CHAPTER- I

INTRODUCTION

1.1 Background of the Study

Security markets provide the facility of exchange of financial assets by bringing buyers and sellers of securities together. Securities markets provide and effective way of raising money for commercial enterprises and at the same time provide and investment opportunity for individual and institutions. Securities markets have both theoretical and practical perspectives. Securities markets provide value and significance to the financial assets. Practically the activities of buying and selling stocks on the stock markets are extremely important for the allocation of capital within economics. The securities market serve as a reliable guide to the performance of companies, and there by promoting efficiency.

A country's financial system may be bank dominated or market oriented. Each of these systems has different mechanisms for handling stakeholder's interest and addressing corporate control issuers and agency problems. Though, historically countries seem to follow one of their paths for development of its financial system. In recent years, some course is developing their financial systems through convergence between these two. Empirical studies of various researcher show that banks and stock market play complementary roles in the initial stage of financial development of a country and neither of these is perfect substitute for the other. Financial system in Nepal is basically bank dominated.

Financial sector in Nepal has been growing significantly since 1990s. It is said that despite a history of almost half a century development efforts under different national plans, continuous efforts to develop financial sector started quite late in Nepal. Although some efforts were made to develop country's infrastructure

during the Rana regime, they were more sporadic and aimed at fulfilling the need and the whims of the Rana rules. Efforts to achieve economic growth in the country in a planned way started since 1956 with the adoption of the first five year plan by the government. Under different plans the government set targets for economic growth and adopted various polices and programs, which were directed towards developing infrastructure necessary for the creation of national wealth. Unfortunately, these policies and programs were failed to take into account the need to develop the financial structure that ought to exist side by side with the development of infrastructure necessary of the growth of real sector. In one sense these polices were adopted because they sought to enhance growth in physical assets of the nation by supporting the development of financial sector of the country.

Capital market is concerned with long-term finance, it is the market for long-term marketable instruments having maturity period greater than one year. The instruments used in Capital market are stock, preferred stocks, bonds and convertible issue which have more than one year's maturity period. The long-term debts are installment debts, commercial debts represented by acceptance bills, commercial debt and accommodation papers etc. saving and deposits schemes, which are not securities bearings, fall under the non-securities segment of market. Capital market consists of (i) Primary Market and (ii) Secondary Market

i. Primary Market

New securities are usually issued by corporations and governmental bodies in what is called primary market. "The financial market in which securities are initially issued, the only market in which the issuer is directly involved to the transaction is called primary market."

ii. Secondary Market

"The secondary market is that financial market in which pre-owned securities are traded." Once the securities are issued into primary market, then they are traded in secondary market. The corporations need to list their shares in any organized securities exchanges to qualify for the trading. In Nepal, Nepal Stock Exchange Limited (NEPSE) represents the secondary stock market.

Stock market is a major component of the securities market. Stock market is a medium through which corporate sector mobilize funds to finance productive projects by issuing shares in the market. Stock market provides the best investment opportunity to the investors. Thus, the effective collection of small amounts of saving and transferring funds into the competitive and efficient uses requires a well functioning capital market to facilitate the process.

The stock market also imparts liquidity to the securities holders. This offers an opportunity for investors to invest in the long-term ventures, while market also enables them to convert their securities into liquidity cash before the maturity of the project. The liquid stock market also promotes the primary issuance of shares because investors participate in the issuance of share markets for they can get back the fund easily.

Stock Market liquidity may influence economic development. Many profitable projects require long-term venture capital finance. Most investors tend to avoid the risk and are often reluctant to tie their savings into the long-term commitment Liquid stock market makes the investment less risky and more attractive. It encourages savers to invest in the long-term project, because they can sell the security quickly and easily if they want to get back their savings before the project matures.

The investors in Nepal have shown their growing interest in shares of the public limited companies, banks and financial institutions. At the same time their interest to price volatility has increasing day by day. Many public limited companies in Nepal are successful in floating the shares in securities market these days. The rising investment consciousness is the direct outcome of the keen interest shown by the public. Whenever the public limited companies issue new shares, the stock market gets busy with crowds of share applicants (Shrestha, 1992).

Securities markets in developed countries have a long history but they do not have long history in Nepal. The government of Nepal passed a law relating to company registration and regulation in 1936 AD. After the enactment of this law, Biratnagar Jute Mills Limited was established in 1936. Thus, the history of securities market began with flotation of shares by Biratnagar jute mills Ltd and Nepal bank limited in 1937AD.Almost two and half decades later ,government issuance of development bond in 1964.But there was no secondary market to provide liquidity for these bonds until the establishment of securities market centre in 1976.The establishment of the securities marketing centre under the company act was the first foundation stone for institutional development of the securities market in Nepal.

Securities exchange center was bifurcated into two distinct entities: securities exchange board Nepal (SEBON) and Nepal stock exchange limited (NEPSE) in 1993. Listing of share in stock exchange and their daily trading in the secondary market through the institutional brokerage system started after the restoration of democracy in1990. Because of the worldwide privatization and economic liberalization, economic changes have been brought in the country.

1.2 Nepal Stock Exchange (NEPSE)

The history of Nepal stock exchange, abbreviated as NEPSE, extends back to 1976 when the government established Securities Marketing Center in 1976. It was later converted into Securities Exchange Center. In earlier years of its establishment the center confined its activities in trading government securities. It started listing and trading corporate securities in November 1984. The center was converted into Nepal Stock Exchange (NEPSE) in 1993 and operates under Securities Exchange Act 1983 (Shrestha et. al, 2003:31). Before conversion into Nepal Stock Exchange, it was the only capital markets institution undertaking the Job of the brokering, underwriting, managing public issue, market making for government bonds and other financial services.

NEPSE is a non-profit organization, operating under security exchange Act 1983. NEPSE commenced its operation on 13th January 1994, with ownership among Government of Nepal (GN), Nepal Rastra Bank (NRB), Nepal Industrial Development Corporation (NIDC) as its licensed members.

The main objective of NEPSE is to upgrade the infrastructure of the security exchange so that it could handle the increased activity more efficiently. This has included a focus on the modernization of the trading clearing settlement and surveillance procedures. Another objective of NEPSE is to impart free marketability and liquidity to government and corporate securities by facilitating transition it its trading floor through market intermediaries, such as brokers, market makers and securities dealers. NEPSE is the only one secondary market of the country for security transactions. Other forms of secondary market such as OTC market, the third and fourth market are not initiated till date in our country.

1.3 Statement of the Problem

Nepalese stock market is characterized by a low trading, volume, absence of professional brokers, early stage of growth, limited movement of share prices, and limited information available to investors. Beside these, political instability and interference, anti government activities, economic imbalances, ineffective implementation of liberal economic policy, lack of suitable laws etc. are the burning issues in Nepalese stock market. Due to lack of various required information, investors are confused how to invest on which stock. They are haphazardly investing in shares i.e. they are failure to 'beat' the right 'time' to purchase or sale the securities.

The investment process is concerned with how an investor should go about making decisions with regard to what marketable securities to invest in how extensive the investment should be and when the investment should be made. The investors whether they are small or professionals should analyze the securities in terms of price and volume before investing on them. The main purpose of security analysis is to examine whether the securities currently appear in the market to be mispriced. Moreover, security analysis helps in forecasting future price movement in a way to secure higher expected buy and hold return.

The technical analysis theory involves the study of past volume and price data of the stocks to predict future movements. This approach numerical series generated by market activity such as price and value are uses to predict share price movements. Thus technical analysis does not try to analyze the financial data of a company such as cash flow, dividends and projection of future dividends. That type of analysis id called fundamental analysis. Nor does Technical analysis claim to be hundred percent accurate, it attempts to give the "most likely "outcome.

The premises of technical analysis were derived from empirical observations of financial markets over hundred years. Perhaps the oldest branch of technical analysis is the use of candlestick techniques by Japanese traders at least as early as the 18th century, and still very popular today. Thus the technical analysis theory of share price behavior is based on past market information to predict future prices movements. This approach studies various graph and charts of the past share prices and reduce from the analysis about the future pattern. The chartists seek to predict future movement by seeking to interpret past pattern on the assumptions that history tends to repeat itself. It is believed that a knowledge of past patterns of share prices help to predict future share prices under similar circumstances. Dow Theory, moving average analysis, advanced decline index, client account position, oscillators, chart patterns etc. are the tools uses to forecast the future share price movement.

There are only limited researches on predictability of stock price in NEPSE using technical analysis. Technical and fundamental analysis models are most appropriate models to evaluate the prices of shares in our context. Therefore here researcher main concern is about technical analysis and efficient market theory. This study also puts an effort to improve on shortcoming of limited past studies in the hope that the trends of future share piece can be predicted using technical analysis.

The study mainly deals with following research questions:

- What is the Direction of Nepal stock exchange (NEPSE) index?
- Whether Technical Analysis of Nepalese stock market helps investors to reach best investment decision about common stock?
- Is efficient market theory adopted in Nepalese stock market?
- How sub indexes help to move the NEPSE index?
- What are the opportunity and threats to investors from the stock market?

1.4 Objective of the Study

The prime objective of this study is to analyze the trends in NEPSE using technical tools. Within the periphery of above stated problems, the objective of the study is to analyze 'technically' the movement in NEPSE index. Furthermore, this study is proposed to meet the following objective:

- To predict the movement of NEPSE index.
- To explore the potentiality of technical analysis in Nepalese stock market.
- To examine the efficiency of Nepal's stock market through qualitative test.
- To study the relationship of NEPSE index with sub-indexes.

1.5 Significance of the Study

Technical analysis is one of the crucial factors for general investors. This research will be significant for the following way:

- This study guided investor to get right decision for investment on right Place at right time therefore it is expected to helpful for the general investor and stakeholders.
- The study may draw the attraction from every corner of entrepreneurs and investors and other academicians and also other interested parties.
- This study is extremely helpful to the financial managers of corporate firms to know about the movement and price formation of stock price.
- This study is very useful to potential investors who are interested to know the effect of price trend, volume of stock and impact of signaling factors in NEPSE index.

1.6 Limitations of the Study

Research is the dynamic process of searching something to find out the solution of a problem. The findings might not be equally applicable to all the problems, every research has some limitations. A single research cannot be perfect in itself. The

present research too cannot be an exception. This study may face the following limitations during the course of research.

- This research mainly based primary and secondary data which have been collected from questioners, interviews, books, journals, financial statements, report of Securities Board Nepal (SEBON) and Nepal Stock Exchange (NEPSE), annual reports of companies, web sites and other publications.
- The study heavily focus on the technical analysis of Nepalese stock market
- Studies and reference were also extremely limited in the prospective of Nepalese stock market.
- The market price of shares also get affected by happening on the political and economic factors or fundamentals of the company, i.e. changes in an intrinsic value of share, hence all the deviations cannot represent the market sentiments.
- By using moving average method, if there is not consistency in trading of any sub sector can affect in proper decision making.

1.7Organizations of the Study

This study attempts to solve the research problem created with behavior of NEPSE index. To solve the research problem within scientific manner, the study has undergone within the prescribed form of T.U. This chapter deals with the subject matter of the study consisting background of the study, focus of the study, statement of the problem, objectives of the study significance of the study, test of hypothesis, limitations of the study and organization of the study. The second chapter is review of literature this chapter includes theoretical review and review of related studies. Third chapter is research methodology this chapter explains the research methodology adopted in carrying out the present research. It deals with research design, population and sample and nature of data, data collection techniques, data analysis tools and limitation of the methodology. The four chapters are Data presentation and analysis It includes the data presentation and

analysis. It consists of descriptive analysis of the gathered data and information using statistical tools. Additionally, this also includes the major findings of the study.

The last chapter is Summary, conclusion and recommendation the last chapter concerns with the suggestive framework that consists of summary, conclusion and recommendation for future improvements. The bibliography and appendices are incorporated at the end of the study.

CHAPTER - II

REVIEW OF LITERATURE

The basic concern of the study is to focus on an application of technical analysis tools in Nepalese stock market. In this chapter some of theories related to technical analysis of stock market will be reviewed. It includes literature regarding theories on the topic and review of the empirical evidence of previous studies done before within and outside the country. The first part of the review will be focused on description of the theories of technical analysis and stock market behavior, which will be reviewed from different books and articles. The theory will include fundamental analysis and efficient market theories. The second part of the studies will be focused on reviewing the past research and findings regarding the same topic. Better understanding of technical analysis and its application in stock market may increase investor's confidence in stock market and thereby enhance the effectiveness of corporate resource allocation.

2.1 Conceptual Review

2.1.1 Technical Analysis Theory

Technical analysis of the security prices involves the study of market price in an attempt to predict the future price movement. It is alternative theory of predicting the market price of share in stock market it is market oriented theory based on force of demand and supply. The share price is reflected in the action of market especially past market rather than the intrinsic value of share. The analyses who analyze the security behavior of past movement to predict the future price of share, is known as technical analysis or technicians.

Technical analysts focus most of their attention on the charts of security market prices and on related summary statistics about security transactions. Therefore technical analysts are called chartists. Most technical analysts prepare and study

the charts of various financial variables in order to make forecasts about security prices Technical analysis is the 90 percent psychological and 10 percent logical, which means market is driven by psychology of investors in 90% of the times and in 10% of the times logical factors affect the market.

It is based on the belief that history repeats itself, which means price patterns and traded volume occurs again and again over a period of time. This repetition of price and volume pattern helps in predicting near future price movements (Khatri, 2006: 156).

Technician analyzes the past data and then reach conclusion of coming future. The technician 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 or lower and even by how much Therefore, the past behavior in market prices is the basic of technical analysis Trend analysis of past prices is major focus of this analysis to determine whether prices are likely to rise or fall. Looking backward is the false of technicians. 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?" (Sharpe, Alexander and Bailley, 2001: 844).

Past behavior of stock market, which may be self-repeat in future is main slogan of technical analysis. Technicians recommend for short term on the basic of history for profitable investment. "Technical analysis is the study of stock exchange information as such. The world 'technical' implies a study of market itself and not of those external factors, which are reflecting in the market, relevant

factors, whatever they may be, can be reduced to the volume of stock exchange transactions and the level of share prices; or more generally to the sum of the statistical information produced by the market" (Rosenfield, 1975: 297). Statistical information is matter of technical analysis.

"Technical analysts maintain that the price of a share at any time (Present price) is the balance struck by buyers and sellers at a point in time. Price movements take place because of changes in buying and selling pressures. This occurs in account of diverse internal and external factors (profit, political environment, predictions and the likes). Price stabilizes when equilibrium between buyers and sellers achieved.

They believe that a record of price movements over a period depicts how investors (both buyers and sellers) have acted and behaved over a period in the past as the whole theory is based on the assumptions that history repeats itself. That human nature doesn't 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 call repeat themselves in the future.

Estimation of price of stock is task of technical analysts rather than value. Technicians totally ignored the fundamental facts of stock market such as risk and earnings growth rates. Technical analysis focuses on demand and supply and determines the future price on the basic of that behavior. "The methodology of technical analysis…. Rests upon the assumption 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 likelihood of the same outcome when ever this pattern appears in the future" (Palat, 1991: 172).

Basic Assumptions of Technical Analysis

Edwards and Magee has mentioned the following basic assumptions underlying technical analysis are as under" (Edards and Magee, 1958: 86).

- Market value is determines solely by interaction of supply and demand.
- Supply and demand are governed by many rational and irrational factors.
- In disregard of minor fluctuations in the stock market, share price tends to move in trends, which persist for an applicable length of time.
- Change in trend is resulted by shifts in supply and demand.
- Shifts in supply and demand, no matter why they occur can be detected eventually in charts of market action.
- Some chart patterns tend to repeat themselves.

In essence, technical analysis believe that past behavior of stock market will repeat in future and can therefore be used for predictive purposes at last technical analysis involves short-term predictions of security price movements based on past patterns of price and trading volumes.

2.1.1.1 Types of Charts

Technical analyst make the prediction about near future after making a study of price and volume data as plotted on any of the following typed of charts:

- Line charts
- Bar diagrams
- Point and figure charts
- Candle charts

Line Chart

Line charts are charts in which various prices either of particular day or across the days are plotted on the graph and then these are joined with the help of a line in

the chronological order. A simple line indicated the movement of price and volume over a period of time. These are most commonly used charts. Various movements like support, resistance, up-trend, downtrend, etc. can easily be identified in these.

Bar Diagrams

Bar diagrams are charts which provide details about the four prices prevailing for a day for one particular share, i.e. highest, lowest, opening and closing price of a day.

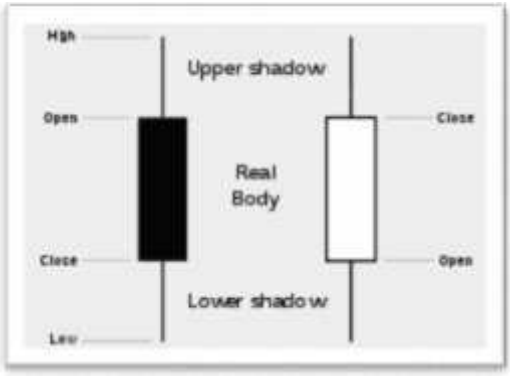
Point and Figure Chart

In this type of chart each price of a particular day for the individual share is potted on a graph. The upward price movements are shown by "*" and a downward movement is shown by '0'. Date for which prices have been shown is also placed at the end of all the prices of the concerned day.

Candle Chart

A candlestick chart is a style of bar-chart used primarily to describe price movements of a security over time. It is a combination of a line-chart and a bar-chart, in that each bar represents the range of price movement over a given time interval. It is most often used in technical analysis of equity price patterns.

Candlestick chart



Candlesticks are usually composed of the body (black or white), and an upper and a lower shadow. the area between the open and the close is called the real body, price excursions above and below the real body are called shadows. The wick illustrates the highest and lowest traded prices of a security during the time interval represented. The body illustrates the opening and closing trades. If the security closed higher than it opened, the body is white or unfilled, with the opening price at the bottom of the body and the closing price at the top. If the security closed lower than it opened, the body is black, with the opening price at the top and the closing price at the bottom. A candlestick need not have either a body or a wick.

To better highlight price movements, modern candlestick charts (especially those displayed digitally) often replace the black or white of the candlestick body with colors such as red (for a lower closing) and blue or green (for a higher closing)

2.1.1.2 Uses of Technical Analysis

Technical analysis is used for different purposes like predicating overall market trend as well as making prediction about individual shares. For both of these separate types of tools are used (Khatri, 2006:159).

- Tools to predict overall market trends.
- Tools to predict for individual shares trends.

Tools to Predict Overall Market Trends

Prediction about the overall market is based on the movement of an index representing the trend of the market. An index is considered to be representative of the market because it is calculated by considering the shares which have the following features.

Minimum Impact Cost

- High value representation in market capitalization
- Large number of traders per day.
- Large traded volume per day.
- Frequent trades on every day.

Following are the tools for the analysis of predicting overall market trends:

- Dow Theory
- Advance Decline Index.
- Client Account Position

Dow Theory

The Dow Theory is one of the oldest and most famous technical tools; it was originated by Charles Dow, founder of the Dow Jones Company and editor of the wall street Journal around 1900. Mr. Dow died in 1902, and the Dow Theory was developed further and given its name by staff members at wall street journal. Today, many versions of the theory exist and are used: it is the basis for much of the work done by technical analysts.

The Dow Theory is used to delineate trends in the market as a whole or individuals securities. According to Mr. Dow "The market is always considered as having three movements, all going at the same time. The first is the narrow movements from day to day. The second is the short swing, running from two weeks to a month or more, the third is the main movements covering at least 4 years in duration." According to Dow that share prices show three kinds of price movements all moving at the same time: daily movements Secondary movements and primary movements. Primary move last from a few months to many years and

represent the broad underlying trend of the market. Secondary movements last from a few weeks to a few months and move counter to the primary trend. Daily movements can move with or against the primary trend and last a few hours to a few days, but usually not more than a week. They are explained as follow s (Hamilton, 1929:114-120).

Daily Movements

Daily movements, while important when viewed as a group, can be dangerous and unreliable individually. Due to the randomness of the movements from day to day, the forecasting value of daily fluctuations is limited at best. The worst, too much emphasis on daily fluctuation will lead to forecasting errors and possibly tossed. Getting too caught up on the movement of one or two days can lead to nasty decisions that based on emotion. It is vitally important to keep the whole picture in mind when analyzing daily price movements. Think of the pieces of puzzle. Individually, a few pieces are meaningless, yet at the same time they are essential to complete the picture. Daily price movements are important, but only when grouped with other days to form a pattern for analysis. The study of daily price action can add valuable insight, but only when taken in context of the larger picture.

There is little structure in one, two or even three days "worth of price action. However, when a series of days is combined, a structure will start to emerge and analysts became better grounded.

Secondary Movements

Secondary movements run counter to the primary trend and are reactionary in nature. In a bull market a secondary move is considered a correlation. In a bear market, secondary moves are sometimes called reaction rallies.

Primary Movements

Primary movements represent the broad underlying trend of the market and can last from a few months to many years. These movements are typically referred to a bull and bear markets. Once the primary trend has been identified, it will remain in effect until proved otherwise. According to the William Hamilton, refiner of Dow John theory, length and the duration of the trend were largely indeterminable and he warned against attempting to apply these as rules for forecasting.

The reality of the situation is that nobody knows where and when the primary trend will end. But the objective of Dow John Theory is to utilize what we do know, not to haphazardly guess about what we don't know. Through a set of guidelines Dow Theory enables investors to identify the primary trend and invest accordingly.

Identification of the Trend

According to the Dow Theory, there are three main trends (Khatri, 2006:160-161).

Uptrend

Whenever, subsequent peak formation is at higher level as compared to the previous peaks, coupled with the formation of subsequent trough at the higher level as compared to the previous through, it is identified as uptrend. In normal circumstances this trend continues for a period of 6-8 weeks barring intervening technical corrections.

Downtrend

When subsequent peak is formed at a lower level as compared to the previous peak, coupled with the formation of subsequent through at a lower level as compared to the previous level, it is identified as downtrend. This type of trend also continues for about 6-8 weeks barring intervening technical corrections.

Horizontal Trend

A horizontal trend is identified when every peak is almost at the same level as the previous level of peak, and similar pattern is for the formation of trough. Such movement indicates indifferent market in the near future.

Prediction about the near future for overall market can be made with the help of primary movements; such prediction is like bullish or bearish trends, whereas daily and secondary movements are used to predict very short period movements, technical corrections likely to take place in a market during a day or week. With the help of parallel movement of both of these averages the following signals can be generated (Khatri, 2006:161).

Advance Decline Index

By 'advance decline' we mean a difference between the number of shares whose prices have increase and the number of shares whose prices have declined on a particular day. This is also called as a net advance. A series of such values over a period of time is called as "Advance Decline Index". The movement of this index can be used to confirm the signals generated by the general price index of the market. 'Advance Decline Line' is plotted along the general price index and a combined movement of both these indices helps in confirming signals about the market, like (Khatri, 2006: 161).

- If price index is raising and advance decline index is also rising, it indicates continuation of upward trend in the market.
- If price index is failing and advance decline index is also failing, it indicates continuation of down trend in the market.
- If price index is rising but advance decline index is falling, or vice versa, it indicates divergence in the price trend in the near future.

Client Account Position

As per the requirement of market regulator every broker is required to maintain a separate bank account for keeping client money. The balance position of this account can be used to indicate expected market movement. Like, if clients have sold the shares but not claimed the payment from their brokers, it indicates, they will buy the shares with this money in the near future- an indication of bullish market (Khatri 2006: 161).

Tools to Predict for Individual Shares Trends

Predication about the individual shares trends is done to identify buying and selling signals. These signals help of such technique in advance of the actual movement following tools are used for this;

- Moving Average Analysis
- Elliot Wave Theory
- Oscillators
- Chart Patterns

Moving Average Analysis

Moving average analysis is important tool of technical analysis. The moving average used to provide a smoothed stable reference point against which the daily fluctuations can be measure exactly moving average analysis provide buy and sell signals of securities. Moving average analysis used for individual securities or market indexes with the help of moving average the following signals can be generated (Khatri, 2006:162).

- Buying signals
- Selling signals

Buying Signals

- Whenever price line is above the moving average lines it moves towards the average line but fails to penetrate it, instead starts rising upward supported by an upward movement of the average line, it is a buy signal.
- When price line is below the moving average line and it penetrates towards the upside and continues to move upward, supported by an upward movement of the average line, it is a buy a signal.
- When price line is above the moving average line and is moving upward continuously, supported by similar movement of the average line, it is also a buy signal.

Selling Signals

- When price line is below the moving average line, it moves towards the average line but fails to penetrate it, instead, starts declining, supported by a downward movement of the average line, it is a sell signal.
- When price line is above the moving average line, and it penetrates towards the downside and continues to move downward, supported by a downward movement of the average line, it is a sell signal.
- When price line is below the moving average line and moving downward continuously, supported by similar movement of the average line, it is also a sell signal.

Moving average smooth out a data series and makes it easier to identify the direction of the trend, because past price data is used to form moving averages, they are considered lagging, or trend following, indicators. Moving averages will not predict a change in trend, but rather follow behind the current trend. Therefore, they are best suited for trend identification and trend following purposes, not for predication (Hrust, 1972:65-67).

Elliott Wave Theory

R.N. Elliot believes market had well-defined waves that could be used to predict market direction. In 1939, Elliot detailed the Elliott Wave Theory, which states that stock prices are governed by cycles founded upon the Fibonacci series (1-2-3-5 -8- 13- 21…) (Wilder, 1978: 72-73).

According to the Elliott Wave Theory, stock prices trend to move in a predetermined number of waves consistent with the Fibonacci series. Specifically, Elliott believed the market moved in five district waves on the upside and three distinct on the down side.

Waves one, three and five represent the 'impulse', or minor up- waves in a major bull move. Waves two and four represent the corrective', or minor down-waves in the major bull move. The waves lettered A and C represent the minor down-waves in a major bear move, while B represents the one up- wave in a minor bear wave.

Oscillators

Oscillators are the fine tools to predict future movement much before such movement take place, and thus leave a sufficient time gap to take decisions; by word "oscillation'

we mean a movement of certain item again on path with the same frequency, like that of a pendulum in a wall clock. On this basis certain oscillators have been developed shares (Khatri, 2006: 163).

- Moving Average convergence and divergence (MACD)
- Rate of change (ROC)
- Relative Strength Index (RSI)

Moving Average Convergence and Divergence (MACD)

MACD is used to predict movements in the market. An analyst is generally in a dilemma whether to use long term moving average or short term moving average. The solution for such dilemma is to use MACD. MACD is the difference between short term moving average and long term moving average. The difference helps in identifying whether price in the recent past have moved upward or downward as compared to longer movement with the help of MACD line various signals can be generated. When MACD is in a positive zone it indicates buying as share price are likely to move upward in the future; on the contrary, when MACD is in negative zone it indicates south-ward movement of the market in the near future and one should sell the shares. The following signals can be generated with the help of MACD (Khatri, 2006:163).

Buying Signals

- Whenever MACD line is above the moving average line of MACD, it moves towards the average line but fails to penetrate it, and instead starts rising upward, supported by an upward movement of the average line, it is a buy signal.
- When MACD line is below the moving average line of MACD, and it penetrates towards the upside and continues to move upward, supported by and upward movement of the average line, it is a buy signal.
- When MACD line is above the moving average line of MACD and moving upward continuously, supported by similar movement of the average line, it is also a buy signal.

Selling Signals

- When, MACD line is below the moving average line of MACD, it moves towards the average line but fails to penetrate it, instead, starts declining supported by a downward movement of the average line, it is a sell signal.
- When, MACD line is above the moving average line of MACD, and it penetrates towards the downside and continues to over downward movement of the average lien, it is a sell signal.
- When MACD line is below the moving average line of MACD and moving downward continuously, supported by similar movement of the average line, it is also a sell signal.

Rate of Changes (ROC)

ROC measures the percentage price change over a given time period with the help of ROC market can be identified as 'Over Bought' or 'Over Sold'. This identification helps in generating buying and selling signals. ROC value is plotted on a graph and this move above or below a central value, that is one '1'. Here ROC value one '1' is the benchmark value. Buying and selling signals are generated as follows (Khatri, 2006: 164).

- When ROC is more than one (ROC >1) and moving upward continuously, it indicates that market is likely to move upward.
- When ROC line is less than one (ROC < 1) and moving upward continuously, it indicates that market has come out of the red and in the near future it is expected to have a northward (upward) movement.

- When ROC is moving downside but the pace of decline has decreased, it indicates that market is likely to reach over sold level and after that it will start rising. An opportunist who can take a risk can buy at this level.

Selling Signals

- When ROC line is increasing but the pace of increase has decline, it indicates that market is about to reach the overbought zone, after which it is likely to decline. One should take precaution or a risk adverse investor can sell at this moment.
- When ROC line has made a peak it is the identification of 'Over Bought 'market, and market is likely to move towards southward (down ward direction, one should sell.
- When ROC is more than one (ROC > 1) but declining, it indicates that market will enter in south zone, i.e, declining zone, and one should sell at this level.

Chart Patterns

Technical analysts employ different charting techniques such as line chart, bar diagram, point and figure charts. When price of individual shares plotted on a line chart, these indicate several patterns like head and shoulder movement, inverse head and shoulder, flag and triangles etc. these patterns are used to generate signals about the expected movement of the market. This chart patterns can be used to predict about the near future price movement, but these are not strong as oscillators and moving average. These chart patterns can be generated for the index value as well ad for the prices individual shares, these help in identifying the support level and Resistance level (Khatri, 165: 166).

Type of Chart Patterns

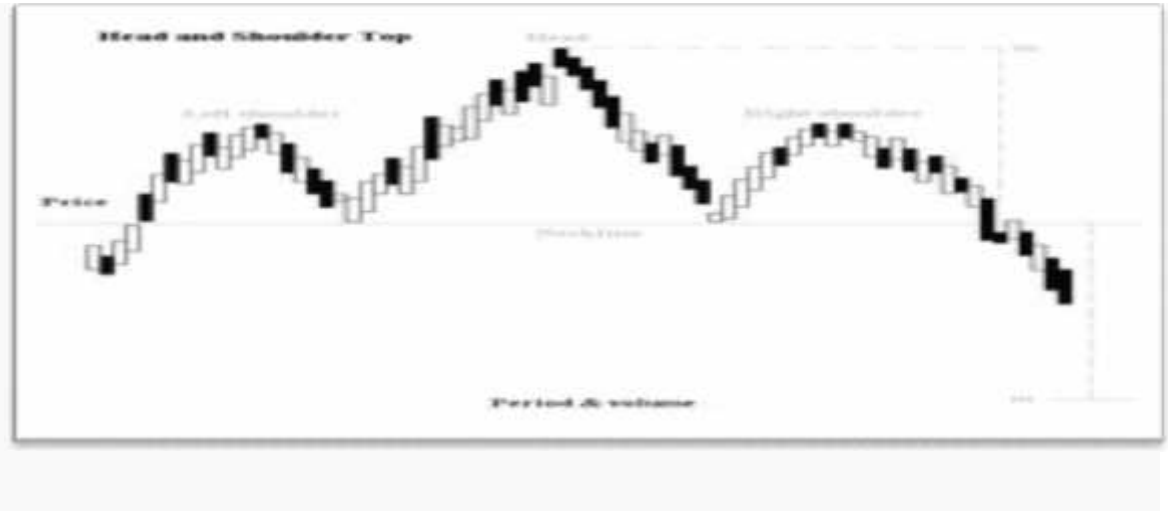
Mainly there are following types of chart patterns

- Head and shoulders
- Triangle
- Flat
- Flag

Head and Shoulders

The head and shoulders pattern can be either head and shoulders top, or head and shoulders bottom. This pattern is observed in an upward moving market. It is believed if, one cycle of head and shoulders has been created and market has again again started upward then again a set of head and shoulders will be generate. It is based on the principle that history repeats itself.

Head and Shoulders top



Head and Shoulders formation consists of a left shoulder, a head, and a right shoulder and a line drawn as the neckline. The left shoulder is formed at the end of an extensive move during which volume is noticeably high. After the peak of the left shoulder is formed, there is a subsequent reaction and prices slide down up to a certain extent which generally occurs on low volume. The prices rally up to form

the head with normal or heavy volume and subsequent reaction downward is accompanied with lesser volume. The right shoulder is formed when prices move up again but remain below the central peak called the Head and fall down nearly equal to the first valley between the left shoulder and the head or at least below the peak of the left shoulder. Volume is lesser in the right shoulder formation compared to the left shoulder and the head formation. A neckline is drawn across the bottoms of the left shoulder, the head and the right shoulder. When prices break through this neckline and keep on falling after forming the right shoulder, it is the ultimate confirmation of the completion of the Head and Shoulders Top formation. It is quite possible that prices pull back to touch the neckline before continuing their declining trend.

Head and shoulders bottom

This formation is simply the inverse of a Head and Shoulders Top and often indicates a change in the trend and the sentiment. The formation is upside down in which volume pattern is different than a Head and Shoulder Top. Prices move up from first low with increase volume up to a level to complete the left shoulder formation and then falls down to a new low. It follows by a recovery move that is marked by somewhat more volume than seen before to complete the head formation. A corrective reaction on low volume occurs to start formation of the right shoulder and then a sharp move up that must be on quite heavy volume breaks though the neckline.

Another difference between the Head and Shoulders Top and Bottom is that the Top Formations are completed in a few weeks, whereas a Major Bottom (Left, right shoulder or the head) usually takes a longer, and as observed, may prolong for a period of several months or sometimes more than a year.

Usage as a tool

Head and Shoulders is an extremely useful tool after its confirmation to estimate and measure the minimum probable extent of the subsequent move form the neckline. To find the distance of subsequent move, measure the distance form the peak of the head to the neckline. Then measure the same distance down from the neckline to the point where prices penetrate the neckline after the completion of the right shoulder. This gives the minimum objective of how far prices can decline after the completion of this top formation.

In case, if the price advance preceding the Head and Shoulders top is not long, the subsequent price fall after its completion may be small as well.

Triangle

Triangles are a commonly found in the price charts of financially traded assets (stocks, bonds, futures, etc). The pattern derives its name from the fact that it is characterized by a contraction in price range and converging trend lines, thus giving it a triangular shape.

Triangle Patterns can be broken down into three categories: the ascending triangle, the descending triangle, and the symmetrical triangle. While the shape of the triangle is significant, of more importance is the direction that the market moves

when it breaks out of the triangle. Lastly, while triangles can sometimes be reversal patterns—meaning a reversal of the prior trend—they are normally seen as continuation patterns (meaning a continuation of the prior trend).

The Ascending Triangle

The ascending triangle is formed when the market makes higher lows and the same level highs. These patterns are normally seen in an uptrend and viewed as a continuation pattern as buying demand gain more and more control, running up to the top resistance line of the pattern. While you normally will see this pattern form in an uptrend, if you do see it in a downtrend it should be paid attention to as it can act as a powerful reversal signal.

Ascending Triangle

The Descending Triangle

The descending triangle is formed when the market makes lower highs and the same level lows. These patterns are normally seen in a downtrend and viewed as a continuation pattern as the bears gain more and more control running down to the bottom support line of the pattern. While you normally will see this pattern form in a downtrend,

if you do see it in an uptrend it should be paid attention to as it can act as a powerful reversal signal.

Descending Triangle

The Symmetrical Triangle

The symmetrical triangle is formed when the market makes lower highs and higher lows and is commonly associated with directionless markets as the contraction of the market range indicates that neither the bulls nor the bears are in control. If this pattern forms in an uptrend then it is considered a continuation pattern if the market breaks out to the upside and a reversal pattern if the market breaks to the downside. Similarly if the pattern forms in a downtrend it is considered a continuation pattern if the market breaks out to the downside and a reversal pattern if the market breaks to the upside.

Symmetrical Triangle

Flat Base Chart Pattern

Stocks that have large price gains typically will stair-step upwards and form flat base before resuming their uptrend. This action may occur several times as a stock remains in an uptrend and could last from a few days to several weeks depending on the situation. Flat bases are characterized by small daily trading ranges with volume being lower than normal. Although it doesn't happen every time, the longer a stock remains in a flat base, the greater the price appreciation may be when the stock breaks out. Example can be as follows.

Flat Base Chart Pattern

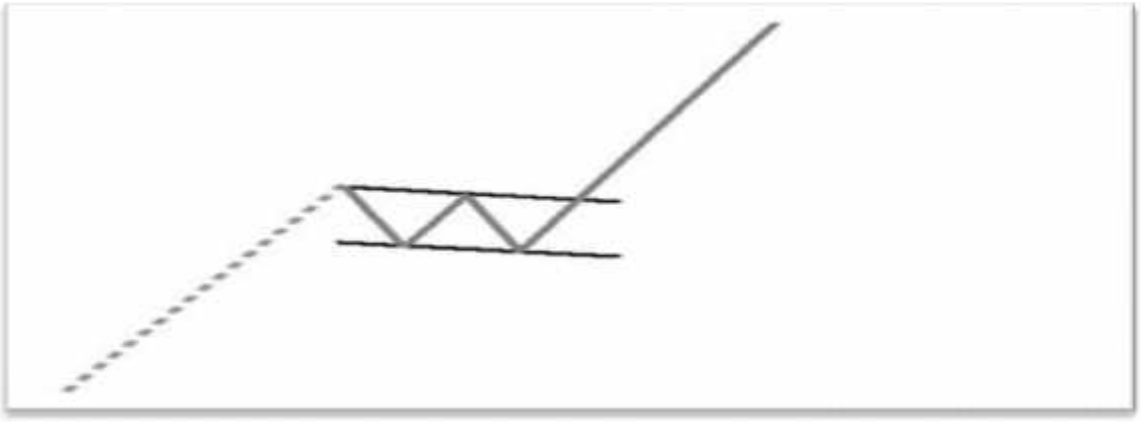
Here I through mid-August and then broke out of the base in on increasing volume (point A). It then formed another Flat Base in September and broke out of this base.

Flag

A Flag (Bullish) follows a steep, or nearly vertical rise in price, and consists of two parallel trend lines that form a rectangular flag shape. The Flag can be horizontal (as though the wind is blowing it), however it often has a slight downtrend.

The vertical uptrend, that precedes a Flag, may occur because of buyers' reactions to a favorable company earnings announcement, or a new product launch. The sharp price increase is sometimes referred to as the "flagpole" or "mast".

Flag



The rectangular flag shape is the product of what technical analysts refer to as consolidation. Consolidation occurs when the price seems to bounce between an upper and lower price limit. This might occur, for example, in the days following a positive product announcement, when the excitement is starting to subside, and fewer buyers are willing to pay the high price that was commanded just a few days before. But, at the same time, sellers are unwilling to sell below a lower support limit.

A bullish signal occurs when the price rebounds beyond the upper trend line of the Flag formation, and continues the original upward price movement. This is considered a pattern confirmation.

When speaking about Flags, technical analysts may use jargon and refer to the flag as "flying at half-mast". Visually, this reference is nothing like a flag at half-mast, such as on a day of national mourning. Instead, this term refers to the location of the flag - at the mid-point of what would otherwise be a continuous uptrend.

In conclusion, technical analysis is the study of past price pattern and the traded volume. In this it is believed that market is driven more by the psychological factors as compared to the logical factors. It is the psychology and the past experience of the investors /operators, which derive the market and accordingly price formation, take place. The predication about price patterns is supported by the traded volumes. Technical analysis is an art form and the eye grows keener with practice. Thus, John Murphy stated that "Technical Analysis is a skill that improves with experience and study always be a student and keep learning." In the technical analysis support and resistance level are identified to take buy and sell decision.

In fact, many technical analysts would agree with fundamental analysts that security prices do fluctuate around their true intrinsic values. Technicians assert the superiority of their methods over fundamental analysis by pointing out that technical analysis is easier and faster, and can be applied to more stocks simultaneously than can fundamental analysis. Many technical analysts would say that fundamental analysis has some value but that it is just too complex and troublesome to bother with. Consider the criticisms that some of the more thoughtful technical analysts have aimed at fundamental analysts. First, some technicians have correctly pointed out that even when fundamental analyst do find an under priced security, they must wait and hope that other investors in the market agree with them about the security's value and seek to buy it and bid up its price. Second, technical analysts can correctly assert that fundamental analysis is hard, time consuming work. Very few people would disagree with the fact it is easier to draw graphs than it is to study economic and accounting. Third, technical analysts can criticize the income statements produced by accountants, which form

the basis for much fundamental analysis. Finally, technical analysts point out the highly subjective way in which the earnings multipliers used by fundamental analysis, some people conclude that they prefer the ease and simplicity of technical of technical analysis over the hard work and education needed to be a competent fundamental analyst.

2.1.2 Fundamental Analysis Theory

Fundamental analysis, the first approach to security analysis, tries to identify the real or true value of financial assets. The real value of any kind of financial assets is the present value of the future cash flow to forecast the timing and size of these cash flows, and then converts them into their equivalent present value by using an appropriate discount rate. Once the real value is calculated, it is, thereby, compared with the current market price per share to identify whether the security is under-priced or over-prices. If

Current Market Price >Intrinsic Value (Price) - Overpriced or Overvalued

Current Market Price < Intrinsic Value (Price) - Underpriced or Undervalued

Current Market Price = Intrinsic Value (Price) - Equally Priced or Equally Valued

These unusual cases of miss-pricing will be corrected in the future the under-priced security's price increases to meet the real price. The person utilizing this technique is called a fundamentalist or a fundamental analyst (Bhattrari, 2005:4).

Fundamental analysis requires following assumptions (Raymond, 1987:324).

- A business has an intrinsic value.
- Intrinsic value can be determined by analyzing company- generated information
- Intrinsic value may go unrecognized by the market in the short term.

- The market will eventually recognize the intrinsic value in the long run.

Fundamental Analysis Concern estimates of the basic determinants of security values, such as future sales, expenses and earning for firms. This approach studies to analyze different action, firm's financial statement etc. for calculation of intrinsic value for firm's securities. The fundamental analyst or fundamentalist believes on fundamental facts to determine the intrinsic value of stock.

"Fundamental analyst forecast, among other things future levels of the economy's gross domestic product, future sales and earnings for a number of industries and future sales and earnings for an even larger number of firms" (Sharp, Gorden, Alexander, Jeffery and Bailey, 2001: 853). Especially economic industry and company statistic is the basis of fundamentalists. The principal decision variable ultimate take form of earning and value with a 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, 1986: 398). The objective of fundamental security analysis is to appraise the intrinsic value of a security. The actual economic worth of financial asset is the intrinsic value. "the fundamentalists maintain that any points of time every stock has an intrinsic value which should, in principle, 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, 1983:380). Therefore, the actual price of security is determined by an appropriate interest rate of the future stream of income. Price changes as anticipation changes, which in turn change, because of new information. In other words, a new price of news is releases securities intrinsic values will change and regarding to new information the securities market price will adjust.

Fundamental analysis uses earnings and dividend prospects of the firm, expectations of further interest rates, and risk evaluation of the firm to determine proper stock prices. "The value of common stock is simply the present value of all the future income which the owner of the share will recent (Jack Clarc's op. Cite.:398) Ultimately, it represents an attempt to determine the present discounted value of all the payments of stockholder will receive from each share of stock. Therefore, fundamentalists estimate their intrinsic value by studying in details all matters that are relevant to the company. "The study would involve examining its sales, earnings, profit margins, dividends, management proficiency, industrial and business outlook, labor competence and factor that would have a hearing in its performance in the future" (Palat, 1991:167).

Fundamental analysis usually starts with a study of earnings and an examination of company balance sheets. They supplement this analysis with future detailed economic analysis ordinarily including an evaluation of the equity of the firm's management. The firm's standing within its industry, and the prospects for the industry as a whole on the basis of such a study, fundamentalists projects 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. If the intrinsic value is higher than the market value, fundamentalist will acquire shares as this difference present them with an opportunity to make a profit and on other hand if the intrinsic value is lower than the market value, the share is over price and is an indication to the fundamentalists to sell.

Therefore the fundamentalists argues that key role of intrinsic value of share in any common stock market with compare to present market price and take appropriate decision of investment or sell the common stock.

Some investment organizations that employ financial analysis follow a sequential top-down forecasting approach with this approach the financial analysts are first involved in making forecasts for the economy there for industries, and finally for companies other investment organization begin with estimates of the prospects for and ultimately the economy. Such Bottom-up forecasting may unknowingly involve inconsistent assumptions. Therefore, to reach investment decision fundamental analysis uses such different analytical tools.

Fundamental analysis uses different models like Top-Down versus Bottom-up forecasting, probabilities forecasting, econometric models, and financial statement analysis etc. to estimate the value of security (Sharnse, Gorden, Alexander, Baile, 2001: 853).

Fundamental analysis is much more difficult than merely identifying well run firms with good prospects. Though many security analysis or prospective investors to make use fundamental analysis approach a judgment of the stock's value with a risk return framework based upon earning power and the economic environment, it is hard and time consuming work.

2.1.2.1 Limitations of Fundamental Analysis

Though fundamental analysis approach is used by many security analysts or prospective investors to make a judgment of the stock's value with a risk return framework based upon earning power and the economic environment, it is hard and times consuming work. As stated by Raghu Palat, some of the limitation of fundamental analysis approach is as follows: (Palat, 1991:168)

- The approach though sound and based a basic financial figures does suffer from drawbacks and to make this approach work effectively one must be aware of them.

- It tends to ignore market behavior and assumes that the market will act rationally. The market seldom does.
- The entire fundamental approach is based on rationales scientific analysis of data. The market is rarely rational.
- The information and analysis use may be incorrect.
- Many companies, with the help of creative innovative accountings and accounting cosmetics disguise real earnings.
- The fundamentalist's estimate of intrinsic value may be incorrect. This is not only; possible but also more probable than not as he has to often forecast growth, profit and other factors without having in his grasp all the facts.
- The fundamentalists may not fully understand the economy or the industry, as there are several external factors.
- There is also the possibility always that the market may not move in the manner a fundamentalist expects and conversely towards the intrinsic value.
- It is also difficult to determine corporate action.

Fundamental analysis can suggest only a range of price rather than a specific value opposition to the fundamental or security analysis. Approach come from followers of the technical or chartist school, who maintain that all financial data and market information of a given security is already reflected in the market price of the security fundamental analysis is not effective tool in deterring future price movements and hence it is not very dependable for short-term profits.

"By natures the fundamentalist is conservative in approach and is generally unwilling to take a quick loss, he would rather adopt a buy-and-hold-policy (Yasaswy, 1992:155). Therefore, the conservative analysis may not always effective. The fundamentalist argue that in case there is something less than complete information the actual price of the stock is generally away from its intrinsic value. Thus, they believe that market can often be wrong in appraising the value of a share of a company.

2.1.3 Efficient Market Theories

Efficient Market

An efficient market is one where, shares are always correctly priced and where it is not possible to outperform the market consistently. In other words security prices fully reflect available information in an efficient market.

In efficient market, the new information plays vital role of changing the price of stock. In such market the only price changes that would occur, are those, which result from new information. So, if efficient market it uses all available information to determine stock price, the efficient market reflected from the perfect competition market where all information is available without cost and rational investor with no taxes or transaction cost. The following are the basic requirement for a securities market to be efficient market is (Valla, 1983:309).

- Prices must be efficient so that new inventions and better products will cause a firm's securities price to rise and cause investors willing to supply capital to the firm (i.e., buy its stock).
- Information must be discussed freely and quickly across the nation, so all investors can react to new information.
- Transactions cost such as sales commissions on securities are ignored.
- Taxes are assumed to have no noticeable effect on investment policy.
- Every investor is allowed to borrow or lend at the same rate.

- Investors must be rational and able to recognize efficient assets so that they will want to invest money where it is needed most (i.e., in the assists with relatively high returns)

"In an efficient market, competition among many intelligent participant leads to situation where at any point is time, actual prices of individual securities already reflect the effects of information based both on events that have already accrued and on events which, as of new, the market aspects to take place in the future"(www.investorhome.com/emh.htm) In other words, in an efficient market, current stock price at any point in time the actual price of the security will be good estimate of its intrinsic values

2.1.3.1 Efficient Market Hypothesis

Efficient market hypothesis based on the fundamental that markets are efficient and prices make an independent movement in these markets. Each price of an individual share is independent of the previous price, the implication of this is that price of a moment does not affect the price of another moment, this type of movement of price is called random walk of prices, and therefore, this hypothesis is affected by the demand also called 'Random Walk Hypothesis.' According to this hypothesis prices get and supply position. Price reflect equilibrium position of the demand and supply, these show a wide fluctuation, only on account of disequilibrium in the demand and supply position (Khatri, 2006: 147).

2.1.3.2 Principle of Efficient Market Hypothesis

Efficient market hypothesis believes that markets are efficient and every kind of price sensitive information is available to all the investors, who are capable to interpret it efficiently. It is based on the following (Khatri, 2005:147-148).

- Full disclosure and transparency.
- Free flow of information.

- Large number of investors.
- Price reflects information effect.
- No one can influence the market unduly.

Full Disclosure and Transparency

It is assumed that companies, government and the regulator maintain a high degree of transparency. All the information is disseminated immediately and widely. The effect of this is that the information is disclosed properly in the prices. Therefore, subsequent study of the prices cannot help an investor to gain from such information.

Free Flow of Information

Everyone who is associated with the market or affected by the market is provided a free access to the information on about companies, government policies or stock market activities. The information may be about the financial performance of companies, government policies, traded volume, etc.

This free flow makes all the investors at par with respect to the accessibility of the information.

Large Number of Investors

An efficient market should have a large number of buyers and sellers in all the securities available in the market. This helps in creating proper demand and supply for the securities. It is like perfect competition.

Price Reflect Information Effect

All the price sensitive information is reflected in the price immediately, price move only on account of the information about companies, government policies, demand and supply facts, and other market related information.

No one can Influence the Market Unduly

In an efficient market none of the investors, whether big or small, can influence the prices in his/her favor. Market has a system of transparency and full disclosure due to which none of the investors is at an advantageous position.

2.1.3.3 Levels of Market Efficiency

There are three levels of market efficiency information regarding to past prices, other public information and inside information. In an efficient market, it is impossible to make average return regardless of the information available, unless abnormal risk taken. Tests of market efficiency have also, been turned as week form, semi strong from and strong from. It is common to distinguish among three level of efficiency. These levels differ by their term all available information.

Weak form Efficiency

It is dependent upon past records, the stock price reflects all information that is explain by history of past prices, trading volume or short interest, and this state is considered as weak form of efficiency.

Semi Strong form Efficiency

All publicly available information as well as records of past prices is reflected to the current prices of stock is considered semi strong form efficiency. If investors have access to such information from publicly available sources, one would expect it to reflect in stock prices.

In that market, even fundamental analysis of published accounting information has no value, because participants would have discounted it accurately and instantaneously when they cleared so in this form all publicly available information and past information is considered.

Strong form Efficiency

Above two form we have studied that one is reflected by past information and another is all publicly information as well as past information but strong form efficiency reflected all relevant information that are publicly and also privately. In this version is extreme. In addition, in this market insider information does not consider to determine stock price.

These three levels of efficiency described above are different to each other, but they are serially higher order in degrees of market efficiency. The above three market quantitatively stronger than earlier. Weak market consider in weak sense because the past price data is one form of published information. In addition, if the market is semi strong future price is determine based on past data but concerning the other publicly available information. For the market to be strongly efficient relevant information that are important information than previous two market, are consider to determine stock price for the market to be strongly efficient it must be consider at semi strong and weak levels.

2.1.3.4 Limitations of Efficient Market Theory

Market efficiency has been issue of study for the academicians and researchers. Especially for the good investors of stock market has been needed vast knowledge of market efficiency The advocates of the efficiency market theory are matched by an equally eloquent opposing camp which argues that the stock market is neither competitive nor efficient. The cities contend that one or more of the following factors cost their shadow over the efficiency and competitiveness of the stock markets (Chandra, 1994:589).

Inadequacy of Information

Information is not available easily and there is the problem for transmitted of information to all the participants in the stock market.

No Availability of Information

According to Nobel Laureate Herbert Simon: "Every human organism lives in an environment which generates millions of new bits of information every second, but the bottleneck of perceptual apparatus certainly does not admit more than a thousand bits per second and possible much less." The experts of information processing abilities, David Dreman argues: "under conditions of anxiety and uncertainty, with a vast interacting information grid the market can become a grant Rorschach test, allowing the investor to see any pattern he wishes: expert can not only analyze information incorrectly, they can also find relationships that aren't there a phenomenon called illusory correlation" (Dreman, 1984: 147).

Problems of Rationality

Generally, theory explains that investor's behave rationally with respect to ensure a close correspondence between market prices and intrinsic value but practically this may not be true. To prove that fact J.M. Keynes explains: In fact, all sorts of consideration enter into the market valuation, which is in no way relevant to the prospective yield.

Monopolistic Influence

Theory argues that market is always highly competitive. In competitive market, no single buyer or seller can influence but in practice, powerful institution has highly influence over the market. The monopolistic power enjoyed by than diminishes the competitiveness of the market.

Finally, in term of lot of challenges faced by the critics of efficient market theory, there are other many factors to point the finger at its reality, validity and authenticity. In context of Nepal, our capital market is not efficient regarding to information as well as operations.

Theory of Weakly Efficient Market or Random Walk Hypothesis

The weak form of efficient market theory states that current prices fully reflect in information contained in the historical price movements. According to Kean (1983)"The market is efficient in the weak sense if share prices fully reflect the information implied by all prior price movements. Price movements in effects are totally independent of previous movements implying the absence of any price patterns with prophetic significance". So the past prices have no meaningful information to predict future course of price fluctuations, which can be used to earn abnormal return. The movements of future prices are independent from previous prices or the series of price changes are random phenomenon. Actually, the weak form of EMH is referred to as random walk theory of share price behavior. "Weak form efficient market hypothesis is popularly known as the random walk theory". Random walk theory implies the future path of price level of a security is no more predictable than the path of a series of cumulated random numbers.

The series of price margins has no memory, that is past can't be used to predict the future in any meaningful way. It means that current size and direction of price changes independent an unbiased outcome of previous price changes. The random walk models in pristine form on two main hypothesis states that

- Successive price change is independent and
- The price changes confirm some probability distribution (Fama, 1995:45). Statistically independent form the sequence of price change during previous time period 't' is independent from the sequence of price changes during previous time periods.

Proponents of random walk recognize that in general, perfect independence assumption doesn't exist in real world. So, they argue that for practical purpose small degree of dependence does not isolate random walk hypothesis as long as it cannot be used to forecast future to earn more than average market return. Random walk model is valid as long as knowledge of past behavior of the series of Price changes cannot be used to increase expected gains. That is for practical purpose, independence hypothesis is accepted as long as the degree of dependence considered in the series of price changes is not sufficient to forecast the future from the historical price movement in a way it makes higher profit than they would be under the naïve to buy and hold policy.

Actually market mechanism establishes the existence of random walk theory that the successive price changes to be independent. The stock market poses steady inflow of information that influences the set of anticipation of the individuals. There are some information that have whole market wide impact such as change in monetary and fiscal policy on security prices and other information have an effect on industry wide impact such as changes in government tax policy on specific industry. There is other information such as announcement of earnings and dividend that affect price of the particular security. The change in the set of

anticipation resulted from either of the above information is unique to each individual and may be cause by psychological and other factors, which motivate them to bid on prices of the securities in the market. There are other groups of participants who estimate the intrinsic value of individual securities from the received information. As Fama advocates, “the existence of intrinsic value for individual securities is not consistent with random walk hypothesis”.

The intrinsic value of security is calculated on the basis of future prospective of the company which in turn is related to economic, industrial and company specific factors. At many point of time, there exists implicitly an intrinsic value of each share but in the world of uncertainty the intrinsic value are not known exactly. Therefore there can be disagreement among the participants about the estimated intrinsic value of shares and actual price differ from its intrinsic value. Over the time, the intrinsic value itself changes, as new information appears that affects the prospects of company. New information may be about deregulation in the quota system on the efficiency licensing, a change in management, success in research and development and tariff imposed in the raw materials etc. it studies inflow of various types of information i.e. pessimistic, optimistic and so on) arise independently across the time and it participants do not show dependent tendency about intrinsic value, the subsequent prices in stocks will be independent. However in the real world these conditions always do not hold true. True may be dependencies in the reaction of participants toward the estimation of new intrinsic value. For exchange certain individuals or institutions action on new anticipation of value may induce many other people. This reinforcing behavior leads to deviate the anticipation value below or above from the true values which result unhindered dependencies in subsequent price changes. In this situation we can assume that there exist many sophisticated traders of two type (1) traders having much better capacity to predict the appearance of new information and estimation of its effects on intrinsic values than others, generally named superior intrinsic value analysis.

(2) Trader having much better skill at doing statistical analysis of price behavior named technical analysis. The sophisticated traders can recognize the situation where the price of the stock is beginning to run up or down from its intrinsic value because of inappropriately under or over discounting of information and its adjustment in the securities prices. This situation provides them incentive for speculation in the market because the price is expected to move eventually to its intrinsic value. Thus the existence of profit maximization strategy of these sophisticated traders' lead to neutralize the dependence in the price changes and the price changes follow to independence of successive price change.

Bullish and Bearish Market

A market trend is a putative tendency of a financial market to move in a particular direction over time. These trends are classified as secular trends for long time frames, primary trends for medium time frames, and secondary trends lasting short times. Traders identify market trends using technical analysis, a framework which characterizes market trends as a predictable price response of the market at levels of price support and price resistance, varying over time.

The terms bull market and bear market describe upward and downward market trends, respectively, and can be used to describe either the market as a whole or specific sectors and securities. A secular market trend is a long-term trend that lasts 5 to 25 years and consists of a series of sequential primary trends. A secular bear market consists of smaller bull markets and larger bear markets; a secular bull market consists of larger bull markets and smaller bear markets.

In a secular bull market the prevailing trend is "bullish" or upward moving. In a secular bear market, the prevailing trend is "bearish" or downward moving.

Bull Market

A bull market is associated with increasing investor confidence, and increased investing in anticipation of future price increases (capital gains).
A bullish trend in the stock market often begins before the general economy shows clear signs of recovery. It is a win-win situation for the investors.

A bullish investor is someone who invests with an expectation that stock prices will rise. Conversely, a bearish investor believes financial market conditions are not conducive to gains and therefore trades stocks accordingly.

Bear Market

A bear market is a general decline in the stock market over a period of time. It is a transition from high investor optimism to widespread investor fear and pessimism.

According to The Vanguard Group, "While there's no agreed-upon definition of a bear market, one generally accepted measure is a price decline of 20% or more over at least a two-month period.

An investor with bearish sentiment views increases in stock market value as an opportunity to sell stocks and exit the market. Bullish investors hunt opportunities to enter the stock market at bargain prices and ideally to be rewarded with future profits.

Investors can profit in both bullish and bearish market periods. When the stock market is expected to rise, bullish investors go long or buy stocks. Investors may also "short" a stock, which is to bet on its decline. Mostly, traders and institutional money managers including hedge funds participate in shorting stocks

2.2 Review of Evidential Research

In least development country research and development activities are done less them the developed country. There is few research studies conducted on stock market prices of Nepal as compared to the capital market elsewhere in the world. The Nepalese stock market is just coming of age is therefore, possible for a few individuals to manipulate the prices of securities and engage in undesirable practices.

Specially focusing the studies of technical analysis very little thesis and article related to stock market behavior are available. So, in order to make this study more comprehensive and meaningful some studies, journals thesis, periodicals, case study etc. related to Nepalese stock market behavior are consulted and reviewed in this section.

2.2.1Review of Journal and Article

Regarding this various empirical studies have been conducting related area of technical analysis. Some empirical studies that try to highlight about the subject matter are discussed below.

Roberts (1959) in his article paper entitled "*Stock Market Patterns*" and financial analysis sating that, "a common and convenient name for analysis of stock market patterns 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 they are based on analogy with physical processes, such as tides and waves. Roberts further argued that "the history of the market itself contains "patterns" that give 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".

Bhatta (1997) in his unpublished dissertation on "*Dynamics of Stock Market in Nepal"* using random walk hypothesis or weakly efficient market hypothesis tried to determine whether stock market of Nepal is efficient in pricing shares or not . The conclusion drawn in the study was that the random walk theory is not a suitable description for the stock market behavior in Nepal. Further Mr. Bhatt concluded the dependence in the series of the price changes implies that the price changes in the future market will not be independent from the price changes on previous days.

Agreeing with the usefulness of technical analysis to forecast the future price, Fama (1991) in his journal *"Efficient Capital Market: II"* pointed out that, "Many proofs of the ability of technical analysis "to beat the mark" 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 investors."

Pistoles (1992) based on his research studies of over more than 25 years on stock market investment published 'a self teaching guide for the stock market investor using technical analysis' book 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 chance of taking the right action at the right time- thus making higher profits in the stock market". In this way Pistoles argued that technical analysis is one of the profitable approaches to stock market strategy. According to him, "the forces of supply and demand result from two powerful emotions, 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 forces have interacted to change the price of the stock is a tool for analyzing what has been happening to the stock price recently and what happen to it in the future".

Bhattarai (2004) on "New Business Age", in title *"History Repeats"* has mentioned that; History tends to tends to repeat itself. The securities analysis, who analyze securities presenting the past data on the charts, graphs, figures etc. and forecast whether the price will fall or rise, agree to this theory and say the share prices once turned bearish definitely turn to be bullish sometime in the future." He further discussed about demand and supply about stock market and he continued that history may repeats own self in future market because of many reasons. He argue that "These analysis assume that the market price is a function of demand and supply of stocks and the commanding forces behind the demand might be various factors like political, economic, financial, national, international events as well as the information disclosed by the companies. The various factors make the people either invest in the securities or disinvest. These decisions eventually result in the demand and supply of the stocks to go up or down.

Paudel (2006) in his article concluded that current Nepal's stock market is inefficient and there is critical boom. He mentioned that "the recent boom is difficult to rationalize in the absence of improved status of informed decisions of investors since there is no sign of improvements in disseminating true financial status, among others, of listed companies. NEPSE should enquire immediately with concerned companies for possible reasons for extreme ups and downs in prices and make them public. Commercial banks are advancing loan against shares, which may help professional speculators to gain at the cost of small investors' ignorance. Thus, major stakeholders of capital market like NRB, SEBON and NEPSE should diagnose speculators' behavior and artificial crash.

Otherwise, there is no reason to appreciate sudden bubble and boom in an unsustainable manner without any supporting opportunity of informed decisions" (The Himalyan Times, December 4).

Ghimire (2006) in his article stated that NEPSE is operating in unhealthy way. His logic behind this is that artificial boom of share price, less numbers of brokers, lack of institutional investors, and limited supply of shares i.e. only 3% of shares are on trading (Kantipur Daily, December 13).

Ghimire (2007) in his article mentioned that Nepal's stock market is humor driven. He stressed upon the need of effective role of regulating body, SEBON & NEPSE for the balance of stock market. In order to protect the investors from the crash of market, regulating body should bring courage to interfere the market (Kantipur Daily, November 21).

Nepal (2007) in his article stated that in Nepal's share market there is less trading of volume compare to its market price, which is against the general norms of stock market. He also claimed that there is large number of speculative investors who are manipulating the stock market. Most of the new faces are entering the market and he also predicted that whatever be the economic condition tomorrow, crash of market is most (Himal Khabar Patrika July 17-31).

Sthapit (2007) stated about the current bullish market that capital market should not be a gambling places but a rational and calculative business. A well functioning mechanism for monitoring and evaluation under the aegis of securities board and NEPSE is essential. So is the compliance with global trends and practices. Efforts to promote real sector industry and funds are imperative. He also added that these steps shall enable Nepal to prepare its capital market for liberalization after 2010 as compiled at the WTO (The Rising Nepal, July 29).

Pandey (2007) in his article mentioned that while investing in IPO one should care to the overall political and economic indicators of the country as capital market behaves in direct proportionate to the eco-political situation of the country. He also added that market trend (bearish, bullish, trend reversal etc.), technical should be beneficial in short term investment (The Kathmandu Post, January 17).

Adhikari (2007) in his article mentioned that increase in size of market, modernization, decrease of financial institution dominance in stock market, reduction of capital gain tax, elimination of lengthy process of settlement, are the challenges of Nepalese share market (Gorkhapatra Daily, April 19).

Shrestha (2008), In his article stated that due to lack of institutional investors and mutual funds Nepal's share market is not able gain the trust of overall investors and potential investors. He recommended in the need of institutional investors, transparency of all the listed companies, consultants and portfolio managers for the systematic development of stock market (Rajdhani Daily, April).

Pokhrel (2008) former president of Nepal Brokers Association, in the case of under subscription of Nepal Telecom share expressed his view in Kantipur daily that in Nepal’s share market general investors psychology is more important than fundamental financial statement. His opinion clears the importance of technical analysis in Nepalese stock market.

Gupta (2008) an investor, in his interview on Arthik Abhiyan stated that most of the prediction from technical analysis will be true in Nepal’s share market. He also answered that his base of investment is technical analysis. Fundamental analysis is second priority for him.

Technical analysis played the vital role an 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; technical analysis, intrinsic value analysis theory (Timilsina, 2001:1–33).

2.2.2 Review of Thesis

Shrestha (1991) conducted A Study On Stock Price Behavior in Nepal using random walk analysis or weekly efficient market hypothesis to determine whether stock market of Nepal is efficient in pricing shares or not. The conclusion drawn in the study was that the random walk theory is not a suitable description for the stock market price behavior in Nepal. Further Shrestha concluded the dependence in the series of price changes implies that the price changes in the future market will not be independent from the price changes on previous days.

Pradhan (1993) conducted a research in "*Stock Market Behavior in a Small Capital Market: A Case of Nepal*" to examine the relationship of market equity, market value to book value, price-earning, and dividends with liquidity, leverage, profitability, assets turnover, and interest coverage. He concluded that market equity is positively related to leverage, and profitability; and negatively related to liquidity, assets turnover, and interest coverage. Market value to book value is negatively related to liquidity, profitability, assets turnover, and interest coverage; and positively related to leverages. Price earning is negatively related to liquidity, profitability, assets turnover sand interest coverage; and is positively related to leverage. Similarly, positive relationship of dividend per share to earnings per share with liquidity, profitability, assets turnover and interest coverage; and negative relationship with leverage.

Aryal (1995) on his study on the general behavior of stock market prices based on the efficient random walk model concluded that the assumption of the

independence, as predicted by random walk model of security price behavior, has been refuted at least for the Nepalese context as the first approximation even in the rough way for early days of stock market operation. The study made the clear that the knowledge of past and now becomes useful in predicting the future movement of stock market prices. The investor on the floor of stock exchange for securities can make higher expected profits in the future based on the historical price series. The dependence nature of price series produced by general market fluctuation statistically implied, today's price change is positively depending upon yesterday's price changed.

Shrestha (1999) carried out a study on stock price behavior in Nepal by examining daily closing prices of 30 companies by using serial correlation and run tests found that successive price changes are dependent. He also concluded that the Nepalese stock market is not efficient in pricing shares even in its weak form.

Timilisina (2001) conducted a research on "*Capital Market Development and Stock Price Behavior in Nepal"* to find out the fair market prices of equities and observe the variations of the actual market prices from the computed fair prices to test whether the present behavior of prices will remain stable. He founded that the market price of share depends on EPS as well as on DPS, but DPS is more price sensitive and it will have direct and immediate response in the market. However market values of shares computed on the basis of EPS are near to the observed values. Therefore the observed market prices of equity share reveal that the stock market is not consistent.

Paudel (2001) has also conducted the research on *"A Study on Share Price Movements of Joint Venture Commercial Banks in Nepal"*. He concluded that the ordinary least square equation of book value per share an market value per share reveals that the independent variable(i.e. BVPS). It obviously implies that Nepal

Stock Exchange operates in a weak form of hypothesis, indicating that the market price of sample companies' move randomly. In the words of Poudel, from the study it is revealed that the publicly available information does not fully support the share price movement. Another issue in this regard in the transparency of facts and figures reflected in the financial return. In this regard Poudel has rightly concluded that financial statement prepared by the most companies lacks transparency. Since the financial statement prepared by Nepalese commercial banks is yet to be meet the international accounting standard.

Sigdel (2002) conducted a research on *"Technical Analysis on Common Stock of Listed Joint Venture Commercial Banks"*. The main objective of his research was to analyze the common stocks of five joint venture commercial banks through technical approach. The specific objectives were to analyze the investment behavior of investors, predicts the movements of market index, examine the performance of individual securities and to recommend the timing of purchase or sell. The research relied on both primary and secondary sources of data. This data are analyzed in various useful tabular formats, graphs, charts, moving average etc. On the basis of technical analysis and other tools, Sigdel concluded that investors have no idea about technical analysis approach to take investment decision, they also have less confidence in Nepalese stock market, weak relationship between the stock activity and the economic growth, analyzing the sales with technical tools, increase the chances of taking right actions at the right time but it largely depends on the skills or expertise of analyst and market index reflects markets trends and it takes all issues listed on the exchange on account.

Pradhan and Upadhaya (2004) on their research on *"The Efficient Market Hypothesis and the Behavior of the Share Price in Nepal"* concluded that the Nepalese stock market might not be termed as weakly efficient in pricing shares where market efficiency is defined as the historical information is reflected in

security price. The main factors affecting share prices perceived by the respondents are dividend, retain earnings, bonus shares and right issue. The share prices have been found more volatile than expected dividends. Similarly publicly available information is useful for identifying over or under priced securities. Nepalese investors are not really indifferent towards making or non-making information public. The respondents slightly accepted the weak form of efficient market hypothesis. The study also found that the share holders in high tax brackets did not prefer retain earning instead of dividends.

Ghimire (2005) in his study on *"Stock Price Behavior in Nepal"* concluded that the information concerning the market and the implications involved are not disseminated efficiently and quickly to all potential investors. As a result, chartists and superior fundamental analysts should be able to make greater gains than those of the market. He also added that the implication of the non-random behavior of share prices is that the Nepalese stock market may not be termed as "weekly efficient" in pricing of shares where market efficiency is defined as all historical information is reflected in security prices.

Gautam (2005) in her research on *"A Study on the Behavior of Stock Prices"* concluded that NEPSE is not providing facilities for investors such as general awareness about investment, investment procedure for general public and movement of stock trend in different periods and their cause. Market makers, brokers, and NEPSE staffs are making coalition for fraudulent activities towards investors. She also concluded that signaling factors play major role for fluctuating NEPSE index.

Lamichhane (2005) on his study on *"Technical Analysis of Common Stock Listed Companies in Nepal"* analyzing through technical tools like line chart, bar chart, Dow Theory, moving average concluded that the Nepalese stock market is in

growing trend, market is totally dominated by banking sector and the NEPSE index pushed by the increase in the price of banks shares. He also claimed that the Nepali stock market is primarily guided by whims and not by new information that is a sign of market inefficiency.

Bhattarai (2006) in her study on *"Stock Price Behavior of Financial Institutions and Commercial Banks"* concluded that there is not a single financial indicator that has dominated role to determine MPS & EPS. The degree of interrelationship of MPS&EPS with different financial indicators varies from one company to another. There is uniformity in the relationship between MPS & EPS of various financial indicators of the sampled companies.

Shrestha (2006) in his study on *"Share Price Behavior of Commercial Banks Listed in NEPSE"* concluded that 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 the shares. Nepalese stock market may not be defined as weakly efficient in pricing the shares where market efficiency is defined as all past information is reflected in share prices. Also Mr. Shrestha concluded that the share price movements are caused by flow of several kinds of information in the market.

Mainalee (2006) on his study on *"Technical Analysis of Common Stock of Joint Venture Bank"* concluded that investors in the stock exchange are not well aware about their investment decision. He also concluded that in all cases it is not possible to forecast the future price movements through technical analysis.

Karki (2008) on his study of *"Trend Analysis of Share Price in NEPSE's"* concluded that most of the theories and assumptions of technical analysis matches with the Nepal's stock market. Although mostly fundamental factors influence the

share price in NEPSE but one cannot also ignore the past price and traded volume of the company. Investors were found that they were eager to learn and apply the technical tools. He also concluded on his study that three oscillators (i.e. MACD, ROC and RSI) are very helpful tools of technical analysis, which help in depicting the future market.

2.3 Research Gap

Many researchers have studies stock market behavior of Nepal through fundamental and efficient market theory, but only few researchers have studied about technical analysis, tools in stock market. Thus, the current study is a supplement to overcome the different of past works and fill up the research gap, the investigator claims that following points will be justifiable to the study conducted on Application of Technical Analysis Tools in Nepalese Stock Market.

Some researchers have concluded that most of the share prices of companies are overpriced. Despite of overpriced, none of them are arriving at their intrinsic price. This concludes that the fundamental analysis seems to be failure in Nepalese stock market. Thus, analyzing security technically became most essential.

Technically analysis is easier to apply to more stocks than fundamental analysis. In Nepalese stock market, most of the investors are investing based on rumors. But, they can analyze the stock using technical tools. None of previous studies shows considerable potentiality of technical analysis tools in Nepal's stock market. None of the previous studies tried to test the efficiency of Nepal's stock market related to issues related to NEPSE through qualitative test.

CHAPTER – III

RESEARCH METHODOLOGY

Research methodology describes the methods and process applied in the entire aspect of the study .In other words research methodology is a systematize way to solve the research problem. Research methodology refers to the various sequential steps (along with a rational, of each step) to be adopted by a researcher in studying a problem with certain object in view (Kothari, 1994). A focus is given to research design, sample selection and size, data collection procedure, data processing, definition of variables, meaning and definition of statistical tools used. This chapter highlights the research methodology used for the study. In order to draw inference on security analysis especially through the technical analysis approach in Nepal Stock Exchange, the different measures have been adopted while collecting and interpreting the relevant data, facts and figures.

3.1 Research Design

A research design is a plan, structure, and strategy to obtain the objectives of the study. The research is based on the secondary as well as primary data and information. Hence, the explanatory or descriptive as well as analytical research design has been used. As the title of the study connotes the analysis of common stock, it is carried on to get the empirical results of stock price movements. Therefore, while conducting this study, descriptive as well as analytical approach is followed. The variables related with the performance of the company, market information and relevant subjects are included in the study. Descriptive approach is utilized for conceptualization, problem identification conclusion and recommendation of the research. On the other hand, analytical approach is adopted for the parametric and non- parametric test of the data.

3.2 Population and Sample

There are altogether 182 listed companies from 9 different sectors at the end of the fiscal year 2009/2010. Commercial banks, development banks, finance companies, manufacturing and processing companies, hotels, trading, insurances, hydropower, others. The research period is undertaken in this study is of 280 days daily sub index data. The share transaction of commercial banks usually controls over 70% of the total transaction at NEPSE, any fluctuation in its price easily reflects the behavior of market.

Greater samples are closer to actual result so in order to reflect real pictures from the analysis this study tries to take more than 50 percent samples from population. Thus out of population these 5 major sectors are selected as sample of the study.

- Banking
- Development banking
- Finance companies
- Insurance companies
- Others

3.3 Data Collection

In Nepalese context, due to the lack of information and poor knowledge, potential investor is manipulated or exploited by the brokers, financial institution, company and other market intermediaries. Actually the research study, technical analysis related with share price movements. All the information related to the stock prices are taken from NEPSE. Thus, in order to make the study more reliable coherent and convenience both primary and secondary sources have been applied here while collecting data, facts and statistics. So brokers, investors, experts are taken as a population and from the population brokers, experts and investors as well as the official of the companies are taken as sample.

Source and Collection of Data

- Primary source of data
- Secondary source of data

Primary and Secondary Source of Data

The major sources of secondary data are trading reports, official records and other relevant publications of Nepal Stock Exchange and Security Board of Nepal and web site of this organization. The main sources of primary data are questionnaire and interview and discussion. Interviews are making with a number of potential investors whose shares investment available in different companies to obtain their opinion and views regarding the present and future situation of stock market. Other related different statistical and financial tools are used.

3.4 Data Analysis Tools

To analyze the collected data many statistical and non- statistical tools can be used. Among the different tools in the field of technical analysis, some of the commonly used tools chart diagrams, high & lows, confidence index, Breath of market, trading volume, and moving average are used. Since all of these tools are not very relevant to the Nepalese context due to lack of sophisticated computer software packages and complexity of applications. So the study focused only simple type tools moving average and bar diagrams are used for the presenting and analyzing data.

Moving Average Analysis

Moving Average is one of the most popular and easy to use tools available to the technical analyst. They smooth a data series and make it easier to spot trends, something that is especially helpful in volatile markets. They also form the buildings blocks for many other technical indicators and overlays. There are

mainly two most popular types moving averages: Simple Moving Average (SMA) and the Exponential Moving Average (EMA). This study is heavily dependent upon moving average.

Bar- diagrams

Diagrams are visual aids which give a bird's eye view of a set of numerical data which show the information in a way that enables us to make comparison between two or more than two sets of data. Diagrams are in different types. Out of these various types of diagram one of the most important forms of diagrammatic presentation of data is simple bar diagram which is used in cases where single characteristics of the set of data have to be presented and compared.

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

This chapter deals with presentation, analysis, and expression of data as per the research design to fulfill the objective of study. This section is fully devoted to analysis and interpretation of primary and secondary data. Among various technical tools, moving average is used to analyze and interpretation of data. Here moving average were selected to interpret the market trends. All the calculated values presented in the annex (including detailed calculation of Sample) are calculated using excel sheet. So the calculated values of all the sample companies are analyzed and interpreted below.

4.1 Analysis of Primary Data

Annex-I reveals important information as to outlook of primary data collection. In order to represent real situation of Nepal's share market in research individuals and organization that are directly or indirectly related with the Nepal's share market were included for data collection. Based on data the following results being presented reported.

Questionnaire Analysis

In order to meet the objectives of the study various questions were developed and distributed to the various individual and organization that are directly or indirectly related with the Nepal's share market. Out of distributed total 100 questions, only 70 questions were collected during the study period. Questionnaires were divided into four sections. Responses which were given by Respondents have been presented and analyzed section wise as follows.

- General Information
- Technical Analysis

- Efficient Market Theory
- Other Information

4.1.1 Presentation and Analysis of Background of Respondents

In this section researcher tried to know the general information of respondents relating with the Nepal's share market.

4.1.1.1 Respondents Relation with the Nepal's Share Market

Out of total respondents most of them are investors i.e. 50% of total respondents. Similarly 5.71% were share brokers, 21.43% were independent share analysts, 8.57% were members or NRB and regulating body, 11.43% were financial reporter and remaining of 2.86% were others.

Table 4.1

Respondents Relation with the Nepal's Share Market

Research variables	No. of Respondents	% of Respondents
General Investors	35	50
Share Brokers	4	5.71
Independent Share Analysis	15	21.43
Members of NRB Regulating body	6	8.57
Financial Reporter	8	11.43
Others	2	2.86
No Response	0	0
Total	**70**	**100**

Source: Field Survey

4.1.1.2 Time Period Respondents in Relation with the Nepal's stock Market

Most of the respondents were involving in share market from one to five years and more than 5years, which holds 41.43% of total respondents. Only little portion of respondents were involving from less than one year period.

Table 4.2

Time Period Respondents in Relation with the Nepal's Stock Market

Research variables	No. of Respondents	% of Respondents
Less than One Year	12	17.14
One to Five year	29	41.43
More than Five Year	29	41.43
No Response	0	0
Total	**70**	**100**

Source: Field Survey

4.1.2. Presentation and Analysis of State and Potentiality of Technical Analysis

In this section researcher tried to know the state and potentiality of technical analysis in Nepal's share market. For this based on theory and assumptions of technical analysis various questions were developed and asked to the respondents.

4.1.2.1 Opinion towards status of Technical Analysis in Nepal's Stock Market

In order to know whether the technical analysis matches of not with the Nepal's share market various sub questions related to the technical analysis were developed and were asked to the respondents, which are presented below.

Respondents were asked whether the trend of share price can be predicted or not in NEPSE by studying the historical price and volume data with the help of charts. Most of them were agreed i.e. 54.29% of respondents agreed but 34.29% of them were disagreed with this statement.

Majority of the respondents believe that in NEPSE all the possible information that might influence the share price will automatically reflect tn the share price but some of them did not agreed with statement. Similarly, majority of the respondents i.e. 48% did not agree with the statement that share market moves in trend. They

mean that movement of share price in NEPSE is in random not orderly. But 35% respondents replied that this is true in NEPSE.

When asked, they believe in repeats if history in NEPSE. Out of total respondents 50% of respondents believed in this one of the assumption of technical analysis, 28.57% of respondents answered that they don't believe that assumption of technical analysis be true in NEPSE.

In the same way, out of total respondents equal numbers i.e. 48.57% agreed in favor and against towards the belief of technical analysis relating with NEPSE i.e. share price is determined by its supply and demand despite of fundamental factors. But remaining 2.86% of respondents remained response less.

Table 4.3

Status of Technical Analysis in Nepal's Stock Market

Research Variable / Theory of TA	Yes		No		Don't now		No. Resp.		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Predication of Trend	38	54.29	24	34.29	5	7.14	3	4.28	70	100
Reflection of all information in share price	40	56.71	23	34	4	5	3	4.29	70	100
Market Moves in Trend	25	35	34	48	8	12	3	5	70	100
Repetition of History	35	50	20	28.57	9	12.86	6	8.57	70	100
Supply and Demand Determines Share Price	34	48.57	34	48.57	0	0	2	2.86	70	100

Source: Field Survey

4.1.2.2 Factors Influences Share Price in NEPSE

Other question, respondents were asked basic factors that influence share price in NEPSE. 42% of respondents replied fundamental factors influence share price in NEPSE. In this regard most if the respondents specified their right share and bonus share mostly influence the share price and also these factors takes in consideration for analyzing share price. 17.14% of respondents replied past price and traded volume, and 10% respondents believed share brokers advice influence the share price. Similarly 11.43% of respondents agreed share market related news that comes in media influences the share price, 11.43% of respondents claimed signaling factors (rumors) influences the share price in NEPSE. But 4.29% of respondents claim beside above other factors mostly influences the share price in NEPSE and 2.86% of respondents remained response less.

Table 4.4

Factors Influences Share Price in NEPSE

Research variables	**No. of Respondents**	**% of Respondents**
Earning, Dividend and Future prospects	30	42.85
Past Price and Traded Volume	12	17.14
Shares Brokers Advice	7	10
Media	8	11.43
Signaling Factors(rumors)	8	11.43
Other Factors	3	4.29
No Response	2	2.86
Total	**70**	**100**

Source: Field Survey

4.1.2.3 Respondents Action at Various Market Movements/Trends

In order to know the respondents action at different trends of NEPSE, researcher asked them on three different trends of market. 17.71% of the total respondents replied they buy the shares, 55.71% of the respondents replied they sell the shares,

4.29% of the respondents remain transaction less when the market is increasing in trend.

60% of respondents replied they buy the shares, 15.71% of the respondents replied they sell the shares when the market is decreasing in trend. 14.29% respondents replied they buy the shares, 10% of the respondents resell the shares, and 44.28% of the respondents remain transaction less when the market is steady.

Table 4.5

Action at Various Market Movements/Trends

Research Variable / Market Trends	Buy		Sell		Wait		No Response		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
When the market is in increasing trend	12	17.14	39	55.71	3	4.29	16	22.86	70	100
When the market is in decreasing trend	42	60	11	15.71	0	0	17	24.29	70	100
When the Market is Steady	10	14.29	7	10	31	44.28	22	31.43	70	100

Source: Field Survey

4.1.2.4 Respondents applying Technical Analysis

Only about 15.71% of the respondents always apply technical analysis to analyze the share price movement in NEPSE, 22.86% of them said they apply sometime, 57.14% of them said they never apply technical analysis and remaining 4.29% respondents remained response less.

Table 4.6

Respondents Applying Technical Analysis

Research variables	No. of Respondents	% of Respondents
Applying Always	11	15.71
Applying Sometime	16	22.86
Never Applying	40	57.14
No. Response	3	4.29
Total	**70**	**100**

Source: Field Survey

4.1.2.4.1 Reasons for Not Applying Technical Analysis

When asked reason for not applying technical analysis, 10% of them answered they based their analysis only on fundamental facts but 75% of them replied due to lack of knowledge of technical analysis only on fundamental facts but 75% of them replied due to lack of knowledge of technical analysis.

Table 4.7

Reasons for Not Applying Technical Analysis

Research Variables	No. of Respondents	% of Respondents
Based Only on Fundamental Facts	10	25
No Knowledge of Technical Analysis	30	75
Others	0	0
No Response	0	0
Total	**40**	**100**

Source: Field Survey

4.1.2.5 Reliability of Technical Analysis in Nepal's Stock Market

In order to know the potentiality of the technical analysis, respondents were asked about the reliability of it in Nepal's share market. 11.43% of them think it is highly reliable, 42.86% of them think its reliability can be moderate, 28.57% of

them replied less reliability of technical analysis in Nepal, 12.85% of them answered they have no idea on it and remaining 4.29% of them remained response less.

Table 4.8

Reliability of Technical Analysis in Nepal's Stock Market

Research variables	No. of Respondents	% of Respondents
Highly Reliable	8	11.43
Moderate Reliable	30	42.86
Less Reliable	20	28.57
No Idea	9	12.85
Response Less	3	4.29
Total	**70**	**100**

Source: Field Survey

4.1.2.6 Respondents faith upon their Analyzing Technique

To know whether respondents were satisfied with the method they are using to analyze the share price of companies. 40% of them answered they are satisfied , 51.43% of them answered they are not satisfied with the method they are using and rest 8.57% of respondent remained response less.

Table 4.9

Respondents faith upon their analyzing Technique

Research variables	No. of Respondents	% of Respondents
Satisfied 'YES'	28	40
Not Satisfied 'No'	36	51.43
Response Less	6	8.57
Total	**70**	**100**

Source: Field Survey

4.1.3 Presentation and Analysis of Market Efficiency

Technical analysis and efficient market hypothesis are the interrelated subjects of stock market. This study is totally focused on the technical analysis .in order to make the study complete, researcher tried to make the study on efficiency of Nepal's share market. So, in this section researcher tried to test the efficiency of NEPSE through qualitative test. For this various questions related to theory and assumptions of EMH relating to NEPSE were prepared and asked to the respondents. Real picture of research results are presented below.

4.1.3.1 Respondents Opinion Regarding Efficiency of Nepal's Stock Market

Respondents were asked whether the NEPSE is efficient market or not. Most of them answered that the Nepal's only one secondary market is not efficient. About 65.72% respondents answered that NEPSE is inefficient market. Only thin portion of them i.e. 21.43% answered that NEPSE is efficient market. Out of total 70 respondents 7.14% answered they have no idea about it and remaining 5.71% of them remained response less.

Table 4.10

Respondents Opinion Regarding Efficiency of Nepal's Stock Market

Research variables	No. of Respondents	% of Respondents
Efficient Market 'Yes'	15	21.43
Inefficient Market 'No'	46	65.72
No Idea	5	7.14
No Response	4	5.71
Total	**70**	**100**

Source: Field Survey

4.1.3.2 Respondents Beliefs towards Share Price Movement in NEPSE

In another question, 30% of respondents beliefs that share price in NEPSE make an independent movement but 50% of respondents don't believe in it. They think that share price in NEPSE is dependent to previous price. Similarly 17.14% of the

respondents expressed that they have no idea about it and rest 2.86% respondents didn't gave answer.

Table 4.11

Respondents Beliefs towards Share Price Movement in NEPSE

Research Variables	No. of Respondents	% of Respondents
Independent Movement 'YES'	21	30
Dependent Movement 'NO'	35	50
No Idea 'DON'T KNOW'	12	17.4
No Response	2	2.86
Total	**70**	**100**

Source: Field Survey

4.2 Secondary Data Analysis

Moving Average Analysis

Moving Average is one of the most popular and easy to use tools available to the technical analyst. They smooth a data series and make it easier to spot trends, something that is especially helpful in volatile markets. They also form the buildings blocks for many other technical indicators and overlays. There are mainly two most popular types moving averages: Simple Moving Average (SMA) and the Exponential Moving Average (EMA). This part of the study is heavily dependent upon moving average.

Moving Average is simply the rolling average of past prices. To calculate the moving averages daily or weekly prices are taken for a period and every time on average is calculated by dropping the oldest and traders should first and a new value is added. This average is plotted on a graph along with the prices of the shares on the basis of which such an average is calculated. A study of the movement of these prices and the average helps in generating buying and selling signals. A short-term moving average is used to predict near future movement whereas a long term moving average is used to take the decision about the longer

time period. With the help of moving average the following signals can be generated (Khatri, 2006: 162).

Buying Signals

Whenever price line is above the moving average lines it moves towards the average line but fails to penetrate it, instead starts rising upward supported by an upward movement of the average line, it is a buy signal. When price line is below the moving average line and it penetrates towards the upside and continues to move upward, supported by an upward movement of the average line, it is a buy signal. When price line is above the moving average line and is moving upward continuously, supported by similar movement of the average line, it is also a buy signal.

Selling Signals

When price line is below the moving average line, it moves towards the average line but fails to penetrate it, instead, starts declining, supported by a downward movement of the average line, it is a sell signal. When price line is above the moving average line, and it penetrates towards the Downside and continues to move downward, supported by a downward movement of the average line, it is a sell signal. When price line is below the moving average line and moving downward continuously, supported by similar movement of the average line, it is also a sell signal. Moving average smoothes out a data series and makes it easier to identify the direction of the trend. Because past price data is used to form moving averages, they are considered lagging, or trend following, indicators. Moving averages will not predict a change in trend, but rather follow behind the current trend. Therefore, they are best suited for trend identification and trend following purposes, not for prediction (Hurst, 1972:65-67).

Market Index

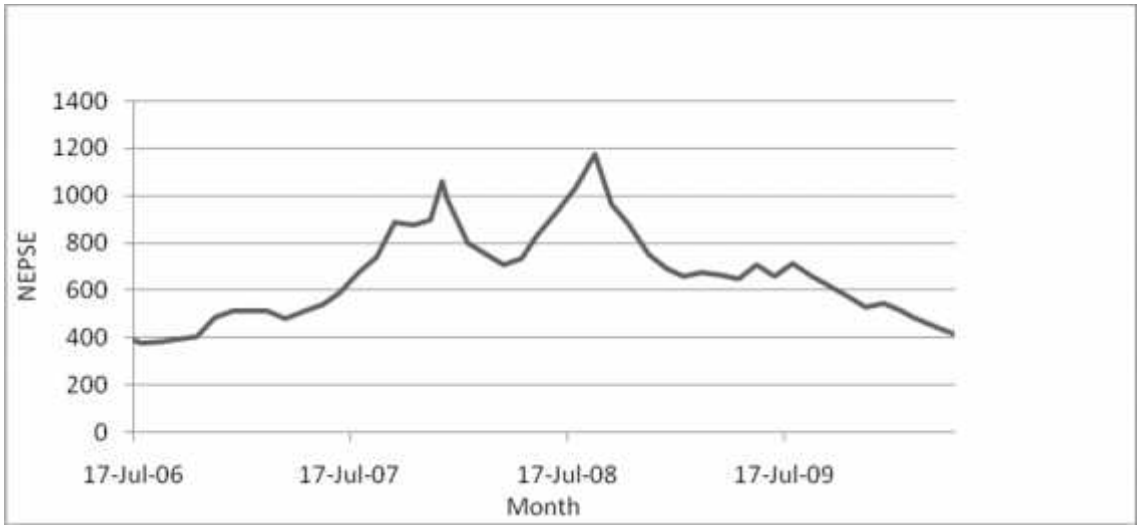
The market index has always been of great importance in the world of security analysis and portfolio management. Both institutional investors and individuals use the market index as a yardstick against which they evaluate the performance of their own or institutional portfolio. The market indexes are used to determine the relationship between historical price movement and economic variables and also to determine the systematic risk for individual securities and portfolios. Stock market indexes are used to study the trend of growth pattern in the economy, to analyze as well as to forecast business cycles and to correlate stock market indexes to economic activities. The technical analysis usually uses current market price movements to predict future movements in the stock market. Index is also a device designed to measure the change in a group of related variables over a period of time. In this study, NEPSE Index, Banking and Finance Index, NEPSE SENSEX, market capitalization, number of listed and transacted companies and volume of stock traded is analyzed. By observing the NEPSE index trend, one can conclude its nature in different aspects, e.g. trend of price in different period. It also analyzes the investment attitudes of investors in the stock exchange, effect of signaling factor on NEPSE index.

NEPSE Index

Overall movement of NEPSE Index is also an important tool for technical analysis whether investment is secured or not? Fluctuation with upward slop index represents less risky investment for long position holder where as it is unfavorable for short position holder and vice versa. From the following figure NEPSE Index of approx three years (ie. 17th July 2006 to 31st March 2010) explains favorable and unfavorable condition for Investors.

Figure 4.1

NEPSE Index



Source: www.nepalstock.com (Annex-II)

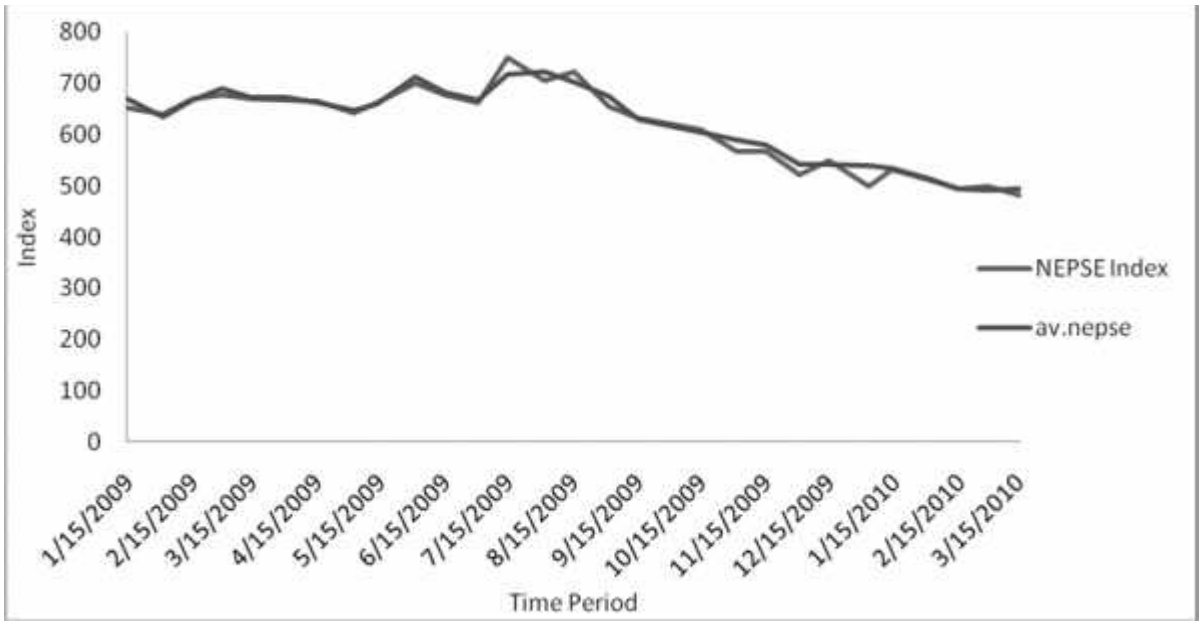
Figure 4.1 shows the direction of Overall NEPSE index for three years (which is more than the research period) indicated by dark line. Above figure represents there is no steady in price of stocks in the market. Line is upward sloped up to 17 Dec 2007 this is beneficial for long position holder after that line starts to go down and ends at 709.40 (March 31. 2008) this is favorable for short position holder still it is upwards sloped from the beginning and so on. An Index move ups and dips very much. At the end of the research period it moves near to the horizontal from the beginning, there is not any remarkable slops either upwards or downwards. It is beneficial for neither long position nor short position holder. From the above figure it can be said that Investing on security of Nepal is very risky for any investors in long run. It may be quite beneficial for speculative purpose or in short run.

Moving Average Index

The following moving average charts have been drawn from Annex-III in this chart, moving average market index along with NEPSE index is plotted. It is very simple technical tools where market indexes and weekly moving averages are plotted on a vertical axis and time intervals (i.e.30 days) are recorded on the horizontal.

Figure 4.2

Weekly Moving Average Index



Source: www.nepalstock.com (Annex III)

Figure 4.2 shows weekly moving average of NEPSE index indicated by bold dark line and monthly value of market index is represented by thin line. From the relationship between the actual values and moving average values of market index the information regarding the market condition is obtained.

Since 15 January 2009 NEPSE index has fallen nearly about the weekly moving average index and the average line is also declining, this is a signal of downward market movement. Thus, it is appropriate for investors to sell the shares at the

beginning. The investors, who sell the shares at the beginning of the month, should earn better profit.

Flattened out and the market index has dropped downward through the moving average line above figure gives many opportunity of buy and sell decision. So, far as the prediction of market index at the 15th of July 2010 is concerned it may rise because of the upward trend of moving average from beginning of July. From the viewpoint of technicians, the trend may constant and the market increase for few weeks. But the market falls drastically which indicates bearish trend.

4.2.1 Charts Analysis

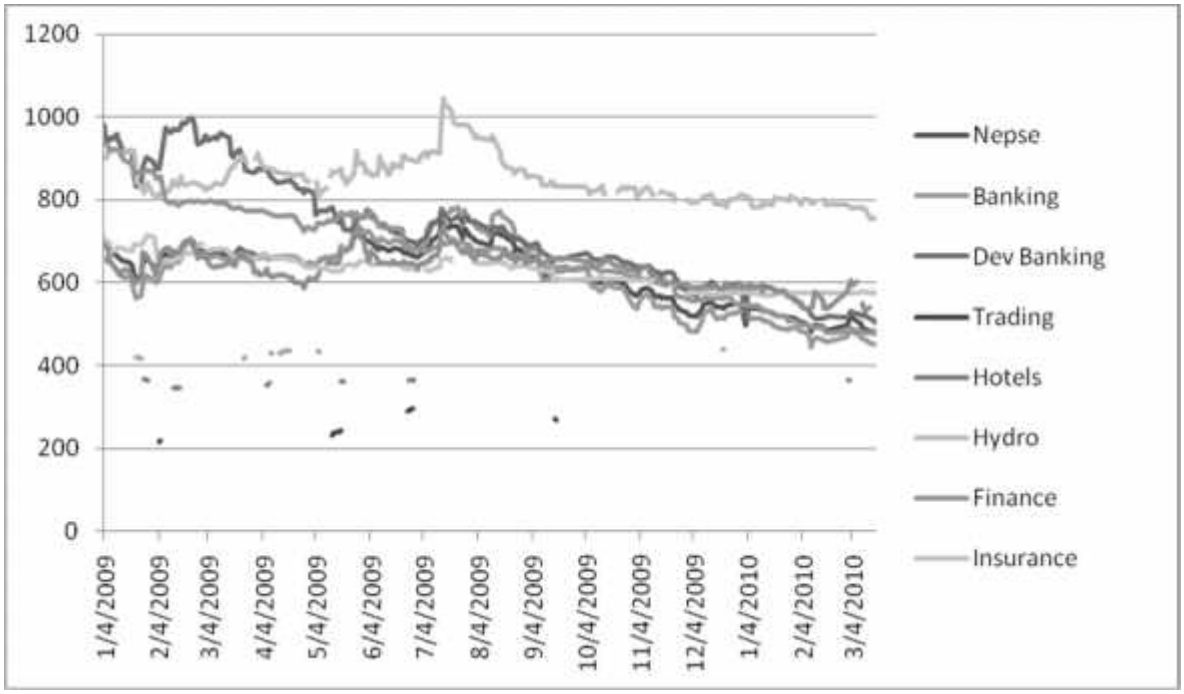
However, some investors do not see much difference between charting techniques and palmistry, on the other hand, many of others sear by charts. Normally, technical analysis uses three basic types of charts – point – and – figure charts, line charts and bar charts. Due to unavailability of sophisticated computer programs, the use of point and figure charts are not included in the study only line charts and bar diagrams are applied here.

The line charts are easy to understand on which horizontal axis shows the time and vertical axis shows the price of the share. Similarly, for a bar diagram the horizontal axis will be a time line with the vertical axis measuring a particular stock's price. Bar diagrams are made up of a series of vertical bars representing each time interval’s movement.

4.2.1.1 Line chart Analysis of All Sub Index with NEPSE

Figure 4.3

Analysis of All Sub Index with NEPSE



Source: www.nepalstock.com(Annex IV)

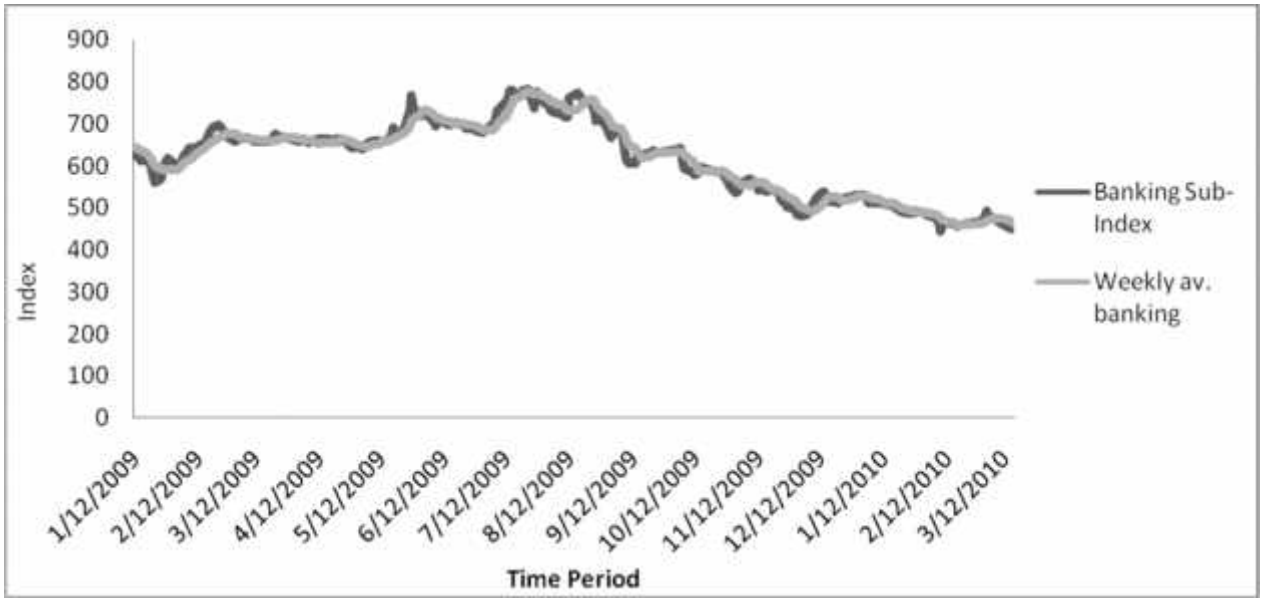
The above figure explains that comparatively hydropower index is above and consistent with the NEPSE index. Development banking and finance index are in decreasing trend and more volatile. Banking insurance and others index are consistently following the NEPSE index. On other hand, hotels, trading and manufacturing sub indexes are in zigzag form and below the NEPSE index. The above and consistent figure with the NEPSE index explains less risky investment. The decreasing and volatile figure explains risky investments; however it might be profitable for speculative purpose. Consistent figure with NEPSE index explains the strong impact on NEPSE index and rational investment. Lastly, below and zigzag figure explains high risky and irrational investment decision.

4.1.2.2 Line chart Analysis for Market Index of 5 Major Sub Index of NEPSE

Figure 4.4

Weekly Moving Averages and Commercial Bank Index

During Research Period



Source: www.nepalstock.com(Annex III)

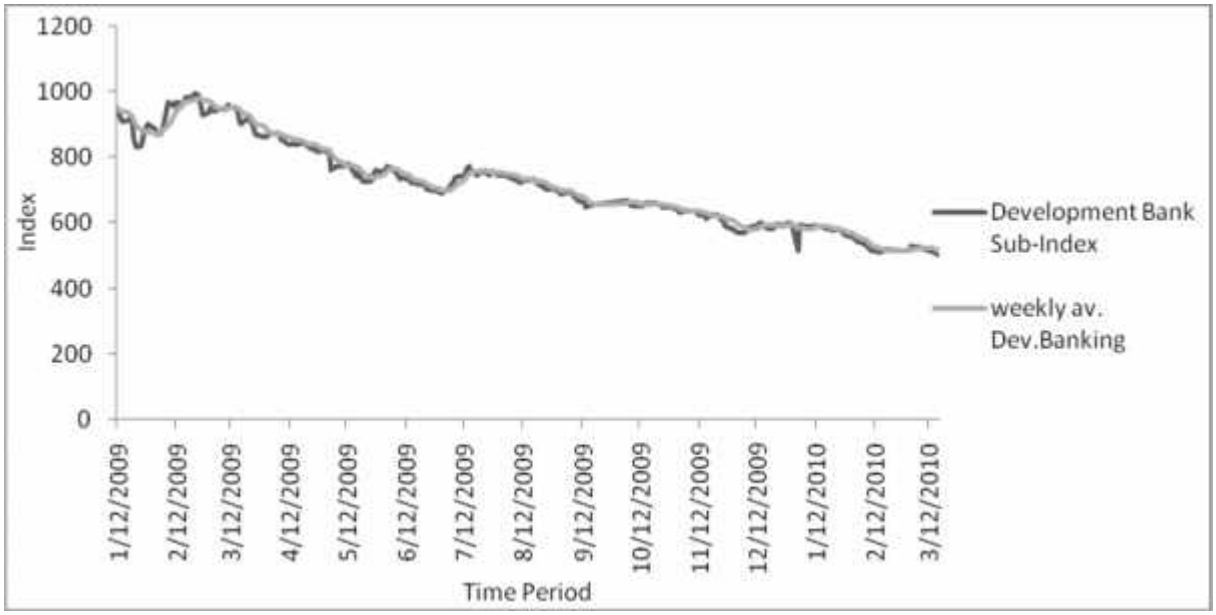
Figure 4.4 represents the weekly average commercial bank sub index with NEPSE Market Index. The figure shows that NEPSE Index fall down from the beginning of the research period and rise from February 15 2009 during the research period (January 2009 to march 2010), while commercial bank index decline from 644.70 to 459.92 after many up and down of index. The figure shows downward curve of NEPSE Index up to 280 days research period.

The NEPSE Index reach at highest point in 15 July 2009(i.e.750) and commercial bank index reached at highest point in 9 February 2010(I.e.760.09). During the research period Commercial bank index turn drastically decrease and decreasing

trend is continuing except of few increase although overall index is continuously decreases, but the NEPSE index is also decreasing trend and the lowest point (i.e.458.18) at the beginning of February 2010. The trend of commercial bank index shows that decreasing condition the market falls drastically which indicates bearish trend; it implies that the investment in commercial banks share is not in good condition.

Figure 4.5

Weekly Moving Averages and Development Bank Index During Research Period



Source: www.nepalstock.com (Annex-III)

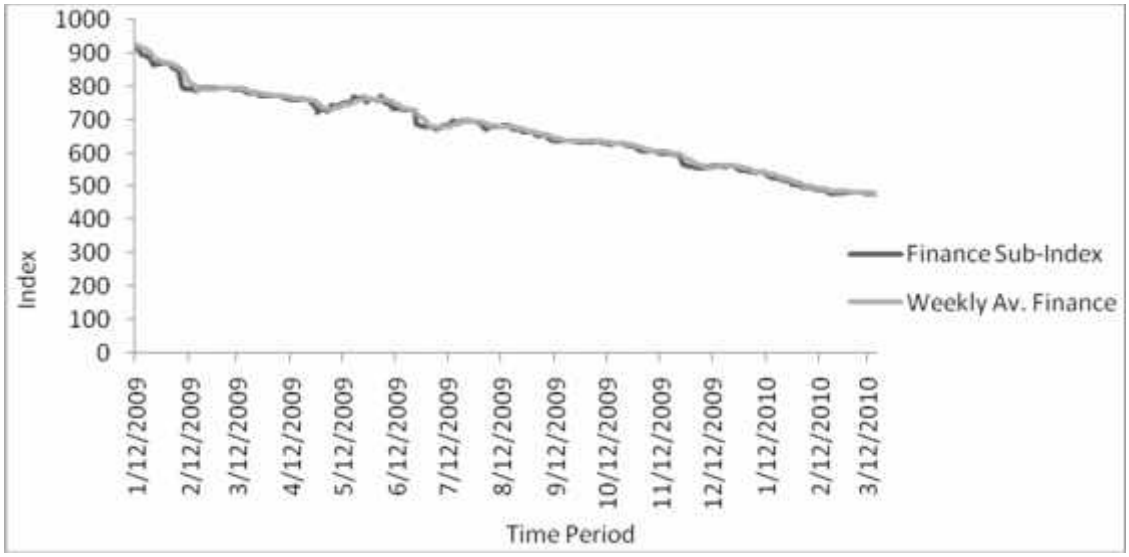
The figure 4.5 exhibits 280 days data of Development Bank Index along with NEPSE Index for respective days. The figure shows that the development bank index as well market index both are in up and down trend although overall trend is decreasing in the beginning days and this trend has stayed long time except some uptrend fluctuations in few days. NEPSE index and Development both decrease rapidly in the beginning. It indicates sell signal but from 1st February 2009 both

index increases quietly for some days. After 1st march 2009 development index as well as NEPSE index is in decreasing order during research period.

Because of many reason developments bank index is in decreasing trend in above figure it has shown in plot area. In aggregate, it is most of the time lower and some time higher. At that time market index has also more fluctuation, in 1st July 2009 market index has suddenly increase after than it has gone to decreasing trend. The market index has decrease overall market has few increase and other has decreased scenario of development bank index so that after 15 may 2009 continuously decrease trend. That may be due to effect of political inconstancy, unhealthy industrial relation and other extra factor so; by evaluating market index and development bank index the performance is not so excellent.

Figure 4.6

Weekly Moving Averages and Finance Companies Index During Research Period



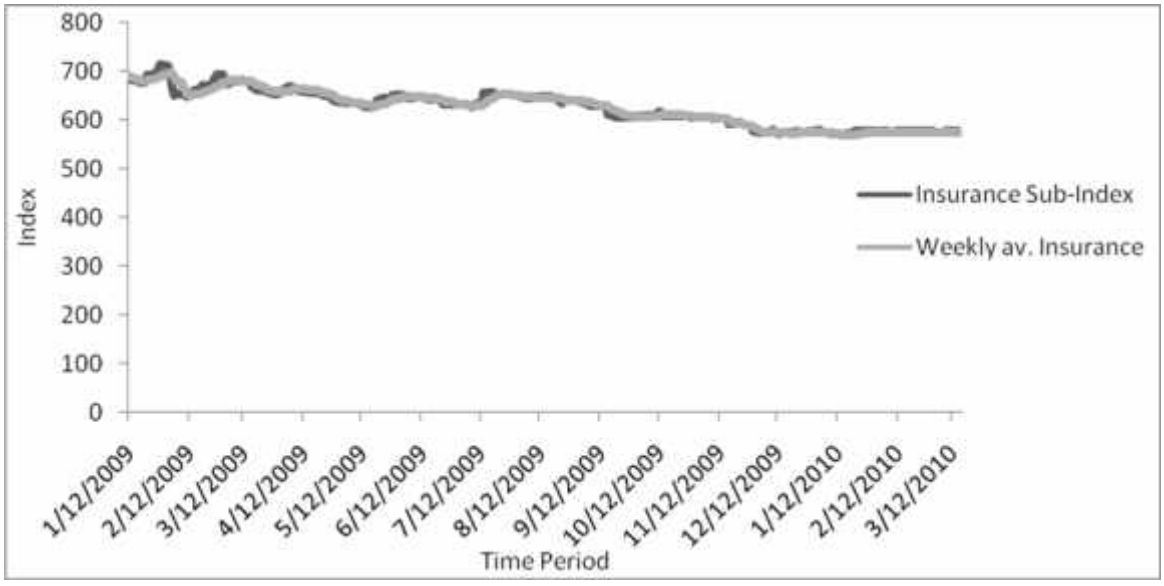
Source: www.nepalstock.com(Annex III)

Figure 4.6 shows 280 days index of finance companies Along with NEPSE Index for respective days. The figure shows that index of finance companies is higher than average NEPSE Index. But NEPSE index increases from first February 2009 while Finance companies index was in decreasing trend. NEPSE Market Index has decreased trend but there have also more fluctuation. From July 2009 finance companies index is similarly to NEPSE Index although the finance companies index is higher than NEPSE Index.

Some upward fluctuations have made in NEPSE Index but both have showed steeping downtrend and that is stay for research period. The peak point of NEPSE index has721.12 that august 2009 and the peak point of finance companies index has 918.70 that January 2009 , after reaching the peak point, both index has declined drastically (i.e. bearish market) throughout the research period.

Figure 4.7

Weekly Moving Averages and Insurance Companies Index During Research Period



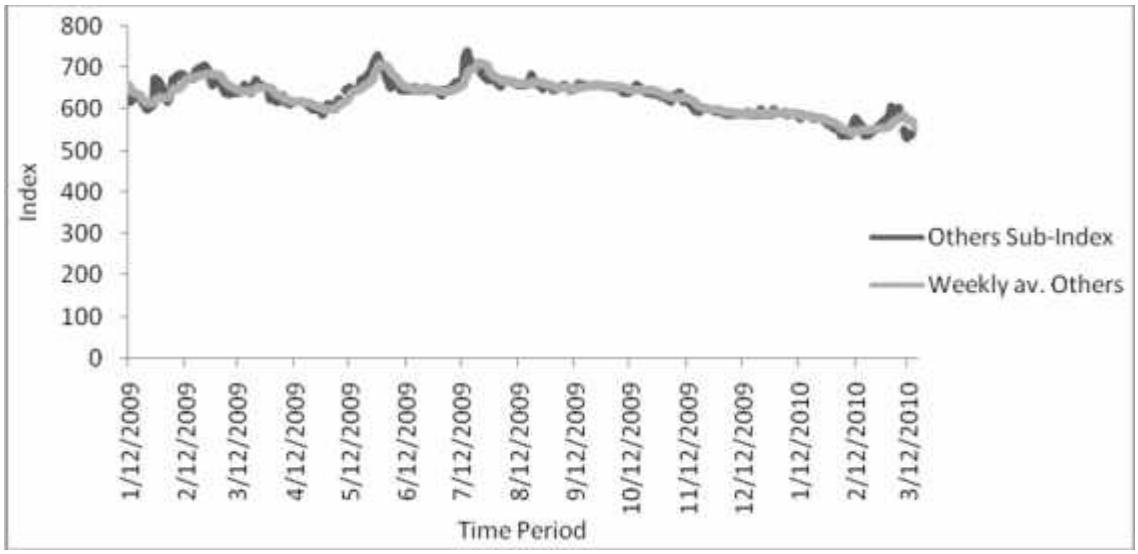
Source: www.nepalstock.com

Figure 4.7 illustrates the movements of average insurance companies' index and movements of NEPSE Index for the same period. From the figure it has been seen that the trend of the average insurance companies index at beginning days has increasing condition figure shows that after February 2009 the index started to decrease and it is continued until march 2010 at that period the index reached from 696.93to 593.53. In other hand the market index at that period is up and down movement. In the same time NEPSE Market Index reached from 652.94 to 493.83.

The index of insurance companies is decreasing trend in research period. At that period a few up and down has seen in NEPSE index although the trend is downwards at that period. So, comparing market index the performance of finance companies was not in good condition the different between beginning index and ending index of finance companies has very different during research period, it shows that the performance of stock market movements is not good condition although the insurance companies trend is up than market index trend in latest days of research period, that is little bit positive signal.

Figure 4.8

Weekly Moving Averages and Others Index During Research Period



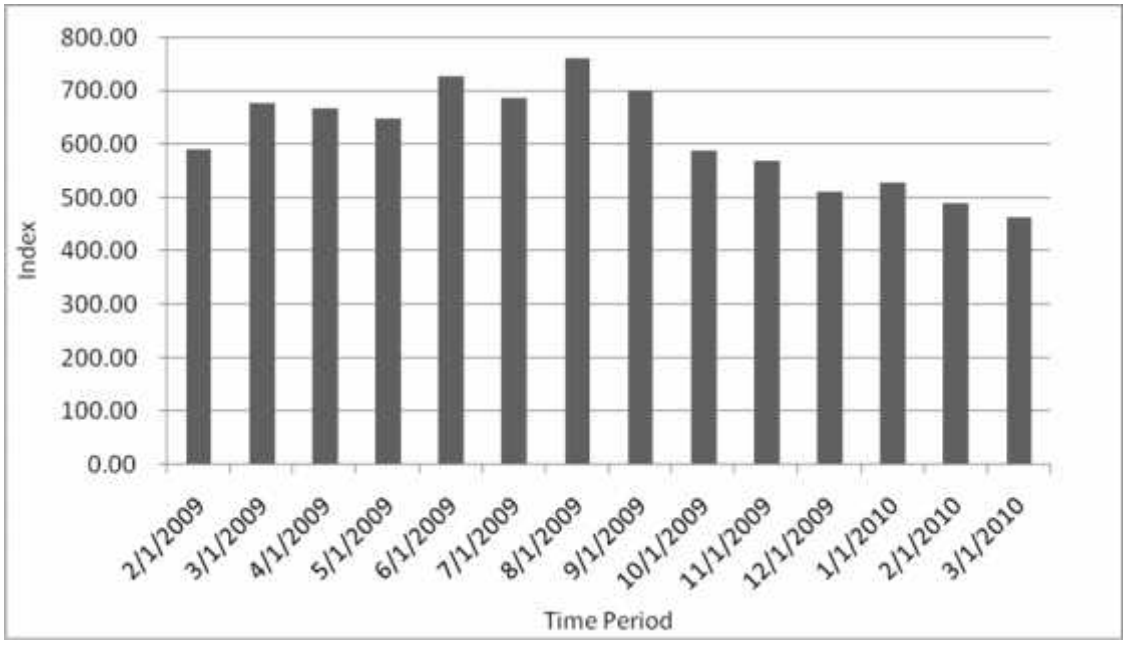
Source: www.nepalstock.com

The lines shown in the figure 4.8 is plotted based on data presented in Annex-III in which the daily index of others sector are presented. Through the index line shows the upward and down ward from beginning and the various parts of research period. During the period the other sub index has reached from 628.58 in January 2009 to 564.31 in March 2010. Many fluctuations were made in both indexes during the research period. The market Index has been decreasing trend in the beginning but from April 2009 the index has increased for few weeks then the index has in decreasing trend. During the research period others sub index turn in decreasing trend and continuing except of few increase although overall index is continuously decreases, the NEPSE index is also decreasing trend. The trend of others sub index shows that decreasing condition of share prices of others sectors and it implies that the investment in others sectors share is not in good condition.

4.1.2.3Bar Diagram Analysis for Major five sub Sectors Index Movements

Figure 4.9

Bar Diagram of Commercial Bank Index During Research Period

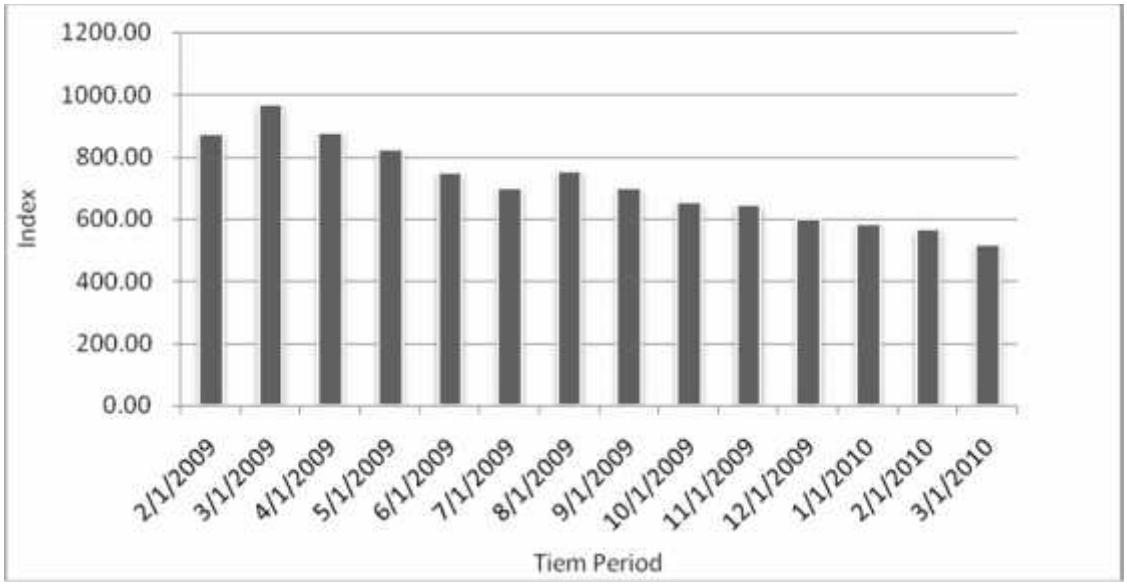


Source: www.nepalstock.com

Figure 4.9 presents a bar diagram of average commercial bank index for research period. The bar diagram is prepared based on data exhibited an Annex-III. It successive weekly average commercial bank index presented in monthly bar diagram, it shows that movements of Nepalese stock market begins with a increasing trend but there are many up and down movement. The figure shows that the highest of NEPSE index in research period is 760.14 in august 2009. A few months that are upward trend except that month's overall trend of index downward trends. In last month of research period the index is lowest. So, right time to invest in shares is at 2nd month when share price is in quietly increasing trend. Similarly, here right time to sell share is at august 2009. There are many fluctuations so a good investor must be conscious to invest. If we carefully study the bar diagram the trend of share price of commercial bank is decreasing condition. Highest index is at 7th month that is 760.14. Only short upward in price fluctuation overall the index is not increased in other words the trend is downward during the research period.

Figure 4.10

Bar diagram of Development Bank Index During Research Period

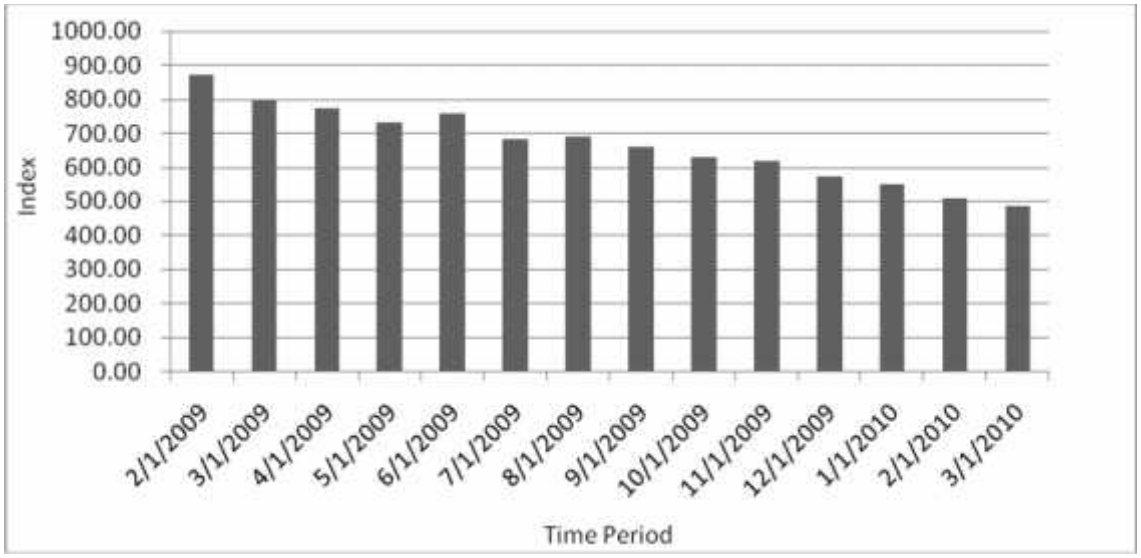


Source: www.nepalstock.com

The figure 4.10 shows the movements of Development Bank Index Presented in the bar diagram. The chart shows that the price of shares is up and down. The chart shows that the development bank index is on downward trend during research period. After 1st month it started to increased and attained peak at the end of 2nd month immediately decreases and that stay for four month and after that again change towards upwards in this way the rise and fall in the price of shares has continued throughout the research period.

The patters of rising and falling in the share price are due to the pressure of demand and supply. When the demand is high, the price of share rises and when supply is high the price of share declines. Here the right time to buy the share declines. Here the right time to buy the shares of Development Bank is at the first month and the right time to sell the shares is at 2nd and 3rd month. If investors do not sell their shares during this time they have to bear losses from their sales thereafter. The stock price of this sector is drastically decreasing trend due to the inconstant political environment and economic show down and unfavorable events or rumors, which erodes the confidence of investors.

Figure 4.11
Bar Diagram of Finance Companies During Research Period



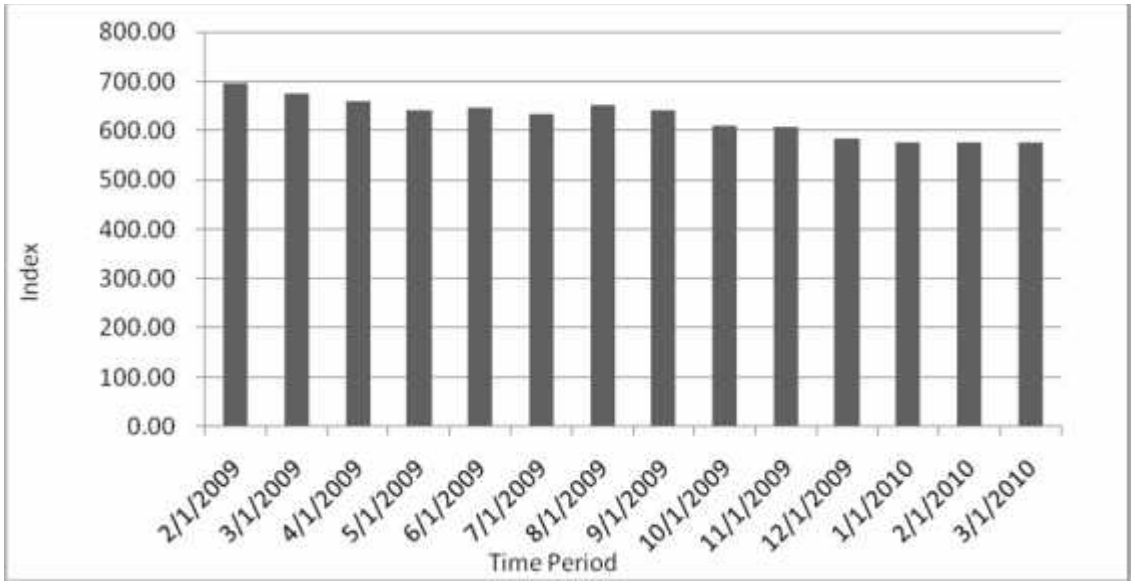
Source: www.nepalstock.com

Figure 4.11 presents a bar diagram of weekly moving average of finance sectors index presented in Monthly Movements. The price decrease due to various factors and that condition is stay long it changes some upwards movements and then except short ups and down fluctuation it goes to downwards. The chart shows that the index of finance sector is decreasing slowly from beginning period but upward trend from 5th month and down ward trend until research period. There are many fluctuation ups and down in during the period. The highest index of finance sector index is 870.87 at first month and lowest index is 486.11 at last month of the research period.

Here, demand and supply pressure to determine the stock price correctly. When demand high the price is also going to increase and when demand is low then price also lower than other month. The stock price of this sector is more fluctuation due to the economic show down and unfavorable events or rumors, which erodes the confidence of investors.

Figure 4.12

Bar diagram of Monthly Index Movement of Insurance Companies

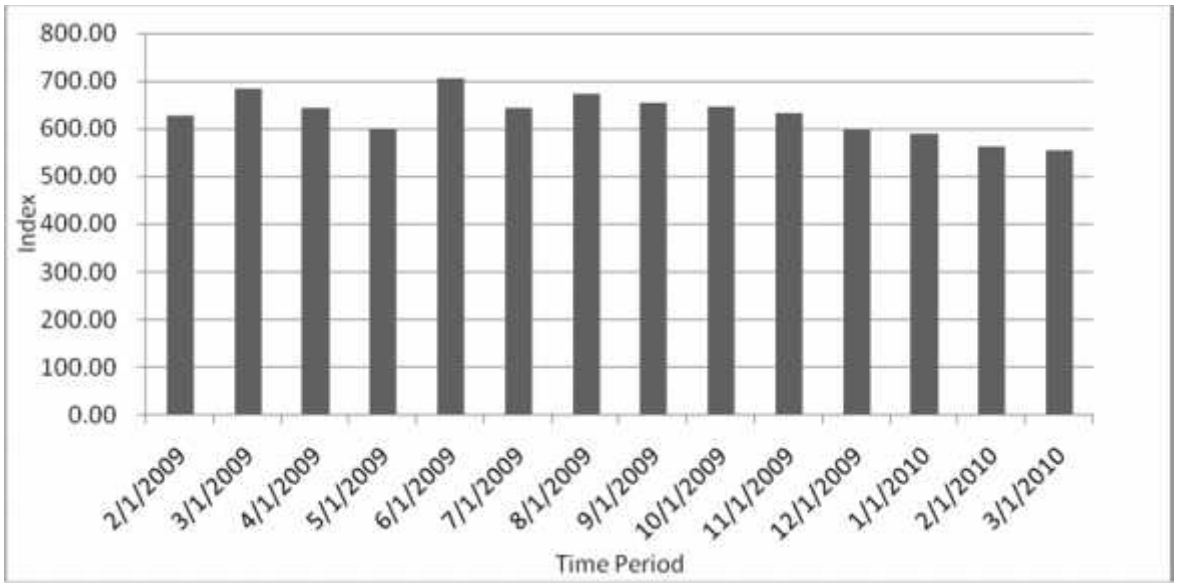


Source: www.nepalstock.com

Figure 4.12 shows the monthly Insurance companies index. The chart shows that the index is on downward trend up to 6th month. After 6th month the index has increased steeply which sustains no longer. After 8th month it started to decrease until the end of research period. The price decrease due to various factor but decreased condition is not stay long it again changes upwards and then except short ups and down fluctuation it goes to downwards. The chart show highest point of index in first month and then again never reached at that point during research period. For investment decision right time to buy the insurance companies share is at the 4th and 5th month and right time to sell is at 1st 2nd and 7th month.

Figure 4.13

Bar Diagram of Monthly Index Movement of Others Sector



Source: www.nepalstock.com

The monthly indexes movements of others sector of NEPSE are charted in figure 4.13. The figure provides the patterns, which is more or less same as pervious study. The trend is up wards starting from 1ST month and recently down in 2nd and 3rd month then again upward in this way more up and downward fluctuations

were made during research period. A few months that is upward trend except that month's overall trend of index is downward trends. In last month of research period the index is lowest. But comparing with others sub sectors it stays quietly consistent.

The highest point of index is at 5th month which is 705.60. The index of others sector has move more ups and down. So, the chart provides investors to decide more accurate decision about sell or purchase this sectors stock. When the index is comparatively lower at that time investor decide to purchase so investor decide to purchase this sectors shares at 1st and 4th month and sell the share at 2nd 6th and 8th month.

4.3 Major Findings of the Study

4.3.1 Major findings from Primary Data Analysis

Based on the response collected from the various respondents (most of them were investors and were in touch with Nepal's share market) following reality of Nepal's share market were reflected.

Most of the respondents replied that trend of share price can be predicted in NEPSE by studying the historical movement with the help of charts and also repletion of history imply in NEPSE. But majority of the respondents answered that all the price influencing factors don't reflect in the share price and also movement of share price in NEPSE in random.

Although majority of the respondents agreed that fundamental factors (earnings, dividends future prospect of the company and right and bonus shares)influence the share price in NEPSE (this means most of the respondents take fundamental factors for analyzing the price in NEPSE)but they also answered that past price and traded volume also influence the share price in NEPSE.

Majority of the respondents replied they don't apply technical analysis for analyzing the share price movement. Reason behind this is that they don't have the knowledge of technical analysis.

Most of the investors answered that they have moderate beliefs of technical analysis in Nepal's stock market and also most of them were not satisfied with the analyzing technique they are using.

Regarding the efficiency of NEPSE, most of the respondents replied that practice of efficient market cannot be found.

Majority of the shareholders claimed that some of the investors in NEPSE are influencing the share price in their favor and also Nepal's stock market is not a market of perfect competition.

In the same way, majority of the respondents were found that NRB should make margin lending more systemic and also some of them replied that financial institutions should leave independent regarding the matter of margin lending. But most of the respondents were found in favor of future plan of NEPSE i.e. WAN, free entry and exit of share brokers and sub brokers system.

Majority of the respondents replied that due to the inefficient stock market of Nepal technical analysis is irrelevant to the market. They answered that there is no future of technical analysis in Nepal's stock market and also it cannot be effective. But some of them claimed that only the technical analysis can be surest tools for analyzing the share price in Nepal.

4.3.2 Major Findings from Secondary Data Analysis

Based on the secondary data analysis and its interpretation, the major findings of the study are reviewed as follows:

In the FY 09/010, there are altogether 182 companies listed in NEPSE and number of the transacted companies are 158. The listing & transacting rate is in increasing trend. This indicates that the growing number of companies is attracted towards trading in the security.

The monthly trend analysis of NEPSE index, Banking index and Finance index during the research period are in decreasing trend. The instability of NEPSE, Banking and Finance Index might be due to the change in the political situation in the country. This might have directly influenced the investing decision of the investors.

Commercial Bank Index

During research period the moving average line formed and gave a signal of buy and sell.

Buying Signals

26 January 2009,	25 April 2009,	10August 2009
24June 2009,	13 July 2009,	08 February 2010
14September2009	11march 2010	

Selling Signals

18January 2009,	24February 2009,	20August 2009,
27May2009,	19July 2009,	16December 2009
2February 2010		

Development Bank Index

During research period the moving average line formed and gave a signal of buy and sell.

Buying Signals

25 January 2009, 24 February 2009,
18 May 2009, 3January 2010
30November 2009,

Selling signals

12 February 2009, 2June 2009,
7 December 2009 14July 2009

Finance Companies

During research period the moving average line formed and gave a signal of buy and sell.

Buying Signals

23April 2009, 3May2009,
21June2009 30November 2009
30July 2009,

Selling Signal

1February 2009, 19April 2009,
17May 2009, 21December 2009
12July 2009,

Insurance Companies

During research period the moving average line formed and gave a signal of buy and sell.

Buying Signals

8February 2009, 22April 2009, 7May2009,
6January 2010, 4March 2010

Selling Signals

25January 2009, 1February 2009

3June 2009, 19July 2009,

6April 2009, 8November 2009

Others

During research period the moving average line formed and gave a signal of buy and sell.

Buying Signals

18January 2009, 5March 2009,

23April 2009, 4June 2009,

7February 2010, 15 February 2010

Selling Signals

13January 2009, 24February 2009,

26May 2009, 14July 2007, 4November 2009,

17Feburary 2010, 2March 2010

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is divided into three sections: first section provides a brief summary of the research study; second section provides the conclusion of study based only secondary data, and in the third section of this chapter researcher has tried to give the suggestions and recommendations based on the findings of the study.

5.1 Summary

Stock exchange is a regulated market place, in which listed securities are bought and sold through the intervention of members (brokers) of stock exchange, by following an open system of two ways quotation, the settlement of trades is done according to the bye-laws of the stock exchange. In other words it is a trading platform for the buyer and seller of securities. The stock exchange acts as a "barometer" of the health of the economy or considered a mirror of economy. If the market as a whole expects economic prospects to improve, share price will rise, and vice versa.

The history of securities market began in Nepal with the flotation of shares by Biratnagar Jute Mills Ltd and Nepal Bank Ltd in 1937 A.D. Introduction of the company Act in 1964 A.D., and the establishment of Securities Exchange Center Ltd in 1976 was other significant developments relating to capital markets in Nepal. At present there is only one stock exchange in Nepal, which is also called secondary market i.e. Nepal Stock Exchange (NEPSE). Nowadays, Nepal's stock market has become major area of investments. People in general and investor's inclination towards the capital market as they are attracted to multiply their money in a shorter time span. Currently seen events of Nepal's capital market like oversubscription in all of the public issues, increment in transactions amount day

by day, about eight hundred thousand investors, etc confirmed the attraction of stock market in Nepal. In order to beat the market one has to analyze the securities properly and effectively. Basically there are two approaches of analyzing the securities: fundamental analysis and technical analysis. The person who analyzes securities using fundamental approach called fundamental analyst and technical approach called technical analyst. Both types of analysts try to predict share price movements as a whole. The fundamental analyst compares the share price with indicators of such as the level of interest rates, inflation, and the index of employment. They also delve into the company's balance sheet and looks at the industry itself. From this the fundamental analyst claims to be able to say whether to buy or sell a particular share from the point of a medium-to long term investor. Technical analysts on the other hand disagree with the fundamental analyst's view because they claim that reliance on past performance is a hindrance in judging future prospects. Technical analysts consider that the share price is fixed by supply and demand and past performance as evidenced by the company's accounts is no guide whatsoever. They also believe that every price sensitive factors automatically reflect in the share price, only analysis of price movement is required.

Beside these there is another technique for analyzing the share price behavior that is called efficient market hypothesis. It is based on the fundamentals that markets are efficient and price makes an independent movement in these markets. Each price of an individual share is independent of the previous price, the implication of this is that price of a moment does not affect the price of another moment, this type of moment of prices is called random walk of prices, therefore, this hypothesis is also called random walk hypothesis. According to this hypothesis prices get affected by the demand and supply position. Prices reflect equilibrium position of the demand and supply; these show a wide fluctuation, only on account of disequilibrium in the demand and supply position. This theory believes this

happens due to the large number of investors in the market, free flow f information to all the investors, every investor is capable to interpret the information, every kind of price sensitive information is discounted in the prices immediately, no one in a position to influence the market unduly.

In the first chapter of this study researcher stated the various problems of stock market relating to the technical analysis and efficient market. Thus, main objectives of this study were to analyze and identify the market trends shown by the sample major sectors index based on technical tools moving average analysis, bar diagram and chart analysis.

In the second chapter of this study researcher tried to provide detail literature regarding the subject matter of the study. So, researchers reviewed various literatures including books, journals, term papers, newspaper, bulletins, magazines and thesis.

Most of the study conducted using the fundamental approach and efficient market hypothesis but only limited study concerned on technical approach. Limited researchers concerned on technical analysis so, researcher tried to provide new findings to the Nepal's stock market by fulfilling the gaps of the previous study.

To meet the objectives stated above, different research designs were designed in third chapter of this study to present and analyzed the data. For this researcher relied on primary and secondary source of data. For this daily index for 280days were downloaded from the website of Nepal stock exchange.

In fourth chapter secondary data were analyzed using one of the most popular technical tools presenting in the chart and graphs based on the calculated value.

Based on such analysis the findings were evaluated in real terms and on the basic of such findings appropriate conclusions is drawn.

Data analysis showed most of the time moving average analysis and chart analysis gave the true result and all the samples showed the bearish trend. But share price of development banks index showed more bearish than other sectors share price.

5.2 Conclusions

Mass participation in industrialization process is possible through the efficient securities market. Securities market promotes efficient collection of small and scattered savings and provides returns. It plays a key role in allocating capital to the corporate sector that will have real effect in the economy. Stock market is the booming sectors in Nepalese economy. Oversubscription in all the IPO, coverage in Medias & newspapers matter related to stock market, lack of other investing sectors in the country, bullish trend in NEPSE in past two years, emerging of share training institutions & portfolio managers etc. signal the booming trend of capital market in Nepal and then from Bhadra, 2009 to till date the trend has been changed to downward. Inconsistent political environments, unrest in terai, Nepal Banda are major cause for bearish trend of NEPSE. Stock market in Nepal is not yet mature in terms of its infrastructure, governance, investors, and confidence, pricing of stock and stability and analyzing stock before investment decisions. Rather than investing haphazardly one should analyze stock to beat the market. In order to have the accurate result from the analysis necessity of efficient market is most.

Based on these various problems researcher tried to conclude actual situation of Nepalese stock market on this study. Based on major findings of the study various conclusions are drawn Study showed that most of the theories and assumptions of technical analysis matches with the Nepal's stock market. Although mostly

fundamental factors influence the share price in NEPSE but one cannot also ignore the past price and traded volume of the company. Similarly, from the analysis and interpretation made upon the three sample companies researcher can conclude that most of the time technical tools gives true result. Despite of technical correction in the market from time to time technical tools are able to interpret the market trends most of the time. Although technical analysis 90 percent psychological and 10 percent logical, it does give signals future market trends (i.e. bullish and bearish) except in some cases. Only trend identification knowledge is most but one should equally consider the trading volume. However most of the time it was difficult to identify trend shown by the moving average. During the study period most of the time moving average and bar diagrams line remained in downward zone of all the samples, indicates the bearish market of the share.

Globalization of economies and market has been one of the major instruments of changes. There is no gainsaying that Nepal is already sandwiched between the economic liberalization and globalization process. Therefore, Nepal cannot stay from these developments by pursuing a policy of isolation and inward looking strategy. Though overall policy setting has not been conducive to the development of the stock market, it can be said that the Nepalese stock market is in stage of development. Since stock market offers opportunity and liquidity to the government and corporate securities by facilitating transaction, it is considered a crucial element in the national economy.

They have taken the stock exchange as moneymaking enterprise and thought that any investment made would bring a sure return on the other hand. Same handful market players have joined hands with officials for price manipulation .Investors are losing their confidence in the stock market of Nepal due to the heavy fluctuations in their share prices which is caused by having lack of adequate knowledge to investors, market disorders, price manipulation, fraudulent share

market activities etc. The market prices of shares also get affected by happening on the political and economic factors or fundamentals of the company. The analysis of Nepalese stock market shows that sometimes the Nepal's stock market is primarily by whims and not by new information this is a sign of market inefficiency but investor can earn more gain from this if they try to understand such underlying causes of market movement and act accordingly.

With such a scenario prevailing in the market, there is necessary to establish clear concept on share price fluctuation. Analyzing the securities before taking investment decision is the best way to get high return from the shares. Thus, researcher concludes that moving average and chart analysis are very helpful tools of technical analysis, which help in depicting the future market.

5.3 Recommendations

Based on the analysis of primary and secondary data following recommendations are presented to the concerned body. Trend is the most in technical analysis. So it is recommended to all the concerned body to identify the trend before banking investment decision. Technical tools Moving Average gives the signal for future movements. So, investors and stock analysts are highly recommended to apply Moving Average for analyzing share price movements. Similarly other technical tools Bar diagram analysis also gives the signal of future signal, so, investors and stock analysts are highly recommended to apply chart analysis finally share price trends along with the fundamental approach to but the market. Since the technical analysis give the variable signal. So it is recommended to regulation body, brokerage house and training institute to provide in-depth knowledge about the technical analysis to predict the movement of NEPSE index as well as price of securities.

Avenues for Further Research

There are various technical tools which can be applied to analyze the stock price movement. It will be better if further researcher will apply other tools of technical analysis using technical analysis software. Also it is recommended to test the effectiveness of technical tools to further researcher.

Although researcher strongly suggested for applying the technical tools, one should not ignore the fundamental facts of the company.

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APPENDICES

Annex - I

QUESTIONNAIRE

Dear Sir / Madam,

In connection with the partial fulfillment of the degree of masters in business (MBS), researcher collecting the data concerned with the **'Movements of Nepal Stock Exchange Index on basis of technical study'**. It will be great value of your help in this research work, if you help by filling up the given questionnaires. Thus, you are kindly requested to fill up these questionnaires presented below. Also please do not resident to add detailed comments and suggestions which you fell may be relevant to the objectives of this study. In the meantime researcher would like to assure you that your response would be kept strictly confidential and used only for research work.

Name……

Address……

Occupation……

Organization……

Date……

……..

Yadav Prasad Rimal

(The Researcher)

Mobile-9841557205

Shanker Dev Campus-848/063

Tribhuban University

Section A: General Information

Please tick (√) in one (or many as necessity)

1Your relationship with the Nepalese share market as a……

a. General Investor
b. Share Broker
c. Independent Share Analyst
d. Staffs or members of regulating body i.e. NEPSE, SEBON or NRB
e. Financial reporter
f. If any others, please specify

2. How long have you been on touch with the Nepalese share market

a. Less than one year
b. One to five years
c. More than five years

Section B: Technical Analysis

1. In your opinion which of the following match with the Nepal's stock market

a. Trend of share price can be predicted by studying the historical price and volume data with the help of charts

   Yes [ ] No [ ] Don't know [ ]

b. All the possible information that might influence the share price will automatically reflect in the share price (i.e. only analysis of price movement is required)

   Yes [ ] No [ ] Don't know [ ]

c. Market moves in trend (i.e. market movement is orderly not random).
   Yes [ ] No [ ] Don't know [ ]

d. History repeats itself in the share market (i.e. price pattern and traded volume occur again and again over a period of time)
   Yes [ ] No [ ] Don't know [ ]

e. Price of share is determined by its supply and demand despite of fundamental factors Like earning, dividends, future prospects of the company.
   Yes [ ] No [ ] Don't know [ ]

2. What are the basic factors that you take for analyzing the share price of a certain company in the nepse?
   a. Earnings, dividends, future prospects of the company
   b. Past price and traded volume
   c. Share brokers advice
   d. Newspapers, magazines, and electronic media
   e. Rumor (signaling factors)
   f. If others, please specify

3. When would you like to buy the shares, sell the shares or to remain transaction less (wait)?
   a. When the market is in increasing trend Buy [ ] Sell [ ] Wait [ ]
   b. When the market is in decreasing trend Buy [ ] Sell [ ] Wait [ ]
   c. When the market is steady Buy [ ] Sell [ ] Wait [ ]
   d. If others please specify

   …….

4. How far you use 'Technical Analysis' method for analyzing the share price of the company?

Always [ ] Sometime [ ] Never [ ]

5. To what extent do you agree with the reliability of 'Technical Analysis' at the Nepal's share market

Highly [ ] Moderate [ ] Less [ ] Don't know [ ]

6. Are you satisfied with the method you are using for analyzing the share price of companies?

Yes [ ] No [ ]

Section C: Efficient Market Theory

1. Do you think the efficient market (i.e. nobody can earn more than everybody can earn)

   Yes [ ] No [ ] Don't know [ ]

2. Do you think that share price in NEPSE make an independent movement (i.e. each price of individual share is independent of the previous price?

   Yes [ ] No [ ] Don't know [ ]

3. Do you think in Nepal companies, government, brokers, and regulator maintain a high level of disclosure and transparency due to which 'insider trading' is not able to gain from the insider information?

   Yes [ ] No [ ] Don't know [ ]

4. Is Nepal's share market is supportive for small investors?

   Yes [ ] No [ ] Don't know [ ]

Section D: Other information

5. Please express your opinion about 'Technical Analysis' relating with Nepal's stock market. (effectiveness and future prospects in Nepalese stock market)

   ……
   ……
   ……

6. What will be your suggestions to make our secondary market (NEPSE) efficient?

   ……
   ……
   ……

7. Any other comments which may you feel supportive to the objective of this study, please express it.

   ……
   ……
   ……

Annex - II

Monthly Closing NEPSE Index

S. No.	Date	NEPSE Index	S. No.	Date	NEPSE Index
1	17-Jul-06	388.16	25	27-May-08	833.20
2	31-Jul-06	378.76	26	30-Jun-08	937.50
3	31-Aug-06	382.24	27	31-Jul-08	1034.20
4	28-Sep-06	394.25	28	31-Aug-08	1175.38
5	31-Oct-06	408.38	29	29-Sep-08	962.55
6	30-Nov-06	486.19	30	27-Oct-08	881.86
7	31-Dec-06	514.42	31	30-Nov-08	750.71
8	31-Jan-07	513.34	32	31-Dec-08	695.50
9	28-Feb-07	511.81	33	28-Jan-09	658.83
10	29-Mar-07	480.99	34	26-Feb-09	677.52
11	30-Apr-07	513.69	35	31-Mar-09	664.13
12	31-May-07	541.38	36	30-Apr-09	647.78
13	27-Jun-07	591.65	37	31-May-09	707.89
14	31-Jul-07	679.00	38	30-Jun-09	662.63
15	30-Aug-07	739.50	39	30-Jul-09	716.01
16	30-Sep-07	885.50	40	31-Aug-09	661.03
17	31-Oct-07	878.90	41	24-Sep-09	630.55
18	29-Nov-07	897.30	42	29-Oct-09	578.19
19	17-Dec-07	1064.10	43	30-Nov-09	528.89
20	27-Dec-07	984.50	44	31-Dec-09	548.11
21	31-Jan-08	803.70	45	31-Jan-10	512.34
22	28-Feb-08	756.80	46	18-Feb-10	485.14
23	31-Mar-08	709.40	47	31-Mar-10	443.17
24	30-Apr-08	736.50	48	29-Apr-10	419.28

Annex – III

Daily NEPSE and Sub Index with Weekly Average

ate	NEPSE Index	weekly av. Nepse	Banking Sub-Index	Weekly av. banking	Developme nt Bank Sub-Index	weekly av. Dev. Banking	Finance Sub-Index	Weekly Av. Finance	Insurance Sub-Index	Weekly av. Insurance	Others Sub-Index
2009	660.4	679.41	624.99	644.70	939.82	951.08	919.23	926.96	687.19	692.21	622.70
2009	659.8	674.21	627.39	640.43	939.37	945.23	916.50	923.95	682.68	688.58	616.83
2009	651.2	668.53	611.17	634.36	910.50	939.72	897.41	918.70	682.85	686.00	628.57
2009	650.7	663.26	611.55	628.64	915.88	936.43	890.61	912.91	677.45	682.95	628.57
2009	647.3	658.26	610.15	622.92	918.22	932.22	888.05	908.08	678.19	680.57	616.83
2009	641.1	653.50	600.50	616.28	907.89	926.98	882.90	902.27	678.25	680.92	615.65
2009	625.8	648.04	580.89	609.52	862.03	913.39	872.58	895.33	692.48	682.73	606.26
2009	609.5	640.76	561.03	600.38	832.21	898.01	865.72	887.68	690.86	683.25	599.21
2009	616.2	634.53	568.70	592.00	837.51	883.46	867.31	880.65	695.74	685.12	610.96
2009	645.3	633.68	592.48	589.33	877.93	878.81	867.70	876.41	694.14	686.73	672.04
2009	658.8	634.84	617.46	590.17	903.12	876.99	873.78	874.01	715.16	692.12	667.34
2009	638.5	633.59	602.41	589.07	889.23	872.85	866.10	870.87	711.91	696.93	628.57
2009	636.3	632.91	605.76	589.82	873.42	867.92	857.66	867.26	693.42	699.10	616.83
2009	636.7	634.46	600.50	592.62	876.44	869.98	851.90	864.31	673.51	696.39	634.45
2009	641.7	639.06	605.18	598.93	873.37	875.86	853.72	862.60	650.15	690.58	646.19
2009	656.1	644.77	619.49	606.18	891.84	883.62	857.42	861.18	652.92	684.46	669.69
2009	671.7	648.54	642.76	613.37	971.89	897.04	796.47	851.01	653.16	678.60	682.61
2009	668.8	649.96	641.84	616.85	967.57	906.25	795.64	839.84	653.01	669.73	682.61
2009	665.2	653.77	636.33	621.69	962.43	916.71	791.89	829.24	649.86	660.86	681.43
2009	663.5	657.66	637.98	626.30	960.41	929.14	791.70	819.82	648.82	654.49	668.51
2009	671.5	662.64	649.62	633.31	968.47	942.28	794.44	811.61	651.37	651.33	675.56
2009	669.8	666.65	649.86	639.70	967.95	955.79	786.59	802.02	661.47	652.94	672.04
2009	673.5	669.14	656.15	644.93	969.00	966.82	787.67	792.06	661.79	654.21	674.38
2009	690.3	671.79	677.03	649.83	984.45	968.61	794.19	791.73	659.68	655.14	693.18
2009	699.6	676.19	692.16	657.02	981.28	970.57	796.15	791.80	672.14	657.88	699.05
2009	704.1	681.75	696.47	665.61	997.68	975.61	796.69	792.49	670.68	660.85	704.93
2009	695.9	686.38	683.77	672.15	988.90	979.68	795.77	793.07	676.90	664.86	693.18
2009	677.5	687.24	668.61	674.86	931.65	974.42	796.83	793.41	693.71	670.91	659.11
2009	676.3	688.17	661.34	676.50	939.19	970.31	794.12	794.49	692.82	675.39	672.04
2009	673.7	688.20	656.74	676.59	955.60	968.39	795.25	795.57		677.66	669.69
2009	675.8	686.13	660.87	674.28	952.48	963.83	794.76	795.65	678.66	680.82	669.69
2009	673	682.33	662.52	670.05	940.88	958.05	796.93	795.76	673.98	681.13	652.07

2009	670.7	677.55	662.75	665.23	945.41	950.59	796.47	795.73	680.08	682.69	640.32
2009	671.4	674.04	665.43	662.61	950.36	945.08	795.60	795.71	680.82	683.35	635.62
2009	671.4	673.18	664.81	662.07	945.29	947.03	792.96	795.16	681.62	681.33	640.32
2009	670.2	672.31	661.02	662.02	962.06	950.30	793.44	795.06	683.00	679.69	640.32
2009	667.2	671.38	656.85	662.04	958.15	950.66	792.55	794.67	681.47	679.95	637.97
2009	669.2	670.45	656.47	661.41	951.43	950.51	792.38	794.33	680.93	680.27	646.19
2009	670.9	670.14	657.69	660.72	947.39	951.44	782.54	792.28	668.99	679.56	656.77
2009	667.7	669.71	656.57	659.83	906.76	945.92	782.20	790.24	670.57	678.20	645.02
2009	667.1	669.11	657.23	658.66	903.11	939.17	779.43	787.93	664.82	675.91	641.50
2009	666.6	668.42	656.36	657.46	909.80	934.10	779.12	785.95	661.14	672.99	640.32
2009	683.5	670.31	674.29	659.35	921.94	928.37	783.61	784.55	661.70	669.95	669.69
2009	676.3	671.61	668.90	661.07	907.99	921.20	779.81	782.73	662.96	667.30	663.81
2009	678	672.87	670.73	663.11	901.16	914.02	776.02	780.39	657.82	664.00	657.94
2009	675.3	673.50	669.71	664.83	870.76	903.07	772.18	778.91	656.59	662.23	657.94
2009	669.7	673.80	663.67	665.84	866.26	897.29	772.12	777.47	654.40	659.92	646.19
2009	665.7	673.59	664.68	666.91	865.36	891.90	771.70	776.37	656.84	658.78	622.70
2009	664.1	673.23	660.39	667.48	866.02	885.64	772.04	775.35	657.22	658.22	626.23
2009	665	670.60	660.11	665.46	872.64	878.60	772.32	773.74	661.27	658.16	627.40
2009	662	668.55	658.39	663.95	875.46	873.95	772.98	772.77	664.78	658.42	618.00
2009	664.7	666.65	664.18	663.02	871.74	869.75	772.57	772.27	669.98	660.15	619.18
2009	663.5	664.96	660.38	661.69	874.45	870.28	771.30	772.15	667.79	661.75	634.45
2009	659.5	663.50	655.56	660.53	872.64	871.19	767.88	771.54	666.03	663.42	616.83
2009	661.3	662.88	659.74	659.82	857.31	870.04	766.11	770.74	664.26	664.48	616.83
2009	660.4	662.34	660.86	659.89	853.70	868.28	763.64	769.54	661.55	665.09	610.96
2009	660.2	661.64	664.44	650.87	841.31	863.80	760.52	767.86	660.03	664.92	618.00
2009	661.3	661.54	662.71	654.65	840.90	858.86	761.59	766.23	658.70	664.05	616.83
2009	662.7	661.25	664.72	655.32	842.51	854.69	761.35	764.63	657.47	662.26	618.00
2009	660	660.75	661.33	653.66	846.49	850.69	763.46	763.51	657.09	660.73	610.96
2009	660	660.82	664.14	656.36	845.55	846.82	760.08	762.39	656.89	659.43	606.26
2009	659.1	660.50	664.10	654.38	839.00	844.21	759.16	761.40	657.19	658.42	612.13
2009	657.3	660.07	662.52	659.87	837.61	841.91	760.98	761.02	651.71	657.01	599.21
2009	657	659.62	662.38	663.13	829.03	840.16	752.47	759.87	651.58	655.80	599.21
2009	649	657.87	651.39	661.51	823.55	837.68	736.60	756.30	649.25	654.45	599.21
2009	640.2	654.65	643.85	658.53	816.90	834.02	721.83	750.65	640.98	652.10	587.46
2009	641.6	652.04	643.15	655.93	823.87	830.79	730.23	745.91	638.98	649.51	590.99
2009	643.4	649.67	642.66	652.86	821.33	827.33	731.52	741.83	638.11	646.83	602.73
2009	647.8	648.06	649.56	650.79	821.53	824.83	732.19	737.97	636.87	643.93	610.96
2009	642	645.87	640.06	647.58	816.54	821.82	726.44	733.04	637.19	641.85	605.08
2009	640.9	643.57	641.59	644.61	762.12	812.26	732.67	730.21	635.78	639.59	605.08
2009	648.6	643.50	650.37	644.46	769.27	804.51	745.99	731.55	636.47	637.77	616.83

2009	651.2	645.07	653.41	645.83	772.11	798.11	743.09	734.59	636.25	637.09	622.70
2009	654.1	646.85	658.49	648.02	773.44	790.91	741.32	736.17	635.17	636.55	
2009	660.4	649.27	660.83	650.62	773.74	784.11	746.03	738.25	634.92	636.09	645.02
2009	659.2	650.90	657.15	651.70	775.98	777.60	749.75	740.76	631.50	635.33	646.19
2009	660.1	653.47	655.48	653.90	776.89	771.94	748.22	743.87	630.85	634.42	652.07
2009	661.6	656.42	658.40	656.30	782.22	774.81	751.94	746.62	628.40	633.37	646.19
2009	661	658.19	658.53	657.47	773.62	775.43	749.19	747.08	626.07	631.88	643.84
2009	665.7	660.27	668.02	659.56	743.07	771.28	758.76	749.32	625.87	630.40	646.19
2009	683.9	664.54	689.87	664.04	756.29	768.83	768.94	753.26	628.80	629.49	669.69
2009	678.6	667.14	682.44	667.13	745.59	764.81	768.16	756.42	630.52	628.86	669.69
2009	677.2	669.71	676.64	669.91	730.42	758.30	766.46	758.81	640.21	630.10	
2009	676.6	672.08	676.11	672.86	727.08	751.18	764.12	761.08	642.94	631.83	677.91
2009	688.1	675.87	691.52	677.59	727.42	743.36	769.30	763.56	644.37	634.11	693.18
2009	701.5	681.66	712.14	685.25	731.25	737.30	754.46	764.31	641.75	636.35	710.80
2009	714.7	688.67	731.78	694.36	746.84	737.84	755.90	763.91	640.56	638.45	716.67
2009	739.9	696.66	768.92	705.65	761.67	738.61	763.35	763.11	640.56	640.13	730.77
2009	718.6	702.38	736.55	713.38	757.26	740.28	759.55	761.88	650.77	643.02	716.67
2009	707.9	706.76	722.72	719.96	756.91	744.06	760.80	761.07	651.97	644.70	699.05
2009	700	710.09	719.60	726.18	759.60	748.71	756.94	760.04	651.91	645.98	672.04
2009	703	712.23	723.55	730.75	775.96	755.64	767.83	759.83	651.91	647.06	669.69
2009	699.6	711.96	724.19	732.47	770.90	761.31	770.75	762.16	650.29	648.28	652.07
2009	698.9	709.69	717.11	730.38	769.97	764.61	758.48	762.53	644.35	648.82	675.56
2009	685.6	701.94	702.53	720.89	754.74	763.62	751.04	760.77	644.35	649.36	662.64
2009	679.7	696.38	695.06	714.97	741.43	761.36	744.49	758.62	648.76	649.08	652.07
2009	684.9	693.10	705.60	712.52	734.40	758.14	738.55	755.44	648.89	648.64	646.19
2009	686.1	691.11	709.36	711.06	739.55	755.28	735.36	752.36	648.70	648.18	646.19
2009	684.4	688.45	706.12	708.57	740.69	750.24	734.01	747.53	648.76	647.73	646.19
2009	678.7	685.47	696.78	704.65	732.62	744.77	732.86	742.11	646.43	647.18	646.19
2009	676.4	682.26	697.01	701.78	724.48	738.27	732.22	738.36	641.74	646.80	646.19
2009	681.8	681.72	698.82	701.25	722.95	733.73	731.00	735.50	642.74	646.57	652.07
2009	682.8	682.16	703.04	702.39	723.42	731.16	730.17	733.45	642.51	645.68	652.07
2009	683.7	681.99	704.35	702.21	720.63	729.19	731.04	732.38	644.27	645.02	646.19
2009	679.2	681.02	697.28	700.49	717.39	726.03	729.58	731.55	642.35	644.11	646.19
2009	678.5	680.18	695.08	698.91	713.25	722.11	729.55	730.92	638.65	642.67	646.19
2009	671.5	679.14	688.66	697.75	701.96	717.73	686.56	724.30	633.16	640.77	652.07
2009	670.3	678.26	689.15	696.63	703.67	714.75	686.15	717.72	632.99	639.52	646.19
2009	670.6	676.66	690.21	695.40	699.93	711.46	683.34	710.91	634.12	638.29	646.19
2009	666.4	674.31	683.37	692.59	697.78	707.80	680.89	703.87	633.07	636.94	646.19
2009	664	671.48	681.71	689.35	696.81	704.40	677.94	696.29	632.55	635.27	641.50
2009	662.6	669.11	679.64	686.83	692.31	700.82	679.61	689.15	630.79	633.62	640.32

2009	661.8	666.72	680.10	684.69	692.69	697.88	679.48	682.00	631.18	632.55	634.45
2009	667.4	666.14	685.03	684.17	700.35	697.65	678.82	680.89		632.45	646.19
2009	675.2	666.85	695.77	685.12	707.07	698.13	673.61	679.10	630.90	632.10	646.19
2009	676.1	667.64	697.42	686.15	719.28	700.90	675.37	677.96	629.31	631.30	652.07
2009	685.6	670.38	711.03	690.10	728.16	705.24	677.53	677.48	630.56	630.88	655.59
2009	696.2	674.98	729.87	696.98	740.44	711.47	679.33	677.68	627.39	630.02	652.07
2009	702.9	680.73	736.57	705.11	744.66	718.95	682.01	678.02	631.13	630.08	663.81
2009	711.1	687.77	750.96	715.24	743.95	726.27	684.45	678.73	635.66	630.83	663.81
2009	717.5	694.92	754.67	725.18	751.45	733.57	690.89	680.46	635.48	631.49	681.43
2009	743.7	704.71	780.24	737.25	767.45	742.20	696.86	683.78	656.41	635.13	723.72
2009	749.1	715.13	780.87	749.17	772.56	749.81	697.08	686.88		636.11	738.99
2009	735.9	722.32	764.48	756.81	764.01	754.93	692.19	688.97	657.31	640.56	724.89
2009	734.3	727.77	771.62	762.77	748.53	756.09	696.17	691.38	657.54	645.59	699.05
2009	739	732.94	778.10	768.71	751.77	757.10	699.56	693.89	651.89	649.05	704.93
2009	738	736.78	777.75	772.53	753.36	758.45	695.87	695.52		651.73	704.93
2009	737.8	739.69	782.67	776.53	758.85	759.50	699.36	696.73	651.89	655.01	687.31
2009	708.1	734.61	737.82	770.47	745.82	756.41	694.75	696.43		654.66	669.69
2009	730.6	731.97	776.62	769.87	755.21	753.94	695.74	696.23		654.66	669.69
2009	729.1	731.00	770.21	770.68	757.66	753.03	693.14	696.37	651.31	653.16	681.43
2009	721.5	729.16	759.46	768.95	755.64	754.04	691.79	695.74		651.70	675.56
2009	716	725.87	752.33	765.27	748.48	753.57	692.57	694.75		651.60	669.69
2009	704.7	721.12	741.87	760.14	746.56	752.60	672.79	691.45	648.18	650.46	655.59
2009	700.2	715.74	731.64	752.85	745.26	750.66	672.73	687.64	647.99	649.16	660.29
2009	700	714.58	728.26	751.48	741.15	749.99	678.41	685.31	646.24	648.43	670.86
2009	693.6	709.30	720.26	743.43	731.36	746.59	677.99	682.77	645.68	647.88	663.81
2009	690.3	703.76	714.57	735.48	728.44	742.41	680.75	681.00	645.81	646.78	662.64
2009	690.2	699.30	716.56	729.36	722.60	737.69	680.16	679.34	647.17	646.85	657.94
2009	717.2	699.47	762.13	730.76	732.23	735.37	682.30	677.88	648.63	647.10	659.11
2009	722	701.93	772.70	735.16	731.34	733.20	684.35	679.53	648.45	647.14	657.94
2009	716	704.19	764.36	739.83	729.49	730.94	678.85	680.40	647.82	647.11	663.81
2009	715.4	706.38	760.13	744.39	734.30	729.97	673.03	679.63	647.39	647.28	670.86
2009	714.4	709.35	756.31	749.54	725.32	729.10	672.12	678.79	645.99	647.32	681.43
2009	709.8	712.14	754.61	755.26	720.76	728.01	673.65	677.78	645.88	647.33	663.81
2009	702.2	713.85	744.94	759.31	711.43	726.41	669.96	676.32	634.71	645.55	657.94
2009	693.3	710.44	731.24	754.90	703.33	722.28	664.26	673.75	639.92	644.31	657.94
2009	678.9	704.29	707.82	745.63	703.15	718.25	662.71	670.65	640.29	643.14	649.72
2009	682.3	699.47	711.26	738.04	703.30	714.51	664.11	668.55	640.06	642.03	657.94
2009	681.5	694.64	708.75	730.70	707.84	710.73	662.79	667.09	640.26	641.02	659.11
2009	671.2	688.46	692.66	721.61	699.31	707.02	662.88	665.77	641.10	640.32	654.42
2009	661	681.49	679.40	710.87	694.89	703.32	658.20	663.56	640.91	639.61	646.19

2009	654.6	674.70	667.81	699.85	688.44	700.04	650.67	660.80	639.98	640.36	652.07
2009	660.4	669.99	679.69	692.48	690.13	698.15	653.57	659.28	636.47	639.87	647.37
2009	662.6	667.66	679.32	688.41	695.27	697.03	656.30	658.36	632.35	638.73	656.77
2009	657.5	664.12	673.51	683.02	688.61	694.93	652.37	656.68	629.02	637.16	652.07
2009	630.1	656.77	626.31	671.24	679.75	690.91	645.77	654.25	628.84	635.52	652.07
2009	620.4	649.52	612.73	659.82	674.72	687.40	642.33	651.32	630.74	634.04	646.19
2009	614.8	642.92	604.65	649.15	670.18	683.87	638.32	648.48	629.20	632.37	645.02
2009	617.3	637.59	606.88	640.44	665.41	680.58	637.18	646.55	628.68	630.76	653.24
2009	628.4	633.02	625.29	632.67	648.10	674.58	638.71	644.43	627.58	629.49	661.46
2009	629.9	628.35	628.62	625.43	656.44	669.03	635.23	641.42	629.77	629.12	657.94
2009	628.3	624.18	627.29	618.82	651.35	663.71	637.53	639.30	611.49	626.61	657.94
2009	628	623.88	626.56	618.86	656.62	660.40	635.46	637.82	609.65	623.87	657.94
2009	628.9	625.09	629.88	621.31	656.51	657.80	635.67	636.87	605.66	620.29	653.24
2009	632.7	627.65	634.75	625.61	658.96	656.20	636.49	636.61	606.36	617.03	657.94
2009	630.5	629.53	630.76	629.02	656.48	654.92	638.39	636.78	606.21	613.82	657.94
2009	630.6	629.83	631.21	629.87	659.70	656.58	633.39	636.02	606.64	610.83	657.94
2009	634.4	630.48	639.49	631.42	669.29	658.42	634.54	635.92	607.17	607.60	652.07
2009	636.9	631.70	643.52	633.74	668.84	660.91	637.14	635.87	607.04	606.96	
2009	613.2	629.58	604.24	630.55	666.54	662.33	638.03	636.24	608.52	606.80	652.07
2009	607.9	626.58	594.24	625.46	661.24	663.01	637.52	636.50	609.01	607.28	645.02
2009	604.4	622.53	588.96	618.92	654.24	662.33	634.87	636.27	609.07	607.67	640.32
1/09	599.3	618.09	582.76	612.06	654.50	662.05	630.95	635.21	608.94	608.06	639.15
2/09	598.4	613.49	578.61	604.55	654.33	661.28	631.01	634.87	615.56	609.33	646.19
3/09	598.8	608.40	579.75	596.01	651.78	658.78	628.43	633.99	615.56	610.53	646.19
4/09	599.5	603.06	584.29	587.55	653.51	656.59	626.43	632.46	609.04	610.81	646.19
5/09	609.6	602.54	595.63	586.32	659.72	655.62	628.27	631.07	609.32	610.93	657.94
1/09	601.2	601.59	586.33	585.19	662.08	655.74	627.43	629.63	609.29	610.97	640.32
2/09	601.2	601.13	586.88	584.89	656.83	656.11	624.72	628.18	609.29	611.00	640.32
5/09	599.2	601.12	585.70	585.31	647.35	655.09	622.72	627.00	609.04	611.01	635.62
6/09	595.3	600.68	579.26	585.41	647.88	654.16	621.81	625.69		610.26	635.62
7/09	590.4	599.49	571.23	584.19	647.21	653.51	620.21	624.51	607.38	608.89	640.32
8/09	585	597.42	563.63	581.24	647.80	652.70	617.31	623.21	606.07	608.40	628.57
9/09	578.2	592.94	552.19	575.03	646.68	650.83	614.51	621.24	606.30	607.90	634.45
/209	567.1	588.06	535.52	567.77	639.30	647.58	606.88	618.31	606.35	607.41	625.05
2009	567.3	583.22	538.56	560.87	632.80	644.15	604.33	615.40	606.35	606.92	623.88
2009	571.6	579.27	547.57	555.42	633.34	642.14	607.50	613.22	606.47	606.49	616.83
2009	581.6	577.30	559.04	552.53	637.91	640.72	607.26	611.14		606.49	634.45
2009	584.6	576.48	564.29	551.54	636.53	639.19	608.61	609.49	606.62	606.36	634.45
2009	587.2	576.79	570.39	552.51	638.34	637.84	608.00	608.16	606.39	606.41	640.32
2009	583.1	577.49	565.65	554.43	637.94	636.59	606.65	607.03	602.51	605.78	622.70

0/09	580.2	579.37	562.69	558.31	636.67	636.22	604.18	606.65	602.79	605.19	618.00
1/09	576.8	580.73	558.27	561.13	631.47	636.03	602.70	606.41	602.54	604.55	616.83
2/09	565.9	579.91	540.10	560.06	626.42	635.04	599.45	605.26		604.17	616.83
5/09	566.9	577.83	544.73	558.02	624.48	633.12	601.54	604.45	602.54	603.90	606.26
6/09	561.8	574.57	537.51	554.19	614.86	630.03	599.95	603.21		603.35	595.69
7/09	565	571.39	541.46	550.06	620.41	627.46	599.76	602.03	593.12	600.70	607.43
8/09	562.2	568.41	541.18	546.56	623.02	625.33	599.63	601.03	593.12	598.82	593.34
9/09	563	565.95	540.94	543.46	623.84	623.50	599.42	600.35	592.93	596.85	599.21
2/09	562.1	563.85	538.86	540.68	624.39	622.49	595.08	599.26	594.54	595.25	602.73
3/09	549	561.44	519.50	537.74	617.52	621.22	591.94	598.19	594.60	595.14	598.03
4/09	543.4	558.08	513.83	533.33	609.18	619.03	569.44	593.60		593.66	
5/09	541.6	555.19	511.21	529.57	606.71	617.87	568.32	589.08	578.77	591.18	599.21
6/09	534.3	550.81	502.19	523.96	589.93	613.51	564.63	584.07		590.79	595.69
0/09	528.9	546.05	495.92	517.49	580.65	607.46	560.55	578.48	575.60	587.29	592.16
2009	521.8	540.15	483.65	509.31	575.24	600.52	559.20	572.74	575.36	583.77	593.34
2009	517.5	533.77	479.54	500.83	570.77	592.86	555.26	567.05	573.35	579.54	587.46
2009	519.2	529.51	482.31	495.52	568.77	585.89	556.30	561.96	573.08	575.23	587.46
2009	524.2	526.76	489.85	492.10	577.93	581.43	556.06	560.05	572.89	574.84	588.64
2009	530.4	525.16	499.88	490.48	587.70	578.71	557.44	558.49		574.06	586.29
2009	537.6	525.62	511.13	491.75	587.74	578.40	558.69	557.64	576.77	574.51	588.64
0/09	545.7	528.02	524.13	495.78	591.27	579.92	560.66	557.66	577.24	574.78	589.81
3/09	553.4	532.54	534.51	503.05	595.41	582.80	562.63	558.15	571.69	574.17	587.46
4/09	554.5	537.84	539.00	511.54	601.77	587.23	564.22	559.43	572.16	573.97	587.46
5/09	548.6	542.04	527.67	518.02	598.64	591.49	561.69	560.20	571.90	573.78	593.34
6/09	542.1	544.60	517.53	521.98	595.97	594.07	564.19	561.36		573.95	587.46
7/09	539.2	545.87	513.49	523.92	585.62	593.77	561.64	561.96	572.37	573.69	587.46
0/09	538.7	546.03	514.90	524.46	583.24	593.13	561.15	562.31	572.62	573.00	587.46
1/09	536.9	544.78	511.31	522.63	586.18	592.40	562.07	562.51		572.15	
2/09	541.9	543.13	515.73	519.95	595.60	592.43	562.97	562.56	575.43	572.90	598.03
3/09	543.6	541.57	521.53	517.45	596.44	591.67	564.16	562.55	575.43	573.55	587.46
4/09	545.7	541.14	524.60	517.01	592.10	590.74	563.98	562.88	574.42	574.05	588.64
7/09	545.3	541.60	525.83	518.20	595.08	590.61	551.18	561.02	574.29	574.09	587.46
8/09	545.7	542.53	527.17	520.15	595.86	592.07	547.37	558.98	575.35	574.59	587.46
9/09	547.4	543.78	529.01	522.17	599.64	594.41	546.37	556.87	573.22	574.69	599.21
1/09	548.1	545.37	530.09	524.85	597.53	596.04	546.56	554.66	575.34	574.78	589.81
2010	497.9	539.09	528.59	526.69	516.71	584.77	544.76	552.05	577.50	575.08	589.81
2010	540.1	538.59	518.37	526.24	594.24	584.45	543.94	549.17	573.80	574.85	592.16
2010	536.2	537.24	511.99	524.44	592.77	584.55	542.43	546.09	573.80	574.76	587.46
2010	536.6	536.01	514.03	522.75	590.28	583.86	542.30	544.82	573.49	574.64	587.46
2010	535.8	534.59	512.38	520.64	588.27	582.78	543.33	544.24	573.80	574.42	588.64

2010	535.4	532.87	511.69	518.16	590.03	581.40	543.14	543.78	569.99	573.96	588.64
2010	534.3	530.91	512.35	515.63	590.01	580.33	538.59	542.64	569.74	573.16	582.76
2010	532.3	535.82	510.64	513.06	591.81	591.06	535.18	541.27	570.37	572.14	575.72
2010	530.8	534.49	506.67	511.39	590.53	590.53	532.50	539.64	569.17	571.48	582.76
2010	531	533.75	506.62	510.63	590.11	590.15	529.71	537.82	567.79	570.62	586.29
2010	528.9	532.64	503.34	509.10	586.04	589.54	526.51	535.57	569.23	570.01	
2010	524.2	530.98	497.51	506.97	583.37	588.84	527.10	533.25	569.31	569.37	581.59
2010	522.1	529.07	494.47	504.51	583.50	587.91	524.93	530.65	570.58	569.46	576.89
2010	520.4	527.08	492.80	501.72	581.12	586.64	522.34	528.32	571.73	569.74	575.72
2010	518.1	525.06	489.45	498.69	578.47	584.73	519.56	526.09	574.64	570.35	575.72
2010	516.8	523.06	487.01	495.89	580.51	583.30	519.13	524.18	576.48	571.39	575.72
2010	516.8	521.04	487.68	493.18	576.90	581.42	518.07	522.52	575.31	572.47	575.72
2010	513.7	518.87	486.56	490.78	572.52	579.48	511.56	520.38	574.55	573.23	566.32
2010	511.7	517.08	485.67	489.09	566.93	577.14	504.66	517.18	575.39	574.10	563.97
2010	515.2	516.11	491.14	488.62	564.19	574.38	507.45	514.68	575.08	574.74	563.97
2010	512.3	514.96	490.62	488.30	558.26	571.11	506.12	512.36	575.43	575.27	552.22
2010	510.1	513.81	486.54	487.89	556.07	567.91	502.42	509.92	575.20	575.35	552.22
2010	507	512.42	483.84	487.44	549.57	563.49	498.15	506.92	572.83	574.83	552.22
2010	502.8	510.41	479.63	486.29	544.32	558.84	496.81	503.88	574.68	574.74	551.05
2010	501.4	508.66	479.85	485.33	542.09	554.49	496.89	501.79	574.97	574.80	534.60
2010	497.3	506.60	473.81	483.63	534.53	549.86	496.02	500.55	575.02	574.74	534.60
2010	489.4	502.91	461.16	479.35	529.40	544.89	494.36	498.68	574.27	574.63	534.60
2010	479.7	498.25	443.72	472.65	522.81	539.83	493.42	496.87	572.94	574.27	540.48
2010	492.9	495.79	462.00	469.14	516.47	534.17	491.63	495.33	573.49	574.03	560.45
2010	497.2	494.40	464.86	466.43	514.17	529.11	491.40	494.36	574.61	574.28	575.72
2010	493	493.00	462.76	464.02	513.02	524.64	491.12	493.55	575.14	574.35	558.10
2010	486.8	490.92	458.86	461.02	514.61	520.72	486.23	492.03	576.04	574.50	536.95
2010	485.8	489.27	456.69	458.58	515.18	517.95	481.89	490.01	575.60	574.58	542.83
2010	485.1	488.66	457.54	458.06	518.56	516.40	479.38	487.87	575.50	574.76	535.78
2010	497.9	491.25	468.07	461.54	517.04	515.58	481.10	486.11	575.50	575.13	575.72
2010	503.1	492.72	474.15	463.28	515.23	515.40	481.47	484.66	575.04	575.35	587.46
2010	517	495.54	491.33	467.06	531.30	517.85	482.47	483.38	575.41	575.46	605.08
2010	514	498.54	480.68	469.62	529.00	520.13	483.29	482.26	574.15	575.32	592.16
2010	504.5	501.07	474.45	471.84	525.38	521.67	482.74	481.76	573.59	574.97	602.73
2010	500.7	503.20	468.39	473.52	523.51	522.86	480.69	481.59	576.37	575.08	
2010	489.6	503.84	461.90	474.14	518.22	522.81	479.58	481.62	576.37	575.20	548.70
2010	486.3	502.18	461.55	473.21	520.75	523.34	479.29	481.36	575.73	575.24	529.91
2010	481.2	499.05	452.75	470.15	512.07	522.89	477.87	480.85	575.58	575.31	538.13
2010	480.5	493.83	451.29	464.43	508.76	519.67	477.42	480.13	576.89	575.53	
2010	477.6	488.63	449.11	459.92	503.51	516.03	474.74	478.90	572.32	575.26	534.60