

CHAPTER –1

INTRODUCTION

1.1 General Background

Capital market has become a global phenomenon. But in the context of Nepal, the concept of capital market is neither very old nor very complex. It is still in creeping stage where various efforts have been made for the development of capital market. The history of securities market began with the flotation of shares by Biratnagar Jute Mills and Nepal bank Ltd. in 1937 and the establishment of Securities Exchange Center Ltd. in 1976 which was converted into NEPSE in 1993. NEPSE had adopted as ‘Open-out-Cry’ system but recently it has adopted as electronic system. NEPSE is the only one stock Exchange and NEPSE Index is the only index in Nepalese capital market. NEPSE opened its trading floor on 13th February, 1994.

Capital formation is the ultimate function of a capital market. It transfers funds from those who have surplus funds to invest to those who need funds to invest in tangible assets (Fabozzi and modigliani, 1992). Since capital market mobilize unproductive saving to productive investment, it plays vital role in the advancement of growing economy. If the investors are confident in their investment in capital market, the task of capital formation becomes much easier. Unless the market is efficient, the investor’s confidence can’t be gained. Efficient market is that where the securities are traded on their true intrinsic value and liquidity among the Securities is very high. In other words, the efficiency of capital market denotes how well the market functions.

A market in which prices always “Fully reflect” available information is called “Efficiency” (Fama, 1970). According to Fama, three forms of the model were investigated to three different subsets: (a) the weak form; (b) the semi-strong form and (c) the strong form.

If a market is efficient, a native (common) investor with passive investment strategy can earn a normal rate of return in his investment. Moreover, if the market is efficient, a well-diversified portfolio can't be out performed by any actively managed fund. A native investor is the general individual who doesn't possess skill to manage investment efficiency as does a professional manager. General savers are native investors as they fund to invest but they may not have skill to manage investment. Since, the passive investments strategy is relatively easier which does not require frequently analysis and change in holding position, a native investor generally takes this strategy. If the market is efficient, the passive investment strategy works well to earn maximum possible return in the market. But the passive investment strategy, which is relatively easier, does not work in an inefficient market. In an inefficient market, frequent change in stock prices creates opportunities for those, who actively participate in the market. Moreover, inefficient market is much similar to speculative market where the chances of abnormal gain and loss are very high. In an inefficient market, a professional investor with active investment strategy can easily earn far better return than a native investor. Since one's gain is the loss of another, active investors gain is the loss of passive investors. Therefore, a native investor can't be confident in the investment in inefficient market. If investors weren't confident that they could shift from one financial asset to another, as they may deem necessary, they would naturally be reluctant to buy any financial assets. But the vital source of fund is the saving of

the general public i.e. native investors. Thus, efficient market is quite important to develop capital market for this competitive age.

As the efficient market helps to increase investor's confidence in their investment, the efficient and rational behavior of investing public increases the level of market efficiency. In simple term, efficient market is that where the investors behave rationally. Market is nothing but the dealings of investors. So, if investors are efficient enough to recognize the potentials for excess return and put into effect schemes to beat the market in time, the chances for abnormal gains/loss will be vanished, which is one of the most important conditions for market efficiency.

There are many empirical studies on share price behavior or market efficiency in developed stock markets. But relatively few empirical studies have been addressed in this issue in developing nations when capital markets are still at very infant stage. So the study of market efficiency and the investor's behavior provides some idea about the level of advancement of security market. The Nepalese stock market is just coming of age. It is, therefore, possible for a few individuals to manipulate the prices of securities and engage in undesirable practices. To counter the deficiencies, the government has established securities board, Nepal (SEBO/N) as an apex regulatory body to facilitate the orderly development of a dynamic and competitive stock market and maintains its creditability, fairness, efficiency, transparency, and responsiveness. NEPSE as organized stock exchange market for exchanging securities formulated new policies and rules and regulations for the smooth operation of the market. Despite this, the Nepalese stock market still looks '**underdeveloped**' and stock market efficiency may be a priori suspect for various causes. Although, the overall economy and its capital market is still young, the growth of new stock listing and volumes

of share in NEPSE has attracted considerable interest from the investors. It, in this context, will be interesting to investigate the efficiency of market and investors rationality, which may provide an empirical explanation whether the Nepalese stock market is efficient enough to gain investors' confidence. Moreover, this study will explain empirically whether there is any effect of investors' behavior on the level of efficiency of the NEPSE.

1.2 Statement of the Problem

Past decade has witnessed several new practices in Nepalese capital market. During this period, a number of initial public offerings (IPOs) were made. Many new stocks have been listed in NEPSE. But banking industry has emerged as the largest partner in stock market. This industry holds more than 80% of total market capitalization (Shrestha, 2001). So, whenever Nepalese stock market is taken into consideration, the deliberation of banking industry can't be ignored. Market efficiency results from the correct valuation of individual stocks trading in the market. As one of the largest industry in term of market capitalization, proper valuation of the stock of banking sector is quite necessary to get NEPSE more efficient. But in recent years, in response to the reporting of high profitability by the banking sector, the stocks of industry have shown unbelievable performance. Some stocks have got appreciation in their price more than three fold within a year. However, the appreciations in the market price of these stocks don't seem to be justified by the financial performance of the concerned companies. Market prices of stock seem to be fluctuating cyclically. Stock prices are increasing several times without any financial reasons. Thus, the market is apparently inefficiency in pricing of securities.

As market efficiency results from the efficient behavior of the investors, the apparent inefficiency of Nepalese stock market implies that there is highly likelihood of Nepalese investors being irrational.

This research work is undertaken to find out whether the apparent inefficiency of Nepalese security market is real or not. If the market is found to be inefficient, the study will further focus on the investors' rationality, the major responsible factor for the efficiency of a stock market. Since a number of empirical study that have conducted on the capital market of less developed countries found the evidence of market being inefficient even under weak form hypothesis. I would also like to explore the level of efficiency of Nepalese stock market. Thus the study is exclusively concentrated on the weak form efficiency test of the NEPSE. Moreover, this research work will be an empirical study on the relationship between the market efficiency and the investors' rationality. So, this study has tried to give the answer of the following questions:

- 1) Is the Nepalese stock market efficient in pricing share?
- 2) Does the RWH exist in Nepalese stock market?
- 3) Do Nepalese investors behave rationally in the stock market?
- 4) Can historical trends predict future price?
- 5) What measure should be adopted by regulating authorities to ensure consistent performance of market?

1.3 Objectives of the Study

This research work is undertaken with the following objective:

- To find out the level of efficiency of NEPSE through examining the market return whether it follows a random walk or not.

- To find out whether the market efficiency had any relationship with investors rationality or not.
- To find out the rationality of Nepalese investors through examining the investors' behavior whether they use available information correctly to maximize their wealth or not.
- To find out some facts about the Nepalese investors and their behavior.
- To make relevant suggestions and practical ideas and materialize recommendations to make Nepalese security market more efficient.

1.4 Statement of Hypothesis

The objective of finding the level of NEPSE efficiency requires assuming some hypothesis and testing it. Thus, we assume that the market meets the conditions required for weak form efficiency as null hypothesis and market doesn't meet the conditions required for the weak form efficiency as the alternative hypothesis. The research hypothesis can be stated more clearly as follows:

H_0 : NEPSE is operating under weak form efficiency i.e. the market is efficient in pricing of its securities. So, the stock prices/return in the market follows the random walk.

H_1 : NEPSE is not operating under weak form efficiency i.e. the market is inefficient in pricing of its securities. So the stock prices/return in the market follows a non- random (Predictable) walk.

In the subsequent chapter, Run Analysis and Autocorrelation Coefficient test of daily market return for different samples within the stated period has been performed to test the hypothesis.

1.5 Significance of the Study

Most of the financial theories have been developed on the assumption of market efficiency. Moreover, an efficient market has implication for the investment strategy that investor may wish to pursue. Hence, the knowledge of level of market efficiency helps investors to use theoretical models correctly and to choose appropriate investment strategy for the investment decisions. Therefore, the study has significance to the Nepalese investors as it will make them aware of the level of efficiency of NEPSE to make better investment decision. The study's efforts to detect the causes of inefficiency by analyzing investors' behavior may help initiate necessary steps to the policymaker as well. Furthermore, this research work is one of the important studies on NEPSE, which obviously help future research activities by providing with base for the further studies.

1.6 Limitations of the Study

Due to the various reasons this research work is not able to study the whole Nepalese capital market in detail. For the sake of ease, this tries to study its subject matter by concentrating on some important variables and ignoring others. That's why this research work is also not free from the limitations. The major limitation of the study is presented below in nutshell.

- i. The study will mainly focus on the stock of banking sector.
- ii. The core of the study is based on the secondary sources of information. Hence any incorrectness in the key information like NEPSE index gathered from the secondary sources may affect the accuracy of the outcome of the study.

- iii. Due to the small sample size, it may not fully represent as a whole.
- iv. In this research work, five year observation covering from Jan. 1, 2001 to Dec. 31, 2006 is analyzed.
- v. The study doesn't give any consideration to the current market slowdowns due to the various national and international environments.
- vi. The study is to fulfill the requirement of the master degree in business studies (MBS).

1.7 Organization of the Study

This study is divided into five different chapters. They are as follows:

Chapter I: Introduction

This chapter is introductory and deals which subject matter of the study including general background of the study, focus of the study, problem of the study, objectives of the study, significance of the study, limitation of the study and organization of the study.

Chapter II: Review of Literature

This chapter contains the profound review of available literature related to the area of this study. It is directed towards the review of conceptual framework and review of major related studies.

Chapter-III: Research Methodology

This chapter present research methodology used in the study which includes various tools and techniques of data. It includes research design,

population and sample, nature and sources of data, procedure of data collecting and processing and method of data analysis.

Chapter -IV: Data presentation and Analysis

This chapter presents the analysis and presentation of data by using various methods of statistical and financial tools. Tables, graphs etc. will be used accordingly. At the end of the chapter, it covers the major findings of the study.

Chapter -V: Summary, Conclusion and Recommendation

This chapter includes summary of the study, conclusion drawn from the findings and recommendations to the concerned authorities, companies, investors and forth coming researchers.

Similarly, proper arrangement is made for bibliography and appendices at the end of this thesis.

CHAPTER – II

REVIEW OF LITERATURE

Review of literature is actually a process of consulting published books, journals and unpublished (dissertation, field work) literatures related and relevant to one's selected topics. Since this study is mainly related to the study of market efficiency and the rationality of the investors in Nepalese capital market. Therefore, the research starts with an attempt to exploring the efficiency of NEPSE. This chapter reviews some books, journal, some of Master's degree thesis and other related studies undertaken by individual.

Over half-a-century debate in the financial community regarding the pricing of securities has intensified over the last decade. As early as the 1970s, the theory of market efficiency became the accepted model within most academic circles. The theory suggested that security prices fully reflected all currently available information and the history of stock prices seemed to furnish little or no predicative power over future price fluctuations. Furthermore, Jensen (1968) demonstrated that the prices of securities appeared to absorb new information so quickly and efficiently that randomly selected portfolios showed returns comparable to, if not in excess of, the returns generated by portfolios managed by professional managers. Much of the earlier work by Kendall (1953), Osborne (1959), Alexander (1961) and Moore (1964) indicated that there was practically no correlation between stock returns over time.

Efficient market is one, where the market price is an unbiased estimate of true value of the investment. If markets are not efficient, the market price may deviate from the true value. However, efficient market does not imply that stock prices can't deviate from true value; in fact,

there can be large deviations from true value. The only requirement is that the deviation be random. An efficient market has implications for the investment strategy that investors may wish to pursue. In an active strategy, investors seek to capitalize on what they perceive to be the mispricing of a security or securities. In a market that is price efficient, active strategies will not consistently generate a return after taking into consideration transaction cost and the risks associated with a strategy that is greater than simply buying and holding securities (Fabozzi, Frank J. and Modigliani, F., 1996: 155).

Markets do not become efficient automatically. It is the actions of investors, sensing bargains and putting into effect schemes to beat the market, that make markets efficient. The most necessary condition of efficient market is the presence of profit maximizing investors (rational investors), who recognize “the potential for excess return”. Wherever any asset goes under or over valued it is the investor who correct the deviation by buying or selling that asset.

There are mainly two aspects of the efficiency of financial markets, namely the operational efficiency and allocational efficiency. The former requires that the participants supplying and demanding the funds are able to carry out transactions cheaply, while the latter requires that the prices of securities to be such that they equalize the risk-adjusted rates of return across all securities (i.e. securities with the same level for risk will offer the same expected return). In a market that is price efficient savings are allocated to productive investment in an optimal way and all participants in the market benefit. These two types of efficiency are strongly linked. Operational efficiency is something which can largely be directly measured fairly easily in the form of bid-ask spread and commission rates generally. We will therefore concentrate on the questions of measuring

the extent of allocational efficiency. This notion of efficiency is often redefined in term of different theories by various academics.

In this chapter, we explore about the theories of efficient market first, and then review the efficient market hypotheses (EMH) of Eugene F. Fama. We will also review some techniques that have been used to test the weak form efficient of a capital market. Then, some empirical works that have been conducted on the context of the countries other than that India and Nepal are reviewed. Thereafter, some empirical results in the Indian context are reviewed. Finally, we proceed for previous empirical works that have been conducted in this topic in the Nepalese context.

2.1 Theoretical Review

2.1.1 Expected Return of Fair Game Model

This theory defines market efficiency with the help to equilibrium price. Equilibrium price is calculated by discounting the expected future cash flow. If there is not significant difference between equilibrium price and market price, the market is said to be efficient. The theory further assumes that the given set of information is fully utilized while calculating expected cash flow and then the equilibrium price. Most of the financial theories have assumed this notion of efficiency for their operation. The fair game model can be presented in equation form as follows: $E (P_{j, t+1} / \mathcal{I}_t) = [1 + E (r_{j, t+1} / \mathcal{I}_t)] P_{jt}$

Where,

E = Expected value operator

P_{jt} = Price of security j at time t

\hat{P}_{t+1} = Price of security at t+1 (with compounding effect)

$\hat{r}_{j,t+1}$ = One period percentage Return $[(p_{j,t+1} - p_{jt})/ P_{jt}]$

= A general symbol for whatever set of information is assumed to be “fully Reflected” in the price at t

\wedge = Indicates that the $P_{j,t+1}$ and $r_{j,t+1}$ are random variables.

This theory assumes that the value of the equilibrium expected return $E(r_{jt+1}/ \mathcal{I}_t)$ projected on the basis of the information \mathcal{I}_t would be determined from the particular expected return theory at hand. However, whatever expected return model is assumed to apply, the information in \mathcal{I}_t is fully utilized in determining equilibrium expected returns. And this is the sense in which \mathcal{I}_t is fully reflected in the formation of the price P_{jt} .

The assumption that the condition of market equilibrium can be stated in term of expected returns and that equilibrium expected returns are formed on the basis of information set \mathcal{I}_t have a major empirical implication- they rule out the possibility of trading system based only on information in \mathcal{I}_t that have expected profits on returns in excess of equilibrium expected profits on returns. Thus let,

$$X_{j,t+1} = P_{j,t+1} - E(P_{j,t+1}/ \mathcal{I}_t)$$

Then

$$E(X_{j,t+1}/ \mathcal{I}_t) = 0$$

Which by definitions, says that the sequence $(X_{j,t})$ is a “fair game”, which respect to the information sequence (\mathcal{I}_t) .

2.1.2 The Random Walk Model

The chief corollary of the idea that markets are efficient, price fully reflect all information, is price movements do not follow any patterns or trends. This means past price movements can't be used to predict future price movements. Rather, price follow what is known as a 'Random walk; an intrinsically unpredictable pattern. Therefore, the random walk is often compared to the path a sailor might follow out of a bar after a long, hard night drinking.

The random walk model is also taken as the extension of fair game model. Fair game model says price formation process in an efficient market uses all the information (I_t) that present in time period t . Fair game model has assumed expected return (r_{t+1}) as a random variable and this variable has direct link to set of available information. The emergence of new information in the market directly affects the expected rate of return (r_{t+1}) and then the price of security. Since, all the available informations are already incorporated into the share price, and every new information is independent with 50:50 chances to be favorable or unfavorable, the new price movement has equal chance to go up or down. Thus, price movement in an efficient market tends to follow a random walk.

2.1.3 Efficient Market Hypothesis

Formalized as the efficient market hypothesis (EMH) by Fama (1965), market efficiency has come to mean that the price of a share incorporates all public information both fundamental and technical about the shares. If market is efficient, then new information is reflected

quickly into market prices. Conversely, if market is inefficient information is reflected slowly into market price, if at all.

Before turning to the various information structure hypothesized by Eugene F. Fama, it is important to state the market condition that is consistent with efficiency. The conditions are;

- i. There are no transaction costs in trading securities
- ii. All available information is costlessly available to all market participants
- iii. All agree on the implications of current information for the current price and distributions of future prices of each security.

If these conditions are met, the current price of a security obviously fully reflects all available information.

In order to provide a more practical definition of market efficiency it is necessary to define the information structure.

There are three (3) forms of the EMH, which differ according to the type of information:

- Weak form (Predictability)
- Semi-strong form (Event studies)
- Strong form (Inside information)

[The terms in brackets are the revised definitions in Fama (1991)].

2.1.3.1 Weak Form Efficient Market Hypothesis (WFEMH)

The weak form of the EMH asserts that all past market prices and data are fully reflected in asset prices. In 1991, Fama has redefined the

weak form efficiency and stated that if stock prices are weak form efficiency, past prices contain no information about future changes and price changes are random.

Kendall (1953) found that stock and commodity prices follow a random walk. A random walk implies zero (0), correlation between price change at t and price change at $t+1$, which is what we observe. Hence, the implication of this is that technical analysis can't be used to beat the market. If price cycles were predictable competition between investors would eliminate them: Arbitrage/speculation will force prices to their efficiency values. If prices were predictable, then a simple trading rule would be BUY undervalued assets and SELL overvalued assets. Prices will only change on the basis of new information which by definition is random, hence price changes are random.

2.1.3.2 Semi-strong Form Efficient Market hypothesis (SSFEMH)

The semi strong form of the EMH asserts that all publicly available information is fully reflects in assets prices. The implication of this is that neither technical nor fundamental analysis can be used to beat the market. The semi-strong market maintains that as soon as the information becomes public the stock prices changes and absorb the full information. Therefore, the stock prices adjust with the information that is received.

2.1.3.3 Strong Form Efficient Market Hypothesis (SFEMH)

The strong form states that current prices fully reflect all information, including 'private', insider information. So that, insider trading is not profitable. The fundamental market price of a share must, therefore, be the best approximation to its intrinsic or 'true' value based on anticipated cash flows. As a consequence, even the most privileged

professional analyst is unlikely to achieve higher returns from a portfolio of securities in the longer term than the most native investors with and indiscriminate selection of shares. So, as the theory strengthens, speculative opportunities weaken. Competition among large no. of well-informed market participants drives financial asset prices to a consensus value which reflects the best possible forecast of their future payment stream.

The empirical evidence surveyed in Fama (1991) and Fama (1998) generally supports the idea that prices do seem to be weak and semi strong efficient but that the markets are not strong form efficient.

A central challenge to the EMH is the existence of stock market anomalies: reliable, widely known and inexplicable pattern in returns. Commonly, discussed anomalies include size effect, where small firms may offer higher stock returns than large ones; and calendar effects such as the 'January effect'-which seems to indicate that higher returns can be earned in the first month compared to the rest of the year and the 'weekend effect' or 'blue Monday'- which suggest that you should not buy stocks on Friday afternoon or Monday morning since they tend to be selling at slightly higher price. There are also the supposed indicators of undervalued stock used by value investors such as low price to earnings ratio and high dividend yields.

It is usually believe that the markets in developing and less developed countries are not efficient in semi strong form or strong form. Most of the research work revealed that the stock market in developing countries have not even met the condition for weak form hypothesis of market efficient. Therefore, we also first test the weak form efficiency of Nepalese stock market. It is very much convenient to test the weak form

efficiency of the market rather than semi strong form and strong form efficiency. The test of semi strong form and strong form efficiency is very rare in less developed countries because of absence of sufficient data in a convenient form, structural profile, inadequate regulations, lack of supervisions and administrative loose in the implication of existing rules. In addition, companies' information are released and circulated before the annual report is officially available; the annual reports of some of the companies are mistrusted and are often result of rumors circulation in the market about the companies. The market moved dramatically over a period of time to become a speculation market and then a gamble market. That means there is a trend of market movement and most of the investor in the market become speculators. Moreover, share price indices data are available and reliable to test the weak form efficiency of the market.

The empirical research on market efficiency can be divided into two broad categories; one is technical analysis, which is mainly concerned with testing for availability of exploitable information in past security prices, is widely used in examining the weak form efficient market hypothesis. The other is Fundamental Analysis, which rests on the assumption that factors other than past security prices are relevant in the determination of the future prices. The first category of WFEMH testing can be divided into two sub approaches; one is to determine the existence of predictability using past return series or price information. The another is to use technical trading ruses if they can be exploited as profit making strategy. The aim of the study is to test the weak form of the NEPSE.

2.2 Test of Market Efficiency

As discussed above, there is different level of market efficiency. Any market that is weak form efficient is not necessarily be efficient in semi-strong or strong form hypothesis. But to be efficient in strong form, a market must meet the conditions required by weak and semi-strong form hypothesis. Therefore, it will be much better to start the work of market efficiency test from weak form hypothesis. Moreover, the previously conducted empirical works have shown that most of emerging or developing stock markets are not efficient even in weak form. Therefore, we also conduct the weak form efficiency test for Nepalese stock exchange.

Test of weak form efficiency is just a function of finding out whether security prices follow a random walk, so that with the knowledge of past trend of stock movement can't continuously out perform a native investor who buys and holds his investment over a long period. A simple meaning of random walk of security price is that all price changes which have occurred today are completely independent of the prices prior to this day in all respects. There are so many methods to test randomness of stock price behavior. Here, in this research we use only two methods, serial correlation (Parametric) and rum test (non parametric).

2.2.1 Auto-correlation (Serial Correlation)

Many researchers have tried to test whether security prices follow a random walk through the use of serial correlation. In 1964, Moore took up a test called "Serial Correlation Test." He found out the serial correlation of weekly security prices. Serial correlation is said to measure the association of a series of number, which are separated by some

constant time period. Moore has measured correlation of price change of one week with price change of the next week. His research showed average serial correlation of -0.06 which did not indicate any significant correlation between price changes in successive periods. This means that a price rise didn't show the tendency to follow the price fall or vice-versa. The evidence wasn't considered or interpreted to being different from an average correlation of zero because the evidence was extremely weak which indicates that there is no association. Moreover, a price reversal of a correlation co-efficient of -0.060 would not be able to returns to be able to compensate for the cost involved in transaction. Eugene F. Fama also tested the serial correlation of for 30 firms, which composed of the Dow Jones Industrial Average for five (5) years before 1962. His research showed an average correlation of -0.3 . This correlation was also weak because it was not very far a way from zero (0) and therefore, it indicated a very low tendency of security price to reverse dates.

2.2.2 Run Test

It was also the Fama who perform RUN TEST to find out if price changes were likely to be followed by further price changes of the same sign. He made the Run Test because correlation co-efficient were too often dominated by extreme values and they influence the results of calculation to determine the correlation coefficient. RUN TEST ignored the absolute values of number in the series and took into the research only the positive and negative signs. The run test is made by counting the number of consecutive signs or "Runs" in the same direction. The actual number of runs are observed and compared with the numbers that are expected from the price changes randomly generated. Hagerman and Richmond made a similar study for price changes observed on security, which were traded in Over The Counter market (OTC). They found that

returns of OTC were not serially correlated. In 1972, Black and Scholes tested the efficiency to the options market. Their research work showed that the option contracts were significantly mispriced and their transaction cost was so high that those trading in the market couldn't make any abnormal return by taking advantage of the mispricing.

2.3 Market Efficiency and the Rationality of Investing Public

Like other commodity market, stock market also requires some condition to be an efficient market. The conditions are similar to the condition that assumed by other market. Large number of rational investor is the key condition that is required by efficient market hypothesis.

There should be large number of buying / selling investors so that the behavior of a single or small group of investor can't affect the market movement. The whole investors in the market must be able to participate in the market if there is any opportunity for risk adjusted excess return.

Similarly general public must be able to recognize the potential opportunities for excess return. Though there may be some irrational investors as well, the average investors must be rational so that inefficiencies caused by them are adjusted. Working of efficient market hypothesis is not possible without the rational behavior of investing public. Market efficiency is defined in term of time taken to adjust new information in stock prices. Similarly, the weak form efficiency is measured by observing whether the stock follow a random walk, that is stock prices are unpredictable. To have a random walk, a stock price must adjust new information very quickly as they broke into the market. The

adjustment of new information in a market value of stock is not an automatic action. It is the investors who determine an optimal price in light of new available set of information by demanding or supplying stock in the market until the optimal price is achieved. The adjustment of optimal stock price in response to new information is done through altering the future expectation of cash flow (return) and altering the required rate of return (risk), more accurate the future expectation about risk and returns of the stock, the more efficient the market. But the accuracy of expectation is solely depended on the individual decision maker. Hence the market efficiency has a straight link to the appropriate analytical and decision- making ability of individuals.

So, it is evident that if there is small number of investor (or thin trading) and the average investors are irrational who can't recognize the opportunity for excess return, the market can't become efficient.

2.4 A Review of Major Studies in General (Review from Article)

This section is devoted to the review of some major pervious studies concerning share price behavior and market participants' attitudes and perceptions in the understanding and acceptance of efficient market hypothesis. The early studies on testing weak form efficiency started on the developed market generally agree with the support of weak-form efficiency of the market considering low degree of serial correlation and transaction cost (working; Kendall, 1953; Cootner, 1962; Fama; 1965).

In 1953, Kendall made important progress in the study of random walk model. He examined the behavior of weekly changes in 19 indices of British industrial share prices and spot price series of cotton (New

York and wheat (Chicago). He extensively analyzed data by auto correlation and found that successive price changes are statistically independent or stock price movement follows random walk. To sum up, the review of literature suggests that share prices; really follow a random walk, prior to 1959.

In another study, Cootner (1962) analyzed the weekly and 14-interval data on 45 stocks from New York Stock Exchange (NYSE) and tested for their randomness by means of a mean- square successive difference test (Van Neuman Ratio). He found that one-week interval stock price move as random walk. However, he found some trends in the same data at 14-week interval. The average serial correlation coefficient for the week was- 0.047 and for 14-weeks was 0.13. Essentially, he focused the importance of 'differencing interval' while testing for randomness in stock price behavior. He contended that there was no one random walk model, but one for every definition of 'past and future'.

In 1965, Fama's study on the random model is considered to be one of the most definitive studies. He analyzed the daily proportionate price changes of 30 blue chip stocks in the DJIA for the period of late 1957 to 26 September 1962. He followed standard statistical tools such as serial-correlation and runs tests to examine whether any dependency exists in lagged price changes. He found that the serial correlation coefficient for daily price changes were very small and average was 0.03, which is close to zero. But 11 correlation coefficients of stock out of 30 stocks were more than twice their computed standard errors. He calculated serial correlation coefficient for differencing intervals stronger evidence of dependence. This lead Fama to conclude that the evidence produce by the autocorrelation model seems to indicate that dependence in successive price changes is either extremely slight or non-existent.

Fama further examined by runs analysis to test whether any dependency exists in lagged price changes. In fact, he found that the actual and expected runs are not significantly different. The largest difference was not significant. However, the difference for the 4-day, 9-day, and 16 – day intervals is very small. In any case, the departure from randomness was negligible. On the basis of these tests Fama concludes: there is little evidence, either from the serial correlation or from the various runs tests, of any large degree of dependence in the daily, 4-day, 9-day and 16-day price changes.

All of the studies above support the proposition that price changes are random and past changes were not useful in forecasting future price change particularly after transaction costs were taken into account.

However, there are some studies, which found the predictability of share price changes (Fama and French, 1988; Poterba and Summers, 1988) in developed markets but they didn't reached to a conclusion about profitable trading ruses.

Fama and French (1988) conclude that auto-correlation may reflect market inefficiency or time varying equilibrium expected returns generated by rational investor's behavior and neither view suggests, however, the patterns of auto-correlation should be stable for a long sample period.

Hudson, Dempsey and Keasey (1994) found that the technical trading rules have predictive power but not sufficient to enable excess return in UK market. Similarly, Nicolass, (1997) also concluded that past returns have predictive power in Australian market but the degree of predictability of return is in not so high.

Nourrendine Kababa (1998) has examined the behaviors of stock price in Saudi financial market seeking evidence that for weak form efficiency and found that the market is not following weak- form efficiency. He explained that the inefficiency might be due to delay in operation and high transaction cost, thinness of trading and lack of liquidity in the market.

Roux and Giberson (1978) and found the evidence of non-randomness stock price behavior and the market inefficiency (not weak form efficiency) on the Johannesburg stock exchange.

The review of above mentioned studies carried out in the countries other than that of India and Nepal shows many interesting findings on price behavior and EMH. However, a question arises as to what extent these findings are pertinent for Nepal. They all may not be applicable for Nepal where the stock market is small and underdeveloped. The more pertinent studies would be the studies conducted in India, since Nepalese and Indian companies are operating under similar conditions. Hence, the following section attempts to analyze the studies conducted in the context of India.

2.5 A Review of Major Indian Studies (Review from Article)

There are some empirical studies conducted to test the efficient market hypothesis (EMH) in India. In one of the earliest studies, Rao and Mukherjee (1971) applied spectral analysis to weekly prices of an aluminium company's share and found no evidence contrary to the random walk model. Sharma and Kennedy (1977) tested the random walk model indices of the Bombay (BVDISI), New York (S & P 425) and London

(F.T.A 500) Stock Exchanges during 1963-73. They found that stocks on the Bombay Stock Exchange obey a random walk and are equivalent in this sense to the behavior of share prices in the markets of developed countries.

Gupta (1989) analyzed the equity share behavior in India during the period of Jan 1971 to March 1976 and extensively tested the RWH using daily and weekly prices of 39 individual shares and two indices. He employed the serial correlation analysis and runs test and found evidence in support of RWH. He also concluded that the random walk model appeared to be an appropriate model even for the less developed country like India to describe share price behavior.

Pandey & Bhat (1989) surveyed market participants' attitude and perceptions in the understanding and acceptance of EMH. They sent the questionnaire to 600 persons who were divided into four (4) groups:

- i. The chief financial executives;
- ii. Academicians;
- iii. Chartered Accountants; and
- iv. Cross section of investors and brokers

Only 160 questionnaires were returned duly filled by the respondent. Their analysis denied the existence of market efficiency in its three forms.

Mahapatra (1995) tested the WFEMH using rank correlation analysis based on relative strength. His sample consisted of month-end closing prices of 26 stocks from Bombay Stock Exchange during the period Jan, 1989 to Dec, 1992. He argued that the Indian Stock Market is less efficient in the short-run but more efficient in long run.

Nath (2002) made an attempt to confirm whether EMH is applicable to emerging market like India. The primary objective pursued in his study was to investigate if long memory models can characterize the price behavior in India stock market. The study use the daily closing values of the index for the period from 1990 to 2001. Returns have been calculated for various time lags like 1 day, 14, 30, 90, 180, 270, 360, 720 and 1800 day to understand to what extent, the long memory process exist, if it exist at all. Two important test variance ratio test and rescaled range analysis was used. The variance test clearly implies that there does not exist any short term or long memory. However, the rescales range analysis provided indication of long-term memory but with noise. In either case, analysis showed that the movement of stock prices does not follow a random movement.

Consistent with the result, the study of Pant and Bishnoi (2002) has also found that the Indian Stock market indices do not follow random walk. The study analyzed the behavior of daily and weekly returns of five Indian stock market indices for random walk during April –1996 to June –2001. The analysis included test autocorrelation using Q-statistic, Dickey-Fuller test and variance ratio test. The result showed the significant first order autocorrelation in daily returns, while not significant in weekly returns. The evident autocorrelation was significant at lag one and two and it tends to die out for higher lags. Similarly, the variance ratio test rejected the null hypothesis of random walk at 5 percent level of significant. The results of variance ratio test and autocorrelation test showed similar result and reject random walk in Indian stock market indices. Whereas, the results from Dickey-Fuller test fill to reject the null hypothesis of random walk. Since variance ratio test is more powerful then the other tests performed in the study, the study

concludes on the basis of the results of variance ratio test. The results confirm the mean reverting behavior of stock indices and overreaction of stock prices in unitary direction in India. Thus the study concluded that this provides an opportunity to the trades for predicting the future prices and earning abnormal profits.

Literature available depicts that comparatively few major studies have been undertaken for developing market than developed market. The unavailability of reliable data may be one of the important reasons for this. Since the applicability of the result of empirical studies conducted in developed country is questionable in contest of such market, there is need for more empirical research efforts that provide valid feedback to financial decision maker and regulators.

In short, review of previous studies stated that the developed markets are generally weak form efficient. But the dynamics of emerging market equities requires clarification, comparison and needed additional information on equity price dynamics in an important segment of the world's emerging capital markets. So, it is an interesting empirical question whether and to what extent, this is also the case with less developed market stock exchanges. And the review of previous empirical evidences addressed some research questions: Is the Nepalese stock exchange as an less developed emerging market, weak form efficient or not? How for it deviates form idealized EMH? What return generating process derives emerging equity market series? These issues are empirically examined in the following section.

2.6 Review of Empirical Studies in Nepalese Context (Review from Article)

There are relatively very few empirical works has been addressed on the topic of market efficient and investors behavior in Nepal. However, as the market efficiency is quite and important matter while performing any research in capital market, most of the empirical works conducted in our capital market has been found to give a little attention toward market efficiency, if not they give little attention about the pricing of securities whether they match the calculated intrinsic value or not. Hence, while reviewing the empirical works in market efficiency and investors behavior, we go through the every research work that has given some attention to market efficiency and investors behavior.

Shrestha (1992 A.D) conducted a study on the role of securities marketing center (SMC) in the economic development of Nepal. The objective of the study was to examine the role played by SMC in promoting Nepalese security. This study covered the period of 4 years and had analyzed the trend of securities transaction in the capital market. He had concluded that securities marketing center (SMC) is playing a good role for securities by providing a market place; the primary market of SMC is very poor, SMC is facing a problem in demand and supply side, investors are influenced by the value of shares and dividend policy of the company while buying or selling the securities.

Shrestha (1996) carried out a study on the public response to primary issues of share in Nepal. The objectives of the study were to evaluate the primary market in Nepal. The study was based on the use of secondary source of information taking a sample of twelve (12) selected companies for the period of five (5) years. Different statistical tools were

used in his study like the simple average, chi-square test and correlation coefficient. The study concluded that the response of the public towards the issue of shares of banks, finance and insurance companies were better than that of manufacturing and processing, trading, hotel and other groups of companies.

Timilsina (2001) conducted a study on “Capital Market Development and Stock Price Behavior in Nepal”. The main objective of the study was to find out the fair market price of equities and observe fair price to test whether the present behavior of prices will remain stable. The study covered a period of 8 months in the year 1999/2000. Thirty-four (34) listed companies were taken as a sample for the study. Different statistical, mathematical and financial tools including the formulation of hypothesis was done in the study. The main finding of the study was that the market price of share depends upon EPS as well DPS, but DPS is more price sensitive and it will have direct and immediate response in the market. However, the market values of share computed on the basis of EPS are near to the observed values.

Pradhan, (1993) carried out a study on stock market behavior in a small capital market. The main purpose of the study was to address the stock market behavior in a small capital market in the context of Nepal. It attempts to examine relationship of market equity, market value to book value, price earnings and dividends with liquidity, leverage, profitability, assets turnover and interest coverage. Different financial tools were used in the study. Seventeen listed companies were sample for the study. The result from the study was that the larger stocks have larger price earnings ratios, larger ratio of market value to book value of equity, lower liquidity, lower profitability and smaller dividend. Price earning ratios and dividend ratios are more variables for smaller stocks whereas market

value to book value of equity is more variable for larger stock. Larger stock have also higher leverage lower assets turnover and interest coverage but these are more variable for smaller stocks than for larger stock. Stocks with larger market value to book value of equity have larger price earning ratios and lower dividend. These stocks also have lower liquidity, higher leverage, lowest earnings, lowers turnover and lower interest coverage. Stocks with higher price earning ratios have lower turnover and lower interest coverage. However, these are all more variable for stock with smaller price earning ratios than stocks with larger price earning ratios.

Pradhan and Upadhyay (2004) conducted a study on the efficient market hypothesis and the behavior of share price in Nepal. The main objective of the study was to make a comprehensive investigation of “weak” and slightly other form of EMH. In other to be conclusive about the efficiency of the stock market, primary sources of information about the share price was conducted for the first time in order to find out more subjective facts on share price behavior which can’t be determined through the use of secondary sources of data. Different statistical tools were used in the study like serial correlation, the run tests, weighted mean, median, chi-square test and Spearman’s rank correlation. Twenty-three equity shares listed and actively treaded in the Nepal Stock Exchange Ltd. During Mid-July 1997 to mid-July 2000 constitute the sample for the study.

The main conclusion determined from the study was that the Nepalese Stock Market might not be termed as “weakly efficient” in pricing shares where market efficiency is defined as all historical information is reflected in security price. The main factors affecting share price perceived by the respondents are dividends, retained earnings,

bonus share and right issue. The share prices have been found more volatile than expected dividends. Similarly, publicly available information is useful in identifying over or under valued securities. Nepalese investors are not really indifferent towards making or non-makings of information public. The respondents slightly accepted the weak form of efficient market hypothesis. The study also found that the shareholders in high tax brackets didn't prefer retained earnings instead of dividend.

Overall, the previous studies in stock market support the idea that Nepalese stock market is not efficient even in the weak form hypothesis. Nepalese investors are not efficient enough to recognize potential for excess return. Hence, this empirical work will be a milestone in the field of literature of market efficiency.

2.7 Review from Thesis

Review of thesis is a section of review of literature where various thesis are reviewed which are related to its topic and which may be helpful for this study. In this section some previous thesis are reviewed which are some extent related to market efficiency.

Bhattarai (1990) on his research analyzed stock price, paying greater attention on dividend and dividend policy, generalized that many companies were paying less cash divided than the expected by investors. In average, most companies were under-rating the expectations of investors and there-by resulting the low marketability of shares on the trading floor of stock exchange. He has also stated that the calculated price could not reflect the quoted price of share. This also support that the

market is not to be efficient in which stock reflects the true value of the investment or intrinsic value.

Aryal (1995) conducted a study on the general behavior of stock market prices revealed NEPSE to be an inefficient market. He performed a test of weak form efficiency by examine whether the stock price behavior follows a random walk or not. He concluded that the knowledge of past is useful in predicting the future movements of stock market prices. Therefore, investors on the floor of the exchanges for securities can make higher than expected profits in the future based solely on the historical prices series under the existing trading mechanisms than they would be under a native buy and hold strategy.

Shrestha (1999) analyzed 30 listed companies' stock price and found that the successive price changes are dependent. He finally concluded that the NEPSE is not efficient in pricing shares even in its weak form. Shrestha had used auto-correlation and run test to detect the dependence among the stock price series. The outcomes of both the model were found to be similar and rejecting the null hypothesis that the successive price changes is independent. Though his research was not based on the total market return movement, the result drawn from analyzing the movement of major stocks traded in the market can be generalized for efficiency level of overall NEPSE. Moreover, this research work with the analyses of total market return and banking sector stock return will be useful to verify his findings as well.

Gurung (1999) conducted a study on share price behavior of listed companies in Nepal. The main objectives of the study was to analyze the relationship between traded and listed companies to evaluate the trading turnover to analyze the behavior of NEPSE index, share price behavior of

listed companies and to identify the market behaviour in Nepal. The sample for the study was 15 companies listed in NEPSE. Different statistical tools like average, correlation co-efficient and probable errors were used. He concluded that the no. of listed companies has been increasing during the study period, that is to say there was an expansion of capital market and shares of the trading companies whose shares have been traded decreased in each year. The performance of commercial banks was better than that of trading companies, trading turnover in terms of amount, no. of transactions occurred etc. was higher in banking group as compared to other groups, there was uncertainty and instability in stock market and the market has totally changed into bearish situation in the latter years of study period.

Shrestha (2000 A.D.) concluded in her study that the NEPSE is efficient in its weak form hypothesis. But her study report itself is contradictory. At the same time she has also stated “It is possible to beat the market by using technical analysis in NEPSE”. Since the weak form efficient market is defined in term of usefulness of technical tools to beat the market. If it is possible to beat the market by using technical tools of analyses, the market never could be ascertained as efficient even in weak form.

Mainali (2002) has studied the share price behavior of listed commercial banks. He has analyzed the daily closing price of ten (10) listed commercial banks. The study concludes that the successive daily price changes of commercial banks are dependent.

Poudel (2003) has carried out the study on the movement of stock prices in relation of Nepalese Joint Venture Commercial Banks. The prime objective of the study is to examine the movement of stock market

price. This study concluded that the movement of stock price is dependent on the financial indicators or the historical data of the companies.

Bajracharya (2003) has conducted the study of stock price behavior of financial institutions in Nepal. The fundamental objective of the study is to examine the efficiency of the stock market in Nepal. He has analyzed the secondary data by examining six (6) commercial banks and two (2) finance companies. The study concludes that the Nepalese market is inefficient.

Shrestha (2004) has conducted the study on EMH in the context of Nepal. It focuses on the relevance of EMH to the pricing of shares in the NEPSE. The main objective of her study is to study the relevance and validity of EMH in the context of Nepalese security market. The study is based on both primary and secondary source of information. 35 companies are selected as a sample and 115 questionnaires were distributed to the respondents as a sample for the study. It covers 7 years period from July 1997 to April 2004. For the analysis of secondary data analysis two test namely serial correlation and Run test is conducted to analyze the statistical properties of share price. The study concludes that the NEPSE market is inefficient with respect to any so-called level of efficiency.

Poudel (2005), conducted the research to test the random walk model in Nepalese context. The prime objective of his study is to examine the price behavior of stock market in Nepal. The study covers the period of one year starting from 17th July 2003 to 16th July 2004 for the analysis of serial correlation and run test. The sample for the study comprised of 21 companies representing from each sector listed in

NEPSE. The serial correlation coefficients were found to have deviated significantly from the expected value zero. A part from this, the total expected and actual numbers of the daily price changes were computed the significant deviations between the actual and expected no. of runs were observed for most of the securities. This overall study shows that the random walk model doesn't seem to fit in Nepalese context. This also implies that the stock market is not efficient in pricing shares. The study also revealed that there was a dependence of successive price change.

Thapa (2006), has studied the behavior of Nepal Stock Exchange Index. The study endeavors to examine the efficiency of the behavior of NEPSE index. It covers the period of 5 years from the 16th July, 2000 to 16th July, 2005 by considering all the sectors. The conclusion of the study said that the growth of capital market is in slow process. Banks and financé companies are in better position. NEPSE index shows no sign of improvement and reflects the aggregate volatility of the share price of the listed companies.

Shrestha (2006) has conducted a study on daily stock price behavior of commercial banks in Nepal. The fundamental objectives of the research is to analyze the daily stock price, behavior of the commercial banks and to determine whether the Nepalese stock market is efficient in pricing share covering only 1 year period from 16th July, 2004 to 16th July 2006. Seven (7) commercial banks are selected as sample. It analyzes the secondary data by using few statistical tools like mean, standard deviation, co-efficient of variance, serial correlation and run test. Descriptive static tools- Mean, standard deviation and C.V. are used to measure the volatility of the daily stock prices. Whereas, inferential statistical tools- serial correlation and run test are employees to measure the independence and the randomness in daily successive stock price. The

study revealed that the successive price changes are dependent i.e. the Nepalese stock market is inefficient in pricing the shares.

2.7 Review of Newspaper and Magazine

Some newspaper and magazine are studies for reviewing the literature to some extent which are presented below:

One of the daily national newspaper writes:

With the improvement in the performance of financial sector group, share transaction at the country's sole secondary market, Nepal stock exchange this week registered a marginal growth. The NEPSE rose by 64 point. According to information provided by Nepal Stock Exchange Ltd, the index went up to close at 224.09 points on Friday, from the opening 223.45 point on Monday weekly trading analysis reveals that most so week days posted a steady growth, while Wednesday saw the largest transaction of the week. A total of 69,129 share units were traded at Rs, 13,579,654 through 117 transactions on Wednesday.

The NEPSE index, which opened at 223.45 points on Monday, steadily grew up Tuesday and Wednesday and it reached to 224.42 points on Wednesday. However, the index tells by one point on Thursday and settled at 223.42 points. But the transaction of Friday, the last day of weekly trading improved and the NEPSE index gained by 0.67 point to close at 224.09 points. Despite increment in the NEPSE index, total traded amount and the no. of shares traded declined compared to last week. A total of 117,423 share units valued at 27,989,278 were traded through 964 transactions against last week's trading of 137,832 share through 1198 transactions at 40,127,828.

Meanwhile, out of the listed 58 companies for five (5) days trading, 46 companies saw their transaction during the week. The NEPSE floor remained open on all five (5) working days, when share of Nabil bank Ltd, Nepal Investment Bank, Bank of Kathmandu, Everest Bank Ltd. and Laxmi Bank Ltd. were traded throughout the week.

The companies where share traded for four included Himalayan Bank Ltd; Nepal SBI Bank, Nepal Bangladesh Bank Ltd. Nepal industrial and Commercial Bank Ltd. Cosmic Merchant Banking and Finance Co., Development Credit Bank Ltd. and Machhapuchare Bank Ltd.

Standard Chartered Bank Nepal, oriental Hotels Ltd., Necon Air, Life insurance Company Ltd, Life Insurance Corporation Nepal, Nepal Shrilanka Merchant Finance, United Finance Co., International Leasing Finance Co. International Leasing Finance Co. Ltd., Central Finance Co., Nepal Development Bank Ltd., Nepal Merchant Banking and Finance Co., Alpico Everest Finance and Taragaun Regency Hotels also saw their share traded at similar price at NEPSE floor this week.

(From Himalayan times, dated July 25, 2004)

One of the Nepalese Monthly Business Magazine writes in the head of:

Nepalese stock exchange's securities raised index during the month of June, remained fluctuating. It remained bullish till June 10 reaching 216.75 and then it turned bearish continuously reaching the level of 211.31 on government and the main leader was commercial bank group. The market dominating sector in the exchange understandably enough, the increase in the price was fueled by the expectation for early end of conflict between government and political parties, after the appointment

of Deuba as a Prime Minister. But the publication of the third quarter financial result (which showed the operating profit increasing more than 50% over the previous quarter despite the political unrest and throat cut competition among the banks) was no way less important factor for such positive impact on commercial banks sector as been in June 2004. NEPSE index fell after reaching 216.75 points on June 10 and plummeted to 211.31 over a short span of three days. This fall was however caused by notices published by some companies inviting application for their new issue (Paschimanchal Development Bank and Kist Merchant Bank and Finance Ltd. both on June 10, call of NBL for application to purchase its holding on SCBNL, issuance of right share by the NB finance Ltd.) as well as the possible strike of the NEPSE employees and the wrangle among the political parties that delayed the formation of coalition of government. Since, June 16, the index turned bullish again till the end of the month. Despite the strike of employees of NEPSE, the market increased on June 16, one day before the strike and continued to increase during and after the strike till the end of the month. There were no any major events to cause the price of share goes up. However, the expectation of fewer disturbances after the four (4) parties suspended the outgoing demonstration and the Maoist students' union call off the education strike, the country budget and positive development reported for the formation of coalition government etc. increased the expectation of investors.

The NEPSE index seems sensitive to political, economical and financial sector developments it has raised after the disclosure of financial situation by the companies and when there were positive signs of political stability and it decreased for some company share. It share that the

investors are becoming aware about when to buy and sell the securities.
(Business Age 2004, July, 53)

One of the Nepalese Monthly Business Magazine Writes in the head of:

“There are many loopholes in our stock-exchange Act. Investors feel insecure here. A few years back there was a company called Nimrod pharmaceutical company that floated in shares, but where are they now? Similarly it has been more than a year that Bansbari leather has allotted its shares, but why didn't the company list its shares in the market? It has been there year that Gorkhali Rubber Udhdyog hasn't called for its AGM. Government remained silent in all these cases. This why the general public as well as the institutional buyers is not felling secure in investing in stock market” (Business age, Jan 2000:25).

One of the Nepalese Monthly Business Magazine Writes in the head of:

“Share trading scandal formed the headline of major dailies of Nepal a few days ago. The news was that some of the staffs of Nepal Merchant banking and finance Ltd. (NMB), the share registrar of Standard Chartered Bank Nepal Ltd., were involved in unauthorized sales of the shares of investors not present in the country. They were also alleged of cheating such shareholder of their dividend. As a share registrar, the company's duties were to update the shareholders' information, distribute the benefits provided by the client company to the latter's shareholder and to verify the signature of the shareholder at the time of ownership transfer of shares. But the staff forged the signatures of the shareholder and so as to sell their shares without the knowledge of the shareholders and to claim them-selves the dividend allotted to such shareholders. When the media reported this scandal, NMB blamed on of

its staffs and registered a forgery case in the District Police Office, Kathmandu. The accused is still learnt to be in the police custody. As scared in the news through some other staffs also were involved in this scandal, NBM has registered the case against only one of its staff. Another of the NMB staff accused in this scandal is reported to have escaped out of the country

In such types of scandals, whether they are reported by the media or not, are repeated frequently and no attempts are made to rectify the flows in the system and to punish the guilty, there is no doubt that sooner or later the capital market will lose the investors.

A close study of this case brings the deficiencies of our market to the forefront. The major deficiencies are obviously lack of professionalism among the market participants and lack of interest in compliance. The issuer company can't escape from its responsibility simply blaming the registrar. It must satisfy those investors whose shares have been stolen. The share registrars are found to be coreless and a question can be raised on their professionalism and honesty. The stockbroker has also made a mistake by executing the shares trading without identifying the client and thus violating the codes of conduct for stockbrokers issued by Securities Board (SEBO), the regulator of the capital market in Nepal. As the code clearly states that the brokers must identify their clients, such scandal could have been avoided the broker complied with the code. Also regulators are equally responsible as they aren't effectively monitoring the activities of securities businesspersons and taking legal action against their non-compliance under the prevailing rules and regulation.

As the capital market of Nepal is still in the infant stage, the regulatory system established to systematize and regularize the securities trading still has deficiencies. This leaves scope for anyone to time unfair benefit from the market at the cost of ordinary investors. Not only the investors are found to be irrational and concerned with short term gains, in this scenario, we can't expect perfect behaviors from all the market participants. The major problems seen in the system are duality and ambiguities in the regulation, inadequate legal provision to control the market, lack of adequate market infrastructure, lack of clear demarcation of duties of the regulators, poor corporate culture, lack of professionalism of the market participants, poor compliance and lack of clear legal provision for taking action to address the noncompliance uses.

In its Annual report for the fiscal year 2001/02 SEBO states that it has made some attempts to address the issues through issuance of guidelines directives and disclosure formats to the market participants, codes of conduct for the stockbrokers etc. It has also prepared a draft for the new securities exchange act, which was presented to the ministry of finance in 1998 to initiate the necessary legislative process. However, it is to be enacted by the parliament. Even though SEBO has made attempts to solve the problems, they are still there. It can't escape of its duty to explain the present state of the market and deficiencies existing in the system. Taking necessary support from the government it should take the required step to better co-ordinate the market participants to develop a healthy capital market in the country. Moreover, it is important to discipline the market participants and educate them of their moral duty to comply and make others comply with the prevailing rules and regulation. Only this can create the atmosphere where scandals like this one are one repeated" (New Business Age, April 2003: 44)

One of the Nepalese daily Newspaper writes in the head of Insurance Companies regains their Market:

"Even though the economic activities are passing through a critical stage caused by various economics and non-economic factors, the index of Nepal Stock Exchange has been displaying a bullish trend for the last couple of months. A slight bearish trend prevailed last week. This index had gone down by almost two points. However, the NEPSE recovered slightly when the floor was closed on Friday. Initially the index was 337.32 at the opening hour on Monday, but climbed to 339.34 points.

According to NEPSE a total of 233309 units of shares were traded at Rs. 791,35,907 through 1941 transactions this week against the trading 2,92,274 units of share which were traded at Rs, 10,11,12,058/- through 4045 transactions.

Out of 66 companies 57 of them registered for transaction. In group wise transaction, the index of commercial bank surged to 378.32 from 374.48. Similarly, the index of manufacturing companies, hotels remained at 289.73 and 183.55 points respectively. The index of trading sector also remained at 141.72 points. Likewise, the index of other sector also remained at 280.38 points. The index of insurance sector slightly moved up to 344.43 from 344.14. And the index of financial sector surged to 250.51 from 250.45 points. However, the index of development bank declined to 275.17 points from 280.38.

Out of total transaction, commercial banks occupied 80.41% followed by insurance companies which covered 14.25% of the total transaction. Similarly, the index of manufacturing sector stood at 0.28% and hotel sector 0.13%. Finance companies covered only 2.58 points.

In average the NEPSE recorded 26 transactions in the purchase side, where as 15 transaction were recorded in the sales side. (The Rising Nepal, March 19, 2006).

2.8 Research Gap

Capital market plays a vital role in the advancement of growing economy. The concept of capital market is neither very old nor very complex. It is still in creeping stage where various efforts have been made for the development of capital market. In this regard the study of market efficiency and the investors is being conducted.

The number of companies listed in NEPSE is increasing every year but the overall performance of NEPSE is not satisfactory. Weak regulation mechanism, lack of professionalism, irrational investors, weak information disclosure practice etc. are found to be the major causes of inefficiency of capital market. So this study has been undertaken to find out the level of efficiency of NEPSE and the rationality of Nepalese investors. Daily market return and the empirical analysis of primary data have been done. This research will be equally beneficial to policy maker, planners, general investors, brokers, researcher and persons interested in capital market.

CHATER III

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology is the submission of methods, techniques and the ways of study and the analysis of data for solving the research problem. This chapter refers to the overall research processes which a researcher conducts during his/her study. This process of investigation involves a series of well thought out activities of gathering, recoding, analyzing and interpreting the data with the purpose of finding answer to the problem. It includes research design, analyzing and interpreting the data with the purpose of findings answer to the problems. It includes research design, sources of data, method of data collection, research variable analytical tools. This research is on the basis of historical data by using both financial and statistical tools; detail analysis of different variables is performed.

Research methodology is the main body of the study. The main aim of this research work is to find out the efficiency of the Nepalese stock market and the effect of investors rationality on the level of efficiency. Therefore, the research starts with an attempt to exploring the efficiency of NEPSE. After concluding the efficiency level of NEPSE, it will proceed to find out the rationality of the Nepalese investors and its impact on the level of market efficiency. In light of the objectives, the research work can be divided into two parts. First part is the test of market efficiency and the other is the exploration of investors' behavior,

which obviously have strong role in the determination of level of market efficiency.

A failure of weak form efficiency implies a failure of semi-strong or strong form efficiency; we will confine ourselves to this most basic notion of efficiency i.e. weak form as it may be the case that the Nepalese market hasn't even met this condition yet. The test of weak form market efficiency is conducted through the assessment of market return whether they follow a random walk or not. This part of analysis mostly uses the statistical tools like Auto-Correlation, Run Test and other measures of dispersion. The next part of analyses, the exploration of rationality of Nepalese investors requires mostly the subjective analyses. For this we have conducted a survey on a small number of general investors and other market participants. Though the study of a small number of investors can't be regarded as the representation of the whole Nepalese investors but this obviously gives some idea about the rationality of Nepalese investors. Moreover, we know doing something is much better than doing nothing.

3.2 Research Design

Though the research tried to concentrate on quite a specific subject area, it couldn't ignore some other relevant area of study, which may give further support to the research. Moreover, some subject matters are so interested that ignoring one may halt the whole research. Thus, this study is much diversified within the topic of market efficiency and Nepalese investor's behavior. Due to the versatility of the study, it couldn't be confined within one research design. That is why the study has followed

move than one research methodology. It is historical research design in the sense that it uses mostly the historical data to develop a generalization. It is descriptive and analytical as well in the sense that it tries to find some fact about the Nepalese stock market and the Nepalese investors.

3.3 Sample Period

Test of the market efficiency used the sample of daily market return from January 1, 2002 to December 31, 2006. Hence the test of weak form market efficiency is performed through the analysis of market return for this five (5) years period. And to analyze the efficiency of banking sector stock, we use the daily market index for the same five (5) years sample period.

3.4 Sample Number

The efficiency tests aren't performed on the daily stock prices or market index itself but on the natural log of daily market return. The tests are conducted for different samples within the stated sample period. Number of sample is determined by the sub-period. Total market return is analyzed for the whole sample period and twelve (12) other sub-sample period. Thus, the total sample for the total market return is thirteen (13). The following table shows the samples with their period and number of observations.

Table No. 3.1
List of Samples of Total Market Return

| Samples | Sample period | Observation | Remarks |
|----------------|----------------------------|--------------------|---------------------|
| 1 | 1- Jan-2001 to 31-Dec-2006 | 1176 | Whole sample period |
| 2 | 1- Jan-2002 to 31-Dec-2002 | 236 | Sub- sample period |
| 3 | 1- Jan-2002 to 31-Dec-2004 | 717 | Sub- sample period |
| 4 | 1- Jan-2002 to 31-Dec-2005 | 953 | Sub- sample period |
| 5. | 1- Jan-2003 to 31-Dec-2006 | 940 | Sub- sample period |
| 6 | 1- Jan-2004 to 31-Dec-2006 | 696 | Sub- sample period |
| 7. | 1- Jan-2005 to 31-Dec-2006 | 459 | Sub- sample period |
| 8. | 1- Jan-2002 to 31-Dec-2003 | 480 | Sub- sample period |
| 9. | 1- Jan-2003 to 31-Dec-2003 | 244 | Sub- sample period |
| 10. | 1- Jan-2004 to 31-Dec-2004 | 237 | Sub- sample period |
| 11. | 1- Jan-2005 to 31-Dec-2005 | 236 | Sub- sample period |
| 12. | 1- Jan-2006 to 31-Dec-2006 | 223 | Sub- sample period |
| 13 | 1- Jan-2003 to 31-Dec-2005 | 717 | Sub- sample period |

Source: Annual Report of SEBO/N (2000/01 to 2006/07)

Similarly, banking sector stock return is analysis for the whole sample period and twelve (12) sub sample period. Hence, total number of sample for banking sector index is thirteen (13). The following table describes it in detail

Table No. 3.2
List of Samples of Banking Stock Return

| Samples | Sample period | Observations | Remarks |
|----------------|----------------------------|---------------------|---------------------|
| 1 | 1- Jan-2001 to 31-Dec-2006 | 1176 | Whole sample period |
| 2 | 1- Jan-2002 to 31-Dec-2002 | 235 | Sub- sample period |
| 3 | 1- Jan-2002 to 31-Dec-2004 | 713 | Sub- sample period |
| 4 | 1- Jan-2002 to 31-Dec-2005 | 713 | Sub- sample period |
| 5. | 1- Jan-2003 to 31-Dec-2006 | 943 | Sub- sample period |
| 6 | 1- Jan-2004 to 31-Dec-2006 | 690 | Sub- sample period |
| 7. | 1- Jan-2005 to 31-Dec-2006 | 456 | Sub- sample period |
| 8. | 1- Jan-2002 to 31-Dec-2003 | 479 | Sub- sample period |
| 9. | 1- Jan-2003 to 31-Dec-2003 | 244 | Sub- sample period |
| 10. | 1- Jan-2004 to 31-Dec-2004 | 234 | Sub- sample period |
| 11. | 1- Jan-2005 to 31-Dec-2005 | 235 | Sub- sample period |
| 12. | 1- Jan-2006 to 31-Dec-2006 | 221 | Sub- sample period |
| 13 | 1- Jan-2003 to 31-Dec-2005 | 713 | Sub- sample period |

Source: Annual Report of SEBO/N (2000/01 to 2006/07)

3.5 Sources of Data

The research uses both the primary and secondary data for the analysis. The test of market efficiency is much depended on the data that are to be collected from secondary sources and other part of analysis, investors' behavior is analyzed on the basis of primary data. The secondary sources of data are annual report and official record of NEPSE and SEBO, various books, journals, magazines and publications Apart from this the most sophisticate sources for secondary information is the

internet websites. Regarding primary data we have used different techniques to collect them, which are described in detail under following heading.

3.6 Methods of Data Collection

First part of the research is much depended on secondary data. These data are collected from the publication and official records of Nepal stock exchange (NEPSE) and SEBO/N and the later part of the research is analyzed mostly on the basis of the data that is to be collected from primary sources. This part of research is related to the investors of NEPSE. For the analysis of investor behavior, we need qualitative nature of data. But only one method of data collection is not seems to be sufficient. Therefore we used there (3) primary sources. The used methods are:

- Direct personal interview
- Indirect oral interview
- Questionnaire Method

In spite of expensiveness **direct personal interview** method has been the most effective to collect the data for this research work. Since the people are found to be reluctant to respond mail questionnaire, we could ignore this method of data collection.

To get the most accurate data from the primary sources, we have used **structured** (fixed alternative item interview) and **unstructured** (open-ended technique of interview).

Structured interview has been effective while collecting data from general investors where questions to all the respondents are uniform.

Moreover, people are keen to use the suggested alternative of answer. This facilitates our data collection activities not to left any questions and keep the interview within the subject matter.

Open-ended interview technique is used to collect data of more subjective nature from investors, stockbroker, market maker, investment manager of companies and other experts. It is felt much ease to collect information in depth from the expert with this method. It doesn't confine to give his/her view within the suggested alternative of answer.

Since the population size of general investors has no limit, the best sample size could not be formed. However, this research is based on the study of a certain no. of general investors to find out investment behavior of Nepalese investors. So, we needed further support on this matter. Therefore, we consult the view of stock-broker to get more accurate behavior of general investor, as they are familiar with the investing public. Though, this method is a type of open-ended interview technique, it is indirect oral interview as well. As indirect oral interview technique suggests we also take data about third party (investors) through interviewing brokers.

In order to fulfill the objectives of the study, 70 sample sizes from Kathmandu valley is selected. Persons included in the sample are senior officials of NEPSE and SEBO, share brokers, professors, lecturers, students, general public and jobholders of banking and financial sectors.

3.7 Research Variable

Daily market return of NEPSE for five (5) year period is the main research variable of this study. Market return for a day is calculated by using daily price index. NEPSE prepares daily price index from daily

weighted average price of daily transaction of each stock. Daily market returns (R_{mt}) are calculated from the price indices such as follows:

$$R_{mt} = L_n (PI_t/PI_{t-1})$$

Where,

R_{mt} = Market Return on Period t

PI_t = Price index at day t

PI_{t-1} = Price index at period t-1, and

L_n = Natural log

The reason to take logarithm return is justified by both theoretically and empirically. Theoretically, logarithmic returns are analytically more tractable when linking together sub-period return to form returns over longer intervals. Empirically logarithmic returns are more likely to be normally distributed which is prior condition of standard statistical techniques (Strong, 1992).

Similarly, daily price index of banking sector is used to calculate daily return on banking sector stocks. Daily return on banking sector stock is calculated as follows:

$$R_{bt} = L_n (PI_{bt} / PI_{bt-1})$$

Where

R_{bt} = Return on Banking sector index

PI_{bt} = Banking sector price index at day t

PI_{bt-1} = The price index at period t-1

L_n = Natural log

The test of market efficiency (i.e. auto correlation and run test for market return) is mostly depended on the above mentioned variables.

However, for the analysis of Investors' rationality, behavior of Nepalese investing public is the basic variables. So, the later part of the research is more subjective in nature.

3.8 Research Tools

The study uses both parametric (serial correlation coefficient test) and non-parametric test (run test) to explore the randomness of stock return. If randomness in the movement of stock return is detected, we will conclude the NEPSE to be an efficient market in weak form hypothesis and otherwise it will be concluded as an inefficient market.

3.8.1 Serial Correlation (Autocorrelation)

The autocorrelation (Serial correlation) function is widely used to detect non-randomness in series of data. The term autocorrelation may be defined as correlation between members of series of observations ordered in time or space.

Give measurement, Y_1, Y_2, \dots, Y_N at time X_1, X_2, \dots, X_N , the lag k autocorrelation function is defined as:

$$r_k = \frac{\sum_{i=1}^{n-k} (Y_i - \bar{Y})(Y_{i+k} - \bar{Y})}{\sum_{i=1}^N (Y_i - \bar{Y})^2}$$

Although, the time variable X is not used in the formula for autocorrelation, the assumption is that the observations are equally spaced. Autocorrelation is a correlation coefficient. However, instead of correlation between two different variables, the correlation is between two values of the same variable at times X_i and X_{i+k} .

When the autocorrelation is used to detect non randomness, it is usually only the first (lag 1) autocorrelation that is of interest. When the autocorrelation is used to identify an appropriate time series model, the autocorrelations are usually plotted for many lags.

Autocorrelation for any series of data ranges always between +1 and -1. If the correlation coefficient is zero or near to zero, it indicates that the series of observation is purely random. Similarly, if it departs significantly from zero in either direction, it indicates that the observation is not independent or they have same kind of association.

Standard error of the distribution is used to test the significance of the auto correlation. The following formula is used for calculating the value of standard error.

$$\sigma_r = \left[\frac{1}{(N-1)} \right]^{\frac{1}{2}}$$

Where,

σ_r = Standard Error

N = No. of observation

If the auto-correlation coefficient is found to be greater than two (2) times of standard error, the relationship is ascertained to be significant.

Symbolically,

If $r_k > 2\sigma_r$, then the relationship is significant

If $r_k < 2\sigma_r$, then the relationship is not significant

3.8.2 Run Test

Theory of run allows us to test samples for their randomness. A run is defined as a succession of identical symbols which are followed or preceded by different symbols or no symbol at all (Siegel, 1956: 52). The number of like events is the length of the run. Non-randomness can occur either with too many or too few runs. The total number of runs in a sample gives an indication of whether the sample is random. If there are few runs, a time trend or grouping of like events due to lack of independence could be occurring. Many runs might indicate some systematic short period cyclical fluctuations.

We use this statistical theory to test the movement of daily market return for their randomness. If positive and negative daily market returns are distributed as follows the sequence will contain four runs.

$$\frac{+}{1^{\text{st}}} \quad \frac{-}{2^{\text{nd}}} \quad \frac{+++}{3^{\text{rd}}} \quad \frac{--}{4^{\text{th}}}$$

Similarly this sequence contains six runs

$$\frac{+++}{1^{\text{st}}} \quad \frac{--}{2^{\text{nd}}} \quad \frac{+}{3^{\text{rd}}} \quad \frac{----}{4^{\text{th}}} \quad \frac{++++}{5^{\text{th}}} \quad \frac{-}{6^{\text{th}}}$$

The following are the most popularly used symbols for a run test.

n_1 = Number of occurrence of type 1

n_2 = Number of occurrence of type 2

r = number of runs

With the use of above symbols we can describe different equations to perform a run test.

To derive the mean of the sampling distribution of the r statistics, we use the following formular.

Mean (μ_r) of the sampling distribution of the r statistic

$$\mu_r = \frac{2n_1n_2}{n_1 + n_2} + 1$$

The standard error of the r statistic is calculated with this formula.

Standard Error of the r statistic

$$\sigma_r = \sqrt{\frac{2n_1n_2(2n_1n_2 - n_1 - n_2)}{(n_1 + n_2)^2(n_1 + n_2 - 1)}}$$

For a sample where either of n_1 or n_2 is longer than 20, normal distribution probability is used to approximate the value of r. Then approximated value is compared with the critical value for a given level of confidence. If the calculated value lies within the acceptable range, the distribution is taken as to be random.

The following equation is used to standardize the sample r statistic into z value.

$$z = \frac{r - \mu_r}{\sigma_r}$$

The standardized value that we get from the above model is compared with critical value of $z \pm 1.96$ (5% level). If the standardized value of r lies within ± 1.96 then we conclude the distribution to be random.

In this research the SPSS software has been used to calculate most of the statistical variables. Management of a large number of observed data would not be possible without the use of same statistical software. Since SPSS program is used widely while performing any behavioral research, we have also chose it for our purpose.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

This chapter of the research is divided into two parts. The first part is the test of market efficiency and the later part is analysis of investors' behavior.

The first part is devoted to the analysis and presentation of secondary data. The secondary data have been obtained from the trading report of NEPSE, and annual report of securities board, Nepal. The available data have been tabulated and presented into graphs, charts and analyzed to reach at some findings. Before breaking into the main topics, we give a glance at the performance of Nepal Stock Exchange.

4.1 A General Glance at the Performance of NEPSE

Going through the economic survey 2005/06, it states: "In the first 9 months of F/Y 2006/07, there was an increase of 161.49% in the share transaction amounting to Rs. 5534.2 million with the transaction of 11.08 million shares as compared to transaction held in the same period of the last fiscal year. In the first 9 months of F/Y 2005/06, the total transaction of 6593830 shares had fetched Rs. 2116.4 million". This clearly shows that the performance of our capital market is going good but the national economy is not in line with this, which is reflected through the data presented below:

Table No. 4.1
Performance of NEPSE

| Year Head | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 |
|--|----------|----------|----------|----------|----------|
| New issuance (Rs. in million) | 1555.11 | 853.63 | 1547.79 | 1626.82 | 2443.28 |
| No. of transactions | 42028 | 69163 | 85533 | 106246 | 97374 |
| No. of companies under transactions | 69 | 81 | 92 | 102 | 110 |
| Market capitalization (Rs. in million) | 34703.9 | 35240.4 | 41424.77 | 61365.89 | 96813.74 |
| Paid up capital (Rs. in million) | 9685.04 | 12560.07 | 13404.90 | 16771.84 | 20008.55 |
| NEPSE Index | 227.54 | 204.86 | 222.04 | 286.67 | 386.83 |
| GDP (Rs. in million) | 413428.7 | 430396.6 | 460325.3 | 500699.1 | 548484.7 |

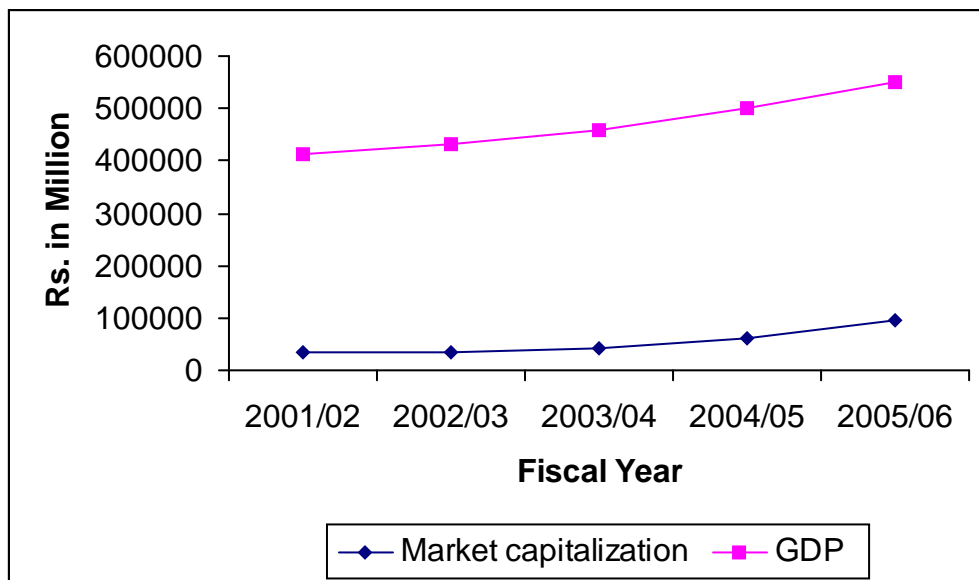
Source: Economic Survey, 2006/07

Value of any financial asset is derived from the respective real assets' value. Stocks traded in capital market are just the financial asset. Their values are directly related to the company's real assets. If a company increases the value of the real assets through the operation of business, its stock's value also increases in the market and vice versa.

While talking broadly, market capitalization (MC) is the total market value of listed securities at a point of time. Gross Domestic product (GDP) is the value of overall domestic production of a country, for a year, measured in a particular price level. Though, the market capitalization is not the market value of GDP, their movement is guided by the same national economic growth. In general, if the secondary

market is efficient, MC moves together with the national economy. But the data presented above shows that our capital market is not moving together with the National Economy. When we observe the last five (5) year's MC and GDP, it is revealed that the MC is increased in a higher rate but the growth rate of GDP is not much increased which is clearly shown by the graph no. 4.1. Thus, it indicates that the performance of Nepalese capital market is affected very less by the national economy which is also the indication of inefficiency.

Graph No. 4.1



4.2 NEPSE Index

Market index is an indicator or a barometer of a market which measures the changes of the movement in the market. It is also known as the indicator of the movements of the overall securities prices in the secondary market.

In other words, a stock market index is a number that indicates the relative level of price or value of securities in a market on a particular day

compared with a base- day figure, which is usually 100 or 1000. In Nepal all the indices have a base figure of 100. Nepal Stock Exchange (NEPSE) is the only stock exchange in Nepalese capital market and NEPSE is the only index. The index that measures the movement of Nepalese stock market is called NEPSE index. The primary objective of the NEPSE Index is to measure the performance of the Nepalese stock market. By comparing values of NEPSE index over time, we can answer the question of what the Nepalese stock market is doing over that period of time.

NEPSE Index is an indicator of market capitalization of securities traded on NEPSE. NEPSE opened its trading floor on 13th January 1994 and started to calculate index, as NEPSE index, since 12th February 1994. NEPSE is calculating the index on market value weight base and total market value of 12th February, 1994 has been taken as base value. The arbitrary index value for the base period has been assumed to be 100. It considers all the stocks listed in the exchange and their closing price to calculate index. A total of 26 companies were included in the index at that time. As of today, the numbers of companies in the index are about 135 (Economic Survey, 2006/07). Thus, along the way new companies have been added and companies not traded were removed from the index. These days NEPSE presents various indices for different industries. NEPSE banking sector index is also used in this empirical work.

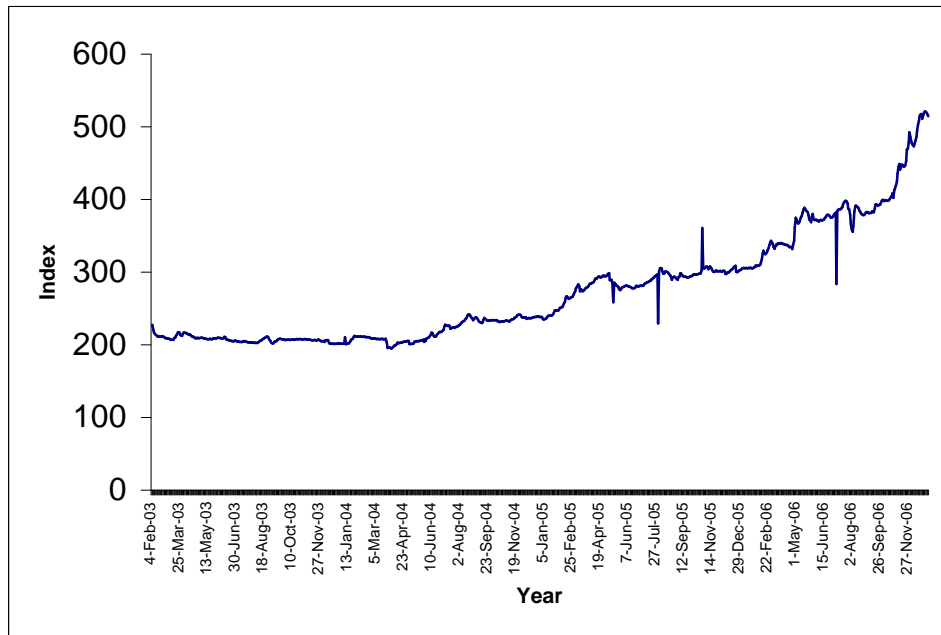
NEPSE index is one of the most important variable in this research work. The work has depended solely on daily stock price indices while calculating daily market return. Moreover, since the stock market index is regarded as one of the most important economic indicator, it will be much relevant to explore some detail about the NEPSE price index.

While going through the daily NEPSE index for last five (5) year, the index is found to be more fluctuating than normal. Within this period, the index has moved more than 2.5 or two and half fold. But this movement is not appeared to be justified by any economic events. The study revealed that the highest point of NEPSE index for total market composite, 520.96 points was on December 25, 2006. And the lowest point of index, 186.22 points was recorded on March 15, 2002. However, since the increment was not justified by financial performances, the index then has started to decrease rapidly. The largest positive movement of the total market index was by 19.58 point on August 7, 2006 and the largest negative index movement was by -12.03 on August 1, 2006.

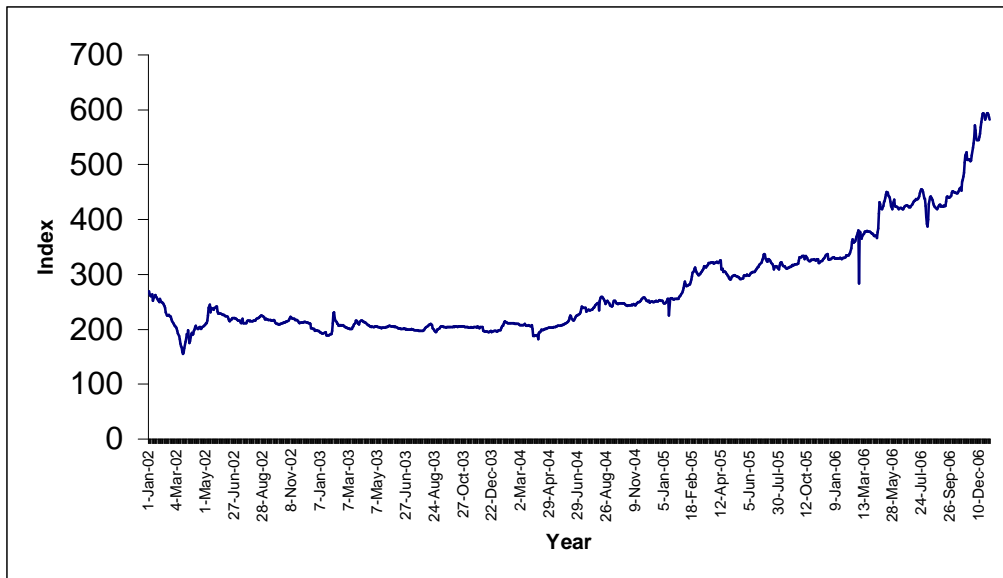
Similarly, the largest sector in term of market capitalization, the banking sector has also got incredible increment in its index. In March 15, 2002 the index for the banking sector was 155.16 points which is the lowest points during our study period has increased to 593.92 points by December 18, 2006. Hence, the index has increased by 3.83 times within the period of four (4) year. The largest positive movement of the index was by 28.42 points on August 1, 2006 and the largest negative index movement was by -16.34 on May 5, 2005.

The index for both the total market and banking sector has cyclical movement. Sometimes they are continuously increasing and sometimes are continuously decreasing which is clearly shown by the graph 4.2 and 4.3. The indices for the study period have been listed in the appendices.

Graph No. 4.2
NEPSE Total Market Index



Graph No. 4.3
NEPSE Banking Sector Index



4.3 Test of Market Efficiency

This chapter concentrates on the test of weak form efficiency of NEPSE through the observation of daily market return over a five-year period. As discussed earlier the natural log return has been used for the analysis. Besides the total market return, banking sector stocks return is also observed for the five-year period. The objective of studying daily market returns is to find whether they follow a random walk. If market returns follow an unpredictable way (a random walk), we conclude that any active investment strategy based on historical price movement can not outperform the market i.e. market will be ascertained as efficient in weak form hypothesis. However, if market return movement revealed to be predictable, the market will be ascertained to be inefficient where an active investor who takes investment decisions based only on the historical price movement can easily outperform with simple buy and hold strategy.

The null hypothesis for this research is that the NEPSE is efficient in weak form or the NEPSE market return follows a random walk and the alternative hypothesis is that the NEPSE is not efficient in weak form or the market return is following a predictable (nonrandom) pattern.

As stated earlier, we use autocorrelation and run test to test the above-mentioned hypothesis.

4.3.1 Auto-correlation/ Serial Correlation

Auto-correlation test is a reliable measure for testing of either dependence or independence of random variable in a series. The

autocorrelation measures the relationship between the values of a random variable at time t and its value in the previous period. In this analysis, the null hypothesis of the test is that observed series are random series and do not have significant first order autocorrelation. To be clearer, the test hypothesis can be stated as follows:

H_0 : Market returns follow a random walk i.e. there is no significant autocorrelation in the series of daily market return. OR, The autocorrelation coefficient is not greater than twice of standard error ($r_k < 2 \sigma_r$).

H_1 : Market returns do not follow a random walk i.e. there is significant autocorrelation in the series of daily market return. OR, The autocorrelation coefficient is greater than twice of standard error ($r_k > 2\sigma_r$).

The autocorrelation coefficients of total market have been computed for the lag of market returns series at lag one for the whole sample periods and various sub sample period. Table no. 4.1 explains the autocorrelation of market return (R_{mt}) in detail.

Table No. 4.2
Result of Autocorrelation (Log of the daily market return- R_{mt})

| Sample period | Observations | Autocorrelation coefficient | Standard Error | Significance |
|----------------------------|---------------------|------------------------------------|-----------------------|---------------------|
| 1- Jan-2002 to 31-Dec-2006 | 1176 | -0.263 | 0.02341 | Yes |
| 1- Jan-2002 to 31-Dec-2002 | 236 | 0.246 | 0.01105 | Yes |
| 1- Jan-2002 to 31-Dec-2003 | 480 | 0.322 | 0.009125 | Yes |
| 1- Jan-2002 to 31-Dec-2004 | 717 | 0.250 | 0.00858 | Yes |
| 1- Jan-2002 to 31-Dec-2005 | 953 | -0.205 | 0.02148 | Yes |
| 1- Jan-2003 to 31-Dec-2006 | 940 | -0.288 | 0.02558 | Yes |
| 1- Jan-2003 to 31-Dec-2003 | 244 | 0.512 | 0.006744 | Yes |
| 1- Jan-2003 to 31-Dec-2005 | 717 | -0.237 | 0.0239412 | Yes |
| 1- Jan-2004 to 31-Dec-2006 | 696 | -0.304 | 0.0294621 | Yes |
| 1- Jan-2004 to 31-Dec-2004 | 237 | 0.008 | 0.007316 | Yes |
| 1- Jan-2005 to 31-Dec-2006 | 459 | -0.310 | 0.0359087 | Yes |
| 1- Jan-2005 to 31-Dec-2005 | 236 | -0.261 | 0.0404224 | Yes |
| 1- Jan-2006 to 31-Dec-2006 | 223 | -0.395 | 0.0302781 | Yes |

Source: Appendix - III

From the above table the outcomes from the test show that all the samples have significant first order auto-correlation. However, the correlations are not uniform. It means, sometimes return series are positively auto-correlated and sometimes negatively. But their indeed have some kind of association with the pervious trend of return series.

Similarly, the auto-correlation coefficient of banking sector have been computed for the log of banking sector stock return series at lag one for the whole sample period and various sub-sample periods. Table no. 4.3 explains the auto-correlation of banking sector stock return (R_{bt}) in detail.

Table No. 4.3
Result of Autocorrelation (Log of the daily banking sector stock return- R_{bt})

| Sample period | Observations | Autocorrelation coefficient | Standard Error | Significance |
|----------------------------|--------------|-----------------------------|----------------|--------------|
| 1- Jan-2002 to 31-Dec-2006 | 1169 | -0.398 | 0.04793 | Yes |
| 1- Jan-2002 to 31-Dec-2002 | 235 | -0.423 | 0.10063 | Yes |
| 1- Jan-2002 to 31-Dec-2003 | 479 | -0.414 | 0.07078 | Yes |
| 1- Jan-2002 to 31-Dec-2004 | 713 | -0.408 | 0.05838 | Yes |
| 1- Jan-2002 to 31-Dec-2005 | 713 | 0.024 | 0.01213 | No |
| 1- Jan-2003 to 31-Dec-2006 | 934 | -0.208 | 0.01831 | Yes |
| 1- Jan-2003 to 31-Dec-2003 | 244 | 0.501 | 0.01011 | Yes |
| 1- Jan-2003 to 31-Dec-2005 | 713 | 0.024 | 0.01213 | No |
| 1- Jan-2003 to 31-Dec-2006 | 690 | -0.271 | 0.02042 | Yes |
| 1- Jan-2004 to 31-Dec-2004 | 234 | -0.008 | 0.011544 | No |
| 1- Jan-2005 to 31-Dec-2006 | 456 | -0.303 | 0.02372 | Yes |
| 1- Jan-2005 to 31-Dec-2005 | 235 | -0.200 | 0.014387 | Yes |
| 1- Jan-2006 to 31-Dec-2006 | 221 | -0.329 | 0.030695 | Yes |

Source: Appendix - III

From the above table, the autocorrelation coefficient for banking sector stock return (R_{bt}) is also revealed to be significant at first order for the whole sample period and other nine (9) sub-sample periods. And remaining three (3) samples do not have significant first order autocorrelation. However, the correlations are not uniform. It means sometimes return series are positively auto-correlated and sometimes negatively. But their indeed have some kind of association with the previous trend of return series. As the total market capitalization gets a large contribution from this sector, the predictability in the movement of banking sector stocks may have helped active investors to make good prediction of total market movement.

The overall results from autocorrelation test are not consistent with the random walk assumptions. The existence of significant autocorrelation means that the stock return at time t is affected by the return of the previous day. Therefore, the market return of NEPSE is following a predictable way. Since, market return is following a predictable way which is determined by the cyclical trend an active investor with the information of historical market price movement can out perform with simple buy and hold strategy. Hence, the existence of significant autocorrelation violates the assumption of random walk model rejecting null hypothesis that the return follows a random walk.

4.3.2 Run Test

The run test is well-known approach to test and detect statistical dependencies (randomness), which may not be detected by the autocorrelation test. So, we prefer the run test to prove the random walk model because the test ignores the properties of distribution. The null

hypothesis of the test is that observed series is a random series. We can state the test hypothesis as follows:

H_0 : Market returns follow a random walk i.e. the observed number of run lies within the acceptable range of expected runs. OR, the calculated z value of run lies within the critical value of z at 99% level of confidence. (H_0 : Z value of observed runs $\leq \pm 2.576$)

H_1 : Market returns do not follow a random walk i.e. the observed number of run does not lie within the acceptable range of expected runs. OR, the calculated Z value of runs does not lie within the critical value of z at 99% level of confidence. (H_1 : Z value of observed runs $\geq \pm 2.576$)

The number of runs is computed as sequence of the price changes of the same sign. When the expected number of run is significantly different from the observed number of runs, the test reject the null hypothesis that the daily returns are random.

As defined by Poshokwale, (1996, P: 89), “A lower as expected number of runs indicates market’s over-reaction to information, subsequently reversed, while higher number of runs reflect a lagged response to information. Either situation would suggest an opportunity to make excess returns.”

The run test converts the total number of runs into a Z statistics. For large samples, the z statistics give the probability of difference between the actual and expected number of runs. The z value is greater than or equal to ± 1.96 , reject the null hypothesis at 5% level of significance (Sharma and Kennedy, 1977: 391-413). Table no. 4.4 presents the result of Run test for log market return (R_{mt}) in details.

Table No. 4.4
Result of Run Test for Log Market Return (R_{mt})

| Sample Period | Test Value (mean) | Cases < Test value | Cases \geq Test value | Total cases | Number of Runs | Z value | Asymp. sign. (2-tailed) |
|----------------------------|-------------------|--------------------|-------------------------|-------------|----------------|---------|-------------------------|
| 1- Jan-2002 to 31-Dec-2006 | 0.000458 | 626 | 550 | 1176 | 399 | -10.988 | .000 |
| 1- Jan-2002 to 31-Dec-2002 | -0.0011 | 107 | 129 | 236 | 80 | -4.998 | .000 |
| 1- Jan-2002 to 31-Dec-2003 | -0.0005731 | 229 | 251 | 480 | 178 | -5.723 | .000 |
| 1- Jan-2002 to 31-Dec-2004 | -0.000154 | 349 | 368 | 717 | 264 | -7.124 | .000 |
| 1- Jan-2002 to 31-Dec-2005 | 0.000011 | 467 | 486 | 953 | 342 | -8.774 | .000 |
| 1- Jan-2003 to 31-Dec-2006 | 0.00085325 | 535 | 405 | 940 | 313 | -9.915 | .000 |
| 1- Jan-2003 to 31-Dec-2003 | -0.0000511 | 139 | 105 | 244 | 88 | -4.270 | .000 |
| 1- Jan-2003 to 31-Dec-2005 | 0.000381 | 374 | 343 | 717 | 255 | -7.775 | .000 |
| 1- Jan-2004 to 31-Dec-2006 | 0.001170 | 383 | 313 | 696 | 229 | -8.927 | .000 |
| 1- Jan-2004 to 31-Dec-2004 | 0.000694 | 120 | 117 | 237 | 87 | -4.229 | .000 |
| 1- Jan-2005 to 31-Dec-2006 | 0.00141332 | 257 | 202 | 459 | 153 | -7.036 | .000 |
| 1- Jan-2005 to 31-Dec-2005 | 0.0010143 | 108 | 128 | 236 | 89 | -3.831 | .000 |
| 1- Jan-2006 to 31-Dec-2006 | 0.0023697 | 133 | 90 | 223 | 58 | -7.021 | .000 |

Source: Appendix -III

From the above table, it is revealed that all of the total samples' z statistics of observed runs for daily market return (R_{mt}) is greater than ± 2.576 and negative, which means that the observed number of runs is less than the expected number of runs with observed significance level. It means market return is not generated randomly. There is some kind of association in the series of stock return. As the test result of all the samples shows that the market return is following a predictable way, the

null hypothesis is rejected that the return series on the NEPSE follows a random walk. The outcomes of the run test are consistent with the autocorrelation test.

Similarly, table no. 4.5 presents the result of Run test of log return for banking sector stock (R_{bt}) in details.

Table No. 4.5
Result of Run Test of Log Return for Banking Sector Stock (R_{bt})

| Sample Period | Test Value (mean) | Cases < Test value | Cases \geq Test value | Total cases | Number of Runs | Z value | Asymp. Sign. (2-tailed) |
|----------------------------|-------------------|--------------------|-------------------------|-------------|----------------|---------|-------------------------|
| 1- Jan-2002 to 31-Dec-2006 | 0.0006603 | 622 | 547 | 1169 | 401 | -10.70 | 0.000 |
| 1- Jan-2002 to 31-Dec-2002 | -0.001296 | 110 | 125 | 235 | 92 | -3.416 | 0.001 |
| 1- Jan-2002 to 31-Dec-2003 | -0.00065 | 236 | 243 | 479 | 182 | -5.348 | 0.000 |
| 1- Jan-2002 to 31-Dec-2004 | -0.000091 | 356 | 357 | 713 | 257 | -7.533 | 0.000 |
| 1- Jan-2002 to 31-Dec-2005 | 0.00071 | 525 | 409 | 934 | 297 | -10.893 | 0.000 |
| 1- Jan-2003 to 31-Dec-2006 | 0.001153 | 374 | 339 | 713 | 247 | -8.238 | 0.000 |
| 1- Jan-2003 to 31-Dec-2003 | -0.000028 | 139 | 105 | 244 | 86 | -4.532 | 0.000 |
| 1- Jan-2003 to 31-Dec-2005 | 0.00071 | 374 | 339 | 713 | 247 | -8.238 | 0.000 |
| 1- Jan-2004 to 31-Dec-2006 | 0.00157 | 732 | 318 | 690 | 223 | -9.268 | 0.000 |
| 1- Jan-2004 to 31-Dec-2004 | 0.001053 | 120 | 114 | 234 | 92 | -3.399 | 0.001 |
| 1- Jan-2005 to 31-Dec-2006 | 0.00184 | 250 | 206 | 456 | 141 | -8.128 | 0.000 |
| 1- Jan-2005 to 31-Dec-2005 | 0.001134 | 116 | 119 | 235 | 77 | -5.424 | 0.000 |
| 1- Jan-2006 to 31-Dec-2006 | 0.00258 | 130 | 91 | 221 | 58 | -6.968 | 0.000 |

Source: Appendix III

From the above table, it is revealed that the result of run test for banking sector stock return is also the same. That is the calculated z statistics of daily market return for banking sector stocks (R_{bt}) with different sample size are greater than ± 2.576 and are negative. It means the observed number of runs is less than the expected number of runs at 1% level of significance.

Therefore, we can conclude that the banking sector stock return is not following a random walk.

In overall, the result of run test analysis on the NEPSE indicates that the daily stock return of NEPSE are not random as the probabilities associated with expected number of runs are all greater than the observed number of runs.

4.4 Analysis of Primary Data

An empirical investigation has been conducted in order to find out the behavior of Nepalese investors in Nepalese capital market. For this, questionnaire and interviews method have been used as a source of primary data. A total of 70 sets of questionnaire were distributed to the senior official of SEBO, NEPSE and banking sector employees, share brokers, professors, and general public. The responses received from various respondents have been arranged, tabulated and analyzed in order to facilitate the descriptive analysis of the study.

Primary Data Analysis

An empirical investigation has been conducted in order to find out the behavior of the Nepalese investors in capital market. For this, questionnaire and interview methods have been used as a source of

primary data. A total of 70 questionnaires were distributed to the senior official of SEBO/N, NEPSE, and banks, share brokers, professor and general public. The responses received from various respondents have been arranged tabulated and analyzed in order to facilitate the descriptive analysis of the study.

Question No. 1:

Number of respondents Involved in Share Trading Activates

To know whether the investors taken as sample are presently involved in share trading activities or not, a question was asked, "Have you invested in the shares of listed companies?" The responses given by respondents have been tabulated below:

Table No. 4.6

Number of respondents Involved in Share Trading Activities

| Response | No. of respondents | % |
|-----------------|---------------------------|----------|
| Yes | 70 | 100 |
| No | - | - |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table it is revealed that all the respondents are presently involved in share trading activities. Although, all the respondents are involved in the share trading activities, the trading volume of the shares in NEPSE is very less and some companies' shares even do not trade everyday.

Question No. 2:

Sector Having Better Investment Opportunities

To know the viewpoint of respondents about the sector having better investment opportunities, a question was asked to them, “In which sector do you think the public have better opportunities for investment?” the responses provided by respondents are tabulated below:

Table No. 4.7
Sector Having Better Investment Opportunities

| Sector | No. of respondents | % |
|---------------|--------------------|-------|
| Bank | 31 | 44.29 |
| Finance | 15 | 21.14 |
| Insurance | 13 | 18.57 |
| Manufacturing | 4 | 5.71 |
| Trading | 1 | 1.43 |
| Hotel | 4 | 5.71 |
| Others | 2 | 2.86 |
| Total | 170 | 100 |

Source: Opinion Survey, 2007

From the above table, it is revealed that most of respondents i.e. 44.29% preferred banking sector as better investment opportunities while only 1.43% responded that there is better investment opportunities in trading sector.

Similarly, 21.14% respondents preferred finance sector, 18.57% preferred insurance sector, 5.71% preferred manufacturing sector, 5.71%

preferred hotel sector and 2.86% preferred others sector as better investment opportunities.

Question No. 3:

Generation of Idea to Invest in Share

To know the opinion about the source from where the investors get the idea to make investment in shares, a question was asked to them. The question was, “How did you get the idea to invest your money into shares at first?” The responses received from the respondents are tabulated below:

Table No 4.8
Generation of Idea to Invest in Share

| Variables | No. of Respondents | % of Respondents |
|-----------------------------|--------------------|------------------|
| Friends | 36 | 51.53 |
| Brokers | 5 | 7.14 |
| Investors Education Program | 4 | 5.71 |
| Relatives | 12 | 17.14 |
| Others | 13 | 18.57 |

Source: Opinion Survey, 2007

From the above table, we find that most of the respondents i.e. 51.43% were inspired by the ‘friends’ to make investment in shares. Similarly, 18.57% said ‘others’ source, 17.14% said ‘relatives’ and 7.14% said ‘brokers’ to get the idea to invest in share. Where as only 5.71% said investors’ education program make them to make investment in shares.

Question No. 4:

Impressive Characteristics in Share Investment

To know the view-point of respondents about the impressive characteristics of share investment that attract the investors to make investment in shares, a question was asked to them. The question was, “By which special characteristics are you impressed to invest your money into stock than other sectors?” The responses received from the respondents are tabulated below:

Table No. 4.9
Impressive Characteristics in Share Investment

| Sources | No. of Respondents | % of respondents |
|----------------------|---------------------------|-------------------------|
| Divided | 32 | 45.71 |
| Capital Appreciation | 19 | 27.14 |
| Participation in AGM | 1 | 1.43 |
| Marketability | 15 | 21.43 |
| Social status | 3 | 4.29 |

Source: Opinion Survey, 2007

From the above table, it is revealed that most of the respondents i.e. 45.71% are interested with ‘divided’. Similarly, 27.14% said ‘capital appreciation’ and 21.43% said ‘marketability’ make them to make investment in shares, while ‘social status’ and ‘participation in AGM’ were found less inspiring factors to attract the investors in share trading activities.

Question No. 5:

Level of Return from Share Investment

To know whether the return from share market is satisfactory or not, a question was asked, “Are you satisfied with the return presently getting from your investment?” The responses have been tabulated below:

Table No. 4.10
Level of Return from Share Investment

| Response | No. of investors | % |
|-----------------|-------------------------|----------|
| Yes | 32 | 31.43 |
| No. | 48 | 68.57 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table it is cleared that 68.57% of the total respondents were found dissatisfied with the present level of return from share market while 31.43% were found satisfied.

Since most of the respondents are dissatisfied with the return presently getting from their investment, investors should participate actively and regularly in the capital market. It is all because of the passiveness of them.

Question No. 6:

Ability of the Companies to Meet the Target as Mentioned in Prospectus

To know the respondents' view about the target achieved by the listed companies as mentioned in the prospectus, a question was asked, "Do you think that companies are able to meet the target as mentioned in prospectus in general?" The responses have been tabulated below:

Table No. 4.11
Ability of the Companies to Meet the Target as Mentioned in Prospectus

| Response | No. of investors | % |
|-----------------|-------------------------|----------|
| Yes | 14 | 20.00 |
| NO | 37 | 52.86 |
| Don't Know | 19 | 27.14 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, only 20.00% of the total respondents said that the companies are able to meet the target as mentioned in their prospectus and 52.86% said that they are not able to meet the target as mentioned in the prospectus. Where as 27.14% of them said that they do not know about it.

Since most of the companies are not able to meet the target result as mentioned in the prospectus, the forecasting of the companies' target should be thoroughly audited before being publishing publicly.

Question no. 7:

Adequacy of Timely Information of Nepalese Securities Market

To know the respondents' view about the present information distribution status at the securities market in Nepal, a question was asked, "In your opinion, are Nepalese investors getting sufficient and timely information regarding the listed companies regularly?" The responses received from the respondents are tabulated as below:

Table No. 4.12

Adequacy of Timely Information of Nepalese Securities Market

| Response | No. of investors | % |
|-----------------|-------------------------|----------|
| Yes | 10 | 14.28 |
| No | 60 | 85.72 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, it is cleared that only 14.28% of the total respondents are satisfied with the present availability of the information about the securities where as 85.72% of the respondents showed their dissatisfaction about the present situation of the availability of the information.

Since, most of the respondents are dissatisfied with the information disbursement of the NEPSE, it should provide necessary information correctly and timely. Although, NEPSE and SEBO both provide the necessary information by internet, publishing different books and articles but these information are relatively beyond the actual investors.

Question no. 8:

Efficiency of Monitoring Authorities in Regulatory Activities

In order to know the respondents' view about the efficiency of the monitoring and regulatory activities of regulatory authorities in Nepalese securities market, a question was asked, "Do you think that the regulatory authorities are regularly monitoring the performance status of the listed companies?" The responses have been tabulated as below:

Table No. 4.13

Efficiency of Monitoring Authorities in Regulatory Activities

| Response | No. of investors | % |
|-----------------|-------------------------|----------|
| Yes | 15 | 21.43 |
| No | 30 | 42.86 |
| Don't know | 25 | 35.71 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, it is revealed that 21.43% of the respondents responded the regulatory activities are efficient where as 42.86% of them opposed the response. But 35.71% of them revalued that they do not know about it.

Question no. 9:

Status of Grievances Handling of Investors by Different Institutions

In order to know the respondents' view about the status of grievances handling of the different institutions involved in share trading,

a question was asked, “Are you satisfied with the grievances handling of the investors by different institutions involved in share trading and regulation activities?” The responses have been presented as below:

Table No. 4.14
Status of Grievances Handling of Investors by Different Institutions

| Response | No. of Investors | % |
|-----------------|-------------------------|----------|
| Yes | 15 | 21.43 |
| No | 55 | 78.57 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, it is cleared that only 21.43% of the respondents are satisfied with the performance of the different institutions in handling the grievances of investors where as 78.57% of them showed their dissatisfaction.

Question No. 10:

Analysis of Share Purchase Decision

In order to know the respondents’ viewpoint about the share purchases decision, a question was asked, “How would you make a decision to purchase the share of particular company in share market?” The responses have been presented as below:

Table no. 4.15
Analysis of Share Purchase Decision

| Variables | No. of respondent | % |
|-----------------------------|--------------------------|----------|
| Consult a broker | 9 | 12.86 |
| Act on whim | 52 | 74.29 |
| Analyze the company Mgmt. | 3 | 4.29 |
| Analyze the profit and loss | 5 | 7.14 |
| If other, please specify... | 1 | 1.42 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table it is revealed that most of the respondents i.e. 74.29% act on whim, 9% consult the broker, 7.14% analyze the profit and loss of the company, 4.29% of them analyze the management team of the particular company and remaining 1.42% made their own view i.e. they see the trading trend of the share to estimate the liquidity state. But in my opinion, the personal saving also effects the share purchase decision. Those who have enough saving to invest can purchase the shares and debentures.

Question No. 11:

Analysis of Sell of Shares

In order to know the viewpoint of respondents about the selling decision of share, a question was asked, “When would you like to sell your shares in the share market?” The responses have been tabulated below:

Table No. 4.16
Analysis of Sell of Shares

| Variables | No. of respondent | % |
|--|--------------------------|----------|
| When company's profit decline | 16 | 22.86 |
| When company fail to pay divided | 24 | 34.28 |
| When cash is needed | 12 | 17.14 |
| When market price is high and start to decline | 10 | 14.29 |
| If other, please specify | 8 | 11.43 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table it is cleared that 34.28% respondents sell their shares when company fails to pay divided, 22.86% respondents sell when company's profit decline, 17.14% sell when cash is need and another 14.29% sell when market price be high and start to decline. While remaining 11.43% respondents sell their shares when they get other better investment opportunities. In my opinion, market price is the main factor that makes investor to sell their shares in the share market.

Question No. 12:

Analysis of Open-out-cry Trading System of NEPSE

In order to know the view point of respondents about the open-out-cry trading system adopted by the NEPSE, a question was asked, "Are you satisfied with the present trading system, adopted by NEPSE, which is open-out-cry system?" The responses have been tabulated below:

Table No. 4.17
Analysis of Open-out-cry Trading System of NEPSE

| Response | No. of investors | % |
|-----------------|-------------------------|----------|
| Yes | 9 | 12.86 |
| No | 47 | 67.14 |
| Don't know | 14 | 20.00 |
| Total | 70 | 100.00 |

Source: Opinion Survey, 2007

From the above table it is cleared that only 14.29% of the total respondents are satisfied with the open-out-cry trading system where as most of them i.e. 67.14% showed their dissatisfaction. But, 20% of them expressed their view that they do not know about it. It shows the irrationality of the investors. But recently, NEPSE has shifted this system i.e. open-out-cry system to electronic system.

Question No. 13:

Comparison of Present Return and Expectation from Share Investment

To compare the expected and actual earning status of the investors from the share investment, a question was asked, “What is the level of return you are presently getting in comparison to your expectation from share investment?” The responses have been tabulated below:

Table No. 4.18
Comparison of Present Return and Expectation from Share
Investment

| Response | No. of Respondent | % |
|-----------------|--------------------------|----------|
| Very high | 0 | 0 |
| High | 8 | 11.43 |
| Moderate | 34 | 48.57 |
| Low | 18 | 25.71 |
| Very Low | 10 | 14.29 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table it is cleared that most of respondents i.e. 48.57% responded that they are getting moderate level of return, 25.71% responded low level of return, and 14.29% responded very low level of return from share investment in comparison to their expectation. Whereas 11.43% respondents responded high level of return but nobody responded very high level of return in comparison to their expectation from share investment.

Question No. 14:

Level of Dishonest Activities in NEPSE

To know the view point of investors about the dishonest activities that the investors are facing in the stock market such as insider trading, a question was asked, "To what extent do you think that the investors are facing different dishonest activities such as insider trading?" Five

alternative options are given to the respondents. The responses have been tabulated below:

Table No. 4.19
Level of Dishonest Activities in NEPSE

| Responses | No. of Respondent | % of Respondent |
|------------------|--------------------------|------------------------|
| Very high | 12 | 17.14 |
| High | 16 | 22.86 |
| Moderate | 37 | 52.86 |
| Low | 5 | 7.14 |
| Very Low | 0 | 0 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, most of the respondents i.e. 52.86% responded that it is at moderate level. Similarly, 22.86% responded their view at high level, 17.14% responded at very high level and only 7.14% responded at low level, while nobody responded at very low level.

Question No. 15:

Level of Investors' Awareness in the Securities Market

In order to know the viewpoint of investors about the investors' awareness in the securities market, a question was asked, "What is the level of awareness of the share investors in Nepal?" The responses received from the respondents are tabulated below:

Table No. 4.20
Level of Investors' Awareness in the Securities Market

| Response | No. of Respondent | % of Respondent |
|-----------------|--------------------------|------------------------|
| Very high | 0 | 0 |
| High | 8 | 11.43 |
| Moderate | 12 | 17.14 |
| Low | 41 | 58.57 |
| Very Low | 9 | 12.86 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, most of the respondents i.e. 58.57% responded that their level of awareness is at low level, where as nobody responded at very high level.

Similarly, 17.14% responded their view at moderate level, 12.86% responded at very low level and only 11.43% responded that their level of awareness is at high level.

Question No. 16:

Role of Whim and Rumors in Influencing the Decision of Investors in Share Investment

To know the respondents' viewpoint about the influence of whim and rumor to affect the decision of investors in NEPSE, a question was asked, "To what extent do you think that Nepalese investors are influenced by whim and rumors?" The responses received from the respondents are tabulated below:

Table No. 4.21

Role of Whim and Rumors in Influencing the Decision of Investors in Share Investment

| Response | No. of Respondent | % of Respondent |
|-----------------|--------------------------|------------------------|
| Very high | 16 | 22.86 |
| High | 35 | 50.00 |
| Moderate | 13 | 18.57 |
| Low | 4 | 5.71 |
| Very Low | 2 | 2.86 |
| Total | 70 | 100 |

Source: Opinion Survey, 2007

From the above table, most of the respondents i.e. 50% responded that whim and rumor are highly responsible in influencing the decision of the investors in share investment.

Similarly, 22.86% responded their view at very high level, 18.57% responded at moderate level, 5.71% responded at low level where as only 2.86% responded that whim and rumor are at very low responsible to influence the decision of the share investment.

4.5 Analysis of Investors' Behaviour

History of Nepalese capital market is not so long. The active participation of Nepalese public in stock market has started just after the flotation of common stock by some joint venture commercial banks. Therefore, the flotation of common stocks by these banks can be taken as the most important step to draw the attention of Nepalese public towards stock market. The recent history shows whenever any joint venture bank

had made public offering, it had always been over-subscription. We can recall the Laxmi Bank, Himalayan Bank's shares allotment case where shares application was far more than the required capital. Similarly, Everest Bank, NCC Bank has also got similar response from the public. At that period, not only the banking industry but also some other financial institutions and hydro-electricity industry have enjoyed the same public enthusiasm in IPOs (Initial Public offerings). With the increase in number of share floating in the market, public attention toward secondary market has also increased. NEPSE index has reached up to 593.92 points from 155.16 within a short period of less than four (4) year.

But excessive high public response to primary issue and increase in stock market index is not enough for the development of capital market. As in every field of development, the need is for sustainable development. Though some companies have been able to raise fund quite easily from the public for their investment projects, and some active market participants are able to earn sufficient capital gain, we can't conclude this as the sign of development. Excessive over subscription of public issue shows that there is high liquidity among the investors due to inadequate investment opportunity. Similarly, dramatically increased in market price index may mislead the economy. While going through the stock price in the market, it is revealed that some stock price has got price appreciation without any extra-ordinary financial performances. As NEPSE total market capitalization contains more than 65% from banking sector, overvaluation of banking sector stock leads the market index to be increased.

Normally, increase in stock prices is taken positively. Increase in stock price means better return to the investors. But, it should not be forgotten that every economic activity should be justifiable and which can

sustain for a long period. If price increment is just by inefficiency, that can harm a native investors who generally takes passive investment strategy. Passive investment strategy is a relatively easy strategy since it does not require frequent analysis of investment and adjustments for the same. It is just a function of buying security and holding it for a long period with the aim to earn regular divided income. But such strategy is useful only in an efficient market. For an inefficient market like NEPSE a frequent analysis is needed. Not only the fundamental analysis but also technical analysis can be used to perform better in the market. To get the market toward efficiency, average investors should participate actively in the market. They should use both technical and fundamental analyzing tools before making investment decision; investors should be able to recognize the actual value of an investment that they will realize by holding it until the maturity. On the whole, every investor in the market should be continuously seeking the profitable opportunity to maximize their wealth.

As stated previously, the study about Nepalese investors is conducted through an observation of small number of investors. But the study of a small number of investors is not enough to generalize the behavior of the unlimited population of Nepalese investors. So, we also conduct other subjective study through gathering opinions and views of other related parties like stockbroker, company managers and experts. The following subjective discussions are papered on the basis of the survey study of Nepalese capital market and investing public.

Nepal is one of the poorest country in the world. The per capital income of \$ 290 (Economic survey 2005/06) indicates that average Nepalese don't have adequate earning even to meet their basic physiological need. When there is not sufficient earnings, there will not

be saving and then no investment. But economic advancement of any nation has direct relationship with investment expenditure. Investment helps to increase income by several folds through dynamic multiplier effect. Although, adequate investment is not possible for a poor country like Nepal, it should have some initiative towards accumulating the scare savings into the capital.

It is the universal fact that if the capital market is efficient the capital formation work becomes easier. But the efficiency test of Nepal Stock Exchange revealed that the market is not efficient market. Even the knowledge of historical price series can be used to earn better return in the market. Therefore, passive investment strategy of a native investor can't yield better earnings in Nepalese Stock Market. Sometime the market follows the way of bull and sometime the way of a bear. That means the market is not following a "random walk", the minimum requirement for weak form efficient hypothesis. In short, we can say the market price in NEPSE is not reflecting the true value of the investment.

Since market efficiency is taken as the consequence of investors' behavior, the inefficiency of NEPSE implies that the Nepalese investors aren't efficient or are irrational. Though the previous analysis discovers that the NEPSE is an inefficient market, it doesn't describe the causes of inefficiency. Inefficient market is one, which lacks the conditions that have assumed by the efficient market hypothesis. Hence, we concentrate on the topic: Large number of rational investors, which are regarded as the primary conditions for the efficiency and conclude their consequences for market inefficiency while analyzing this topic more emphasis has been given on the investors and their behavior.

4.5.1 Investor's Participation in NEPSE

Like other emerging capital market, NEPSE is also suffering from thin trading. Although, the large number of shareholders are general public, their inadequate participation or passiveness has made the market much thinner. Large number of investor (buyer/ seller) participation is one of the important conditions for an efficient market. It helps market not to be affected from some individuals or group of investors. But larger parts of Nepalese investors are passive. While going through the ownership structure of private sector commercial banks, a large portion of equity is held by foreigner joint venture company and by the promoters group. Only the remaining part of equity is held by Nepalese investors. Because of the restrictions imposed to promoter group and foreigner joint venture company, they can't trade their shares openly in the market. Only the stock held by general public are free to trade openly in the market. But the study shows that a number of investors are from outside the valley and most of them are passive. Even though the stock price rises up to unbelievable peak, they are not found to come to market to sell their stock. Similarly, investors within the valley are not so active. Since, their investment on stock is quite nominal portion of their wealth, they do not think necessary to go to market for small gains. But they think of being much wealthier by stock price appreciation. Thus, the large numbers of investors are passive.

However, there are some number of investors who are actively participating in the market. They take active investment strategy. These investors include some institutional investors and some professional individual investors. Their average return is found to be more than 30% on their investment. The gain of these active traders is made on the expense of the investors who casually go to the market. These casual

types of investors can also be divided into two categories. The first categories of casual investor who come to take short position are mostly inspired by their monetary need. They sell stock by consulting the brokers. It is noteworthy to point here that brokers are also not fulfilling their duties ideally. They are much inspired by their own interest rather than customers' interest. So, taking decision about buying/ selling stock only on the basis of brokers' advice may cause losses to the investors. However, most of the stocks in the market are traded on overvalued price; sellers generally don't suffer so heavy loss if they come to the market after a long time. But the other types of investors who come to the market to employ their excess income on the stocks are likely to suffer loss because they will be investing on overvalued stocks.

Theoretically, when market prices are overvalued, investors get benefit from taking short position which also helps to rectify market inefficiency. But due to the passiveness among the Nepalese investors in spite of trading of overvalued stock in the market, market has become quite inefficient. If a small number of investor behaves according to the theory that do not work to yield benefit to them and to rectify the market efficiency.

The promoters group can't trade their share openly to the public. But they can trade stocks within their group. Since their holdings of share are in large size, their trading obviously affects the market price of the stock. Legally, the overvalued stock doesn't help to increase the wealth of the promoters because they can not sell their stocks to the public; it provides benefits to them from some other way. Promoters may employ another person to trade stock on their behalf. As the stock prices are controlled by them, they get benefit by manipulating share price in their favour. Since the monitoring and supervision aspects are not so strict

here, the overvaluation of stocks may be the unethical activities of promoters group.

Stock price in the market is determined by demand and supply function. When stocks are demanded in overvalued price in the market, the general investors who are holding larger portion of market share should come to market to supply the stocks. Such rational activities help to maintain the stock price near to true value. But a large number of Nepalese investors are passive. Due to the lack of adequate investment opportunity, public demand is even increasing. Excessive high response to IPOs (Initial Public Offerings) shows that public is quite interested to invest in share market. The public is equally interested to buy stock in the secondary market too. Therefore, demand for stock is extremely high. Hence, the suppliers are passive and the demand is very high which result to the overvaluation of the stocks in the market. So, the larger numbers of passive investors are needed to stimulate in the market.

4.5.2 Rationality of Nepalese Investors

A rational investor is that who continuously look for opportunities for risk adjusted excess return and whenever any opportunity is found s/he puts in to effect proper scheme to capitalize the same. To recognize such opportunities, the investors use fundamental and technical tools and properly analyze the available investment alternatives. They are qualified enough to analyze the investment opportunities correctly. Thus, rational investors always try to maximize their wealth as much as possible.

To determine the rationality of Nepalese investors, first we look at their current status and then look whether they use fundamental and technical tools correctly to analyze investment opportunities.

4.5.2.1 Status of Nepalese Investors

As in every other field of financial activity, the participation of Nepalese women in stock market is very thin. Large numbers of common equity holders are from inside the valley. However, a number of stockholders are from outside as well. The number of participation in stock market from rural area is quite rare. Most of the investors have associated in capital market after subscribing IPOs from the primary market. As discussed earlier the market is suffering from thin trading. Most of the investors are passive in spite of availability of profitable opportunities in the market. The ownership of equity among the general public is much scattered and the investors are revealed to be investing very nominal part of their wealth in stocks. Most investors are having direct investment on stocks. That means the average investors don't use any investment intermediaries like mutual fund to manage their investment. So the concept of mutual fund is not popular as it should be.

Most of the investors are holding the shares bought from primary market for a long time. Even though the stock price have reached to an unbelievable peak, they do not want to sell them. The reason for this is the lack of idea about intrinsic value among the investors. "As a share purchased on Rs. 100 few years ago reached to Rs. 2500 with providing some cash divided as well, why should we sell it? It is a very profitable stock", comments an investor toward a commercial bank's stock. But he doesn't know that the share is overvalued and the price is decreasing in near future. Moreover, investors compare the probable wealth position with initial book value of stock, which is quite a blunder mistake. The probable wealth position must be compare with current position instead of the initial.

Investors are not found to be comparing the divided yield of the stock with opportunity return; instead they look at general trend before making an investment decision. Most of the institutional and professional investors, who take active investment strategy, are found to be earning more than 30% on their investment. But most of the individual investors who buy stock in secondary market and take long position are suffering loss.

4.5.2.2 Fundamental Analysis and the Nepalese Investors

Fundamental analysis to investment choice assumes that each security has an intrinsic value that can be determined on the basis of such fundamentals as earnings, dividend, capital structure and growth potential. An analyst determines the intrinsic value on the basis of these fundamentals and compares this value with the current market price to determine if the security is under-or-overvalued. This kind of analysis typically focuses on key statistics in a company's financial statements to determine if the stock price is correctly valued.

Most fundamental information focuses on economic, industry and company statistics. The typical approach to analyzing a company involves four basic steps:

- i. To determine the condition of the general economy
- ii. To determine the condition of the industry
- iii. To determine the condition of the company
- iv. To determine the value of the company's stock.

4.5.2.2.1 Economic Analysis

The economy is studied to determine if overall conditions are good for the stock market. Is inflation a concern? Are interest rates likely to rise or fall? Are consumers spending a lot? Is the trade balance favourable? Is the money supply expanding or contracting? These are just some questions that the fundamental analyst would think to determine if economic conditions are right for the stock market.

Except few, none of the Nepalese investor is found to be performing such analysis while buying or selling stock. Even the institutional investors do not consider such thing while buying/ selling the securities. Since, the market is quit irrational and it is affected very less by the financial factors, such analysis produces no meaning. If the average investors were performing such economic analysis, the stock price banking sector could have never performed so well when the other industry are continuously suffering loss.

4.5.2.2.2 Industry Analysis

The company's industry obviously influences the outlook for the company. Even, the best stocks can post average return if they are in an industry that is struggling. It is often said that a weak stock in a strong industry is preferable to a strong stock in a weak industry.

Nepalese investors are found to consider the industry performance. Since banking industry is reporting better earning each year, investors are much interested in investing in the stock of this industry.

However, Nepalese investors don't possess strong data interpretation ability. The performance of banking sector is very hard to

analyzed and predict for a long period. But investors are just looking at the current earnings to make investment decisions. Banking industry can't be analyzed only on the basis of current earnings. Investors should give a conscious look at quality and portfolio of the investment, provision for loan loss, source of income whether it is fund based or services based and cash flow.

4.5.2.2.3 Company Analysis

After determining the economic and industry conditions, the company itself is analyzed to determine its financial health. This is usually done by studying the company's financial statements. From these statements, a number of useful ratios can be calculated. The ratios fall under five (5) main categories: profitability, price, liquidity, leverage and efficiency. When performing ratio analysis on a company, the ratios should be compared to other companies within the same or similar companies to get a feel for what is considered "normal".

Most investment decisions of Nepalese public are not based on financial performance of the concerned company. Though some investors look at the total amount of profit for the year, they do not try to check the validity of that report. Though, they look at the key financial ratios reported along with the financial statements, they do not try to analyze their impact on their investment. Moreover, most investors are not able to interpret the financial indicators correctly.

4.5.2.2.4 Stock Price Valuation

After determining the condition and outlook of the economy, the industry and the company, the fundamental analyst is prepared to

determine if the company's stock is overvalued, undervalued or correctly valued.

Several valuation models have been developed to help for determine the value of a stock. These include dividend models, which focus on the present value of expected dividends, earnings models which focus on the present value of expected earnings and asset models which focus on the value of the company's assets.

Valuation of stock in a growing economy is quite a hard work. Value is based on the expectation of future cash flow. But the future environments in Nepalese context are quite unpredictable. The frequent changes in government policies affect the company's performance and then the return and risk exposure to the investing public. Moreover, growing stock can't be valued on the basis of current divided only. Most of the Nepalese companies have very short history. So, prediction of perpetual life on the basis of 10/12 years' performance is very difficult task.

The study revealed that most of the Nepalese investors are even not familiar with the valuation concept. They do not know how to value a stock. They think that the value is determined in the market. They are not able to distinguish the difference between price and value. In such situation how a stock market becomes an efficient market?

There is no doubt that fundamental analysis plays a major role in getting the market more efficient. However, our market is inefficient even in weak form, technical tools are equally important to eliminate the market inefficiency.

4.5.2.3 Technical Analysis and the Nepalese Investors

Technical analysis approach assumes that there are systematic dependencies in security market returns that can be exploited to yield abnormal returns. With the technical analysis, investors focus exclusively on the asset's price data, asking what does its past price behaviour indicate about its likely future price behavior. Technicians, chartists or market strategists, as they are variously known, believe that there are systematic statistical dependencies in asset returns that history trends to repeat itself. They make price predictions on the basis of published data, looking for patterns and possible correlations, and applying rules of thumb to charts to assess 'trends', 'support' and 'resistance level'. From these, they develop buy and sell signals.

Market timing is a form of technical analysis that aims to identify turning points in the performance of major stock indices. Other methods include filter rules, measures of 'relative strength', line and bar charts, moving average of prices over various period, the study of trading volume, aggregate demand and supply analysis and number other gauges that measure momentum, valuation, sentiment, leadership or monetary policy.

Technical analysis is based on the assumption that markets are driven more by psychological factors than fundamental values. Its proponents believe that asset price reflect not only the underlying 'value' of the assets but also the hopes and fears of those in the market. They assume that the emotional makeup of investors does not change, that in a certain set of investors does not change, that in a certain set of circumstances, investors will react in a similar manner to how they did in the past and that the resultant price moves are likely to be the same.

The technical analysis is useful only in an inefficient stock market, investors can use technical tool to earn better return in the market. But our study revealed that most of the Nepalese investors are passive. They are not using even the technical tools to find opportunities in the market. However, small group who is participating regularly in the market are using this tools and are beating the market regularly. The large numbers of active investors make investment decision only on the basis of rumor. The investment activities that are performed only on the basis of technical analysis are like speculation. Moreover, Nepalese investors make investment decision based on rumor. So, we can take NEPSE as the big gamble market or as the irrational market.

Unless market price reflects the fundamental value of the stocks, the market is not regarded as an efficient market. Therefore, fundamental analysis among the investors is quite necessary to get NEPSE efficient. Since large part of investors are passive in spite of existence of opportunities for risk adjusted excess return, market is not able to get efficiency. If the large no. of investors were using fundamental and technical tools to seek opportunities in the market, the opportunities for risk adjusted excess return (market inefficiency) would have been vanished.

4.6 Major Findings

After having the analysis of NEPSE market return series and the investors' behavior, we have come to some findings, which mostly insist for rejecting null hypothesis. The test of market efficiency at weak order hypothesis is the core of this research. Both the model employed to test efficiency gives quite consistent result. Every sample of return series that found to be non-random in auto-correlation test is also found to be non-

random in run test. All of the total samples of total market return series reject the null hypothesis by violating the assumption of random walk. Similarly, out of thirteen samples return series for banking sector, only three samples were revealed to be consistent with the assumption of weak form efficiency hypothesis in auto-correlation test and the remaining ten samples violate the assumption of random walk.

The efficiency test of NEPSE revealed the following major findings:

- The auto-correlation analysis of daily market return of NEPSE has detected significant first order correlation. It means the market return of today in NEPSE is affected by the return of yesterday. The price movement is not independent rather it has some relationship with the past price sequences. Hence, today's price change of stock in NEPSE is not an unbiased and independent outcome of yesterday's price change. OR, the market is not following a random walk, the minimum requirement for weak form efficiency. Thus, the past information about the stock price movement is useful to earn risk adjusted excess return in the NEPSE.
- Run test for the daily market return has also revealed the similar result that the stock price formation process in NEPSE is not independent from the historical price series. The observed number of run is quite lower than the runs that could be expected if the movement were random. The lower number of runs indicates the overreaction to the information, which allows active investors to earn risk-adjusted excess return in the market. Hence, this also

suggests rejecting null hypothesis that the market follows a random walk.

Since, both the research model show the market return is not following a random walk, we conclude that the NEPSE is an inefficient market. The above researches were the test for weak form efficiency of the NEPSE. As the market could not meet the requirement of weak form efficient market hypothesis, it can be ascertained as inefficient under the all (semi-strong and strong) form of hypothesis.

The major findings of the study from the analysis of primary data and the subjective analysis of Nepalese investors' behavior are listed as follows:

- By analyzing the primary data, it was found that investing in the shares is popular since it provides sufficient return in comparison to other field of investment. But some of respondents also showed their dissatisfaction to invest in shares.
- 'Friends' was found to be highly inspiring source to make investment in shares. 'Others' and 'relatives' were found to be moderately inspiring sources while 'brokers' and 'investors education program' were found to be less inspiring sources to make investments in shares.
- 'Dividend' was found to be highly inspiring (motivating) factor for investors to make investment in shares. 'Capital appreciation' and 'Marketability' were found to be moderately inspiring factors to make investment in shares. While Social status and participation in AGM' were found to be less inspiring factor to make investment in shares.

- Most of the respondents i.e. 68.57% were found to be dissatisfied with their present level of return.
- Most of the respondents i.e. 52.86% said that the listed companies are not able to meet the target as mentioned in their prospectus.
- Most of the respondents i.e. 85.72% showed their dissatisfaction about the present situation of availability of the information about the securities.
- Most of the respondents i.e. 78.57% showed their dissatisfaction with the performance of the concerned institutions i.e. NEPSE, SEBO/N in handling the grievances of investors.
- Most of the respondents i.e. 74.29% showed make share purchase decision on whim without considering financial performances of the company and without consulting the experts.
- Most of the respondents i.e. 48.57% responded that they are getting moderate level of return while 14.29% respondents are getting very low level of return and only 11.43% respondents are getting high level of return in comparison to their expectation from share investment.
- Most of the respondents i.e. 52.86% responded that they are facing at moderate level of dishonest activities in the stock market such as insider trading. Where as 7.14% responded that it is at low level.
- Most of the respondents i.e. 58.57% responded that their level of awareness is at low and 17.14% responded at moderate level. Where as 11.43% responded that their level of awareness is at high level.
- Most of the respondents i.e. 50% responded that whim and rumor are highly responsible while 2.86% responded that whim and rumor are at very low responsible to influence the decision of share investment.

- By analyzing the behavior of Nepalese investors', it is found that most of Nepalese investors are passive.
- Thin trading is the most serious problem in the market.
- A small number of active investors are making abnormal gain regularly.
- The investors following active strategy earn substantial return from market than that those following passive strategy.
- Fundamental tools of analysis are not working effectively because the market is affected very less by financial factors.
- Nepalese investors are not familiar with investment banking. They do not have any idea about the mutual funds so they are making direct investment towards the companies.
- Public are suffering from the high liquidity. It means they are not able to place their excess saving towards on appropriate investment alternative from which they can earn minimum rate of return.
- Investment decisions of Nepalese investors are based on the rumors and speculations. They do not compare the yield of their investment with other opportunity rather they look at the market movements and if they found stocks to be increasing, they buy the securities and if it is decreasing they sell the securities.
- Investors are not able to interpret the financial events correctly. For example investors take the bonus share as the increment of their wealth position.

Thus our analysis revealed that the average Nepalese investors are behaving irrationally and the market inefficiency is also the consequence of irrational behavior of Nepalese investors. Hence, consistent with the finding of secondary data, primary data and investors behavior analysis also provide the evidence of market inefficiency.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

In the context of Nepal, the concept of capital market is neither very old nor very complex. It is still in creeping stage where various efforts have been made for the development of capital market. The history of securities market began with the flotation of shares by Biratnagar Jute Mills and Nepal bank Ltd. in 1937 and the establishment of Securities Exchange Center Ltd. in 1976 which was converted into NEPSE in 1993. NEPSE had adopted as ‘Open-out-Cry’ system but recently it has adopted as electronic system. NEPSE is the only one stock Exchange and NEPSE Index is the only index in Nepalese capital market. NEPSE opened its trading floor on 13th February, 1994.

This study is conducted with the main objective of finding the efficiency of NEPSE and finding the effect of Nepalese investors’ behavior on the level of efficiency of NEPSE. The study period covered the period of latest five year beginning from January 1, 2002 A.D. to December 31, 2006 A.D. The study is based on secondary and primary data. The analysis is based on the NEPSE index for total market composite and banking sector index for the study period, test of market efficiency is performed by the randomness analysis of daily market return through the use of Auto-correlation and Run test models. The overall findings from the empirical analysis of secondary data suggest that the daily market return in NEPSE is not following a random walk. The autocorrelation and run test have detected the existence of significant relationship in the series of market return. It means stock return or prices are following a predictable pattern. Therefore, an active investor with

historical information about the stock prices can easily outperform with simple buy and hold strategy. As market is not following a random walk, it is concluded as an inefficient market. Since NEPSE can't meet the WFEMH, it is implicitly inefficient under the all form (semi-strong and strong) of hypothesis.

Study of primary data revealed that most of the respondents' level of awareness (rationality) towards securities market is at low. Their investment decision in shares is highly influenced by whim and rumors. It is also revealed that most of respondents i.e. 68.57% were found dissatisfied with the present level of return from share market where as remaining 31.43% were found satisfied.

'Dividend' in shares and 'Capital appreciation' were found most inspiring factors for investors to make investment in shares while 'Social Status' and 'participation in AGM' were found less inspiring factors. Similarly, 'friend' and 'other sources' were found highly inspiring sources to get the idea to make investment in share while 'investors' education programme' and 'brokers' were found less inspiring sources to make investment in shares.

Likewise, only 14.28% of the respondents were satisfied with the present availability of the information about the securities while 85.72% showed their dissatisfaction.

Similarly, the study of Nepalese investors' behaviour revealed that the market is seriously suffering from thin participation of general investors. The study has discovered that most of the general investors are passive though there is availability of profitable opportunities in the market. The general investors are holding the shares for a long period.

Since, the investment in the stocks for general public is quite nominal portion of their wealth; they do not have any eagerness to have frequent participation in the market. Thus, the study side is quite passive. On the other hand, the general public is not able to recognize appropriate sector to employ their savings. In such time, banking sector is the only sector which is reporting high profitability each year. So, the public demand for the banking sector stock is quite high. Since, demand is increasing and supply is passive, the stock price in the market has got overvalued. Besides thin trading, the immature behaviour of the Nepalese investor is also the other responsible factor for the inefficiency of the NEPSE. Very few investors use fundamental and technical tools to analyze investment opportunity. Nepalese investors do not have clear concept of intrinsic value of their investment. They always interested on capital gain as well as dividend and their investment decision is much like speculation rather than investment.

Although Nepalese capital market is offering a number of opportunities for risk adjusted excess return. But the investors are not responding correctly to the market opportunities. Thus, such behaviour of investors is making the NEPSE an inefficient market. The passiveness among the general investors or thin trading in the market is the main cause of inefficiency of the NEPSE.

5.2 Conclusion

Overall evidence from both Secondary and Primary data analysis lead to the conclusion that NEPSE is not efficient with respect to any of so-called levels of efficiency. Processing of information in NEPSE is rather weak and such is perhaps because of the persistent of large number of non-actively traded share. In addition, NEPSE behaviour exhibits that

price response to information is biased. Price at one time may be unfairly high and later on are unfairly low. It suggests that information alone is not moving the price; other probable reasons for such may be irrational behaviour of investors, unfair practices of market intermediaries, non-disclosure of information by listed companies on time, manipulative action of speculators etc. This provides evidence consistent with market inefficiencies.

5.3 Recommendations

The conclusion of the study implies that past price movement may help to estimate the future price with reasonable accuracy. Since, stock price movements indicate predictable patterns, investors can benefit from the technical analysis, trading rules based on past price and fundamental analysis. As market reveals substantial sign of inefficiencies, investors who can accurately predict movement in market and properly identify the mis-priced securities can achieve superior returns. Thus, in such inefficient market, it appears to be useful for investors to pursue active investment strategies and to gain insight that is superior to that of other investors.

To do so, investors much posses advantage in the quality and timeliness of information. However, the current scenario of market implies that Nepalese stock market is not developed properly from informational aspects. Though it is mandatory for listed companies to disclose all price sensitive information to NEPSE and also to submit semi- annual reports and annual reports on regular basis to NEPSE and SEBO, most of the listed companies are not complying with this requirement. This is seriously hindering the informational efficiency of NEPSE. In this scenario, it is implicit that dissemination of timely and

adequate information by listed companies can contribute to maintain the confidence level of investors and to develop fair securities market.

The failure of Nepalese securities market to maintain even the weak form of market efficiency implies serious issues that must be addressed as matter of urgency. So, for development of NEPSE as reasonably efficient market, the relevant recommendations in related area are made. The recommendations are made in four aspects (a) a legislative framework (b) regulation by the concerned authorities (c) self-regulation by market players (d) miscellaneous.

(a) Legislative framework

The first important aspect is development of adequate and consistent legislative framework. Absence of comprehensive Securities Exchange Act is major reason for weak compliance and ineffective enforcement system. Besides, there is also need of proper coordination in provisions of different legislation. In this perspective, prevailing rules and regulation have different provisions regarding the information disclosure in Nepal. As per Company Act, 1997, corporate bodies are required to disclose their yearly operations within six months after the end of a fiscal year, whereas securities Exchange Act, 1997, has prescribed four months for the same. Bank and financial institutions ordinance and Insurance Act also have different provisions on this regard. Such conflict and inconsistencies in legal provision must be aligned to remove dilemma faced by the listed companies.

(b) Regulation by Concerned Authorities

Only full-fledged legislative framework in black and white format alone will not ensure its implementation. In our context, the concerned

authorities, NEPSE and SEBO, must work in co-ordination to implement it effectively. Over the year there have been some reforms in Nepalese capital market, but there are still many issues to be addressed. Some of the issues and suggestive measure are briefly mentioned below:

- Investors' confidence in the securities investment is low. So, it must be restored through strengthening of investor protection and improvements in transparency, corporate governance and effective monitoring mechanism.
- As a policy to improve the market efficiency, the timely disclosure and dissemination of information to investors on performance of listed companies should be emphasized.
- Investor forum must be established to educate and encourage individuals to make their own investment decisions. Training programmes, meetings, seminars must be conducted and if possible TV/radio programmes with information about stock market may also be broadcasted to encourage the idea that individual need to be knowledgeable in order to make rational investment decisions and further to encourage their active participation in stock trading.
- Ensure strong regulatory enforcement and proper market surveillance, as without it market efficiency will be elusive. For this, concerned authorities should place stricter and more effective enforcement of laws in order to deal with the problem of stock price manipulation, market rigging, insider dealing and false trading.
- Besides, the professional advice for investors needs to be facilitated to assist in taking rational investment decision. Brokerage firms must be encouraged to conduct research and

development activities and also required support should be provided for establishment of investment advisory services.

- Need for building professionalism and enhancing market capacity through extensive training to securities businesspersons.
- To ensure the proper information disclosure the securities market infrastructure, such as accounting standards and legal mechanisms, should be improved to this end. As such accounting and auditing practices should be as in par with internationally acceptable standards.

(c) Self-regulation by Market Players

Above measures, if considered properly by concerned authorities, is expected to curb the ongoing recession in the securities market. However, self-regulation by market players is also equally important for revival of Nepalese securities market. No doubt, proper information flow is necessary aspect for market efficiency but next often overlooked aspect is that the users need to use the disclosed information effectively. In this regard, both investors and brokers should effectively filter informational content of the available information in the market and incorporate such into price through trading.

- Moreover, investors should be self-conscious, aware and informative in matter of taking investment decision rationally. Investment should be based on sound investment criteria and clear perception of the market behaviour rather than guesswork, rumor and other less reliable news.
- Beside that, investors themselves should be active and sufficiently conscious enough to safeguard their fundamental investment rights

and their other powers to get timely information from the companies.

- If management of the company is not serious on the matter that has decisive impact on the interest of investors, investors can lodge complains to concerned authorities, such can lead to decrease in credibility of company in the market and may result in decrease in price, which in turn can prove to be punitive action for non-complying companies.
- Brokers as important market participants also need to develop professional and ethical approach in stock market activities. Full-fledged brokerage business is yet to be developed in NEPSE.
- Brokers should have sufficient client orientation in their service delivery approach and give suggestions on the basis of fundamental and technical principles of capital market.
- There is also need for change in their attitude. They must be investors friendly and through Broker's Association, they must respond to investor's problem with coordination of NEPSE.

(d) Miscellaneous

- With the span of time, security market is diversifying in its scope. So adoption of electronic and screen based transaction system is need of time. Further market infrastructures like central depository system of securities, over the counter market and e-trading system and credit rating agency are necessary for promoting securities market standard.
- Institutional investors like mutual funds should be encouraged to play active role in the market so that more Nepalese could benefit from the market activity. Similarly, insurance, pension and

provident funds should be permitted to invest beyond the banking and financial sectors.

- NEPSE is dominated by risky investment i.e. equity share, which may not be attractive to risk averter and risk neutral investors. So, there must be initiation towards investment instruments diversification.
- The stock exchange should have a high speed settlement and clearance system, investors- friendly environment, well equipped office, well-trained, brilliant and hard working staff.
- There is need of specialists in NEPSE floor, who supervise stock trading, handle special orders to ensure continuous liquid and orderly markets.
- The government need to seriously address the issues related to deteriorating law and order, economic slackness, poor business environment, low level of internal saving and investment as these factors are adversely affecting the securities market development.
- The government or concerned bodies should be made the provision of high penalty for negligence, manipulation of the reliable information and delay on AGM.
- The development of stock market is also depending on political stability of the nation. So, the government should try to maintain the political stability to developing the securities market.

Summarizing the whole discussion, it can be suggested that securities legislation should clearly provide definitions and general principles; rest may be left to self-regulation and market practices. Nevertheless in instances of violation of the general principles, concerned authorities should take prompt and severe action.

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APPENDIX-IV

Questionnaire

To,

Date:

Dear Sir/ Madam,

I hereby request you to fill up the questionnaire prepared by me for collecting the precious data from you, which will be prepared for facilitating the research conducted for the partial fulfillment of the requirement of the MBS degree. This research topic is related to the “The Market Efficiency and the investors”. The views taken will be used for the purpose of this study only. The view will be kept confidential and will not be published anywhere. I would like to request to provide your valuable answers to the research problems. Some questions do have possible answers but some others call for a bit explanatory. While filling the questionnaire please put the tick mark (✓) on the box. Your kind cooperation will be helpful to complete this study successfully.

Thank You !

Your Sincerely,
Samraj Tamang
(Researcher)
Master of Business Studies
(CDM)

Tribhuvan University

Central Department of Management

A Survey on Market Efficiency and the Investors

Name of the Respondent :

Designation :

Department/Office :

Qualification :

Date :

Signature of the Respondent :

Please Tick (☐) the correct answer.

1. Have you invested in shares of the listed companies?

Yes No

2. In which sector do you think public have better opportunities for investment?

Securities investment sector:

Banking sector

Finance sector

Insurance sector

Manufacturing sector

Trading sector

Hotel sector

Others

3. How did you get the idea to invest your money into shares at first?

From friends From relatives From stock brokers

Investors education programme organized by concern authorities

Other media, please specify.....

4. By which special characteristics are you impressed to invest your money into stock than other sectors?

- | | |
|---|--|
| <input type="checkbox"/> Dividend | <input type="checkbox"/> Marketability |
| <input type="checkbox"/> Capital appreciation | <input type="checkbox"/> Social status |
| <input type="checkbox"/> Participation in AGM | |

5. Are you satisfied with the return you are presently getting from your investment?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

6. Do you think that companies are able to meet the targeted stage as mentioned in prospectus in general?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

7. In your opinion, are Nepalese Investors getting sufficient and timely information regarding the listed companies regularly?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

8. Do you think that the regulatory authorities are regularly monitoring the performance status of the listed companies?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

9. Are you satisfied with the grievances handling of the investors by different institutions involved in share trading and regulation activities?

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

10. How would you make a decision to purchase the share of particular company in share market?

- Consult a broker
- Act on whim
- Analyze the company management
- Analyze the past profit & loss
- If other, please specify

11. When would you like to sell your shares in the share market?

- When company's profit decline
- When compnay fell to pay dividend
- When cash is needed
- When high market price and start to decline
- If other, please specify

12. Are you satisfied with the present trading system adopted by NEPSE, which is open out cry system?

- Yes No

13. What is the level of return you are presently getting in comparison to your expectation from share investment?

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 Very high | 4 High | 3 Moderate | 2 Low | 1 Very low |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

14. To what extent do you think that investors are facing different dishonest activities such as insider trading?

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 Very high | 4 High | 3 Moderate | 2 Low | 1 Very low |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

15. What is the level of awareness (rationality) of the shares investors in Nepal?

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 Very high | 4 High | 3 Moderate | 2 Low | 1 Very low |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

16. To what extent do you think that Nepalese investors are influenced by whim and rumors?

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 Very high | 4 High | 3 Moderate | 2 Low | 1 Very low |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Thanks for your co-operation !