

CHAPTER-ONE

INTRODUCTION

1.1 Background

Investment activities are core activities for economic development. It means the sacrifice of current rupees for the future rupees in which two different attributes are generally involved i.e. time and risk. The sacrifice takes place in the present situation and is uncertain. The reward come latter, if any magnitudes generally uncertain. In some case the element of time per dominates (for example government bond). In other cases risk is the dominant attribute (for example call option on common stock). In yet others, both time and risk are important (Bhattari, 2012).

Common stock one of the most popular investment alternative for investment among short term and long term securities such as marketable securities and other bond, preferred stock as it has unlimited sources of earning, large capital gain and normal gain. Like bond and preferred stock the normal gain is not fixed on common share, it determined and declared by annual general meeting. So earning on the investment of common stock depends upon the company profit. Warren Buffet and Mukesh Abany became the richest people investing on share in the world. Common share on the other hand is one popular sources of raising fund to the company according as their optional capital structure. To raise Fund Company issue share from IPO (Dahal, 2016).

Investor must be aware to choose the share of a prosperous company which has high potentiality for rapid growth as likes Standard Chartered Bank Ltd, Uniliver Nepal Ltd, Chilime Hydropower Company Ltd. and be secured from the institution's share as like Nepal Development Bank Ltd. Which company share is chosen? Is a major question to the investor and it is answer through the fundamental analysis of stocks. Fundamental analysis is a method used to evaluate the worth of security by studying the financial data of the issuer. It scrutinizes the issuer's income and expenses, assets and liabilities, management and position in its industry. In other words it focuses on the "basic" of the

business. To use fundamental analysis to help us to make investment decision, we would rely heavily on an offering prospectus, annual and quarterly reports as well as any current news items relating to company which securities we are considering .Technical analysis is a method of evaluating securities by analyzing statistics generated by market activities past prices and volume. Technical analysis does not attempt to measure a security's intrinsic value; instead they look at stock chart for patterns and indicators that will determine a stocks future performance (Aryal, 2015).

Fundamental analysis is taken as more comprehensive, and difficult to understand. Technical analysis is taken as simple method to understand but it is on the basis of different assumption. Assumptions of technical analysis are as follows:

- Market value is determined by the interaction of supply and demand.
- Supply and demand are governed by numerous factors both rational and irrational.
- Security prices tend to move in trends that persist for an appreciable minor fluctuation in the market.
- Changes in a trend are caused by shifts in supply and demand.
- Shift in supply and demand no matter why they occur can be detected sooner or later in charts of market transactions.
- Some chart patterns tend to respect themselves.

Technical analysis has become increasingly popular over the several years as more and more people believe that historical pattern and performance of stocks is a strong indication of future performance. Even though the important of fundamental analysis is not less important as Warren E. Buffett use it to make investment decision Benjamin Graham is the father of fundamental analysis (Dahal, 2016).

Share are traded both in primary and secondary market. Primary market is the first market where companies issue its securities for the first time. Recently Megha Bank Ltd. is going to issue the primary stock. But secondary markets are markets

for existing financial assets, which are currently traded between investors. These markets create the price and allow for liquidity. If secondary markets do not exist investors would have no place to sell their asset and without liquidity many people would not invest (Bhattari, 2015).

Development of securities market in Nepal

The history of securities market in Nepal is not too long. Almost two and half decades ago, it began with the flotation of shares by Biratnagar Jute Mills Ltd. and Nepal Bank Ltd. in 1937. Introduction of company act in 1951, the first issue of government bond in 1964 and the establishment of securities exchange center Ltd. in 1978 where some significant development of capital market in Nepal.

Securities exchange center, before it is converted into Nepal stock exchange was only the capital market institution under taking the job of brokering, underwriting, managing public issue, market making government bond and other financial services. Then the securities exchange center was converted into Nepal stock exchange Ltd. in 1993. The main objective of NEPSE is to impart free marketability and liquidity to government and corporate securities by facilities transaction in its. NEPSE is started its trading floor in 13th January, 1994 through its licensed member.H.M.G. NR Bank, NIDC and licensed members are the shareholders of the NEPSE. The board of director of NEPSE constitutes nine directors in the board in accordance with securities Exchange act 1983. Six directors are nominated by Nepal government from different institutional investor. Two from the licensed members and G.M of NEPSE is Ex-officio director of the board (Bhattari, 2015).

The authorized capital of NEPSE is 940 million. The issue capital is 754.16 million and paid up capital is 816million. NEPSE has 29 members brokers eleven sales issue manager. It has license to dealers (primary and secondary) issue manager in the secondary market. Till Bhadra 2075, 230 companies have listed their securities from different seven sectors on the stock exchange for their secondary transaction and they are from banking, manufacturing, insurance, finance, trading hotel and other sectors (Bhattari, 2018).

Nepal stock exchange is in developing stage. Therefore, it is possible for new speculative investors to manipulate the price share involve in desirable practices. To

control these deficiencies, government has established Security Board of Nepal (SEBON). It is the apex regulatory body to facilitate smooth development of a dynamic and competitive stock market and maintains its creditability, fairness, efficiency, transparency and responsiveness. NEPSE is a market where securities are exchanged. It is Nepal's one and only security market. It formulates new policies, rule and regulations for the smooth operation of the market.

1.2 Focus of Study

In Nepal, stock market is a recent phenomenon then in developed countries. "Security market refer to buyer and seller of security and also structure of comprising all those agencies and institution which help in the sale and resale of companies securities" (Paudel, 2015). By providing efficient market mechanism for collecting and mobilizing fund, stock market has significant role to accelerate the pace of industrial growth in the national economy and also to create the concept of stock exchange activities. But in Nepal after establishing the security board in 1994 A.D. it took place in modernization. Lack of high infrastructure, information dissemination system, lack of high professional broker, rigid rule and regulation and investors unconsciousness are main problem in stock market. Due to many more problems Nepalese market could not contribute in economy as compare to developed countries. Regarding various problems this study is only concerned with "stock market price movement and patterns of change and performance of selected commercial banks and finance companies in terms of share price movement" (Paudel, 2015).

The descriptive and diagnostic approaches are used for this purpose. For descriptive part, it is concerned with significant trend and development of status of stock market in Nepal etc. But in diagnostic approach theory of technical analysis where moving average, relative strength analysis correlation and run test are used. The monthly closing price movement of selected commercial banks and NEPSE index will be used for this analysis. This small study provides the valuable conclusion about the market efficiency patterns of change in price of share and buys and sell signals of securities and performance of selected commercial banks.

1.3 Statement of the Problems

Nowadays, investment on capital market plays the key role in the economic development of country. The economic social and political interference directly influences it. The phase of development of the capital market in any country and effective growth is dependent upon the collective economic condition, saving and investment opportunities etc.

Though there are various commercial banks in touch with capital market, they have not been able to display the better performance as expected by the investors. On the other hand, the investor themselves are not responsible for not having self-judgment and self-control in the choice of securities for the investment hence most of the investor are carelessly investing in share. The present political instability, economic imbalance, in effective implementation of liberal economic policy of the country has shown negative symbols in the economy of the country. The price of the securities, particularly, common stock has been randomly fluctuating and declining over the past years due to political causes. As a result, some companies were liquidated and some are working with hardship in the market. The policy makers are unable to make the proper policy for the development of the stock market. Most of the government level efforts for the development of stock market are not sufficient. Fundamental analysis approach involves working to analyze firm's financial statements, its competitor; the condition of economy, government action that may affect the firm and some other factors also may affect the future value of firm's common stock. These are the analyst who believes that both external and internal factors affect intrinsic value of firm's common stock in contrast "Technical analysts largely ignore the fundamental facts that interact to determine the intrinsic value of firm's common stock" (Paudel, 2016).

"Technicians are security analysts who believe that it is not productive to work through all the fundamental facts about the issuing corporation, company's earning, its product, forth coming legislation that might affect the firm. Instead technical analysts believe that these fundamental facts are summarized and represented by the price of a stock" (Paudel, 2016). According to technical analysis the price of stock depend on supply and demand in the market place and

has little relationship to value. The technical analysis theory involves the study of past volume and price data of the stocks to predict fluctuations. The approach studies various graph and chart of the past share price and deduce from the analysis about the future pattern. The chartist seek to predict future movement by seeking to interpret past pattern on the assumption that history tend to repeat itself. In essence, technician believe that the past pattern or trend of market action will be recurring in the future and can therefore be used for prediction purpose. Thus, technical analysts estimate prices instead of value of the common stocks. Therefore, technical analysis provides the important information about the behavior and movement of share price which is useful for the investment, holding and selling share.

This study has tried to address the following research question:

- i. What does analyze the moving average of stock price of Nabil bank, Standard Chartered bank and Everest bank?
- ii. How to analyze the movement of market NEPSE index of Nabil bank, Standard Chartered bank and Everest bank?
- iii. Does the overall financial position indicate and relative strengths?
- iv. What is relationship between selected commercial bank (Nabil bank, Standard Chartered bank, Everest bank) stock price and NEPSE index?

1.4 Objectives of the Study

The basic objective of this study is to analyze the stock price behavior of selected commercial banks. The specific objectives are as follows

- To analyze the moving average of stock price of Nabil bank, Standard Chartered bank and Everest bank.
- To analyze the market NEPSE index of Nabil bank, Standard Chartered bank and Everest bank.
- To determine the relative strength analysis of Nabil bank, Standard Chartered bank and Everest bank.
- To determine relation between selected commercial bank (Nabil bank, Standard Chartered bank, Everest bank) stock price and NEPSE index.

1.5 Significance of Study

Most people in Nepalese society inhabit under the poverty line. They have low earning capacity. Even the people who are economically strong have no blond and precise information about the financial strength and weakness of the company on which they are going to invest. On the other hand they do not know when to buy and sell the stock in the secondary market. This study gives precise information to the investor to buy and sell the stock at right time in the secondary market. Besides this the significance of study can be outlined as follows.

- This study helps to choose suitable time to make investment on secondary market.
- This study may draw the attention of all people to invest on share.
- This study is very useful to all potential investor to draw trend line
- Considering price, volume of share and overall stock market index.
- This study helps to avoid losses and increase capital gain investing on stock.
- This study also will contribute literature and further researcher in this area.

1.6 Limitations of the Study

This study basically focuses on technical analysis of stock. So this study does not give insight to know strength and weakness of company. So, it believes that past “patterns” and “trend” of market action will recur in the future and can be used for prediction purpose. Hence this study estimate price instead of values of common stock. Due to time constraints, the limitation of the study can be pointed out as:

- Most of data and information are secondary and findings and
- Conclusions are strictly depending on the reliability and accurateness of data.
- Due to the personnel error reporting error might occur.
- Only common stocks are taken into the account for the purpose of

study.

- This research has been confined only few banks and common stock
- Listed in NEPSE. Thus conclusion obtained cannot generalize on the total capital market.
- Only three commercial banks listed in NEPSE for the fiscal year
- This stock price focused the period of 2017/18 as sample.

1.6 Organization of the Study

For the better Research work it is very essential to organize the whole things and divide the word as related chapters. So this study includes five Chapters as mentioned below.

Chapter 1- Introduction

This chapter deals with introduction. This includes backgrounds, statement of problems, objective of study, limitation of study, focused of study and organization of study.

Chapter 2 – Review of Literature

This chapter deals with the review of literature. It includes review of books, reports, journals, previous unpublished thesis as well as daily weekly and monthly newspaper.

Chapter 3- Research Methodology

This chapter explains the research methodology that used in the study which includes research design, resource of data, population and samples, method of data analysis.

Chapter-4 Data presentation and analysis

This is fourth chapter and important part of study including presentation and analysis of data.

Chapter- 5 Summary conclusion and Recommendation

The fifth chapter summarizes the main conclusion that flows from the study and offers suggestion for the further improvement and conclusion of the study. Bibliography and appendix have also been incorporated at the end of the study.

CHAPTER- TWO

REVIEW OF LITERATURE

2.1 Introduction

In this chapter, attempts have been made to review some of the basic literature on technical analysis theory including review of empirical evidence of previous studies. Related literatures have divided into two sections. The first sections of this chapter contain a brief explanation of the concept of common stock and theories of the share price behavior. It includes the efficient market, fundamental analysis and technical analysis theory. The second section includes the review of previous studies related to technical analysis in foreign context as well as Nepalese context separately.

2.2 Historical Development

The Nepalese stock market is just coming of age. Therefore, it has been changed in various new forms. After the enactment of the Company Act in 1936 for the first time, various considerable events have been observed in the development of security market. The history of securities market began with the floatation of shares by Biratnagar Jute Mills Ltd. and Nepal Bank Ltd. in 1937. Introduction of the company Act in 1964, the first issuance of Government Bond in 1964 and the establishment of Securities Exchange Center Ltd. in 1976 were other significant development relating to capital markets. Securities Exchange Centre (SEC) was established in 1984 with on objective of facilitating and promoting the growth of capital markets. Before the conversion into stock exchange it was the only capital markets institution undertaking the job of brokering, underwriting, managing public issue, market making for government bonds and other financial services. His Majesty's Government, under a programmer initiated to reform capital markets converted Securities Exchange Centre into Nepal Stock Exchange in 1993. Nepal Stock Exchange, in short NEPSE, is a non-profit organization, operating under Securities Act, 1983. The basic objective of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transaction in its trading floor through member, market intermediaries, such as broker, market makers and securities dealers. At the same time, the Securities Exchange Board of Nepal (SEBON) was constituted to oversee

the regulatory provisions. Presently in Nepal, NEPSE is the only one secondary market (organized stock exchange) of the country for security transactions. Another secondary market i.e. OTC market is also initiated but other different types of market such as third and fourth market are not initiated till date. NEPSE appointed five market makers and twenty-five brokers to smooth daily transaction of buying and selling of securities under its restrictive programmed in 1993. Recently SEBON is in the process of enlarging the stock market outside the capital city Kathmandu and is in the process of increasing number of broker (Shrestha, 2014).

2.3 Introduction of Security Board of Nepal (SEBON)

Securities Board Nepal was established in May 26, 1993 under the provision of Securities Exchange Act, 1983(first amendment). Since its establishment, SEBON has been concentrating its efforts to improve the legal and statutory frameworks which are the bases for the healthy development of the capital market. As a part of its continuous effort to build a sound system, the Securities Exchange Act, 1983 was amended for the second time on Jan 30, 1997. This amendment paved the way for establishing SEBON as an apex regulatory body as it widened die horizon of SEBON by bringing market intermediaries directly under its jurisdiction and also made it mandatory for the corporate bodies to report to SEBON annually as well as semi-annually regarding their performance. Although the second amendment in the act established direct relationship of SEBON with the market intermediaries and the listed companies, supremacy in its jurisdiction is yet to be established and clearly recognized (Security Board of Nepal, 2014).

2.4 Introduction of Nepal Stock Exchange (NEPSE)

Nepal Stock Exchange was established on 1993 under Securities Exchange act 1983. Nepal Stock Exchange was known as Securities Exchange Centre earlier. Securities Exchange Centre was established with on objective of facilitating and promoting the growth of capital markets. The major tasks undertaken by Nepal Stock Exchange are brokerage, undertaking, managing the public issue, making market for government bonds and other financial services. Nepal Stock Exchange is a non-profit organization operating under Securities Exchange Act, 1983. It was established with joint effort of Nepal Industrial Development Corporation (NIDC) and Nepal Rastria Bank to

mobilize the public saving for ensuring public ownership in the shares of public limited companies. In order to promote the stock exchange business, the center made a series of studies in the beginning regarding both the public limited companies and undertaking the business of buying and selling of securities. Recently, NEPSE has adopted the 'Circuit Breaker' system by which the speculation and fluctuation of share price is controlled. This has led the investors feel secured about their investment in certain extent. Currently paid of capital of the NEPSE is Rs. 816 million. However the AGM of NEPSE has approved to increase the capital structure to make its authorized capital of Rs.940 million. The proposed capital structure of NEPSE consists of issued capital of Rs.754.16 million and subscribed capital of 754.16 million. Out of the total capital (58.67%) is subscribed by HMG/N. similarly, (34.60%) is subscribed by NRB, (6.13%) is subscribed by NIDC and (0.62%) is subscribed by rest of the licensed members (WWW.nepalstock.com).

2.5 Common stock concept

Common stock represents ownership interest in the corporation. The ownership capital generally referred equity, when issued to the public for subscription in the form of a divisible unit of equal value is termed as common stock. Unlike debt once a corporation issues common stock, generally it has no obligation to redeem the stock by purchasing it from the investor. Usually common stock is issued with a perpetual life. These stocks are subjected to issue and trading in primary and secondary market. The original issue takes place in primary market where it is generally issued with its face value and once the stock gets listed in stock exchange the trading starts to take place and this particular market is called secondary market. The stocks which are delisted are translated at over the counter market. This is the third market in Nepalese Stock Market (Sigdel, 2015).

Stock is the ownership interest of corporation. Each share of stock is a fraction of the rights and privileges that belongs to the owners of a business. A stock certification is evidence of that fractional ownership; it is tangible evidence, a certificate of title, to part of the company.

Common stockholder of a corporation are residual owners, their claim to income and asset comes after creditors and preferred stockholders have been paid in full. As a

result, a stockholder's return on investment is less certain than the return to a lender or to a preferred stockholder. On the other hand, the return to a common stockholder is not bounded on the upside, as are return to the others. A share of common stock can be authorized either with or without par value. The par value of stock is merely a stated figure in the corporation charter and is of little economic significance. A company should not issue stock at price less than par value, because stockholders, who bought stock for less than par value, would be liable for the difference between below the par value they paid and the par value (Van Horne, 2008:85).

2.6 Theoretical Review

In the present situation, more and more people are being interested in the investment on financial assets as like other economic sectors. Most of the developing countries are enhancing their economy by the help of contribution in the investment sector. Hence, business cycle theorists through of the need of tracing the evolution of various economic variables over the long run of time. Many steps are performed in the investment process. Among them, security analysis is one. It includes the inspection of the various individual securities or groups of securities within the broad categories of financial assets. Mainly, there are two approaches in the case of behavior of stock market prices. They are as follows:

- Classical approach
- Efficient market theory approach

Classical or conventional approach includes technical analysis theory fundamental analysis theory. Under efficient market theories there are three forms of efficient market hypothesis. Classical approach assumes market inefficient whereas the efficient market theory argues that the market is efficient prior to the development of the efficient market theory, investors were generally divided into two groups, fundamentalists and technicians (Reily, 2009:347).

2.6.1 Classical Approach

This approach comprises of technical analysis and fundamental analysis theories. The fundamental analysis talks about the stock prices on the basis of earning and

dividends of the company but technical analysis talks about the stock prices on the basis of past price behavior of the company.

2.6.1.1 Technical Analysis Theory

Technical analysis is based on the widely accepted premise that security prices are determined by the supply of and demand for securities. The tools of technical analysis are therefore designed to measure supply and demand (Francis, 2009:521-522). Typically, technical analyst record historical financial data on charts, by studying these charts in an effort to find meaningful patterns to predict the movements of a market: index; and some are used to predict both the action of individual securities and the market action.

The word “technical” implies a study of the market itself and not of those external factors which are reflected in the market. All the relevant factors, whatever they may be, can be reduced to the volume of the stock exchange transactions and the level of share price; or more generally, to the sum of the statistical information produced by the market. In simple, “Technical Analysis” is a general term for a numbers of investing techniques that attempt to forecast securities prices by studying past prices and related statistics. The technician usually attempts to predict short-term price movement and thus makes recommendations concerning the timing of purchase and sales of either specific stock or stock in general. It should be emphasized, however that a large part of the methodology of technical analysis lacks a strictly logical explanation. The technical analysts focused most of their attention on charts of security market prices and on related summary statistic about security transaction. The analyst says that the technical analysis method is easier, faster and can be simultaneously applied to more stock. It is mainly based on the historical financial data and charts (Bhattari, 2012:288).

“The technical believes the forces of supply and demand are reflected in patterns of price and volume of trading. By examination of these patterns, he predicts whether prices are moving higher and lower, and even by how much.”(Fischer & Jordan: 510). Therefore, the patterns or trend in prices is the basis of technical analysis. Various charts are prepared to determine trends and to determine whether prices are likely to rise or fall. Technicians trend to backward. “The technician usually attempts to predict

short-term price movements and thus makes recommendations concerning the timing of purchases and sales of either specific stock or groups of stocks (such as industries) or stocks in general. It is sometimes said that fundamental analysis is designed to answer the question “what?” and technical analysis to answer the question “when?” (Shrestha, 2010).

“Technical analysts maintain that the price of a share at any time is the balance struck by buyers and sellers at a point in time. Price movements take place on account of changes in buying and selling pressures. This occurs in account of diverse internal and external factors (profits, political environment, predictions and the likes). Prices stabilized when equilibrium between buyers and sellers is achieved. They believe that a record of price movements over a period of time in the past. As the whole theory, is based on the assumptions that history repeats itself. That human nature does not change and that man is likely to repeat his pattern of past behavior in the future, it is believed that this record of past movements will repeat themselves in the future.” (Palat, 2008).

The technical analysts estimate prices instead of values. They largely ignore the fundamental facts such as the firm’s risks and earnings growth rates in favor of concentration on various barometers of supply and demand that they have devised. “The methodology of technical analysis rests upon the assumptions that history tends to repeat itself in the stock exchange. If a certain pattern of activity has in the past produced certain results nine times out of ten, one can assume a strong like hood of the same outcome whenever this pattern appears.”(Rosenfeld, 2005).

The premise here is that prices move in trends and that trend is likely to continue that reserve. It is note worthily to mention here the quotation of Veteran scientist and investor, Benjamin Franklin that “show me the man who does not believe in history and researcher will show you a fool.” Technical analysts believe in the history and that history repeats itself. Consequently, all their predictions and charts are based on history. Past figure and trends are used to predict.

According to Edwards and Magee the basic assumptions underlying technical analysis are as under (Edwards and Magee, 2008).

1. Market value is determined solely by interaction of supply and

demand.

2. Supply and demand are governed by many rational and irrational factors.
3. In disregard of minor fluctuations in the stock market, share price tends to move in trends which persist for an appreciable length of time.
4. Changes in trend are caused by shifts in supply and demand.
5. Shifts in supply and demand, no matter why they occur can be detected sooner or later in charts of market action.
6. Some charts patterns trend to repeat them.

In essence, technical analysts believe that past patterns of market action will recur in the future and can therefore be used for predictive purposes. Technical analysts use different kinds of tools and techniques to determine and forecast the stock price on the basis of past data and information. This technique is based on the fundamental technique. Technical analysis is easier, faster, more result oriented and more market oriented philosophy than fundamental analysis. Some important techniques of technical analysis are Dow Theory, charts, contrary option, the confidence index, breadth of market, relative strength analysis and moving average which are studied below (Roberts, 2009).

The Dow Theory

It is one of the oldest and famous techniques, which was founded by Charles Dow, who was editor of the paper “The Wall Street Journal.” The Dow Theory is used to predict, reversals and trends in the market as a whole or for individual securities. According to Dow, the market is always considered as having three movements, all going at the same time. The first is the narrow movement from day to day, the second is the short swing, running from two weeks to a month or more, the third main movements from a least four years. Dow Theory practitioners refer to these three components as,

I. Primary Trend

Primary trends are long range cycle of the entire market ups and downs. It provides broads fluctuations for long periods last in form several months even to the several years (Gujrati, 2010).

II. Secondary Trends

Secondary trends are restraining force on primary trends to correct. This secondary trend is called by the chartists at the technical correlation of the market these movements last from three weeks to three month for predicting primary trends.

III. Minor Trends

These are the day to day fluctuation of the stock prices and these are meaningless to maintain neither primary trends nor the secondary trends.

a. Charts

Technical analysis uses the three types of charts such as line chart, bar chart and point & figure charts. Line charts are used to connect successive day's closing price. Bar charts are used to spoon distance from the day's highest price the day's lowest price. A small cross on the bar makes the closing price. Point and figure charts (PFCs) made on X and Y are more complex than line and bar charts. PFCs are used not only to detect reversal in trends but also make price forecasts, called price targets.

b. Contrary Opinion

Contrary opinion refers the opposite thinking of these. It assumes that the so called man in the street is usually wrong and that it is therefore advantageous to price strategies opposite to his thinking two different theories of contrary opinion are: The odd lot theory and Short Sales.

c. The Confidence Index

Confidence index is the relation of high-grade bond yield to low-grade bond yield. When bond investors grow more confident about the economy, they shift their holdings from high grade to lower grade bonds in order to obtain the high yield offered by the risk on bond (Palat, 2008).

d. Moving Average

Moving average analysis is used by technicians who focus on the moving average price. The moving average is used to provide a smooth, stable reference point against

which daily fluctuations can be gauged. Moving average analysis is used for individual securities market indexes.

e. Breadth of Market

The breadth of market is a tool to analyze the movement of the securities prices. It measures the underlying strength of market advances (increase) or decline (fall). One of the easiest methods among several methods of calculating breadth is to compare the number of issues that advance in price and the number that decline in price. The breadth of market statistics is obtained by simply consulting the daily net advances and declines. A technical analyst compares breadth of market with the market index. Technical analyst watches for the trend in breadth to diverge from the trend in the market (Mahat, 2011).

f. Relative Strength Analysis

Another tool of technical analysis is the measurement of the relative strength of stocks. This approach suggests that prices of some securities rise relatively faster in a bull market or decline relatively more slowly in a bear market and can earn higher returns by investing in relatively strong securities.

2.6.1.2 Fundamental Analysis Theory

Fundamental analysis approach involves working to analyze different factors such as economic influences, industry factors, governmental action, firm's financial statement, its competitor and pertinent company information like product demand, earnings, dividends and management in order to calculate an intrinsic value for firm's securities. The analyst who believes on fundamental facts to determine the intrinsic value of stock is properly known as fundamental analyst or fundamentalist.

Fundamentalists forecast stock price on the basis of economic industry and company statistics. The principal decision variable ultimately takes form of earnings and value with the risk-return framework based upon earning power and the economic environment. Fundamental analysts delve into company's earnings, their management, economic outlook, firm's competitor's market conditions and many other factors (Francis, 2009:398).

The objective of fundamental security analysis is to appraise the intrinsic value of a security. The intrinsic value is the true economic worth of financial assets. “The fundamentalists maintain that any points of time every stock has an intrinsic value which should in principal be equal to the present value of the future stream of income from that stock discounted at an appropriate risk related rate of interest” (Bhalla, 2003:283). Therefore, the actual price of security is considered to be a function of a set of anticipation. Price changes as anticipation changes which in turn change, as a result of new information. In other words a new price of news is released, securities intrinsic value will change, and the securities market prices will adjust towards the new values.

“The value of common stock is simply the present value of all the future income which the owner of the share will receive.” (Francis, 2009:398) and the actual price should reflect intrinsic value of the stock i.e. good anticipation of cash flows and capitalization rate corresponding to future time period. But in practice, first, it is not known in advance what the appropriate discount rate should be for a particular stock. Therefore, fundamentalists estimate their intrinsic value by studying in details all matters that are relevant to company. “The study would involve examining its sales earning, profit margins dividends, management proficiency, industrial and business outlook, labor competence any factor that would have a bearing on its performance in the future” (Palat, 2008:167).

On the basis of such a study, fundamentalists project a company’s future profits and earning capacity with reasonable accuracy what the price of a company’s share ought to be. This estimated price is termed as intrinsic value. The intrinsic value of the stock is generally away from its present market value. Thus, there is difference or gap between them. Fundamentalist reaches to an investment decision by comparing this value with current market value; it is believed that price will rise. In this situation, fundamentalist will acquire shares as this different presents them with an opportunity to make a profit. Alternatively, if the intrinsic value is lower than the market value, the share is overpriced and is an indication to the fundamentalists to sell. Following this rule, they believe, above average return can be attained, given that the market is inefficient in pricing the shares. Therefore, the fundamental analysts work to find new

information before other investors so they can get in to a position to profit from price changes they anticipate (Francis, 2009:603).

“Fundamental analysis uses different models like Top-Down versus Bottom-Up forecasting, probabilistic forecasting, econometric models and financial statement analysis etc. to estimate the value of security”(Shrestha, 2010).

Therefore, the fundamental analyst reaches an investment decision on the basis of these analytical tools which are described below.

a. Top-down Versus Bottom-up forecasting

Under top down analysis approach the analysis is down by making forecast for the economy, industries and companies. The industries forecast are based on the forecast for the economy and a company’s forecast is based on the forecasts for the both its industries and the economy. Likewise, while bottom-up forecasting, estimation of the companies is conducted firstly, and then only estimation of the prospects for the industries is carried out and ultimately the economy’s prospects are conducted. The assumptions under this approach are inconsistent. In practice a combination of the two approaches is often employed.

b. Probabilistic Forecasting

Explicit probabilistic forecasting often focuses on economy wide forecasts, as uncertainty at this level is of the greatest importance in determining the risk and expected return of well-diversified portfolio. A few alternative economic scenarios may be forecasted along with their respective probability of occurrence. Then accompanying projections are made of the prospects for industries, companies and stock prices. Such an exercise provides an idea of the likely sensitivities of different stocks to surprises concerning the economy and hence is sometimes referred to as what if analysis.

c. Econometric Model

An econometric model is a statistical model that provides a means of forecasting the level of certain variables known as endogenous variables. In order to making this

forecast, the model relies on assumptions that have been made in regards to the levels of certain other variables supplied by the models users known as exogenous variables.

d. Financial Statement Analysis

A company's financial statement can be regarded as the output of a model of a firm. Many analysts do study financial statement to predict the future. Financial statement analysis can help an analyst to understand a company's current situation where it is going, what factors affect it and how these factors affect it. To fully understand the company, comparison of financial statement with other statements is required to analyze carefully to determine the value of the firm. Once, earning ratio of the company is determined value of the share can be accessed. The price of the share can be estimated by examining the ratio of earning, after tax to the book value of equity. Some limitations of the fundamental analysis approach are as follows:

1. The information and analysis may be itself incorrect.
2. Many companies with the help of the creative and innovative accounting and Accounting cosmetics disguise the real earnings.
3. The entire fundamental approach is based on a rational scientific analysis of the data the market is rarely rational.
4. The fundamentalist's estimate of intrinsic value may be incorrect. This is not Only possible but also probable that he often forecast growth, profit and other factors without grasping all the facts.
5. The fundamentalists may not fully understand the economy or the industry, as there are several external factors.

Hence, fundamental analysis is ever-going process because values change in accordance with time. Ideally, revision in analysis should occur wherever new information affecting the future benefits to security holders becomes available.

2.6.2 Efficient Market Theory

An efficient market is defined as a market where there are large numbers of rational profit maximizes actively competing with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, competition among the many

intelligent participants leads to a situation where at any point in the time, actual price of individual security already reflect the effects of information based on both on events that have already occurred and on events which as of now, the market expect to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value (Fama, 2007: 384-385).

In an efficient market, all the relevant information is reflected in the current stock price. Information cannot be used to obtain excess return: the information has already been taken into account and absorbed in the prices. In other words, all prices are correctly stated and there are no “bargains” in the stock market (Bhalla, 2003: 433).

In a competitive market, the equilibrium price of any good or service at a particular moment of time is such that the supply is equated with the aggregate demand. This is the true worth of the goods or services, based on all publicly available information. The new equilibrium price will hold until another bit of information is available for analysis and interpretation. In an efficient market, a security’s price would correctly the important variables for that security and would represent an unbiased estimate of its investment value (Chandra, 2010).

An efficient market is one where shares are always correctly priced and where it is not possible to outperform the market consistently except by luck (Pistolesse, 2008:41). Efficiency in this context means the ability of the capital markets to function so that prices of securities react rapidly to new information. Such efficiency will produce prices that are appropriate in terms of current knowledge, and investors will be less likely to market unwise investment. A corollary is that investor will also be less likely to discover great bargains and thereby earn extraordinary high rates of return (Lorie, 1974:3). In an efficient market, current market prices fully reflect available information (Fama, 2008:133). Therefore, if the market is efficient, it uses all the available information to its in setting price.

If a market is efficient, then there is a very important implication for market participants all investments in that market are zero NPV investments. The reason is not complicated, if prices are neither too low nor too high. Then the difference between the market value of an investment and its cost is zero, hence the NPV is zero.

As a result, in an efficient market, investors get exactly what their stocks and bonds are worth when they sell them (Rosenfield, 2005:405).

2.6.2.1 Efficient Market Hypothesis

The development of efficient market hypothesis (EMH) could be traced into the random walk theory of stock market price behavior. Later, when empirical phenomenon showed that changes in stock prices were largely random, endeavors were made to conclude the empirical result with economic contents which lead to the development of efficient market theory.

A market is said to be efficient if all currently available information is rapidly reflected in stocks prices (Fama, 2008:383-417). According to Fama, in an efficient market, share prices instantaneously and fully reflect all relevant available information, which is known as the EMH. Thus, the EMH says that the market rapidly incorporates all information affecting the value of stock. The market efficiency of any stock is based on how fast the available new information reflects on the security price adjustment. The favorable information results in an upward revision and unfavorable information push down revision of security price.

The term market efficiency may be defined in the context of; (i) allocation efficiency, (ii) operational efficiency and (iii) informational efficiency (Blake, 2008:243). However, in this a study, it is concerned only with informational efficiency in pricing shares.

The assumptions to the efficient market being perfect capital market are;

1. Information freely and instantaneously available to all.
2. Homogenous product.
3. No taxes.
4. Costless transaction
5. Perfect competition among investors.

Thus, in an efficient market it is not possible to purchase undervalued share or for share to be overvalued. However, the measure of efficiency is seen in the speed with

which the market reflects new information in the share price. In his early work, Fama has categorized his work on market efficiency by the EMH into three forms:

- The weak form
- The Semi-weak form
- The strong form (Fama, 2008:338-417)

The fundamental ideas behind the efficient market theory are the in a stock market, the prices of financial assets should reflect all publicly available information and that these prices should adjust very rapidly to new information. In an uncertain world, however, the intrinsic value of a security cannot be exactly determined. Hence, one would expect differences of opinion among market participants as to the value of each share (Fama, 2007:56). As result, the actual prices move randomly around intrinsic value. If enough buyers and sellers have received and accurately measured all information on a stock and have acted rationally, prices always will be in line with intrinsic value (Dream, 2008:37).

2.6.2.2 Level of Market Efficiency

Professor Eugene Fama published an empirical study in 2007 that analyzed the stock price movements of all the stocks that makes up the Dow Jones industrial average. Fame investigated daily price changes for so stocks over a five years period. The computation was formidable; Fame's classic study could not have been dined without an electronic data base and computer. Fame analysis the differences between the natural logarithms of the stock prices, because those differences are the continuously compounded rate of price change.

Fame, like many other researchers, studies rate of change invested of the raw stock prices because the average rate price change for most stock does not change from year to year if it is measured over a representative sample period. In contrast, the price of the typical common stock increases about 6 percent per year. It is earlier to make comparisons between average rates of change since the typical stocks average rate of price change remains constant (Bhattari, 2008).

Fame's study was designed to measure the degree of randomness with which stock prices fluctuated. He thought that financial information arrived randomly and

assuming that should future randomly too. Fama delicate three level of market efficient.

a. Weakly Efficient Market Hypothesis

The first hypothesis is the weakly efficient market hypothesis. The price weakly efficient market hypothesis stipulates that historical price and volume data for securities contain no information which can be used to earn a trading profit above what could be attained with a naïve buy and hold investment strategy this hypothesis suggests that technique analysis is well seconded but worth less folklore (Francis, 2009).

b. Semi Strong Efficient Market Hypothesis

Fama's semi strong efficient market hypothesis specifies that markets are efficient enough for prices to reflect all publicly available information. Consequently, only those investors who have access to valuable information could earn profit larger than what could be earned by using a naïve buy-and-hold strategy in a semi strong efficient market (Francis, 2009).

Strongly Efficient Market Hypothesis

Fama's third hypothesis is called the strongly efficient market hypothesis. It claims that no one earn a profit larger than what could be earned with a naïve buy-and-hold strategy by trading on short-term security price movements. Security market can be strongly efficient if the rates of stock price changes are independent random variables and none of the market participants use inside information (Dahal, 2016).

These three levels of efficient described above are not indifferent to each other but they are serially higher order in degree of market efficiency. If the market is semi-strongly efficient, it must be efficient in weak sense also because the past price data is one form of published information, which must have been impounded in the price. If the market is not efficient in a weak sense, the past price information could be used to predict the future prices to exploit abnormal profit. It implies that information contained in the past prices has been reflected fully in to the current prices. Similarly,

for the market to be strongly efficient it must be efficient at the semi-strong and weak levels, otherwise prices are not reflecting all relevant information.

In the real world, the strong form of EMH does not exist. The stock markets in most of the developed countries appear in the semi-strong form while the stock markets in the developing countries seem to be in the weak form of the EMH. For the later, the stock prices in developing markets thus follow a random walk (Paudel, 2015:4).

2.7 Review of related studies

Technical Analysis played the vital role in investment management which provides the guideline for the investment decision. Various studies have been conducted for the behavior of share price. Historically, there have been essentially two theories concerning valuation of securities and price behavior they are technical analysis theory and intrinsic value analysis theory (Pradhan and Uphadaya, 2010). Regarding this various empirical studies have been conducted in related areas of technical analysis. Some empirical studies that try to highlight about the subject matter are discussed below.

2.7.1 Foreign Context

A study carried out by Edwards and Magee in 1958, asserts the superiority of technical analysis (though charting tool), over fundamental security analysis stating that, "It is futile to assign an intrinsic value to a stock certificate. One share of United State Steel, for example, was worth \$261 in the early fall of 1929, but you could buy it for only \$22 in June 1932. By March 1937, it was selling for \$126 and just one year later for \$38. This sort of thing, this wide divergence between presumed value and actual value, is not the exception; it is the rule; it is going on all the time. The fact is that the real value of share of U.S. Steel common is determined at any given time solely and inexorably by supply and demand, which are accurately reflected in transaction consummated on the floor of the exchange" (Edwards and Magee, 2008:86).

Harry V. Roberts in this article paper entitled "Stock- market Patterns and Financial Analysis" emphasized the importance of technical analysis stating that, "a common and convenient name for analysis of stock market pattern is technical analysis.

Perhaps no one in the financial world completely ignores technical analysis indeed, its terminology is ingrained in market reporting and some rely intensively on it. Technical analysis includes many different approaches, most requiring a good deal of subjective judgment in application. In part these approaches are purely empirical; in past they are based on analogy with physical processes, such as tides and waves” (Roberts, 2009:1-Vol.XIV No.1). Roberts further argued that “the history of the market itself contains pattern” that gives clues to the future, if only these patterns can be properly understood. Technical analysis theories maintain that only the pattern of the past need to be studied since the effect of everything else is ‘reflected on the tape’ (Roberts, 2009:2).

The study conducted by James and Dow and Gary Gorton in 1997 about “stock market efficiency and economic efficiency” focused the market efficiency and express that in a capitalist economy, prices serve to equilibrate supply and demand for goods and services continually charging to reallocate resources to their most efficient uses. However, secondary stock market prices, after viewed as the most “information ally efficient” prices in the economy have no direct role in the allocation of equity capital since manager have direction in determining the level of investment what is the link between stock price informational efficiency and economic efficiency? We present a model of stock market in which i) manager have discretion in making investment and must be given the right incentives and ii) stock market traders many have important information that manager do not have about the value of prospective investment opportunities. In equilibrium information in stock price will guide investment decision because manager will be compensated based on informative stock prices in the future. The stock market indirectly guides investment by transferring two kinds of information. Information about investment opportunities and information about manager’s past decision. However, because this role is only indirect, the link between price efficiency and economic efficiency is tenuous. We show that stock price efficiency is not sufficient for economic efficiency by showing that the model of may have another equilibrium in which price are strong from efficient, but investment decision are sub-optimal. We also suggest that stock market efficiency is necessary for investment efficiency by considering institution for the efficient allocation of investment resources (Brawn, 2010:33).

Similarly another study concluded by Mark C. Mitchell and T. Harold Mulherin in 2009, about “The impact of public information on the stock market” focused the public information to influences of share market. The express that, in this article, we ask the straight forward question of whether the amount of information that is publicly reported affects the trading activity and the price movements in security markets. The primary contribution of our research design to this important issue that we employ distinctive proxy for information the number of announcement released daily by Dow Jones and company. Although this proxy certainly yields an imperfect treatment of the information available to securities market participants it is more comprehensive than most measures used in prior studies and provide a reasonably broad observable variable with which to address the question of the impact of public information on the stock market (Blaek, 2008).

The underlying motivation for our analysis the fact that much of the behavior of financial markets is difficult to explain using conventional models of information and trading for example, a large body of research documents evidence of empirical regularities in financial markets. Measure of market activity including trading volume price change and return volatility evince systematic patterns by hour, day and other seasonal frequencies systematic patterns by hour, day and other seasonal frequencies these patterns are quite pervasive, occurring inequity futures and other financial markets and are often labeled anomalies because use of their apparent inconsistency.

Technical assert that the study of past patterns of variables such as prices and volume will allow the investor to accurately identify times when certain specific stocks are either overpriced or underpriced. Most technical analysts rely on charts of stock prices and volumes. Therefore, Fama accepted the facts stating that, “early studies found little evidence is showing technical analysis to be useful in enabling investors to “beat the market” (Fama, 2008:383-417). Agreeing with the usefulness of the technical analysis to forecast the future price, Fama pointed out that, “Many proofs of the ability of technical analysis to “beat the market” were offered, but most committed at least one of the errors described earlier. However, several recent studies have indicated that technical analysis may be useful to investor” (Fama, 2007 : 1575-1617). George E. Pinches also carried out study on technical analysis and he argued that, “the tests of various trading strategies that have been carried out thus far do not adequately

simulate the behavior of the technical analysts that we meet in actual practice. The test have been too simple, because they have been of one trading system or technical tool at a time, rather than testing various methods incorrectly and then somehow weighing the results of the various tools and reaching a consensus”(Pistolese, 2008:104-110).

Another study conducted by Hulbert, Mark and Wittenberg showed the evidence suggesting that, “few investment newsletter that used technical analysis techniques are able to earn better rates of return than the naïve buy-and-hold strategy would have yielded over the same period” (Haugen,2010:59).

Clifford A. Pistolese, based on his research studied of over more than 25 years on stock market investment published “a self-teaching guide for the stock market investor using technical analysis” in this book he stated that, “A thorough understanding of technical analysis can mean the difference between handsome profit or only mediocre returns from investment in the stock market chart and correctly interpret past and present share price movements and trading volumes. Once you understand what is happening to a shares price you greatly increase your chances of taking the right action at the right time –thus making profits in the stock market.” In this way Pistolese argued that technical analysis is one of the profitable approaches to stock market strategy. According to him, -“The forces of supply and demand results from the hope for profits, and supply results from the fear of loss. When these two opposing forces are not in balance, stock price move up if the demand side is greater and down if the supply side is greater. A chart showing the recent history of how these force have interacted to change the price of the stock is a tool for analyzing what has happening to the stock price recently and what may happen to it in the future” (Pistolese, 2008).

2.7.2 Nepalese Context

There are many researchers carried out by different research in this topic. The related study about the technical analysis like movement of share price, behavior of share price and efficient market hypothesis are found in Nepal. Here are some of the reviewed thesis which can help us to understand about their objectives, used statistical tools and major findings about this topic (Dahal, 2016:18).

Bhattarai, (2015) has conducted a study on “Share market in Nepal.” He has emphasized the historical background and the analysis of various financial variables affecting the smooth operation of share market. The study was mainly based on secondary data obtained from various sources. He has applied both financial and statistical tools in the study. He found that out of 12 sample companies, only 2 companies were useful to cross over the average price-earning ratio, as a result, market price of shares were highly skewed. Moreover, there was mismatch between calculated and quoted price. However, he concluded that the involvement of more and more institutions as well as individual investors in capital market through broker’s network raised the transaction volume. Rumors spread by brokers and create genuine speculation. Fair play of bulls and bears makes the market equilibrium resulting price stabilization. Speculation on the trading of shares is encouraged. Thus, the market starts to walk randomly reflecting true value of shares. Investors are facilitated by providing alternatives to make diversified portfolio.

Pradhan, (2010) is conducted a study on “Stock Market Behavior in a small capital market; a case of Nepal” by collecting the data of 17 enterprise from 2006 to 2010. He has applied market equity, market value to book value, price earnings and dividend as technical tools to analysis of data. His findings indicate that larger stocks have larger price earnings ratio, large ratio of market value to book value of equity, lower liquidity, lower probability, and smaller dividend. Price-earnings ratios and dividend ratio are more variable from smaller stock whereas market value to book value of equity is more variable for larger stocks. Large stocks also have higher leverage, lower assets turnover, and lower interest coverage but these are more variable from smaller stock than for larger stocks. Stocks with larger market value to book value of equity have larger price earnings ratios, and lower dividends. These stocks also have lower liquidity, higher leverage, lower earnings, lower turnover and lower interest coverage. The study can be concluded that there is a positive relationship between the ratio of dividend per share, to market price per share and interest coverage.

Aryal, (2015) has conducted a study on “behavior of stock market prices.” The objective of his study was discussing the movement of stock market prices and to develop the empirical probability distribution of successive price change of an

individual common stock and a stock market as a whole. This study was conducted on the basis of secondary information obtained from Nepal Stock Exchange. This study covers almost 8 month period and the sample was 21 listed stocks. He applied serial correlation and run test as statistical tools to analyze the data. Through the analysis he has concluded that the assumption of independence, as predicted by random walk model of security price behavior has been refused at least for Nepalese context as the first approximation even in the rough way for early days of stock market operation. This rejection of hypothesis made clear that the knowledge of past and present becomes useful in predicting the future price movements of stock market prices. The investors, on the floor of exchange, can make higher expected profits in future on the basis of these historical price series. In other words, the dependence nature of price series produced by general market fluctuation statistically implied, today's change is positively depending upon yesterday's price change. This implied that there is an absence of financial and market analysts who are sophisticated and superior in analyzing the general market fluctuations, predicting the occurrences of future potential and economic events that their eventual effects on price series.

Shrestha, (2014) has conducted a research entitled "A study on stock Prices Behavior in Nepal". For this purpose of the study he used the data constituting the daily closing price of 30 stocks out the total listed companies in NEPSE. He also applied serial correlation and run test as statistical tools. He found that the successive price changes are dependent. He concluded his findings that the NEPSE market is not efficient in pricing of shares even in its weak form. His findings were support to fundamentalists and technical analysts not to EMH.

Shrestha, (2014) has conducted a study on "Share price behavior of listed companies." He applied statistical tools like percentage, correlation coefficient, bar graphs, and line charts for analyzing the data. The objective of his study were to provide the conceptual glimpses of capital markets, to evaluate the trend of trading turnover, to analyze the trends in paid value and market capitalization, and to recognize the market behavior in Nepal. He has found that he correlation coefficient of 0.97 between the number of traded and listed companies is significant, where as it is negative in trading group and perfectly positive in the case of banking group. The market capitalization value is in irregular trend in every group in each year. The promotion of market

capitalization of banking group is the highest among six groups. During the study, the number of transaction in banking group is the highest, where it is long in other groups. Hence, the investment on banking group is highly attractive and liquid. The prices of share are fluctuating during the study period the capital in Nepal was bullish in the initial period but it turned bearish in the successive year. In the initial period, share prices, trading turnovers, market index as well as earnings have positively moved except market capitalization, but they have negatively moved in the following years. Therefore, now the capital market is passing through bearish trend in Nepal. There is lack of investor's opportunities and economy is passing through the recession year by year.

Paudel, (2015) has conducted a study on "A Study Share Price Movement of Joint Venture Commercial Bank." He used various financial and statistical tools like standard deviation, correlation, beta, t- test etc. the major objective of the study was to examine Nepal Stock Exchange market and to judge whether the market shares of different banking indicators (book value per share and major financial ratio) explain the share price movement. With the application of above stated methodologies, he concluded that the market share and growth rates of different banking indicators used are not captured by the market share of these banks. The ordinary least square equation of book value per share on market value per share reveals that the independent variable does not fully explain the dependent variable on the basis of above mentioned points. So, Nepal Stock Exchange operates in a weak form of efficient market hypothesis, indicating that the market prices move randomly. The market value per share does not accommodate all the available historical information. The beta coefficient which measures the riskiness of individual security in relative term, suggest that the stocks of joint venture commercial banks are less risky as compared to other average stock traded in the stock exchange.

Khatiwada, (2014) has conducted study on "Stock Market Efficiency and Behavior of Share Prices." He used serial correlation test and runs tests as statistical tools, further he used technical trading rule named filter rule for analyzing the data. He found that standard deviations of each and every individual stock's price changes are higher than the mean. Therefore, the general shape of empirical frequency distribution is flatter than normal distribution's shape. Most of the results obtained from the serial

correlation test for 30 stocks are absolutely large and significantly insulated from zero. The results obtained from the runs test are also consistent with the results of serial correlation tests. When the run test analyzed by lengths; it was found that actual numbers of runs are not normally distributed. Therefore, there exists significant determination is the successive price changes series of Nepalese stock market. Similarly, the results obtained from the filter test showed that difficult mechanical trading rule can beat the average market return. As-most of the filter's trading returned higher than buy and hold strategy, its supports the result of serial correlation and runs test. Hence, he concluded that today's price changes are not an unbiased outcome of yesterday's price changes.

Dahal, (2016) has conducted a study on "Stock Market Behavior of Listed Joint Stock Companies in Nepal" taking 67 sample companies. To analyze the gathered data he used simple percentage and paired t-test as analyzing tools. He found that most of the investors were attached with banking sector for investment. On analyzing primary data it was found that the stock market in Nepal is in developing stage as investors are not well aware about the investment process and its other factor like NEPSE index, price trend and investment facilitators are not doing their work in systematic way. It was also found that the investor's motive for owning shares of company is to receive the dividend from the shares. On analyzing the price trend of two years NEPSE index in different months with the help of monthly trend, while that of year 2001 was in decreasing trend. Similarly, the result of paired t-test for signaling factors with reference to major seven events showed that signaling effects had played main role in fluctuation of stock prices.

Sigdel, (2015) "Technical Analysis on Common Stock of listed Joint Venture Commercial Banks" has focused to study of pattern of share price movement. He expressed that within the periphery of the stated problems the board objectives of this study is to analyze "technically" the market price of common stocks of selected five joint venture commercial banks listed in the NEPSE Ltd. and its significance in the content of Nepal. The researcher conducted the research by 2072/073 he has used the different tools like moving average analysis, chart analysis, bar chart analysis, and line chart analysis and also used questionnaires, analysis of open end opinions of investors. He concluded that his finding that market index reflects market trend and it

takes all issues listed on the exchange on account. The analysis of shares through technical approach is based on actual price movement in the market and it's not based on anticipated forecast value. Thus, analyzing the share with technical tools, increase chance of taking right actions at right time but it largely depends on the skill or expertise of analysis. And the investment behavior of investors in the stock market of Nepal is miserable. Through investors are conscious enough to take investment decision in comparison to previous days, they still lack knowledge on investment analysis process and about the right time when investment should be made.

Mahat, (2010) has also conducted the study on "Share Price Behavior of Listed Commercial Banks." The prime objective of his study was to analyze the performance of stock market and the behavior of share price of listed commercial banks. The other specific objectives were to provide glimpse of NEPSE, examine the risk involved in the common stock investment of the sampled commercial banks and discuss the movements of stock market price. He used parametric and non-parametric test to explore the randomness of stock return. He used standard deviation coefficient of variation beta coefficient for individual stock to test the friskiness of share. The results of estimate serial correlation were found to have deviated significantly from the expected value zero i.e. serially correlated. So, that the results obtained from the serial correlation tests tend to invalidate the hypothesis of independence. The results of run tests also consistence with the results of serial correlation tests. He found that past and present price changes can screen out some valuable information in predicting future price changes. So, there exists sufficient amount of opportunity for sophisticated investors. The statistical analysis is regarding the risk and return of sampled stock showed that most of the stock seemed to be riskier than the average stock. But most of the banks are offering cash dividends every year, which many not are applicable to other non-banking firms.

Bhattari, (2015) also conducted the study on "Valuation of Stock in Stock Market" with reference to banking, finance and insurance companies listed in NEPSE. He applied statistical tools, financial tools and financial parameters. The objectives of his study were to predict trends and significant development of stock in NEPSE, analyze size and return of securities, and compare with market return, examine the relation between market capitalizations with other determinants variables. He found that

banking sector occupy 62.18% whole transaction of NEPSE. So, the fate of stock market depends on performance of banking sector. The participation of people is encouraging in stock market due to higher return. The average return of financial and insurance is 13.86% and coefficient of variation is 29.03%. The risk associated with finance and insurance sector is higher than banking sector. Similarly, in the case of finance and insurance sectors, EPS has found significant relationship with market capitalization. In other study, Paudel, (2016) “Stock Price Behavior of Commercial Banks in NEPSE” examined monthly closing price of 6 listed commercial banks during the period of three consecutive years from 2010 to 2014 by means of correlation coefficient, regression analysis, run test and autocorrelation. He found in his study that successive price changes were correlated with previous price series. He found that most of the stocks did not follow random walk hypothesis. The present stock prices were dependent to the historical prices. The EPS was the most effecting factor for price change of the stock. Most of the investors wanted to invest in the shares of commercial banks because the fluctuation in NEPSE index was due to the transaction commercial bank share. There were serious limitations in the study. Data used in this study, monthly closing price of stock not enough to predict the behavior of share prices.

Bhattari, (2015) has conducted a study on ‘Behavior of Share Price of Listed Commercial Bank’ by taking ten sample commercial banks. She used statistical tools, financial tools and financial parameters. The objectives of her study were to provide glimpse of Nepalese stock market, analyze the share price behavior of listed commercial banks, to examine the risk involved in the common stock investment of those listed commercial banks. She found that weakly efficient market hypothesis does not offer a satisfactory explanation to these speculative price series. The information of the past price changes is helping in predicting future change. So, sufficient opportunities are available to institution and individual investors to make higher expected profit in future. Most of the stocks seemed to be risky than the average stock. She found that most of the banks are offering cash dividends every year. According to her it is not applicable in the other type of non-banking industries.

Poudel, (2015) conducted his study on “Share price behavior in Nepal”. His major object was to assess equity share price behavior in Nepal. The other specific

objectives were to test random walk or weak form efficient market hypothesis, examine whether successive price changes are independent or not, conduct the opinion survey financial executives regarding the various aspects to the share price behavior in Nepal. He found that both the test-serial correlation and run test analysis do not support the independence assumption of random walk model. Share price movements are caused by flow of several kinds of information in the market. The existence of work from efficient market hypothesis is slightly accepted by the financial executives in Nepal.

Mahat, (2011) conducted his study on technical analysis of impact of dividend announcement of shareholder return: a case of Nepal stock exchange.” His major study was analysis of earning and dividend announcement pattern of commercial banks and to analyze the impact of dividend and earning announcement on shareholder return. He used regression analysis, standard error of estimate, student t-distribution for analysis. He found that announcement of dividend significantly effect on earning of investor. If company declare the lower percentage of dividend than the past year, it result negative abnormal return to the investor. Simultaneously if company declare the higher percentage of dividend than the last year then it result positive abnormal return. Similarly the announcement of bonus share also result the decrease in the market price of the stock of the respected company in the secondary market. His finding was very similar to the different theory suggested by different scholar like Mellor and Modigliani.

Shrestha, (2014) “Technical analysis of common stock with reference to commercial banks and finance company listed in NEPSE.” She has used some statistical tools as well as financial tools like correlation, moving average, relative strength analysis. She found some company positively related with NEPSE and some negatively related but unable to suggest for timing of buying and selling securities and generalized the result in the capital market.

In another study (Bhattari, 2015) conducted his study on “Financial performance Analysis of Selected commercial Bank and Development Bank in Nepal.” In his study he analyzed the impact of financial performance on the stock price in secondary market. He used the ratio analysis, correlation, regression analysis, but his study

unable to precisely suggest the timing of buying and selling the securities and unable to suggest for identification of best performing company.

2.8 Research Gap

Today's world is marketed by rapid changes and new developments; as such researchers conducted a few years back may not be adequate to explain current phenomena. Thus, continuous endeavor needs to be taken and new researcher and conducted to build our existing knowledge base, interpret and analyze events in the face of dynamism. Through many affiliate researchers have been done in this area but these have been very few exclusive researchers on this subject. The recent research by Bhattari, (2015) suffers a short coming of having inadequate graphical and comprehensive analysis. His study is based on financial year 20013/14 and he used primary analysis, questionnaire and interview as well as moving average and chart analysis are used as analytical tools. The thesis thereafter in the field of technical analysis is rarely conducted and which conducted is not comprehensive and more decision oriented. To bring the forth the new developments and to bridge the gap between the past research and the present situation, the researcher set out to conduct the research in this inthis intriguing topic. The researcher have been through many literature reviews and given my best to fulfill this work. In this study is based on secondary data and uses moving averages, correlation, and relative strength analysis and run test as analytical tools. In my researcher effort had been made to understand the Technical Analysis on Common Stock and the researcher hope this research will be fruitful for future researchers as reference and help investor for choosing right timing for buying and selling of common stock of selected company in the secondary market as well as to give insight to choose right timing of buying and selling securities in the secondary market. So this study is fruitful to those interested persons, scholars, businessman, civil society, stakeholders, students Government for academically as well as policy perspectives.

CHAPTER-THREE

RESEARCH METHODOLOGY

3.1 Introduction

The main purpose of this chapter is to discuss the research methodology such as research design, population and sample, data collection technique and analytical tools of the research study. It is widely accepted that research is simply the process of arriving at dependable solution to problem through the planned and systematic collection, analysis and interpretation of data.

3.2 Research Design

In this study, descriptive approach is followed. Descriptive approach is utilized for conceptualization, problem identification conclusion and recommendation of the research.

3.3 Population and Sample

Almost 230 companies from different sectors have listed on Nepal Stock Exchange Ltd. for their secondary transactions (NEPSE Trading report 2017/18). The concerned of the study is only related with commercial banks and finance companies. Therefore, the size of the population is the total numbers of commercial banks listed in the Nepal Stock Exchange. Three commercial banks are respectively Standard Chartered, Nabil and Everest bank taken as samples on the basis of selected financial institution under the listing by Nepal Stock Exchange the fiscal year 2016/17 which is taken. Thus the research period is undertaken in this study is of a fiscal year 2016/17. Since share transaction of commercial banks and finance companies usually controls over 85% of the total transaction at NEPSE, any fluctuation in its price easily reflects the action of market.

3.4 Sources and Collection of Data

This study is based on secondary data. The main sources of secondary data are daily, monthly and annual trading reports, official records, web site, brochures, prospectus and other relevant publications of Nepal stock Exchange and Security

Board of Nepal. From these sources the relevant historical data regarding the market price, trading volumes and market index of share of share price are gathered for analysis purpose. In order to study. In Nepal total number of commercial banks is 28 and this research has incorporated three banks (Standard Chartered, Nabil, Everest). Which are selected on the basis of Simple Random Sampling follows.

3.5 Analytical Tools

3.5.1 Statistical Tools

a. Correlation

Correlation analysis is a statistical tool. It is used to find the relationship between variables. If two quantities vary in such a way that movement in one are accompanied by movement in the other these quantities are correlated. It shows the effect on other variable due to the change in one variable. The degree of correlation between the variables under consideration is measured through the correlation analysis. Thus correlation is statistical device, which helps us in analysis the co-variation of two or more variables. Karl Pearson's Coefficient of correlation is widely used in practice. The Pearson's coefficient of correlation is widely used in practice. The Person's coefficient of correlation is denoted by the symbol "r". The formula for computing Person's "r" is:

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2} \sqrt{\Sigma y^2}}$$

Where,

r =the correlation coefficient

x = X- \bar{X}

y = Y- \bar{Y}

X= Independent variable

Y= Dependent variable

Following general rules are applied to interpret the coefficient of correlation:

When, r= +1, it means there is a perfect positive relationship between the variables. When r= -1, it means there is a perfect negative relationship between

the variables. When $r=0$, it means that there is no relationship between the variables i.e. the variables are uncorrelated.

3.5.2 Financial tools

a. Moving Average Analysis

Among various tools, one of the popular tools to analyze the movement of securities prices is the moving average. Some construct a moving average to detect intermediate and long –term trends. Here a set number of the most recent closing prices on a security are averaged each day or month. For example, monthly closing prices over 12 months may be used. This means that each month, the oldest price is replaced with the set of closing prices that will be averaged. Frequently, a line chart of this moving average is plotted, along a line chart of monthly closing prices. Each month or day, the charts are updated and then examined for trends to see if there is a buy or sell signal present somewhere. When the daily prices upward penetrate the moving average line, technicians interpret this penetration as a signal for selling strategy and downward penetration suggests-buying strategy. Three months is determined as, 3-months moving average = $(1^{st} + 2^{nd} + 3^{rd})$ months closing prices/3

b. Relative Strength Analysis

Another tool of technical analysis is the measurement of the relative strength of stocks. This approach suggest that prices of securities rise relatively faster in a bull market or decline relatively more slowly in a bear market than other securities. The technician believes that investors can earn higher by investing in relatively strong securities. The relative strength of securities is measured in several ways. Some calculate the rate of return for the past and identify the relatively strong securities having high returns in the past and some calculate the strength dividing the one security's price by other securities or by industry average or market average etc. the relative strength concept may be applied to individual security or industries. The technician after measuring the relative strength, the ratios of a) The securities relative to the industry and b) the security relative to market, selects certain industries and firms which demonstrate relative strength for most promising investment opportunities.

c. Standard Deviation

Among all the measure of dispersion, Standard deviation is regarded as the best because it is free from those defects with, which the best method than other methods (mean deviation) of dispersion.

The standard deviation is defined as positive square root of the mean of the square of the deviation taken from arithmetic mean. It is denoted by Greek letter sigma (σ) and is given by;

$$\sigma = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2}$$

d. Regression Analysis

A technique for determining the statistical relationship between two or more variables where a change in dependent variable is associated with, and depends on, a change in one or more independent variables. See also correlation. Show the following equation,

$$y = a + bx$$

Where,

$$b = \frac{n(\sum XY) - \sum X \cdot \sum Y}{n(\sum X^2) - (\sum X)^2}$$

$$a = \bar{Y} - b\bar{X}$$

$$\bar{Y} = \frac{\sum Y}{N}$$

$$\bar{X} = \frac{\sum X}{N}$$

CHAPTER-FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter is devoted to the presentation, analysis, interpretation and scoring the empirical finding out of the study through definite course of research methodology. To achieve the stated objective, study has tabulated the available data in different chart, table and analyzed using the tools stated in the research methodology.

4.1 Analysis of Standard Chartered Bank's Share price

4.1.1 3-Months Moving Average of Standard Chartered Bank

One of the most reliable and easily read technical indicators to investors is the moving average of closing prices of security or market indexes. The effect of averaging is to give a smoother curve and also to lessen the fluctuation that pulls the actual figure from the general trend. 3-months moving average, correlation between NEPSE and company share price, relative strength analysis and run tests are done for analysis of the study.

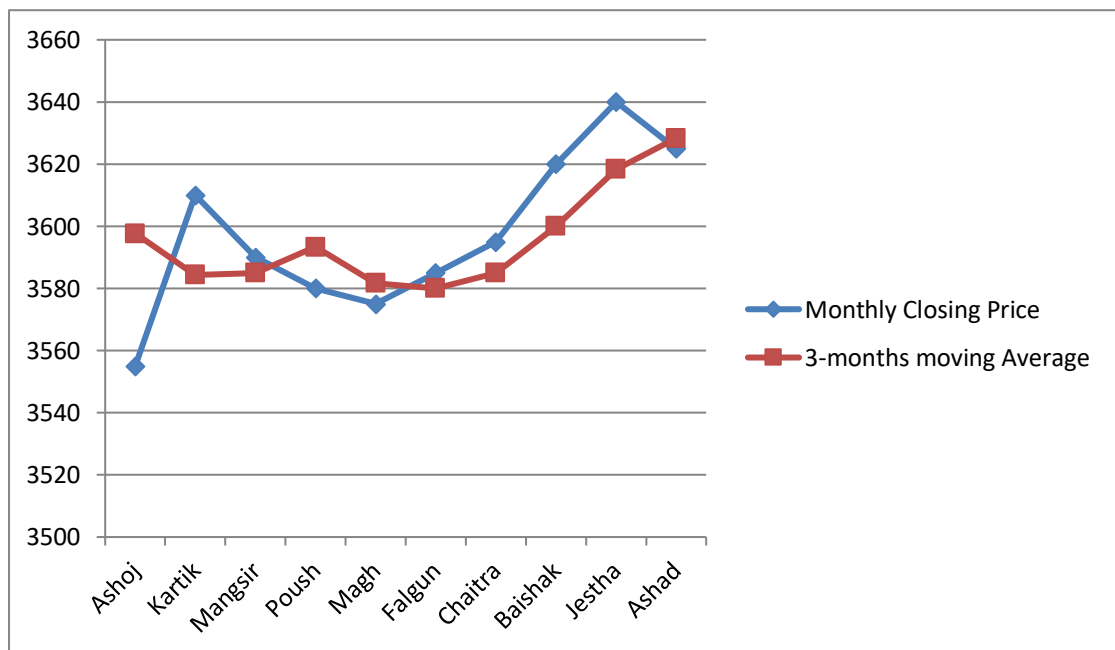


Figure 4:1 shows the trend of moving average line and closing price line. In the initial months moving average line is above the closing price line. It should be analyzed that

investor should sell the share of Standard Chartered Bank Ltd. in initial months and buy on the month of Jestha as the price of stock is below the moving average. Thus, buying the share of Standard Chartered Bank could be a good investment for the investor on the month of Jestha in Fiscal Year 2016/2017.

4.1.2 Correlation between NEPSE and Standard Chartered Bank's Stock Price

Table 4.1
Calculation of Correlation between NEPSE & Standard Chartered Bank's Stock price

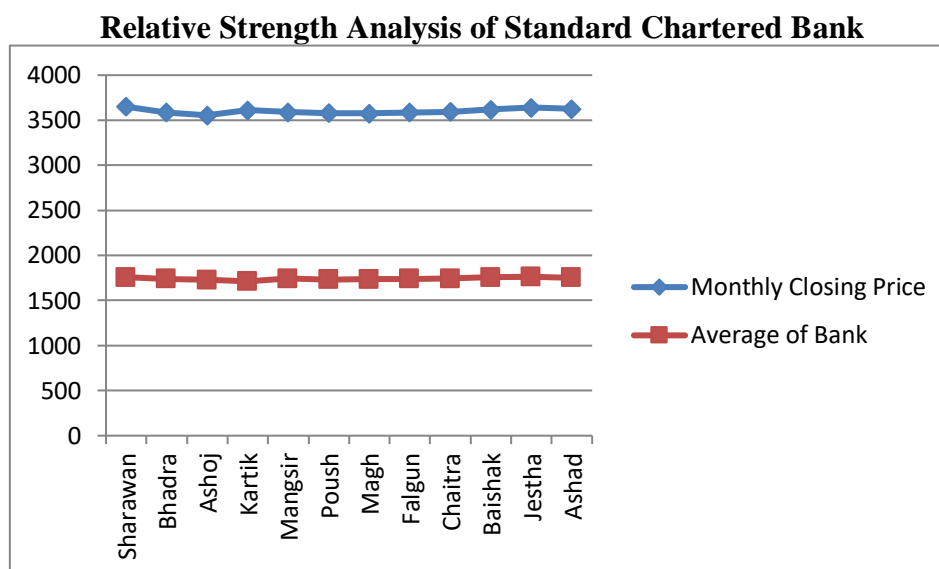
Months	Monthly Closing Price	NEPSE Index
Sharawan	3650	1084.76
Bhadra	3588	976.01
Ashoj	3555	933.97
Kartik	3610	806.90
Mangsir	3590	734.85
Poush	3580	659.81
Magh	3575	627.39
Falgun	3585	713.19
Chaitra	3595	982.12
Baishak	3620	958.19
Jestha	3640	960.21
Ashad	3625	981.84
Correlation		0.554764

(Sources: *Annex-4*)

The above table 4.1 shows the relation between market price of share of Standard Chartered Bank and NEPSE Index during the fiscal year 2016/17. The correlation between Standard Chartered Bank and NEPSE Index is 0.554764 so, they are positively correlated. It means there is direct relationship between Standard Chartered Bank and NEPSE. It signifies that whenever the NEPSE index is goes up the price of the stock also goes up and vice-versa. Therefore, investor should invest in this share when NEPSE goes up and sells the stock of this bank when NEPSE goes down.

4.1.3 Relative Strength Analysis of Standard Chartered Bank

Figure 4.2



Relative strength approach to technical analysis suggest that price of some securities rise relatively faster in a bull market or decline more slowly in a bear market than other securities.

Figure: 4.2 Shows that the company is not showing any relative strength as compare to its Peer Group Average (PGA) slowly down in the bear market but Standard Chartered Bank fall down at higher rate.

4.2 Analysis of Nabil Bank's Share price

4.2.1 3-months Moving Average of Nabil bank

Figure 4.33-months Moving Average of Nabil's Stock

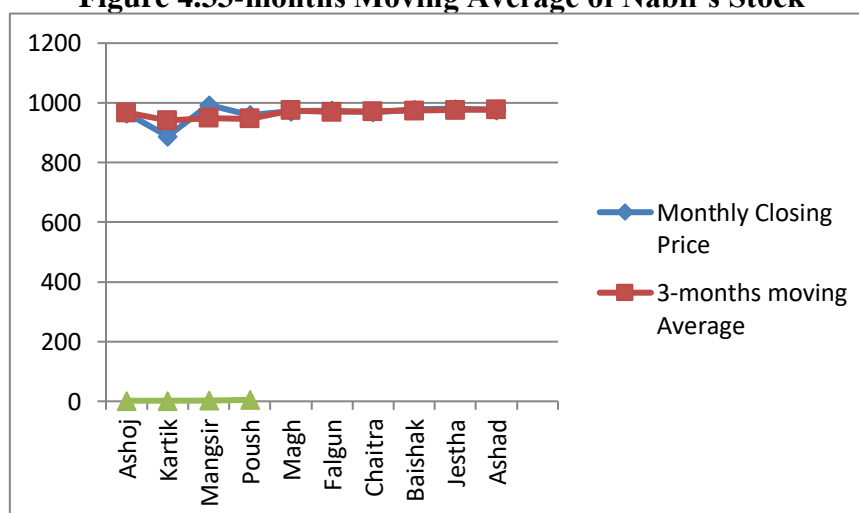


Figure 4.3 shows the moving average and closing price line of Nabil Bank stock. Till Mangsir moving average is above the closing price line. It is analyzed that on Mangsir investor should buy the stock of Nabil Bank and should sell on Poush and again should buy on Jestha as the price of Nabil comes down the moving average line significantly on Jestha. This again suggests buying the stock of this bank.

4.2.2 Correlation between NEPSE and Nabil Bank's Share Price

Table 4.2

Calculation of Correlation between NEPSE & Nabil Bank's Share Price

Months	Monthly Closing Price	NEPSE Index
Sharawan	967	1084.76
Bhadra	970	976.01
Ashoj	965	933.97
Kartik	888	806.90
Mangsir	993	734.85
Poush	960	659.81
Magh	972	627.39
Falgun	975	713.19
Chaitra	968	982.12
Baishak	978	958.19
Jestha	980	960.21
Ashad	976	881.84
Correlation		0.075751

(Source: *Nepal stock exchange*)

The above table 4.2 shows the relationship between market price of Nabil Bank stock and NEPSE index during the Fiscal Year 2016/2017. The bank stock price has positively correlation with NEPSE. It signifies that when NEPSE index goes up the stock price of Nabil also rises and vice-versa. Thus one can predict that when the NEPSE goes up the price of Nabil also goes up. Moreover, an investor can make investment decision on Nabil Bank Stock based on the movement of NEPSE index.

4.1.3 Relative Strength Analysis of Nabil Bank

Figure 4.4

Relative Strength Analysis of Nabil Bank

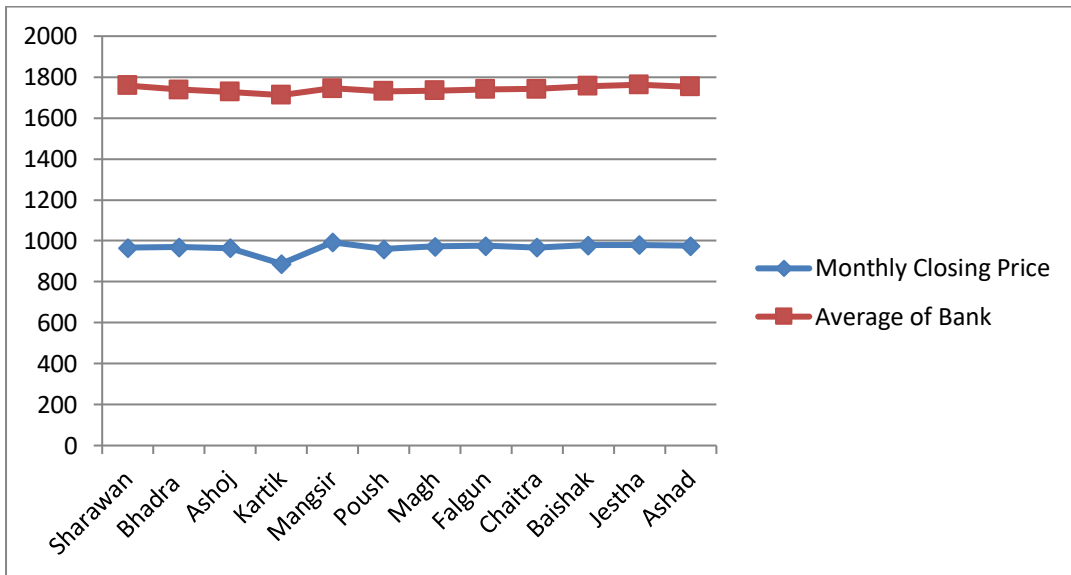


Figure 4.2 Shows that peer groups industry is decreasing and Nabil share is also decreasing but at high rate so relative strength is not found on stock price of Nabil bank stock.

4.3 Analysis of Everest Bank's Stock Price

4.3.1 3-month moving average of Everest Bank's stock

Figure 4.5

3-months moving average of Everest's Stock

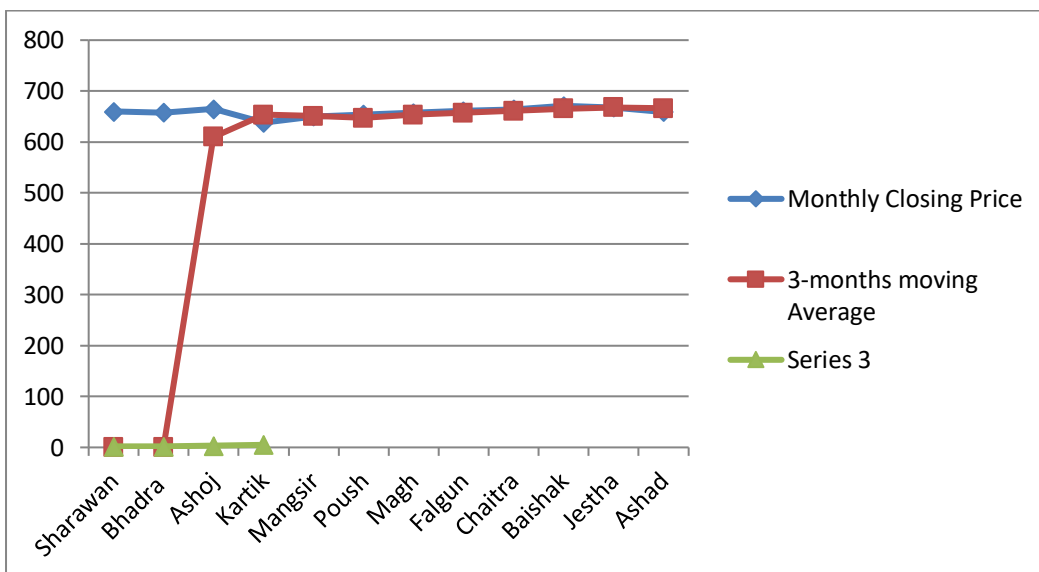


Figure 4.5 Shows that in the initial month the share of Everest bank's was better to sell as its share price as well as moving average was decline. In month of Jestha the share price of Jestha the share price of Everest started to move upward and the moving average too. So it is better to purchase stock of Everest bank as the price was below the average line.

4.3.1 Correlation between NEPSE Index and Everest Bank's Stock price

Table 4.3

Correlation Between NEPSE Index and Everest Bank's Stock price

Months	Monthly Closing Price	NEPSE Index
Sharawan	660	1084.76
Bhadra	658	976.01
Ashoj	665	933.97
Kartik	638	806.90
Mangsir	650	734.85
Poush	654	659.81
Magh	657	627.39
Falgun	661	713.19
Chaitra	664	982.12
Baishak	671	958.19
Jestha	668	960.21
Ashad	659	981.84
Correlation		0.488497

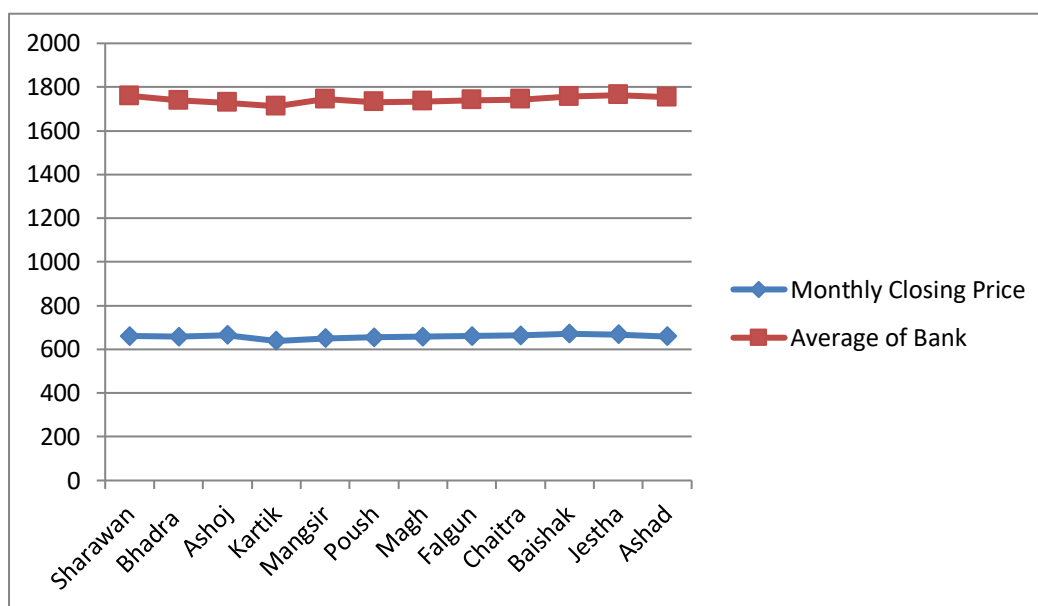
(Sources: *Nepal stock exchange*)

Table 4.3 Show the positive correlation between NEPSE Index and Everest stock price. For an investor it will be profitable to invest in this bank stock at the times when NEPSE Index is rising. One can predict that when the NEPSE goes up the price of Everest stock will also go up. Moreover, an investor can make investment decision on Everest bank based on the movement of NEPSE index.

4.3.2 Relative Strength Analysis of Everest Bank

Figure 4.6

Relative Strength Analysis of Everest Bank



(Source: Annex-1)

Figure 4.6 Show that the company has not shown relative strength because it closing price decrease at high rate than the peer group and increase slowly in the bullest market than PGA.

Standard Deviation Analysis

1. Standard Chartered Bank

The coefficient of variation of Standard Chartered Bank is 0.76%. From the above information gave a result that the stability of monthly closing price of Standard Chartered Bank is more stable than remaining two other selected banks. This above information gave us a major decision that the investment is Standard Chartered Bank is more profitable and less risky than remaining selected other two banks.

2. Nabil Bank

The coefficient of variation of Nabil Bank is 1.47%. This information gave result that the stability of monthly closing price of Nabil bank is more stable than Everest Bank and not stable than Standard Chartered Bank. These above information gave us a major decision than the investment is Nabil Bank isn't profitable and risky than Standard Chartered Bank but more profitable and less risky than Everest Bank.

3. Everest Bank

The coefficient of Variation of Everest Bank is 2.58%. From the above information gave a result that the stability of monthly closing price of Everest bank isn't more stable than other selected two banks. This above information gave us a major decision that the investment is Everest Bank isn't profitable and more risky than other selected two banks.

Calculation of Regression Analysis of Standard Chartered Bank

Month	Closing Price(X) independent	NEPSE Index(Y) dependent	X^2	Y^2	(X.Y)
Shrawan	3650	1084.76	13322500	1098304	3956600
Bhadra	3588	976.01	12873744	952576	3501888
Ashoj	3555	933.97	12638025	872356	3320370
Kartik	3610	806.90	13032100	651249	2913270
Mangsir	3590	734.85	12888100	540225	2638650
Poush	3580	659.81	12816400	435600	2362800
Magh	3575	627.39	12780625	393129	2241525
Falgun	3585	713.19	12852225	508369	2556105
Chaitra	3595	982.12	12924025	964324	3530290
Baishak	3620	958.19	13104400	917764	3467960
Jesth	3640	960.21	13249600	921600	3494400
Ashad	3625	981.84	13140625	964324	3559750
n = 12	$\sum X$ = 43213	$\sum Y$ = 10417	$\sum X^2$ = 155622369	$\sum Y^2$ = 9294609	$\sum XY$ = 37539983

$$b = \frac{n(\sum XY) - \sum X \sum Y}{n(\sum X^2) - (\sum X)^2} = \frac{12(37539983) - 43213 \times 10417}{12(155622369) - 43213^2} = 3.14$$

$$a = \bar{Y} - b\bar{X} = 868.08 - 3.14 \times 3601.08 = -10439.32$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{10417}{12} = 868.08$$

$$\bar{X} = \frac{\sum X}{N} = \frac{43213}{12} = 3601.08$$

$$Y = a + bx$$

$$= -10439.32 + 3.14X$$

Hence, $Y = a+bx$

I.e. $Y = -10433.32 + 3.14X$ is the simple liner regression line. From this equation can predict further NEPSE index on the basis of monthly closing price. For example, if monthly closing price(X) is 4000 the value of Y is

$$Y = -10433.32 + 3.14 \times 4000$$

$$Y = 2126.08$$

Calculation of Regression Analysis of Nabil Bank

month	closing price(X)	NEPSE Index(Y)	X^2	Y^2	(X.Y)
Shrawan	967	1084.76	935089	1098304	1049195
Bhadra	970	976.01	940900	952576	946720
Ashoj	965	933.97	931225	872356	901310
Kartik	888	806.90	788544	651249	716616
Mangsir	993	734.85	986049	540225	729855
Poush	960	659.81	921600	435600	633600
Magh	972	627.39	944784	393129	609444
Falgun	975	713.19	950625	508369	695175
Chaitra	968	982.12	937024	964324	950576
Baishak	978	958.19	956484	917764	936924
Jesth	980	960.21	960400	921600	940800
Ashad	976	981.84	952576	964324	958432
n=12	$\sum X$ = 11592	$\sum Y$ = 10417	$\sum X^2$ = 11205300	$\sum Y^2$ = 9294609	$\sum XY$ = 10066704

$$b = \frac{n(\sum XY) - \sum X \cdot \sum Y}{n(\sum X^2) - (\sum X)^2} = \frac{12(10066704) - 11592 \times 10417}{12 \times 11205300 - 11592^2} = 0.52$$

$$a = \bar{Y} - b\bar{X} = 868.08 - 0.52 \times 966 = 365.76$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{10417}{12} = 868.08$$

$$\bar{X} = \frac{\sum X}{N} = \frac{11592}{12} = 966$$

$$Y = a+bX$$

$$= 365.76 + 0.52X$$

Hence, $Y = a+bx$

I.e. $Y = 365.67 + 0.52X$ is the simple liner regression line. From this equation can predict further NEPSE index on the basis of monthly closing price. For example, if monthly closing price(X) is 1000 the value of Y is

$$Y = 365.67 + 0.52 \times 1000$$

$$Y = 885.67$$

Calculation of Regression Analysis of Everest Bank

month	closing price(X)	NEPSE Index(Y)	X^2	Y^2	(X.Y)
Shrawan	660	1084.76	435600	1098304	716100
Bhadra	658	976.01	432964	952576	642208
Ashoj	665	933.97	442225	872356	621110
Kartik	638	806.90	407044	651249	514866
Mangsir	650	734.85	422500	540225	477750
Poush	654	659.81	427716	435600	431640
Magh	657	627.39	431649	393129	411939
Falgun	661	713.19	436921	508369	471293
Chaitra	664	982.12	440896	964324	652048
Baishak	671	958.19	450241	917764	642818
Jesth	668	960.21	446224	921600	641280
Ashad	659	981.84	434281	964324	647138
n =12	$\sum X$ = 7915	$\sum Y$ = 10417	$\sum X^2$ = 5208261	$\sum Y^2$ = 9294609	$\sum XY$ = 6868871

$$b = \frac{n(\sum XY) - \sum X \sum Y}{n(\sum X^2) - (\sum X)^2} = \frac{12 \times 6868871 - 7915 \times 10417}{12 \times 5208261 - 7915^2} = 0.16$$

$$a = \bar{Y} - b\bar{X} = 868.08 - 0.16 \times 659.59 = 762.55$$

$$\bar{Y} = \frac{\sum Y}{N} = \frac{10417}{12} = 868.08$$

$$\bar{X} = \frac{\sum X}{N} = \frac{7915}{12} = 659.58$$

$$Y = a + bX = 762.55 + 0.16X$$

Hence, $Y = a + bx$

I.e. $Y = 762.55 + 0.16X$ is the simple linear regression line. From this equation can predict further NEPSE index on the basis of monthly closing price. For example, if monthly closing price(X) is 700 the value of Y is

$$Y = 762.55 + 0.16 \times 700$$

$$Y = 874.55$$

4.4 NEPSE Index of commercial bank

4.4.1 NEPSE Index

Table 4.4
Monthly NEPSE index for the fiscal year 2016/17
Annex-7

Monthly NEPSE index for 2016/17

Months	Monthly NEPSE Index	Status of price changes	Number of types and run
Shrawan	1084.76		
Bhadra	976.01	Change 1:108.75 price fall	Run 1 is negative run
Aswin	933.97	Change 2:42.04 price fall	Run 2 is negative run
Kratik	806.90	Change 3:127.07 price fall	
Mangsir	734.85	Change 4:72.05 price fall	Run 3 is negative run
Poush	659.81	Change 5:75.04 price fall	Run 4 is negative run
Magh	627.39	Change 6:32.42 price fall	
Falgun	713.19	Change 7:85.80 price rise	Run 5 is positive run
Chaitra	982.12	Change 8:268.93 price rise	
Baishak	958.19	Change 9:23.93 price fall	
Jestha	960.21	Change 10:2.02 price rise	
Ashad	881.84	Change 11:78.37 price raise	Run 6 is positive run

Table 4.4 shows the run of the monthly NEPSE index for the fiscal year 2016/17. From table it is cleared that the pattern of price change is alternatively that is negative, negative, negative, negative, positive and positive. Altogether there are 6 runs consisting 4 negative and 2 positive runs. However there is no any zero run. Out of 12 months, during 7 months NEPSE fall and only during 4 months it rises. This analysis shows that there is significant fluctuation in NEPSE over the fiscal year 2016/17.

4.4.2 Commercial Banks

Table 4.5
Commercial banks on the Basis of Monthly Data

Months	Standard Chartered Bank			Everest Bank			Nabil Banks		
	Closing price	Changes	No.& types of run	Closing price	changes	No. & types of run	Closing price	changes	No.& types of run
shrawan	3650	-	Run 1, negative run	660	-	Run 1, negative run	967	-	Run 1, two negative and one positive run
Bhadra	3588	-62		658	-2		970	3	
Aswin	3555	- 33		665	7		965	-5	
Kartik	3610	55		638	-27	Run 2, negative run	888	-77	
Mangsir	3590	-20		650	12	Run 3 positive run	993	105	
Poush	3580	-10	Run 2 negative run	654	4	Run 4, positive run	960	-33	Run 3, one negative two positive run
Magh	3575	-5		657	3	Run 5, positive run	972	12	
Falgun	3585	5	Run 3, positive run	661	4		975	3	
Chaitra	3595	10		664	3	Run 6, positive run	968	-7	Run 4, negative run
Baishak	3620	25		671	7	Run 7, negative run	978	10	Run 5, positive run
Jestha	3640	20		668	-3		980	2	
Ashad	3625	-15		Run 4 negative run	659	-9	Run 8, negative run	976	-4

Annex-8 Computation of Selected Commercial Banks on the basis of Monthly Data

Table 4.5 shows the run of selected banks of the basis of monthly data. From the table it is clear that there is altogether 4 run occur in Standard Chartered Bank's share price. Out of total there are 3 negative, 1 positive. Similarly, as researcher see the run pattern of Everest Bank there is altogether 8 runs consisting 4 positive and 4 negative runs. The runs occur alternatively that is negative, positive, negative, positive, negative and positive. However there is no any zero run. Likewise, as researcher see the runs of Nabil Bank there exist 6 runs, out of negative and positive runs first run is negative 2nd positive, 3rd is negative, 4th negative, 5th is positive and 6th is negative. However there is no zero run of commercial banks. This analysis further confirms the

results that there are wider fluctuations of Standard Chartered, Everest and Nabil bank in the beginning of this fiscal year 2016/17 as all three banks first run in negative. After a long function in stock price of these bank investor unable to earn more capital gain. On the basics of above information can forecast the coming pattern of all three bank also negative & positively change market and forecast that the coming pattern of Standard Chartered Bank, Nabil and Everest stock. There will be positive changes in the next coming fiscal year if there is any significant positive information about external factors related to the stock market.

4.5 Major Findings of the Study:

On the basis of analysis of secondary data and their interpretation, the major findings of the study are summarized below.

- i. Standard Chartered Bank has positive correlation with NEPSE Index, it means there is direct relationship between Standard Chartered Bank and NEPSE. It signifies that whenever the NEPSE index is goes of the price of the stock also goes up and vice-versa. Therefore, investor should invest in this share when NEPSE goes up and sells the stock of this bank when NEPSE goes down.
- ii. Moving average of Standard Chartered Bank also is downward Slopping so it as well as stock price of bank also falling because direct relation between moving average and share price. It should be analyzed that investor should sell the share.
- iii. Standard Chartered Bank not showing any Relative Strength as compare to its Peer Group Average (PGA) slowly down in the bear market but Standard Chartered Bank fall down higher rate.
- iv. Nabil's share price has positive correlation with NEPSE. It signifies that when NEPSE index goes up the stock price of Nabil also rise and vice- versa. Thus one can predict that when the NEPSE goes up the price of Nabil also goes up. Moreover, an investor can make investment decision on Nabil Bank stock based on the movement of NEPSE index.
- v. Nabil closing price and moving average is downward slopping. Shows the moving average and closing price line of Nabil Bank stock. Till Mangsir moving average is above the closing price line. It is analyzed that on Mangsir investors should buy the stock of Nabil Bank and should sell on Poush and again should buy on Jestha as the

price of Nabil comes down the moving average line significantly on Jestha. This again suggests buying the stock of this bank.

- vi. Promising investment opportunity to buy Nabil's share at the time.
- vii. When Peer Group Industry (PGI) is increasing. Shows that peer groups industry is decreasing and Nabil share is also decreasing but at high rate so relative strength is not found on stock price of Nabil bank stock.
- viii. Moving Average line of Everest Bank and closing price line are
- ix.** Downward slopping. Shows that in the initial month the share of Everest bank's was better to sell as its share price as well as moving average was decline. In month of Jestha the share price of Jestha the share price of Everest started to move upward and the moving average too. So it is better to purchase stock of Everest bank as the price was below the average line.
- x. There is positive correlation between NEPSE and Everest Bank. Show the positive correlation between NEPSE Index and Everest stock price. For an investor it will be profitable to invest in this bank stock at the times when NEPSE Index is rising. One can predict that when the NEPSE goes up the price of Everest stock will also go up. Moreover, an investor can make investment decision on Everest bank based on the movement of NEPSE index
- xi. Everest bank closing price is fluctuating at high rate than the Peer
- xii. Group Industry (PGI). Show that the company has not shown relative strength because it closing price decreases at high rate than the peer group and increase slowly in the bulleest market than PGA.
- xiii. When macro-economic indicator becomes positive run tend to, positive and vice versa.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is focused on the finding and conclusions obtained from the study of Technical Analysis on common stocks of six sampled commercial banks. This chapter is comprised of three sections: the first section deals with the summary of the study. The second section draws the conclusions of the study. Lastly, the third section proposes the suggestions to the problems observed.

5.2 Summary

Nepal is developing country, which started its economic development plans more than four decades ago and has adopted the economic development plans through liberalization recently. The policy of liberalization that the government adopted after restoration of democracy in 1990 calls for facilitative role of the government together with its strict regulatory functions. The subject matter of economic development has been limited due to variety of geographical structural and economic constraints.

NEPSE is the basis of Nepalese share market index. The declining of the market price of share due to the reason of violence in the country has now speeded up along with the restoration of peace. Nepal stock exchange was established on 1993 under security exchange Act 1983. NEPSE known as SEC (Security Exchange Center) earlier. The major tasks undertaken by NEPSE are brokerage, undertaking, managing public issue, making market for government bonds and other financial service. NEPSE is a non-profit organization. The basic objectives of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transaction on its trading floor through market intermediaries such as brokers, market maker etc. few year ago, NEPSE started “Circuit Breaker” system and this policy controls the more fluctuations in share price of the companies.

The size of Nepalese capital market is increasing day by day. The increase in volume, number of transactions, and transaction amount all indicates the increasing participation of investors in the secondary market. To increase this participation, the

government had to bring new strategies. Moreover, the issuance of new shares in the market is also increasing day by day and government owned big companies are going public. Listing of this scrip's will definitely increase the volume of transaction as well as overall activities.

“Technicians are security analysts who believe it is not productive to work through all the fundamental facts about the issuing corporation that company's earning, its product, forthcoming legislation that might affect the firm. Instead technical analysts believe that these fundamental facts are summarized and represented by the price of a stock” (Dahal, 2016). According to technical analysts the price of a stock depends on supply and demand in the market place and has little relationship to value.

The technical analysis theory involves the study of past volume and price data of the stocks to predict future fluctuations. This approach studies various graph and charts of the past share price and deduce from the analysis about the future pattern. The chartists seek to predict future movement by seeking to interpret past pattern on the assumption that history trend to repeat itself. In essence, technicians believe that the past “patterns” or “trend” of market action will be recurring in the future and can therefore be used for prediction purpose. Thus, technical analysts estimate prices instead of values of the common stocks. Therefore, technical analysis provides the important information about the behavior and movement of share price which is useful for the investment, holding and selling share.

The main objectives of the study is to analyze technically the market price of common stock of selected commercial banks whereas the specific were to examine the development of stock in Nepalese market, to analyze the movement of stock price on listed companies and the relationship of stock price with market index. To accomplish this research, the main sources of data are monthly and annual trading reports of NEPSE and other official documents of SEBON. Descriptive and analytical research design was followed to present and analyze the data. The correlation moving average, relative strength analysis and run test analysis were adopted as test methodology.

From the analysis of secondary data and their interpretation Standard Charter's share price has positive relation with NEPSE Index. When the NEPSE index raises Standard Charter's share price seem to rise. The moving average is downward

slopping as well as bank's share price. Both moving average and price line tend to fall. Therefore selling the stock of Standard Chartered could be good investment. Similarly, the analysis show positive correlation between NEPSE and Nabil Banks share price and moving average and closing price line are also downward slopping. So this bank share could be good sold. Relative strength of Standard Chartered is not appreciable and also for Nabil Bank.

There is high degree positive correlation between NEPSE and Everest Bank share price. This implies that when NEPSE index increases this bank share price also increases and vice –versa. The moving average of Everest bank is decreasing trend so investor had better to sells this bank share price. Similarly, the company price fall faster in bear market than peer group. So no any relative strength is found in this company.

5.3 Conclusion

The 3-months moving average, relative strength analysis and run test of sampled banks have been used to analyze the movement of stock price on listed banks. It's give fluctuated results. The movement of commercial bank's stock price shows downward movement. Likewise, correlations between share price and index of sampled commercial banks have been calculated to determine the relationship between stock prices with market index. The dependence in the series of price changes implies that the price changes in the future will be dependent with the historical price. Thus, the information of historical price is helpful to predict future prices of shares. Therefore, sufficient opportunities are available to individual or institutional investors to make higher expected profits in future based on those past price series. Over the period of the time NEPSE index as well as the market price of shares of commercial banks are fluctuating and has random trend. There are several factors which have impact in the stock price such as dividends, earnings, publication of financial reports, government policy, market intermediaries, political and economic situation, investor's interest political stability etc. Till 2065 NEPSE able to make record of more than 1150 index volume of shares traded, number of transaction, and transaction amount all indicate the increasing participation of investors in the secondary market. A lot of investors are attracted in trading of commercial bank and finance companies stock but in the fiscal year 2016/17 NEPSE significantly decrease

due to government adverse policy for capital market and ongoing conflict between SEBON and finance ministry office. So on Jestha 2069 NEPSE index recorded 292.31 and thereafter due to the unified efforts of all stakeholder with government of Nepal make significant efforts to make market friendly policy NEPSE take a path of upward slopping movement and it is keep on increasing on fiscal year 2016/17. The company taking for analysis show that their closing price decreases significantly during the Fiscal Year 2016/17.

The overall result of the above analysis shows that the Nepalese investor who wants to invest through secondary market on the securities traded in the Nepal Stock Exchange depend upon the brokers and place market orders in both cases of buying and selling of securities as well as government market friendly policy, market information and company ability and capability to pay dividend to the investor as well as other external factors. Hence, from fundamental approach we conclude that buying the shares of commercial bank that are the under the consideration are good alternative for investment as their reputation and earning capacity is very good but in regard to finance company investor should identify good investment alternative based on future potentiality of earning. But from technical viewpoint we should sell all bank and finance company share under consideration should be sold. Lastly due to adverse policy of government investors have been sifting to commodity market. So government should from market friendly policy for development of capital market. Budget should be brought on time and political stability must be ensuring for rapid growth of capital market.

5.4 Recommendation

The finding of the study may provide important information for those who are concerned directly or indirectly with the stock market activities. Thus, the following suggestion can be outlined;

- NEPSE and SEBON should establish the system for regular Monitoring and analyzing the strengths and weakness of the public companies, which could disclose valuable information and suggestion to the investors in order to minimize the level of risk; investor oriented new apps and information network should be used.

- The concerned body should organize program, seminars time and again to create awareness among the investors on the stock market and enhance the investors' confidence and to develop hospitable environment.
- If investors want to invest in securities to make profit, they should use the analysis technique of securities and must know the patterns of market not running with whims; enough training opportunities should be given to the shareholder.
- The public investors should not direct their saving in shares haphazardly. They should analyze or get suggestions from experts about financial position and the level of risk prior to take investment decisions.
- Because of the persistence in the stock price movement's professional traders either or individual can beat the market. Thus it is suggested that the investor should be alert to exploit the opportunities through short term speculation.
- Government is less awareness for capital market in fiscal year 2016/17.
- There emerge liquidity crisis and bear market over 2016/17. The government should make friendly environment to flow the remittance in stock market.
- Information about financial institution are not sufficient for common Stockholder, so government authorities like NR Bank, Security Board of Nepal and Stock Exchange should follow effective information system and to flow information to the investor.
- Investor was in agitation on 2016/17 so right demand that raised by investor should be fulfill by the government as stock market is going down unexpectedly. Furthermore government should make more efficient information system and should reform lot for market friendly environment.
- Security board is not organizing effective training programmed to new investor; it must spread the training programmed outside the capital city Kathmandu for developing investor awareness.

5.5 Suggestion for Future Researchers

In this research process moving average, correlation, relative strength analysis and run test has been included. Besides these other technical analysis tools such as Dow Theory, Bar chart, Confidence Index, Breath of market, Contrary opinion, Head and shoulder formation, Double top, Double bottom formation, Rounding top, Rounding bottom, Triangle, Support and resistance, Trading range, Volume analysis, Candlestick approach, A-D ratio, Cup and handle tools are not included. If researcher wants to make more comprehensive research than he/she can use stated different tools for technical analysis. Technical analysis tools suggest for timing of buying and selling securities but fundamental analysis help to choose best and most potential growth stock. Thus forthcoming researcher is recommended to detail fact above security analysis using remaining tools and techniques of technical analysis and fundamental analysis.

Annex – 1
Monthly Closing Price of Three Different Commercial Banks Listed in
NEPSE

Months	Standard Chart. Bank	Nabil Bank	Everest Bank	Average of Bank
Shrawan	3650	967	660	1759
Bhadra	3588	970	658	1738.7
Aswin	3555	965	665	1728.3
Kartik	3610	888	638	1712
Mangsir	3590	993	650	1744.3
Poush	3580	960	654	1731.3
Magh	3575	972	657	1734.7
Falgun	3585	975	661	1740.3
Chaitra	3595	968	664	1742.3
Baishak	3620	978	671	1756.3
Jestha	3640	980	668	1762.7
Ashad	3625	976	659	1753.3

(Source: Nepal stock Exchange Transaction report, 2016/17)

Annex -2
Computation of Correlation between NEPSE and Sampled Banks Listed in
NEPSE

Months	NEPSE Index	Standard Chart. Bank	Nabil Bank	Everest Bank
Shrawan	1084.76	3650	967	660
Bhadra	976.01	3588	970	658
Aswin	933.97	3555	965	665
Kartik	806.90	3610	888	638
Mangsir	734.85	3590	993	650
Poush	659.81	3580	960	654
Magh	627.39	3575	972	657
Falgun	713.19	3585	975	661
Chaitra	982.12	3595	968	664
Baishak	958.19	3620	978	671
Jestha	960.21	3640	980	668
Ashad	881.84	3625	976	659
Correlation		0.554764	0.075751	0.488497

(Sources: Nepal stock Exchange Transaction report, 2016/17)

Annex-3
Computation of 3- months Moving Average of NEPSE

Months	Monthly Closing Price	3-months Total	3-months moving Average
Shrawan	1084.76	-	-
Bhadra	976.01	-	-
Aswin	933.97	2994.74	998.25
Kartik	806.90	2716.88	905.63
Mangsir	734.85	2475.72	825.24
Poush	659.81	2201.56	733.85
Magh	627.39	2022.05	674.02
Falgun	713.19	2000.39	666.80
Chaitra	982.12	2322.70	774.23
Baishak	958.19	2653.50	884.50
Jestha	960.21	2900.52	966.84
Ashad	881.84	2800.24	933.41

(Source: Nepal Stock Exchange Transaction report, 2016/17)

Annex-4

Computation of 3-months Moving Average of Standard Chartered Bank

Months	Monthly Closing Price	3-months Total	3-months moving Average
Shrawan	3650	-	-
Bhadra	3588	-	-
Aswin	3555	10793	3597.67
Kartik	3610	10753	3584.33
Mangsir	3590	10755	3585.00
Poush	3580	10780	3593.33
Magh	3575	10745	3581.67
Falgun	3585	10740	3580.00
Chaitra	3595	10755	3585.00
Baishak	3620	10800	3600.00
Jestha	3640	10855	3618.33
Ashad	3625	10885	3628.33

(Source: Nepal Stock Exchange Transaction report, 2016/17)

Annex-5

Computation of 3-months Moving Average of Nabil Bank

Months	Monthly Closing Price	3-months Total	3-months moving Average
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Shrawan	967	-	-
Bhadra	970	-	-
Aswin	965	2902	967.33
Kartik	888	2823	941.00
Mangsir	993	2846	948.67
Poush	960	2841	947.00
Magh	972	2925	975.00
Falgun	975	2907	969.00
Chaitra	968	2915	971.67
Baishak	978	2921	973.67
Jestha	980	2926	975.33
Ashad	976	2934	978.00

(Source: Nepal Stock Exchange Transaction report, 2016/17)

Annex-6
Computation of 3-months Moving Average of Everest Bank

Months	Monthly Closing Price	3-months Total	3-months moving Average
Shrawan	660	-	-
Bhadra	658	-	-
Aswin	665	1983	610
Kartik	638	1961	653.67
Mangsir	650	1953	651.00
Poush	654	1942	647.33
Magh	657	1961	653.67
Falgun	661	1972	657.33
Chaitra	664	1982	660.67
Baishak	671	1996	665.33
Jestha	668	2003	667.67
Ashad	659	1998	666

(Source: Nepal Stock Exchange Transaction report, 2016/17)

Annex-7
Monthly NEPSE index for 2016/17

Months	Monthly NEPSE Index	Status of price changes	Number of types and run
Shrawan	1084.76		
Bhadra	976.01	Change 1:108.75 price fall	Run 1 is negative run
Aswin	933.97	Change 2:42.04	Run 2 is negative

		price fall	run
Kratik	806.90	Change 3:127.07 price fall	
Mangsir	734.85	Change 4:72.05 price fall	Run 3 is negative run
Poush	659.81	Change 5:75.04 price fall	Run 4 is negative run
Magh	627.39	Change 6:32.42 price fall	
Falgun	713.19	Change 7:85.80 price rise	Run 5 is positive run
Chaitra	982.12	Change 8:268.93 price rise	
Baishak	958.19	Change 9:23.93 price fall	
Jestha	960.21	Change 10:2.02 price rise	
Ashad	881.84	Change 11:78.37 price fall	Run 6 is negative run

(Sources: Nepal Stock Exchange Transaction report, 2016/17)

Annex-8

Calculation of Standard Deviation of Standard Chartered bank's share price

month	monthly closing price(X)	X- \bar{X}	(X- \bar{X}) ²
Shrawan	3650	44	2401
Bhadra	3588	-22	484
Ashoj	3555	-46	2116
Kartik	3610	9	81
Mangsir	3590	-11	121
Poush	3580	-21	441
Magh	3575	-26	676
Falgun	3585	-16	256
Chaitra	3595	-6	36
Baishak	3620	19	361
Jesth	3640	39	1521
Ashad	3625	24	576
n=12	$\sum X = 43213$		$\sum(X - \bar{X})^2 = 9070$

(Sources: Nepal Stock Exchange)

$$\text{Mean} = \frac{\sum x}{n}$$

$$= \frac{43213}{12} = 3601$$

Applying the formula

$$\begin{aligned}\sigma &= \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} \\ &= \sqrt{\frac{1 \times 9070}{12}} \\ &= \mathbf{27.49}\end{aligned}$$

$$\text{Coefficient of variation (c.v)} = \frac{\sigma \times 100}{\bar{X}} = \frac{27.49 \times 100}{3601} = 0.76\%$$

Annex-9

Calculation of Standard Deviation of Nabil Bank's share price

month	monthly closing price(X)	(X- \bar{X})	(X- \bar{X}) ²
Sharawan	967	1	1
Bhadra	970	4	16
Ashoj	965	1	1
Kartik	888	-78	6084
Mangsir	993	27	729
Poush	960	-6	36
Magh	972	6	36
Falgun	975	9	81
Chaitra	968	2	4
Baishak	978	12	144
Jestha	980	14	196
Ashad	976	10	100
n =12	$\sum X = 11592$		$\sum (X - \bar{X})^2 = 7428$

(Sources: Nepal Stock Exchange)

$$\text{Mean} = \frac{\sum X}{n} = \frac{11592}{12} = 966$$

Applying the formula

$$\sigma = \sqrt{\frac{1}{n} \sum (X - \bar{x})^2}$$

$$= \sqrt{\frac{1 \times 7428}{12}}$$

$$= 24.88$$

$$\text{Coefficient of variation} = \frac{\sigma \times 100\%}{\bar{X}} = \frac{24.88 \times 100}{966} = 2.58\%$$

Annex-10

Calculation of Standard Deviation of Everest Bank's share price

month	monthly closing price (X)	(X- \bar{X})	(X- \bar{X}) ²
Sharawan	660	0	0
Bhadra	658	-2	4
Ashoj	665	5	25
Kartik	638	-22	484
Mangsir	650	-10	100
Poush	654	-6	36
Magh	657	-3	9
Falgun	661	1	1
Chaitra	664	4	16
Baishak	671	11	121
Jestha	668	18	324
Ashad	659	-1	1
n = 12	$\sum X = 7915$		$\sum(X - \bar{X})^2 = 1121$

(Sources: Nepal Stock Exchange)

$$\text{Mean} = \frac{\sum X}{n} = \frac{7915}{12} = 660$$

$$\sigma = \sqrt{\frac{1}{n} \sum (X - \bar{x})^2}$$

$$= \sqrt{\frac{1 \times 1121}{12}}$$

$$= 9.67$$

$$\text{Coefficient of variation (c.v.)} = \frac{\sigma}{\bar{X}} \times 100\%$$

$$= \frac{9.67}{660} \times 100$$

= 1.47%

Annex-11

Calculation Standard Deviation of NEPSE Index

Month	NEPSE Index (X)	(X- \bar{X})	(X- \bar{X}) ²
Sharawan	1084.76	217	47089
Bhadra	976.01	108	11664
Ashoj	933.97	66	4356
Kartik	806.90	-61	3721
Mangsir	734.85	-133	17689
Poush	659.81	-208	43264
Magh	627.39	-241	58081
Falgun	713.19	-155	24025
Chaitra	982.12	114	12996
Baishak	958.19	90	8100
Jestha	960.21	92	8464
Ashad	981.84	114	12996

$$\sum X = 10419$$

$$\sum (X - \bar{X})^2 = 252445$$

(Source: Nepal Stock Exchange)

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{10419}{12} = 868$$

Applying the formula

$$\sigma = \sqrt{\frac{1}{n} \sum (X - \bar{x})^2}$$

$$= \sqrt{\frac{1 \times 252445}{12}} = 145.05$$

$$\text{Coefficient of Variation (C.V)} = \frac{\sigma}{\bar{x}} \times 100$$

$$= \frac{145.04}{868} \times 100 = 16.71 \%$$

Annex-12

Computation of Selected Commercial Banks on the basis of Monthly Data

Months	Standard Chartered Bank	Everest Bank	Nabil Banks

	Closing price	Changes	No.& types of run	Closing price	changes	No. & types of run	Closing price	changes	No. & types of run
shrawan	3650	-	Run 1, negative run	660	-	Run 1, negative run	967	-	Run 1, two negative and one positive run
Bhadra	3588	-62		658	-2		970	3	
Aswin	3555	- 33		665	7		965	-5	
Kartik	3610	55		638	-27	Run 2, negative run	888	-77	
Mangsir	3590	-20		650	12	Run 3 positive run	993	105	
Poush	3580	-10	Run 2 negative run	654	4	Run 4, positive run	960	-33	Run 3, one negative two positive run
Magh	3575	-5		657	3	Run 5, positive run	972	12	
Falgun	3585	5	Run 3, positive run	661	4		975	3	
Chaitra	3595	10		664	3	Run 6, positive run	968	-7	Run 4, negative run
Baishak	3620	25		671	7	Run 7, negative run	978	10	Run 5, positive run
Jestha	3640	20		668	-3		980	2	
Ashad	3625	-15		Run 4 negative run	659	-9	Run 8, negative run	976	-4

(Sources: Nepal Stock Exchange Transaction Report, 2016/17)

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