CHAPTER - I

INTRODUCTION

1.1 Background of the Project

Nepal is a landlocked country, located between the world's two largest markets; China to the north and India of the south directions. 86 percent people depend on agriculture. It has more than 44 percent people living below poverty line with the placement among the lower per capital income countries. The agro-dominated economy is further worsened by complex geographical situation and political situation. Various factors like landlocked situation, poor resource mobilization, lack of infrastructure, lack of entrepreneurship lack of institutional commitment, erective government policies, political instability etc are responsible for the slow pace of development in Nepal.

The macro-economic situation of Nepal is not encouraging, with a high inflation rate and a low economic growth rate, which has influenced the financial institutions to decrease the interest rate on savings. However, the cause of decline in Nepal's economy is not because of lack of resources, but instead, it is because of improper utilization of available resources with lack on implementation of the policies. The economic growth of developing countries wide depends upon the utilization of available economic resources. The rapid pace of economic development and self economic reliance are the most in today's world. These can only achieved through proper utilization of available resources and implementation of the policies by accelerating the rate of investments, capital formation in the country and developing the people's economic behavior. And these as well as are proportionately related to development of the organizations.

Since Financial year 1987/88, a significant step towards financial liberalization was undertaken by His Majesty's Government with the view to expedite the space

of economic development under the structural adjustment program. The liberalization policy of His Majesty's Government of Nepal has encouraged the private sector to invest in various fields, which support the nation's overall economic growth. The liberalization policy has attracted not only country's investors but also motivated the foreign investors to work in a partnership basis with Nepalese investors.

Bank, financial institutions is playing a vital role in the economic development of the country. The function of banks are not only accepting deposits and granting loans but also including wide range of services to the different strata of society, to facilitate the growth of trade, commerce, industry and agriculture of the national economy. In the absence and insufficiency of banking and financial facilities, the growth of the economic development becomes slow. However, bank is a resource for economic development, which maintains the self confidence of various segments of society and advances credit to the people.

1.1.1 Commercial Banks in Nepal

Commercial Bank Act,, 2031 B.S. "A commercial bank is one which exchanges money, deposits money, accepts deposits, grants loans and performs commercial banking functions and which is not a bank meant for co-operations, agriculture, industries or for such specific purpose".

In comparison to the first modern bank established in 1171 A.D. (Bank of Venice). Nepal has not experienced a long banking tradition. Though Nepal had rudimentary forms of banking as early as seventh century, the history of modern banks in Nepal began only after when the first organized and modem bank Nepal Bank Ltd. established in 1937 A.D. (1996 B.S.) as a semi-government organization with an authorized capital, issued capital and paid up capital of Rs. 1 crore Rs. 25 lacs and Rs. 8.45 lacs respectively.

The commercial banking industry has remarkably developed in a short span of lime of one decade. This development has- helped to mobilize the internal resources as well as the external funds of foreign investors for the economic development of the nation. The advantage of joint venture and private banks in Nepal has many consequences apart from performing the role of commercial banks. They introduced new philosophy and modem banking practices in Nepal. The growth of joint venture banks increased dramatically after the restoration of democracy when government adopted liberal and market oriented policy.

List of Commercial Bank of Nepal

Commercial Bank	Listing Date
Bank of Asia Nepal Limited	2009/05/25
Bank of Kathmandu Limited	1997/07/17
Citizen Bank International Limited	2009/05/25
DCBL Bank limited	2002/06/13
Everest Bank Limited	1996/04/07
Global Bank Limited	2009/03/26
Himalayan Bank Limited	1993/07/05
Kist Bank limited	2004/12/28
Kumari Bank Limited	2004/07/29
Laxmi Bank Limited	2004/04/20
Lumbini Bank Limited	2004/11/10
Machhapuchchhre Bank Limited	2003/05/28
Nabil Bank Limited	1985/11/24
Nepal Bangladesh bank limited	1995/12/24
Nepal Credit & Commerce Bank Limited	2005/01/31
Nepal Industrial and Commerce Bank Limited	2000/06/13
Nepal Investment Bank Limited	2986/07/22
Nepal SBI Bank Limited	1995/01/17
NMB Bank Limited	2001/06/20
Prime Commercial Bank Limited	2009/09/12
Siddhartha Bank Limited	2006/02/24
Standard chartered Bank Nepal Limited	1988/07/04
Sunrise Bank Limited	2009/09/12

Source :SEBON date: 2010

Major Activities Performed by Commercial Banks:

Fund Based Activities

- Cash deposit
- Loan Distribution: Home loan. Educational Loan, Transportation Loan
- Foreign Exchange facilities
- Bill Discounting

Non Fund Based Activities

Investment management, portfolio management, services for individuals and corporation, insurance management, trust receipt, arranging trading market for buying selling securities, private placement of shares ad debenture etc.

Investment Policy

Investment policy, involves determining the investor's objectives and the amount of his or her investable wealth. Because there is a positive relationship between risk and return for sensible investment strategies, it is not appropriate for an investor to say that his or her objective is to 'make a lot of money'. What is appropriate for an investor in this situation is to stale that the objective is to attempt to make a lot of money while recognizing that there is some chance that large losses may be incurred. Investment objectives should be stated in term of both risk and return.

Investment can be defined simply as the, sacrifice of current rupees for future rupees involving two attributes time and risk. The sacrifice of current consumption takes place at present with certainty and the investor experts desired level of wealth at the end of investment horizon. The general principal is that investment can be retired when future level of wealth is not certain. Sometimes, the element of time predominates and sometimes risk is the dominant attribute in the investment decision. Investment, therefore, can be put as the purchase made by an

individual or institutional investor on financial or real assets that produces return proportional to the risk assumed within investment period.

Stock markets are said to reflect the heath of the country's economy. On the other hand, major economic indicators determine stock market movements to a large extent, from a thorough analysis of the various economic indicators and its implications on the stock markets; it is known that stock market movements are largely influenced by broad money supply, inflation, credit/deposit ratio and fiscal deficit apart from political instability. Besides, fundamental factors like corporate performance, industrial growth, etc. always exert a certain amount of influence on the stock markets. Because the stock market involves the trading of securities initially sold in the primary market will have impact on the primary market.

1.2 Statement of the Problem

Recent trend shows that the general people are interested to invest their small money on the common stock on financial institution like commercial banks. But lack of proper information about market status and. situation and poor knowledge, market intermediaries take advantage of investors. Due to these limitations, many investors fear to invest into such stocks. Some commercial banks showed more profit to take market.

The interesting part of the liberalization of the financial market is that the importance of Commercial Banks, as intermediary institutions, starts declining because of livening up of the capital market due to the shifting preference savers to directly invest in the capital market aim the emergence of market institutions, like mutual funds, to cater up this changing preference Corporate with high credit worthiness, who had hitherto obtained funds from banking organizations, now have the opportunity to approach the capital market directly to access funds at a lower cost and with less conditionality hazards. An Asia Finance Survey has

pointed out that companies in this part of the world have preferred to raise new funds through, share issues rather than through borrowing. Hence, this present study seeks to explore the answer of the following questions.

1. How far the extent of the volatility of the mean return of the common stock and the relationship among the market price of share, DPS and EPS is maintained.
2. How an investment decisions need to be taken?
3. What is the extent of systematic risk in relation to total risk?
4. What are the criteria that determine the favorable return from the stock'?
5. Does the risk and return of common stock investment of financial companies vary significantly?
6. How can investor identify the risk within the financial companies?
7. Would portfolio contraction within the finance companies be profitable?

These are burning issues that has influenced to carry out this study. Investment on common stock is the main sources of fund for the companies. The investors are the sources of revenue as a customer for the stockbrokers and financial institutions, and ultimately they are the backbone of economic development of the nation. So every policy and plan of financial institutions and government also have to encourage them to invest on common stock. For this there is great need of such institutions, which can give valuable information that accelerates the stock investment and market efficiency.

1.3 Objective of the Study

The main objective of the study is to analyze the risk, return and other relevant variables to be considered during investment on common stock of commercial banks in Nepal. The specified objectives of the study are as follows:

- To find out the relationship between earning per share and market price per share of the commercial banks**.**

- To evaluate common stock of Commercial banks in terms of risk and return.
- To examine the market price of common stock in terms of risk and return.
- To calculate risk and return on different portfolios.
- To evaluate the systematic risk and unsystematic risk associated with security.

1.4 Significance of the Study

The study is to analyze the risk, return and other relevant variables to be considered during investment on common stock of commercial banks in Nepal which helpful to all the investors related to stock market. The significance of the study can be point out as follows:

- The study helps to provide guideline to the interested investors in the common share of commercial bank.
- The study is helpful to the investors who are curious to know about the risk and return on stock of banking sector of Nepal.
- The study helps to find out whether the shares of commercial banks in Nepal are overpriced or under priced by analyzing the risk and return of the individual shares.
- The study is helpful to the management team of bank, stock brokers and securities dealers of stock market in Nepal.

1.5 Limitations of the Study

The study is to analyze the risk, return and other relevant variables to be considered during investment on common stock of commercial banks in Nepal which haves been conducted on the following limitations and constraints:

- Study is based on secondary data sources.
- The research is based upon the data provided by the NEPSE and those data are not verified by the experts

- Analysis is mostly based on the tools developed in context of risk and return of individual return.
- Market is more risky than the common stocks of commercial banks.
- Secondary data are used for the analysis and the interpretation, which are taken from the SEBON, NRB, annual report of concern banks and Web sites, so the result may not be accurate
- This is not further study it means this study is only for the partial fulfillment of the requirements of degree of master of business studies (MBS).

1.6 Organization of the Study

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

Chapter – I: Introduction

Introduction Chapter consists with the general background of the study, statement of the problem, objectives of the study, limitation of the study and organization of the study.

Chapter – I: Review of Literature

Review of Literature deals with the issue related to the studies, which are already publish from books, articles, journals, reports and other relevant materials.

Chapter- III: Research Methodology

Research methodology covers on Research Design, Research Question and Sample, Time Period, Sources and Nature of Data Collection and Analytical Tools, Review of Literature

Chapter IV: Data Presentation and Analysis

Data presentation and Analysis is the analysis of the individual company data presentation analysis, Analysis of primary data and Analysis of secondary data

Chapter V: Summary, Conclusion and Recommendations

The last chapter covers with the summary, conclusions and recommendations for the further research.

CHAPTER - II
REVIEW OF LITERATURE

Review of literature is the study of past research studies and relevant materials. It is an advancement of existing knowledge and in-depth study of subject matter. It starts with a search of suitable topic and continues throughout the volumes of similar or limited subjects. It is very rare to find out completely new problem. In literature review, researcher takes hints from past dissertation but her or she should take need of replication. Literature review means reviewing research take place. It is a vital and mandatory process in research works. During the review of this research in depth study and theoretical investigation regarding risk and return on commercial banks in Nepal. For this study different related study with this topic has been reviewed.

2.1 Conceptual Framework

Conceptual framework as the fundamental on which the entire thesis will be based, This study explores the theoretical aspects of the risk and return on investment from various books. Analyzing the risk and return gives knowledge about the relationship between risk and associated return on any kind of investment. It also includes the review as well as background of commercial banks in Nepal.

2.1.1 Common Stock

Common stock represents equity or an ownership position in a corporation. It is residual claim, in the sense that creditors and preference shareholders must be paid as scheduled before common stock holders can receive any payments. In bankruptcy, common stock holders are in the principal entitled only to any value remaining after all other claimants have been satisfied (Sharp, 457).

"On the other hand the share of a common stock can be authorized with or without par value. The par value of stock is merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the differences between the below par price they paid and the par value" (Van Horne, 1977: 560).

The true owners of the firms are the common stockholders, who invest their money in the firm only because of their expectation of future returns. A common stockholder is sometimes referred to as a residual owner since in essence he or she receives what is left after other claims on the firm's income and assets have been satisfied. As a result of this generally uncertain position, the common stockholders expect to be compensated with dividends and ultimately, capital gains.

2.1.2 Security Market

Security market is a market in which the securities with unlimited maturity period are bought and sold. This refers to the market for long - term securities like corporate-stocks and bonds and financing long term assets. The major players are corporate banks, financial institutions, mutual funds etc. It is a mechanism for bringing together buyers and sellers of financial assets in order to facilitate trading. It can be further classified into:

- Primary and secondary market
- Money and capital market

a. Primary and Secondary Markets

Primary market is a market in which new issues of common stock, bonds and preferred stock are sold by companies. The proceeds raised in this market are the new capital fund. Securities offered for the first time to the general public through the primary securities markets. The issuer may be a, brand new company or one

that has been in business for many years. It is also known as New Issue Market (NIM).

Secondary markets are also called 'stock markets' in the secondary markets; the outstanding issues are permitted to trade. In this market, a stock or bond is issued which has already been sold to the public, and it is traded between current and potential owners. The proceeds from a sale in the secondary market do not to the issuing organization but to the owner of the security.

b. Money and Capital Market.

Market is the parameter of the economy and represents the macro economic affairs of the country. It is an index of economic and industrial development of the country. Capital market discounts the future and it is reflection of future of the economy. In a long run, it is The money market refer to the market for short- term securities (one year or less in original maturity) such as treasury bills, certificates of deposits, commercial papers etc. Money market instruments are more liquid in nature.

In simple words, the money market is an avenue for borrowing and lending for the short- term. While on one hand the money market helps in shifting vast sums of money between banks, on the other hand, it provides a means by which the surplus of funds of cash rich corporations and other institution can be used (at a cost) by banks. corporations and other institutions which need short -term money. A supplier of funds to the money market can be virtually anyone with a temporary excess of funds.

Capital true measure of the health of any economy. In the capitalistic economy, the capital market plays a vital role by bringing the common investor to invest to

corporate securities. It is a market of a long term securities like corporate stocks and bonds for financing long term assets.

2.1.3 Market Price of the share

Market price of shares as the output of the demand and supply interaction is the most influencing factor in determining the price of the stocks. In relation to the interacting forces of demand and supply i.e. Market price is determined at given time and the prices and volumes of its past transaction are meaningful indication of probable relationship of future supply and demand pressure. And such relationship is the most important element in determining the probable direction of the price movements, if the demand exceeds the supply, the price will rise and if the supply exceeds the demand the price will fall.

2.1.4 Profit Maximization or Wealth Maximization

In the past, profit maximization was regarded as the only objective of business firms, but in modern time, a firm has multiple objectives though some objectives ma) receive priority over the other objectives. It is a rational behavior of the firm to maximize the profit. The bank manager should select the alternative having maximum monetary return. Profit maximization objective is short run objective where as wealth maximization objective is long run objective of the firm. When the time period is short and uncertainty is not much, profit maximization and wealth maximization are almost same. The wealth of the shareholders is measured by the share price of the stock. The share price depends on the timing of returns, cash how and risk.

2.1.5 Stock Valuation

Bank managers use different analytical techniques for valuing common stock. The stockholders expect regular earnings in the form of dividends and capital gain by

upward movement of the stock price. To maximize the stock price stock valuation model can be used as important tools.

2.2 Concept of Investment on Common Stock

As mentioned earlier, investment is simply the sacrifice of current consumption for future consumption whose objective is to increase future wealth. The general principal is that the investment can be retired when cash is needed. The decision to investment now is a most crucial decision as the future level of wealth is not certain. Time and risk are the two conflicting attributes involved in the investment decision. Some investment alternatives are preferred .over others since the risk and return characteristics on such underlying investment cab be partitioned into dividend and capital gain components. Both these two components of the total return on share investment are not certain with investors having to make decisions in an uncertain environment. Fixed deposits, National Saving Bonds and the other saving products/ schemes offered by commercial banks are the other investment alternatives available in the market producing a fixed rate of return over the investor's investment horizon. Investments in shares are risky in relation to investments in other fixed income securities. Despite the risk element inherent to investment in common stock, most investors desire to invest in common stock in anticipation that the future price of the stock will increase. The theoretical price of the stock today can be ascertained by analyzing publicly disclosed financial investment. Investors, in most cases, do not analyze published financial statement before they make the investment in shares of a given company. The actual market price of the stock striving towards equilibrium must reflect the theoretical value of the stock determined by using some valuation models. Determining the theoretical value of the stock today and comparing it with the actual market price however, are rate in practice.

2.2.1 The expected Rate of Return on Common Stock

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 for investment. The expected rate of return is, based upon the expected cash receipts f e.g. dividends or interest) over the holding period and the expected ending or selling price. The expected rate of return is an ex-ante or unknown return.

If the investor can describe the possible variable that will influence each 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 distribution are used to describe possible outcomes and to assign individual probabilities, from zero (no chance to occurring) to one (full certainty that the outcome will happen), to each possible outcome.

2.2.2. Risk on Commons Stock

Different people interpret uncertainties and risks in different ways. It is simply a lack of definite outcome or chance of losing something due to present of some unfavorable conditions. However, risk is the product or uncertainty. Although risk arises from uncertainty, its magnitude depends upon the degree of variability in uncertain cash flows and it is measured in terms of standard deviation.

In a word of uncertainty, expected return may 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 greater the probability of its occurrence, the greater is said to be the risk of the security (Van Horn, 2000-35).

2.3 Sources of Investment Risks

Purchasing Power Risk

It is the variability of return an investor suffers because of inflation. When inflation takes place, financial assets (such as cash, stocks, bonds) may lose their ability to command the same amount of real power of the financial assets and increase investor's risk. So the real rate of return on financial assets may not adequately compensate the holder of financial assets for inflation.

Bull-Bear Risk

Bull-bear market arises from the variability in market returns, resulting from alternating bull-bear market forces. When a security index rises fairly constantly from low point, called a trough, for a period of time, the upward trend is called bull market. The bull market ends when the market index reaches a peak and stats a downward trend. The period during which the market declines to the next trough is called bear market.

Default Risk

It is the portion of total of investment that results from changes in the financial integrity of the investment. The variability of returns that investors experiences as a result of changes in the credit worthiness of a rim in which they invested is their default risk. Investors loss from default risk usually results from security prices falling as the financial integrity of a firm weaken, the loss is anticipatory loss.

Liquidity Risk

Liquidity risk is the portion of total variability of return of as asset which results from price discount given or sales commissions paid in order to sell the assets without delay. Perfectly liquid assets are highly marketable – either price discount must be given or sales commissions must be paid. The more liquid an assets is the

larger the price discount or commission in which must be given up by the seller in order to affect a quick sale.

Call Ability Risk

Some bonds and preferred stocks are sold with a provision that allows the issuer to call them for re-purchase. Issuers like the provision because it allows them to buy back outstanding preferred stocks or bonds with funds from a new issue if market rate drops below the level being paid on the outstanding securities. Investors should view the call provision as a threat that may deprive them of good investment at a time when their funds can be re invested at a lower yield. The portion of securities total variability of return that deprives the issue of the possibility may be called call ability risk. The call ability risk commands a risk premium that commands in the form of a slightly higher average rate of return.

Political Risk

Political risk arises from the exploitation of a politically weak group for the benefit of a politically strong group with the effects of various groups to improve their relative positions increasing the variability of returns from the affected assets. Regardless of changes that causes political risk are sought by political or by economic interests. The resulting variability of returns is called political risk if it is accomplished through legislative, judicial or administrative branches of the government (Francis; 1997: 3-8).

2.4 Relationship between Risk and Return

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. Those investors who can tolerate higher levels of risk should be regarded with higher level of return. This statement is supported by the most empirical studies of historical risk return relationship. No investors like to invest in risky security unless he is assured of adequate

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compensation for the assumption of risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rationed investors, higher risk will command higher premium and the trade of between the two assumes a linear relationship between risk and return premium.

Generally, there is a positive relationship between rate of return and risk. It means an investor can usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a risky assets will pay higher average rate of return, but usually it does. High - risk assets must offer investors high returns to induce them to make the riskier investment. Naturally, investors are likely to prefer more return and less risk. It means investors will not choose an investment that guarantee less return when investments promising higher returns in the same level of risk class are readily available.

2.5 Statistical Measure of Risk

The parameter of return distribution is a measure of dispersion of variability around expected return. The basic and conventional measure of dispersion is the standard deviation. For normally distributed returns, the mean and the variation of the distribution well describe the investment performance and support in right way valuing risky investment.

2.6 Diversification

Simply, diversification means the process of adding securities to portfolio in order to reduce the portfolio's unique risk and thereby, the portfolio's total risk. Diversification means reducing the investment risk by dividing the investment among the variety of assets. Diversification helps to reduce risk because different investments will rise and fall independent of each other. The combinations of these assets move often than not will cancel out each other's fluctuation, thereof reducing risk.

2.7 Portfolio Analysis (Portfolio Risk and Return)

Simply, a portfolio is a combination of investment of assets. The portfolio is the holding of securities and investment in financial assets i.e. bonds, stock etc. Portfolio management is related to the efficient portfolio investment in financial assets. The portfolio investment is two different assets can reduce risk than the investment. In single asset,' Portfolio, which is combination of securities, may or may not take on the aggregate characteristic of their individual parts. The expected return of portfolio depends on the expected return of security and amounts invested in each security in the portfolio.

Portfolio management is related to the efficient portfolio investments in financial assets. It has following two types of objective.

Primary Objective
- To minimize risk
- To maximize return.

Secondary objectives
- Regular return
- Safety of investment
- Stable income
- Tax benefit
- Appreciation of capital

The expected return on the portfolio is simply a weighted average of the expected returns of the individual securities that they are included in the portfolio. The weighted are equal securities (the weight must sum to 100% or 1). The general formula for expected return of a portfolio (Rp) is as follows.

$$\overline{Rp} = \sum_{j=1}^{n} W_j \, R_j$$

Where,

$\overline{Rp}$ = Expected return of a portfolio

$\overline{RJ}$ = Expected return for security j

W_j = Proportion of total funds invested in security j

n = Total no. of different securities in the portfolio

While the portfolio expected return is a straight forward weighted average of returns on the individual security where as portfolio standard deviations would be to ignore the relationship or correlation between the returns of two securities. "The Standard deviation of probability distribution of possible portfolio return σ_P is:

$$\sigma_P = \sum_{j=1}^{n} \sum_{k=1}^{n} W_j . W_k . Cov_{jk}$$

Where,

N = Total no. of different securities in the portfolio.

W_J = Proportion of total funds invested in security j.

W_K = Proportion of total funds invested in security k.

Cov_{jk} = Covariance between the possible return of securities j and k.

The covariance of the possible returns of two securities is a measure of the extent to which they are expected to very together rather than independently of each other. The covariance term in the above formula can be written as.

$Cov_{jk} = r_{jk} \, \sigma_i \, \sigma_k$

Where,

r_{JK} = Correlation coefficient between possible return for security j and k

σ_j = S.D. of the security j.

σ_k = S.D. of the security k.

When j = k, the correlation coefficient is 1 as variance movement correlated perfectly with itself.

"The correlation coefficient which is significant in portfolio construction is standardized statistical measured of the linear relationship between two variables. Its range from -1 (perfect negative correlation) to +1 (perfect positive correlation) Lesser the correlation, higher the reduction in portfolio risks" (Van Horne and Wachowicz, 1995: 97).

The positive correlation coefficient shows that the return from the securities generally moves in the some direction. While negative correlation coefficient shows that they move to opposite direction and zero correlation coefficient shows that the returns from two securities are uncorrelated. They show no tendency to vary together in either a positive or negative in linear function.

2.8 Systematic and Unsystematic Risks

Systematic risk has its sources factors that affect all marketable assets and thus can, not-be diversified away. The sources of systematic risk are market pervasive. The measure of systematic risk permits an investor to evaluate an assets required rate of return relative to the systematic risk of the stock. Unsystematic risk can be reduced through diversification.

Unsystematic risk is unique to a particular company or industry. It is independent of economic, political and other factor that affect all securities in systematic manner. A wild cat risk may affect only one company a new competitor may begin to produce essentially the same product or a technological breakthrough can make an existing product absolute."For most stocks, unsystematic risk accounts for between 60 to 70 percent of stocks total risk or standard deviation (Van Horne and Wachowicz, 1995:91).

Total risk (j) = Systematic Risk + Unsystematic Risk

Systematic Risk and unsystematic Risk can be written as

Systematic Risk (SR)

$$SR = \frac{cov_{j.m}}{\sigma_m}$$

Where,

SR = Systematic Risk

$Cov_{j,m}$ = Covariance of Stock j and Market Return

σ_m = Standard Deviation of Market

Unsystematic Risk (USR)

$$USR = \sigma_j = \frac{Cov_{j.m}}{\sigma_m}$$

σ_j = Standard Deviation of Stock j

Proportion of SR $= \frac{SR}{TR}$

Where,

TR = Total Risk

However by diversification, unsystematic risk can be reduced and ever eliminated if diversification is efficient. Therefore, not all the risk involved in holding a stock is relevant since part of their risk can be diversified away. The important risk of stocks is its unavoidable systematic risk. Investor will be compensated for bearing this systematic risk. They should not however expect the market to provide may extra compensation for bearing avoidable risk. It is the large that lies behind Capital Assets Pricing Model (CAPM).

The Systematic Risk as Measured by Beta

The beta coefficient is an index of systematically. Beta coefficients may be used for ranking the systematic risk of different assets. If the beta is larger than 1, b> 1, than the assets is more valuable than the market and is called an aggressive asset. If the beta is less than one, b< 1, the assets is a defensive; its price fluctuations are less volatile than the market.

2.9 Capital Assets Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) is a descriptive model of how assets are priced. The major implication of the model is that the expected returns of assets will be related to a measure of risk for that asset known as beta. The exact manner in which expected return and date are related is specified by the CMPM.

The capital assets pricing model stated that the expected risk premium on each investment proportional to their beta coefficient. This means that each investment should lie on the sloping security market line connecting Treasury bills and Market Portfolio (Myers & Brealey, 2003: 200).

In market equilibrium a security will be expected to provide a return commensurate with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The greater the unavoidable risk of a security, the greater the return that investors will expect from the security. The relationship between expected return and unavoidable risk, and the valuation of securities that follows, is the essence of the capital asset pricing model (CAPM). This model was developed by William F. Sharp (1990 Nobel Prize winner in economics) and John Lintner in the 1960s, and it has had important implications for finance ever since (Van Horne, 2000: 62).

"CAPM is the model that describes the relationship between risk and expected return. In this model, a security's expected (required) return is the risk free rate plus a premium based on the systematic risk of the security. This model is expressed as:

$$E(R_f) = [R_f + [E(R_m) - R_f]\beta_j$$

Where,

$E(R_j)$ = Required rate of return for stocks j

R_f = Risk free rate

$E(R_m)$ = Expected return for market portfolio

β_j = An index of systematic risk of stock j (beta coefficient)

"Beta measures the sensitivity of a stock's returns to change in the returns on the market portfolio. The beta of a portfolio is simply a weighted average of the individual stock betas in the portfolio" (Van Horne, 1997:100).

If beta is one (i.e. $\beta=1$) then the required return is simply the average return for all situation, that is the return on market portfolio, otherwise, the higher the beta, higher the risk premium and the total required return. However, a relatively high beta does not guarantee a relatively high return. The actual return depends partly on the behavior of the market, which acts as a prissy for general economic factor.

The CAPM states that the expected risk premium on each investment is proportion to its beta. This means that each investment should lie on the sloping security market line connecting treasury bills and market portfolio. CAPM is the predominant model used for estimating equity risk and return. Comparison between the expected rate of return and required rate of return indicates whether the stock is under priced or overpriced. And when these two return are equal then

it is said table market equilibrium i.e. all the stocks lie on the Security Market Line (SML).

SML is the graphical representation of the CAPM, which shows the relationship between risk and required rate of return. The SML clearly shows that returns are the increasing function, in fact at linearly increasing function of risk. Further, it is only market risk that affects return. The investor receives no added return for bearing the diversifiable risk. If stocks are under priced it lies above the SML and if they are overpriced then it lies below the SML. The following diagram shown the SML with over priced and the under priced stocks.
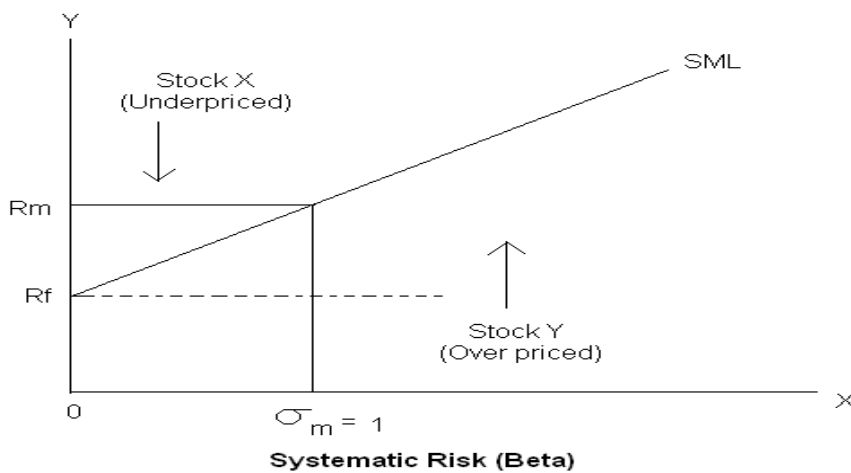
"Above figure clarifies that stock X is under priced relative to the security market price while stock Y is overpriced. As a result tock X is expected to provide a rate of return greater than that required based on its systematic risk. In contact stock Y is expected to provide a lower return than that required to compensate for its systematic risk. Investors seeing the opportunity for the superior return by investing in stock X will rush.

This situation would drive the price up and expected return comes down. It would continue until the market price was seen that the expected return would row lies 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 some amount of systematic risk with other stocks. This selling pressure would drive 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 and Wachowicz, 1995: 107).

Under the CAPM, each investors hold the market portfolio and is concerned with its standard deviation because this will influence the slope of the SML and hence the magnitude of his/her investment in the market portfolio.

"The CAPM is sometimes used to estimate the required rate of return for my form with publicly traded stock. The CAPM is based on the promise that the only important risk of firms is systematic risk, or the risk that returns form expose to general stock market movements. The CAPM is not concerned with so-called unsystematic risk, which is specific to an individual firm, because investors can avoid that type of risk by holding diversify portfolio (Madura, 2001: 118).

Investor appears to be concerned principally with risk that they cannot eliminated by diversification. If this is not so, we find that stock price increases. Whenever two companies merge to spread their risk and we should find that investment companies which invest in the share of other firm are more highly valued that than the shares they hold. But we do not observe either phenomenon. Mergers under taken just to spread risk don't increase stock prices and investment companies are no more highly valued than the stocks held. The CAPM model captures these ideas in simply way. That's way many financial mangers find it is the most convenient for coming to decision with slippery motion of risk. And it is why economist often uses the CAPM to demonstrate important ideas in finance even when there are other ways to prove thee ideas.

2.9.1 Capital Market Line (CML)

If borrowing and lending opportunities are included in the chart analysis, a linear set of investment opportunities is appeared called Capital Market Pine (CML) emerges. It is the locus of portfolio that wealth seeking risk - adverse investors will find more desirable than any other portfolios. CML illustrates the positive relationship between risk and average return. So, it is always positive sloped because investors are risk average i.e. sleepless.

- The assumptions underlying capital market theory are as follows:
- Money can be borrowed and lent at the risk - free rate.
- All investors have homogenous expectations concerning expected returns and risk on securities.
- Investments are infinitely divisible.
- No taxes or transaction costs exist.
- No inflation exists.
- Capital markets are in equilibrium.

2.10 Reviews from Journals

In the field of finance in Nepal it is very difficult to get advanced and research based journal. There are very limited numbers of journals available in the subject of management and it is also hard to find any article in the subject matter of finance. Almost no articles about the risk and return analysis on common stock investment are found.

Hence some foreign well known recently published journals of finance has been reviewed here. However, it helps to build the conceptual framework on this topic. An article entitled "Expected Return, Realized Returns and Assets Pricing Tests" by Edwin J. Elton as journal of finance in the year 1999 is relevant to this study. In this proper he points out the fundamental issues in finance like that what the

factors are that affect expected return on assets, the sensitivity of expected return to those factors, and the reward for bearing this sensitivity. There is along history of testing in this area and it is clearly one of the most investigated assess in finance.

Almost all of the testing being aware of using realized returns as a process for expected returns. The sue of a average realized relies on a belief that information surprises tent to out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, he believes that there is ample evidence that there is ample evidence that this belief is misplaced. There are period's longer than 10 years during which stock market realized returns are one average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risk long term bonds on average underperform the risk free rate (1927 to 1981). Having a risky asset with expected return above the risk less rate is an extremely weak condition for realized returns to be and appropriate process for expected return, and 11 and 50 years is an awful longtime for such a weak condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30% per year while Asian Markets have had negative returns (Elton, 1999:26).

The journal of finance, published by American Finance Association for many decades is taken into account. In its recent volume of August (1999), an article "Local Return factors and Turnover in Emerging Stock Markets" by K. Greet Rouwenhast.

This paper examines the sources of return variation in emerging stock markets. Compared to the developed markets the correlation between most emerging market and stock market has been historically low and until recently many emerging country restricted investment by foreign investor.

He attempts two set of question to answer. The first set of three questions concern the existence of expected return premiums. (i) Do the factors that explain expected return difference in developed equity markets also describe the cross section or expected returns of emerging market firms?(ii) Are the returns factors in Emerging markets primarily local or they have global components as well? (iii) How does the emerging market evidence contribute to the international evidence form developed markets that similar return factors are present in markets around the world? The set of questions of the paper include, (iv) is there a cross sectional relation between liquidity and average, returns in emerging markets? Are the return factors in emerging markets cross sectional correlated with liquidity?

Total returns are calculated in the sum of the dividend return and price appreciation using prices scaled by a capital adjustment factor, which the IFC computers to correct for price effects associated with stock splits, stock dividends and rights issues. Many emerging market have firms with multiple share assess are treated as a single value weighted portfolio of the outstanding equity securities (Rouwenhorst, 1999:1442-1443).

In this proper Roowenhorst has been made detail analysis of the data and he interprets the result in each section. Lastly, he has concluded his findings as "The first conclusion is that the return factors in emerging markets are qualitatively similar to those in developed markets: Small stocks out perform growth stocks and emerging market stocks exhibit momentums. There is no evidence that local market betas are associated with average returns. The low correlation between the country return factors suggest that the premium have a strong local character. Furthermore, global exposure cannot explain the average factor returns of merging market. This is little evidence that the correlation between the local factor portfolios have increase, which suggests that the factors responsible for the increase of emerging market country correlation are separated from those drives

the difference between expected return within these markets. A Bayesian analysis of Premiums in developed and emerging markets shows that unless one has strong prior belief to the contrary. The empirical evidence favors the hypotheses that size, momentum and values strategies are compensated for in expected returns around the world. Finally, the paper documents the relationship between expected returns and share turnover and examines the turnover characteristics of the local factors portfolios. There is no evidence of relation between expected returns and turnover, in emerging markets. However, beta, size momentum and value are positively cross sectionally correlated with turnover in emerging markets. This suggests that return premium do not simply reflect a compensation for liquidity (Rouwenhorst, 1999:1462).

After reviewing, an article entitled American Association of Individual Investors, Investing basis reveals importance to understand how personal circumstances affect investment decision. (If these factors make no difference we could simply publish one suggested portfolio for everyone to follow). Investment profile is the beginning of the asset allocation process, which consists of dividing portfolio among the major asset categories of stocks, bonds and cash. The asset allocation decision will have a far more effect on portfolio return.

Make allocation decision with the major categories. For instance stock portfolio can be divided among large capitalization stock, small capitalization stocks and international stocks. Once these decisions are reached, you will be ready to make selection among the various investment options. Lastly, once you have set up your investment portfolio you must monitor it, making changes when appropriate.

Every investor wants the highest assured return possible. Both as we have seen, returns are not certain and different investors have varying degree of uncertainty that they are willing accept.

In order to reduce overall risk, it is the best to follow diversification of assets that are not related. "The technical term for this is not putting all your eggs in one basket". In that way if u trip, you won't break all the eggs. The creation of a portfolio by combining two assets that behave exactly the same way cannot reduce the portfolio's overall risk below the risk of the least risky asset.

Fluctuations expose you to wide uncertainty in your overall returns and even to the risk of permanent loss of principal. CAPM is an effective model in finance but it is not far off from argument. It has also got it good points as well as bad points.

It tells us where to invest, how to invest and what discount rate to use for project cash flows. Not only that, it is a disarmingly simple model. The expected return of a security depends upon a simple statistics. The relationship between risk and return is linear.

Calculation of portfolio risk trivial at the sometime, the CAPM is revolutionary. It tells us that the variance of a project is not a factor in determining the appropriate risk adjusted rate. It turns financial research from roll-up-your sleeves fundamental analysis into a statistical problem. In short, the CAPM turned Wall Street on its head.

2.10.1 Review of Other Independence Studies in Nepal

Very few independent studies can be found in the topics of finance. Specifically, it is rare in the case of this research topic, risk and return analysis. However, the available independent studies which are related to the Nepalese stock market and about shareholders democracy are reviewed here. The study carried out by professor Manohar Krishna Shrestha (1995) in the title of "Shareholder's Democracy and Annual General Meeting Feedback" is reviewed here Dr. Shrestha prefers to consider this book as assemblage of opinions which he had express in

different occasions of various annual general meeting where he has critically analyzed the situation of common stock investors and the situations that is not improving till date.

The content of the book have been divided into two parts. The first part includes views on the rights of the shareholders regarding how they can exercise them in democratic perspective, where as the second part consists of feedback and the issues raised by shareholders at different annual general meeting of the public limited companies and financial institutions.

Writer has found the overall shareholders democracy in terms of the protection of their interest, is basically focused on the payment of satisfactory wealth by appreciating the value or share they hold.

In many cases the existing authoritarian mentality of management seems to have not considered the share holders in deciding managerial plans and policies. Top level decision often by pass the interest of shareholders. As the management lacks serious concerns about the protection of shareholders rights and expectations. The annual general meeting has become a plate-form for shareholders to express their opinions and grievance in front of the management and board of directors. Many general meeting feedback reveal no serious response so the feelings of shareholders. Thus it reflects unwillingness of the management and broad of director to change their traditionally held activities towards shareholders.

Shrestha has expressed his deep concern to the government for not taking my initiative formulating the separate act which protects the shareholders right despite the increase in population of shareholders in Nepal and questioned the need of separate act are regarding the protection of shareholders right.

He has further quoted as writing company and other acts relating to financial and industrial sector have provisioned rights of the shareholders as: (1) voting rights, (2) participation in general meeting, (3) rights of getting information, (4) Electing as aboard of director, (5) participation in the profit and loss of the company, (6) transferring share, (7) priory representation.

The collective rights or the shareholders are
1. Amend the internal by laws
2. Authorized the sales of assets
3. Enter into merger
4. Change amount of authorized capital

As reviewed above, Nepalese stock being in emerging state; study conducted previously in Nepal in relation with the subject was no in specific issues but in broad manner. An article published in business age by Nawaraj Pokharel (Oct.-Nov. 1999) "Stock Market doing Pretty Well" is reviewed here.

In this article he has that the investment on the shares of manufacturing and processing was more attractive than of the banks. He found that the share of individual companies showed very good performance from October 1998 to 1999. NEPSE index showed upward trend for all the shares in this period. He gave following reasons behind the appreciation of share price.
- Companies have rewarded shareholders.
- Reduction of interest rate of money market.
- Healthy speculation and loan has made the market interesting by providing loan to the stock investors their share as collateral.
- Investors are appearing more rational in their investment decision.

Finally, the concludes that the capital market needs more infrastructure investment than institution investment once the required infrastructure can facilitate the market, the size of the market could be made even bigger by introducing new instruments such as government bonds.

Next here is an article published in business age magazine by Atma Ram Ghimire (June 2001) "Nepal share Market and Investors Prospect". In this study he has pointed outm some important trends our capital market. He has concluded that the Nepalese share price is decreasing because of many unbalanced factors. The major reason behind the movement in the index is the domination of the banking sector script in the Nepalese stock market transactions. Mismanagement practices cannot help the growth of share market. The general public has invested recklessly. They just believe what one broker or the investor says about scrip. On of the prime motives for the investment is to earn return on it. Finally he concludes that the general investors should be alert and aware of the situation. They must receive the financial information before they make investment and act rationally.

Similarly, Narayan Prasad Poudel (2001) also carried out another study in a topic of "Investing in shares of Return and Risk Elements". The study was based on the data collected for eight banks from mid July 2001. The main objectives of the study was to determine whether the shares of commercial banks in Nepal are over or under priced by analyzing risk and return characteristics of the individual share.

Poudel summarized the following finding:
- Most of the individual share's appeared to be defensive as beta coefficients were less that on low data shares were less volatile than market as a whole. Only the return of share of Bank of Kathmandu had beta coefficient of greater than one, indicating that the share was more risky than the market.

- Nepal Arab Bank Ltd., Nepal Indosuez Bank Ltd., Himalayan Bank Ltd. Had higher expected equilibrium return than expected rate or return. And standard Chartered Bank Ltd., Nepal SBI Bank Ltd., Nepal Bangladesh Bank Ltd., Bank of

  Kathmandu Ltd had lower equilibrium return than expected rate or return.

- From this study we get Nepal Arab Bank Ltd., Nepal Indosuez Bank Ltd. and Himalayan Bank Ltd. was overpriced and other was under priced.

2.10.2 Reviews from Thesis

However risk and return is not a new concept for financial analysis, in context of Nepal and its very slow growing capital market, few studies are made regarding this topic.

Some studies related to the topic of risk and return has been conducted for the fulfillment of master degrees in T.U. In this study only relevant subject matters are reviewed which are as follows.

Gopal Prasad Bhatta (1996) in his study "*A Study on Securities Investment in Nepal*" is related to this study to some extent. Bhatta's study is performance of listed companies is based on 10 listed companies' data from 1990 to 1995. One of the major objectives that concern with this research topic is "to analyze the performance of listed companies in terms of risk and return i.e. expected rate or return and company specific risk, required rate of return and internal rate of return, systematic risk and diversification of risk through portfolio context. Bhatta addressed the following findings in risk return behavior from the analysis of different stock.

"A highly significant positive co-relationship has been addressed between risk and return character of the company. Investor expects higher returns from those stocks,

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which associates higher risk. Nepalese capital market is not efficient one, so the stock price does not contain all the information relating to market and company itself. Neither investor analyzes the overall relevant information shows high priced stocks such as BBC, NIB, NIC has higher beta than others. These companies required higher returns to satisfy the investors for their risk premiums.

Investors in Nepal have not yet practice to invest in portfolio of securities. Portfolio shows that risk can be totally minimized if correlation is perfectly negative. In this situation, the risk can totally be diversified but when there is perfectly positive correlation between the return of the two securities, the risk in un diversifiable. The analysis shows some has negative correlation and some has positive. Negative correlation between security return is preferred for diversification of risk.

On the basis of findings Bhatta concluded: "An Analysis of risk and return shows that many companies have higher unsystematic or specific risk. There is a need of expert institution, which will provide consultancy services to the investors to maximize their wealth through rational investment decision.

Lastly, Bhatta found the following points to improve market efficiency:
- Develop institutions to consult investors for risk minimization.
- Establish an information channel in NEPSE.
- Make proper amendment of Trading Roles.

To some extent Bhatta focused in the analysis of risk and return in common stock investment. But due to so many other aspects of analysis investor cannot easily assess the result. Indeed, study did not focus the viewpoint of investor rather in concentrates the companies and stock market. However, this study also explores some dimension for further research in this subject.

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Shanker Kumar Mishra (2002) analyzed "*Risk and Return on Common Stock Investment of Commercial Banks in Nepal*" with special reference to five listed commercial banks. The major objective of this study was to promote and protect the interest of the investor by regulation the issuance sales and distribution of securities and purchases, sale or exchange of securities. He also intends to supervise and monitor the activities of the stock exchange and of other related firms carrying on securities business. In addition he tried to render contribution to the development of capital market by making securities transactions fair health, efficient and responsible.

Followings are the finding of the Study It was noticed that there is a positive correlation between risk and return character of the company. Nepalese capital market being inefficient, the price index itself is not sufficient to give the information about the prevailing market. Situation and the company proper regulation should be introduced so that there is more transparency in issuance, sales and distribution of the securities. Investors do not have any idea about the procedures of the securities issuance. Neither company nor the stock brokers transmit any information to the investors about the current market situation and hence it becomes difficult for a common investors to invest in the securities. Both government authorities and the stock exchange regulator body should try to promote healthy practices so that the stock brokers do not give false information to the investors for their personal benefit which is a common practice in Nepal. Investors should get regular information about the systematic Risk (Beta), Return on Equity and P/E Ration of various listed companies in some way; it is given in economic times for the companies listed in Nepal Stock Exchange. Security exchange Board of Nepal should make this mandates that it is easier for the investors to calculate risk and return of portfolio and transparency is increased.

Manilata Manandhar (2003) in her study "*Analysis of Risk and Return Analysis on Common Stock Investment*" with special reference to five listed commercial banks. The main objective of the study is to examine risk and return of common stock in Nepalese stock market, the study is focused on the common stock of commercial banks. In her findings "Banking industry is the biggest one in F/Y 057/058 in terms of market capitalization and turnover expected return of the common stock of BOKL is maximum (i.e. 1.1267) due to effect of unrealistic annual return and Capital Structure of NIBL is found minimum. In the context of industries, expected return on banking sector (i.e. 67.39) is highest and other sector is the least (0.65%). Expect NIBL, other banks other banks common stocks are more volatile (aggressive with market stocks). All banks in the study are said to be under priced. Capital Structure of BOKL is most risky and Capital Structure is least risky.

Followings are the findings of Manandhar's Study:

- Stocks have greater volatility risk than other investment, which take a random and unpredictable path. Stock market is risky in the short term and it is necessary to prepare the investors for it.
- One of the most important things to consider when choosing investment strength is the balance between risk and return that you are comfortable with
- Investors should diversify their fund to reduce risk with the help of optimal portfolio concept.
- It is better to say something that is going up and sell something that is going down.
- Investor's attitude, perception and risk handling capacity also play essential role is rational investment decision.

Ram Hari Khadka (2004) in his study "*Analysis of Risk and Return on Selected Nepalese Commercial Banks Listed in NEPSE*" with special reference to 7 listed

commercial banks is also relevant to this study. The main objective of the study is to analyze the risk, return and other relevant variables that help in making decision about investment on securities of the listed commercial banks. This study will also target to determined whether the share of commercial banks are correctly priced or not by analyzing the required rate of return using the CAPM. Khadka addressed the following findings in risk return behavior from the analysis of different stock.

The share of Bangladesh Bank offered highest realized rate or return. Amongst them NABIL bank is the lowest having 5.23% which is less than required rate or return. NBL, which is hard hit by the events (Return = -0.8809), the ranking of the bank is placed as the highest return earner. The study showed that the realized rate or returns of the samples banks do not have the some features being with in the range of 5.23% to 16.12%.

Return on the average tock is 5.51% over the period. All the shares under review generated higher rate of return than the market portfolio except NABIL Bank Ltd. Price of shares of banks under review except NABIL Bank Ltd. is under priced. The unsystematic risk of NBL is the highest one amongst the shares under review which is 95.59% and SCB of Nepal has the lowest one being 45.14%. The negative correlation coefficient of NBL (-0.21) revealed that the return on the bank goes down if the market goes up. The rest of the shares moved in the direction the market moves. B y observing the individual shares beta coefficient, most of the shares appear to be defensive as beta coefficient are less than one. However, beta of the stocks NB bank SCB are greater than one indicating that the shares are more riskier than the market.

On the basis of finding, Khadka concluded that in Nepalese capital market, the contribution of real sector is negligible. Though the shares of commercial Banks

of Nepal are heavily traded in NEPSE, none of the share NABIL Bank will have positive trend towards the equilibrium.

His outlined following Recommendations:

- Adoption of comprehensive and Advance Regulatory framework.
- Awareness campaign for the investor.
- Regular publication of financial information.
- Improvement in the infrastructure facilities.
- Effective use of banking system.
- Deregulation of foreign exchange.

Surendra Manandhar (2005) in his study "*A Study of Risk and Return Analysis on Common Stock Investment*" with special reference to six listed commercial banks The main objective of the study is to evaluate common stock of listed commercial bank in terms of risk and return and to perform sector wise comparison on the basis of market capitalization, to identify whether the share of commercial banks are overpriced, under priced or at equilibrium price, to identify the correlation between returns of commercial banks, & to construct optimum portfolio from listed common stock.

Major findings of the study are as follows:

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on the common stock of EBL is maximum (44.44%) which is very high rate of return. in reality this rate exists only due to effect of unrealistic annual return because of the issues of banks share and increase in share price. Similarly expected return of the CS of NIB is found minimum (24.21%).

- Risk is the variability of return which is measured in terms of standard deviation on the basis of S.D. common stock of NSBI is most risky since it had high S.D. and C.S. of NIBL is least risky because of its lowest S.D. on the other hand, we know that coefficient of variation is more rational basis of investment decision. Which measures the risk per unit of return on the basis of CV; CS of NIBL is the best among all banks. NIBL has 1.4977 unit of risk per 1 unit of return. But CS of SBI has the highest risk per unit return i.e. 3.5495.

- Diversification of fund by making a portfolio can reduce unsystematic risk of individual security significantly. If investors select the securities for investment, which have highly negative correlation of returns, the risk can be returns of two stocks in highly positive, risk reduction is not so significant. So, portfolio between the C.S. of same industry cannot reduce risk properly. In this study, SBI and EBL have negative correlation between their returns, which is favorable with the viewpoint of the diversification. And all other banks have positive correlation among their returns. So, the portfolio construction among their returns. So, the portfolio construction of the common stock of these banks will not completely reduce any risk, which is not favorable as portfolio construction is concerned.

2.10 Research Gap

Although some previous MBS students have conducted their thesis in the similar topic the present researcher has selected, there is fundamental difference between those and this present one. The previous researcher focused only on the risk and return aspect of selected commercial banks from investors perspectives. This research has further tried to identify the correlation among returns of the commercial banks under study which plays a significant role in risk reduction by portfolio construction and systematic and unsystematic risk has been identified for each bank which is not done by previous researchers.

Most of the previous researches reviewed have been carried out with less than seven year data. Here, in this research seven year's data has been taken for analysis. Similarly, the number of sample firms takes by the previous researchers is five or more. But this research has been conducted with reference to three sample firms which give the clear vision for all the investors who invest in common stock investment of commercial banks listed in NEPSE. However, almost effort has been put upon to save it from allegation of being copy of previous research works done in the similar topic.

CHAPTER - III
RESEARCH METHODOLOGY

This chapter refers to the overall approach to the research process of study. The research is based on scientific methods. It is composed of both parts of technical aspects and logical aspect. Based on the historical data, using both financial and statistical tools detailed analysis of different variables has been performed. Hence, it contains research design, nature and sources of data, sample selection, data analysis techniques as the sets of methods that have been used in the research study.

3.1 Research Design

The research is based on recent historical data of last five years. The end of fiscal year is taken as 2003 to 2009.The research is mainly focused on risk and return of three commercial banks which are listed in NEPSE. It will be based on secondary data, which is published, by the commercial bank, NEPSE, SEBON and NRB. Various types of financial, statistical tools and hypothesis will be used for analysis and interpretation. The study evaluates the risk and return of the three selected Commercial Banks of Nepal.

3.2 Nature and Sources of Data

In present study, secondary sources of data will be used to calculate the risk and return of some of the banks. The market price and the NEPSE index are the major factors to be taken into account and the published financial statement of the concerned Banks will be considered to calculate EPS.

3.3 Population and Sample

Presently NEPSE has listed 173 companies. Out of this there are 23 listed commercial banks (see table 1.1) and the study is basically concern with dividend

paying Banks. Only three listed commercial Banks are taken for the study as sample. It covers 3.20% of the total population, which is 29% of the total commercial banks. The study is based on some of the listed commercial Banks as follows:-

1. Himalayan bank Ltd
2. Bank of Kathmandu Ltd
3. Standard Chartered Bank Nepal Ltd

3.4 Methods of analysis

The collected data are analyzed by using various financial tools, as well as statistical tools, which are given and defined below.

3.4.1 Financial Tools

3.4.2 Statistical Tools

3.4.3 Test of Hypothesis

3.4.1 Financial Tools

3.4.1.1 Market Price of Stock (P)

There are three price records available. High, low and closing price. So two approaches either average price (of high and low) or closing price can be used. Closing price is used as market price of stock, which has a specific time span of one year and the study has focused in annual basis while average price represents the price of whole year. Hence, it is very difficult to get reliable and representative information.

3.4.1.2 Earnings per share (EPS)

Earning refers to the net income after tax of the company. Earning per share (EPS) is the results of net income after tax dividend by the outstanding number of common shares. It can be expressed as:

$$EPS = \frac{income\ after\ taxes}{No\ of\ common\ stock\ outstanding}$$

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3.4.1.3 Dividend (D)

Dividend is reward to the shareholders for their investment. It can be given in the form of cash or shares. If a company declares only the cash dividend, there is no problem to take dividend amount. But if company declare stock dividend (bonus share), it is difficult to obtain the amount that really shareholder has gained. In case of stock dividend the formula for total dividend amount is considered as follows:

Total dividend= cash dividend+ stock dividend %×next year MPS

Where,

MPS= Market Price per share

3.4.1.4 Price Earnings Ratio (P/E Ratio)

This ratio is closely related to the earning of the Yield/earning price ratio. This is computed by dividing the market price of share by the EPS.

Price Earnings ratio $=\dfrac{EPS}{MPS}$

Where,

MPS = Market price per share

EPS = Earnings per share

3.4.1.5 Return on Common Stock Investment (R)

Income received on investment and any change in market price, the stock return is usually expressed as a percent of the beginning price of the investment. It is the income received on investment plus any change in market price.

Symbolically,

$R = \dfrac{D_t + P_t - P_{t-1}}{P_{P-1}}$

Where,

R=Actual Rate of Return of common stock at time t

D= Cash dividend received at time t

P_t= Price of a stock at time t

P_{t-1} = price of a stock at time (t-1)

3.4.1.6 Expected Return on Common Stock (Rj)

Expected return is simply arithmetic mean of the past years return. This is an average return on common stock.

Symbolically,

$$E(R_j)=\overline{R}_J= \frac{\Sigma R_J}{n}$$

Where,

E(Rf)=Expected rate of return on stock j

N = number of years that the return is taken

Σ = sign of summation

3.4.1.7 Standard Deviation (σj)

The standard deviation is the one of the measurement tool of the investment risk. It is a statistical concept which is widely used to measure risk from holding a single asset. It shows the total risk of a single asset. If higher the standard deviation, there will be large dispersion of return and is higher the risk of the asset. Similarly if the lower the standard deviation, there will be small dispersion of return and lower the risk of the asset.

It is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the variance and measures the unsystematic risk in

stock investment. The formula for calculating the standard deviation is presented symbolically as,

$$\sigma_j = \sqrt{\frac{\Sigma(R_j - \overline{R_j})^2}{n-1}}$$

Where,

σj= Standard deviation of return on stock j during the time period n

Rj = possible rate of returns

$\overline{Rj}$ = average mean return

N = no of observation

The variance can also be used to measure risk, which is the square of the standard deviation.

Variance $(V) = \sigma_j^2$

Total risk (σj) can also be defined as the sum of systematic risk plus unsystematic risk. Systematic risk has its source factors that affect all marketable assets and thus cannot be diversified away. The sources of systematic risk are market- pervasive. The measure of systematic risk permits an investor to evaluate an asset's required rate of return relative to the systematic risk of the stock. Unsystematic risk can be reduced through diversification. The relationships among total risk, systematic risk and unsystematic risk are shown below.

Total risk (σ_j) = systematic risk + unsystematic risk

Systematic risk = $\sigma_j \times \rho_{jm}$

Unsystematic risk = $\sigma_j \times 1 - \rho_{jm}$

In the equation (ρ_{jm}) is correlation coefficient between the returns of a given stock (j) and return on market portfolio (m).

3.4.1.8 Coefficient of Variance (C.V)

The coefficient of variation is the other useful measure of risk. It is the standard deviation divided by the expected return, which measures risk per unit of return. The larger the c.v the larger the relative risk of the investment. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The c.v is more useful when we consider investments, which have different expected rates of return and different levels of risk. (*J. Fred Weston and Eugene F. Brigham "Managerial Finance" 1993:10*[th] *edition*).

The coefficient of variation (CV) is a 'relative measure of dispersion' that is useful in comparing the risk of assets with differing expected returns. Higher the coefficient of variation, greater the risk .It is the ratio of the standard deviation of a distribution to the mean of that distribution. It is a measure of relative risk. Symbolically,

$$C.V = \frac{\sigma_j}{R_J}$$

Where,

C.V= coefficient of variation

σ_j = standard deviations of returns of stock j

R_j = expected return on stock j

Beta coefficient (β)

The beta coefficient measures the systematic risk. It can be calculated by using the following formula.

$$\beta_j = \frac{Cov(R_j R_m)}{\sigma_m^2}$$

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Where

β_j – Beta coefficient of stock j

$Cov(R_j, R_m)$= Covariance return between asset j and the market portfolio m

σ_m^2 = variance of the return on the market portfolio m

$$Cov(R_jR_m) = \frac{(R_j - \overline{R_J})(R_m - \overline{R_m})}{n-1}$$

3.4.1.9 Required Rate of Return (Ki)

Required rate or return is minimum expected rate of return needed to induce an investor to invest his/her money. It is always more than risk- less rate of return. Normally, when an individual investment is giving higher return, this type of investment is known as under-priced investment. Such under price investment should be purchased. Similarly if the realized rate of return is less than required rate of return, it is said to be over-priced asset. Such asset should not be purchased. If those types of asset are holding, it should be sold immediately.

$$K_j = R = R_f + \beta (R_m - R_f)$$

Where,

K_j=R, is the expected rate of return on a security or asset

R_f = is the rate of a risk free investment ie cash

R_m = is the market rate of return or the appropriate asset class

3.4.1.10. Portfolio Return (R_p)

Portfolio is combination of two or more securities of assets and portfolio return is simply a weighted Average stock return of individual stock returns (Analysis is only for two assets Portfolio)

Symbolically,

$$R_p = W_A\overline{R_A} + W_B\overline{R_B}$$

Where,

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

W_A = Weight of stock A

W_B = Weight of stock B

$W_A = W_B = 1$ or 100% always

3.4.1.11. Portfolio Risk (σ_p)

It is a function of the proportions invested in the components, the riskiness of the components and correlation of returns on the component securities. It is measured by the combination of the standard deviation of individual stock return. Symbolically,

For two Assets Case:

$$\sigma_p = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B Cov(R_A R_B)}$$

Where,

σ_p = Standard Deviation of Portfolio returns of stock A and B

Cov ($R_A R_B$) = Equivalent representations for covariance of returns between asset A and B

3.4.1.12. Risk Minimizing Portfolio

It is the ratio of the two assets, which minimizes the risk (σ_p)

Symbolically,

$$W_A = \frac{\sigma_B^2 - cov(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - Cov(R_A R_B)}$$

Where,

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

σ_A = standard Deviation of stock A

σ_B = standard Deviation of stock B

3.4.2 Statistical Tools

3.4.2.1 Correlation coefficient (ρ_{ij})

The correlation is also a measure of the relationship between two assets. The correlation can take on a value from -1 to -1. Correlation and covariance are related by the following equation.

$Cov_{ij} = \sigma_i \, \sigma_j \, \rho_{ij}$

Therefore,

$\rho_{ij} = \dfrac{Cov_{ij}}{\sigma i \, \sigma j}$

Where, σ_i and σ_j are the standard deviation of returns for assets i and j and ρ_{ij} is the correlation coefficient for assets i and j.

There are various cases of correlation and risk condition, which are presented as below:

- Perfect negatively correlation ($\rho_{ij} = +1$)
  Return on two perfectly correlated stocks would move up and down together and a portfolio consisting of two such stocks would be exactly as risky as the individual stocks. Thus diversification does nothing to reduce risk if the portfolio consists of perfectly positively correlated stock.

- Perfect negatively correlation ($\rho_{ij} = -1$)
  Return on two perfectly negatively correlated stocks would move perfectly together but in exactly opposite directions. In this condition, risk can be eliminated. Perfect negative correlation almost never found in the real world.

- No relationship between returns ($\rho_{ij} = 0$)

  When the correlation between two stocks is exactly zero, there is no relationship between the returns; they are independent of each other. In this condition, some risk can be reduced.

- Intermediate risk ($\rho_{ij} = +0.5$)

  Most stocks are positively correlated, but not perfectly. On average the returns on two stocks would lie on the range of +0.4 and +0.75. Under this condition combining stocks into portfolios reduces risk but does not eliminate it completely.

3.4.3 Test of Hypothesis

i) Test of Significance for a Single Mean

It is applied for hypothesis testing 1st to test whether there is any significant difference between average risk of commercial bank with market portfolio or not. If the test is "test of significance for a single mean", the test statistic (t) is given by:

$$t = \frac{X - \mu}{\frac{s^2}{\sqrt{n}}}$$

$$S^2 = \frac{1}{n-1}\left[\sum X^2 - \frac{(\sum X)^2}{n}\right]$$

Where,

n = total no. of observation

X = sample mean

μ = population mean

s = estimated standard deviation of population parameter which is given as

n = sample size

CHAPTER - IV
ANALYSIS AND PRESENTATION OF DATA

This chapter includes analysis of collected data and their presentation. In this chapter, secondary data are analyzed in table and diagram form. Detail data of market price of stock, earning per share, dividend of each bank and relevant data of NEPSE index are presented and their interpretation and analysis is done. With reference to various readings and literature review in the proceeding, chapter effort is made to analyze and established the relationship between risk and return of stock investment with a special reference to listed commercial banks. This chapter also analyzes the systematic and unsystematic risk of each commercial Bank.

4.1 Analysis of Individual Commercial Banks

Among nineteen commercial banks operating in Nepal, only fifteen are listed in NEPSE as F.Y 2004/05. Among those, the study has only taken Three commercial banks listed in NEPSE, which has already, mention in the research methodology in chapter III. Data collection is being done of five years form 15th July 2004/05 to 15th July 2008/09. Brief introduction of individual banks are given along with its details analysis shown as below.

4.1.1 Himalayan Bank Ltd. (HBL)
4.1.1.1 Introduction

Himalayan Bank was established on 18 Jan in 1992 A.D. joint ventured with Habib Bank Ltd. of Pakistan. This is the first joint venture bank with maximum share holding by the Nepalese private sector. The bank commenced its operation from 1993 Feb; it has fourteen branches located in various parts of Kathmandu valley and nineteen branches located outside Kathmandu valley. Its head office is situated at Thamel.

The shares compositions of this bank are as follows:

Nepali promoters-51%

Hibib Bank of Pakistan-20%

Karmarchary Sanchayakosh-14%

General Public-15%

HBL's authorized capital, issued and paid up capital is Rs.2000000000, Rs. 1216215000 & Rs. 1216215000 respectively. It's no of share is 7210. The bank was listed in NEPSE on 5th July 1993. Its par value is Rs. 100 and its paid up capital is Rs.100.

4.1.1.2 Data

Market price dividend records & EPS of common stock of the bank are shown in Table 4.1. This analysis is based on the year ended MPS and EPS which shows the relationship between MPS and EPS with the dividend payout ratio. The total dividend is calculated as the method mentioned in the research methodology in Chapter III.

Table 4.1

MPS, Dividend, EPS, P/E Ratio of HBL

Fiscal Year	MPS	Dividend	Stock Dividend	EPS	P/E
2003/04	840	0	20	49.06	17.12
2004/05	920	11.58	20	47.81	19.20
2005/06	1100	30	5	59.23	18.57
2006/07	1740	15	25	60.65	28.69
2007/08	1980	25	20	62.70	31.56
2008/09	1760	12	31.56	61.90	28.43

Source: AGM Report of HBL

of Rs. 840 in the year 2003/04. EPS and P/E are increasing trend from 2003/04 to 2007/08. But in the year 2008/09 it decrease to 61.90.

Figure 4.1

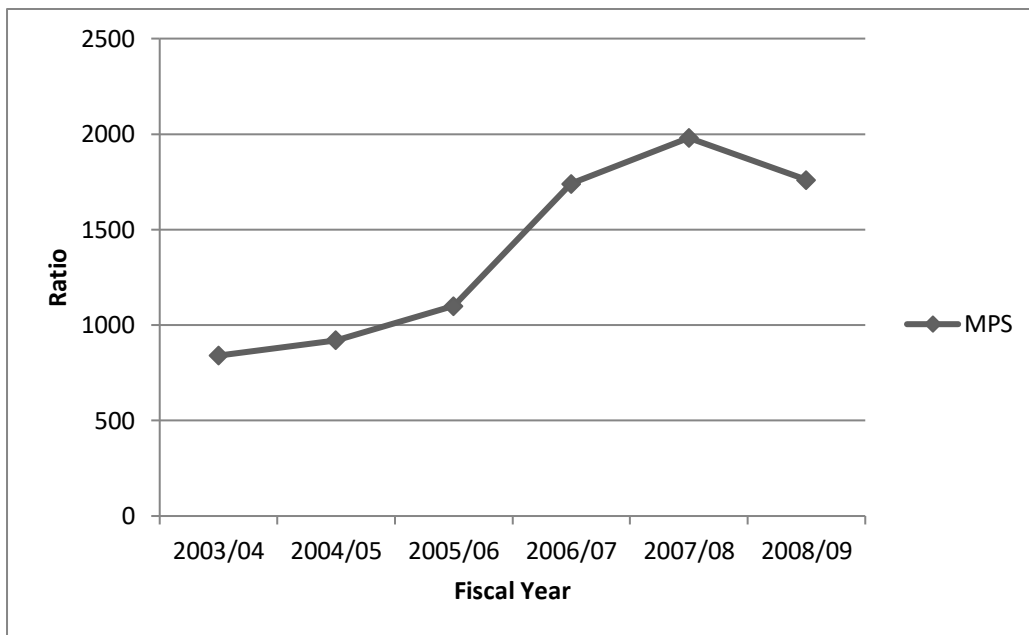**Year and Price movement of the Common Stock of HBL**

Figure 4.1 shows the trend line of market price in several year of HBL. It can be seen that there is increasing trend of market price from year 2003/04 to till 2005/06, and the trend line shows the rapid growth after 2005/06 after that from the year 2007/08 after that year it decrease the trend. There is minimum price in the year 2003/04 i.e. Rs. 840 and maximum in the year 2006/07 i.e. Rs. 1980.

Table 4.2

Expected Return ($\overline{R_A}$), Standard Deviation (σ_A), and Coefficient

of variation (C.V) of HBL

Fiscal Year	MPS	Dividend	Annual Return (R_A)	($R_A - \overline{R}_A$)	($R_A - \overline{R}_A$)^2
2003/04	840	184	0.0000	0.0000	0
2004/05	920	231.58	0.3709	-0.0508	0.0026
2005/06	1100	117	0.3228	-0.0989	0.0098
2006/07	1740	510	1.0455	0.6238	0.3891
2007/08	1980	377	0.3546	-0.0671	0.0045
2008/09	1760	249.33	0.0148	-0.4069	0.1656
	Total		2.1086	0.0001	0.5715

Expected return $(\bar{R}_A) = \frac{\Sigma R_A}{n} = 2.1086 \qquad \frac{2.1086}{5} = 0.4217$

Standard Deviation $(\sigma_A) = \sqrt{\frac{\Sigma(R_A - \bar{R}_A)^2}{n-1}} = \sqrt{\frac{0.5715}{5-1}} = 0.378$

Variance $(\sigma_A)^2 = \frac{\Sigma(R_A - \bar{R}_A)^2}{n-1} = \frac{0.5715}{5-1} = 0.1429$

Coefficient of variation (C.V) $= \frac{\sigma_S}{\bar{R}_S} = \frac{0.378}{0.4217} = 0.8964$

The expected return of HBL is 0.4217 with the total risk (measured by S.D.) of 0.378. The C.V. of HBL is 0.8964 which indicates that 0.8964 risks must be bearded to get per unit return. It can be shown clearly in the figure.

Figure 4.2

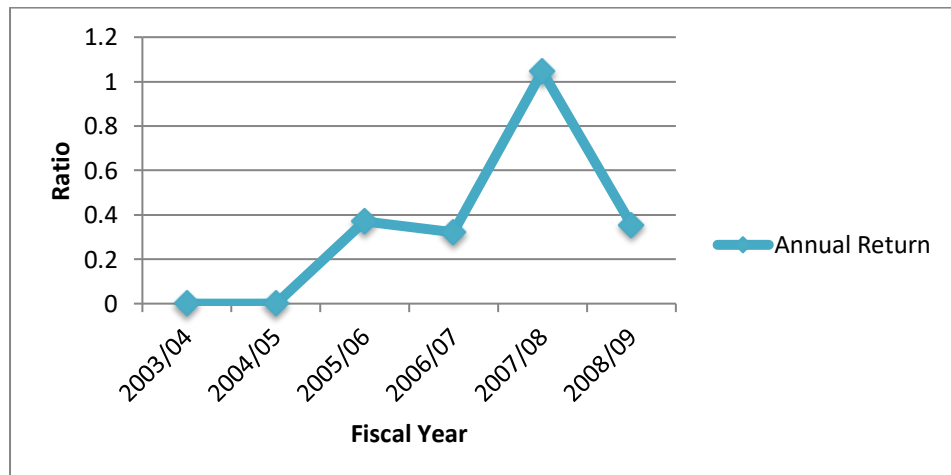**Annual Rate of Return of C.S of HBL**

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Figure 4.2 shows returns of HBL in the several years. There is fluctuating return in several years. The highest return is in the year 2006/07 i.e. 1.0455 and lowest return of 2008/09 i.e. 0.0148.

4.1.2 Bank of Kathmandu

4.1.2.1 Introduction

Bank of Kathmandu limited is established March 1995 with Nepalese promoters. The objective to stimulate the economy and took it o newer heights. It has fourteen branches located in various parts of Kathmandu valley and twenty three branches located outside Kathmandu valley. Its head office is situated at Kamal Pokhari.

The company share composition of this bank was 41.81% promoter share and 58.19% ordinary share. This company authorized capital is Rs 2 billion, Issued capital is Rs 1182157100 and paid up capital is Rs 1182157100. Its par value is Rs. 100 and its paid up capital is Rs.100. This bank was listed Nepse in 2054 Shrawan.

4.1.2.2 Data

Market price dividend records & EPS of common stock of the bank are shown in Table 4.3. This analysis is based on the year ended MPS and EPS which shows the relationship between MPS and EPS with the dividend payout ratio. The total dividend is calculated as the method mentioned in the research methodology in Chapter III.

Table 4.3

MPS, Dividend, EPS, P/E Ratio of BOK

Fiscal Year	MPS	Dividend	Stock Dividend	EPS	P/E
2003/04	295	10	0	27.50	7.25
2004/05	430	10	5	30.10	14.29
2005/06	850	18	30	43.67	19.46
2006/07	1375	20	0	43.50	31.61
2007/08	2350	2.11	40	59.94	39.21
2008/09	1825	7.37	40	54.68	33.37

Source: AGM Report of BOK

According to table 4.3, BOK have not paid stock dividend in each year but cash dividend have paid. P/E ratio of BOK is maximum in the year 2007/08 i.e. 39.21 and minimum in the year 2003/04 i.e. 7.25. The closing MPS of HBL is maximum of Rs. 2350 in the year 2007/08 and minimum of Rs. 295 in the year 2003/04. EPS and P/E are increasing trend from 2003/04 to 2007/08. But in the year 2008/09 it decreases to EPS is 54.68.P/E is 33.37.

Figure 4.3

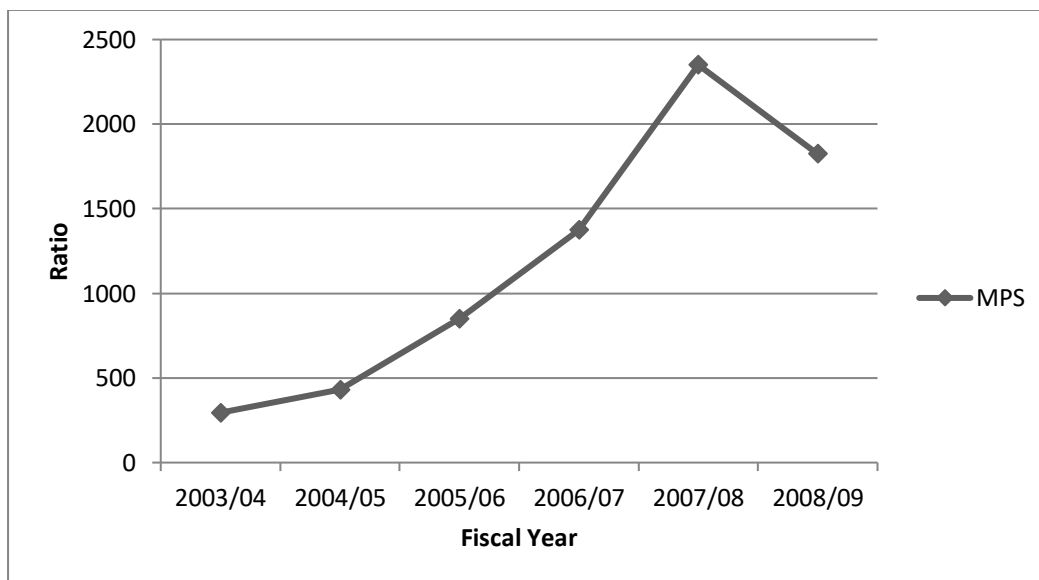**Year and Price Movement of C.S of BOK**

Figure 4.3 shows the trend line of market price in several year of BOK. It can be seen that there is rapidly increasing trend of market price from year 2003/04 to till 2007/08, but it decrease the market price in the year 2008/09 i.e. 825. There is minimum price in the year 2003/04 i.e. Rs. 295 and maximum in the year 2006/07 i.e. Rs. 2350.

Table 4.4

Expected Return ($\overline{R_I}$), Standard Deviation (σ_I), and Coefficient of Variation (C.V) of BOK

Fiscal Year	MPS	Total Dividend	Annual Return(R_B)	$(R_B - \overline{R}_B)$	$(R_B - \overline{R}_B)^2$
2003/04	295	10	0	0	0
2004/05	430	52.5	0.6356	-0.2393	0.0573
2005/06	850	430.5	1.9779	1.1030	1.2166
2006/07	1375	20	0.6412	-0.2337	0.0546
2007/08	2350	736.11	1.2444	0.3695	0.1366
2008/09	1825	232.17	-0.1246	-0.9995	0.9990
	Total		4.3745	0.0000	2.4641

Expected return $(\bar{R}_B) = \frac{\Sigma R_B}{n} = \frac{4.3745}{5} = 0.8749$

Standard Deviation $(\sigma_B) = \sqrt{\frac{\Sigma(R_B - \bar{R}_B)^2}{n-1}} = \sqrt{\frac{2.4641}{5-1}} = 0.7849$

Variance $(\sigma_B)^2 = \frac{\Sigma(R_B - \bar{R}_B)^2}{n-1} = \frac{0.846395}{4-1} = 0.6160$

Coefficient of variation (C.V) $= \frac{\sigma_B}{\bar{R}_B} = \frac{0.7849}{0.8749} = 0.8971$

The expected return of BOK is 0.8749 with the total risk (measured by S.D.) of 0.7849. The C.V. of BOK is 0.8971 which indicates that 0.8971 risks must be bearded to get per unit return. It can be shown clearly in the figure.

Figure 4.4

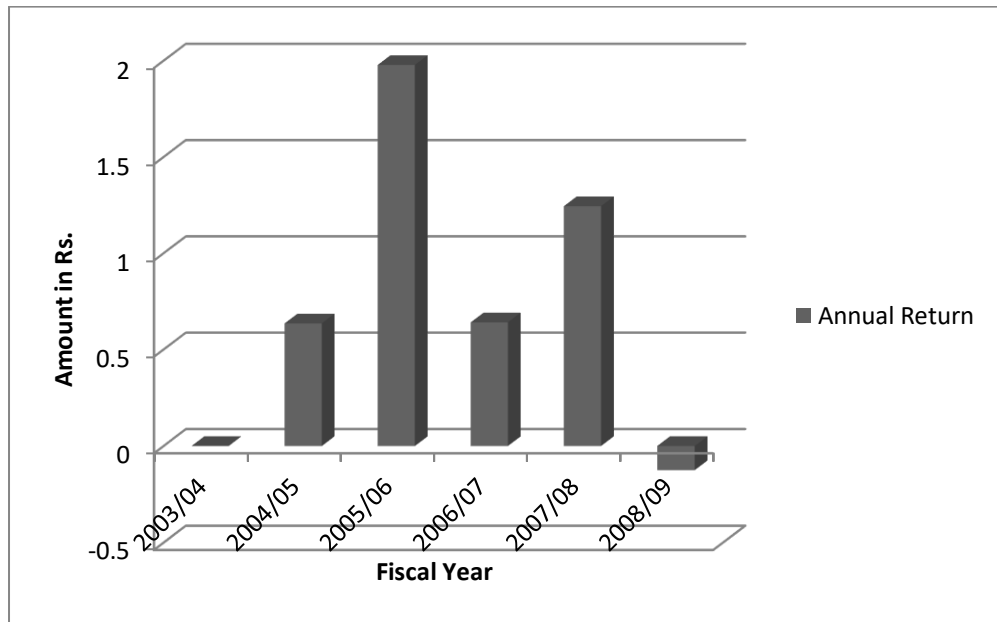**Annual Rate of Return of C.S of BOK**

Figure 4.4 shows returns of BOK in the several years. There is fluctuating return in several years. The highest return is in the year 2005/06 i.e. 1.9779 and negative return of 2008/09 i.e. -0.1246.

4.1.3 Standard Chartered Bank Nepal Limited (SCBNL)

4.1.3.1 Introduction

Standard Chartered Bank Nepal Limited was formerly known as Nepal Grindlays Bank Limited. The bank was incorporated in 1985 as the second foreign joint venture bank under the company act 1964. In 17th Shrawan 2057, the share of the Grind lays bank was purchased by the Standard Charted Bank and thus changed its name into present form. Today the Bank is an integral part of Standard Chartered Group who has 75% ownership in the company with 25% shares owned by the Nepalese public. The bank enjoys the status of the largest international bank currently operating in Nepal.

It has four branches located in various parts of Kathmandu valley and nine branches located outside Kathmandu valley. Its head office is situated at Naya Baneshwor. This bank holds NRS.1000000000 as an authorized capital and it's issued and paid up capital is NRS.1000000000 and NRS.931966400 respectively. Its number of share is 5037 and it was listed in NEPSE on March 1988.

4.1.3.2 Data

Market price dividend records & EPS of common stock of the bank are shown in Table 4.5. This analysis is based on the year ended MPS and EPS which shows the relationship between MPS and EPS with the dividend payout ratio. The total dividend is calculated as the method mentioned in the research methodology in Chapter III.

Table 4.5

MPS, Dividend, EPS, P/E Ratio of SCBNL

Fiscal Year	MPS	Dividend	Stock Dividend	EPS	P/E
2003/04	1745	110	0	149.30	12.16
2004/05	2345	120	0	143.14	16.38
2005/06	3775	130	10	175.84	21.47
2006/07	5900	80	50	167.37	35.25
2007/08	6830	80	50	131.02	51.77
2008/09	6010	50	50	109.99	54.64

Source: AGM Report of SCBNL

According to table 4.5, SCBNL have not paid stock dividend in each year but cash dividend have paid. P/E ratio of SCBNL is maximum in the year 2008/09 i.e. 4.64 and minimum in the year 2003/04 i.e. 12.16. The closing MPS of SCBNL is aximum of Rs. 6830 in the year 2007/08 and minimum of Rs. 1745 in the year 2003/04. EPS and P/E are increasing trend from 2003/04 to 2008/09.

Figure 4.5

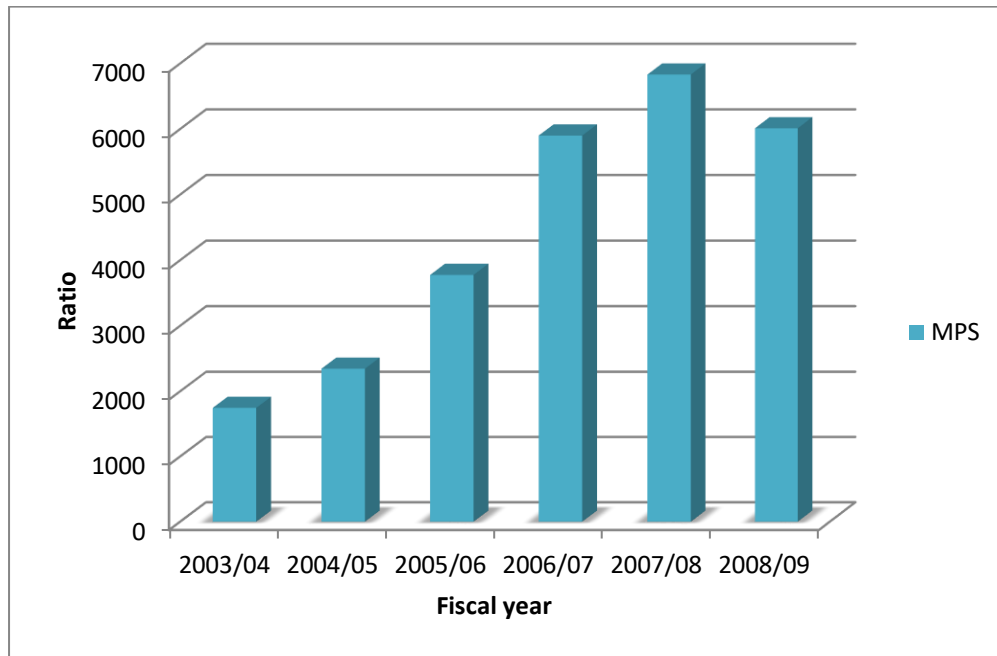**Year and Price Movement of C.S of SCBNL**

Figure 4.5 shows the trend line of market price in several year of SCBNL. It can be seen that there is increasing trend of market price from year 2003/04 to till 2007/08, but it decrease the market price in the year 2008/09 i.e. 6010. There is minimum price in the year 2003/04 i.e. Rs. 1745 and maximum in the year 2006/07 i.e. Rs. 6830.

Table 4.6

Expected Return $(\overline{R}_c)$, Standard Deviation (σ_c), and

Coefficient of variation (C.V) of SCBNL

Fiscal Year	MPS	Dividend	Annual Return	$(Rc - \overline{R_C})$	$(R_C - \overline{R}_C)^2$
2003/04	1745	110	0.0000	0.0000	0
2004/05	2345	308.75	0.5208	-0.2062	0.0425
2005/06	3775	720	0.9168	0.1898	0.0360
2006/07	5900	3495	1.4887	0.7617	0.5803
2007/08	6830	3085	0.6805	-0.0465	0.0022
2008/09	6010	1011.5	0.0280	-0.6990	0.4885
	Total		3.6349	-0.0001	1.1495

Expected return $(\overline{R}_C) = \frac{\sum \overline{R_C}}{n} = \frac{3.6349}{5} = 0.737$

Standard Deviation $(\sigma_C) = \sqrt{\frac{\sum (R_C - \overline{R}_C)^2}{n-1}} = \sqrt{\frac{1.1495}{5-1}} = 0.5361$

Variance $(\sigma_c)^2 = \frac{\sum (R_C - \overline{R}_C)^2}{n-1} = \frac{1.1495}{5-1} = = 0.2874$

Coefficient of variation (C.V) $= \frac{\sigma_C}{\overline{R}_C} = \frac{0.5361}{0.737} = 0.7274$

The expected return of SCBNL is 0.737 with the total risk (measured by S.D.) of 0.5361. The C.V. of SCBNL is 0.7274 which indicates that 0.7274 risks must be bearded to get per unit return. It can be shown clearly in the figure

Figure 4.6

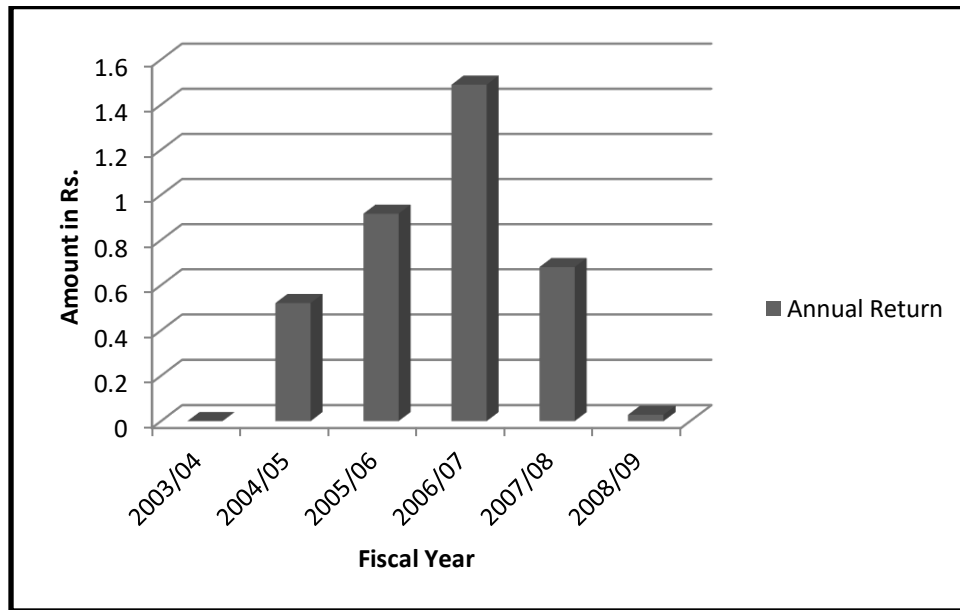**Annual Rate of Return of C.S of SCBNL**

Figure 4.6 shows returns of SCBNL in the several years. There is fluctuating return in several years. The highest return is in the year 2006/2007 i.e. 1.4887 and lowest return of 2008/2009 i.e. 0.0280.

4.2 Inter Bank Comparison

According to the result from analysis part, a comparative analysis of return, total risk and risk per unit performed here. Expected return, standard deviation of return and coefficient of variation of each bank for the year 2004/05 to 2008/09 are given

Table 4.7

Expected Returns, SD. and C.V of each Bank

Bank	Expected Return $(\overline{R_L})$	Standard Deviation (σ)	Coefficient of Variation (C.V)	Return	Risk	C.V
HBL	0.4217	0.378	0.8964	Lowest	Lowest	
BOK	0.8749	0.7849	0.8971	Highest	Highest	Highest
SCBNL	0.737	0.5361	0.7274			Lowest

The table shows the overall and risk of the individual banks. Here the investor can get highest return from BOK i.e. 0.8749 and lowest return from HBL i.e. 0.4217. Total risk (measured by standard deviation) is observed maximum of the C.S. of BOK i.e. 0.7849 and minimum of HBL i.e. 0.378. This means that quantitative of total risk is very high in BOK. Higher the risk higher the return and C.V. of .i.e. BOK is highest i.e. 0.8971 than that of other commercial banks. So common stock of BOK is more risky than that of other banks. Investment in SCBNL is desirable because its return is higher and risk is lowest compared to others. To make the comparison easily understandable Figure 4.7 is presented below:

Figure 4.7

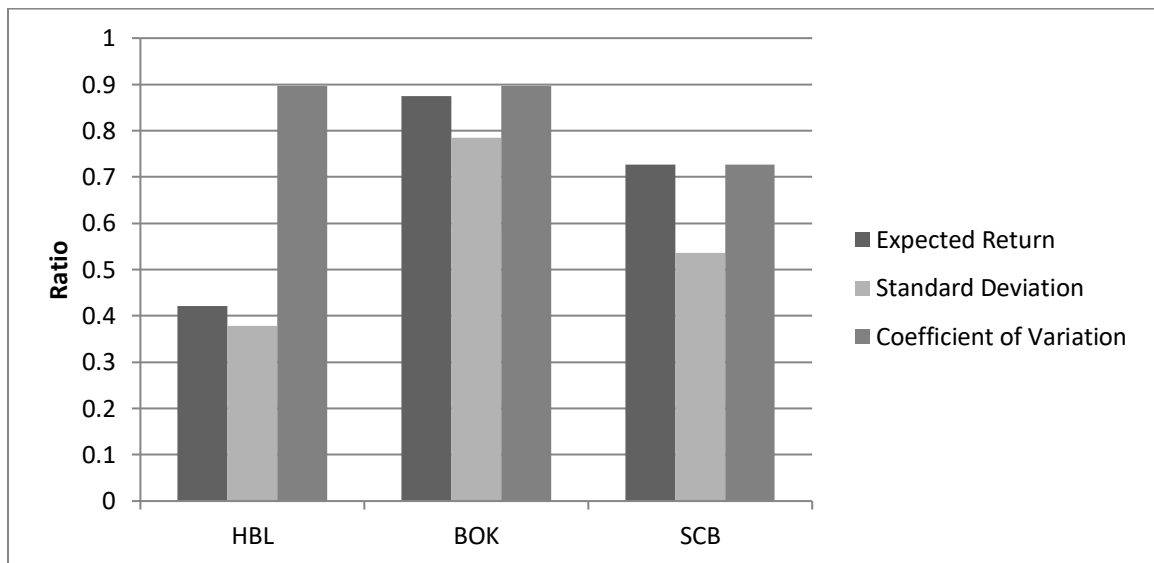**Expected return, S.D. and C.V, of each Commercial**

Figure 4.7 clarify he expected return, standard deviation and coefficient of variation of each individual banks. It is showing the comparison of these banks in terms of risk and return.

4.3 Market Capitalization

On the basis of market Capitalization at the end of 2008/09, that size of each bank is presented in table 4.8 That SCBNL has highest market capitalization with Rs. 42338 million among these three companies at 2008/09. So, SCBNL is biggest and BOK is the smallest company on the basis of market capitalization of listed three banks.

Table 4.8

Market Capitalization of Commercial Bank (2007-08)

Bank	Market capitalization (In Million	Percentage
HBL	16054	22.12
BOK	14173.8	19.53
SCBNL	42338	58.35
	72565.8	100

Source from SEBON

Comparative Proportion of market capitalization of listed three commerical banks is shown in given figure 4.8.

Figure 4.8

Comparative Proportion of Market Capitalization of Listed Commercial Banks
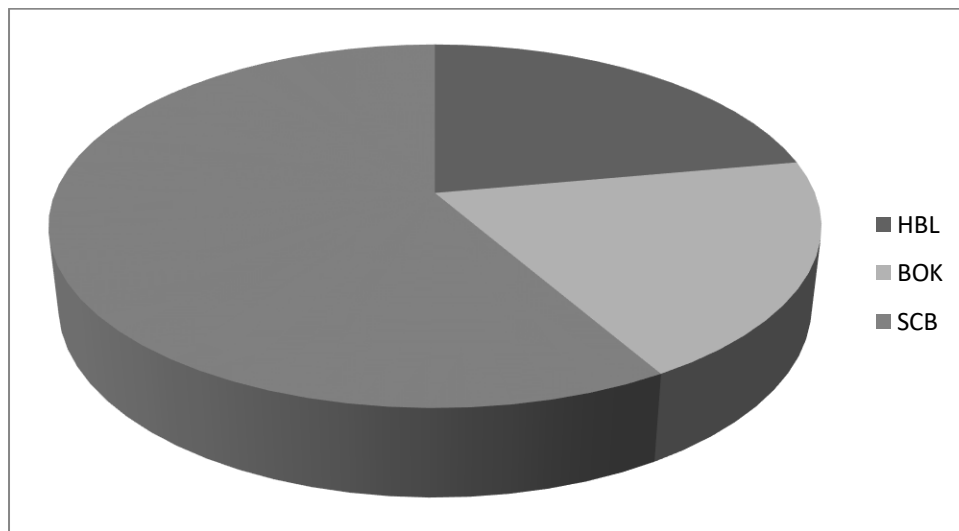
4.4 Comparison with Market

4.4.1 Market Risk and Return Analysis

Nepal stock exchange Ltd (NEPSE) is only stock market in Nepal. Overall movement is represented by market index (i.e. NEPSE index).The NEPSE index is adjusted and changed continuously. With this NEPSE base market portfolio return its standard deviation and coefficient of variation is presented below.

Table 4.9

Calculation of Return, S.D and C.V of Overall Market

Fiscal Year	Market Index(M_I)	$R_m = \dfrac{MI_T - MI_{T-1}}{MI_{T-1}}$	$R_M - \bar{R}_M$	$(R_M - \bar{R}_M)^2$
2003/04	222.04	-	-	-
2004/05	286.67	0.2911	-0.0279	0.0008
2005/06	386.83	0.3494	0.0304	0.0009
2006/07	683.95	0.7681	0.4491	0.2017
2007/08	963.4	0.4086	0.0896	0.0080
2008/09	749.1	-0.2224	-0.5414	0.2932
		1.5947		0.5046

Expected return $(\bar{R}_M) = \dfrac{\sum \bar{R}_m}{n} = \dfrac{1.5947}{5} = 0.319$

Standard Deviation $(\sigma_M) = \sqrt{\dfrac{\sum (R_M - \bar{R}_M)^2}{n-1}} = \sqrt{\dfrac{0.5046}{5-1}} = 0.3552$

Variance $(\sigma_M)^2 = \dfrac{\sum (R_M - \bar{R}_M)^2}{n-1} = \dfrac{0.3023}{5-1} = 0.1262$

Coefficient of variation (C.V) $= \dfrac{\sigma_M}{\bar{R}_M} = \dfrac{0.3552}{0.319} = 1.1135$

Table 4.9 shows the return of market is several years. There is highest return in the year 2006/07 i.e. 0.7681 and these is negative return of market in the year 2008/09 i.e. 0.2224. The expected return of market is 0.319 with the total risk (measured by S.D.) of 0.3552. C.V. of market is 1.1135 which means 1.1135 risks must be sacrificed to get per unit market return.

Figure 4.9

NEPSE Index Movement
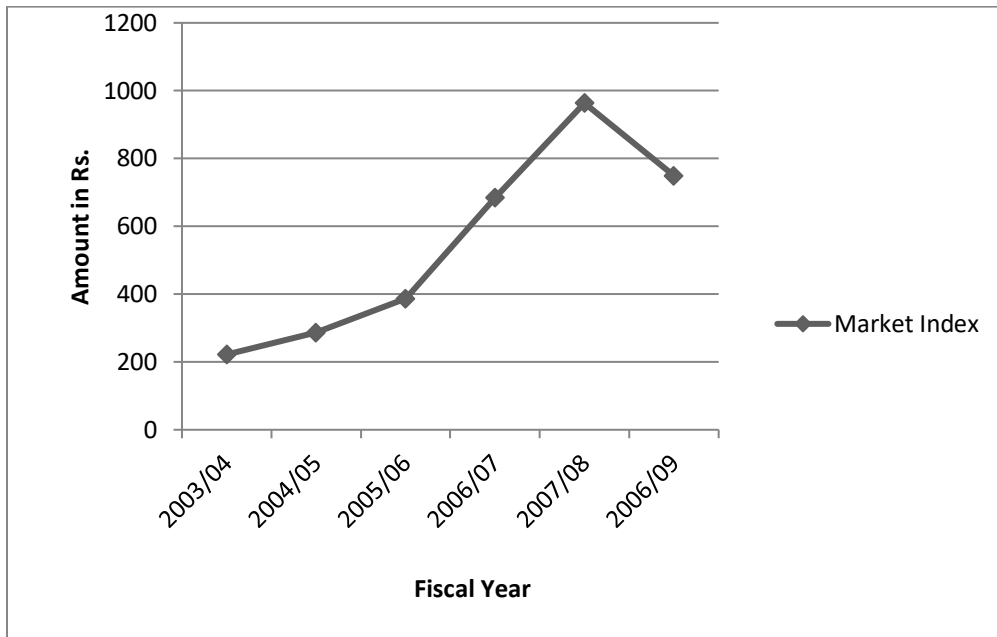
The figure 4.9 shows that the movement of NEPSE Index. It is in increasing trend from 2003/04 to 2007/08 and decreasing trend from the fiscal year 2007/08.The minimum index of 222.04 in the year 2003/04 and maximum index of 963.4 in the year 2007/08.

Figure 4.10

NEPSE Market Returns
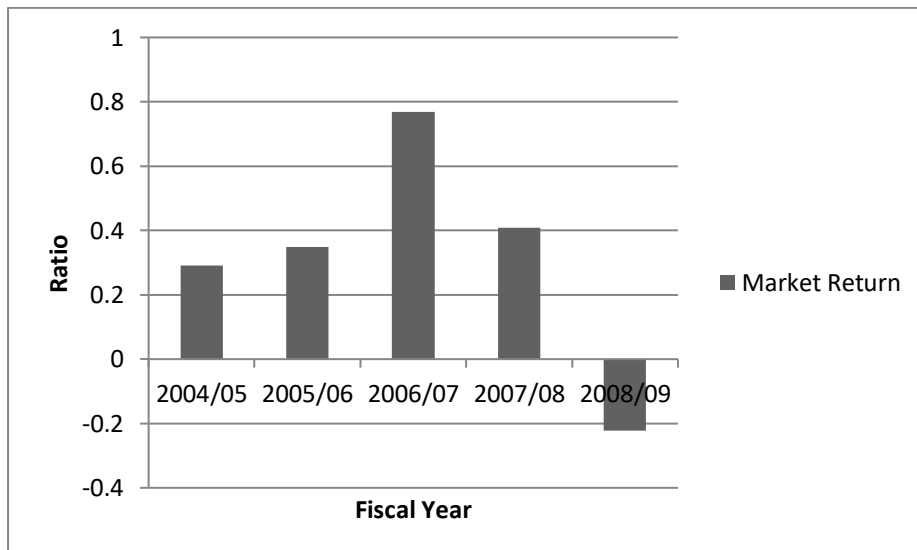
The figure 4.10 shows that the movement of market return is increasing trend from 2004/05 to 2006/07 I.e. 0.2911 to 0.7681 respectively and decreasing trend from 2006/07. After that is become negative in 2008/09 i.e. -0.2224

4.4.2 Market Sensitivity Analysis

Market sensitivity of stock is explained by terms of beta coefficient. Beta coefficient can be use for an ordinal ranking of the systematic of asset. Higher the beta represents greater the sensitivity and higher the reaction to the market movement and vice-versa. Percentage of risk that is correlated with market is said to be systematic portion of the risk beta coefficient of systematic risk which eliminated through the means of diversification.

Table 4.10

Beta coefficient of C.S of HBL

Fiscal Year	$(R_M - \bar{R}_M)$	$(R_A - R_A)$	$(R_M - \bar{R}_M)* (R_A - R_A)$
2003/04		0	0
2004/05	0.2911	-0.0508	-0.0148
2005/06	0.3494	-0.0989	-0.0346
2006/07	0.7681	0.6238	0.4791
2007/08	0.4086	-0.0671	-0.0274
2008/09	-0.2224	-0.4069	0.0905
			0.4929

We have,

$$\text{COV } (R_M, R_H) = \frac{\Sigma\left[\left\{\left(R_{M-\bar{R}_M}\right)\left(R_{A-\bar{R}_A}\right)\right\}\right]}{n-1} = \frac{0.4929}{4}$$

$$=0.1232$$

Again

$$\beta_A = \frac{Cov(R_M, R_A)}{\sigma_M{}^2} = \frac{0.1232}{0.3552^2} = 0.9765$$

Where,

n = number of observation

$\sigma_M{}^2$ = Variance of market

R_A = Return of stock of HBL

$R_{M,}$ = Return of Market

From sensitivity analysis of HBL, the beta coefficient is 0.9765. Which is less than 1 shows that HBL is very less volatile and risk averter can purchase this type of investment. From the side of investment, it is less risk investment

Table 4.11

Beta Coefficient of the C.S of BOK

Fiscal Year	$(R_M - \bar{R}_M)$	$(R_K - R_K)$	$(R_M - \bar{R}_M)* (R_K - R_K)$
2003/04		0	0
2004/05	0.2911	-0.2393	-0.0697
2005/06	0.3494	1.103	0.3854
2006/07	0.7681	-0.2337	-0.1795
2007/08	0.4086	0.3695	0.1510
2008/09	-0.2224	-0.9995	0.2223
			0.5095

We have,

$$\text{Cov}(R_M, R_B) = \frac{\sum[\{(R_M - \bar{R}_M)(R_B - \bar{R}_B)\}]}{n-1} = \frac{0.5095}{4}$$

$$= 0.1274$$

Again

$$\beta_B \quad = \frac{Cov(R_M, R_B)}{\sigma_M{}^2} = \frac{0.1274}{0.3552^2} = 1.1$$

Where,

n   = Number of observation

$\sigma_M{}^2$ = Variance of market

R_B = Return of stock of BOK

$R_{M,}$ = Return of Market

From sensitivity analysis of HBL, the beta coefficient is 1.1, which is more than 1 show that BOK is very volatile and aggressive Investor can purchase this type of investment. From the side of investment, it is risk investment.

<div align="center">

Table 4.12

Beta Coefficient of the C.S of SCBNL

</div>

Fiscal Year	$(R_M - \overline{R}_M)$	$(R_C - \overline{R}_C)$	$(R_M - \overline{R}_M)* (R_C - \overline{R}_C))$
2003/04		0	0
2004/05	0.2911	-0.2062	-0.0600
2005/06	0.3494	0.1898	0.0663
2006/07	0.7681	0.7617	0.5851
2007/08	0.4086	-0.0465	-0.0190
2008/09	-0.2224	-0.699	0.1555
			0.7278

We have,

$$\text{Cov}(R_M, R_C) = \frac{\sum[\{(R_M - \overline{R}_M)(R_C - \overline{R}_C)\}]}{n-1} = \frac{0.7278}{4}$$

$$= 0.182$$

Again

$$\beta_M \quad = \frac{Cov(R_M, R_S)}{\sigma_M{}^2} = \frac{0.182}{0.3552^2} = 1.4425$$

Where,

n   = Number of observation

$\sigma_M{}^2$ =Variance of market

R_C = Return of stock of SCBNL

$R_{M,}$ = Return of Market

From sensitivity analysis of SCBNL, the beta coefficient is 1.4425, which is more than 1 show that SCBNL is very volatile and aggressive Investor can purchase this type of investment. From the side of investment, it is risk investment.

Table 4.13

Beta Coefficient of each Bank

Bank	Beta Coefficient	Remarks
HBL	0.9765	Least Aggressive
BOK	1.1	
SBL	1.4423	Most Aggressive

Here, as shown in the table 4.13 BOK and SCBNL have higher beta coefficient than the bet coefficient of market. The stock of these banks is aggressive and HBL has lower beta coefficient than market so it is a defensive stock. The stock of SCBNL seems most aggressive than other stocks where as HBL seems least aggressive.

4.4.3 Required rate of Return$[E(R_j)]$ Expected Rate of Return $(\bar{R}_j)$ and Price Evaluation Analysis

CAPM is model that assumes stocks required rate of return is equal to the risk free rate plus its risk premium where risk is measured by the Beta Coefficient. Beta Coefficient plays a vital role in CAPM approach. If the required rate of return, is greater than expected rate of return: the stock is said to be over priced and investors tend to sell this type of stock. For this analysis the risk free rate of return is needed which is taken from the interest rate of Treasury bill issued by NRB. NRB issued Treasury bill, 91 days duration Treasury bill rate of rate is taken as a risk free rate from website of NRB. This is approximately 6.08

Table 4.14

Required Rate of Return, Expected Return and Price Evaluation

Bank	R_f	$E(R_m)$	Beta β_j	$E(R_j = R_f + [E(R_m - R_f]\beta_j$	$(\bar{R}_j)$	Price Evaluation
HBL	0.0608	0.319	0.9765	0.3129	0.4217	Underpriced
BOK	0.0608	0.319	1.1	0.3448	0.8749	Underpriced
SCBNL	0.0608	0.319	1.4423	0.4332	0.737	Underpriced

Where,

R_f = Risk free rate of return

$E(R_m)$ = Market rate of return

β_j = Beta of individual sample Banks

$\bar{R}_j$ = Expected rate of return

In the table 4.14 we get the expected rate of return is higher than the required rate of return, so all commercial banks stock are underpriced. It shows that all the banks have stock with good investment opportunities and all the stocks in the demand. Their stock's value will be increased in the near future providing the investors higher return. Since all the stocks are underpriced, investor can gain profit from buying those stocks. These stocks are recommended to buy.

4.5 Portfolio Analysis

A portfolio is a combination of investment assets. 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 investor to attain a higher level or 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. The risk of individual securities can

be reduced without losing considerable return. The main objective of portfolio is reduction of unsystematic risk from which investors can take more benefit by making efficient portfolio. Therefore a brief analysis of risk and return is extended in portfolio context. The portfolio expected return is straight forward weighted average of return on the individual securities. The weight is equal to the proportions of the total fund invested in each security (the weight must sum to 100%).

4.5.1 Analysis or Risk Diversification

The analysis is based on two assets portfolio and the tools for analysis are presented in the third chapter (research methodology). Here the portfolio of common stock of HBL (say stock A), BOK (say stock B), and SCBNL (say stock C) is analyzed.

Covariance Between Stocks

COV $(R_{A,}R_B)$	0.0348
COV $((R_B, R_C)$	0.1886
COV $((R_A, R_C)$	0.1906

Source: Appendix

Where,

COV $(R_{A,}R_B)$ = Covariance Return of HBL and BOK

COV $((R_B, R_C)$ = Covariance returns of BOK and SCBNL

COV $((R_A, R_C)$ = Covariance returns of HBL and SCBNL

Banks	S.D. of Stocks	Expected Return of Stocks
HBL	$\sigma_A = 0.378$	$E(R_A) = 0.4217$
BOK	$\sigma_B = 0.7849$	$E(R_B) = 0.8749$
SCBNL	$\sigma_C = 0.5361$	$E(R_C) = 0.737$

Source: Table 4.7

4.5.1.1 Portfolio of stocks HBL (A) and BOK (B)

The optimal portfolio weight of stock A and B, which minimizes the risk, is given below;

$$W_A = \frac{\sigma_B{}^2 - \text{COV}(R_A, R_B)}{\sigma_A{}^2 + \sigma_B{}^2 - \text{COV}(R_A, R_B)}$$

$$W_B = 1\text{-}W_A$$

Where,

W_A = optimal weight to invest in stock of HBL

W_B = optimal weight to invest in stock of BOK

$\sigma_A{}^2$ = Variance of HBL

$\sigma_B{}^2$ = variance of BOK

Now,

$$W_A = \frac{0.7849^2 - 0.0348}{0.378^2 + 0.7849^2 - 0.0348} = 0.65$$

$$W_B = 1\text{-}(0.65) = 0.35$$

As we know that the proportion of stock in the portfolio is constructed with 65% of HBL and 35% of BOK common stock that will minimize risk and ideal proportion. In above proportion, equity shareholder can minimize risk to get maximum return.

Portfolio Return

It is combination of two or more securities or assets and portfolio return is simply a weighted average of the expected return on individual stock return.

Expected Return on portfolio $E(R_p) = W_A \times E(R_A) + W_B \times E(R_B)$

$$=0.65 \times 0.4217 + 0.35 \times 0.8749$$

$$=58.03\%$$

$E(R_p)$ = Expected Return on portfolio of stock HBL and BOK

$E(R_A)$ = Expected Return of HBL

$E(R_B)$ = Expected Return of BOK

Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\sigma_P = \sqrt{W_A{}^2 \times \sigma_A{}^2 + W_B{}^2 \times \sigma_B{}^2 + 2COV_{AB} \times W_A \times W_B}$$
$$= \sqrt{(0.65)^2 \times (0.378)^2 + (0.35)^2 \times (0.7849)^2 + 2 \times 0.0348 \times 0.65 \times 0.35}$$
$$= 62.41\%$$

Where,

σ_P = The standard deviation of portfolio return of stock HBL and BOK.

From the above calculation the portfolio return and risk for HBL and BOK are 58.03% and 62.41% respectively.

4.5.1.2 Portfolio of stocks BOK (B) and SCBNL (C)

The optimal portfolio weight of stock A and B, which minimizes the risk is given below;

$$W_B = \frac{\sigma_C{}^2 - COV\,(R_{B,}R_C)}{\sigma_B{}^2 + \sigma_C{}^2 - COV\,(R_{B,}R_C)}$$

$$W_C = 1 - W_B$$

Where,

W_B = optimal weight to invest in stock of BOK

W_C = optimal weight to invest in stock of SCBNL

$\sigma_B{}^2$ = Variance of BOK

$\sigma_C{}^2$ = variance of SCBNL

Now,

$$W_B = \frac{0.5361^2 - 0.1886}{0.7849^2 + 0.5361^2 - 0.1886} = 0.14$$

$W_C = 1\text{-}(0.103) = 0.86$

As we know that the proportion of stock in the portfolio is constructed with 14% of BOK and 86% of SCBNL common stock that will minimize risk and ideal proportion. In above proportion, equity shareholder can minimize risk to get maximum return.

Portfolio Return

It is combination of two or more securities or assets and portfolio return is simply a weighted average of the expected return on individual stock return.

Expected Return on portfolio $E(R_p) = W_B \times E(R_B) + W_C \times E(R_C)$

$$=0.14\times0.7849+0.86\times0.5361$$

$$= 57.09\%$$

$E(R_p)$ = Expected Return on portfolio of stock BOK and SCBNL

$E(R_B)$ = Expected Return of BOK

$E(R_C)$ = Expected Return of SCBNL

Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\sigma_P = \sqrt{W_B{}^2 \times \sigma_B{}^2 + W_C{}^2 \times \sigma_C{}^2 + 2COV_{BC} \times W_B \times W_C}$$

$$= \sqrt{(0.14)^2 \times (0.7849)^2 \times (0.86)^2 \times (0.5361)^2 + 2 \times 0.1886 \times 0.14 \times 0.86}$$

$$=51.96\%$$

Where,

σ_P = The standard deviation of portfolio return of stock BOK and SCBNL.

From the above calculation the portfolio return and risk for BOK and SCBNL are 57.09% and 51.96% respectively.

4.5.1.3 Portfolio of stocks HBL (A) and SCBNL (C)

The optimal portfolio weight of stock A and B, which minimizes the risks, is given below;

$$W_A = \frac{\sigma_C{}^2 - \text{COV}(R_{A,}, R_C)}{\sigma_A{}^2 + \sigma_C{}^2 - \text{COV}(R_{A,}, R_C)}$$

$$W_C = 1 - W_B$$

Where,

W_A = optimal weight to invest in stock of HBL

W_C = optimal weight to invest in stock of SCBNL

$\sigma_B{}^2$ = Variance of HBL

$\sigma_C{}^2$ = variance of SCBNL

Now,

$$W_A = \frac{0.5361^2 - 0.1906}{0.378^2 + 0.5361^2 - 0.1906} = 0.40$$

$$W_C = 1 - (0.103) = 0.60$$

As we know that the proportion of stock in the portfolio is constructed with 40% of HBL and 60% of SCBNL common stock that will minimize risk and ideal proportion. In above proportion, equity shareholder can minimize risk to get maximum return.

Portfolio Return

It is combination of two or more securities or assets and portfolio return is simply a weighted average of the expected return on individual stock return.

Expected Return on portfolio $E(R_p) = W_A \times E(R_A) + W_C \times E(R_C)$

$$= 0.40 \times 0.378 + 0.60 \times 0.5361$$
$$= 47.29\%$$

$E(R_p)$ = Expected Return on portfolio of stock HBL and SCBNL

$E(R_A)$ = Expected Return of HBL

$E(R_C)$ = Expected Return of SCBNL

Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\sigma_P = \sqrt{W_A{}^2 \times \sigma_B{}^2 + W_C{}^2 \times \sigma_C{}^2 + 2COV_{AC} \times W_A \times W_C}$$
$$= \sqrt{(0.4)^2 \times (0.378)^2 + (0.6)^2 \times (0.5361)^2 + 2 \times 0.1906 \times 0.4 \times 0.6}$$
$$= 30.59\%$$

Where,

σ_P = The standard deviation of portfolio return of stock HBL and SCBNL.

From the above calculation the portfolio return and risk for HBL and SCBNL are 47.29% and 30.59% respectively.

Table 4.15

Portfolio Risk and Return

Bank	$E(R_p)$	σ_P	Remarks	
			Return	Risk
HBL and BOK	58.03%	62.41%	Highest	Highest
BOK and SCBNL	57.09%	51.96%		
HBL and SCBNL	47.29%	30.59%	Lower	lower

4.6 Systematic and Unsystematic Risk

4.6.1 Systematic Risk

This is a part of total risks and cannot be diversified through creation of portfolio. This risk creates from systematic factor or market factor or macroeconomic factor like inflation, GDP, Interest etc. Systematic risk can be expressed in formula as:

$$SR = \frac{COV(R_j, R_m)}{\sigma_m}$$

Where,

SR = Systematic Risk

$COV(R_j, R_m)$ = Covariance Return of stock with market

σ_m = S.D. of market

4.6.2 Unsystematic Risks

This is diversifiable risk and can be diversified through creation of portfolio. This is creates from micro economic factor or unique factor or a firm like management efficient, strikes and production.

URS = Total Risk- SR

$\quad = \sigma_j$-SR

Where,

USR = Unsystematic Risk

SR = Systematic Risk

σ_j = S.D. of stock of sample bank.

4.6.3 Systematic and Unsystematic Risk of HBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m}$$

$$= \frac{0.1232}{0.3552}$$

$$= 0.3468$$

$$USR = \sigma_j - SR$$

$$= 0.378 - 0.3468$$

$$= 0.0312$$

Note: $COV(R_j, R_m)$, σ_m, σ_j are taken from table 14.5

Where,

$COV(R_j, R_m)$ = Covariance returns of HBL with market

σ_j = S.D. of HBL

Proportion of systematic and Unsystematic Risk

Proportion of SR $= \frac{SR}{TR} = \frac{0.3468}{0.378} = 0.7955 = 91.75\%$

Proportion of USR $= \frac{USR}{TR} = \frac{0.0312}{0.378} = 0.2045 = 8.25\%$

Out of total risk in stock of HBL 91.75% is un diversifiable risk and created from systematic factor or market factor and the remaining 8.25% is diversifiable risk and created from company related factor.

4.6.4 Systematic and Unsystematic Risk of BOK with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.1274}{0.3552}$$

$$= 0.3588$$

USR $= \sigma_j$-SR $= 0.7849$- $0.3588 = 0.4261$

Note: $COV(R_j, R_m)$, σ_m, σ_j are taken from table 14.5

Where,

$COV(R_j, R_m)$ = Covariance returns of BOK with market

σ_j = S.D. of BOK

Proportion of systematic and Unsystematic Risk

Proportion of SR $= \frac{SR}{TR} = \frac{0.3588}{0.7849} = 0.4571 = 45.71\%$

Proportion of USR $= \frac{USR}{TR} = \frac{0.4261}{0.7849} = 0.5429 = 54.29\%$

Out of total risk in stock of BOK 45.71% is un diversifiable risk and created from systematic factor or market factor and the remaining 54.29% is diversifiable risk and created from company related factor.

4.6.5 Systematic and Unsystematic Risk of SCBNL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.182}{0.3552}$$

$$= 0.5124$$

USR $= \sigma_j$-SR $= 0.5361$- $0.5124 = 0.0237$

Note: $COV(R_j, R_m)$, σ_m, σ_j are taken from table 14.5

Where,

$COV(R_j, R_m)$ = Covariance returns of SCBNL with market

σ_j = S.D. of SCBNL

Proportion of systematic and Unsystematic Risk

Proportion of SR $= \dfrac{SR}{TR} = \dfrac{0.5124}{0.5361} = 0.8817 = 95.58\%$

Proportion of USR $= \dfrac{USR}{TR} = \dfrac{0.0237}{0.5361} = 0.0442 = 4.42\%$

Out of total risk in stock of SCBNL 95.58% is un diversifiable risk and created from systematic factor or market factor and the remaining 4.42% is diversifiable risk and created from company related factor.

Table 4.16

Proportion of SR and USR

Bank	SR	USR
HBL	91.75%	8.25%
BOK	45.71%	54.29%
SCBNL	95.58%	4.42%

4. 7 Testing of Hypothesis

The hypothesis is based on the text of significance difference of mean (t-test). For this expected return of selected banks are calculated in following table.

4.7.1 Testing of hypothesis Expected return of HBL with overall Market Return

For HBL Banks   **For Market**

Sample size (n_1) = 5 year $n_2 = 5$ year

Expected Return ($\bar{R}_j$) = 0.4217 $\bar{R}_m = 0.319$

Standard derivation (S_1) = 0.378 $S_2 = 0.3552$

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Null Hypothesis (H_o)

$\bar{R}_j = \bar{R}_m$ i.e. there is no significance difference between the expected return of HBL and overall market return.

Alternative Hypothesis(H_1)

$\bar{R}_j =/ \bar{R}_m$ i.e. there is significance difference between the Expected return of BOK and overall market return

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S_2(^1/_{n_1} + ^1/_{n_2})}}$$

Where,

$\bar{R}_j$ = Expected return of C.S. of HBL bank = 0.4217

$\bar{R}_m$ = Expected return of market = 0.319

$n_1 = n_2$ = Numbers of Years in Sample = 5

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1-1)S_1{}^2 + ((n_2-1)S_2{}^2}{n_1+n_2-1} = \frac{(5-1)(0.378)^2 + (5-1)(0.3552)^2}{5+5-2} = 0.1345$$

$S_1{}^2$ = Variance of C.S. of HBL banks

$S_2{}^2$ = Variance of Market return

Hence,

$$t = \frac{0.4217 - 0.319}{\sqrt{0.1345(^1/_5 + ^1/_5)}} = 0.4428$$

Degree of freedom = $n_1 + n_2$-2 =5+5-2 = 10

Level of significance = 5%

The tabulated value of t at 5% level of significance and 10 degree of freedom is 2.228.

Decision

Since the calculated value "t" is less than tabulated value. The null hypothesis (H_o) is accepted at 5 % level of significance i.e. there is no significance difference between the expected return of HBL and overall market return.

4.7.2 Testing of Hypothesis Expected Return of BOK with overall Market Return

For BOK Banks	For Market
Sample size (n_1) = 5 year	$n_2 = 5$ year
Expected Return ($\bar{R}_j$) = 0.8749	$\bar{R}_m = 0.319$
Standard derivation (S_1) = 0.7849	$S_2 = 0.3552$

Null Hypothesis (H_o)

$\bar{R}_j = \bar{R}_m$ i.e. there is no significance difference between the expected return of BOK and overall market return.

Alternative Hypothesis(H_1)

$\bar{R}_j =/ \bar{R}_m$ i.e. there is significance difference between the Expected return of BOK and overall market return

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S_2(^1/_{n_1} + ^1/_{n_2})}}$$

Where,

$\bar{R}_j$ = Expected return of C.S. of BOK bank = 0.8749

$\bar{R}_m$ = Expected return of market = 0.319

$n_1 = n_2$ = Numbers of Years in Sample = 5

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1-1)S_1{}^2 + ((n_2-1)S_2{}^2}{n_1+n_2-1}$$

$$= \frac{(5-1)(0.7849)^2 + (5-1)(0.3552)^2}{5+5-2}$$

$$= 0.3711$$

$S_1{}^2$ = Variance of C.S. of BOK banks

$S_2{}^2$ = Variance of Market return

Hence,

$$t = \frac{0.8749 - 0.319}{\sqrt{0.3711(^1/_5 + ^1/_5)}} = 1.443$$

Degree of freedom = $n_1 + n_2$-2 = 5+5-2 = 10

Level of significance = 5%

The tabulated value of t at 5% level of significance and 10 degree of freedom is 2.228

Decision

Since the calculated value "t" is more than tabulated value. The null hypothesis (H_0) is accepted at 5 % level of significance i.e. there is no significance difference between the expected return of BOK and overall market return.

4.7.3 Testing of Hypothesis Expected Return of SCBNL with overall Market Return

For SCBNL Banks | **For Market**

Sample size (n_1) = 5 year n_2 = 5 year

Expected Return ($\bar{R}_j$) = 0.737 $\bar{R}_m$ = 0.319

Standard derivation (S_1) = 0.5361 S_2 = 0.3552

Null Hypothesis (H_o)

$\bar{R}_j = \bar{R}_m$ i.e. there is no significance difference between the expected return of SCBNL and overall market return.

Alternative Hypothesis(H_1)

$\bar{R}_j = \bar{R}_m$ i.e. there is significance difference between the Expected return of SCBNL and overall market return

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S_2(^1/_{n_1} + ^1/_{n_2})}}$$

Where,

$\bar{R}_j$ = Expected return of C.S. of SCBNL = 0.737

$\bar{R}_m$ = Expected return of market = 0.319

$n_1 = n_2$ = Numbers of Years in Sample = 5

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1-1)S_1{}^2 + ((n_2-1)S_2{}^2}{n_1 + n_2 - 1} = \frac{(5-1)(0.5361)^2 + (5-1)(0.3552)^2}{5+5-2} = 0.2068$$

$S_1{}^2$ = Variance of C.S. of SCBNL banks

$S_2{}^2$ = Variance of Market return

Hence,

$$t = \frac{0.737 - 0.319}{\sqrt{0.2068(^1/_5 + ^1/_5)}} = 1.4534$$

Degree of freedom = $n_1 + n_2$-2 =5+5-2 = 10

Level of significance = 5%

The tabulated value of t at 5% level of significance and 10 degree of freedom is 2.228.

Decision

Since the calculated value "t" is more than tabulated value. The alternative hypothesis (H_1) is accepted at 5 % level of significance i.e. there is significance difference between the expected return of SCBNL and overall market return.

4.8 Major Findings of the Study

This study enables investors to keep the return can expect and the risk they may take into better perspective. We know that Nepalese stock market is in effect 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 poor knowledge about the analysis of securities for investment.

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on common stock of BOK (0.8749) is maximum similarly expected return of C.V. of HBL is (0.4217) and SCBNL is 0.727.

- Risk is the variability of returns which is measured in terms of standard deviation. On the basis of S.D., common stock of BOK is most risky since it has high S.D. i.e. 0.7849 C.S of HBL is least because of its lowest S.D. of 0.378, on the other hand we know that C.V. is more rational basis of investment decision, which measures the risk per unit of return. On the basis of C.V., C.S. of SCBNL is best among all other banks. SCBNL has 0.7274 unit of risk per 1 unit of return. But C.S. of BOK has the highest risk per unit of return.

- Beta coefficient explains the sensitivity or volatility of the stock with market. Higher the beta higher the volatility in the contest, common stock of SCBNL is most volatile I.e. $\beta = 1.4425$ and common stock of HBL is least volatile i.e. $\beta = 0.9765$.The banks stock, having the beta less than beta coefficient of market i.e. defensive stock. We find SCBNL and BOK have aggressive type

of common stock. Among the most aggressive seems to be SCBNL with highest beta and least aggressive is HBL with lowest beta among three bank's common stock.

- SCBNL is in the highest position (Rs. 42338 in million) and BOK is in lowest position (Rs. 14173.8 in million) according to their interbank market capitalization comparison.

- One of the main significance of beta is in Capital Asset Pricing Model (CAPM). Comparison between expected rate of return and required rate of return identity whether the stock is overpriced or under price. If the required rate of return is greater than the expected rate of return the stock is overpriced and vice versa. This study shows that all the stocks of commercial banks, which are analyzed, are under priced. That means their stock value will increase in a near future. All the stocks are in demand. So, investor can buy the common stock of any bank.

- The portfolio return between HBL and BOK is high i.e. 58.03% and HBL & SCBNL is lower i.e. 47.29%.

- The portfolio risk between HBL and BOK is high i.e. 62.41% and HBL and SCBNL is lower i.e. 30.59%.

- Systematic risk cannot be diversified through creation of portfolio. It is occurred due to market factor. Unsystematic risk can be diversified through creation of portfolio. It is occurred due to internal management factor. This study shows that BOK has high proportion of unsystematic risk i.e. 54.29% which can be minimized from internal management. Whereas SCBNL has high proportion of systematic risk i.e. 95.58%. This cannot be minimized from internal management. C.S. of BOK is best among these banks due to its highest proportion of unsystematic risk.

- Testing of hypothesis expected return of selected banks with overall market return. There are no significance difference between expected return of

selected banks and overall market return.

- Most of the investors invest only keeping the return in the mind but they are found unable to calculate the risk factors of the security. Most of the Nepalese private investors invest in single security. Some of the investors use their fund in two or more securities. But it is found that they don't make any analysis of portfolio before selecting security. They invest their fund in different securities on the basis of expectation and assumption of individual securities rather than analysis of the effect of portfolio. It seems that they don't have knowledge of the risk diversification by using portfolio of their investment.

CHAPTER - V
SUMMARY, CONCLUSION AND RECOMMENDATIONS

In this chapter, the effort has been made first to present summary of major findings and conclusion drawn from the analysis. Last step proceeds with the recommendation.

5.1 Summary

Central focus of finance is tradeoff between risk and return. Risk and return is getting, considerable attention in final management. And its major part stock market had greatest glamour, not only for the proportional or institutional investors but also for the individual or private investors. Development in the field of finance has led to the application of many new concepts and models to deal with various issues reported to financial management.

The relationship between risk and return is described by investor's perceptions about risk and their demand for compensation. No investors will like to invest in risky assets unless s/he is assured of adequate compensation for the acceptance of risk. Hence, risk plays a central role in the analysis of investment taking decision about proper investment decision process, analysis of securities, identification of overpriced, under priced securities making appropriate investment strategies as well as construction of efficient portfolio. Return, Risk and time are the elements of investment. It is the investor required risk premium that established a link between risk and return, in a market dominated by rational investors, higher risk will command by rational premium and the tradeoff between the two assumes a liner relationship between risk and risk premium.

Common stock is the most risky security and life blood of stock market. Because of higher expected return on investment in common stock of a corporate from neither ensures on annual return nor ensures the return of principal. Therefore investment in the common stock is very sensitive on the ground of risk. Dividend to common stockholder is paid only if the firm makes on operative profit after tax preference dividend. Common stock has attracted more investors in Nepal. Rush in the primary market during the primary issue is one of the examples. But private investor plays a vital role in economic development of the nation by mobilizing the disposed capital in different from the society.

The main objective of the study is to analyze the risk and return in common stock investment of Nepalese stock market. The study is focused on reference to analyze the risk and return in common stock investment. While analyzing the risk and return, brief review of related studies has been performed. Scientific methods are used in data analysis. Tables, graphs and diagrams are used to present the data and results more clearly. Both quantitative and qualitative analysis have performed by using statistical tools as well as performed by using statistical tools as well as personal judgment. Secondary data are collected from the NEPSE, NRB, SEBON and other related banks and their websites. Other subjective types of information are collected through the officials of NRB, SEBON and NEPSE. Findings of analysis are summarized and conclusion is drawn as follows.

5.2 Conclusion

From the study it is concluded that all the commercial banks, which are under study, are very much risky with fluctuated rate of return. From the findings of the different banks beta coefficient of all the banks are very much volatile except HBL stock. The study shows that all commercial banks under study required rate of return is less than expected rate of return, so all stocks are underpriced. It shows that all the banks have stock with good investment opportunity. It is also

concluded that HBL and BOK is higher portfolio return and HBL and SCBNL is lower portfolio risk.

This study shows that BOK has high proportion of unsystematic risk i.e. 54.29% and SCBNL has high proportion of systematic risk i.e. 95.58% which cannot be minimized from internal factor. Common stock of BOK is best among these banks.

5.3 Recommendations

Mainly this study is focused on individual investors. Other related components of stock are also taken into account to some extent. The following recommendation and suggestion are prescribed on the basis of data analysis and major findings of this research.

- Proper analysis of individual security is always essential to make possible to conquer the stock market. General knowledge about economic, political as well as technological trend will be advantageous. Which is performing better than before, sell share when the market is rising and buy share when market is falling and hold the share which will perform better than market.

- Different financial and statistical tools are to analyze the data in this study. C.V. suggests that while analyzing individual security HBL seems undoubtedly the best for investment with considering the full time horizon of the study. C.S. of HBL may be best investment opportunity for the investors whose beta is lower than the beta coefficient of market (i.e. 1). So it is less risky or defensive type of stock. Hence it is prescribed to select the C.S. of HBL for individual stock investment due to its lowest C.V. and beta coefficient.

- Investors need to diversify their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss which can be defined in terms of risk. But portfolio construction is dynamic job. For the portfolio

construction select the stock that has higher return will not correlated or negatively correlated stock. So the construction of portfolio between the C.S. of HBL and SCBNL is recommended to invest due to their higher portfolio return.

- Analysis of personal risk, attitude, needs and requirements will be helpful before making an investment in stock market. Investors should make several discussions with stock holder before reaching at the decision. Investors should make their decision on the basis of reliable information rather than the imagination and amours.

- Investment club or broker firms are good way to exchange and share investment ideas. Mutual fund is worthwhile for people with little interest in investment. Investors are recommended to share experience, ideas and taking view of expert before investing in stocks of individual banks.

- NEPSE needs to initiate and to develop different programs for private investors such as investors meeting and seminars indifferent subjective matters like "Trading Rules and Regulation" etc. Though these days NEPSE have opened its branches outside valley, they don't have full authority to do all NEPSE's related work. They need to take decision according to their head office. So, every branch should be authorized for the every decision related to investors so that all the investors will be benefited outside the valley.

- Government needs to amend the rules and regulation regarding stock market in time to time and to make the policy that protects the individual investor's right. And also need to follow up the implementation of rules and regulation and to make sure the objectives are achieved. On the regard, Nepal Government needs to monitor and to make active all the components of stock market properly. The government has to implement the rules and regulation strictly otherwise it will be meaningless. The political problem of the country is another burning issue, which affects the economy of the nation adversely.

So political leaders should think seriously on economic motive of country rather than their self motive.

- The corporate firm should disclose their actual financial condition so that insisted investors may analysis their performance and they only make a decision whether to invest on their stock or not. Value of assets and liabilities should not be manipulated to report the under or over profitability. Every decision of the corporation should be made to maximize the value of the firm and value per share.

APPENDICES

Appendix -I

Calculation of total dividend

Total Dividend in (Rs)	= Cash Dividend +% of Stock Dividend * Next Year MPS	Total Dividend
2004-05	11.58+20*1100	231.58
2005-06	30+5*1740	117
2006-07	15+25*1980	510
2007-08	25+20*1760	377
2008-09	12+31.56*752	249.33

Appendix - II

Calculation of total dividend

Total Dividend in (Rs)	= Cash Dividend +% of Stock Dividend * Next Year MPS	Total Dividend
2003-04	10+0*430	10
2004-05	10+5*850	52.5
2005-06	18+30*1375	430.5
2006-07	20+0*2350	20
2007-08	2.11+40*1835	736.11
2008-09	7.37+40*562	232.17

Appendix- III

Calculation of total dividend

Total Dividend in (Rs)	= Cash Dividend +% of Stock Dividend * Next Year MPS	Total Dividend
2003-04	110+0*2345	110
2004-05	120+5*3775	308.75
2005-06	130+10*5900	720
2006-07	80+50*6830	3495
2007-08	80+50*6010	3085
2008-09	50+50*1923	1011.5

Calculation of covariance between HBL(A) and BOK(B)

Calculation of covariance of return of given two stocks

F/Y	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2004/2005	-0.0508	-0.2393	0.0122
2005/2006	-0.0989	1.103	-0.1091
2006/2007	0.6238	-0.2337	-0.1458
2007/2008	-0.0671	0.3695	-0.0248
2008/2009	-0.4069	-0.9995	0.4067
			0.1392

Note $(R_A - \bar{R}_A)$ from Table 4.2 and $(R_B - \bar{R}_B)$ from table 4.4

We have,

$$COV (R_A, R_B) = \frac{\sum[(R_A - \bar{R}_A)(R_B - \bar{R}_B)]}{n-1} = \frac{0.1392}{5-1} = 0.0348$$

Now,

Correlation between HBL and BOK

$$\rho_{AB} = \frac{Cov(R_A, R_B)}{\sigma_A \times \sigma_B} = \frac{0.0348}{0.378 \times 0.7849} = 0.1173$$

Note: σ_A from the table 4.2 and σ_B from table 4.4

Where,

COV (R_A, R_B) = Covariance of return between HBL and BOK

ρ_{AB} = Correlation between HBL and BOK

σ_A = S.D of HBL

σ_B = S.D of BOK

Appendix-V

Calculation of covariance between HBL(A) and SCBNL(C)

Calculation of covariance of return of given two stocks

F/Y	$(R_A - \bar{R}_A)$	$(R_C - \bar{R}_C)$	$(R_A - \bar{R}_A)(R_C - \bar{R}_C)$
2004/2005	-0.0505	-0.2062	0.0105
2005/2006	-0.0989	0.1898	-0.0188
2006/2007	0.6238	0.7617	0.4751
2007/2008	-0.0671	-0.0465	0.0031
2008/2009	-0.4069	-0.699	0.2844
		Total	0.7544

Note $(R_A - \bar{R}_A)$ from table 4.4 and $(R_C - \bar{R}_C)$ from table 4.6

We have,

$$\text{COV } (R_A, R_C) = \frac{\sum[(R_A - \bar{R_A})(R_C - \bar{R}_C)]}{n-1} = \frac{0.7544}{5-1} = 0.1886$$

Now,

Correlation between HBL and SCBNL

$$\rho_{AB} = \frac{Cov(R_A, R_C)}{\sigma_A \times \sigma_C} = \frac{0.1886}{0.378 \times 0.5361} = 0.9307$$

Note: σ_A from the table 4.4 and σ_C from table 4.6

Where,

COV (R_A, R_C) = Covariance of return between HBL and SCBNL

ρ_{AB} = Correlation between HBL and SCBNL

σ_A = S.D of HBL

σ_C = S.D of SCBNL

Appendix - VI

Calculation of covariance between BOK (B) and SCBNL(C)

Calculation of covariance of return of given two stocks

F/Y	$(R_B - \bar{R}_B)$	$(R_C - \bar{R}_C)$	$(R_B - \bar{R}_B)(R_C - \bar{R}_C)$
2004/2005	-0.2393	-0.2062	0.0493
2005/2006	1.103	0.1898	0.2093
2006/2007	-0.2337	0.7617	-0.1780
2007/2008	0.3695	-0.0465	-0.0172
2008/2009	-0.9995	-0.699	0.6987
		Total	0.7622

Note $(R_B - \bar{R}_A)$ from 4.2 and $(R_C - \bar{R}_C)$ from table 4.6

We have,

$$COV(R_B, R_C) = \frac{\sum[(R_B - \bar{R_B})(R_C - \bar{R}_C)]}{n-1} = \frac{0.7622}{5-1} = 0.1906$$

Now,

Correlation between BOK and SBCNL

$$\rho_{BC} = \frac{Cov(R_B, R_C)}{\sigma_{B\times}, \sigma_C} = \frac{0.1906}{0.7849 \times 0.5361} = 0.453$$

Note: σ_B from the table 4.2 and σ_C from table 4.6

Where,

COV (R_B, R_C) = Covariance of return between BOK and SCBNL

ρ_{BC} = Correlation between BOK and SCBNL

σ_B = S.D of BOK

σ_C = S.D of SCBNL

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