CHAPTER - ONE

1 Introduction

1.1 Background of the Study

Stock market plays an important role in stimulating economic growth of a country. It helps to channel fund from individuals or firms without investment opportunities to firms who have them and thus improves the country's economic efficiency. It is the lifeblood of the economy of a nation that concerns individuals, firms as well as government. However, stock market is volatile financial market, in which various factors can affect the return that investors can gain form investing in stocks. The uncertainty of reward from stock market is translated into risks that investors have to bear for investing in stocks. The uncertainty of reward from stock market is translated into risks that investors have to bear for investing in stocks. Broadly, risk exist in the stock market can be categorized into unsystematic risk which is firm specific as a result of company specific factor and systematic risk which is market related risk in consequence of market related factors. According to Markowiz portfolio theory (Markowiz: 1959), unsystematic risk can be diversified away through diversification of portfolio and thus the capital markets will not reward investors for bearing this type of risk. Instead, the capital markets will only reward investors for bearing systematic risk that cannot be eliminated through diversification.

Since the return from investment in stock market is uncertain, knowing the risk and return nexus in the stock market will be crucial for investors to maximize their return and minimize their risk, and thus ensuring the attractiveness of theiring in stock market.

"Real investment generally involves some kind of tangible assets such as land machinery or factories. Financial investment involves contracts written on pieces of paper such as common stock and bonds. In primitive economic most investment is of the real variety where as in modern economy much investment is of the financial variety" (Sharpe, Alexander & Bailey: 1995)

"Risk and return are most important concept on finance. In fact they are foundation of the modern finance theory" (Pandey: 1999)

"Risk and return are determinant for the evaluation of securities. However, risk means that we do not know what is going to happen even through we occasionally have a good idea of the range, of possibilities that we face. In other words, when the firm should recognize that the forecast return may or may not be achieved. This is the element of risk in decision-making process. Therefore, risk may be defined, as the likelihood that the actual return from on investment will be less than the forecast returns. Stated differentially, it is the variability of return from on investment". (Hampton: 1996)

Finance mostly deals on the monitory risk and return. This is the most affecting subject matter for an individual to large corporation. Return is the reward for bearing risk and risk is always associated with return. In another word risk is the fact of life, which is a product of uncertainty and its magnitude depends upon the degree of variability in uncertain cash flows. in fact risk is an indication of opportunity of losing investment value. And return is the incomes received in investment. People invest their belongings with an expectation of getting some reward. The only invest in those opportunities where they can get higher return. Hence investor wants favorable return from their investment.

Investors have different perceptions towards risk and return. Every investor is respond in their own way in taking investment decision. Generally, they sacrifice their current cash only in those sectors where there are high chances of securing return. An investor seeking common stock investment usually pays the price for the stock base on his estimation about future dividends and growth in stock price. Investors can earn in the form of dividend or interest income and the appreciation in the price of the stock hold in stock market investment. So common stock represents a commitment on the part of a corporation to pay periodically what ever its board of directors deems appropriate, as cash dividend. Common stock is known as a risky security.

The study on risk and return on common stock investment occupies an important role in the development of stock market. A stock reflects the uncertainty about future returns, such that the actual return may be less than expected. Stock prices can be affected by economic factors such as interest rates, Inflation and the strength of the dollar. The risk of a stock can be measured by its price volatility and its beta.

Risk and return analysis is essential tool in the area of investment because by using this, an investor can find the less risky higher profitable investment of the different investment alternatives from the security market. Now a day there are 32 commercial banks working in Nepal.

1.2 Focus of the Study

The study is focused on the analysis of risk and return associated with the shares of the some commercial banks listed in NEPSE index. Common stock is believed to be one of the risky assets comparative to other securities in the market. The main aim of study is that how to get sustainable profit by minimizing the considerable risk. For this purpose realized return. Expected return total risk, systematic risk and unsystematic risk, correlation between two securities, portfolio return, portfolio risk and analyzing regarding the price movement of individual stock are analyzed to give an idea to get sustainable profit and by diversifying the risk to avoid further loss of the investment in the common stock, which will be helpful to give information how to get optimum benefit of the concerned groups. This will increase the general investor's confidence and ultimately increase stock investment and increase the degree of market efficiency which will essential to gearing up overall economic development of the nation. Among the 311 companies listed in NEPSE total 10 are commercial banks in Nepal (Nepal SBI bank, Everest bank, Nabil bank, Standard Charted bank, Nepal Bangladesh bank, Himalayan bank and NMB bank) with banks total of are selected as sample.

1.3 Statement of the Problem

Investor must be able to analysis risk and return of individual stock and portfolio well. This will increase their confidence and ultimately increase the efficiency of the market which certainty helps the development of the capital market of the nation. It is the responsibility of the investors to make the rational decision. But in Nepalese context very few people like university degree holders' financial professions and intellectuals can analysis the risk and return associated with the stocks.

The investors have no much more alternatives for investment. So, every one is making investment on security market. This trend has made the market unbalanced and unfair. If any bank or financial institution issues shares there becomes huge demand rather than supply, but if any manufacturing and processing issues shares very little investors make investment.

Commercial banks in Nepal have contributed much in the development of Nepalese economy. The major operation of these banks is accepting deposit, advancing loans and making investment in various sectors will agency services. It is needful to analyze its involvement and study its lending and investment process for the betterment in further investment decision the research will try to find out these answers to the following questions.

- What is risk and return of selected commercial banks in Nepal?
- How the investment decisions are to be taken?
- How return are correlated of selected commercial banks?
- Whether return premium is appropriate for the level of risk imposed?
- What is the systematic risk position in relation to total risk?
- Would portfolio construction within the selection commercial banks be profitable?

1.4 Objectives of the Study

The main objective of the study is to analyze the risk, return and other relevant variable that help in making decision about investment on securities of the commercial banks in Nepal.

The specified objectives of the study are:

1. To examine the movement of MPS.
2. To study the risk and holding period returns associated with investment.
3. To analyze the relation between risk and return of individual stock with that of market.
4. To identify whether stock price of selected companies are overpriced, underpriced and equilibrium priced.
5. To make relevant suggestions and practical ideas on the basis of findings and analyzing of data.

1.5 Significance of the Study

The analysis of the risk and return is a significant in management decision. It influences the share holders risk and return consequently the risk and return analysis influences the market price of the stock. So, before making an investment decision a person must analyze the risk and return from a particular stock as well as they can make a good portfolio between their investments in the stocks.

Commercial banks do not have clear vision towards effective investment. They are found to be making investment only on short term basis there is hesitation to invest on long term projects because they are much more safety minded commercial banks performance does not seem so satisfactory in term of utilizing its resources efficiently in productive sectors. Hence main significance of this study of investment portfolio analysis of joint venture banks is to help how to minimize risk on investment and maximize return through portfolio analysis. Similarly the study of commercial banks investment trend, risk return patterns, portfolio management and effect on investment decision on earning will strive to disclose the interval weakness of the banks and famish the ideas for improvement

therefore, the researcher has under taken this study to analyze the existing investment portfolio of Nepalese commercial banks and point out the various weakness of defects inherent in it and provide package of suggestions for its improvement.

1.6 Limitations of the Study

This study is simply a partial study for the fulfillment of MBS degree: this is not far from several limitations. Available of data about the company are limited. Relevant data and information are collected from individual company. The major limitations of the study are as follows.

- The study covers the relevant data and information only for five years i.e. 2006/07-2010/11
- Based on secondary data and information.
- For calculation of expected market return, market dividend is not given so we ignore market dividend
- Time and financial constraint are also the major limitation of the study.
- Among the listed companies only ten companies are selected for analysis.
- Secondary data gathered from related sources has been used. The reliability depends on it.

1.7 Organization of the Study

This study is divided into five chapters which are as follows:

Chapter 1 includes the introduction and general background statement of problem, objectives of the study significance of the study and limitation of the study.

Chapter 2 includes review of literature. In this chapter the review from banks, journals these are independent studies are taken into account.

Chapter 3 is research methodology. It includes the research design data collection procedure tools for analysis and method of analysis and presentation

Chapter 4 is data presentation and analysis part: it is the main body of our research. It includes data presentation, interpretation and analysis. In this chapter the risk and return of each selected companies is analyzed. The result obtained is compared with industries and market too.

Chapter 5 includes the summary and conclusion of the research. And finally suggestions and recommendations are given.

CHAPTER - TWO

2. Review of literature

Review of literature is the chapter where a researcher reviews the books, journals, magazines or any other type of studies which are related to its field of the study. Research is a continuous process it never ends. The procedures and finding may change but research

may continuous, so for analyzing the data and to find something new a researcher must to review and know if there are any studies ahead or not. The purpose of reviewing the literature is to develop some expertise is one's area to see what new contributions can be made, and to receive some ideas for developing a research design, thus, the previous studies can't be present study. In other words this has to be continuity in research. This continuity in research is ensured by linking the present study with the past research studies.

In this chapter relevant and recent literature which are related to the topic risk and return is reviewed. Topic from basis academic courses books and different studies published in magazines, thesis of seniors and journals related to the study are reviewed below.

2.1 Conceptual framework

Various books dealing with theoretical aspects of risk and return are taken into consideration. Major focus of finance is trade off between risk and return. Here main focus is its implication in the investment of common stock.

2.1.1 Common stock

"Stock is the ownership interest of a corporation each share of stock is fraction of the right and privilege that belongs to the owners of business. A stock certificate is evidence of the fractional ownership. It is tangible evidence. A certificate of title to part of the company."(Gienny V, Gary and James: 1984)

"Of all the forms of securities common stock papers to be the most romantic. Which fixed income investment revenue may be more important to the most of investment common stock seen to capture their interest the most. The potential reward and penalties associated with common stock make them an interesting even exciting proposition no wonder, common stock investment is favorite topic for conversation in parties and get together"(Prasanna: 1995)

"Common stock holders of a corporation are its residual owner's their claim to income and assets comes after creditors and preferred stockholders have been paid in fall. As a result a stock holder's return on investment is less certain than the return to lenders or to

preferred stockholders on the other hand the share of a common stock can be authorized either with or without par value. A par value of a stock is merely a stated figure in the corporate character and is of little economic significance. A company should not issue stock at price less than par value would be liable to creditors for the difference between below the par price they paid and the par value"(Van horne and Wachawicz: 1997)

"Common stock represents equity or an ownership position in a corporation. It is a residual claim, in the sense that creditors and preferred stockholders must be paid as scheduled before common stockholders can receive any payments. In bankruptcy common stockholders are in principle entitled to any value remaining after all other claimants has been satisfied (however in practice, courts sometimes violate this principle) The great advantage of the corporate form of organization is the limited liability of its owners. Common stockholders are generally "fully paid and non assessable", meaning that common stockholders may lose their initial investment, but not more. That is, if the corporation fails to meet its obligations. The stockholders cannot be forced to meet its obligation. However, as a result of such a failure it is possible that the value of a corporation's shares will be negligible. This will result in the stockholders' having lost on amount equal to the price previously paid to buy the share". (Sharpe, Alexander and Baily, 2000)

2.1.2 Capital market

Capital market is the market place through which established organized sector collect the long term capital by mobilization the individual and institution and saving either directly or indirectly. The securities once sold through the primary market and traded in the secondary market of the capital market. Thus the market can be classified into primary and secondary market.

2.1.2(a) Primary market

The primary market is the mechanism through which firm can raise additional capital by sell stocks, bonds and other securities. This market is also known as IPO market because initial public offerings are done through the market. In this market securities can be sold

either at par or premium or discount to the public by investment bankers. NEPSE has issue managers by operation primary market. SEBON is order to regulate the primary market.

2.1.2(b) Secondary market

Secondary market is a market place where second hand securities are traded. It means securities once purchased through primary market only traded in secondary market. This market remains as a center to convert stocks, bonds, and other securities in cash immediately. Since the secondary market provides liquidity to the securities, the investors are encouraged to buy securities in the primary market.

Where the securities are traded under some government rules and regulations is **organized market**. In this market, only listed companies securities are traded. The market where the securities of the companies not listed in the stock exchange are traded is called **over the counter market**. Since transactions are made informally. This market is also known as impersonal or curbs market.

Secondary market is also known as economic barometer of the country. This is because it reflects the economic policy of the country. All other things remain the same, the rising price show the policy is favorable and declining prices indicated opposite.

2.1.3 Risk on common stock

"Uncertainty, this return may not be realized. Risk can be thought of as the possibility that the actual return from holding a security will deviate from the expected return, the greater the magnitude of deviation and the greater the probability of its occurrence the greater is said to be the risk of the security"(Van horne: 2000) But Madura defines "stock volatility a as measure of risk because it may indicate the degree of uncertainties surrounding the stocks further returns"(Madura: 2001) similarly Hampton spills his view "The risk is likely hood that the actual return from an investment will be less than the forecasted return states differently, it is variability of return from an investment"(Hampton:1986)

Risk is the product of all potential outcomes expressed with probability associated with each other and it is measured in terms of

degree of variability in the probability distribution of such out comes.

Every investment involves uncertainty that make further investment returns risky. The source of uncertainties that contribute to investment risk are Interest rate risk, Market risk, Financial risk, Business risk, Purchasing power risk, Bull-bear market risk, Management risk, Default risk, Liquidity risk, Callability risk, Convertibility risk and Political risk etc. The uncertainties discussed above are the major sources of investment risk but by means do they would add up to risk or total variability of returns. (Francis: 1992)

"In the most bases, risk is the chance of loss. Assets having greater chances of loss are viewed as more risky than those with lesser chance of loss. more formally, the term risk is used interchangeable with uncertainty to refer to the variability of returns associated with a given assets"(Gitman:2001)

Risk is defined in Webstar as "a hazard; a peril; exposure to loss or injury. Thus, risk refers to the chance that some unfavorable event will occur. If anybody engage in skydiving, such people are taking a chance with his life skydiving is risky"(Brighem: 2001)

Thus the investment decision in the world of uncertainty is, mainly affected by two facts i) Expected value and ii) Standard Deviation

Standard deviation means a measure of the tightness, or variability of a set of outcomes. In other words standard deviation measures the magnitude of the difference between best possible return and worst possible return. Thus it measures the degree of risk of common stock. Because we have defined risk as the variability of returns; we can measures risk by examining the fightness of probability distribution associated with the possible outcomes. In general, the wide of a probability distribution indicates the amount of scatter of variability of the distribution of expected returns, the less its variability, thus the smaller risk associated with the investment. The symbol for which is σ(sigma). To calculate the standard deviation we proceed as shown in table, taking the following

$$E(k)= P_{r1}k_1+P_{r2}k_2+\ldots\ldots\ldots+P_{rn}k_n= \sum_{i=1}^{n} P_{ri}k_i$$

Where,

P_r = probability

k = expected rate of return

we subtract the expected rate of return [E(k)] from each possible outcome (k_i) to obtain a set of deviations from (k):

$$\text{Deviation}=k_i-E(k)$$

Where,

E(k)=expected rate of return

we square each deviation, multiply the result by the probability of occurrence for its related outcomes and then sum there products to obtain the variance of the probability distribution

$$\sigma^2 = \sum_{i=1}^{n}[k_i - E(k)]^2 \times P_{r_i}$$

we take the square root of the variance to obtain the standard deviation.

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^{n}[k_i - E(k)]^2 \times P_{r_i}}$$

Where,

E(k)= Expected rate of return

P_{r_i} = probability

σ = Standard deviation

Thus, The S.D. is a weighted average deviation from the expected value and it gives an idea of how far above or below expected value and the actual value is likely to be. The S.D. (σ) measures total risk of a stock and total risk comprises of systematic risk and unsystematic risk.

"Standard deviation is the weighted average deviation from the expected value, and it gives an idea of how far above or below expected value and the actual value likely to be. It is the statistical tool for measuring risk. It measures the total risk of a security consisting both systematic and unsystematic risk. Standard deviation with lower value is acceptable".(Gitman: 1985)

"A standard deviation can some times be misleading in comparing the risk or uncertainty surrounding alternatives if they differ in size. To adjust for the size or scale, problem, the standard deviation can be divided by the expected return to compute the coefficient of variance

$$\text{C.V.} = \frac{\sigma}{\bar{R}}$$

Thus, the C.V. is a measure of relative dispersion (risk) a measure of risk per unit of expected return, the larger the C.V. the large the relative risk of the investment" (Van Horne & Wachawiz: 1997)

C.V. is the ration of the standard deviation of a distribution to the mean of that distribution which is the measure of the relative risk.

2.1.3(a) Portfolio

"Portfolio theory was originally propounded by Hary M. Markowiz in 1952. The theory is concerned with the selection of an optimal portfolio by a risk averse investor. A risk averter investor is an investor who selects a portfolio the maximizes expected return for any given level of risk or minimizes risk for any given level of expected return. That is, a risk averter investor will select only efficient portfolio"(Cheney and Moses: 1992)

"The expected return of portfolio is weighted average of the expected returns of the securities comparing that portfolio. The weights are equal to the proportion of total funds invested in each security. The weight must sum to 100 %".(Van horne: 1995)

Investment in two or more than two assets is known as portfolio. Investment on more than one security means diversification or minimizing risk. In portfolio Standard Deviation, Correlation between securities and returns plays a vital role in the risk reduction.

Primary objectives of portfolio are to minimize risk to maximize return and Secondary objectives of portfolio are to regular return,

stable income safety of investment, tax benefit and appreciation of capital

Markwrtz(1952) propounded the concept of the portfolio theory. He gave a very new concept of investment into more than single assets to minimize risk and maximize return.

This theory based on following assumptions.

-Investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period.

-Investors estimate the risk of the portfolio on the basis of the variability of expected returns.

-For a given risk level, investors prefer higher returns to lower returns. Similarly, for a given level of expected return, investors prefer less risk to more risk.

Markwitz diversification is based in the correlation. Under this theory if portfolio is made by combining assets which are less than perfectly positively correlated (+1) the reduction in risk is possible without sacrificing portfolio returns.

Markwitz efficient frontier;

Under the markwitz portfolio theory an investor invests in those portfolios

(a) Which have the highest return of portfolio at a similar level of risk

(b) Which have the lowest risk at a similar level of portfolio return. Thus,

The portfolios giving the highest return at a similar level of risk and the lowest risk at a similar level of return are called dominant portfolios. The dominant portfolios are called efficient portfolios. The group of efficient portfolio is called an efficient set of portfolios. The efficient set of portfolio comprises the efficient frontier the efficient frontier is the locus of points in risk return space having the maximum return at each risk class. The efficient frontier dominates all other portfolio.

"In 1952 A.D. Harry Markowiz propounded his portfolio theory which is concerned with the selection of an optimal portfolio by a risk-adverse investor. A risk-adverse investor is an investor who selects a portfolio that maximizes expected return for any given level of risk or minimizes risk for any given level of expected returns. A risk-adverse investor will select only efficient portfolios. Portfolio theory can be used to determine the combination of these securities that will create a set of efficient portfolios. The selection of the optimal portfolio depends on the investor's preferences regarding risk and return." (Cheney & Moses: 1992)

"A portfolio is not efficient if there is another portfolio with a higher expected return and same standard deviation, if your portfolio is not efficient you can increase risk, decrease the risk without decreasing the expected return and decreasing the risk by switching to a portfolio on the efficient frontier"(Van horne: 1997)

2.1.3(b) CAPM

Markowitz suggests that the investment decisions should be based on the total risk, and price of assets should be determined on the basis of total risk. However this theory did not cover all the aspects of risk and return of securities. To resolve this problem, William Sharpe developed a simplified variant of the Markowitz model known as the Capital Assets Pricing Model (CAPM) Capital assets are the long-term financial as will as real assets and CAPM is based on the pricing of these assets. The CAPM suggests that any investor can create a portfolio of assets that will eliminate virtually all diversifiable risk; the only relevant risk is non-diversifiable risk. Therefore, the investment decision and the pricing of capital assets should be based on the un-diversifiable risk. This is the primary importance of selecting assets with the most desired risk and return characteristics. The CAPM further suggests that the price of capital assets should be determined in a way that compensates for the systematic risk.

According to the CAPM (Sharpe 1964), the expected return of a risky asset [E(R)] is equal to the return of a risk-free asset(R_f) plus a risk premium equal to the expected return of the market portfolio in excess of the risk-free rate [R_m-R_f] multiplied by the relative risk (or beta coefficient) of that asset (β_i)

The equilibrium equation can be written as follows:

$$R_j = R_f + (R_m - R_f) \times \beta_i$$

Where the market portfolio is a portfolio is a portfolio that contains all outstanding assets in proportion to their market value. The beta coefficient of asset j is the risk of that asset relative to the risk of the market portfolio. It is a measure of the market or systematic risk of asset j. Risk not related to the market, or unsystematic risk is assumed to be eliminated through portfolio diversification, it is thus not priced in the market and hence does not appear in the equilibrium pricing equation.

Empirically Jensen (1968) was the first to show the Sharpe – Linter version of the relation between expected return and market beta and find the positive relationship between beta and the average return, but it is flat. Other examples of flat evidence where show by Friend and Blume (1970) and Black, Jensen and Scholes (1972). Fama and MacBeth (1973) tested the relationship between average return and risk for New York Stock Exchange (NYSE) common stocks using two-parameter model and found that there is a positive relationship between risk and return in the NYSE. Other strong evidence presented by Lau,Quay and Ramsey (1974), was that there is a positive and linear relationship between average portfolio returns and betas, leading Lau, Quay and Remsey to conclude that the CAPM is applicable to the Tokyo Stock Exchange.

Although a number of researchers have concluded that the Sharpe-Lintner-Black (SLB) model adequately describes the risk-return behavior in capital markets. Schwert (1983) suggests that this evidence provides surprisingly weak support for a risk-return tradeoff. Tinic and West (1984) found the relationship between beta and the returns to vary with months in a year. Another study by Lakonishok and Sharpiro (1984, 1986) found an insignificant relationship between beta and returns to be weaker than the relationship between returns and other variables.

Although substantial criticism was raised in the early years of the CAPM and the Arbitrage Pricing Theory was developed as an alternative equilibrium model, the CAPM has remained popular, possibly because the early empirical tests by Black,Jensen and Scholes (1972) and Fama andMacBeth(1973) showed strong support for the model developed by Black (1972).

"As portfolio deals with the selection of optimal portfolio, capital market theory deals with an equilibrium model of assets prices. The

major implication of the CAPM is that the expected return of an asset will be related to a measure of risk for the asset known as beta the exact manner in which expected return and beta are related is specified by the CAPM. The model provides the intellectual basis for a number of the current practices in the investment industry"(Sharpe, William 2000)

CAPM is a model that describes the relationship between risk and required return. In the model a security's expected return is the risk free rate plus a premium cased on the systematic risk of the security. The model is

$$R_j = R_f + (R_m - R_f) \times \beta_i$$

R_j = Required rate of return on stock

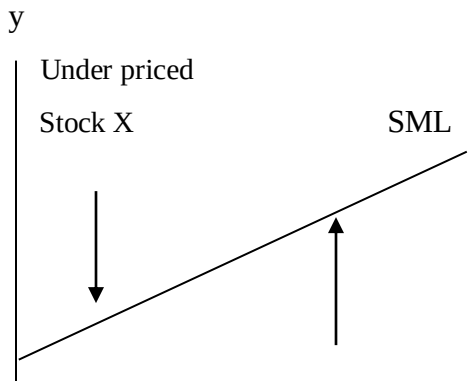
R_f = The normal risk free rate of return

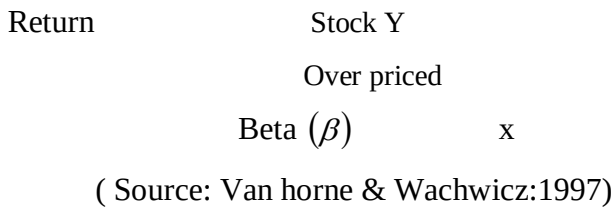
R_m = The expected rate of return on the market portfolio

β_i = Beta coefficient of stock

Here beta is the index of a stock return to change in returns on market portfolio. The beta of portfolio is simply weighted average of the individual stock betas in the portfolio"(Van horne,James C:1995)

Comparison between the expected rate of return and required rate of return indicates whether the stock is under price or over priced. And when these two return are equal then it is said to be market equilibrium. i.e. all the stocks lie on the security market line "the SML equation shows the relationship between securities risk and rate of return. The return required for any security is equal to the risk free rate plus market risk premium times the securities beta" (Cheney.John and Edward: 1998)





(Source: Van horne & Wachwicz:1997)

About figure clarifies that stock x is under priced relative to the security market line while stock Y is over priced. As a result stock X is expected to provide a rate of return greater than that required based on its systematic risk. In contrast, stock Y is expected to provide a lower return than that required compensating for its systematic risk. Investors seeing the opportunity for the superior return by investing in stock X will rush to buy.

This action would drive the price up and expected return comes down. How long would this continue? It would continue until the market price was seen that expected return would lie on the SML. In the case of stock Y. investors holding this stock will start to sell it. Recognizing that they could obtain a higher return for same amount of systematic risk with other stocks. This seeing pressure would drive Y's market price down and its expected return goes up until the expected return matches on the SML when the expected return for these two stocks returns to SML, market equilibrium will again prevail"(Van horne,Wachawiz 1997)

"The CAPM is same times used to estimate the required rate of return for any firm with publicly traded stock. The CAPM is based on the promise that the only important risk of a firm is systematic risk or the risk that returns form exposure to general stock market movements. The CAPM is not concerned with so called systematic risk, which is specific to an individual firm, because invertors can avoid that type of risk by holding diversified portfolios"(Madura: 2008)

2.1.3(c) Risk factors sum up to total risk

The uncertainties discussed above are the major sources of investment risk, but by means do they make up an exhaustive list. If all the uncertainties could be listed, they would add up to total risk or total variability of return.

Some risk factors that may affect an asset

(a)	Interest rate risk (if percent)	
(b)	Purchasing power risk	plus
(c)	Bull-bear market risk(if percent)	plus
(d)	Management risk(if percent)	plus
(e)	Default risk(if percent)	plus
(f)	Liquidity risk(if percent)	plus
(g)	Callability risk(if percent)	plus
(h)	Convertibility risk (if percent)	plus
(i)	Taxability risk(if percent)	plus
(j)	Political risk(if percent)	plus
(k)	Industry risk(if percent)	plus
(l)	The first additional risk(if percent)	plus
(m)	Other risk factors risk factors(if percent)	plus

Total risk factor, var(r)

(Source: Francis: 2000)

Thus, the total risk is that risk which includes all types of sources of risk. The total risk is the variability of return which is affected

different sources of risk considering the above mentioned sources of the risk broadly we can classify total risk into two types which are diversifiable risk and undiversifiable risk".(Gitman: 1985)

2.1.3(d) Systematic risk and Unsystematic risk

Systematic risk also known as undiversifiable risk. This risk is that portion of total variability in return caused by market factor that simultaneously affect the prices of all securities. The risk arises an account of the economy-wide uncertainties and the tendency of individual securities to move together with changes in the market moreover, it is causes of external environment (political, economic, sociological and technological) of the firm.

The examples of systematic risk are:

- Interest rate.
- Change in corporate tax rate.
- The government resorts to massive deficit financing
- The inflation rate increases

• Unsystematic risk is also part of the total risk. This part of the risk arises from the uncertainties which are unique to individual securities, and which is diversifiable of large number of securities is combined to form well diversified portfolios. This part of the risk can be totally reduced through diversification and it is also called unique risk.

The examples of unsystematic risk are

- Worker strikes in a company.
- The company loses a big contract in a bid.
- Management errors.
- Availability of raw materials

Thus,

Total risk, which in the case of an individual security is the variance (or standard deviation)

Its return can be divided into two parts.

Total risk= systematic risk + unsystematic risk

Undiversifiable + diversifiable risk

Market risk + unique risk

Related to macro + related to micro economic

economic factors economic factors

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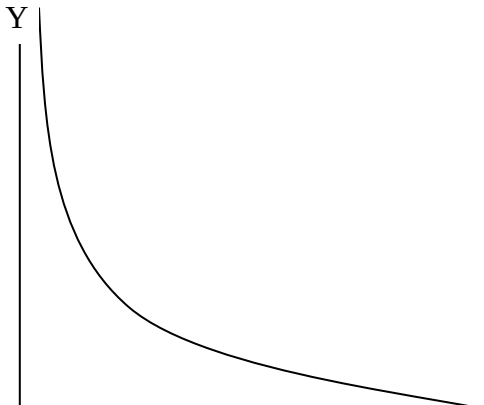
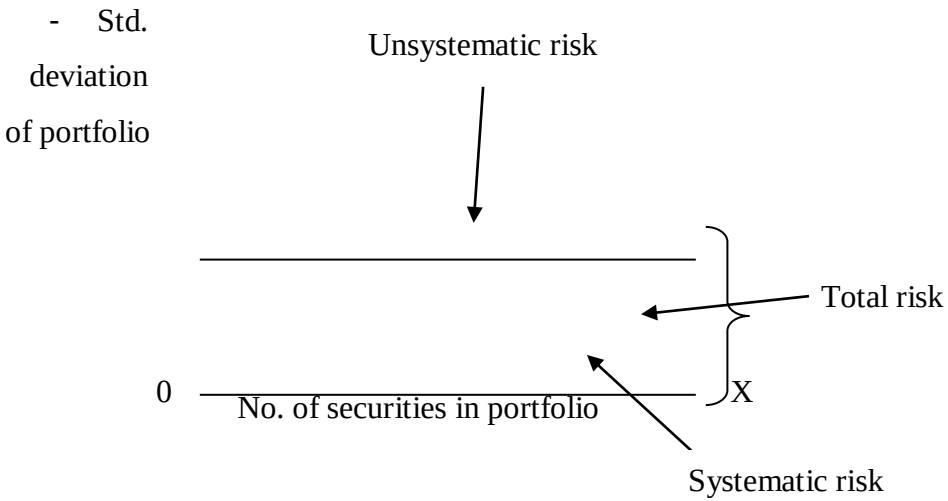




(Source: Weston, Besley & Brigham: 1996)

2.1.4 Return

"The return for holding in investment over some period, say a year, is simply any cash payments received due to ownership, plus the change in market price dividend by the beginning price. Thus, the return comes from two sources: income and price appreciation".(Brealey & Myers: 1994)

Single period measure of return:

The investment return is defined as the after tax increase in the value of the initial investment. The increase in value can come from two sources: a direct cash payment to the investor or an increase in the market value of the investment relative to the original purchase price. The rate of return over the holding period or holding period return (HPR) is computed as:

$$\text{HPR} = \frac{Ending\ \text{Price} - Beginning\ \text{Price} + Cashreceipt}{Beginning\ \text{Price}}$$

Holding period returns are often calculated for periods other than one year, for this reason, the length of the holding period must always be indicated for a specific HPR. Many HPR over periods shorter or longer than one year are annualized. In general, if the length of the holding period is not specified. It is assumed to be one year.

Annualized HPR

Holding period returns measure mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate of return as an investment yield. The yield calculation is present value based and this considers the time value of money"(Van Horne and Wachowicz 1997)

HPRs are reported as an annual equivalent, one possible measure of annualized HPR might be the average of several HPRs such as:

$$\overline{HPR} = \frac{\sum_{t=1}^{r} HPR_t}{n}$$

How ever the simple arithmetic averaging ignores the compounding effect hat results if the first period's return is reinvested. In addition, the result of an arithmetic average returns can be distorted if there are large differences in the periodic rates of return over longer investment horizons will cause the arithmetic rate of return to be misleading.

The geometric mean rate of return doesn't suffer from this flow. The geometric mean rate of return, HPR is defined as the rate of return that would make the initial investment equal to the ending investment value, annualized rate of return is calculated as:

Annual rate of return(R) = $(1+HPR)^{1/n}$ -1

Required rate of return

"When setting the required rate of return on an investment, an investor must consider the real rate of return, expected inflation and

risk. Because consumption in forgone today the investor is entitled to a rate of return that compensates for this deferred consumption. Since the investor expects to receive an increase in the real goods purchased later, and assuming for the moment, zero inflation and risk, the required rate could equal the real rate of return, in which case it would represent the pure time value of money. The capital markets determine this rate based upon the supply of money to be invested relative to the demand for borrowed money."(Cheney and Moses: 1995)

The required rate of return is the minimum rate of return that on investor expects from his/her investment in risky assets. It is the function of real rate of return and risk. The required rate of return is the return in risk free assets i.e. government securities plus risk premium. It is determined by CAPM/SML.

The required rate of return using CAPM/SML is

Required rate of return (R) = R_f+ (R_m-R_f) β

Expected rate of return

If an investment is to be made, the expected rate of return or the expected holding period return should be equal to or greater than the required rate of return is based upon the expected cash receipts (e.g. dividend or interest) over the holding period and the expected ending or selling price. The expected rate of return is an ex-ante or unknown future return.

If the investor can describe the possible variables that will influence each of the possible rates of return and assign probabilities to these outcomes, the expected rate of return should equal the weighted average of the various possibilities. Listing the possible investment results and assigning probabilities to each of these outcomes is the same as creating a probability distribution in statistics. Probability distributions are used to describe possible outcomes and to assign individual probabilities, from zero (no change of occurring) to one (full certainty that the outcomes will happen) to each possible outcome.

The investor has forecast possible outcomes, each based upon a possible state of the economy. Each economic state will result in a different expected rate of return. Subjective probabilities are assigned to each outcome, the overall expected tare of return, E (HPR)

can be calculated as a weighted average of the there forecasts.

$$\text{E (HPR)} = \sum_{j=1}^{n} P_j \times HPR_j$$

Under and over valuation

In market equilibrium the CAPM implies an expected return risk relationship for all individual securities (the security market line). If an individual security has an expected return-risk combination that places it above the security line, it will be under valued in the market. That is, it provides an expected return in excess of that required by the market for the systematic risk involved

$$\overline{R}_j > R_f + \left[E(R_m) - R_f\right] \times \beta_j$$

As a result, the security will be attractive to investors. According to the theory, the increased demand will cause the price to rise until the expected return declines sufficiently for the security to lie on the security market line and, there by, for

$$\overline{R}_j = R_f + \left[E(R_m) - R_f\right] \times \beta_j$$

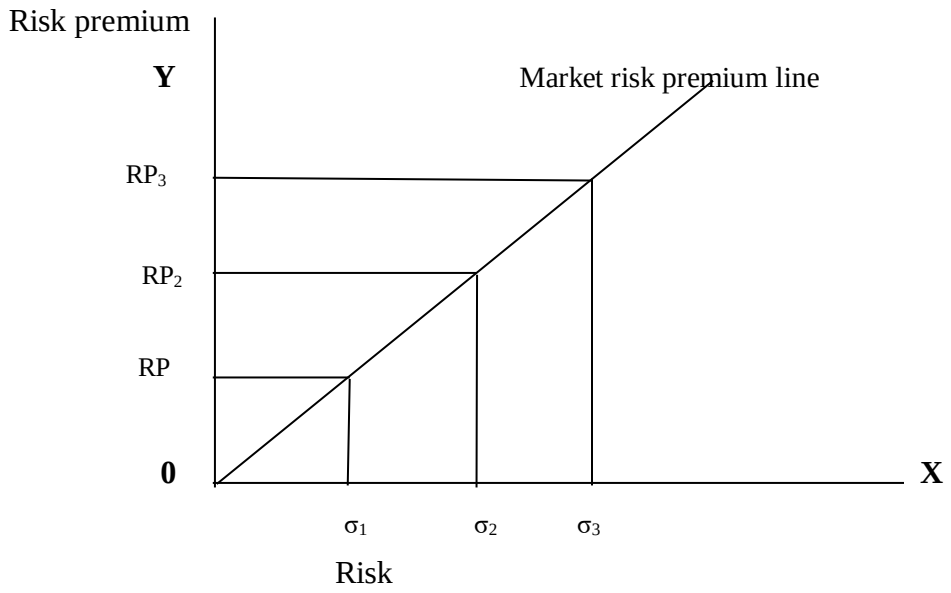
An overvalued security is characterized by an expected return-risk combination that places it below the security market line this security is unattractive, and investors holding if will sell it and those not holding it will avoid it. The price will fall and expected return will rise until there is consistency with the security market line and with equilibrium pricing. (Van horne: 2000)

2.1.5 Relationship between risk and return

Risk a complicated subject and need to be property analysis. The relationship between risk and return is descried by investor's perception and expectation about risk and their demand for compensations, no investor will like to invest in risky asset until he assured adequate compensation for the assumption of risk. Therefore it is the investors required risk premium that established a link between risk and return. In a market dominates by rational investors higher risk will command by rational premium and the trade off between

risk premiums (i.e. return). The illustration of risk and return is shown below in figure

Fig: general pattern of risk and return



(Source: Pandey: 2005)

With the reference to above figure when risk is σ_1 return is supposed to be R_1 magnitude but when the level of risk increase from σ_1 to σ_2 the return is also expected to be R_2. thus the linear fashion indicate higher risk premium increased or decrease proportion to a change in level of risk.

2.2 Review from different studies

Advance and research based journals of finance are hardly found in Nepali vary limited number of journals of finance can not cover its full dimensions. Almost any articles about the risk and return analysis on common stock investment are found. It is therefore foreign well known published journals of finance have been reviewed over here. However, it helps to build the sound conceptual framework on the topic.

2.2.1 Review from journals

Rehman, Burhan & Mushtaq (2012), Examined Karachi Stock Exchange using the Generalized Autoregressive conditional Heteroscedasticity (GARCH) model to find the relationship between risk return and volume. The results lead to a clear-cut prescription i.e. the relationship between return and systematic risk i.e. beta show positive significant relation and the relationship of return with trading volume also shows the positive and significant relation. On the basis of their empirical analysis they can conclude that there is a statistically significant relationship between risk, return and volume.

Hassan, Puah, and Yong (2008) Performed a sectored analysis using linear regression method, was carried out four different CAPM models on the companies that are listed on the Malaysian stock market and analyzed the applicability of CAPM in explaining the risk-return relation of a large enough sample of companies which are listed. To conclude, the finding indicates that high-beta stock receives a larger positive risk premium than low-beta stock in the up market, vice versa this will allow investors to have a bigger chance of getting a higher return at high-beta and large positive risk premium and investor should choose stock having a lower beta so that if the market is really going down the risk can minimized.

Brown, Harlow and Tinic (1993) assessed the correlation between risk and expected common stocks returns. They found that the temporary changes in the uncertainty gives a huge/leading financial change, resulting stock returns incorporated a quality in order to increases in parameter (i.e. beta); which are not certainty connected with these events. The finding suggested that the sale and repurchase of common stock ware reduce the return on stocks discrepancy; in this reduction the minimum part of the risk is constant. The prediction error increases and changes in systematic risk due to post announcement and straightforwardly unified and that the

price of the market determined the systematic risk.

Lilti & Montanger (1997) examined French stock exchange using six year data from 1990 to 1995 on daily basis to find the relationship between systematic risk and average stock returns. The results lead to a clear-cut prescription i.e.to invest in stocks which have low systematic risk, and low market price and sell the stocks which have high systematic risk and high in market price.

Brooks & Henry (2000) mention that the usual measure of the risk of a portfolio is its beta. Using UK equity index data for a sample of sectors. They considered the influence of news on actions of beta which used to vary with the time. The results suggested that beta was not independent rather it depends on two news's sources. One is markets news and second is sectors news. Moreover, they concluded that higher returns were associated with higher standard deviation indicating a direct proportion between risk and return.

Budoo (2000) performed a sectored analysis using the CAPM and market model on the companies that are listed on the Mauritius stock exchange and analyzed the risk-return characteristics of large enough sample of companies on the official list, beta estimates calculated using. Resulting, the positive significant relationship between risk and return, as higher returns was associated with higher value of beta.

Lee and Rui (2000) used data on daily basis up to the end of 1997 for A and B indexes of both markets that are Shanghai and Shenzhen. They found a constantly strong simultaneous connection between volume and return. Since for the informal relation, they find slight confirmation of inevitability of volume by returns or vice versa also inside the domestic market of China or in grouping with the two markets out of the country measured.

Jun, Marathe and Shawky (2003), conducted a research for sample of 27 emerging markets using the monthly data from the period 1992-1999(together with china) and analyses the association linking liquidity and stock return where the later variable was measured in a number of ways i.e. trading value, turnover and the ratio or turnover to volume. They found that trading value, turnover and the ratio or turnover to volume is positively related to each other. In review, volume and return were strongly connected contemporaneously but there was diminutive proof that either could be used to forecast the other.

Ghysels, Gouriroux and Jasiak (2000) examined causality between the series if transaction volumes and returns in data of high

frequency. There was restriction to transitions between a finite numbers of states in the dynamics of both series. By depending on the selection criteria of state, the dynamics of varying market regimes was approached approximately, or in a wider sense reflected the heterogeneity varying with time of behavior of traders.

Pradhan (1992) Portfolio investment refers to an investment that combines several assets the modern portfolio theory explains the relationship between assets risk and return. The theory is founded on the mechanics of measuring the effect of an asset on the risk and return of a portfolio. Portfolio investment assumes that the mean and variance of returns are the only two factors about which the investor cares. Based on this assumption, we can say that rational investor always prefers the highest possible mean return for a given level of risk or the lowest possible level of risk for a given amount of return. Such a portfolio, technically known as an efficient portfolio, is a superior portfolio. The efficient portfolio is a function of not only the risk and return of the individual assets included, but also the effect of the relationship among the assets on the sum total of the portfolio risk and return. The portfolio risk is affected by the variance of return as well as the covariance between the return of individual assets included in the portfolio and their respective weights

Paudel (2002) in his mini research paper has come up with the conclusion that the risk-return characteristic do not seem to be the same for all the shares review. He further adds that the shares with larger standard deviations seem to be able to produce higher rates of return. The portion of unsystematic risk is very high with the shares having negative beta coefficient. The risk pr unit of return, as measured by coefficient of variation, is less than that of the market as whole for the individual shares. Most of the shares fall under the category of defensive stocks. (having beta coefficients less than 1)

2.2.2 Review from thesis

Regarding various unpublished dissertations that were prepared for the partial fulfillment of MBS/MBA and other faculties this study is basically related with risk and return of the common stock. However, risk and return is not a new concept for financial analysis, in the context of Nepal and some studies are made regarding this topic. In this study only relevant subject matters are reviewed which are

as follows.

Bhatta (1995) finds that, investors expect higher return from those stocks, which associates higher risk. Nepalese stock market is not efficient. Nepalese investors have not yet practiced to invest in portfolio of securities. Analysis shows some has negative correlation and some has positive one. Many companies have higher unsystematic or specific risk. Finally he recommended the following point to improve the market efficiency. Developed institutions to consult investors for risk minimization. Make proper amendment to trading rules.

Gautam (2004) in his thesis paper after analyzing the available data and information using various financial and statistical tools summarized his findings as the expected rate of return of the common stock of Narayani finance Ltd is highest among the selected finance companies. Similarly, expected rate of return is found lowest on common stock of peoples finance company Ltd total risk measured by standard deviation is observed maximum in common stock of Narayani finance company Ltd and minimum in common stock of national finance company Ltd common stock of citizen investment trust(CIT) has highest excess return to beta

Pandey (2000) has concluded that common stock is the most risk security among all securities, higher the risk higher will be the return. Most of the investors are attracted to common stock security because of its higher expected return. As for the investor, it is important to analyze each investment, comparing to potential returns with the risk. On average the potential returns from an investment should compensate for the level of risk undertaken if proper allocation of assets is performed, it can reduce risk and can even be eliminated if well diversified.

Pandey (2003) has conducted a research study the main objective of the study is to analyze the risk and return of common stock investment, with special reference to six finance companies in Nepal. He has taken seven year data for the analysis. He says that investors' attitude, perception and risk handing capacity also plays a vital role in rational investment decision. He also added that stock market is undoubtedly risk in short run and it is necessary to prepare the investors for it. According to the CV , finance and insurance sector is the best one for investment where as from the view point of expected return, banking sector is the best sector for investment. Among the selected finance companies, kathmandu finance company is best for investment due to high expected return with low

coefficient of variance and HISEF finance company is most risky.

Upadhyaya (2004) has prepared a research paper taking five listed commercial bank as a sample. Among different objectives. The main objectives of his study are to evaluate the common stock of the listed according to his that "in general most people stock market investment as a black art that knows little about. Many people have unrealistically optimistic a pessimistic expectation about stock market invest or perhaps a fear of unknown. As overall economy Nepal stock market is in emerging state. Its development is accelerating since the political change in 1990 in effect of openness and liberation in rational economy. But due to lack of information and poor knowledge Nepalese individual investors can not analyze the securities as well as market properly.

Research Gap

In Nepalese stock market, there are no sufficient up to date researches that have been under taken in the field of risk and return analysis of common stock investment of banking sectors. The stocks of banking sectors are traded heavily in the market. So it is necessary to conduct research in this field. Considering this point, the researcher has reviewed some university thesis. This study has selected ten commercial banks samples.

Furthermore, there should be up to date studies in a regular interval in order to assess the risk and return associated with common stock investment. In this aspect, this study will provide up to date insights regarding risk and return features of the common stock. In

terms of time period and samples, this research is different and new from pervious researches.

CHAPTER -THREE

3. Research Methodology

This chapter mainly deals with the research methodology used to ascertain the study objectives. Under this, research design, population and sample, sample selection method, data collection and analysis techniques have been described.

3.1.1 Research design

This study is based on recent ten years historical data from F/Y 2006/2007 to F/Y 2010/201. It deals with common stocks of commercial banks, which have listed their shares in NEPSE to make them eligible for trading. Hence, it's a historical research. The common stocks under study have been analyzed in a descriptive and analytical way. It is more analytical and empirical and less descriptive.

3.1.2 Population and sample

Population of this study includes all the commercial banks registered and operated in Nepal. At present, there are 32 commercial banks. Of them only 24 commercial banks have listed their shares in NEPSE for trading in secondary market. They have only been considered as population.

For the study, at least 31.25 percent sample has been considered. Hence, 10 listed commercial banks have been considered for the study based in purposive sampling method. On the basis of volume traded and data availability, samples were taken.

The sampled commercial banks are listed in Table 3.1

Table-3.1: Sample of Commercial Banks

Category	Population Size	Sample Size	Sampled Companies
Commercial Banks	32	10	Nabil Bank Ltd. Nepal Investment Bank Ltd. Standard Chartered Bank Ltd. Himalayan Bank Ltd. Nepal SBI Bank Ltd. Everest Bank Ltd. Bank of Kathmandu Ltd. Nepal Industrial & Commercial Bank Ltd. . Kumari Bank Ltd. . Machhapurpuchhe Bank Ltd.

3.1.3 Data Analysis Tools

Under this study, financial as well as statistical tools are used to analyze the gathered data and information.

3.1.3(a) Financial Tools

I) risk and return analysis of individual stocks

- **Dividend per share (DPS)**

Dividend per share (DPS) is calculated using the following model:

DPS = Cash Dividend + Stock Dividend

Cash equivalent of stock dividend is calculated as:

Cash Equivalent of Stock Dividend = SDR X Next Year MPS

Where, SDR=stock dividend ratio

- **Market Price of Share (P)**

One of the principle measures of the value of the stock is market value. It is denoted P. three price records are available in Nepal Stock Exchange Limited namely-High, Low and Closing Price. For our study purpose, closing price of the stocks is taken since our study focuses on year end data.

- **Return on common stock** $\left(\overline{R}\right)$

Holding Period Return

Generally, single period return or holding period return is represented by R and expressed in terms of percentage basis. It is calculated as:

Holding period return $= \frac{Endingprice - Beginningprice + Cashdividend}{Beginningprice}$

Symbolically,

$$\text{HPR} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$$

Where,

P_t = Price of a stock at time t

P_{t-1} = Price of a stock at time t-1

D_t = Dividend per share at time t

Average Return of Common Stock $\left(\overline{R}\right)$ When probabilities of the return are given, the weighted average rate is known as the expected rate of return, represented by $E(\overline{R})$.

But when the historical data are used, then the arithmetic mean of the returns is known as average return on common stock, represented by R. It is used as proxy for expected rate of return. It is computed as:

Average Rate of Return $\frac{Sumofreturnofpastyears}{Numberofyears}$

Symbolically,

$$\overline{R} = \frac{\sum R_j}{n}$$

Where,

$\sum R_j$ = Summation of annual returns of stock j.

n = Number of observations.

• Risk of Common Stock

Stock returns may be riskier or more volatile, but this concept is a difficult one to express simply. In finance, a concept from statistics called standard deviation is borrowed to measure the risk on return s of investment. Standard deviation is a summary measure about the average spread of observations around the mean. It is the square root of the variance. The standard deviation and the variance are equally acceptable and conceptually equivalent quantitative measures of an asset's total risk. It is computed as:

Standard Deviation (σ_j) = $\sqrt{\frac{\sum\left(R_j - \overline{R}_j\right)^2}{n-1}}$

II) Risk and Return Analysis of Market

• Return on Market

Annual return on market is the average return of market based on the index of market. It is denoted by R_m. under this study, NEPSE index has been used. It is a value weighted index and comprises of all the stocks listed in NEPSE. The NEPSE index is used for the study.

Annual Market Return (R_m)= $\frac{EndingNEPSEindex - BeginningNEPSEindex}{BeginningNEPSEindex} \times 100$

Average Market Return $\left(\overline{R}_m\right)$**=** $\frac{\sum R_m}{n}$

Where $\sum R_m$ = Summation of annual market return.

n = Number of observations

• Risk of Market Return

Risk of market return is also measured by the standard deviation of the returns of market. The standard deviation of market returns is computed as:

Standard Deviation (σ_m)= $\sqrt{\frac{\sum\left(R_m - \overline{R}_m\right)^2}{n-1}}$

III) Marker sensitivity Analysis

• Covariance

The covariance measure how two variables co-vary. It is a measure of the absolute association between two variables. Here, how the returns of individual stocks and the market return co-vary is measured by covariance between the return of individual stock and market return. It is computed as:

$$\text{Cov}(R_j, R_m) = \frac{\Sigma\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)}{N-1} = \rho_{j,m}\,\sigma_j\,\sigma_m$$

If two variables are independent, their covariance is zero.

• Correlation coefficients

Correlation coefficients are a measure of the relative association between two variables. It describes how much linear co-movement exists between two variables. Correlation between stock j and the market is computed as:

$$\rho_{j,m} = \frac{Cov(R_j, R_m)}{\sigma_j \sigma_m}$$

i If $Corr_{j,m}$ is positive, the returns on security j and market tend to be large at the same time and small at the same time.

ii. If $Cor_{j,m}$ is negative, relatively large return of security j is associated with relatively small return of market.

iii. If $Cor_{j,m}$ is zero, the return of security is uncorrelated to the return on market. Movement on the return of security j appear unrelated to movements in the return of market.

• **Beta**

Beta coefficients may be used for ranking the systematic risk of different assets. Beta coefficient of stock j is denoted by β_j. It is functionally related to the correlation and the covariance between the security and the market portfolio. It is computed as:

$$B_{j,m} = \frac{Cov(R_j, R_m)}{Var(R_m)}$$

Where,

$Cov(R_j,R_m)$= covariance of returns of the j^{th} asset with the market.

$Var(R_m)$ = variance of returns for the market portfolio.

Individual stocks can be classified as aggressive or defensive or average on the basis of beta coefficients.

Beta coefficients	**Stock classification**	**Degree of Risk**
Less than 1	Defensive stock	Less risky than the market
Exactly 1	Average stock	Equally risky as the market
More than 1	Aggressive stock	More risky than the market

IV) Analysis of Systematic and Unsystematic Risk

• Systematic Risk

Total risk of any individual stock can be measured by variance or standard deviation. The total risk can be partitioned as i) systematic and ii) unsystematic. Systematic risk is that portion of total risk caused by market factors that simultaneously affect the prices of all securities and cannot be avoided or diversified. Undiversifiable risk, market risk, beta risk and equally used terms. It is calculated as:

Systematic Risk= $\beta^2_{j,m}\ Var(R_m)$

Where,

$\beta_{j,m}$ = Beta coefficient of stock j with market return

$Var(R_m)$ = Variance of market return.

The percentage of systematic risk is measured by the coefficient of determination.

Proportion of Systematic Risk= $\frac{systematicRisk}{TotalRisk}$

$$= \frac{\beta_{jm}^2 Var(R_m)}{Var(R_j)} = \frac{\beta_{jm}^2 \sigma_m^2}{\sigma_j^2} = \rho_{j,m}^2$$

• **Unsystematic Risk**

Unsystematic risk is that portion of total risk of an individual stock that can be diversified away. It is also called diversifiable risk, company specific risk or non-market risk. It is calculated as:

Unsystematic Risk= Total Risk- Systematic Risk

$= Var(R_j) - \beta^2_{j,m} Var(R_m)$

$= \sigma^2_j - \beta^2_{j,m} \sigma^2_m$

• **Capital Asset Pricing Model (CAPM)**

Assets with high degree of systematic risk must be priced to yield high rates of return in order to induce investors to accept high degrees of risk that are undiversifiable with in that market. Hence, CAPM illustrates the linear relation between assets' systematic risk and their expected rates of return. Graphical representation of Capital Assets Pricing Model is also known as Security Marker Line. The SML equation is as:

$R_j = R_f + (R_m - R_f)\ \beta_j$

Where,

R_j= Required rate of return on security j.

R_f= Risk free rate of return (Government security, especially treasury bills)

R_m= Return on market i.e. risky assets

β_j = Beta of security j (Systematic risk index of security j)

Portfolio risk and return:

A portfolio is a collection of investment securities. Portfolio theory deals with the selection of optimal portfolios, i.e. portfolios that provide the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Calculation and analyzing risk is not straight forward as calculating portfolios expected returns. We have to follow the long process for its calculation and analysis.

Portfolio risk:

It is the measure of combined standard deviation of stocks held in the portfolio, with reference to individual stocks corresponding correlation contribution. The formula for the calculation of portfolio risk for two assets case is given by:

$$\sigma_p = \sqrt{\sigma_A^2 W_A^2 + \sigma_B^2 W_B^2 + 2 W_A W_B COV(A,B)}$$

Where,

$\sigma_p^2 =$ Variance of portfolio of A and B

$\sigma_A^2 =$ Variance of asset A, i.e. risk of asset A.

$\sigma_B^2 =$ Variance of asset B, i.e. risk of asset B.

$W_A =$ Weight of asset A.

$W_B =$ Weight of asset B.

COV(A,B)= Covariance between the returns of assets A and B.

the formula for n-assets case is given by,

$$\sigma_p^2 = \sum_{i=1}^{n} \sum_{j=1}^{n} W_i W_j \sigma_{ij}$$

Portfolio return:

"While the portfolio expected return is straightforward weighted average of returns on the individual securities, the portfolio standard deviation is not the weighted average of individual security's standard deviations. To take a weighted average of individual security standard deviations would be to ignore the relationship or correlation between the returns of the two securities. This correlation however as no effect on the portfolios expected returns. Correlation between securities return complicates our calculation of portfolio standard deviation by forcing us to calculate the covariance between returns for every possible pair wise combination of securities in the portfolio. But this dark cloud of mathematical complications contain a silver lining – correlation between securities provides for the possibilities of eliminating some risk without reduction potential returns" (Van Horne,James C:1997)

Portfolio is the combination of two or more securities or asset and portfolio return is simply a weighted average of individual stock returns. The return on the portfolio, in case of only two assets portfolio is given by:

$$\overline{R}_p = W_A \overline{R}_A + W_B \overline{R}_B$$

Where,

$\overline{R}_p =$ Expected return on portfolio of stocks A and B

$W_A =$ Weight of investment on stock A

$W_B =$ Weight of investment on stock B

$W_A + W_B = 1(or 100\%)$ Always.

Risk Minimizing Portfolio:

It is the proportion of stock that minimizes the possible (Unsystematic risk).

Symbolically,

$$W_A = \frac{\sigma_B^2 - COV(A,B)}{\sigma_A^2 + \sigma_B^2 - 2COV(A,B)}$$

Where,

$W_A =$ Weight of stock that minimizes the portfolio risk of stock A and stock B

$\sigma_A =$ Standard deviation of stock A.

$\sigma_B =$ Standard deviation of stock B.

COV(A,B)= Covariance of returns between stocks A and B.

3.1.4 Limitation of the Methodology

Each and every methodology suffers form some kind of limitations. So, the methodology deployed in this research cannot be different form the common limitations of same type of studies. However, in analyzing risk and return of the select samples, the tools applied cannot best describe the relationships between the variables under study. In selecting samples, purposive and judgmental sampling method has been adopted. The samples for secondary data collection were selected on the basis of high volume traded in NEPSE and the availability of published data. Likewise, necessary samples for secondary data were taken. Hence, the reliability, accuracy and validity o f the research findings depend on these samples.

CHAPTER - FOUR

4. Analysis and Presentation of Data

This chapter includes analysis of data collection and their presentation. In this chapter, the effort has been made to analyze "risk and return of common stock investment of commercial banks". Detail data of MPS and dividend of each bank and NEPSE index of each sectors and market is presented and their interpretation and analysis is done. With the reference to the various readings and literature review in the preceding the recent Nepalese stock market movement, with a special reference to the listed commercial bank. The analysis of data consists of organization, tabulating and assessing financial and statistical result different tables and diagrams are drawn to make the result more simple and understandable.

4.1 Analysis and Individual Commercial Banks

As the study has taken a special reference to listed commercial banks, common stock of listed commercial banks is analyzed here separately. There are thirty two commercial banks are in operation up to 2011/12.but only twenty four banks are listed in NEPSE among them the study has focused on the ten commercial banks. Each bank is introduced and their common stocks risk and return are analyzed here.

4.1.1 NABIL

4.1.1.1 Introduction

NABIL banks at the starting operate named by Nepal Arab Banks Ltd. Is the first joint venture commercial bank established in 1984 A.D. (2041 B.S.) in Nepal and listed in NEPSE in year 1986 A.D. (08/09/042 B.S.) initially, Dubai Bank Ltd. (DBL) invested 50% of equity share of NABIL. The share owned by DBL was transformed to Emirates Bank International Ltd (EBIL). Dubai, later on EBIL

sold its entire 50% equity holding to National Bank Ltd. Bangladesh (NBIL). NBIL is managing the bank in accordance with the technical services agreement signed between both banks on June 1995. Authorized capital, issue capital and paid up capital of the bank are 1600,000,000 Rs. 1449124000, Rs. 1449124000 respectively, with par value per share Rs. 100.

4.1.1.2 Data

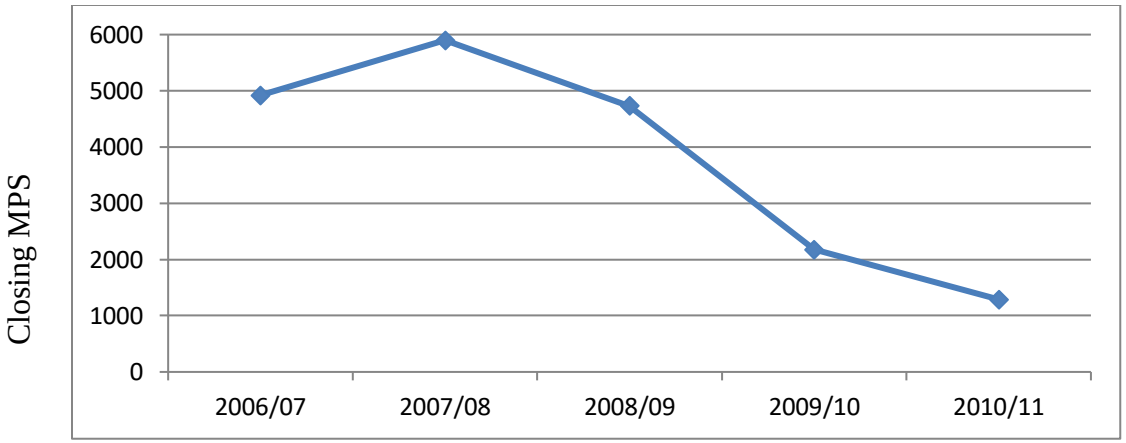
Market price and dividend record of common share of NABIL are shown in Table No. 4.1 and price movement is shown in the diagram 4.1

Table 4.1: MPS and Dividend Data of NABIL

Fiscal Year	Closing Price	DPS	Stock Div.	Total Div.
2006/07	4920	100	140	240
2007/08	5900	60	100	160
2008/09	4730	35	85	120
2009/10	2775	30	70	100
2010/11	1289	30	30	60

Data source: NEPSE

Diagram: 4. 1 Year and Price Movement of NABIL



The above diagram shows that closing MPS of common stock of NABIL. It is the highest in Fiscal Year 2007/2008 and it is lowest in Fiscal Year 2010/2011. The highest MPS is 5900 and lowest is Rs. 1289. It shows that the MPS of NABIL is increases from F/Y 2006/2007 to 2007/2008 than after it is decreased up to 2010/2011.

4.1.1.3 Realized returns (R), S.D. (σ) and Expected return ($\bar{R}$)

Year -End price and dividend amounts are used to calculate realized rate of return for each year. Table 4.2 shows the calculation of yearly realized return expected rate and S.D. of return.

Table 4.2: Realized Rate of Returns, Expected Returns and S.D. of the Common Stock of NABIL

Fiscal Year	Year and Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2006/2007	4920	240	-	-	-
2007/2008	5900	160	0.2317	0.4001	0.1601
2008/2009	4730	120	-0.1780	-0.0096	0.0001
2009/2010	2775	100	-0.5275	-0.3591	0.1290
2010/2011	1289	60	-0.3681	0.1997	0.0399
			ΣR=-0.8419		0.3291

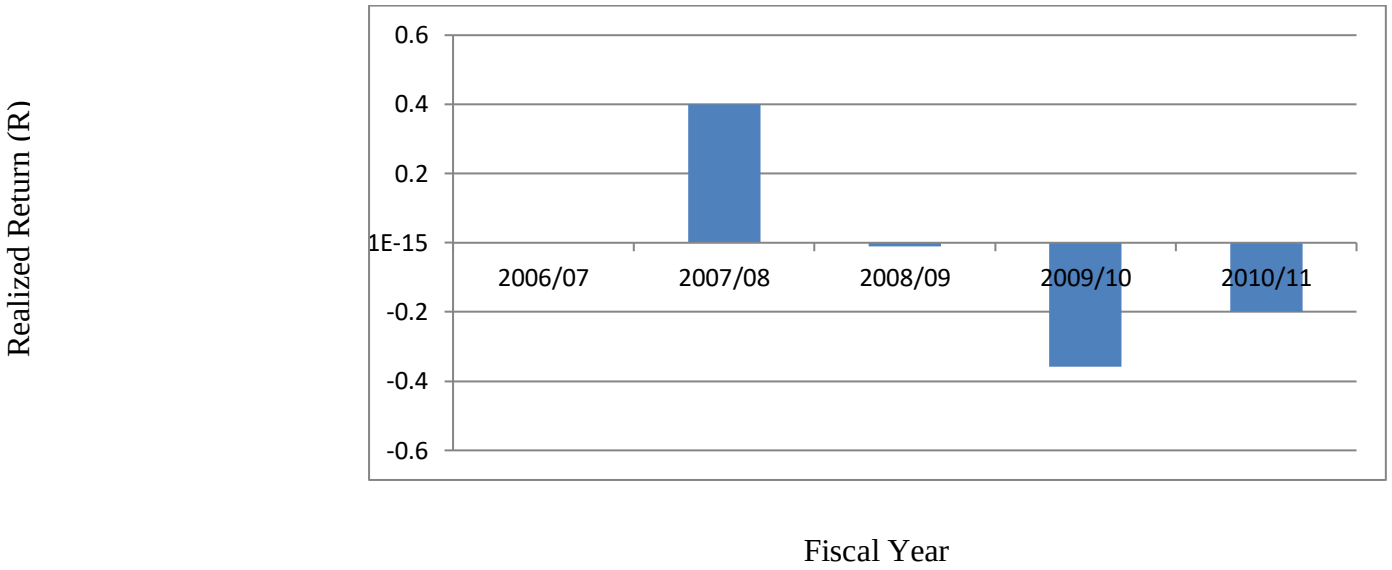
We have,

Expected Return= $\frac{\sum R}{n} = \frac{-0.8419}{5} = 0.1684$

Standard deviation (σ)= $\sqrt{\frac{\Sigma\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.3291}{4}} = 0.2868$

Coefficient of Variance (C.V.) = $\frac{\sigma}{\overline{R}} = \frac{0.2868}{-0.1684} = -1.7031$

Diagram 4.2: Annual Realized Rate of Return of the Common Stock of NABIL



4.1.2 Nepal Investment Bank Limited (NIB)

4.1.2.1 Introduction

Nepal investment bank ltd. (Previous Indosuez Bank Limited) was established on 21 January 1986 as a third joint venture Bank under the company Act- 1964. Bangue Indosuez Manages the bank pairs in accordance with joint venture and Technical services agreement signed between it and Nepalese promoters. Now, this bank is operating under the full ownership of Nepalese promoters and

shareholders. Authorized capital of this bank is Rs. 4000,000,000 issued capital is Rs 2409097700 and paid up capital is Rs. 2409097700 per value per share is Rs. 100.Bank with listed in the NEPSE at B.S. 05-08-2044. The central office of this organization is in king's way Kathmandu.

4.1.2.2 DATA

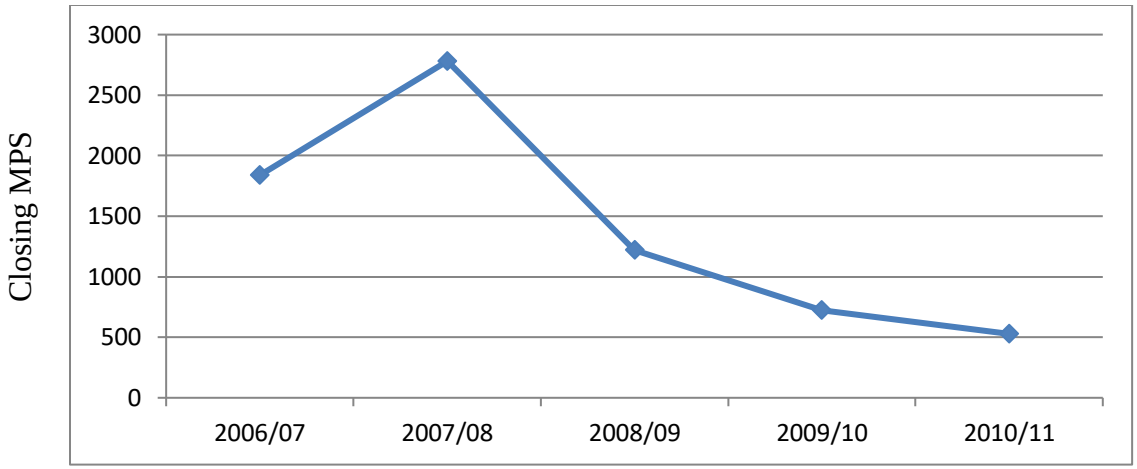
Market Price and Dividend share records of common stock of NIB are shown in Table No. 4.3 year and price movement is shown in the diagram 4.3.

Table 4.3: MPS and Dividend Data of NIB

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	1840	30	5	35
2007/2008	2781	6040.83	7.5	48.33
2008/2009	1220	20	20	40
2009/2010	725	25	25	50
2010/2011	528	50	25	75

Data Source: NEPSE

Diagram: 4.3. Year and price movement of NIB



The above diagram shows the closing MPS of common stock of NIB. It is the highest in fiscal year 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is 2781 and lowest is Rs. 528. It shows that the MPS of NIB is increase from F/Y 2006/2007 to 2007/2008 than after it is decreased up to 2010/2011.

4.1.2.3. Realized Returns (R), S.D. (σ) and Expected Return($\bar{R}$)

Year and price and dividend amounts are used to calculate realized rate of return for each year. Table No.4.4 shows the calculation of yearly realized return expected rate and S.D. of return.

Table 4.4 Realized Rate of Returns, Expected Return and S.D. of Common Stock of NIB

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$

2006/2007	1840	35	-	-	-
2007/2008	2781	48.33	0.5377	0.6462	0.4176
2008/2009	1220	40	-0.5471	-0.4386	0.1924
2009/2010	725	50	-0.3647	-0.2562	0.0656
2010/2011	528	75	-0.1683	-0.0598	0.0036
			∑R=-0.5424		0.6792

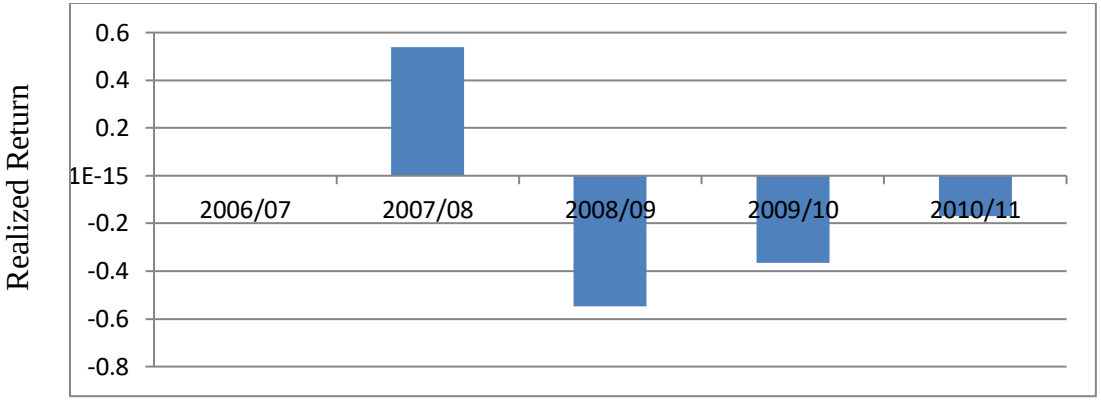
We have,

Expected Return (R) $=\frac{\sum R}{n}=\frac{-0.5424}{5}$ =-0.1085

Standard deviation (σ) $=\sqrt{\frac{\Sigma\left(R-\bar{R}\right)^2}{n-1}}=\sqrt{\frac{0.6792}{4}}$ =0.4120

Coefficient of variance (C.V.) $=\frac{\sigma}{\bar{R}}=\frac{0.4120}{0.1085}$ = -3.7978

Diagram 4.4: Annual Realized Rate of Return of the Common Stock of NIB



4.1.3 Standard Chartered Bank Nepal Ltd. (SCBNL)

4.1.3.1 Introduction

Standard character Bank Nepal Limited was established in 1985 A.D. as a second joint venture Bank under the company act- 1964. Standard and chartered Bank England is managing the bank under joint venture are technical service agreement signed between bank and Nepalese promoters. The authorized capital of this bank is Rs. 2000,000,000 issued capital is Rs. 1610168000 and paid up capital is Rs. 1610168000. Per value per share is Rs. 100. This bank was listed in the NEPSE in BS 03/21/045 i.e. 1988 A.D. Its central office is at New Baneshwor Kathmandu.

4.1.3.2 DATA

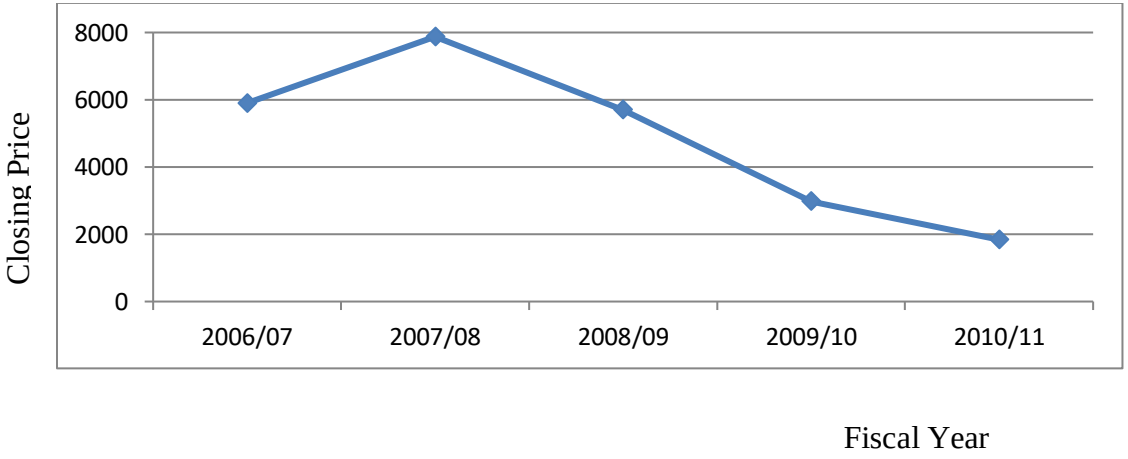
Market price and dividend record of common stock of standard chartered bank Nepal Ltd are shown in table No. 4.5 Year and price movement is shown in the diagram 4.5

Table: 4.5 MPS and Dividend Data of SCBNL

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	5900	80	130	210
2007/2008	7874	80	130	210
2008/2009	5700	50	100	150
2009/2010	2980	55	70	125
2010/2011	1840	50	50	100

Data source: NEPSE

Diagram 4.5: Year End Price Movement of SCBNL



The above diagram shows the closing MPS of common stock of SCBNL. It is the highest in fiscal year 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is Rs. 7874 and lowest is Rs. 1840. It shows that the MPS of SCBNL is increase only F/Y 2006/2007 to 2007/2008 than after it was decreased up to 2010/2011.

4.1.3.3 Realized returns (R), S.D. (σ) and Expected Return ($\bar{R}$)

Year-end price and dividend amounts are used to calculate realized rate of return for each year. Table 4.6 shows the calculation of yearly realized return expected return and S.D. of return.

Table 4.6: Realized Rate of Returns, Expected Returns and SD of The Common Stock of SCBNL

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2006/2007	5900	210	-	-	-
2007/2008	7874	210	0.3702	0.5084	0.2585
2008/2009	5700	150	-0.2570	-0.1188	0.0141
2009/2010	2980	125	-0.4552	-0.317	0.1176
2010/2011	1840	100	-0.3490	-0.2108	0.0444
			∑R=-0.691		0.4346

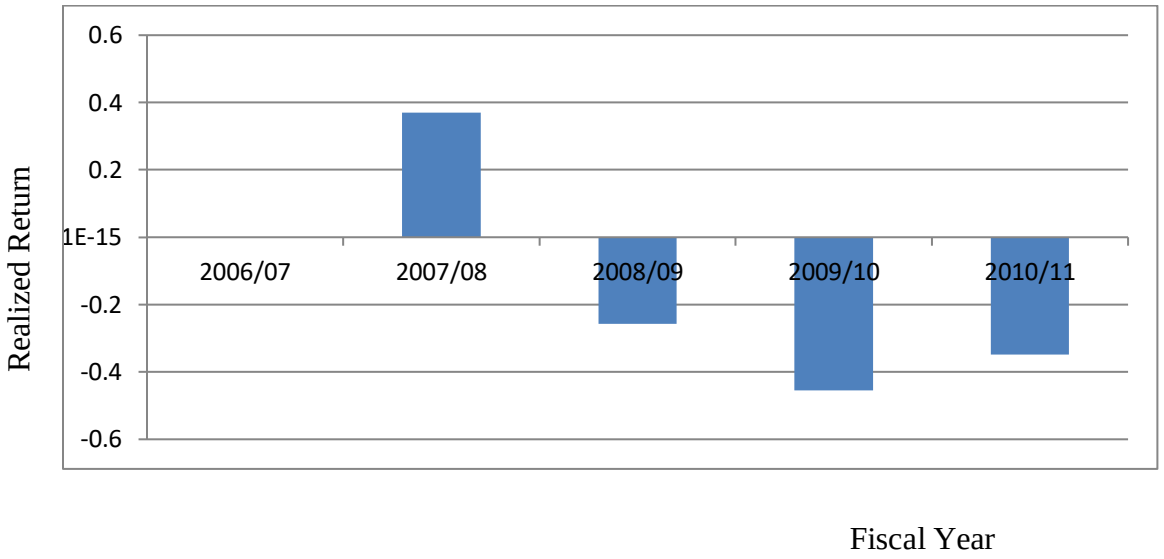
We have,

Expected Return (R)=$\frac{\sum R}{n}$ =$\frac{-0.691}{5}$ =-0.1382

Standard deviation (σ)=$\sqrt{\frac{\Sigma\left(R - \bar{R}\right)^2}{n-1}}$ = $\sqrt{\frac{0.4346}{4}}$ =0.3297

Coefficient of variance (C.V.) = $\frac{\sigma}{\bar{R}} = \frac{0.3297}{0.1382}$ = -2.3857

Diagram: 4.6 Annual Realized Rate of Return of the Common Stock of SCBNL



4.1.4. Himalayan Bank Limited (HBL)

4.1.4.1 Introduction

Himalayan bank Ltd. Was established in 1992 under the company act - 1964 joint venture partner of this bank is Habib Bank Ltd. of Pakistan. HBL is the first joint venture bank managed by Nepalese chief executive. The operation of this bank stated from 1993, Feb. The bank was listed of NEPSE in BS 2050/01/03. The central office of this organization is in Sanchayakosh building Thamel. Its

authorized capital, issued capital and paid up capital are Rs. 3000,000,000 2000,000,000 and 2000,000,000 respectively par value per share is Rs.100

4.1.4.2 DATA

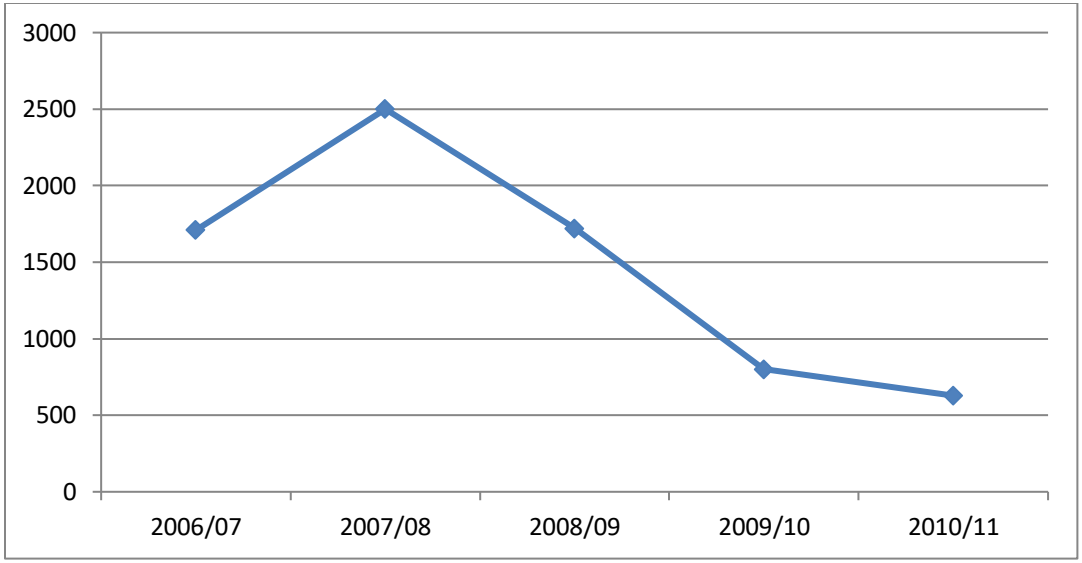
Market price and dividend record of common stock of Himalayan Bank United are shown in table no. 4.7 year-end price movement is shown in the diagram 4.7

Table: 4.7 MPS and Dividend Data of HBL

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	1710	15	40	55
2007/2008	2500	25	45	70
2008/2009	1720	12	43.56	55.56
2009/2010	800	11.84	36.84	48.68
2010/2011	628	16.84	36.84	53.68

Diagram: 4.7 Year-End Price Movement of HBL

Price



Fiscal Year

The above diagram shows the closing MPS of common stock of Himalayan Bank Limited. It is the highest in Fiscal Year 2007/2008 and is the lowest in Fiscal Year 2010/2011. The highest MPS is Rs. 2500 and lowest is Rs. 628. It shows that the MPS of HBL is increase only F/Y 2006/2007 to 2007/2008 than after it was decreased up to end 2010/2011

4.1.4.3 Realized returns (R), S.D. (σ) and Expected Return ($\bar{R}$)

Year-End price and dividend amounts are used to calculate realized rate of return for each year. Table 4.8 shows the calculation of yearly realized return expected return and SD of return.

Table 4.8 Realized Rate of Return Expected Return and S.D. of Common Stock of HBL

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2006/2007	1710	55	-	-	-
2007/2008	2500	70	0.5029	0.5912	0.3495
2008/2009	1720	55.56	-0.2898	-0.2015	0.0406
2009/2010	800	48.68	-0.5066	-0.4183	0.1750
2010/2011	628	53.68	-0.1479	-0.0596	0.0036
			ΣR=-0.4414		0.5687

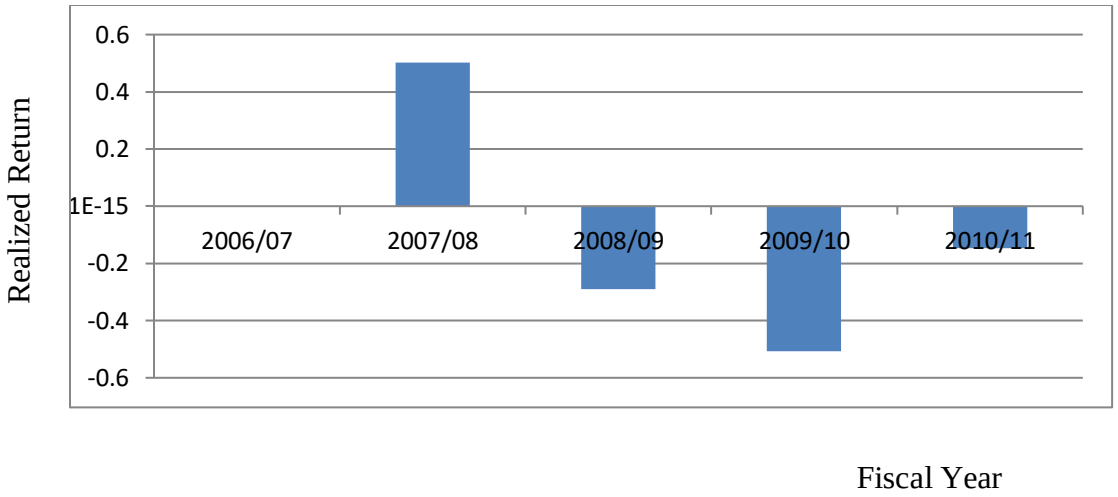
We have,

Expected Return (R) = $\frac{\sum R}{n} = \frac{-0.4414}{5}$ =-0.0883

Standard deviation (σ)= $\sqrt{\frac{\Sigma\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.5687}{4}}$ =0.3771

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}} = \frac{0.3771}{0.0883}$ = -4.2707

Diagram 4.8: Annual Realized Rate of Return of the Common Stock of HBL



4.1.5 Nepal SBI Bank Limited (NSBIBL)

4.1.5.1 Introduction

Nepal SBI bank limited was established in 1993 AD. Under the company Act 1964 which is the joint venture of stock bank of India and Nepalese promoters. the bank is managed by state bank of India under joint venture and technical service agreement signed between SBI and Nepalese promoters. Employees provident fund and agriculture Development Bank, Nepal. The SBI is holding its 50% equity. As mentioned in the NEPSE annual report. Main objectives of the bank are to carry out modern banking business in the country under the commercial Bank Act- 1974 AD. The bank provides loans to agriculture commerce and industrial sector. The bank is one of the largest shareholders based company.

The banks authorized capital. Issued capital and paid up capital are Rs. 2000,000,000 Rs.1869303258 and Rs 1869303258 respectively. The banks was listed in NEPSE in 2051 BS it has 50 branches around the country in operation.

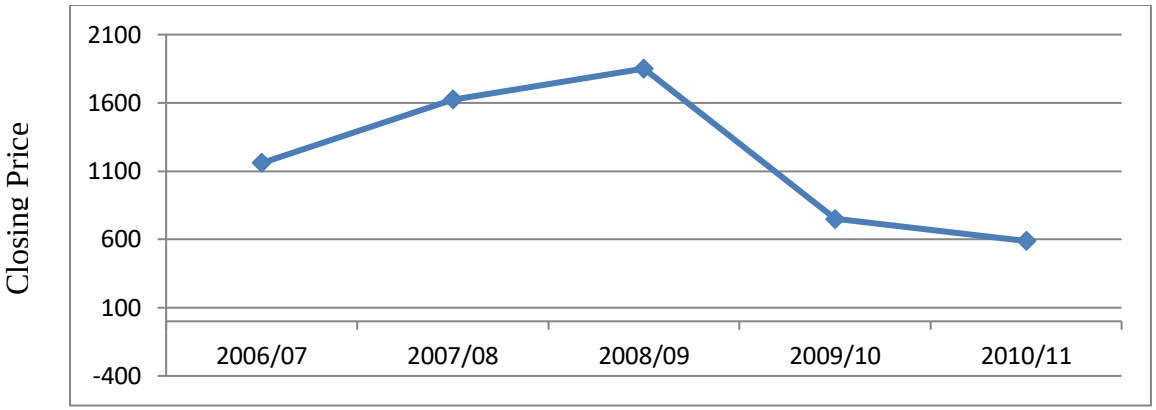
4.1.5.2 DATA

Market price and dividend record of common stock of Nepal SBI bank limited are shown in table no 4.9 year-end price movement is shown in the diagram 4.9

Table: 4.9: MPS and Dividend Data of Nepal SBI Bank Limited (NSBIBL)

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	1160	12.59	47.59	60.18
2007/2008	1625	-	-	-
2008/2009	1851	2.11	42.11	44.22
2009/2010	749	5.00	17.50	22.50
2010/2011	588	5.00	17.50	22.50

Diagram: 4.9 Year - End price movement of Nepal SBI



Above diagram shows that the losing MPS of common stock of Nepal year 2008/2009 and is the lowest in fiscal year 2010/2011. The highest MPS is RS. 1851 and lowest MPS is Rs. 588. It shows that MPS of Nepal SBI bank ltd is increasing fiscal year 2006/2007 to 2008/2009 for two years only then after it was decreased upto end 2010/2011.

4.1.5.3 Realized Return (R), S.D. (σ) and expected Return ($\bar{R}$)

Year -end price and dividend amount are used to calculate realized return of return for each year. Table 4.10 shows the calculation of yearly realized return, expected return and SD of return.

Table 4.10 Realized Rate of Returns, Expected Returns and S.D. of C.S of Nepal SBI

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2006/2007	1160	60.18	-	-	-

2007/2008	1625	-	0.4009	0.4411	0.1946
2008/2009	1851	44.22	0.1663	0.2065	0.0426
2009/2010	749	22.50	-0.5832	-0.5430	0.2948
2010/2011	588	22.50	-0.1849	-0.1447	0.0209
			-0.2003		0.5529

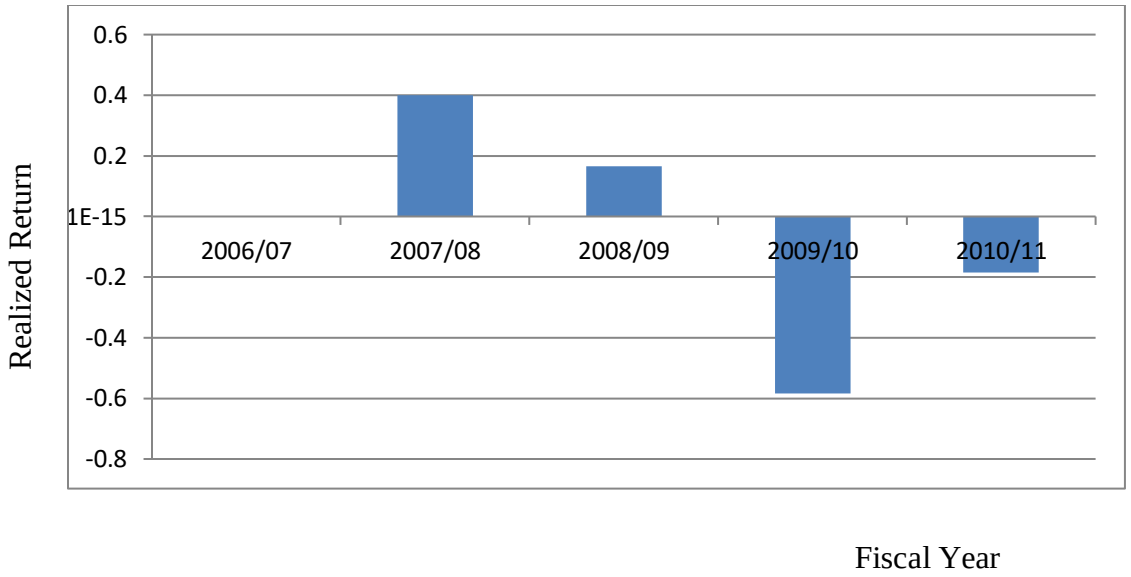
We have,

Expected Return (R)=$\frac{\sum R}{n}$ =$\frac{-0.2003}{5}$ =-0.0402

Standard deviation (σ)=$\sqrt{\frac{\Sigma\left(R-\overline{R}\right)^2}{n-1}}$ = $\sqrt{\frac{0.3718}{4}}$ =0.3718

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}}$ = $\frac{0.3718}{0.0402}$ = -9.2487

Diagram 4.10: Annual Realized Rate of Return of the Common Stock of Nepal SBI



4.1.6 Banks of Kathmandu Limited (BOKL)

4.1.6.1 Introduction

Bank of Kathmandu was stated as a joint venture bank with SIAM commercial bank PCC. Thailand under the company act 1964. The SIAM commercial bank of out of 50% holding dividend its 25% holdings to the Nepalese citizens in 1918. Using data of BOKL on stock exchange Jestha in 2054 BS (1998 AD) and no of shareholders of BOKL are Authorized capital 2000,000,000 issue capital RS 1359480700 paid up capital Rs. 1359480700

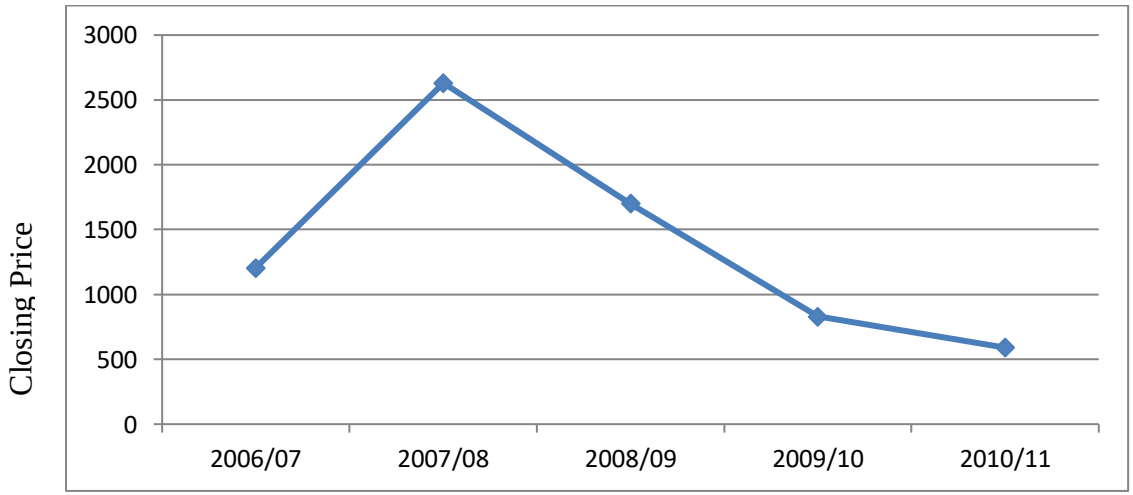
4.1.6.2 DATA

Market price and dividend record of common stock of Bank of Kathmandu limited are shown in table no 4.11 year-end price movement is shown in the diagram 4.11

4.11 MPS and Dividend Data of BOKL

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	1205	20	20	40
2007/2008	2630	2.11	42	44.11
2008/2009	1700	7.37	47.37	54.74
2009/2010	830	15.00	30.00	45.00
2010/2011	590	16.75	30.75	47.50

Diagram: 4.11 Year-End Price Movement of BOKL



Fiscal Year

The above diagram the closing MPS of common stock of BOKL. It is the highest in fiscal year 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is Rs 2630 and lowest is Rs. 590. It shows that the MPS of BOKL is increase only F/Y 2006/2007 to 2007/2008 than after it was decrease upto 2010/2011.

4.1.6.3 Realized Return (R), S.D. (σ) and Expected Return $(\bar{R})$

Year-End price and dividend amounts are used to calculate realized rate of return for each year. Table 4.12 shows the calculation of yearly realized return expected return and SD of return.

Table 12: Realized Rate of Returns, Expected Returns and S.D. of Common Stock of BOKL

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2006/2007	1205	40	-	-	-
2007/2008	263	44.11	1.2192	1.1854	1.4052
2008/2009	1700	54.74	-0.3328	-0.3666	0.1344
2009/2010	830	45.00	-0.4853	-0.5191	0.2695
2010/2011	590	47.50	-0.2319	-0.2657	0.0706

			∑R=0.1692		1.8797

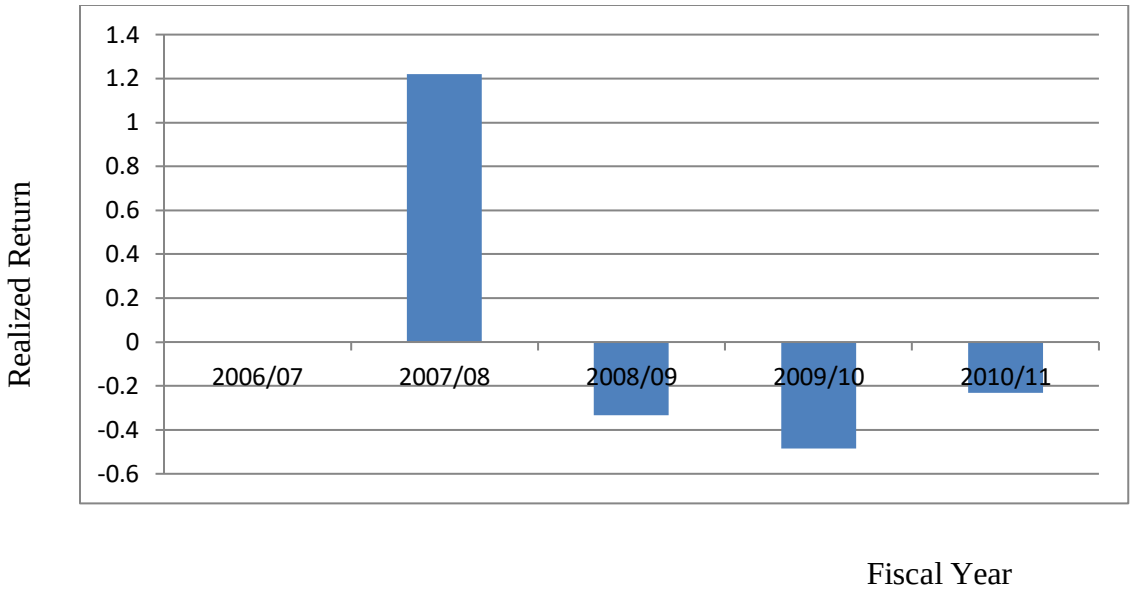
We have,

Expected Return (R)=$\frac{\sum R}{n}$ =$\frac{0.1692}{5}$ =-0.0338

Standard deviation (σ)=$\sqrt{\frac{\Sigma\left(R-\overline{R}\right)^2}{n-1}}$ = $\sqrt{\frac{1.8797}{4}}$ =0.6855

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}}$ = $\frac{0.6855}{0.0338}$ = 20.2808

Diagram: 4.12 Annual Realized Rate of Return of Common Stock of BOKL



4.1.7. Everest Bank Limited

4.1.7.1 Introduction

Everest Bank Limited was established in 1994 A.D. under the company Act 1964. Which is the joint venture of Panjab National Bank and Nepalese promoters. The Panjab National Bank, India holding 20% equity. The Bank's authorized capital issued capital and paid up capital are Rs, 2000,000,000 Rs.1281406500 and Rs. 1279609490 respectively. The bank was listed in NEPSE in 2052 B.S. it has 44 branches around the country in operation.

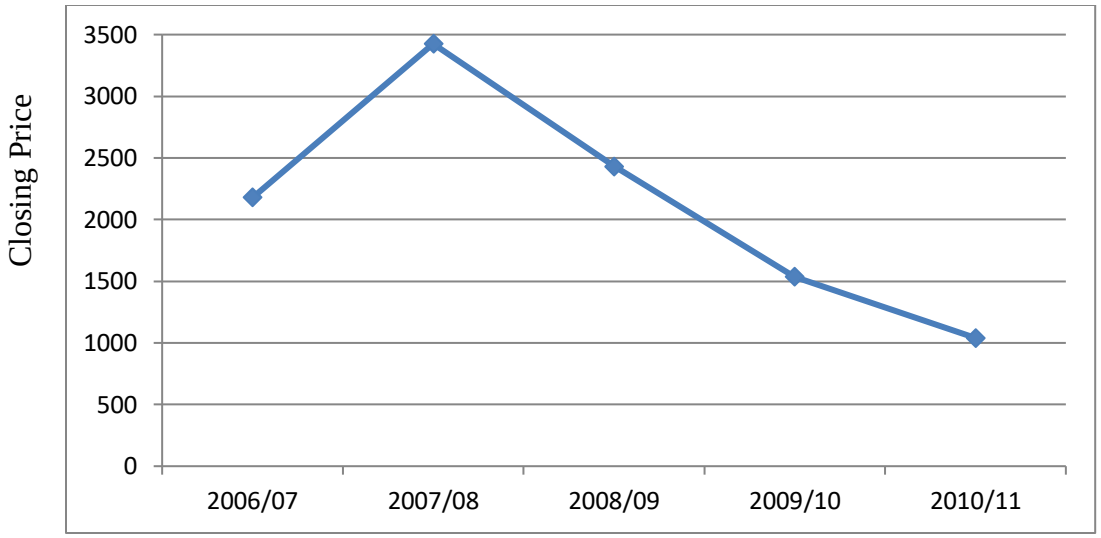
4.1.7.2 DATA

Market price and dividend record of common stock of Everest Bank Ltd are shown in table No.4.13 year-end price movement is shown in the diagram 4.13.

Table 4.13 MPS and Dividend Data of EBL

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	2180	10	30	40
2007/2008	3425	20	30	50
2008/2009	2430	30	30	60
2009/2010	1535	30	30	60
2010/2011	1040	50	10	60

Diagram: 4.13 Year- End Price Movement of EBL



The above diagram show that closing MPS of common stock of Everest Bank Limited. It is the highest in F/Y 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is 3425 to and lowest is Rs. It shows that the MPS of EBL is increase only 2006/2007 to 2007/2008 than after it was decrease upto 2010/2011.

4.1.7.3 Realized returns (R), S.D. (σ) and Expected Return ($\bar{R}$)

Year and price and Dividend amounts are used to calculate realized rate of return for each year. Table 4.14 shows the calculation of yearly realized return expected return and S.D. of return.

Table 4.14: Realized Rate of Returns, Expected Returns and S.D. of the Common Stock of EBL

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2006/2007	2180	40	-	-	-
2007/2008	3450	50	0.6055	0.6655	0.4429
2008/2009	2430	60	-0.2783	-0.2183	+0.0477
2009/2010	1535	60	-0.3436	-0.2836	0.0804
2010/2011	1040	60	-0.2834	-0.2234	0.0499
			∑R=-0.2998		0.6209

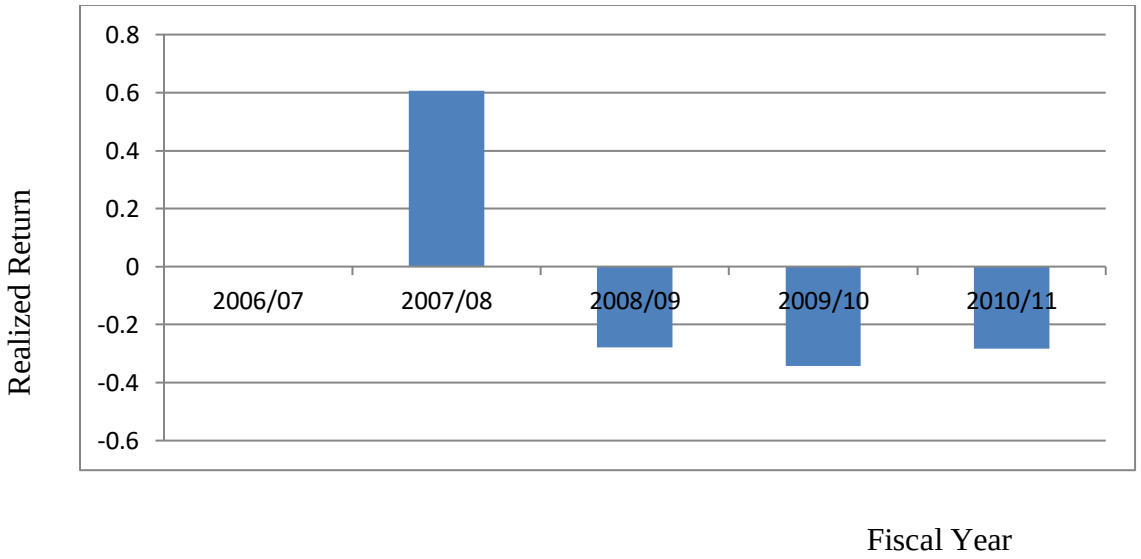
We have,

Expected Return (R)= $\frac{\sum R}{n}$ =$\frac{0.2998}{5}$ =-0.06

Standard deviation (σ)= $\sqrt{\frac{\Sigma\left(R - \overline{R}\right)^2}{n-1}}$ = $\sqrt{\frac{0.6209}{4}}$ =0.3940

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}}$ = $\frac{0.3940}{0.06}$ = -6.5664

Diagram: 4.14 Annual Realized Rate of Return of Common Stock



4.1.8 Nepal Introduction and commercial Bank Ltd (NIC Bank)

4.1.8.1 Introduction

Nepal industrial and commercial bank was established in 1997 A.D. (2054 B.S.). without any joint venture and not have yet. Investors displayed a lot of faith in the banking industry by oversubscribing the public issue of the bank sometimes bock. It has expected a senior banker from India to head its operation. The authorized capital of this bank is Rs 1600,000,000 issued capital is Rs. 1511452000. Par value per share is Rs. 100. This bank was listed in the NEPSE in BS 2057 (2000 A.D.)

4.1.8.2 DATA

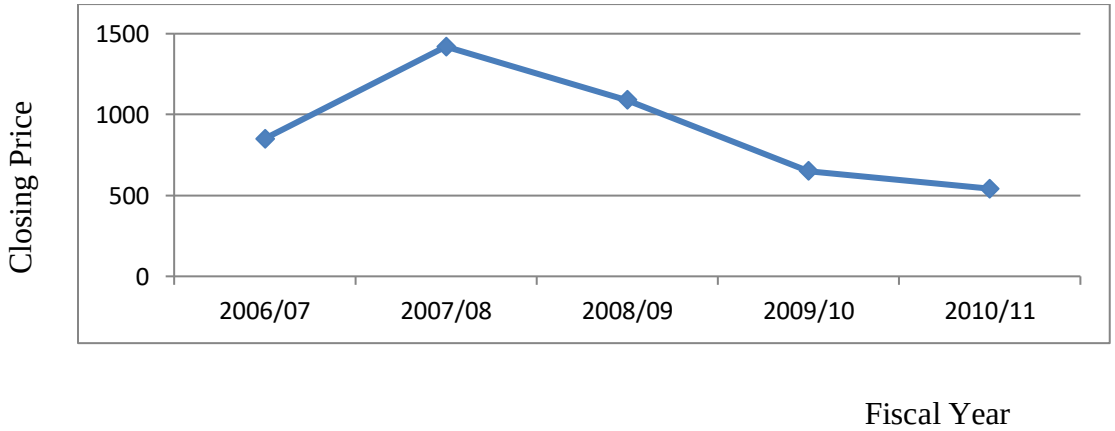
Market price and dividend record of common stock of NIC Bank limited are shown in Table No.4.15 year -end price movement is shown in the diagram 4.15

Table: 4.15 MPS and Dividend Data of NIC Bank Limited

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	850	1.05	21.04	22.09
2007/2008	1420	1.05	21.05	22.10
2008/2009	1090	0.79	15.79	16.58
2009/2010	650	26.32	20.32	46.64
2010/2011	542	20.00	20.00	40.00

Data source: NEPSE

Diagram: 4.15 Year-End price movement of NIC Bank



The above diagram shows the closing MPS of common stock of NIC Bank. It is the highest in F/Y 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is Rs. 1420 and lowest is Rs. 542. It shows that the MPS of NIC Bank is increase only from 2006/2007 to 2007/2008 then after it was decreases upto last 2010/2011.

4.1.8.3 Realized Returns (R), S.D. (σ) and Expected Return ($\bar{R}$)

Year - end price and dividend amounts are used to calculate realized rate of return for each year. Table 4.16 Show the calculation of yearly realized return expected return and S.D. of return.

Table 4.16: Realized rate of returns, Expected Returns and S.D. of the Common Stock of NIC Bank

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2006/2007	850	22.09	-	-	-
2007/2008	1420	22.10	0.6966	0.6945	0.4823
2008/2009	1090	16.58	-0.2207	-0.2228	0.049
2009/2010	650	46.64	-0.3609	-0.363	0.1318
2010/2011	542	40.00	-0.1046	-0.1067	0.01138
			ΣR=0.0104		0.6751

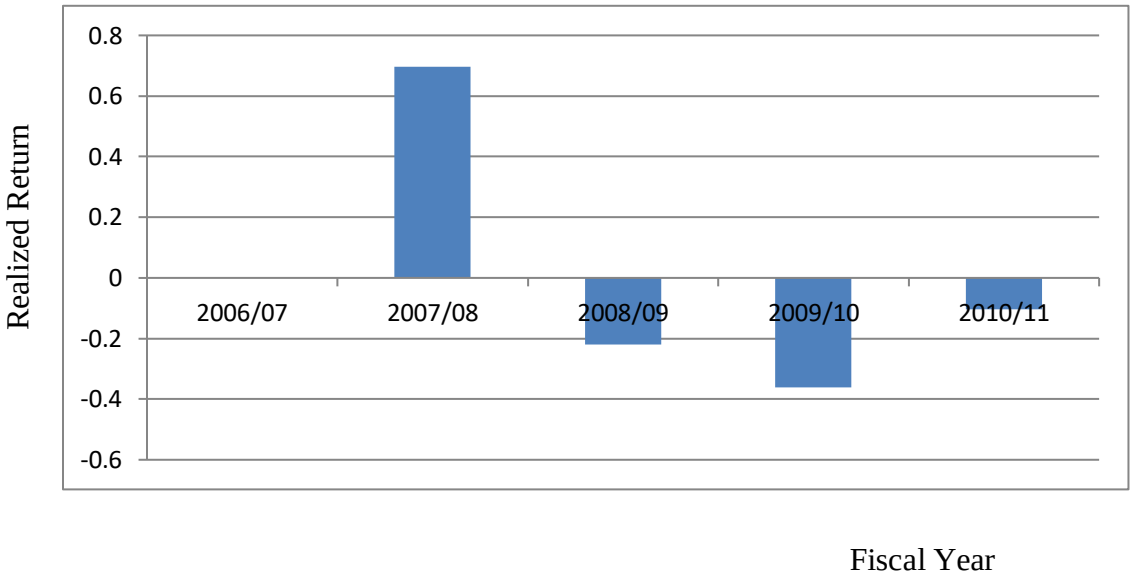
We have,

Expected Return (R) = $\frac{\sum R}{n} = \frac{0.0104}{5}$ =-0.0021

Standard deviation (σ) $= \sqrt{\frac{\Sigma\left(R-\overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.6751}{4}}$ =0.4108

Coefficient of variance (C.V.) $= \frac{\sigma}{\overline{R}} = \frac{0.4108}{0.0021}$ = 195.62

Diagram: 4.16: Annual Realized Rate of Return of common stock of NIC Bank



4.1.9. Kumari Bank Limited (KBL)

4.1.9.1 Introduction

Kumari Bank Limited was established and starting its banking operations form Chaitra 21, 2057 B.S. (April 03, 2001) with an objectives of providing competitive and modern banking services in the year Nepalese financial market 70% contributed from promoters and remaining from public. The banks authorized capital, issued capital and paid up capital are Rs. 160,000,000, Rs. 14850,000,00 Rs. 14850,00,000 respectively. It has 28 branches around the country in operation. It has listed in NEPSE at 2061/4/14 B.S.

4.1.9.2 DATA

Market price and dividend record of common stock of Kumari Bank Limited are shown in table No.4.17 Year-end Price movement is shown in the diagram 4.17.

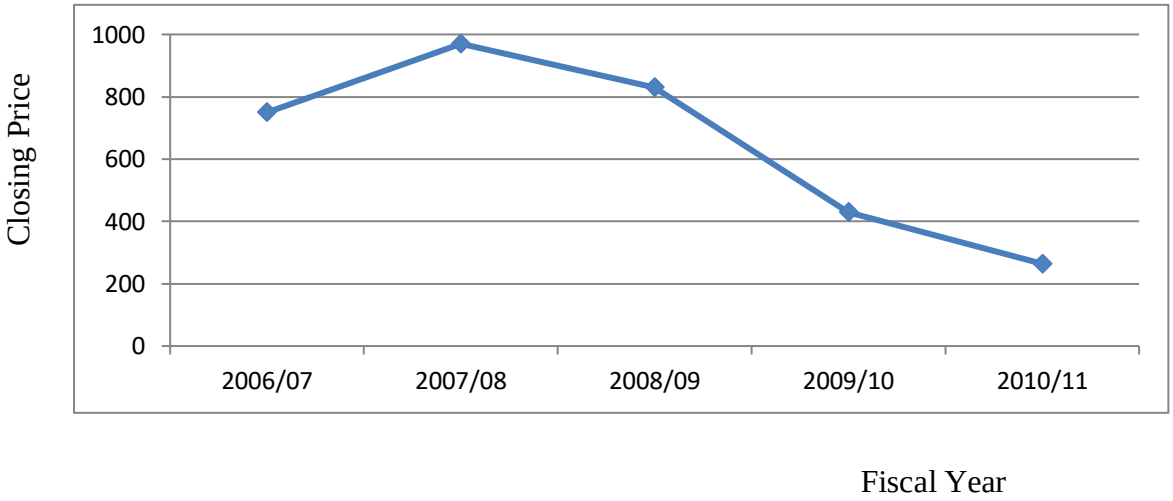
Table 4.17: MPS and Dividend data of Kumari Bank Ltd.

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	750	1.05	21.05	22.10

2007/2008	970	0.53	10.53	11.06
2008/2009	830	0.55	10.58	11.13
2009/2010	430	12.00	12	24.00
2010/2011	264	0.44	8.44	8.88

Data source: NEPSE

Diagram: 4.17 Year-End Price movement of Kumari Bank Ltd.



The above diagram shows the closing MPS of common stock of Kumari Bank Limited. It is the highest in fiscal Year 2007/2008 and is the lowest in fiscal year 2010/2011. The highest MPS is Rs. 970 and lowest is Rs. 264. It shows that the MPS of Kumari Bank is increases only from 2006/2007 to 2007/2008 than after it was decrease upto last 2010/2011.

4.1.9.3 Realized Returns (R) S.D. (σ) and Expected Return $(\overline{R})$

Year-end price and dividend amounts are used to calculate realized rate of return for each year. Table 4.18 shows the calculation of yearly realized return expected return and S.D. of return.

Table: 4.18 Realized Rate of Returns Expected Rate of Returns and S.D. of Common Stock of Kumari Bank.

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2006/2007	750	22.10	-	-	-
2007/2008	970	11.06	0.3081	0.4367	0.1907
2008/2009	830	11.13	-0.1329	-0.0043	0
2009/2010	430	24.00	-0.4530	-0.3244	0.1052
2010/2011	264	8.88	-0.3659	-0.2273	0.0517
			∑R=-0.6432		0.3476

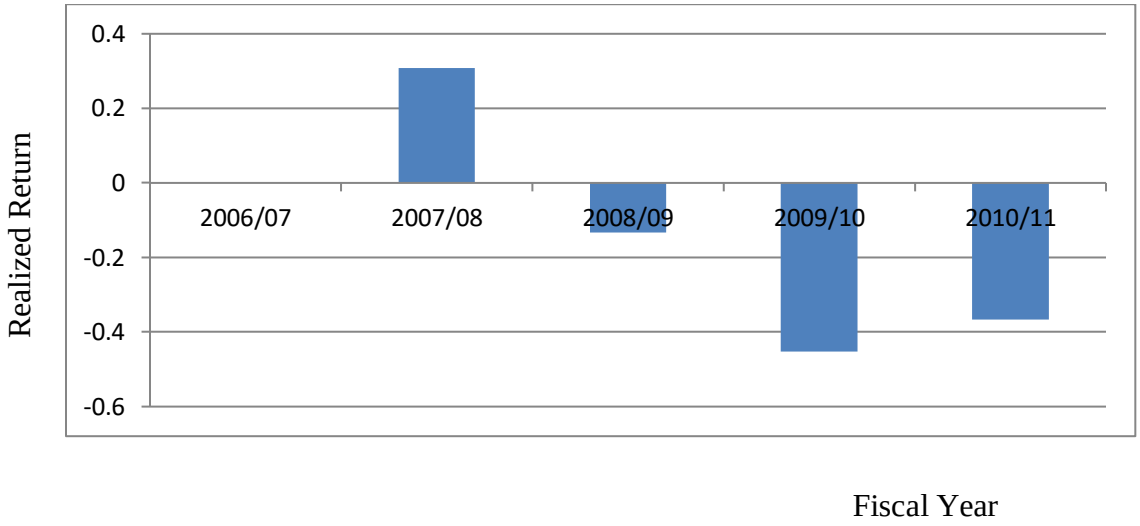
We have,

Expected Return (R) = $\frac{\sum R}{n} = \frac{0.6432}{5}$ =-0.1286

Standard deviation (σ) = $\sqrt{\frac{\Sigma\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.3476}{4}}$ =0.2948

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}} = \frac{0.2948}{0.1286}$ = -2.2923

Diagram: 4.18 Annual Realized Rate of Return of Common Stock of Kumari Bank



4.1.10 Machhapuchhre Bank Limited

4.1.10.1 Introduction

Machhapuchhere Bank Limited was established in 1998 A.D. Under the company act 1964. On the regional and 14th commercial bank to starting banking business form the western region of Nepal with its head office in pokhara. The banks authorized capital issued capital as paid-up capital are Rs. 2000,000,000, Rs. 1479269600, Rs. 1479269600 respectively with 12957 number of shareholders. The bank was listed in NEPSE in 2060/2/14 B.S. it has 39 branches around the country in operation.

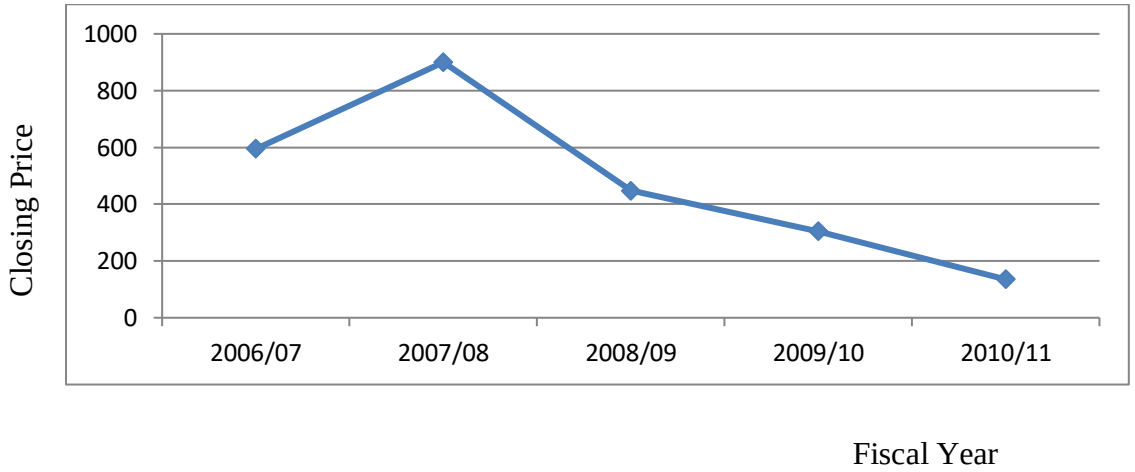
4.1.10.2 Data

Market Price and Dividend record of common stock of Machhapuchhere Bank Limited are shown in the table No. 4.19 Year-End price movement is shown in the diagram 4.19

Table 4.19: MPS and Dividend Data of Machhapuchhere Bank Limited

Fiscal Year	Closing Price	Cash Div	Stock Div.	Total Div.
2006/2007	595	-	-	-
2007/2008	900	1.05	21.05	22.1
2008/2009	448	-	-	-
2009/2010	304	-	10	10
2010/2011	135	-	-	-

Diagram: 4.19: Year-End price movement of Machhapuchhere Bank Limited



The above diagram shows the closing MPS of common stock of Machhapuchhere Bank Limited. It is the highest in fiscal year 2007/2008 and is lowest in fiscal year 2010/2011. The highest MPS is Rs. 900 and lowest is Rs. 135. It shows that the MPS of Machhapuchhere is increase only from 2006/2007 to 2007/2008 than after it was decreases upto last 2010/2011.

4.1.10.3 Realized Return (R), S.D. (σ) and Expected Return ($\bar{R}$)

Year-end price dividend amount are used to calculate realized rate of return for each year. Table 4.20 shows the calculation of yearly realized return expected and S.D. of return.

Table: 4.20 Realized Rate of returns, expected rate of return and S.D. of common stock of Machhapuchhere Bank Limited

Fiscal Year	Year End Price (P)	Total Div.(D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2006/2007	595	-	-	-	-
2007/2008	900	22.1	0.5497	0.7112	0.5058
2008/2009	448	-	-0.5022	-0.3407	0.1161
2009/2010	304	10	-0.2991	-0.1376	0.0189
2010/2011	135	-	-0.5559	-0.3944	0.1556
			∑R=-0.8075		0.7964

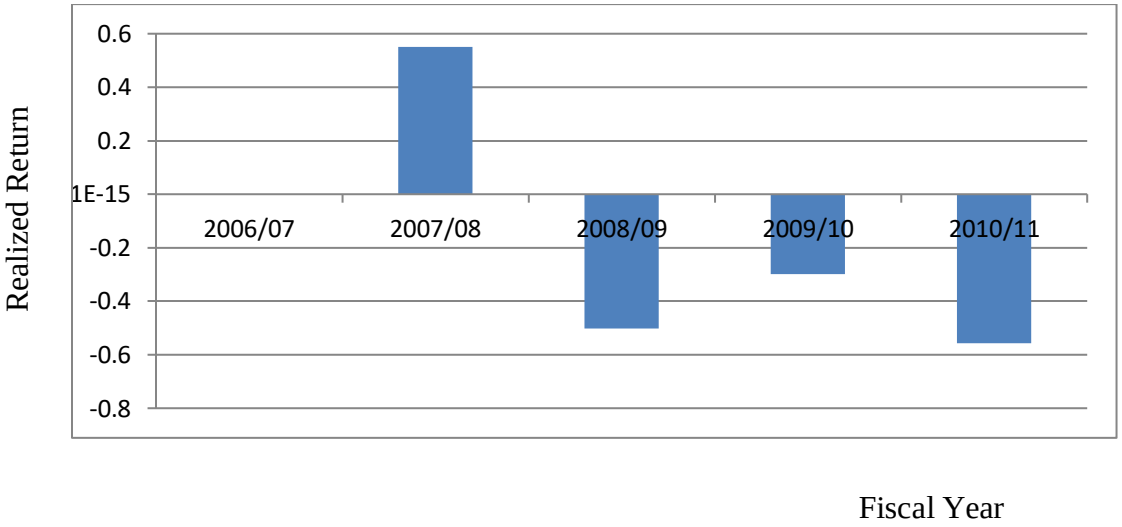
We have,

Expected Return (R) = $\frac{\sum R}{n} = \frac{-0.8075}{5}$ =-0.1615

Standard deviation (σ) $= \sqrt{\frac{\Sigma\left(R-\overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.7964}{4}} = 0.4462$

Coefficient of variance (C.V.) $= \frac{\sigma}{\overline{R}} = \frac{0.4462}{0.1615} = -2.7629$

Diagram: 4.20 Annual Realized Rate of C.S. of Machhapuchhere Bank Limited



4.2 Inter Firm Comparison

After the analysis of individual commercial bank comparative results of the analysis are presented in this section. Expected rate of return, S.D. of return and coefficient of variance of observed commercial banks for the year 2006/2007 to 2010/2011 are given in table 4.21

Table 4.21 Expected Return, S.D. and Coefficient of Variance of each Sample

Bank	Expected Rate of Return ($\bar{R}$)	Standard Deviation (σ)	Coefficient Variance (C.V.)	Remarks
NABIL	– 0.1684	0.2868	– 1.7031	
NIBL	– 0.1085	0.4120	– 3.7978	
SCBNL	– 0.1382	0.3297	– 2.3857	
HBL	– 0.0883	0.3771	– 4.2707	
NSBIBL	– 0.0402	0.3718	– 9.2487	
BOKL	0.0338	0.6855	20.2808	
EBL	– 0.06	0.3940	– 6.5664	
NIC	0.0021	0.4108	195.62	
KBL	– 0.1286	0.2948	– 2.2923	
MBL	– 0.1615	0.4462	– 2.7629	

From the above table, we can conclude that common stock of BOKL provides the greater return than other banks BOKL has higher expected rate of return that other which stood as 3.38% over the period of observation. It has also the lowest C.V. of all the banks i.e. 20.2487. it means investors has to bear 20.2487 unit of risk to get one unit of return. From the comparison of C.V we can say that stock of BOKL can provide a certain rate of return of Minimum level of risk than those of other. Due to this reason, we can say generalized the stock of BOKL as dominant asset and BOKL is best of all the investment in common stock. After the BOKL, NIC

provides the greater return i.e. 0.21%. Standard Deviation of NIC is 41.18% which less than BOKL. In terms of S.D., BOK is the more risky assets of all and in terms of C.V. NIC is the more risky asset of all.

Comparison the two Banks those have positive expected return (BOKL, NIC). NIC has more risky asset it has high per unit of return i.e. 195.62 and even less expected rate of return and low standard deviation of return i.e. 41.08% from the standard deviation point of view. NABIL Bank has minimum standard deviation of return i.e. 28.68% than other Banks. It should be best stock but viewing its expected rate of return, investors who invest on its' stock get negative rate of return and fluctuation of negative return is less because of continuous or constant decrease in share price. Stock of NABIL has negative 16.84% return. To loss out unit of return the investors should bear 1.7031 unit of risk (C.V.). also stock of NABIL, SCBNL , HBL, NSBIBL, EBL, KBL, MBL has negative return- 0.1085, -0.1382, -0.0883, -0.0402, -0.06, -0.1286 respectively and standard deviation of return is 41.20%, 32.97%, 37.71%, 37.8%, 33.4%, 29.48%, 44.62% respectively, and its coefficient of variance (C.V.) is -3.7978, -2.3857, -4.2707, -9.2487, -6.5664, -2.2923, -2.762 respectively. From the comparison of C.V. we can conclude that NIBIL is the worst to invest and Bank is best in terms of C.V. and $\bar{R}$

4.3 Market Risk and Return

Overall market movement is represented by market index. There is only one stock market called NEPSE in Nepal. Therefore, Nepalese stock market movement is represented by NEPSE index. Market Returns (R_m), market risk i.e. standard deviation of market σ_m and coefficient of variance (C.V.) are calculated in and from the table 4.22

Table: 4.22 Calculation of market return, S.D. and C.V.

Year	**NEPSE Index**	$\mathbf{R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}}$	$\mathbf{R_m - \bar{R}_m}$	$\mathbf{(R_m - \bar{R}_m)^2}$

2006/07	683.95	–	–	–
2007/08	963.36	0.4085	0.4918	0.2419
2008/09	749.10	– 0.2224	– 0.1391	0.0193
2009/10	477.73	– 0.3623	– 0.2790	0.0778
2010/11	362.85	– 0.2405	– 0.1572	0.0247
		– 0.4167		0.3637

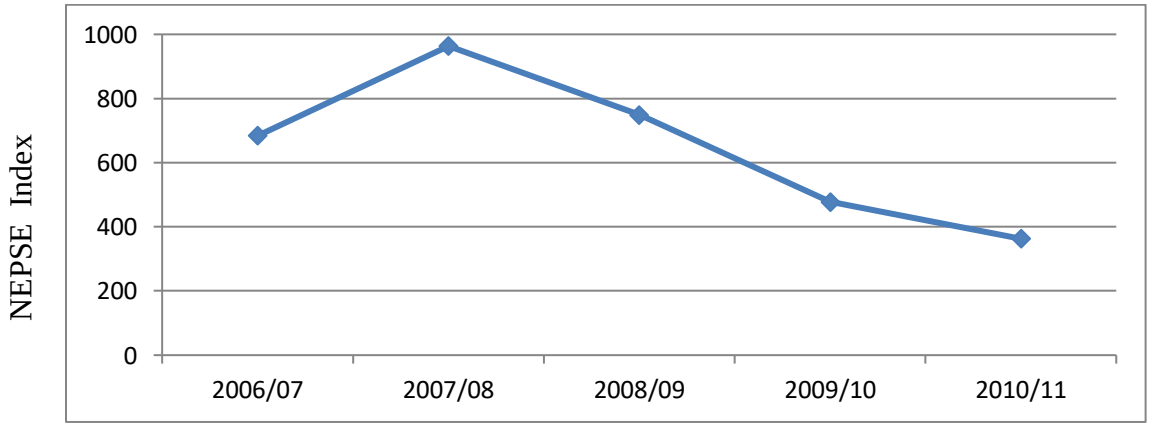
We have,

Expected Market Return ($\bar{R}_m$) = $\frac{\sum Rm}{n} = \frac{-0.4167}{5}$ = – 0.0833

Standard deviation of market = $\sqrt{\frac{\sum(Rm - \bar{R}m)2}{n-1}} = \sqrt{\frac{0.3637}{4}}$ = 0.3015

Coefficient of variance (C.V.) = $\frac{\sigma_m}{\bar{R}m} = \frac{0.3015}{-0.0833}$ = –3.6195

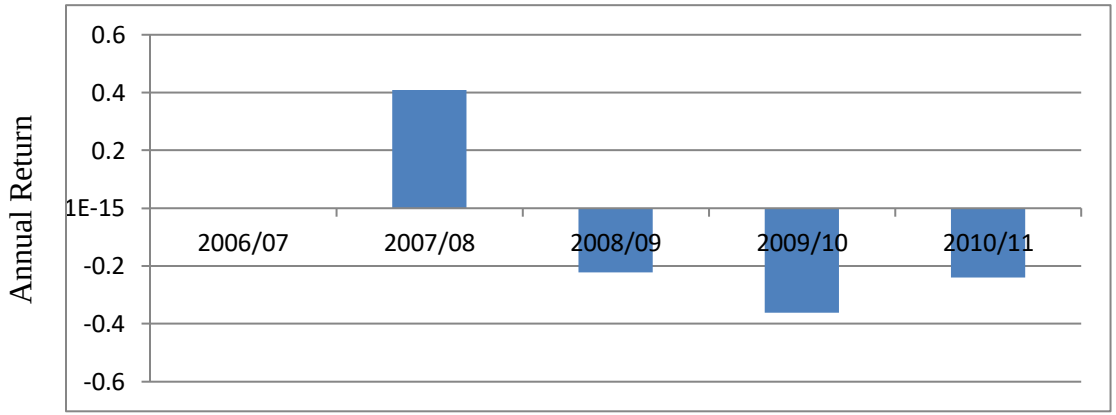
Diagram 4.21 NEPSE Index Movement



Fiscal Year

The above diagram shows that the movement of NEPSE index is in increasing trend form the fiscal year 2006/2007 to 2007/2008 for only one year and then start decreased in the year 2007/2008 upto end. The movement of NEPSE index is highly increased during the fiscal year 2007/2008.

Diagram 4.22 Market Return Movement



The above diagram shows that the market return is positive only in fiscal year 2007/2008 then after it was negative at all fiscal year. Highest market return was at 2007/2008 and lowest at 2009/2010.

4. Analysis of Market Sensitivity

Market sensitivity is explained by its beta coefficient. Beta is known as systematic risk measure. The beta of market is always equals to 1. So, beta of stock more than 1 is known as more risky or aggressive investment and beta of stock less than 1 is known as less risky or defensive investment.

We have $\beta_i = \frac{COV(R_i, R_m,)}{\sigma_m^2} = \frac{\sigma_i \sigma_m \rho_{im}}{\sigma_m^2} = \frac{\sigma_i \ \rho_{im}}{\sigma_m}$

Where,

ρ_{im}= correlation between market return and stock I return.

here,

$\beta_m = \frac{COV(R_m, R_m,)}{\sigma_m^2} = \frac{\sigma_m \sigma_m \rho_{im}}{\sigma_m^2} = \rho_{mm} = 1$

Hence, beta coefficient of market is always 1.

4.4 Beta coefficient (Market Sensitivity)

The beta coefficient is an index of systematic risk but not measure of the systematic risk of security or partfolic. It is the measure of the stock volability or sensitivity of the market which means it measures the degree of sensitivity or movement of the stock's return to market return. It gives ideas about systematic risk relative to their of market. Here we have tried to measure the degree of individual stock variability with the market return (NEPSE). The beta coefficient can be calculated by using following formula.

$$\beta_i = \frac{COV(R_i, R_m)}{Var(R_m)}$$

Where,

β_i = Beta coefficient of i^{th} stock

$COV(R_i, R_m)$= co-variance of i^{th} stock with market return

Variance (Rm)= σ^2_m = variance of market

Following table 4.23 shows the beta coefficient of all the stock of individual commercial banks which are calculated in appendix.

Table: 4.23 Beta Coefficient of Stock of Sample Banks

Banks	**NABIL**	**NIBL**	**SCBNL**	**HBL**	**NSBIBL**	**BOKL**	**EBL**	**NIC**	**KBL**	**MBL**
Beta	**0.9065**	**1.264**	**1.0671**	**1.2233**	**0.9967**	**2.2569**	**1.2979**	**1.3498**	**0.9395**	**1.3685**
Coefficient (B_i)	**D.A.**	**A.A.**	**A.A.**	**A.A.**	**D.A.**	**A.A.**	**A.A.**	**A.A.**	**D.A.**	**A.A.**

D.A. = Defensive Assets A.A. = Aggressive Assets

Beta coefficient having less than one, stock of NABIL, BSBIBL and KBL are called defensive assists, NABIL's beta of 0.9065 indicates that the return trend to increase 9.35% less than the return on the market average, when the market is vising, when the market falls. NABIL's return trend to fall 9.35% less than market's NSBIBL's beta of 0.9967 indicates that the return trend to increase 0.33% less than the return on the market average when the market is rising . when the market falls NSBIBL's return tend to fall 0.33%

less than the market's and KBL's beta 0.9395 indicates that the return on the market average when the market is rising, when the market falls KBL's return tend to fall 6.05% less than the market 's. therefore the stock of NABIL, NSBIBL and KBL is less volatile than the market and is call defensive stock.

Having the beta greater than one, stock of NABIL, SCBNL, HBL, BOKL, EBL,NIC and MBL are called aggressive assets and their return are more volatile than the market's return. NIBIL's beta of 1.2670 indicates that its return tend to increase more than the market return when market is rising and decrease 26.40% more than market is when it falls. The same way, return of SCBNL's, HBL's, BOKL's, EBL's, NIC's and MBL's increase and decrease 6.71%, 22.33% 125.69%, 29.79%, 34.98% and 36.85% respectively more than the market return when the bull and bear market occurs respectively.

4.5 Pricing through Capital Assets Pricing Model

CAPM model establishes the relation between stock return and its systematic risk an represented by bate. Investors will expect greater return from security it security has greater proportion of systematic risk. Considering this type of investors behavior, the model provides the required rate of return of common stock from the following equations.

$RRR = R_f + (R_m - R_f)\ \beta_i$

RRR = Required Rate of Return on Security

R_f = Risk Free rate of Return (Short Term T- Bill Rate)

R_m = Market rate of Return

$(R_m - R_f)\ \beta_i$ = Risk Premium

Comparison of expected rate of return (ERR) and required rate of return (RRR) determines whether the stock is over priced or under priced. If the RRR is less than ERR then stock is said to be under priced and if RRR is more than ERR, then it is said to be overpriced. Following table number 4 presents the beta expected rate of return and the calculation of required rate return of stock.

Table: 4.24 Beta Required rate of Return and Price Situation

S.N.	S. Bank	Beta (β_i)	Required Rate of Return BRR)	Expected Rate of Return ERR)	Price Situation
1	NABIL	0.9065	6.25+(–8.33−6.25) 0.9065 = – 6.97	– 16.84	Over Price
2	NIBL	1.2640	6.25+(–8.33−6.25) 1.264 = – 12.18	– 10.85	Under Price
3	SCBNL	1.0671	6.25+(–8.33−6.25) 1.0671 = – 9.31	– 13.82	Over Price
4	HBL	1.2233	6.25+(–8.33−6.25) 1.2233 = – 11.59	– 8.83	Under Price
5	NSBIBL	0.9967	6.25+(–8.33−6.25) 0.9967 = – 8.28	– 4.02	Under Price
6	BOKL	2.2569	6.25+(–8.33−6.25) 2.2569 = – 26.66	3.38	Under Price
7	EBL	1.2979	6.25+(–8.33−6.25) 1.2979 = – 12.67	– 6.00	Under Price
8	NIC	1.3498	6.25+(–8.33−6.25) 1.3498 = – 14.16	0.21	Under Price
9	KBL	0.9395	6.25+(–8.33−6.25) 0.9395	– 12.86	Over Price

			= – 7.45		
10	MBL	1.3685	6.25+(–8.33−6.25) 1.3685 = – 13.70	– 16.15	Over Price

RRR= R_f+ (R_m-R_f)* β_i

Weighted Average discount rate (R_f)= 6.25%

In the table 4.24 computation of required rate of return is done by using the model describe in research methodology. For the computation of required rate of return, risk free rate of return is considered as 8.35% which is the weighted average discount rate of Nepal's government Treasury Bill (source NRB)

Major implication of the beta coefficient is in CAMP. It is the model, which gives required rate of return (RRR) of common stock. Comparison of RRR and expected rate of return (ERR) stock is said to be under priced and investors make buying strategy for this of stock and vice-versa. It is already discovered that beta plays significant role in stock's RRR. Similarly, expected market return $\left(\overline{R}_M\right)$ and risk free rate (R_f) are the major affecting various of RRR. CAMP and it role is already discussed in chapter 2. Here, only the application of its in RRR determination is presovated. Table 4.24 shows the RRR, ERR and price evaluation of each stock.

Results indicate the common stock of NABIL, SCBNL, JBL and MBL are common stocks are under price investors can gain form buying these under priced stocks. There under priced stocks are recommended to buy other dimensions of analysis and also essential for effective decision.

4.6 Portioning Risk

Total risk can be measured by variance of return we have already calculated the total risk of individual stock. Now it is turn to find out how much is the diversisble and undiversible portion of risk in each asset. Undiversiable portion of risk is also known as systematic risk. It is related to market and cannot diversity the risk by constructing even efficient portion. It arises from the change in economy and market condition i.e. the external forces like inflation, recession, political instability, and socio-culture technological factors etc which are beyond the control of company management.

Unsystematic risk if non-market factors related it arises from the company specific factors like labour , strike, inefficiency of management low suits , failure in new product instruction and any other event that is unique to the company.

By portioning the risk into diversiable or undiversable potion, the investor is able to know to what extent the risk of given stock can be diversified by constructing portfolio and can minimize the futile efforts and time of the investors while he would spent reducing the systematic risk.

Following are the details of portioning the total risk into diversifiable and undiversifible risk in each stock.

Portioning the risk of stock NABIL

Total risk = systematic risk + unsystematic risk

$\sigma_N^2 = \beta_N^2 \sigma_m^2 + \sigma_e^2$

$(0.2868)^2 = (0.9065)^2(0.3015)^2 + \sigma_e^2$

$\sigma_e^2 = 0.0823 - 0.07469$

$\sigma_e^2 = 0.0076$

Systematic risk or undiversitible protion of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_N^2 \sigma_m^2}{\sigma_N^2} = \frac{0.0745}{0.0823} = 0.9075 = 90.75\%$$

Diversitible portion of unsystematic potion of total risk equal to

$$= \frac{UnsystematicRisk}{TotalRisk} = \frac{\sigma_e^2}{\sigma_N^2} = \frac{0.0076}{0.0823} = 0.0925$$

or, $(1- \rho^2) = (1- 0.9075) = 0.0925 = 9.25\%$

Portioning the risk of NIB

Total risk = systematic risk + unsystematic risk

$\sigma_{NI}^2 = \beta_{NI}^2 \sigma_m^2 + \sigma_e^2$

$(0.4120)^2 = (1.264)^2 (0.3015)^2 + \sigma_e^2$

$\sigma_e^2 = 0.1697 – 0.1452$

$\sigma_e^2 = 0.0245$

Systematic risk or undiversiable portion of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_{NI}^2 \sigma_m^2}{\sigma_{NI}^2} = \frac{0.1452}{0.1697} = 0.8556 = 85.56\%$$

Diversifiable portion or unsystematic portion of total risk equal to

$(1- \rho^2)= (1-0.8556)= 0.1444= 14.44\%$

Portioning the risk of SCBNL

Total risk = systematic risk + unsystematic risk

$\sigma_s^2= \beta_s^2\sigma_m^2 + \sigma_e^2$

$(0.3297)^2 = (1.0671)^2 (0.3015)^2 + \sigma_e^2$

$0.1087 = 1.1387 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 1.1087 - 0.1035$

$\sigma_e^2 = 0.0052$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_s^2 \sigma_m^2}{\sigma_s^2} = \frac{0.1035}{0.1087} = 0.9522$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.9522) = 0.0478 = 4.78\%$

Portioning the risk of HBL

Total risk = systematic risk + unsystematic risk

$\sigma_H^2= \beta_H^2\sigma_m^2 + \sigma_e^2$

$(0.3771)^2 = (1.2233)^2 (0.3015)^2 + \sigma_e^2$

$0.1422= 1.4965 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 1.1422- 0.1360$

$\sigma_e^2 = 0.0062$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_H^2 \sigma_m^2}{\sigma_H^2} = \frac{0.1360}{0.1422} = 0.9564 = 95.67\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.9564) = 0.0436 = 4.36\%$

Portioning the risk of NSBIBL

Total risk = systematic risk + unsystematic risk

$\sigma_{SBI}^2 = \beta_{SBI}^2 \sigma_m^2 + \sigma_e^2$

$(0.3718)^2 = (0.9967)^2 (0.3015)^2 + \sigma_e^2$

$0.1382 = 0.9934 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.1382 - 0.0903$

$\sigma_e^2 = 0.0479$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_{SBI}^2 \sigma_m^2}{\sigma_{SBI}^2} = \frac{0.0903}{0.1382} = 0.6534$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.6534) = 0.3466 = 39.66\%$

Portioning the risk of BOKL

Total risk = systematic risk + unsystematic risk

$\sigma_B^2 = \beta_B^2 \sigma_m^2 + \sigma_e^2$

$(0.6855)^2 = (2.2569)^2 (0.3015)^2 + \sigma_e^2$

$0.4699 = 5.0936 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.4699 - 0.4630$

$\sigma_e^2 = 0.0069$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_B^2 \sigma_m^2}{\sigma_B^2} = \frac{0.4630}{0.4699} = 0.9853 = 98.53\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.9853) = 0.0147 = 1.47\%$

Portioning the risk of EBL

Total risk = systematic risk + unsystematic risk

$\sigma_E^2 = \beta_E^2 \sigma_m^2 + \sigma_e^2$

$(0.394)^2 = (1.2979)^2 (0.3015)^2 + \sigma_e^2$

$0.1552 = 1.6845 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.1552 - 0.1531$

$\sigma_e^2 = 0.0021$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_E^2 \sigma_m^2}{\sigma_E^2} = \frac{0.1531}{0.1552} = 0.9865 = 98.65\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.6534) = 0.0135 = 1.35\%$

Portioning the risk of NIC Bank

Total risk = systematic risk + unsystematic risk

$\sigma_{NIC}^2 = \beta_{NIC}^2 \sigma_m^2 + \sigma_e^2$

$(0.4108)^2 = (1.3498)^2 (0.3015)^2 + \sigma_e^2$

$0.1688 = 1.822 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.1688 - 0.1656$

$\sigma_e^2 = 0.0032$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_{NIC}^2 \sigma_m^2}{\sigma_{NIC}^2} = \frac{0.1656}{0.1688} = 0.9810 = 98\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.9810) = 0.0190 = 1.9\%$

Portioning the risk of KBL

Total risk = systematic risk + unsystematic risk

$\sigma_K^2 = \beta_K^2 \sigma_m^2 + \sigma_e^2$

$(0.2948)^2 = (1.9395)^2 (0.3015)^2 + \sigma_e^2$

$0.0869 = 1.8827 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.869 - 0.0802$

$\sigma_e^2 = 0.0034$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_K^2 \sigma_m^2}{\sigma_K^2} = \frac{0.0802}{0.0869} = 0.9229 = 92.29\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1- \rho^2) = (1 - 0.9229) = 0.0771 = 7.71\%$

Portioning the risk of MBL

Total risk = systematic risk + unsystematic risk

$\sigma_{Ma}^2 = \beta_{Ma}^2 \sigma_m^2 + \sigma_e^2$

$(0.1991)^2 = (1.8728)^2 (0.3015)^2 + \sigma_e^2$

$0.0869 = 1.8827 * 0.0909 + \sigma_e^2$

$\sigma_e^2 = 0.81991 - 0.1702$

$\sigma_e^2 = 0.0289$

Systematic risk or undiversifiable position of total risk can be measured by the coefficient of determination (ρ^2)

$$\rho^2 = \frac{\text{systematic risk}}{\text{total risk}} = \frac{\beta_{Ma}^2 \sigma_m^2}{\sigma_{Ma}^2} = \frac{0.1702}{0.1991} = 0.8548 = 85.48\%$$

Diversifiable portion or unsystematic position of total risk equal to

$(1 - \rho^2) = (1 - 0.8548) = 0.1452 = 14.52\%$

4.7 Portfolio Analysis

Portfolio theory was proposed by Harry M. Markowitz which gives the concept of diversification of risk by investing total funds in more than a single asset or single stock. Markowitz diversification helps the investors to attain a higher level of expected utility than with any other risk-reduction technique. In a very simple way we can understand it as not keeping all the eggs in a single basket. By diversifying total fund in different securities the risk of individual security can be reduced without losing consideration return. The main objectives of portfolio. Therefore, a brief analysis of risk and return is extended in portfolio context. The portfolio expected return is a straight forward weighted average of returns on the individual securities. The weighted average of returns to the proportions of the total fund invested in each security (the weight most sum to 100%)

4.7.1 Analysis and Risk Diversification

The analysis of based on the two assets portfolio and the tools for analysis are presented in the third chapter (research methodology). Here, the portfolio of the common stock of NABIL (Say Stock N) and NIBL which shows the calculation of covariance of the return of given two stocks Cov (R_N,R_{NI}) and the proportion of stock N (W_N) that minimized the risk

We have,

$$W_N = \frac{\sigma_{NI}^2 - COV(R_N, R_{NI})}{\sigma_N^2 + \sigma_{NI}^2 - 2COV(R_N, R_{NI})}$$

Where,

σ_{NI}^2 = variance of C.S of NIBL

σ_N^2 = variance of C.S of Nabil

cov (R_N,R_{NI}) = Covariance of returns between C.S of Nabil and NIBL

W_N = proportion of the C.S. of Nabil

W_{NI} = proportion of the C.S. of NIBL

Table 4.25: Covariance (R_N, R_{NI}) and W_N of stock Nabil W_{NI} of stock NIBL

Year	**$R_N - \bar{R}_N$**	**$R_{NI} - \bar{R}_{NI}$**	**$(R_N - \bar{R}_N)(R_{NI} - \bar{R}_{NI})$**
2006/2007	-	-	-
2007/2008	0.4001	0.6462	0.2585
2008/2009	-0.0096	-0.4386	0.0042
2009/2010	-0.3599	-0.2562	0.0920
2010/2011	-1997	-0.0598	0.0119
Total			0.3666

We have,

$$COV(R_N, R_{NI}) = \frac{\Sigma(R_N - \bar{R}_N)(R_{NI} - \bar{R}_{NI})}{n-1} = \frac{0.3666}{5-1} = 0.0917$$

and to minimized the risk and the proportion of stock N in the portfolio is given as:

$$W_N = \frac{\sigma_{NI}^2 - COV(R_N, R_{NI})}{\sigma_N^2 + \sigma_{NI}^2 - 2COV(R_N, R_{NI})} = \frac{(0.412)^2 - 0.0917}{(0.2868)^2 + (0.412)^2 - 2 \times 0.0917} = 1.1377$$

W_N = 1.1377

W_{NI} = 1 - W_N = 1 - 1.1377 = -0.1377

If the portfolio is constructed with 133.77% of Nabil common stock and - 13. 77 % of NIBL common stock constructed portfolio will minimize risk and will be ideal proportion.
And portfolio return will be
$\bar{R}_P = W_N \bar{R}_N + W_{NI} \bar{R}_{NI}$
= 1.1377 * (0.1684) + (-0.1377) * (-0.1085)
= -0.1916 + 0.0150
= - 0.1766
Where,
Portfolio risk is given as

$$\sigma_p = \sqrt{W_N^2\sigma_N^2 + W_{NI}^2\sigma_{NI}^2 + 2W_N W_{NI} COV(R_N, R_{NI})}$$

$$=\sqrt{(1.1377)2\ (0.2868)2 + (-0.1377)2(0.4120)2 + 2 \times 1.1377 \times (-0.1377) \times 0.0917}$$

$$=\sqrt{0.1065 + 0.0032 - 0.0287}$$

$$=\sqrt{0.081}$$

=0.2846

=28.46%

Using the diversification, we can reduce the risk. Standard deviation of Nabil and IBL was 28.68% and 41.20% respectively before the diversification. But after portfolio construction, which risk is 28.46% which is lower than the risk before diversification. The table presents below shows the portfolio return of each bank.

Table 4.26: Portfolio Return ($\bar{R}p$) of each Bank

	Nabil	NIBL	SCBNL	HBL	NSBIBL	BOKL	EBL	NICBL	KBL	MBL
Nabil	1	-0.1766	-0.1904	-0.2273	-0.2728	-0.2628	-0.2457	-0.2895	-0.2701	-0.1705

NIBL		1	-0.1453	-0.0854	-0.0605	-0.24701	-0.0657	-.497	-0.1311	-0.1127
SCBNL			1	-0.1678	-0.1208	-0.2665	-0.2355	-0.2914	-0.1218	-0.1256
HBL				1	-0.0625	-0.219	-0.0885	-0.3315	-0.1532	-0.0879
NSBIBL					1	-0.0563	-0.0485	-0.0266	-0.1761	-0.0664
BOKL						1	-01821	-0.0434	-0.2175	-0.3365
EBL							1	-0.1098	-0.1833	-0.0207
NICBL								1	-0.2280	-0.0162
KBL									1	-0.1157
MBL										1

From the above table 4 return for the stock of EBL & MBL is found to be the positive portfolio return which is highest as compared to the other stock of bank i.e. 2.07% and all other portfolio return has negative return is found to have the lowest return which is only -33.65% . So, the investors are suggested to say the stock of EBL and MBL considering the return factors only.

The table presented below shows the portfolio risk of each bank.

Table 4.27: Portfolio Risk of Each Bank

	Nabil	NIBL	SCBNL	HBL	NSBIBL	BOKL	EBL	NICBL	KBL	MBL
Nabil	1	0.2846	0.2766	0.2629	0.2610	0.1833	0.2588	0.2521	0.2780	0.2753
NIBL		1	0.3261	0.3765	0.3435	0.2706	0.3937	0.4066	0.2930	0.4117
SCBNL			1	0.3225	0.3275	0.1685	0.2967	0.2936	0.2870	0.3098
HBL				1	0.3562	0.2784	0.3771	0.3348	0.2786	0.3771

NSBIBL					1	0.3543	0.3561	0.3642	0.2824	0.3314
BOKL						1	0.0856	0.0932	0.1792	0.3482
EBL							1	0.3897	0.2608	0.3802
NICBL								1	0.2610	0.4104
KBL									1	0.2778
MBL										1

From the above table 4 standard deviation for the stock of NIBL and MBL is found to be highest as compared to other stock of bank i.e. 41.17% and the stock of BOKL and EBL is found to be lowest i.e. 8.56%.

4.8 Correlation between Banks:

Most of the positively correlated, not perfectly. In this condition, some risk can be reduced correlation between the returns of the two securities plays a significant role in risk reduction, by portfolio construction. Here correlation between each banks are presented below.

Correlation between NABIL Bank and Nepal Investment Bank ($\rho_{N,NI}$)
We have,

$$(\rho_{N,NI}) = \frac{COV(R_N, R_{NI})}{\sigma_N \sigma_{NI}} = \frac{0.0917}{0.2868*0.4120} = \frac{0.0917}{0.1182} = 0.78$$

Where,
$(\rho_{N,NI})$ = correlation of return between NBL & NIBL
Cov (R_N,R_{NI}) = covariance between NBL and NIBL
σ_N = Standard deviation of NBL
σ_{NI} = Standard deviation of NIBL

The table presented below shows the various correlations between each bank.

Table 4.28: Various Correlations between each bank

	NABIL	NIBL	SCBNL	HBL	NSBIBL	BOKL	EBL	NIC	KBL	MBL
NABIL	1	0.78	0.95	0.93	0.93	0.91	0.92	0.92	1.0	0.81
NIBL		1	0.87	0.94	0.56	0.95	0.94	0.95	0.78	0.91
SCBNL			1	0.94	0.82	0.96	0.96	0.96	0.96	0.90
HBL				1	0.81	0.97	0.96	0.99	0.92	0.85
NSBIBL					1	0.74	0.73	0.76	0.90	0.56
BOKL						1	1	1	0.93	0.93
EBL							1	0.98	0.93	0.96
NIC								1	0.92	0.90
KBL									1	0.85
MBL										1

Form the above table 4.25 It can be noted that there are positive correlation beside correlation between NABIL and NIBL all other also. In some cases to one. On positive correlation some risk can be reduced but in perfectly positive correlation (i.e. +1), any point of risk cannot be reduce by diversification. (i.e. BOKL and EBL, BOKL and NIC). On the other hand, if the correlation is perfectly negative (i.e. -1) then the proper combination of two securities can reduce all the risk but in our sample are can't find negative correlation. So as long as correlation between securities return in negative construction of portfolio is advisable.

CHAPTER- FIVE

5. Summary, Findings and Recommendation

5.1 Summary:

Trade off between risk and return is the central focus of finance. And its major part stock market has greatest glamour, not only for the professionals on institutional investors but for the individual or private as well. Risk and Return, a new and complex concept is also foundation of modern investment.

As this study is concerned with risk and return analysis. Here, risk is defined as the variability of the return of a period. The greater the variability of the returns and risk. The investment where as investment involve the sacrifice of current rupees for future rupees or reward, that future rupees or reward is called the return. It includes both current income and capital gains or losses that arise due to the increase or decrease on price of the security.

We have seen that every investment has the risk factor. And we should minimize the risk to maximize the return. For this we must follow the following statement 'not to put all the eggs in one basket' It means appropriate portfolio should be constructed instead of investment in a single security. A portfolio is the combination of different investment assets. It would be able to reduce unsystematic or diversifiable risk.

For this study, I have taken ten commercial banks which are listed in NEPSE. An analysis of these banks are made in this study stock market investment is the main focus of the study. Stock market investment can be both rewarding and fun so long as sufficient tune is given to appreciate its many facets and characteristics.

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. All the investors will like to invest in non risky assets. So, risk plays a vital role in the analysis of investment and to reach an investment decision. Higher risk gives bigger premium and the trade off between the two assumes a linear relationship between risk and risk premium due to the various limitations and constraints, only commercial viz. NABIL Bank, NIBL, SCBNL, HBL, NSBIBL, BOKL, EBL, NICBL, KBL and MBL are taken as sample for the study. A brief introduction in chapter 1, review of literature in chapter 2, research methodology in chapter 3, data presentation and analysis in chapter 4 have been presented in a very simple and clear way as far as possible.

The main objective of the study is to analyze the risk and return of common stocks in Nepalese context. The study has been based on common stock of listed commercial Banks. Thus listed ten commercial Banks are taken as major focus to analyze the risk and return

in common stock investment while analyzing the risk and return, a brief review of related studies has been done. The result is obtained by using multiple statistical methods as graphs, tables and diagrams. Secondary data are collected from different source as NEPSE, NRB and internet and other types of information are collected through field survey executives of the companies and officials of NRB, SEBON and NEPSE. Finding of analysis and conclusion are described below.

5.2 Findings:

Most of the people considered stock market investment as a black art that they have unrealistically optimistic or pessimistic expectations about stock market investment or perhaps a fear of the unknown. This study enables investors to put the returns they can expect and the risks they may take into better perspective. We know that Nepalese stock market is in emerging stage. Its development is accelerating since the political change in 1990 inefficient of openness and liberalization in national economy. But, Nepalese individual investors cannot analyze the securities as well as market properly because of the lack of information and pour knowledge about the analysis of securities for investment.

- The movement of the share price of NABIL Bank is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of NABIL is 0.9065 and price situation is over price. The portion of systematic and unsystematic risk is 90.75% and 9.25% respectively.
- The movement of the share price of NI Bank is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2008/09. The beta coefficient of NI Bank is 1.264 and price situation is under price. The portion of systematic and unsystematic risk is 85.56% and 14.44% respectively.

- The movement of the share price of SCBNL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of SCBNL is 1.0671 and price situation is over price. The portion of systematic and unsystematic risk is 95.22% and 4.78% respectively.
- The movement of the share price of HBL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of HBL is 1.2233 and price situation is under price. The portion of systematic and unsystematic risk is 95.67% and 4.36% respectively.
- The movement of the share price of NSBIBL is in increasing trend from the fiscal year 2006/07 to 2008/09 and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2008/09 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of NSBIBL is 0.9967 and price situation is under price. The portion of systematic and unsystematic risk is 65.34% and 39.66% respectively.
- The movement of the share price of BOKL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/19. The beta coefficient of BOKL is 2.2569 and price situation is under price. The portion of systematic and unsystematic risk is 98.53% and 1.47% respectively.
- The movement of the share price of EBL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum

in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of EBL is 1.2979 and price situation is under price. The portion of systematic and unsystematic risk is 98.65% and 1.35% respectively.

- The movement of the share price of NICBL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of NICBL is 1.3498 and price situation is under price. The portion of systematic and unsystematic risk is 98.1% and 1.9% respectively.
- The movement of the share price of KBL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2009/10. The beta coefficient of KBL is 0.9395 and price situation is over price. The portion of systematic and unsystematic risk is 92.29% and 7.71% respectively.
- The movement of the share price of MBL is in increasing trend from the fiscal year 2006/07 to 2007/08 only and in the following years it has declining trend however the closing price of share is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. Annual return is maximum in the fiscal year 2007/08 and minimum in the fiscal year 2010/11. The beta coefficient of MBL is 1.3685 and price situation is over price. The portion of systematic and unsystematic risk is 85.48% and 14.52% respectively.
- The market has expected return of -8.33% risk of 30.15% and C.V. of -3.6195.
- From the two assets portfolio, portfolio return for the stocks are found to be all negative where minimum negative portfolio return is for NICBL and MBL i.e. -0.0162 and most negative portfolio return is for the NIBL and NIC i.e. -0.497

- From the portfolio risk, for the stock of NICBL and MBL is found to be the greatest as compared to the other stocks of bank i.e. 41.04% where as the stock of BOKL and EBL is lowest standard deviation which is only 8.56%
- For the correlation between each bank, BOK and EBL, BOK and NIC & NABIL and KBL are found to be perfectly positive correlation between their returns i.e. (+1), NIB and NSBIBL & NSBIBL and MBL has minimum positive correlation between there return i.e. 0.56.

5.3 Conclusion:

Considering the trend of the price movement of the shares of selected banks, it reveals that the share price of almost all the banks is decreasing. When return is considered, the return of BOKL and NIC has only positive. All other Banks returns have negative returned. BOKL is maximum but its risk is also maximum. It has returns of 3.38% and risk of 68.55%. If only risk is taken into account for consideration NABIL has minimum risk of 28.68%.

The expected return of overall market is -8.33% and risk is 30.15%. The C.V. is -3.6195. It means, for losing 1 unit of return on market portfolio an investor has to bear a risk of 3.6195 units.

Market sensitivity of stock is explained by its beta coefficient. Beta is the systematic risk measure. Beta explains the sensitivity or volatility of the stock with market. higher the beta higher the volatility. Beta of market is always 1. Analyzing the stocks from the point of beta coefficient, if beta is greater than one, the asset is more volatile than the market, called an aggressive asset. If beta is less than one, then assets are defensive assets and its price fluctuation is less volatile than the market. In this context NIBL, SCBNL, HBL, BOKL, EBL, NIC, MBL'S beta coefficient is 1.264, 1.0671, 1.2233, 2.2564, 1.2979, 1.3498 and 1.3685 respectively. Which is greater than one. Therefore, such Bank's common stock is more volatile with market. On the other hand NABIL, NSBIBL, KBL'S beta coefficient is 0.9065, 0.9967 and 0.9395 respectively. Which is less volatile with market. If one of the stocks among the selected

banks has to be chosen then the stocks with least beta should be chosen for investment. And considering this thing NABIL has least beta, so it should be selected.

Under the CAPM model, if required rate of return is more than expected rate of return of particular assets such under price asset should be purchased. On other hand, if the required rate of return is less than expected rate of return of particular assets, such assets cannot be purchased; instead, if one is holding such assets it can be sold immediately. Here, NABIL, SCBNL, KBL and MBL'S Banks are over priced and remaining sampled NIBL, HBL, NSBIBL, BOKL, EBL and NIC'S Banks are under priced.

Systematic risk is that types of risk which can be undiversified is also known as market risk where as unsystematic risk is diversify also known as unique risk. EBL is greatest systematic risk or market risk or undiversified risk and NSBIBL is greatest unsystematic risk, which can be diversified.

From the two assets portfolio, portfolio return for the stocks are found to be all negative where minimum negative portfolio return is for NICBL and MBL i.e. -0.0162 and most negative portfolio return is for the NIBL and NIC i.e. -0.497 so, the investors are suggested to buy the stock of NICBL and MBL considering the return factor only.

From the two assets portfolio, portfolio risk for the stocks, if investors are risk seeker they should purchase high risky portfolio i.e. NIBL and MBL which is also high return. if the investors are risk avoider they should purchase BOKL and EBL which is lowest risk i.e. 8.56% also low return.

Diversification of fund by making a portfolio can reduce unsystematic risk of individual security significantly if investors select the securities for investment. BOK and EBL, BOK and NIC & NABIL and KBL cannot be select because it is perfectly positive correlation of return which is not diversifying any type of risk. To select for investment which have less than perfectly positive correlation return, the risk can be reduced some. In the study, NSBIBL and MBL have minimum positive correlation between there return.

5.4 Recommendations:

Basically the study has focused on individual investors. More over other components of stock market are also considered to some extent. Based on the analysis of data and major findings of this research, following recommendations and suggestions are prescribed.

- Based on the findings and conclusions of the study it is recommended to the investors that if they wish to generate higher return then they should bear higher risk and invest in the shares of BOKL and if they are risk averter and they want to invest in single assets they can invest in the shares of NIC because this stocks have less risk for getting positive returns, For highly preferable to use C.V. to reach to an ideal investment alternative. According to the C.V., BOKL is the best of all, as it has least C.V.
- Standard Deviation gives ideas as to total risk. But investors must concern with systematic risk as measured by the given stock's beta systematic risk is only the risk which is priced at market stock of BOKL has systematic risk greater than other while, NABIL has its beta least of all.
- According to CAPM model, a required rate of return is risk-free rate plus risk premium in market weighted y its beta. Comparison between RRR and ERR gives the idea whether the stock is over or under priced. Some the stocks under study are under priced and some are over priced. Depending upon general rule regarding buy and sell. Under priced stock must be hold or bought and over priced stock must sell.
- Besides investing the fund in single stock, it is better to invest making portfolio of more than single asset. Portfolio investment gives maximum return at very minimum risk, or increases the return keeping the risk in a constant way.

- For the investors are recommended that they should choose portfolio than investment in single assets with minimum correlation between on this study NSBIBL and MBL has minimum correlation between securities return, which can minimize the risk.
- In Nepalese context, the investors do not under take any financial analysis when taking the investment decision the investor are recommended to make stock transactions on the basis of scientific analysis. They cannot concerned with the creation of well diversified portfolio it is suggested to diversify their investment in different securities that behave different i.e. with negative or low correlation for reducing poor portfolio performance. The investment strategies adopted by Nepalese individual investors are passive they should followed the active strategy.
- Before making an investment decision in stock, assessment of personal risk attitude, needs and requirements will always be helpful. NEPSE needs to initiate to develop different programmer for private investor such as investors meeting and seminars in different subject.

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Appendix

Calculation of Beta Coefficient of Individual Stock

Table: Calculation of beta coefficient of NABIL'S, NIBL'S, SCBNL'S, HBL'S, NSBIBL, BOKL'S, EBL'S, NIC'S, KBL'S and MBL'S

$R_N - \overline{R}_N$	$R_{NI} - \overline{R}_{NI}$	$R_S - \overline{R}_S$	$R_H - \overline{R}_H$	$R_{SBI} - \overline{R}_{SBI}$	$R_B - \overline{R}_B$	$R_E - \overline{R}_E$	$R_{NIC} - \overline{R}_{NIC}$	$R_{KBL} - \overline{R}_{KBL}$	$R_{Ma} - \overline{R}_{Ma}$	$R_M - \overline{R}_M$
	-	-	-	-	-	-	-	-	-	-
0.4001	0.6462	0.5084	0.5912	0.4411	1.1854	0.6655	0.6945	0.4367	0.7112	0.4918
-0.0096	-0.4386	-0.1188	-0.2015	0.2065	-0.3666	-0.2183	-0.2228	-0.0043	-0.3407	-0.1391
-0.3591	-0.2562	-0.317	-0.4183	-0.543	-0.5191	-0.2836	-0.363	-0.3244	-0.1376	-0.2790
-0.1997	-0.0598	-0.2108	-0.0596	-0.1447	-0.2657	-0.2234	-0.1067	-0.2273	-0.3944	-0.1572

$(R_M - \overline{R}_M)(R_N - \overline{R}_N)$	$(R_M - \overline{R}_M)(R_{NI} - \overline{R}_{NI})$	$(R_M - \overline{R}_M)(R_S - \overline{R}_S)$	$(R_M - \overline{R}_M)(R_H - \overline{R}_H)$	$(R_M - \overline{R}_M)(R_{SBI} - \overline{R}_{SBI})$	$(R_M - \overline{R}_M)(R_B - \overline{R}_B)$	$(R_M - \overline{R}_M)(R_E - \overline{R}_E)$	$(R_M - \overline{R}_M)(R_{NIC} - \overline{R}_{NIC})$	$(R_M - \overline{R}_M)(R_{KBL} - \overline{R}_{KBl})$	$(R_M - \overline{R}_M)(R_{Ma} - \overline{R}_{Ma})$
0.196769	0.317801	0.250031	0.290752	0.216933	0.58298	0.327293	0.341555	0.214769	0.349768
0.001335	0.061009	0.016525	0.028029	-0.02872	0.050994	0.030366	0.030991	0.000598	0.047391
-0.10019	-0.07148	-0.08844	-0.11671	-0.1515	-0.14483	-0.07912	-0.10128	-0.09051	-0.03839
0.031393	0.009401	0.033138	0.009369	0.022747	0.041768	0.035118	0.016773	0.035732	0.062
=0.129308	=0.316731	=0.211251	=0.211444	=0.059459	=0.530913	=0.313653	=0.288043	=0.160591	=0.420769

We have,

Covariance of market return and Nabil's return

$$COV(R_M,R_N) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_N - \overline{R}_N\right)}{n-1} = \frac{0.3297}{4} = 0.0824$$

$$\text{Beta of stock Nabil } (\beta_N) = \frac{COV(R_M, R_N)}{\pm_M^2} = \frac{0.0824}{(0.3015)^2} = 0.9065$$

Covariance of market return and NIBL return

$$COV(R_M,R_{NI}) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_{NI} - \overline{R}_{NI}\right)}{n-1} = \frac{0.4597}{4} = 0.1149$$

$$\text{Beta of stock NIBL } (\beta_{NI}) = \frac{COV(R_M, R_{NI})}{\pm_M^2} = \frac{0.1149}{(0.3015)^2} = 1.2640$$

Covariance of market return and SCBNL return

$$COV(R_M,R_S) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_S - \overline{R}_S\right)}{n-1} = \frac{0.388}{4} = 0.097$$

$$\text{Beta of stock NIBL } (\beta_S) = \frac{COV(R_M, R_S)}{\pm_M^2} = \frac{0.097}{(0.3015)^2} = 1.0671$$

Covariance of market return and HBL return

$$COV(R_M,R_H) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_H - \overline{R}_H\right)}{n-1} = \frac{0.4449}{4} = 0.1112$$

$$\text{Beta of stock NIBL } (\beta_H) = \frac{COV(R_M, R_H)}{\pm_M^2} = \frac{0.1119}{(0.3015)^2} = 1.2233$$

Covariance of market return and NSBIBL return

$$COV(R_M,R_{SBI}) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_{SBI} - \overline{R}_{SBI}\right)}{n-1} = \frac{0.3624}{4} = 0.0906$$

$$\text{Beta of stock NIBL } (\beta_{SBI}) = \frac{COV(R_M, R_{SBI})}{\pm_M^2} = \frac{0.0906}{(0.3015)^2} = 0.9967$$

Covariance of market return and BOKL return

$$COV(R_M,R_B) = \frac{\sum\left(R_M - \overline{R}_M\right)\left(R_B - \overline{R}_B\right)}{n-1} = \frac{0.8206}{4} = 0.2052$$

Beta of stock NIBL (β_B) = $\frac{COV(R_M, R_B)}{\pm_M^2} = \frac{0.2052}{(0.3015)^2} =$ 2.2569

Covariance of market return and EBL return

$COV(R_M,R_E) = \frac{\sum(R_M - \overline{R}_M)(R_E - \overline{R}_E)}{n-1} = \frac{0.4719}{4} = 0.1180$

Beta of stock NIBL (β_E) = $\frac{COV(R_M, R_E)}{\pm_M^2} = \frac{0.4719}{(0.3015)^2} =$ 1.2979

Covariance of market return and NIC return

$COV(R_M,R_{NIC}) = \frac{\sum(R_M - \overline{R}_M)(R_{NIC} - \overline{R}_{NIC})}{n-1} = \frac{0.4907}{4} =$ 0.1227

Beta of stock NIBL (β_{NIC}) = $\frac{COV(R_M, R_{NIC})}{\pm_M^2} = \frac{0.1227}{(0.3015)^2} =$ 1.3498

Covariance of market return and KBL return

$COV(R_M,R_{KBL}) = \frac{\sum(R_M - \overline{R}_M)(R_{NI} - \overline{R}_{KBL})}{n-1} = \frac{0.3416}{4} =$ 0.0854

Beta of stock NIBL (β_{KBL}) = $\frac{COV(R_M, R_{KBL})}{\pm_M^2} = \frac{0.0854}{(0.3015)^2} =$ 0.9395

Covariance of market return and MBL return

$COV(R_M,R_{Ma}) = \frac{\sum(R_M - \overline{R}_M)(R_{Ma} - \overline{R}_{Ma})}{n-1} = \frac{0.4976}{4} = 0.1244$

Beta of stock NIBL (β_{Ma}) = $\frac{COV(R_M, R_{NI})}{\pm_M^2} = \frac{0.4976}{(0.3015)^2} =$ 1.3685

$(R_N - \overline{R}_N)(R_{NI} - \overline{R}_{NI})$	$(R_N - \overline{R}_N)(R_S - \overline{R}_S)$	$(R_N - \overline{R}_N)(R_H - \overline{R}_H)$	$(R_N - \overline{R}_N)(R_{SBI} - \overline{R}_{SBI})$	$(R_N - \overline{R}_N)(R_B - \overline{R}_B)$	$(R_N - \overline{R}_N)(R_E - \overline{R}_E)$	$(R_N - \overline{R}_N)(R_{NIC} - \overline{R}_{NIC})$	$(R_N - \overline{R}_N)(R_{KBL} - \overline{R}_{KBI})$	$(R_N - \overline{R}_N)(R_{Ma} - \overline{R}_{Ma})$
0.258545	0.203411	0.236539	0.176484	0.474279	0.266267	0.277869	0.174724	0.284551
0.004211	0.00114	0.001934	-0.00198	0.003519	0.002096	0.002139	4.13E-05	0.003271
0.092001	0.113835	0.150212	0.194991	0.186409	0.101841	0.130353	0.116492	0.049412
0.011942	0.042097	0.011902	0.028897	0.05306	0.044613	0.021308	0.045392	0.078762
=0.366699	=0.360483	=0.400587	=0.39839	=0.717267	=0.414816	=0.43167	=0.336649	=0.415996

$(R_{NI} - \overline{R}_{NI})(R_S - \overline{R}_S)$	$(R_{NI} - \overline{R}_{NI})(R_H - \overline{R}_H)$	$(R_{NI} - \overline{R}_{NI})(R_{SBI} - \overline{R}_{SBI})$	$(R_{NI} - \overline{R}_{NI})(R_B - \overline{R}_B)$	$(R_{NI} - \overline{R}_{NI})(R_E - \overline{R}_E)$	$(R_{NI} - \overline{R}_{NI})(R_{NIC} - \overline{R}_{NIC})$	$(R_{NI} - \overline{R}_{NI})(R_{KBL} - \overline{R}_{KBI})$	$(R_{NI} - \overline{R}_{NI})(R_{Ma} - \overline{R}_{Ma})$
0.328528	0.382033	0.285039	0.766005	0.430046	0.448786	0.282196	0.459577
0.052106	0.088378	-0.09057	0.160791	0.095746	0.09772	0.001886	0.149431
0.081215	0.107168	0.139117	0.132993	0.072658	0.093001	0.083111	0.035253
0.012606	0.003564	0.008653	0.015889	0.013359	0.006381	0.013593	0.023585
=0.474455	=0.581144	=0.342238	=1.075679	=0.61181	=0.645887	=0.380785	=0.667847

$(R_S - \bar{R}_S)$ $(R_H - \bar{R}_H)$	$(R_S - \bar{R}_S)$ $(R_{SBI} - \bar{R}_{SBI})$	$(R_S - \bar{R}_S)$ $(R_B - \bar{R}_B)$	$(R_S - \bar{R}_S)$ $(R_E - \bar{R}_E)$	$(R_S - \bar{R}_S)$ $(R_{NIC} - \bar{R}_{NIC})$	$(R_S - \bar{R}_S)$ $(R_{KBL} - \bar{R}_{KBI})$	$(R_S - \bar{R}_S)$ $(R_{Ma} - \bar{R}_{Ma})$
0.300566	0.224255	0.602657	0.33834	0.353084	0.222018	0.361574
0.023938	-0.02453	0.043552	0.025934	0.026469	0.000511	0.040475
0.132601	0.172131	0.164555	0.089901	0.115071	0.102835	0.043619
0.012564	0.030503	0.05601	0.047093	0.022492	0.047915	0.08314
=0.469669	=0.402357	=0.866774	=0.501268	=0.517116	=0.373279	=0.528808

$(R_H - \bar{R}_H)$ $(R_{SBI} - \bar{R}_{SBI})$	$(R_H - \bar{R}_H)$ $(R_B - \bar{R}_B)$	$(R_H - \bar{R}_H)$ $(R_E - \bar{R}_E)$	$(R_H - \bar{R}_H)$ $(R_{NIC} - \bar{R}_{NIC})$	$(R_H - \bar{R}_H)$ $(R_{KBL} - \bar{R}_{KBI})$	$(R_H - \bar{R}_H)$ $(R_{Ma} - \bar{R}_{Ma})$
0.260778	0.700808	0.393444	0.410588	0.258177	0.420461
-0.04161	0.07387	0.043987	0.044894	0.000866	0.068651
0.227137	0.21714	0.11863	0.151843	0.135697	0.057558
0.008624	0.015836	0.013315	0.006359	0.013547	0.023506
=0.45493	=1.007654	=0.569376	=0.613685	=0.408287	=0.570177

$(R_{SBI} - \bar{R}_{SBI})$ $(R_B - \bar{R}_B)$	$(R_{SBI} - \bar{R}_{SBI})$ $(R_E - \bar{R}_E)$	$(R_{SBI} - \bar{R}_{SBI})$ $(R_{NIC} - \bar{R}_{NIC})$	$(R_{SBI} - \bar{R}_{SBI})$ $(R_{KBL} - \bar{R}_{KBI})$	$(R_{SBI} - \bar{R}_{SBI})$ $(R_{Ma} - \bar{R}_{Ma})$	$(R_B - \bar{R}_B)$ $(R_E - \bar{R}_E)$	$(R_B - \bar{R}_B)$ $(R_{NIC} - \bar{R}_{NIC})$	$(R_B - \bar{R}_B)$ $(R_{KBL} - \bar{R}_{KBI})$	$(R_B - \bar{R}_B)$ $(R_{Ma} - \bar{R}_{Ma})$
0.52288	0.293552	0.30634395	0.192628	0.31371	0.788884	0.82326	0.517664	0.843056
-0.0757	-0.04508	-0.0460082	-0.00089	-0.07035	0.080029	0.081678	0.001576	0.124901
0.281871	0.153995	0.197109	0.176149	0.074717	0.147217	0.188433	0.168396	0.071428
0.038447	0.032326	0.01543949	0.03289	0.05707	0.059357	0.02835	0.060394	0.104792
=0.767495	=0.434794	=0.47288424	=0.40078	=0.375142	=1.075487	=1.121722	=0.74803	=1.144177

$(R_E - \bar{R}_E)$ ($R_{NIC} - \bar{R}_{NIC}$)	$(R_E - \bar{R}_E)$ ($R_{KBL} - \bar{R}_{KBl}$)	$(R_E - \bar{R}_E)$ ($R_{Ma} - \bar{R}_{Ma}$)	$(R_{NIC} - \bar{R}_{NIC})$ ($R_{KBL} - \bar{R}_{KBl}$)	$(R_{NIC} - \bar{R}_{NIC})$ ($R_{Ma} - \bar{R}_{Ma}$)	($R_{KBL} - \bar{R}_{KBl}$) ($R_{Ma} - \bar{R}_{Ma}$)
0.46219	0.290624	0.473304	0.303288	0.493928	0.310581
0.048637	0.000939	0.074375	0.000958	0.075908	0.001465
0.102947	0.092	0.039023	0.117757	0.049949	0.044637
0.023837	0.050779	0.088109	0.024253	0.042082	0.089647
=0.637611	=0.434341	=0.674811	=0.446256	=0.661868	=0.446331

Covariance of NABIL and NIB

$$\text{COV}(R_N, R_{NI}) = \frac{\sum\left(R_N - \bar{R}_N\right)\left(R_{NI} - \bar{R}_{NI}\right)}{n-1}$$

$$= \frac{0.3667}{4} = 0.0917$$

Correlation between NABIL and NIBL

$$\circ_{N,NI} = \frac{COV(R_N, R_{NI})}{\pm_N \pm_{NI}} = \frac{0.0917}{0.2868 \times 0.412} = \frac{0.0917}{0.1182} = 0.78$$