing prices of stocks respectively. The red lines project bearish signal whereas the green lines project bulling signal, every line in the graph represent every single day of a month in the market. Bar Chart of Square Pharmaceuticals Limited is provided below –



➔ **Point and Figure Chart:** It is a hundred year old used by average technical analysts to forecast the market prices of securities. Unlike other charts, it plots stock prices against changes in movement and does not bother about time period or stock volumes. There are two types of columns in the graph, one represented by the Xs to indicate upward moving trends and another represented by the Os to indicate downward moving trends. Thus, Xs are plotted if the stock price rises and Os are plotted if the stock price falls. There are also letters and numbers in the graph to give investors idea about time frame and make it easier for them to make decisions. A sample of Point and Figure Chart is given below –



➔ **Other Charts:** There are several other charts used by the technical analysts in order to identify trends, patterns and movement in stock prices. **Kagi Chart** is a combination of many vertical lines connected with short horizontal lines to track the movement in stock prices. It is independent of time and provides result only if a certain amount is reached. **Renko Chart** considers only price movements, completely ignoring time periods or

volume of stocks. **Heikin Ashi Chart** is a Japanese version of Candlestick Chart that helps the traders to identify future price movements. There are also **Market Profile Stock Chart, Price at Volume Stock Chart** etc. other charts frequently used by the analysts and investors.

2.9 Indicators Used in Technical Analysis

Indicators refer to the tools or techniques used by the chartists in technical analysis to predict the movement and identify trends in share prices. Indicators used in the trading market are generally divided into two basic types – Overlays and Oscillators.

- ◆ **Overlays** are the type of indicators that provides values as a price point. Overlays indicators can be plotted as the stock price on top of the same chart where it was calculated Examples of these types of indicators include Moving Averages, Exponential Moving Averages, and Bollinger Bands.
- ◆ **Oscillators**, on the other hand, are the types of indicators that do not provide values as a price point on the same chart. Rather, plotted on the axes above or below the chart. Oscillators fluctuate between minimum and maximum values. For example - Moving Average Convergence Divergence (MACD) and Relative Strength Index (RSI).
Based on overlays and oscillators, there are many indicators used in technical analysis to predict the movement and identify trends in share prices –

2.9.1 Moving Average

Moving average is an exceptionally useful tool for predicting long term trends because it takes the impact of each week's price movement into consideration. It is simply the average of stock prices over a given period or interval. The interval is usually updated on a regular basis. For example – a 50 – day moving average will be considering the average price for the last 50 days, subtracting the oldest observations and adding the newest ones.



If the prices fall during the period, the moving average will be above the current price. Prices below the moving average project a falling trend concluding the fact that market momentum has gone negative. On the other hand, if the prices rise during the period, the moving average will be

below the current price. Prices above the moving average project a rising trend concluding facts for the analysts that the market momentum is positive.

Classification: Simple Moving Average (SMA) and Exponential Moving Average (EMA) are the most popular forms of Moving Average used in the trading world. I am going to discuss about them now –

SMA is simply the average of closing prices of stocks for a given period of time where equal preference is given to all the data within the period. The difference between Price Line and SMA Line is longer here.

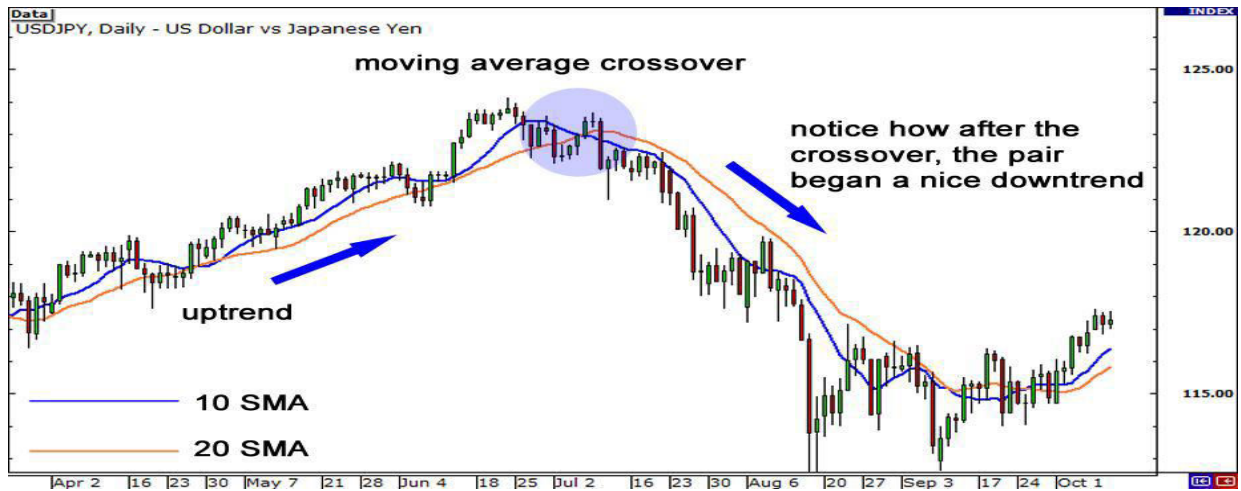
EMA is the average of closing prices of stocks for a given period of time where more preference or importance is given to the most recent closing prices within the period. The difference between Price Line and EMA Line is shorter here.



Moving Average Period: Number of period is an important factor here. Because the larger the number of periods, the more distance there shall be between SMA or EMA Line and Price Line. Conversely, the lower the number of periods, the shorter the gap between the two lines.

Slower and Faster Moving Average: The SMA or EMA Line with less number of periods changes quickly – referred to as Faster Moving Average. On the other hand, The SMA or EMA Line with more number of periods changes slowly – referred to as Slower Moving Average. Apparently, 12-EMA is used for Faster EMA and 26-EMA is used for Slower EMA.

Crossover: When Faster Moving Average intercepts the Slower Moving Average at a point in the chart then moves away, it is known as Crossover in stock trading language. As a result of Crossover, Reversal Trend occurs in the market.



2.9.2 Moving Average Convergence Divergence (MACD)

MACD is one of the most popular and widely used indicators to predict the movements of stocks to conduct technical analysis by the analysts, traders and investors. It is simply the difference between Faster EMA (12-EMA) and Slower EMA (26-EMA). This movement of EMAs could be towards each other (convergence) or away from each other (divergence) or a crossover.



MACD Main line: The line that represents the value of MACD i.e. the difference between 12-EMA and 26-EMA in the chart.

Center Line: Center Line, also known as Zero Line, is the straight line that is horizontal to zero representing the center of the chart.

Signal Line: It is a line that represents 9-EMA of the MACD Main Line. More specifically, if we estimate the value of the differences of two Faster Exponential Moving Average for a period of 9 days then represent those values by a line in the chart, that line is known as the Signal Line.

The purpose of this line is to make it easier to see the MACD's bearish or bullish signals or turns.

Point to be noted that it is not mandatory that the number of periods for Signal Line should be zero. It can be any positive number or even zero.

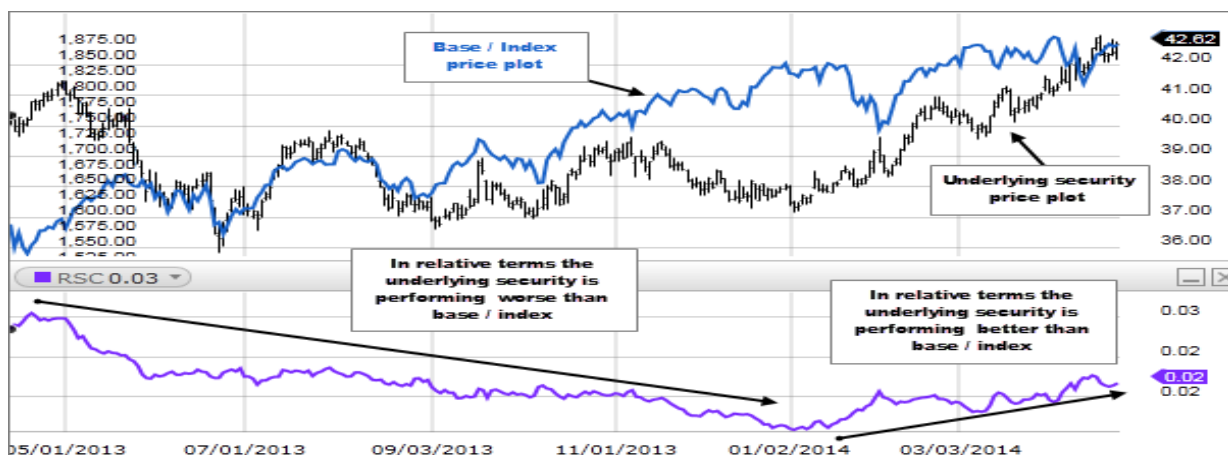
MACD Histogram: The Bar figures that represent the value of the differences between MACD Main Line and Signal Line in the chart. Therefore, the height of the Histogram Bar should be equal to the summation of MACD Line and Signal Line. In case of Signal Line being 0, the height of Histogram Bar must be equal to the value of the MACD.

In the MACD Chart, the MACD line (difference between 12 day EMA and 26 day EMA) generates technical signals while going above or below the Signal Line (9 day EMA). If the MACD line rises above the signal line, it triggers a bullish or overbought signal urging investors to start selling securities. On the other hand, if the MACD line falls below the signal line, it triggers bearish or oversold signal urging investors to start buying securities. In addition to that, the crossover speed is also taken into consideration determining the signal of market being bullish (overbought) or bearish (oversold).

2.9.3 Relative Strength Index (RSI)

Relative Strength is a popular tool for technical analysis indicating if a security has over performed or under performed. It is computed by calculating the security price ratio to the market price index. The comparison of the company's security can be drawn with a similar company within a specific industry, or with that particular industry or the industry with the market as a whole.

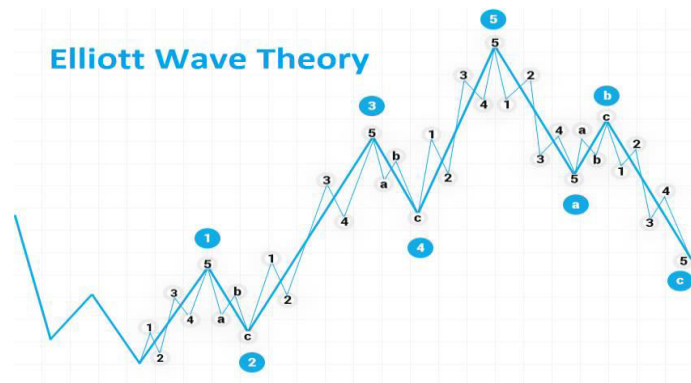
For example – The relative strength of Toyota can be drawn with Ford or the automobile industry. Similarly, the same comparison can be drawn between automobile industry and the market comprised of several different industries.



The RSI value should be between 0 and 100. If the value of security of a particular company or industry is 30 or below, it is considered oversold or bearish. On the other hand, if the value is 70 or above is considered overbought or bullish.

2.9.4 Elliott Wave Theory

Elliott Wave Theory, named after the theorist Ralph Nelson Elliott, signifies that the movement of stocks can be forecasted by identifying repetitive patterns of waves. In the theory, there are two types of waves. The five Motive or Impulsive Waves refer to the movements in the direction of the trends, labeled as 1,2,3,4 and 5. The three Corrective Waves refers to any correction against the original trend, labeled as A, B and C.



The theory ensures the existence of both long term trends and short term trends in the stock market. However, the theory implies that smaller or short term trend cycles can be identified within the bigger or long term trend cycles. The theory suggests that technical analysts or investors can predict the movements by properly interpreting the wave cycles. It is concluded that investors should buy stocks when the long term movements in the direction of the market is positive.

2.9.5 Bollinger Bands

Bollinger Band is another infamous tool used in the technical analysis of securities. It is an indicator that identifies excessive short term price changes measuring the volatility of stock prices by using two Standard Deviations and a Simple Moving Average.



A day Simple Moving Average is situated in the center line known as the Middle Band. Since Standard Deviation measures volatility, one SD is set above the SMA known as Upper Band and another is set below the SMA known as Lower Band. The Standard Deviation Multiplier should be 2.0 if the periods of SMA and SD are 20 days. The Multiplier should be 2.1 for a 50 day SMA and 1.9 for a 10 day SMA.

According to John Bollinger, the famous technical analyst and inventor of Bollinger Band Theory, the outer bands (upper and lower bands) contracts or come closer to the Simple Moving Average when the volatility is low. Conversely, the outer bands expand in case of high volatility. If the stock prices touch the upper band continuously, it is concluded that the stocks are overbought projecting a bullish signal. So the investors should sell their stocks. Conversely, if the lower bands are touched continuously by the stock prices, it should project a bearish or oversold signal urging the investors to start buying activities. There are usually four situations that explain bullish or bearish signals –

- **Bullish Expansion:** A situation where both bands are expanding and the stock price is heading up with the upper band whereas lower band going to the opposite direction. This expansion is known as bullish expansion which projects an extreme and lengthy bullish signal.
- **Bearish Expansion:** A situation where both bands are expanding and the stock price is climbing down with the lower band whereas upper band is going to the opposite direction. This expansion is known as bearish expansion which projects an extreme and lengthy bearish signal.
- **Bullish Move up:** A situation where upper band is expanding and price is also heading up with it. Interestingly, lower band is also moving up following the upper band's direction. It's a bullish move but not that extreme or lengthy. Rather, more like a short term bullish signal.
- **Bearish Move down:** A situation where lower band is expanding and price going down with it. Interestingly, upper band is also moving down following the lower band's direction. It's a bearish move but not that extreme or lengthy. Rather, more like a short term bearish signal.

2.9.6 Breadth of Market Theory

Breadth of Market Theory, also known as Breadth of Market Indicator, is an indicator used in Technical Analysis to measure the market strength by calculating the advance and decline of share prices. For example – if there are 100 shares in the market and 70 of them experience an increase in share price while the prices of rest 30 shares either drop or remain unchanged, in that case, the market is considered to be strong.



Two of the popular Breadth techniques include Advance/Decline Ratio (ADR) and Advance Decline Line (A/D).

ADR refers to the breadth method that draws comparison between the stocks that closed higher and the stocks that closed lower than closing price of the previous day. To calculate ADR, have to divide the number of shares advanced by the number of shares declined. The time period can be a day, a week or even a month.

A/D refers to the breadth method that plots the rise or fall of market index in a chart over a specific period of time. Calculated simply as, the difference between advancing shares and declining shares plus the previous period's A/D Line value.

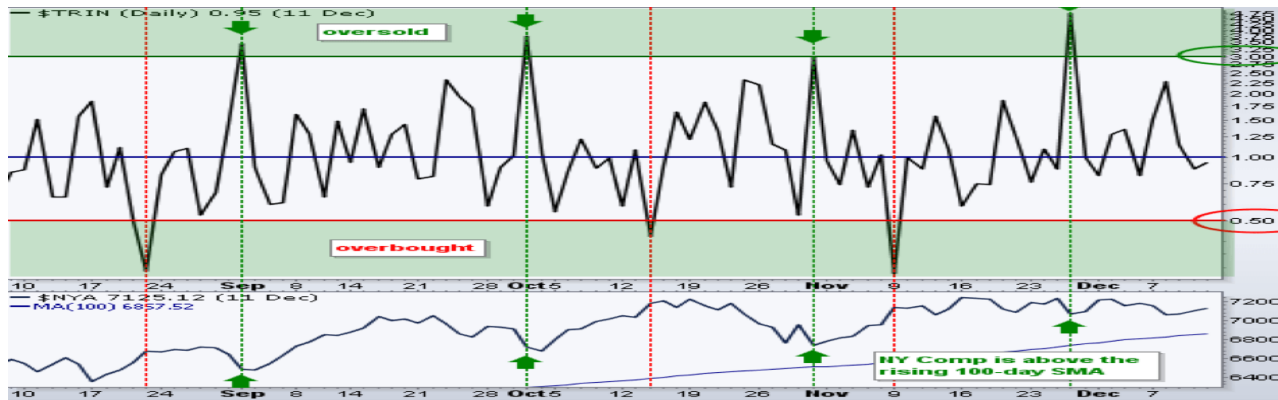
The Technical Analysts draw the following conclusions from Breadth of the market theory –

- A high ratio projects that the market trend is strong while a low ratio suggests that the market trend is weak.
- A relatively high ratio projects a bullish signal leading to the conclusion that the market securities are overvalued. Therefore, the stock prices might fall and investors should sell their securities to earn profit.
- A relatively low ratio projects a bearish signal leading to the conclusion that the market securities are undervalued. Therefore, the stock prices might rise and investors should buy securities in negotiable price.

2.9.7 TRIN Statistic

TRIN Indicator, also referred to as TRIN Statistic or ARMS Index, was invented and developed by Richard W. Arms in 1967. It is a technical analysis indicator that measures the overall market sentiment predicting patterns in the future price movements. It takes the trade volumes of shares and number of advancing/declining sharers into consideration and calculated as -

$$\text{TRIN} = (\text{Shares Advancing}/\text{Shares Declining})/(\text{Volume Advancing}/\text{Volume Declining})$$



Successful implementation of TRIN can portray the short term scenario of a stock market indicating if the market is overbought or undersold. For example – a TRIN value above 1.0 indicates the stock prices are falling projecting a bearish signal. In contrary, a value below 0.50 indicates the rising stock prices projecting a bullish signal.

2.9.8 Put/Call Ratio

Call and Put Options are the products of financial derivative market used by the investors for hedging or speculation purpose. Call Options give the investors the right to purchase stocks at a predetermined price whereas Put Options do the opposite; they refer to selling stocks at a predetermined price.

If we divide the total number of puts traded by the total number of calls traded, we get our Put/Call Ratio which refers to a technique used by the traders and analysts to measure the movement in the stock market prices.



It is established that if the Put/Call Ratio is more than 65%, it means investors are buying more puts than calls. So the market experiences a decline projecting bearish signal. In contrast, the market is considered rising if Put/Call Ratio is less than 65%. Because investors buy more calls than puts projecting a bullish signal.

Chapter 3

BANGLADESH CAPITAL MARKET & TECHNICAL INDICATORS

Chapter Three: Bangladesh Capital Market & Technical Indicators

3.1 Capital Market

Capital Market is a financial market where securities like equity stock, preferred stock, bond, debenture and other form of financial instruments are bought and sold. The money invested here must be for medium or longer period i.e. more than a year or so. The companies issue equity and debt securities in order to raise capital/funds.

3.2 Bangladesh Capital Market

The Bangladesh Capital Market is considered to be the third largest financial market in South Asian region. Regulated by the Bangladesh Securities and Exchange Commission (BSEC), Bangladeshi Capital Market is basically comprised of Dhaka Stock Exchange (DSE), Chittagong Stock Exchange (CSE) and an Over-The-Counter (OTC) Stock Exchange. The market also includes a public company, Central Depository Bangladesh Limited (CDBL), which is formed by banks, stock exchanges and other financial and non financial institutions to facilitate smooth settlement of transactions and efficient transfer of securities. CDBL also holds all the past transaction records of both DSE and CSE. As of today, our capital market focuses more on Stock Market and does not effectively include Bond Market and Derivatives Market offering products like Corporate Bonds, Debentures, Futures and Options.

3.3 History of Bangladesh Capital Market

The history of capital market in Bangladesh can be traced back to early 17th century under the Nawabs of Mughal Empire. After the formation of Pakistan in 1947, the first Exchange Traded organization was established in Dhaka on 28th April, 1954 under the name “East Pakistan Stock Exchange” which was changed to “Dhaka Stock Exchange” on 23rd June, 1962. After the Liberation War, the activities of DSE were suspended until 1976 when the organization’s operations were renewed as nine listed companies were paid up capital up to 137 million. In 1995, a second organization “Chittagong Stock Exchange” was set up to ensure further logistics support and modern infrastructure. Today, the total market capitalization of Dhaka Stock Exchange and Chittagong Stock Exchange stands at 40 Billion USD and 30 Billion USD respectively.

3.4 Structure of Bangladesh Capital Market

The Bangladesh Capital Market can be segmented into two sections –

1. Securities Section:

The securities segment includes Stock Exchange and Investment Corporation of Bangladesh (ICB). It can be further segmented into primary and secondary markets.

→ Primary Market:

Primary Market is the market for new securities. It can be defined as the platform where transactions of securities are born or first takes place. Companies, under the facilitation of underwriters, issue their Initial Public Offering for public subscription following Fixed Pricing System or Book Building System. Individual investors cannot contact the subscription committee directly. Rather, they have to buy the IPO through dealers of brokerage houses. The proceeds of the transaction in this market go to the issuer company.

→ Secondary Market:

Secondary Market is the market for old securities. It can be defined as the platform where transactions of previously existing securities take place. It is a market where individual investors trade securities from one another so issuers cannot be involved here. The proceeds of transactions go to the seller of the security.

2. Non-securities Section

The non-securities segment includes Commercial Banks, Specialized Banks and Development Financial Institutions offering services related to loans.

3.5 Dhaka Stock Exchange (DSE)

Dhaka Stock Exchange (DSE) is the first and largest exchange traded organization in the People's Republic of Bangladesh. DSE was established in Dhaka on 28th April, 1954 under the name "East Pakistan Stock Exchange" which was changed to "Dhaka Stock Exchange" on 23rd June, 1962. The organization has more than 300 listed companies and a total market capitalization of 40 Billion USD today.

3.6 Chittagong Stock Exchange (CSE)

Chittagong Stock Exchange (CSE) is the second exchange traded organization of this country. It was established in 1995 and has a total market capitalization of 30 Billion USD.

3.7 The Major and Fundamental Functions of DSE & CSE

- ✓ Registering and listing of newly formed companies with the existing ones by following regulations properly
- ✓ Settlement of trades and transactions as well as stock selection according to the regulations
- ✓ Providing automated on screen trading details of listed securities
- ✓ Managing and controlling the stock market
- ✓ Ensuring and monitoring proper market surveillance
- ✓ Granting approvals of transactions as well as gifting and transferring shares as per regulations, both inside and outside the exchange trading system
- ✓ Observing and monitoring functions of listed companies and generating monthly reviews
- ✓ Ensuring Investor's grievance cell and protection fund, as per regulations

- ✓ Full disclosure of price sensitive and other relevant information online about companies that are listed in DSE

3.8 Vision

- ✓ To be the leading exchange in the region and a key driver of economic growth with state-of-art technology and world class service to ensure highest level of confidence among stakeholders

3.9 Mission

- ✓ Proactive approach to keep pace with continuous technological advancement, and providing highest standard of service through efficiency improvement and introduction of new products
- ✓ Contributing to country's economic growth through creation of wealth, facilitating access to capital and penetrating untapped market
- ✓ Superior corporate governance to enhance confidence of investors, regulators, issuers and intermediaries

3.10 Use of Technical Indicators in DSE & CSE

There are several technical indicators used in Dhaka Stock Exchange so that technical analysts and traders can understand price movements by analyzing demand and supply, market trends, directions that may prevail in stock market in the future. Some of the popular technical indicators used in DSE/CSE are -

3.10.1 Moving Average (MA)

It is simply predicting the future price movements of the market by calculating the average of stock prices over a given period or interval. As we know, if the Price of a stock is above the Moving Average Line, we consider it to be an uptrend. Conversely, if price is below the Moving Average Line, we consider it to be a downtrend.

3.10.2 Exponential Moving Average (EMA)

EMA is a type of MA where more preference or importance is given to the most recent closing prices within the period. Just like Moving Average, if the Price of a stock is above the Exponential Moving Average Line, we consider it to be an uptrend. Conversely, if price is below the Exponential Moving Average Line, we consider it to be a downtrend.

3.10.3 Moving Average Convergence Divergence (MACD)

It is simply the difference between Faster EMA (12-EMA) and Slower EMA (26-EMA). This movement of EMAs could be towards each other (convergence) or away from each other (divergence) or a crossover. In the MACD Chart, the MACD line (difference between 12 day EMA and 26 day EMA) generates technical signals while going above or below the Signal Line (9 day EMA). If the MACD line rises above the signal line, it triggers a bullish signal as the prices appreciate urging investors to start selling securities. On the other hand, if the MACD line

falls below the signal line, it triggers bearish signal as the price depreciates urging investors to start buying securities.

3.10.4 Relative Strength Index (RSI)

Relative Strength indicates if a security has over performed or under performed. It is computed by calculating the security price ratio to the market price index. The comparison of the company's security can be drawn with a similar company within a specific industry, or with that particular industry or the industry with the market as a whole.

The RSI value should be between 0 and 100. When the value of security of a particular company or industry is 30 or below, it is considered oversold or bearish. On the other hand, when the value is 70 or above is considered overbought or bullish.

3.10.5 Bollinger Bands (BB)

Bollinger Band is an indicator that identifies excessive short term price changes measuring the volatility of stock prices by using two Standard Deviations and a Simple Moving Average. If the stock prices touch the upper band continuously, it is concluded that the stocks are overbought projecting a bullish signal. So the investors should sell their stocks. Conversely, if the lower bands are touched continuously by the stock prices, it should project a bearish or oversold signal urging the investors to start buying activities. There are usually four strategies that explain bullish or bearish signals –

Bullish Expansion: A situation where both bands are expanding and the stock price is heading up with the upper band whereas lower band going to the opposite direction. This expansion is known as bullish expansion which projects an extreme and lengthy bullish signal.

- ➔ **Bearish Expansion:** A situation where both bands are expanding and the stock price is climbing down with the lower band whereas upper band is going to the opposite direction. This expansion is known as bearish expansion which projects an extreme and lengthy bearish signal.
- ➔ **Bullish Move up:** A situation where upper band is expanding and price is also heading up with it. Interestingly, lower band is also moving up following the upper band's direction. It's a bullish move but not that extreme or lengthy. Rather, more like a short term bullish signal.
- ➔ **Bearish Move down:** A situation where lower band is expanding and price going down with it. Interestingly, upper band is also moving down following the lower band's direction. It's a bearish move but not that extreme or lengthy. Rather, more like a short term bearish signal.

3.11 Examination of TA Indicators on Bangladeshi Companies

Now that we already know which technical indicators are used to conduct TA in Bangladesh Capital Market, we might as well analyze the stock prices of few renowned Bangladeshi companies using these 5 indicators –

3.11.1 Square Pharmaceuticals Limited



Figure: Moving Average (MA) – Square Pharmaceuticals Limited

Here, we can see a MA line along with the stock prices of Square Pharma in the graph. Throughout August to December 2018, stock prices were upward trending. During this time, stock prices head up to 280 tk. Currently, The MA line is downward trending projecting a bearish signal and the stock value is 251.4 tk.



Figure: Exponential Moving Average (EMA) – Square Pharmaceuticals

We can see an EMA line along with the stock prices of Square Pharma in the graph. In December 2018, we can see EMA line moving downwards then moving up between January and April 2019. The EMA line has been downward trending since April 2019 projecting a bearish signal and the stock value is currently 251.4 tk.



Figure: Moving Average Convergence Divergence (MACD) – Square Pharmaceuticals

In the graph, the blue line is MACD Line, the pinkish one is Signal line and the green bars giving a shady feeling is Histogram. If we trace the last one year data of Square Pharma, we can see that the MACD Line and Signal Line had several crossovers or interceptions. We know that as a result of Crossover, either bullish or bearish trend occurs.

The first time the two lines crossed over in August 2018, MACD line went over Signal line projecting a bullish signal. They crossed over again in mid September 2018 and MACD line went below Signal line projecting a bearish signal. The last time they had a crossover was in the first half of July 2019, MACD line went below the Signal line projecting a bearish signal. Thus, the company is in bearish position and the current stock price dropped down to 251.4 tk.



Figure: Relative Strength Index (RSI) – Square Pharmaceuticals Limited

In the graph, we can see that the RSI value of Square Pharma is 41.22 confirming that the stock is neither bearish nor bullish. Since the RSI value is nearer to 30, means the stock price is very close to becoming oversold or bearish.



Figure: Bollinger Bands (BB) – Square Pharmaceuticals Limited

If we take last 1 year stock prices of Square Pharma into consideration, we can see that the company experienced an extreme and lengthy bearish signal in late November 2018 for which the company suffered till mid January 2019 and the price fell down to 252 tk. Then the company encountered a long term bullish signal in late January and stock price started climbing up reaching 265 tk. on April 2019. The company got beaten up again when another bearish signal appeared in April, making the stock prices falling to 252 tk. again in June 2019. Currently, the stock price of Square Pharma is 251.4 tk.

Prediction: After conducting Technical Analysis using MA, EMA, MACD, RSI and BB, we can come to this realization that Square Pharmaceuticals Limited is in bearish position and the current stock price dropped down to 251.4 tk. respectively.

3.11.2 Mutual Trust Bank Limited



Figure: Moving Average (MA) – Mutual Trust Bank Ltd.

We can see a MA line along with the stock prices of Mutual Trust Bank in the graph. The MA line went upwards in August, moving average prices climbing up around 39 tk. from 32 tk. respectively. From 01 July, 2019 to mid July, the MA line went downward, making the price dropped down to 33. Currently, the stock price is around 33.3 tk.



Figure: Exponential Moving Average (EMA) – Mutual Trust Bank Ltd.

We can see an EMA line along with the stock prices of Mutual Trust Bank in the graph. The EMA line was upward trending from August to October, stock price climbed from 31.5 tk. to 38 tk. during this period. Since mid October 2019, the EMA line has been downward trending, making the price dropped down to 33.3 tk. at the moment.



Figure: Moving Average Convergence Divergence (MACD) – Mutual Trust Bank Limited

In the graph, the blue line is MACD Line, the pinkish one is Signal line and the green bars giving a shady feeling is Histogram. If we trace the last one year data of MTB, we can see that the MACD Line and Signal Line had several crossovers or interceptions. We know that as a result of Crossover, either bullish or bearish trend occurs.

The two lines crossed over in August 2018, MACD line went over Signal line projecting a bullish signal. The last time they had a crossover was on 01 July 2019, MACD line went below the Signal line projecting a bearish signal. Thus, the company is in bearish position and the current stock price dropped down to 33.6 tk.



Figure: Relative Strength Index (RSI) – Mutual Trust Bank Limited

In the graph, we can see that the RSI value of Mutual Trust Bank is 46.63 confirming that the stock is neither bearish nor bullish. Since the RSI value is nearer to 30, means the stock price is very close to becoming oversold or bearish.



Figure: Bollinger Bands (BB) – Mutual Trust Bank Limited

If we take last 1 year stock prices of Mutual Trust Bank into consideration, we can see that the company had an extreme and lengthy bullish signal in August 2018 and the stock price kept increasing till mid October. As a result, the price rose to 38 tk. from 31 tk. respectively. If we observe the graph, we can see that the company experienced several excess short time price changes due to short term bullish or bearish signals from October 2018 till July 2019. Currently, the stock price of MTB is 33.3 tk.

Prediction: After conducting Technical Analysis using MA, EMA, MACD, RSI and BB, we can come to this realization that Mutual Trust Bank Limited is still in bearish position and the current stock price is around 33 tk. respectively.

3.11. 3 IDLC Finance Limited



Figure: Moving Average (MA) – IDLC Finance Ltd.

We can see a MA line along with the stock prices of IDLC in the graph. Throughout 2018, the MA line was upward trending projecting a bearish signal. As a result, stock price reached 80 tk. in January 2019. But as of January 2019, MA line is downward trending. Because of this bearish turn, the current stock price of the company is only 56.5 tk. respectively.



Figure: Exponential Moving Average (EMA) – IDLC Finance Ltd.

We can see an EMA line along with the stock prices of IDLC in the graph. Throughout 2018 and January 2019, the EMA line was upward trending projecting a bearish signal. As a result, stock price reached 80 tk. in January 2019. But as of February 2019, EMA line has been downward trending. Because of this bearish turn, the current stock price of the company is only 56.5 tk. respectively.



Figure: Moving Average Convergence Divergence (MACD) – IDLC Finance Limited

In the graph, the blue line is MACD Line, the pinkish one is Signal line and the green bars giving a shady feeling is Histogram. If we trace the last one year data of IDLC, we can see that the MACD Line and Signal Line had several crossovers or interceptions. We know that as a result of Crossover, either bullish or bearish trend occurs.

The two lines crossed over in mid August 2018, MACD line went over Signal line projecting a bullish signal. Then they crossed over again in late August 2018 and the Signal line went over MACD line projecting bearish signal. The last time they had a crossover was on 30 July 2019, MACD line went below the Signal line projecting a bearish signal. Thus, the company is in bearish position and the current stock price dropped down to 56 tk.



Figure: Relative Strength Index (RSI) – IDLC Finance Limited

In the graph, we can see that the RSI value of IDLC is around 36 which are almost equal to 30 confirming that the stock is in strong and severe bearish position.



Figure: Bollinger Bands (BB) – IDLC Finance Limited

If we take last 1 year stock prices of IDLC Finance Limited into consideration, we can see that the company experienced a short term bullish signal in mid August 2018 and a short term bearish signal in mid September. Then from mid October 2018 to February 2019, the company experienced a bullish turnover which took the stock price from 62 tk. to around 75 tk. After that, it took a bearish turnover which is still in motion. As of 29 July, the company is still suffering from that bearish signal and stock price is 56.5 tk.

Prediction: After conducting Technical Analysis using MA, EMA, MACD, RSI and BB, we can come to this realization that IDLC Finance Limited is still suffering from bearish turnover and the current stock price is around 56 tk. respectively.

Chapter 4

FINDINGS, RECOMMENDATIONS & CONCLUSION

Chapter Four: Findings, Recommendations & Conclusion

4.1 Findings of the Report

4.1.1 Re-examination of Stock Prices

Earlier after conducting technical analysis using indicators like MA, EMA, MACD, RSI and BB on three different Bangladeshi companies such as Square Pharmaceuticals Ltd., IDLC Finance Ltd. and Mutual Trust Bank Ltd. for the period between 1 August 2018 and 1 July 2019, we came to this realization that Bangladesh Stock Market i.e. Bangladesh Capital Market was inefficient and highly bearish and the stock prices were downward trending.

Bearish market refers to the situation where most of the securities in the market are oversold or undervalued. This happens when the stock prices of different companies are downward trending i.e. depreciating. The strategy for investors is to buy securities, hold them till they sell those securities off when the stock prices appreciate in order to get higher returns.

To verify the authenticity of our assumption as well as the validity of our prediction, we will do a reality check by going through the charts and evaluate the movements of stock prices from 1st August 2019 to 7th August 2019 and see if the actual image of stock market matches our prediction.

4.1.1.1 Square Pharmaceuticals Limited



Figure: Moving Average (MA) – Square Pharmaceuticals Limited

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the MA line was downward trending projecting a bearish signal and the stock price on 31st July was 251.4 tk.

If we re-examine the stock prices considering information up to 7 August 2019, the stock price on 7th August 2019 was 253 tk. which is 1.6 tk. more than the previous week. Eventually, we can see that a downward trending MA Line drove down the stock price to 245.9 tk. as of 1st week of September 2019. In a nutshell, our prediction was wrong for short term but was more than correct in the long run and the current market signal is strongly bearish. Thus, the accuracy level of Moving Average (MA) Indicator is **good** in my opinion.



Figure: Exponential Moving Average (EMA) – Square Pharmaceuticals

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the EMA line was downward trending projecting a bearish signal and the stock price on 31st July was 251.4 tk.

If we re-examine the stock prices considering information up to 7 August 2019, the stock price on 7th August 2019 was 253 tk. which is 1.6 tk. more than the previous week. Eventually, we can see that a downward trending EMA Line drove down the stock price to 245.9 tk. as of 1st week of September 2019. In a nutshell, our prediction was wrong for short term but was more than correct in the long run and the current market signal is strongly bearish. Thus, the accuracy level of Exponential Moving Average (EMA) Indicator is **good** in my opinion.



Figure: Moving Average Convergence Divergence (MACD) – Square Pharmaceuticals

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the last time they had a crossover was in the first half of July 2019, MACD line went below the Signal line projecting a bearish signal. Thus, the company was in bearish position and the stock price dropped down to 251.4 tk.

If we re-examine the stock prices considering information up to 7 August 2019, we can see that the two lines had a crossover again on 1st August 2019. This time, MACD Line went over Signal Line projecting a short term bullish signal. As a result, stock price rose to 253 tk. on 7th August. Eventually, MACD Line went below again and the stock price stepped down to 245.9 tk.

In a nutshell, our prediction was wrong for short term but more than correct in the long run and the current market signal is bearish. Thus, the accuracy level of Moving Average Convergence Divergence (MACD) Indicator is **very good** in my opinion.



Figure: Relative Strength Index (RSI) – Square Pharmaceuticals

As per our earlier examination based on information up to 31st July 2019, the RSI value of Square Pharma was 41.22 confirming that the stock was neither bearish nor bullish. Since the RSI value is nearer to 30, means the stock price was very close to becoming oversold or bearish.

If we re-examine the stock prices by considering information up to 7 August 2019, we can see that RSI value on 7th August was 46.61 confirming that the stock was still neither bullish nor bearish. Similar to the previous case, since the value is nearer to 30 than 70, means the stock price was very close to bearish. Furthermore, we can also witness the fact that the RSI value reached 30 by first week of September projecting a strong bearish signal and causing the stock price fall to 245.9 tk. respectively. Therefore, our previous prediction was correct and the current market signal is strongly bearish. Thus, the accuracy level of Relative Strength Index (RSI) Indicator is **excellent** in my opinion.



Figure: Bollinger Bands (BB) – Square Pharmaceuticals

As per our earlier examination based on information up to 31st July 2019, the company’s stock price was hurt due to a bearish signal appeared in April 2019, making the stock prices falling from 265 tk. to 252 tk. within June 2019.

Even though the Square Pharma’s stock price tried to get up, it couldn’t properly recover from the bearish signal ever since and currently stock price is 245.9 tk. respectively. Therefore, our previous prediction was correct and the current market signal is strongly bearish. Thus, the accuracy level of Bollinger Bands (BB) Indicator is **excellent** in my opinion.

Summary

Indicators like MA, EMA and MACD suggested that even though the company experienced bullish signal for a very short time between last week of July and first week of August, it ended up in bearish position in the long run and the current stock price depreciated to 247 tk. as a result of this bearish signal respectively. On the other hand, RSI and BB suggested that the company has always been in bearish position within this period.

As a final point, after conducting Technical Analysis using MA, EMA, MACD, RSI and BB, we can come to this realization that Square Pharmaceuticals Limited is in bearish position.

4.1.1.2 Mutual Trust Bank Limited

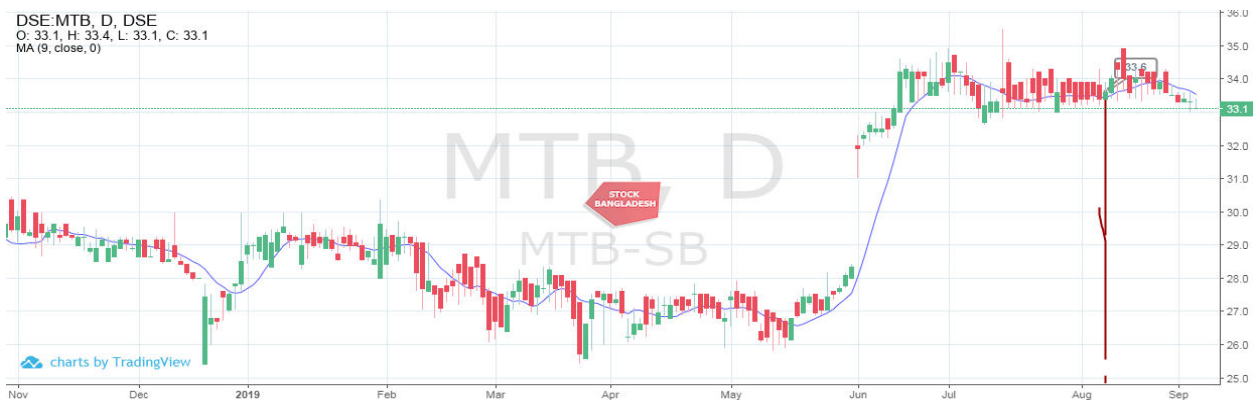


Figure: Moving Average (MA) – Mutual Trust Bank

As per our earlier examination based on information up to 31st July 2019, we have witnessed that, the MA line went upward since late May, causing the price rose up to 33.3 on 31st July.

If we re-examine the stock prices by considering information up to 7 August 2019, we can see that the stock price on 7th August 2019 was 33.6 tk. which is basically the same as the previous week. Eventually, we can see that MA Line has been stable till 1st week of September 2019 and the current stock price is 33.1 tk. respectively. Therefore, the stock price of MTB is neither bearish nor bullish and the accuracy level of Moving Average (MA) Indicator is **good** in my opinion.



Figure: Exponential Moving Average (EMA) – Mutual Trust Bank

As per our earlier examination based on information up to 31st July 2019, we have witnessed that, the EMA line went upward since late May, causing the price rose up to 33.3 on 31st July.

If we re-examine the stock prices by considering information up to 7 August 2019, we can see that the stock price on 7th August 2019 was 33.6 tk. which is basically the same as the previous week. Eventually, we can see that EMA Line has been stable till 1st week of September 2019 and the current stock price is 33.1 tk. respectively. Therefore, the stock price of MTB is neither bearish nor bullish and the accuracy level of Exponential Moving Average (EMA) Indicator is **good** in my opinion.

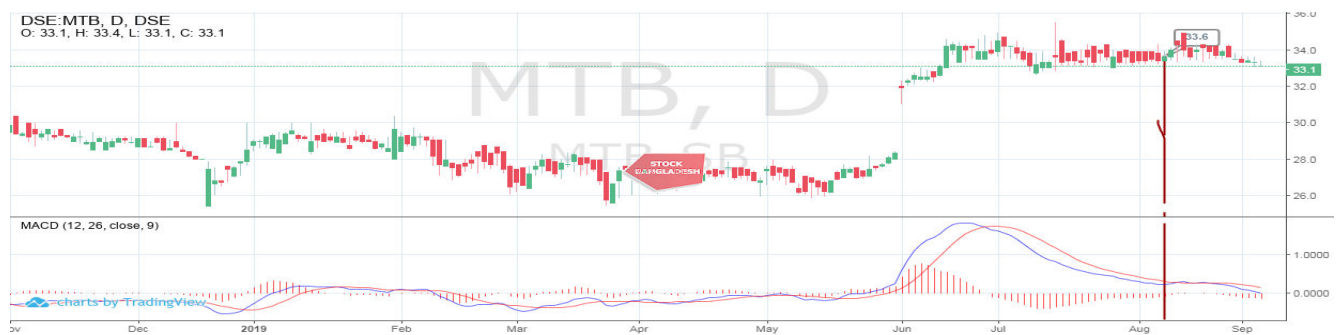


Figure: Moving Average Convergence Divergence (MACD) – Mutual Trust Bank Limited

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the last time they had a crossover was on 01 July 2019, MACD line went below the Signal line projecting a bearish signal. Thus, the company was in bearish position and the stock price dropped down to 33.6 tk.

If we re-examine the stock prices considering information up to 7 August 2019, the signal was still bearish and the stock price on 7th August was 33.6, exactly the same as before. As of 4 September 2019, the company is still in bearish position and current stock price is 33.1 tk. respectively. Our previous prediction was correct and the accuracy level of Moving Average Convergence Divergence (MACD) Indicator is **very good** in my opinion.



Figure: Relative Strength Index (RSI) – Mutual Trust Bank Limited

As per our earlier examination based on information up to 31st July 2019, the RSI value of Mutual Trust Bank Limited was 46.63 confirming that the stock was neither bearish nor bullish. Since the RSI value was nearer to 30, means the stock price was very close to becoming oversold or bearish.

If we re-examine the stock prices by considering information up to 7 August 2019, we can see that RSI value on 7th August was 58.14 confirming that the stock was still neither bullish nor bearish. Since the value was nearer to 70 than 30, means the stock price was very close to becoming overbought or bullish. Furthermore, we can also witness the fact that the RSI value dropped down to 40 by first week of September predicting a very strong bearish signal in the future which caused the stock price fall to 33.1 tk. respectively.

Therefore, our previous prediction was correct and the company is on the verge of embracing a signal which would be strongly bearish. Thus, the accuracy level of Relative Strength Index (RSI) Indicator is **excellent** in my opinion.

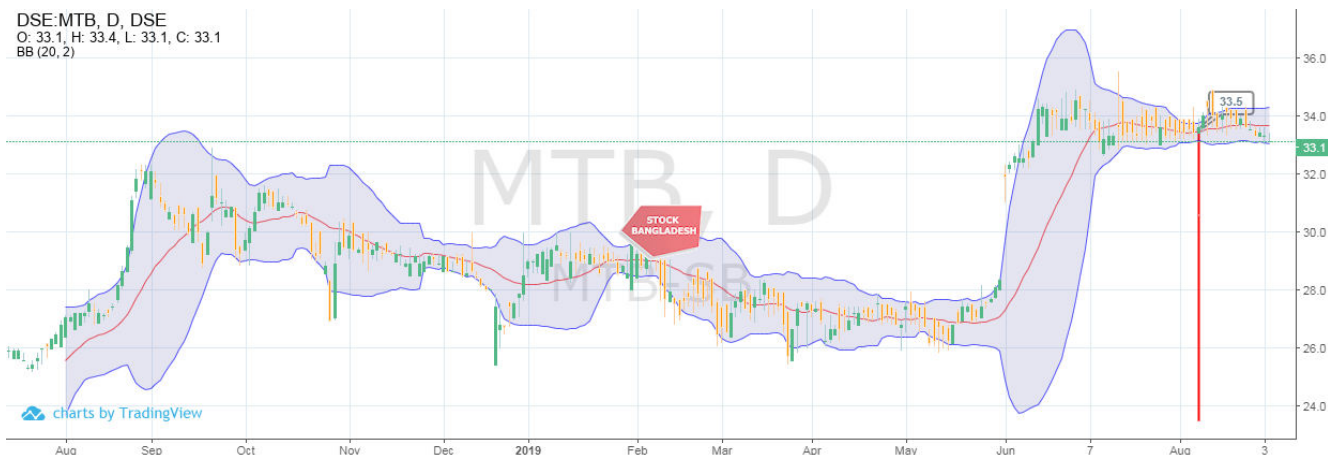


Figure: Bollinger Bands (BB) – Mutual Trust Bank Limited

As per our earlier examination based on information up to 7 August 2019, the company’s stock price rose from 27 tk. to 33.5 tk. between June and July. Since July 2019, the trend has been stable and currently stock price is 33.1 tk. respectively. Therefore, our previous prediction was correct and the current market signal is neither bullish nor bearish. Thus, the accuracy level of Bollinger Bands (BB) Indicator is **excellent** in my opinion.

Summary

Indicators like MA, EMA and BB suggested that the movement in the stock prices of the company has been stable for a while now and it is neither bullish nor bearish at the moment. RSI, on the other hand, recommended that movement of the company’s stock prices were most likely to turn bullish in the first week of August but that probability has changed dramatically and now the company is on the verge of embracing a signal which happens to be strongly bearish. Finally, MACD interprets the situation by stating that Mutual Trust Bank Limited has always been in bearish position and is most likely to stay this way in the coming days.

By considering the analysis of all five indicators, we can interpret the situation by saying that the movement in the stock prices of Mutual Trust Bank Limited has been stable throughout better part of July, August and September but there is a chance they might have to face bearish signal in the upcoming future.

4.1.1.3 IDLC Finance Limited



Figure: Moving Average (MA) – IDLC Finance Ltd.

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the MA line had been downward trending since January 2019 projecting a strong and extreme bearish signal and causing the stock price drop to from 80 tk. to 56.5 tk. on 31st July.

If we re-examine the stock prices considering information up to 7 August 2019, the stock price on 7th August 2019 was 54.5 tk. which is lesser than the previous week. Eventually, we can see that a downward trending MA Line drove the stock price down to 47 tk. as of 1st week of September 2019. In a nutshell, our prediction was perfect the current market signal is strongly bearish. The accuracy level of Moving Average (MA) Indicator is **good** in my opinion.



Figure: Exponential Moving Average (EMA) – IDLC Finance Ltd.

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the EMA line had been downward trending since January 2019 projecting a strong and extreme bearish signal and causing the stock price drop to from 80 tk. to 56.5 tk. on 31st July.

If we re-examine the stock prices considering information up to 7 August 2019, the stock price was 54.5 tk. on 7th August 2019 which is lesser than the previous week. Eventually, we can see that a downward trending EMA Line drove the stock price down to 47 tk. as of 1st week of September 2019. In a nutshell, our prediction was perfect the current market signal is strongly bearish. The accuracy level of Exponential Moving Average (EMA) Indicator is **good** in my opinion.



Figure: Moving Average Convergence Divergence (MACD) – IDLC Finance Limited

As per our earlier examination based on information up to 31st July 2019, we have witnessed that the last time they had a crossover was on 30 July 2019, MACD line went below the Signal line projecting a strong and extreme bearish signal causing the stock price drop down to 56 tk.

If we re-examine the stock prices considering information up to 7 August 2019, the company had another crossover which also resulted in bearish signal. Currently, the company is still in bearish position and the stock price at 47 tk. In a nutshell, our prediction was perfect and the current market signal is bearish. Thus, the accuracy level of Moving Average Convergence Divergence (MACD) Indicator is **very good** in my opinion.



Figure: Relative Strength Index (RSI) – IDLC Finance Limited

As per our earlier examination based on information up to 31st July 2019, the RSI value of IDLC was around 36 which were almost equal to 30 stating that the stock was in strong and severe bearish position.

If we re-examine the stock prices considering information up to 7 August 2019, we can see that RSI value on 7th August was 23.23 confirming that the stock was bearish. Furthermore, we can also witness the fact that the RSI value reached around 18 by first week of September projecting a strong and severe bearish signal and causing the stock price fall to 47 tk. respectively. Therefore, our previous prediction was perfect and the current market signal is strongly and

severely bearish. Thus, the accuracy level of Relative Strength Index (RSI) Indicator is **excellent** in my opinion.



Figure: Bollinger Bands (BB) – IDLC Finance Limited

As per our earlier examination based on information up to 7 August 2019, the company's stock price was hurt due to a bearish signal appeared in June 2019, making the stock prices falling to 54.5 tk. The company is still in severe bearish position and currently the stock price is 47 tk. respectively. Therefore, our previous prediction was perfect and the current market signal is strongly bearish. Thus, the accuracy level of Bollinger Bands (BB) Indicator is **excellent** in my opinion.

Summary

After conducting technical analysis using MA, EMA, MACD, RSI and BB, we can come to this conclusion that IDLC Finance Limited has been in bearish position for quite a time now. This situation is getting more severe and extreme every day since January 2019. Their stock prices have decreased around 50% approximately within last 8 months.

4.2 Recommendations

- ➔ Creating awareness among our people to make informed investment decisions
- ➔ Encouraging people to invest more in the stock market
- ➔ Improvisation of exchange management, infrastructures, rules and regulations
- ➔ Effectively introducing Bond and Derivatives Market offering products like Corporate Bonds, Debentures, Futures and Options.
- ➔ Establishing new stock exchanges in Sylhet, Barisal, Khulna and Rajshahi Divisions as well.
- ➔ Increasing number of OTC Markets as well as use of advanced technologies
- ➔ Providing investors training for rational investment so that we can ensure strong form market efficiency
- ➔ Ensuring strict monitoring system to prevent insider trading and other forms of fraudulent acts

4.3 Conclusion

An increasing amount of people are placing a great amount of money in capital markets by buying and selling securities each day. Doesn't matter if their purpose is mere investment or trading, the objective has always been to make a decent amount of profit by earning a higher return from those securities. Thus, it is very important that they understand how the market actually works in order to make informed and rational financial decisions by conducting proper security analysis.

We have conducted technical analysis using effective technical indicators including Moving Average, Exponential Moving Average, Moving Average Convergence Divergence, Relative Strength Index and Bollinger Bands on three renowned Bangladeshi companies (Square Pharmaceuticals Limited, Mutual Trust Bank Limited and IDLC Finance Limited) from three different sectors.

By considering the analysis of all five indicators, we have come to this realization that the movement in the stock prices of Mutual Trust Bank Limited has been stable throughout better part of July, August and September but there is a chance they might have to face bearish signal in the upcoming future. Moreover, Square Pharmaceuticals Limited might have experienced short term upward trend in the movement of stock prices in the last couple of months but is currently in bearish position. Finally, IDLC Finance Limited has been in bearish position for quite a time now. This situation is getting more severe and extreme every day since January 2019. Their stock prices have decreased around 50% approximately within last 8 months.

In conclusion, we can say that Bangladesh Capital Market i.e. Stock Exchange is highly volatile, full of uncertainty and mostly bearish. Thus, stock prices are depreciating rapidly and the market is considered highly inefficient. Therefore, Investors should do their home works and analyze the market as well as individual company stocks properly before throwing away all their life's savings in the market.

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