

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The principal business of bank is to receive money from its customers and to collect instruments representing money on behalf of them. Bank is also a lender of money either as loan or overdraft. Bank is intermediary among different individuals who need money and have saving for investment. Banks also perform other different functions for their customers.

The banking in the past was associated with the business of money changing interest and lending. Functions like deposit collection, documentary credit viz. guarantee, letter of credit and other services which banking companies are presently involved were not there.

Presently, banking institutions and business is not only the matter of national concerned, international society is also equally concerned about the development of sound banking system in both national and international level. Concept of multinational banks and international banking is also equally growing in present globalize society. There are some banks and financial institutions which are working in international or regional level i.e. Bank of International Settlement (BIS), World Bank (WB), International Monetary Fund (IMF), Asian Development Bank (ADB) etc. By nature these international institutions are not doing the business as commercial banks and other financial institutions do. But we fixed some aspects of banking business in their activities. Basically, the nature of activities of these institutions is similar to the function of development banks.

If we see the Nepalese banking history, banking activities in modern sense were not so developed in the past but use of coins and its production was highly developed. 'Mannak' the coin issued by first historical king of Nepal Manadev around sixth century is the example of this fact. In addition to this, we find other

so many types (golden, silver, copper, leather) of coins issued by different kings in different time. History also indicates that Nepalese coins were not only famous in the country but also exported in Tibet. The mint industry was highly developed during the Malla period. Different mint used to produce coins for both domestic use and export. As we know that there were different small states used to produce different types of coins for their purpose. (Regmi, 2064)

Establishment of NBL in 1994 BS under the provision of Nepal Bank Act, 1994 marks the introduction of modern banking system in the country. This Bank not only introduced the modern banking system in Nepal but also started the public private joint venture in banking industry. Establishment of Nepal Rastra Bank (NRB) in 14th Baishakh, 2013 as the central bank of the country under the provision of NRB Act 2012 is another milestone for the development of banking system in Nepal. Likewise, establishment of RBB, ADB, and NIDC from public sector and other different commercial banks, development banks, finance, companies and micro credit organizations from private sector also contributed for the development of Nepalese banking sector.

An investment is a commitment of money that is expected to generate additional money. Regarding investment two terms are mostly used to interpret, they are risk and return, generally risk refers to the chance that an unfavorable event will occur if investment risk is considered, risk can be defined as the chance that an outcome other than expected will occur where as return is a reward of present sacrifice or uncertain benefit of present sacrifice.

1.2 Focus of the Study

A stock reflects the uncertainty about future return such that the actual return may be less than expected return. The main source of uncertainty is the price at which the stock will be sold. The stock price can be affected by economic factors such as interest rates economic growth, inflation. One of the main sectors of financial market is capital market where stocks and bonds are

traded. Among all, the stock market is most active and is of great concern to the business firms, since the ultimate objective of the firm is to maximize the stockholder's wealth. It plays a vital role in the economy. For mobilization of invisible resources, capital market is an important intermediary through the network of funds within the economy. So primary function of the capital market is to allocate resource optimally where various securities are issued and traded for allows altering liquidity position risk of their prospective portfolios in response to availability of information and marketability of securities. Efficient capital market implied that the ability of securities is to reflect incorporating all relevant information in its prices. If the capital market is efficient, the current shares price fully reflects available information.

Commercial bank is a profit seeking business from dealing in money or rather dealing in claims to money. The main aim of a commercial bank is to earn profit like any other business firm. Its capacity to earn profit depends upon its investment policy. In turn, depends on the manner in which it manages its investment portfolio. Thus commercial bank investment policy emerged from a straight forward application of the theory of profited management to the particular circumstances of commercial banks (Thingon, 1984)

Risk is defined as the chance that actual outcome from an investment will differ from the expected outcome. Return is the motivating force in the investment process. That is, it is the reward for undertaking the investment. Therefore it has crucial importance to investors. Investment decision is very difficult for general people. Where there is investment there exist risks, therefore doing any investment decision investor should calculate return and risk. Investing in share is more risky and return would be comparatively high.

The risk and return depends fully on portfolio analysis. The portfolio analysis begins where the security analysis ends and this fact has important

consequences for investors. Therefore this study is focused on the analysis of risk and return.

1.3 Statement of the Problem

An investment is made with a hope that it will generate some benefits in future. Many investors in Nepal do not measure return and various risks involved in their investments. If investors are able to know the intrinsic price situation of listed companies, they can make good returns by making sale or buy decision of the common stocks. It is also necessary to know that relationship between types of risk and return. So the investors pay greater attention to the risk in their investment decision.

- a. What is the return of domestic private commercial bank in Nepal?
- b. What the position of domestic private commercial bank's return is with compared to the market rate of return?
- c. What is the risk premium of individual banks, private bank sectors index and capital market as a whole?
- d. How much is the average rate of return and required rate of return of domestic private commercial bank in Nepal?

1.4 Objective of the Study

The general objective of that study is to assess the risk and return relationship of domestic bank in Nepal. Following are the specific objectives of the study.

- a To compare and analyze of the historical returns of sample banks.
- b To compare and analyze of the rate of return of the domestic private commercial bank with market rate of return.
- c To find out the risk premium of individual bank sectors index and NEPSE index

- d. To compare between average rate of return and required rate of return of domestic private commercial bank in Nepal.

1.5 Significance of the Study

The study has following significance.

- a. The analysis of risk and return is helpful to develop on efficient portfolio.
- b. The study suggests for a careful judgment of risk and return relationships.
- c. An individual firm is made known of its value position so that it can search for its strength and weakness.
- d. This study is helpful for the students and researchers to new research in relevant area.

1.6 Delimitation of the study.

Every research has its own delimitation. The present study has following delimitations.

- a. The study based upon the secondary data and information.
- b. The study is concerned only with the risk and return of private domestic banks; other aspects of the companies have not studies.
- c. Time and financial constraints are also the major limitation of the study.
- d. The study is for the partial fulfillment of the requirements of MBS degree, so the study cannot cover all the dimensions of subject matter

CHAPTER II

Review of Literature

This chapter presents the review of relevant theoretical literatures and previous related studies. It is divided into two sectors; theoretical review and research review. Theoretical review includes the review of the article published in different journals and past studies.

2.1. Theoretical Review

In this, concept of capital market, risk and return and types of risk are discussed.

Concept of Capital Market

Capital market is the place, which brings the financial demanders and suppliers directly or indirectly in touch. In any market, there are both the demanders and the suppliers. Commercial banks, financial institutions, investment companies and individual investors are the suppliers and business houses, agriculture sectors and industries sectors are the demanders. This demand and supply is carried out in capital markets. Capital markets are one of the organs of the security markets, security markets are the mechanism that allows supplier and demanders of fund to make transactions. This market plays a key role in purchase and sales activities of investors, According to the nature of capital market it can be classified into primary and secondary market.

a) Primary Capital Market

This primary market for securities is the new issues market, which brings together the 'supply and demand ' or sources and uses for new capital funds. A market where raw new securities are bought and sold for the first time. In other words primary market is a "new issue" market, where fund is raised

through the sale of new securities to the investors. We can classify primary market transactions into two types.

1. New public offering by closely held firms;

A closely held firm can raise fund through initial public offering (IPO) which is also a major part of primary market. If a new firm growing, usually the owners will want to take the company public with a sale of common stock to outsiders. The market for the stock that is just being offered to the public is called the initial public offering (IPO) market.

2. Additional shares sold by established, publicly owned companies;-

An established, publicly owned company can sell additional shares in the primary market. It is possible if the numbers of issued shares are less than number of authorized shares.

A company can sell common stocks in the primary market in three ways;-

- a) Public offering;- Sale of securities to general public.
- b) Direct Placement;- The sale of an entire issue of on registered securities directly to one purchaser or a group of purchase.
- c) Right offering;- Method of selling new common stocks to existing shareholders at subscribed price.

b) **Secondary Market**

Well established and publicly companies outstanding shares are actively traded in secondary market. It deals in existing securities any money when stocks are traded in this market. The purpose of this market is to maintain liquidity in the stocks. Common stocks of small companies are not actively traded. They are owned by only a few people. Such companies are called closely held companies and their stocks are called closely held stocks. In contrast, the stocks of larger companies one owned by a large number of investors and are called publicly held stocks. Such companies are said to be publicly owned companies. Stocks of smaller publicly owned company and

closely held company are generally traded in the over the counter (OTC) market. But the stock of larger publicly owned companies are generally traded on a organized stock exchange. Nepal stock exchange (NEPSE) is an organized stock exchange.

2.1.2 Concept of Risk and Return

In order to achieve the goal of share price maximization, the financial manager must learn to assess the two key determinants of share price, risk and return. Each financial decision represents certain risk and return characteristics and all major financial decisions must be viewed in terms of expected risk, expected return and their combined impact on share price. Risk can be viewed as it relates either to a single asset held in isolation or to a portfolio or collection of assets. Although portfolio risk is probably more important to the financial manager, the general concept of risk is more readily developed in terms of single asset. Before considering risk in each of these terms, it is important to understand the fundamentals of risk, return and risk preferences.

2.1.2.1 Meaning of Risk

There is no single definition of risk. Economists, behavioral scientists, risk theorists, statisticians and actuaries each have their own concept of risk. However risk traditionally has been defined in terms of uncertainty. Based on this concept risk is defined here as uncertainty concerning the occurrence of a loss. For example, the risk of being killed in an auto accident is present because uncertainty is present. The risk of lung cancer for smokers is present because uncertainty is present. And the risk of flunking a college course is present. Although risk is defined as uncertainty in this text, employees in the insurance industry often use the term risk to identify the property or life being insured. Thus, in the insurance industry, it is common to hear statements such as "that driver is a poor risk" or "that building is an unacceptable risk." Finally, when

risk is defined as uncertainty, some authors make a careful distinction between objective risk and subjective risk.

Objective Risk

Objective risk is defined as the relative variation of actual loss from expected loss. It declines as the number of exposures increase. More specifically, objective risk varies inversely with the square root of the number of cases under observation. It can be statistically calculated by some measure of dispersion. Such as the standard deviation or the coefficient of variation. Because objective risk can be measured, it is an extremely useful concept for an insurer or on corporate risk manager. As the number of exposures increases, an insurer can predict its future loss experience more accurately because it can rely on the law of large numbers states that as the number of exposure units increases, the more closely the actual loss experience will approach the expected loss experience.

Subjective Risk

Subjective risk is defined as uncertainty based on a person's mental condition or state of mind. The impact of subjective risk varies depending on the individual. Two persons in the same situation can have a different perception of risk, and their behavior may be altered accordingly. If an individual experiences great mental uncertainty concerning the occurrence of a loss that person's behavior may be affected. High subjective risk often results in conservative and prudent behavior, while low subjective risk may result in less conservative behavior.

In the basis sense, risk is the chance of financial loss. Assets having greater chances of loss are views as more risky than those with lesser chance of loss. More formally the term risk is used interchangeably with uncertainty of returns associate with a give asset.

Risk is measured in many ways but commonly following methods are used (Gitman, 1998)

Beta of coefficient

This is a mathematical value that measures the risk of one asset in term of its effects on the risk of a group of assets, called a portfolio. It is concerned solely with market related risk, as would be the concern for an investor holding stocks and bonds. It is derived mathematically. So that a high beta indicates a high level of risk, a low beta represents a low of risk.

Standard deviation

In statistical terms, standard deviation is defined as the square root of the mean of the squared deviation, where deviation is the difference between an outcome and the expected mean value of all outcomes. Further, to calculate the value of standard deviation. We provide weights to the square of each deviation by its probability of occurrence.

The greater the standard deviation of a probability distribution the greater is the dispersion of outcomes around the expected value. Standard deviation is a measure that indicates the degree of uncertainty (or dispersion) of cash flow and is one precise measure of risk. If two projects have the same expected value (mean), then one which has a greater s.d. will be said to have higher degree of uncertainty of risk.

Subjective Estimates

A subjective risk measure occurs when qualitative rather than quantitative estimates are used to measure dispersion. We will use the definition of risk that deals with dispersion of return. We will also note that fact that mathematical approaches can be used to estimate such dispersion.

2.1.3 Sources of Risk

An investment is commitment of money that is expected to generate additional money. Every investment entails some degree of risk, it requires a person certain benefit.

The primary risk factors that create investment uncertainty are as follows;

On the basis of share holder specific risk

- 1) Interest rate risk;- The chance that changes in interest rates will adversely affect the value of an investment. Most investments lose value when the interest rate rises and increase in value when it falls.
- 2) Liquidity risk;- The chance that an investment cannot be easily liquidated at a reasonable price. Liquidity is significantly affected by the size and depth of the market in which an investment is customarily traded.
- 3) Market risk;- The chance that the value of an investment will decline because of market factors that are independent of the investment (such as economic, political and social events) . In general, the more a given investment's value responds to the market, the greater its risk, and the less it responds, the smaller its risk.

On the basis of firm specific risks

- 1) Business risk;- The chance that the firm will be unable to cover its operating costs. Level is driven by the firm's revenue stability and the structure of its operating costs (fixed vs variable).
- 2) Financial risk;- The chance that the firm will be unable to cover its financial obligations. Level is driven by the predictability of

the firm's operating cash flows and its fixed-cost financial obligations.

On the basis of firm and shareholder risks

- 1) Event risk;- The chance that a totally unexpected events will have a significant effect on the value of the firm or a specific investment. These infrequent events, such as government mandated withdrawal of a popular prescription drug, typically affect only a small group of firms or investments.
- 2) Exchange rate risk;- The exposure of future expected cash flows to fluctuations in the currency exchange rate. The greater the chance of undesirable exchange rate fluctuations the greater the risk of the cash follows and therefore the lower the value of the firm or investment.
- 3) Purchasing-power risk;- The chance that changing price levels caused by inflation or deflation in the economy will adversely affect the firm's or investment's cash flows and value. Typically, firms or investments with cash flows that move with general price levels have a low purchasing - power risk and those with cash flows that do not move with general price levels have high purchasing-power risk.
- 4) Tax risk;- The chance that unfavorable occur. Firms and investments with values that are sensitive to tax law changes are more risky.

2.1.4 Types of Risk

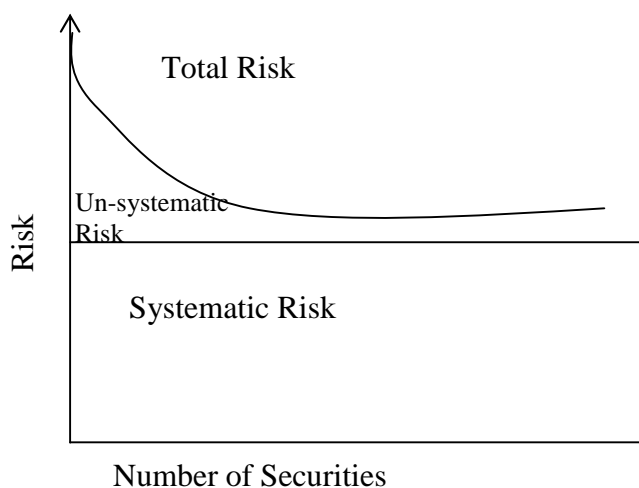
To understand the basic types of risk, consider what happens to the risk of a portfolio considering of a single securing (asset), to which we add security randomly selected from say the population of all actively

traded securities. Using the standard deviation of return, to measure the total portfolio risk, figure 2.1.4.1. depicts the behavior of the total portfolio risk as more securities are added. With the addition of securities, the total portfolio risk declines, as a result of the effects of diversification, and tends to approach a lower limit. Research has shown that on average, most of the risk reduction benefits of diversification can be gained by forming portfolios containing 15 to 20 randomly selected securities.

The total risk of a security can be viewed as consisting of two parts.

$$\text{Total security risk} = \text{Non diversifiable risk} + \text{Diversifiable risk}$$

Fig.2.1. Systematic and Unsystematic Risk



Diversifiable Risk or Unsystematic Risk

The unsystematic risk is non- market factors related. In other word, it arises from the project specific factors for example inefficiency of management failure in new product in production, employee strikes, lawsuits and any other event that is unique to the company. It is inherent individual companies or projects. This portion of the of the risk is diversifiable and it is possible to reduce or eliminate through diversification of investment. It is called unique or asset- specific risk.

Non Diversifiable Risk or Systematic Risk

The systematic risk is market related. In other word, it arises from the changes in the economy and market condition for example high inflation recession, impact of political factors, which are beyond the control of company management. It affects all firms in the market. The portion of the risk is non- diversifiable and cannot be reduced. The systematic risk is rewarded in the form of risk premium. Sometimes systematic risk is called market risk. Systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at most a small number of assets. The principle of diversification has an important implication to a diversified investor, only systematic risk matters. It follows that in deciding whether or not to buy a particular individual asset, a diversified investor will only be concerned with that asset's systematic risk. This is a key observation and it allows us to say great deal about the risks and return on individual assets, in particular, it is the basis for a famous relationship between risk and return called the security market line. T develop the SML, we introduce the equally famous Beta coefficient one of the centerpieces of modern finance. Beta and SML are key concepts because to get supply us with at least part of the answer to the question of how to go about determining the required on an investment.

2.1.5 Meaning of Return

Return is the reward to the investors for bearing certain risk. It is the main target of investment. It can be defined as the after tax increase in the value of the investment.

Obviously, if we are going to access risk on basis of variability of return, we need to be certain we know what return is and how to measure it. The return is the total gain or loss experienced on an investment over a

given period of time. It is commonly measure as cash distributions during the period plus the change in value, expressed as a percentage of the beginning of period investment value. The expression for calculating the rate of return earned on any asset over period t, K_t , is commonly defined as

$$K_t = \frac{C_t + P_t - P_{t-1}}{P_{t-1}}$$

Where K_t = actual, expected, or required rate of return during period t

C_t = cash(flow) received from the asset investment in the time period t-1 to t

P_t = Price (value) of asset at time t

P_{t-1} = Price (value) of asset at time t-1

(Gitman 2001).

2.1.6 Expected Rate of Return;-

The expect rate of return $E(R)$ is the sum of the product of each outcome (return)

" If an investment is to be made the expected rate of return or the expected holding period return should be equal or greater than the required rate of return for that investment. The expected rate of return is based upon the expected cash receipts (eg. dividend or interest) over the holding period and the expected ending or selling price.

The expected rate of return is an ex-ante or unknown future return. Unless the real rate of return is guaranteed, most invest or recognizes this possible rate return, into a single number called (he expected rate of return)" (Cheneney and Moses, 1996;33).

2.1.7 CAPM (Capital Asset Pricing Model)

The relationship between expected return and unavoidable risk, and the valuation of securities that capital asset pricing model (CAPM). This model was developed by William F. Sharpe and John Lintner in the 1960s and it has had important implications for finance ever since. (Van Horn 1997) .

The SML equation shows the relationship between securities risk and rates of returns. The return required for any security J is equal to the risk free rate plus market risk premium times the securities beta (Cheney and Edward, 1988;63)

The basic theory that links together risk and return for all assets is commonly called Capital Assets Pricing Model. The CAPM equation security market line (SML) is usually written as:

$$E(R_j) = R_f + (E(R_m) - R_f) B_j$$

where,

$E(R_j)$ = The expected or ex-ante return on the J^{th} risky assets

R_f = The rate of return on a riskless asset

$E(R_m)$ = The expected or ex-ante return on the market portfolio

= $\text{Cov}(R_j, R_m) / \text{VAR}(R_m)$ A measure of the undiversifiable risk of the J^{th} security (Weson and Copeland 1996).

Assumption of the CAPM

The capital asset pricing model or CAPM envisages the relationship between risk and expected rate of return on a risky security. It provides a framework to price individual securities and determines the required rate of return for individual securities. It is based on a number of simplifying assumptions. The most important assumptions are :

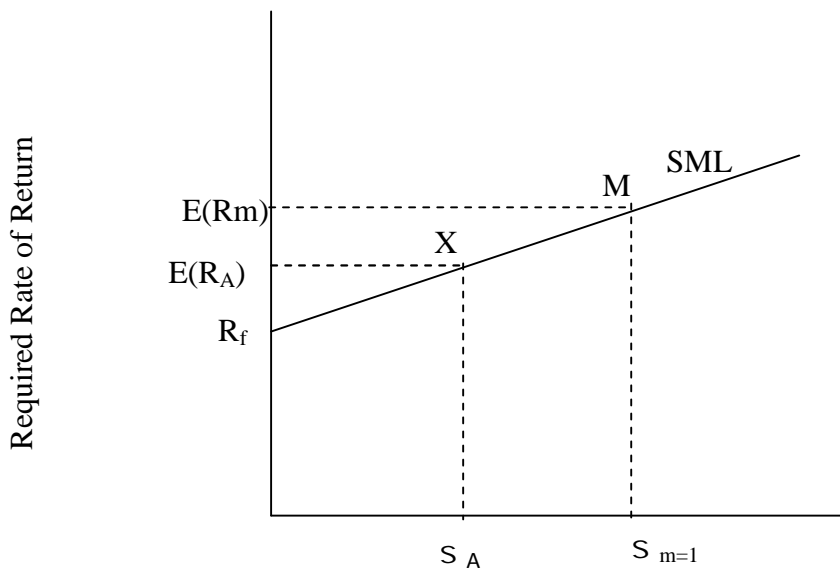
- a. Market efficiency ;-The capital market efficiency implies that share prices reflect all available information. Also, individual investors are not able to

affect the prices of securities. This means that there are large numbers of investors holding small amount of wealth.

- b. Risk aversion and mean- variance optimization; - Investors are risk-averse. They evaluate a security's return and risk in term of the expected return and variance or standard deviation respectively. They prefer the highest expected returns for a given level of risk. This implies that investors are mean variance optimizers and they are form efficient portfolios.
- c. Homogenous Expectations:-All investors have the same expectations about the expected returns and risks of securities.
- d. Single Time Period: -All investor's decisions are based on single time period.
- e. Risk period:- All investors can lend and borrow at a risk- free rate of interest. They form portfolios from publicly traded securities like shares and bonds.

CAPM provides a measure of risk an a method of estimating the market's risk and return line. The systematic (market) risk of a security is measured in terms of its sensitivity to the market movement. This sensitivity referred to security's beta(s). Beta reflects the systematic risk that cannot be reduced. Investors can climate unsystematic risk when they invest their wealth in a well diversifiable market portfolio. A beta of 1 indicates average level of risk while more than 1 means that the security's return fluctuates more that of the market portfolio. A zero beta means no risk. The graphical presentation of CAPM is called the security market line (SML) .

Fig.2.2; Security Market line



In the above graph risk is measured by s , is plotted on the X-axis and required rate of return (R_m) are plotted on the Y-axis. Securities market line has drawn from the middle of Y-axis (Westerm and Copeland, 1990;404).

2.2 Research Review

This is sub- divided into the review from journals and from the thesis. The studies related to the topic are reviewed here.

2.2.1 Review from Journals

Radhe Shyam Pradhan (1993; 23-49) has written on article "Stocks Market Behaviour on a Small Capital Market" in the Journal of Neplese Business in 1993 . The objective of the study was to assess the stock market behavior and seven commercial banks were taken as a sample for the study. The followings were the findings of the study;

- Dividend per share and market price per share was positively correlated.
- There is positive relationship between dividend payout and liquidity.
- Higher the earnings on the stocks, larger the ratio of dividends per share to market price per share.

This study shows the behavior of stock prices and it show that the price of stock us volatile in Nepal, so the capital return from these stocks also changes with the changes in the price of the stock and this will effect the total return generation from the stock .

Berkowitz and Brien's (2002) in their research paper " How Accurate are value - At - Risk Models at Commercial Banks;" have focused on the first direct evidence on the performance of value - at- risk model for trading firms. The results that VAR forecasts for six large commercial banks have expected nominal coverage levels over the past two years and for some banks. VARs we substantially removed from the lower range of trading P& L. While such conservative estimates imply higher levels of capital coverage for trading risk, the reported VARs are less useful as a measure of actual portfolio risk.

They have used standard deviation, mean, correlation coefficient VAR correlation coefficient. Beach Mark Model and portfolio model . To certain extent, the study is ltd by the fact that banks only forecast a single percentile of the portfolio distribution significant more could be learned about the empirical performance of internal valuation models of density forecasts were recorded. Density forecast evaluation techniques described in Diebold, Gunther and Tay (1998) and Berkowitz (2001) provide researchers with substantially more information to asses the dimensions in which models need improvement and these in which models do well.

John N.Sorros (2003) had carried out study on "Return and Risk Analysis; A Case study in Equity Mutual Funds Operating in the Greek

Financial Market." was to evaluate the performance of the domestic equity mutual funds operating in the Greek financial market over the period 1/1/1995-31/12/1999. The term performance contains both the return and the risk undertaken by these mutual funds.

Conclusion of the study was four domestic equity mutual funds participating in the present research achieved lower return than that of the General Index of the ASE over the evaluation period 1/1/1995-31/12/1999 .

Rosly and Zaini (2008) had carried out on "Risk- return analysis of Islamic bank 'investment deposits and shareholders' fund." was to study the differences or variance in yields of Islamic and conventional bank deposits and capital, respectively, in view of their contractual differences, namely the former which is based on equity and the latter on debt. They have found that deposit yields in conventional banks were lower than return on equity (ROE), which truly reflect the contractual differences between fixed deposit and bank's capital. Also, it was found that Islamic banks' deposit yield and ROEs do not reflect their risk-taking properties, as their variances were found to be smaller.

2.2.2 Review of Past Research (Thesis)

Risk and return is not a new concept for financial analysis, however in context of Nepal and its very slow growing capital market, very little studies are made regarding this topic. Some studies are made as a thesis for the partial fulfillment of Master degree in T.U. , which are reviewed here.

Gopal Bhatta (1995) has conducted a study entitled "Assessment of the Performance of Listed Companies in Nepal. " Bhatta conducted the study on 10 listed companies including data from 1990 to 1995. The major objective of the study was to analyze the performance of listed companies in terms of risk and return."

From his study, Bhatta address the following regarding the risk and return analysis of different stocks.

A highly significant positive correlation has been addressed between risk and return character of the company. Investors generally accept higher return from those stocks, which associates higher risk. Nepalese capital market is not efficient one so the stock price does not contain all the information related to the market and company. Neither investor analyzes the overall relevant information relating to the market and company itself, nor does member of the stocks exchange try to disseminate the information. So the market return and risk both may not represent reality.

Investors in Nepal have not yet practiced to invest in portfolio of securities. An analysis of the two securities portfolio shows that the risk can be totally minimized if the correlation is perfectly negative.

In this situation the risk can totally be diversified, but when there is perfectly positive correlation between the returns of the two securities, the risk is un-diversifiable. The analysis shows some has negative correlation and has positive one. Negative correlation between securities return is preferred for diversification of risk.

On the basis of findings, Bhatta concluded "Analysis of risk and return shows that many companies have higher un-systematic or specific risk. There is a need of expert institution, which will provide consultancy service to the investors to maximize their wealth through rational investment decision" (Bhatta, 1995, 172).

Lastly, Bhatta has recommended the following points to improve the market efficiency."

- Develop the institutions that consult investors for risk minimization.
- Establish an information channel in NEPSE and
- Make proper amendment on trading rules.

To some extent Bhatta focused in the analysis of risk and return in common stock investment. But due to some other aspects of analysis investor cannot easily assess the results. Indeed study did not focus the viewpoint of investors

rather it concentrates the companies and stock market. However, this study also explores some dimension for further research in this subject.

Jeet Bahadur Sapkota (2000), entitled "Risk and Return Analysis in common stock Investment" is a very closely related to this study. In this study, he has included eight commercial banks. The main objective of the study was to analyze the risk and return of common stock in Nepalese stock market. Conclusion of the study was commercial stock is the most risky security and life hood of stock market because of the higher expected return.

Sudip Upadhaya (2001) has conducted the research on "Risk and Return on Common Stock Investment of Commercial Bank in Nepal." The main objective of the study was to analyze the risk and return of the common stock of commercial banks in Nepalese stock market, to evaluate common stock of listed commercial banks in terms of risk and return. The major finding of the study is that expected return on the common stock of the NGBL has maximum, which is very high rate of return. Other CS of having higher return is CS of NBBL and EBL with more than 59 percent expected return. Expected return of NABIL is also favorable with 25 %, CS of the NGBL is most risky and CS of SBI is least risky. Sudip has focused on changing environment of Nepalese business and economy but did not focus on relationship between closing MPS and EPS.

Mohan Purna Satyal (2002) has conducted the research on "Risk and Return Analysis of Listed Companies of the analysis, among listed companies eight are taken in to account." The main objectives of the study was to analyze risk, return and other relevant variables that help in making decision about investment on securities of the listed companies and to examine the movement of market price of share.

He has used holding period return and expected rate or return to calculate the returns of the companies. Calculations of standard deviation, coefficient variation (CV) and beta were used to measure risk and CAPM for portfolio analysis. The expected return of Nepal investment bank is 36 percent, CV is

1.06 and risk is 38.3 percent. The beta of its share is 0.66. Expected return of Himalyan Bank Ltd is 52.66 percent, risk is 29.3 and CV 0.556. The beta is 1.567 so HBL is less risky than NIB. For the study the researcher has taken 5 years period.

Buddhi Raj Tamang (2003) has a study on "Risk and Return Analysis of Commercial Banks in Nepal." The main objective of the study is to determine whether the share of the commercial banks are correctly priced or not by analyzing the required rate of return using the capital asset pricing model. IN this study, the researcher has used mathematical tools i.e. market model, single period return, expected rate of return, standard deviation, coefficient of variation, Beta coefficient. From the study, it was found that shares of Nepalese commercial banks are heavily trade in NEPSE, none of the share price is correctly priced.

Ram Hari Khadka (2004) has study on analysis of "Risk and Return on Selected Nepalese Commercial Banks Listed in NEPSE." The main objective of the study is to measure systematic and unsystematic risk of commercial banks. The study is to measure systematic and unsystematic risk of commercial banks. The study has covered 6 years period and used expected return, coefficient of variation, standard deviation market model, beta coefficient to calculate the risk and return of commercial banks. The major finding of the study, based on the coefficient of variation, which measures risk/ unit of the stock individually, Standard Chartered Bank Nepal Ltd has the lowest coefficient of variation (1.89) and NABIL Bank has highest one (3.35). The total systematic risk has related due to the individual shares and Correlation coefficient with the market portfolio. The residual risk or unsystematic risk is company specific rather than market pervasive. Though the shares of commercial banks in Nepal are heavily trade in NEPSE, none of the share price of correctly priced.

Bijaya Laxmi Lamichhane (2006) has study on "Risk and Return Analysis of Listed Commercial Banks in Nepal." The main objective of the

study was to analyze the systematic risk of commercial banks, to analyze the unsystematic risk of commercial banks listed with NEPSE and to analyze the risk and return of commercial banks.

Conclusion of the study was CV of banking sector is lower than CV of capital market therefore banking sector security is less than other sectors. It is beneficial for the investor who invests the shares of banking sectors. She has recommended to make correct share price. She has recommended that sampled banks should diversify their investment policy in less risky assets. She has recommended diversifying their investment policy in less risky securities.

Chapter III

Research Methodology

3.1 Introduction

This chapter gives the theoretical foundation of data collection and analysis for the study. It represents the highlight of research design, population and sample size, data collation techniques, sources of data and data analysis tools. It shows that framework of data presentation and analysis. Research methodology has been used to fulfill the objectives of the study.

3.2 Research Design

This study is carried out to get the empirical result of the investment on shares of the commercial banks from risk and return perspective. Analytical and descriptive research design is adopted in this study for the readily available historical data.

3.3 Population and Sample

There were 27 commercial banks in operation till December 2009 out of which 8 were joint venture banks, 16 were domestic private commercial banks and the rest three were government commercial banks. All the domestic private commercial banks listed in NEPSE were considered to be the total population of the study. According to SEBO/N, 8 domestic commercial banks were listed in NEPSE, till December 2009. The sampled banks have been selected from random sampling technique. The sample covers 50% of the total population. thus four listed domestic commercial banks were considered as the sample of the study, namely, Machhachapurche bank Ltd, Laxmi Bank Ltd, Investment Bank Ltd, and Kumari Bank Ltd.

3.4 Sources of Data

The data for study depends upon secondary sources. The main sources of data is the reports of Nepal Stock Exchange Ltd, report of Securities Board Nepal, website, annual reports of commercial banks and periodicals of NRB. Annual report of NEPSE has been used to take financial statement and trading report of commercial banks. The data has been taken from NEPSE closing and opening price and sectors closing and opening price.

3.5 Methods of Data Analysis

This study is based on the data collected from different sources. In analyzing and processing of the data classification and tabulation of data was carried out. The data analyzed to test the defined objectives. To analyze the data. Following financial and statistical tools were used.

3.5.1 Financial Tools

3.5.1.1 CAPM Equation/ Security Market Line (SML)

Using CAPM model, the investors can estimate the required rate of return of the stock. Other things remaining same, the higher required rate of return will lower the intrinsic value of stock. CAPM model helps for pricing implications of common stocks.

The relationship between an asset returns and its systematic risk can be expressed by CAPM, which is also called the security market line (SML). SML is the line showing the relationship between the systematic risk index (beta) and required rate of return. The equation for the CPM or SML is;

$$\text{Required Rate of Return (K}_j) = R_f + [E(R_m) - R_f] s_j$$

Where,

$$\begin{aligned} R_f &= \text{Risk free rate of return} \\ E(R_m) &= \text{Expected rate of return of market} \\ s_j &= \text{Beta of asset j} \end{aligned}$$

3.5.1.2 Risk Premium

Risk premium is a reward for bearing the risk. In another word, risk premium as the different between the return on a risky investment and that on a risk-free investment. To calculate risk premium, we use treasury bills (TBs). Treasury bills are short-term government securities. It can be bought and sold any time; thus they have liquidity. Also, they do not have the default risk. Treasury bills are also called risk-free security, which can be replaced on risk-free. For the study Treasury bill period has taken 364 days.

$$\text{Risk Premium} = [E(R_m) - (R_f)] s_j$$

where,

$$\begin{aligned} E(R_m) &= \text{Expected Return of market} \\ (R_f) &= \text{Risk free rate of return} \\ s_j &= \text{Beta for security j} \end{aligned}$$

3.5.2 Statistical Tools

3.5.2.1 Annual rate of return

For a one- year holding, the problem includes the dividend paid during the year and capital gain realized at the end of the year. The prevailing tax rate and inflation rate do affected the annual rate of return of the investment. In these study, both the tax and inflation rate are not taken into consideration in the computation of the rate of return. Also the effects of the right issues by the company on the rate of return of the investment are include due to impracticability on the calculation part. Thus,

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

where, P_t = Ending price of the stock
 P_{t-1} = Beginning price of the stock
 D_t = Dividend received at time t

Here, total dividend is equal to cash dividend + stock dividend.

3.5.2.2 Expected Rate of Return

Over a number of years, a single investment will likely give high rate of return during some years and low rate of return, or possibly negative rate of return, during others. In turn, computing the average rate of return investors can get the expected rate or return if he/she owned the investment over an extended period of time. To find the average rate of return, the sum of rate of return is dividend by the number of year (n) as follows.

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

Where, \overline{R}_j = Average Rate of return of security j

$\sum R_j$ = The sum of annual rate of return.

3.5.2.3 Covariance of Return

Covariance is a measure of the degree of which two variables “move together” relative to their individual mean in the same values over time. A positive covariance means that the rate for two invested tend to move in the same direction relative to their individual means during the same time-period and vice versa. For a two assets, I and j, the covariance of rate of return is define as ;

$$\text{Cov}_{ij} = \frac{\sum (R_i - \overline{R}_i)(R_j - \overline{R}_j)}{n-1}$$

3.5.2.4 Correlation Coefficient of Return :

Correlation analysis refers to the techniques used in measuring the relation between two variables. The value of correlation coefficient varies only in range of -1 to +1. A value of +1 indicates the return of the stocks move

together in a completely linear manner. A Value of -1 indicates that perfect negative relationships between the two return. The formula of correlation coefficient is

$$r_{ij} = \frac{Cov_{ij}}{\sigma_i \sigma_j}$$

Where,

- r_{ij} = Correlation coefficient of return of stock i and j
- Cov_{ij} = covariance of the rate of return of stock i and j
- σ_i = The standard deviation of the return of the stock i
- σ_j = The standard deviation of the return of the stock j

3.5.2.5. Variance

The most commonly used measures of risk is variance or its square is the standard deviation. The symbol is σ^2 , pronounced “sigma square”. It is the measure of total risk.

$$Var(r) = \frac{\sum(R_i - \bar{R}_i)^2}{n-1}$$

Where,

- $Var(r)$ = Variance of return of security i
- R_i = single period return at time t of security i
- \bar{R}_i = Expected return over the period,
- n = number of observation

Alternatively

$Var(r)$ or σ^2 = Square of Standard deviation.

3.5.2.6 Standard Deviation

It is quantities measure of total risk of assets. It provides more information about the risk of the assets. The standard deviation of a distribution is the square root of the variation of return around the mean. The following is applied to calculate the standard deviation, using historical return:

$$Or, \text{ Standard Deviation, } \sigma_i = \left(\frac{\sum(R_i - \bar{R}_i)^2}{N-1} \right)^{1/2}$$

Where, R_i = Annual Rate of Return of Security i

\bar{R}_i = Average rate of security i

N = number of years

3.5.2.7 Coefficient of Variation

The risk per unit of the return can be measured by coefficient of the variation, which is computed as follows.

$$\begin{aligned} \text{Coefficient of Variation (C.V.)} &= \frac{\text{Standard Deviation of return}}{\text{Expected rate of Return}} \\ &= \frac{\sigma}{E(R)} \end{aligned}$$

3.5.2.8 Beta coefficient

"Beta coefficient is a measure of the extent to which the return on a given stock moves with the stock market" (Weston and Brigham, 1996, p.186).

Beta measures non-diversifiable risk. Beta shows how the price of a security responds to market forces. In effect, the more responsive the price of a security is to changes in the market, the higher will be the beta. Beta is calculated by relating the returns on a security with the returns for the market. Market return is measured by the average return of a large sample of stocks, such as the S&P 500 stock index. The beta for the overall market is equal to 1.0 and other betas are viewed in relation to this value (Fisher and Jordan, 2000, P. 82).

Beta is a measure of relative systematic risk. A security's beta measures the sensitivity of a security's return to changes in the return on the market portfolio, which, by construction, has a beta of 1.0. Also, by defining, the average beta of all stocks, which comprise the market portfolio, is 1.0 (Kane, 1995, p. 265).

$$S_j = \frac{\sigma_j \times \rho_{jm}}{\sigma_m}$$

Where,

β_j = Beta for security j

σ_j = S.D of the security j's return

σ_m = S.D of the market portfolio's returns

ρ_{jm} = Correlation coefficient of security j's returns with those of the market portfolio.

"A beta coefficient is a measure of systematic risk; it is a index of the volatility of the individual asset relative to the volatility of the market." The beta coefficient for a specific security (s_j) is defined as follows: (Mayo, 2003, p. 177).

$$s_j = \frac{S.D. \text{ of the return on stock } j \times \text{Correlation coefficient between the return on the stock and the return on the market}}{S.D. \text{ of the return on the market}}$$

Thus beta depends on:

- The variability of the individual stock's return.
- The variability of the market return (both measured by their respective S.D.).
- The correlation between the return on the security and the return on the market.

3.5.2.9.

A. Systematic Risk

"Systematic risk is one that influences a large number of assets, each to a greater or lesser extent. Because systematic risks have market wide effects, they are sometimes called market risk" (Rose et al., 2006, p. 404).

Un-diversifiable risk is also known as the systematic risk. This is risk is that portion of variability in return caused by market factors (also called market risk) that simultaneously affect the price of all the securities. Un-diversifiable risk crated positive to the changes in the macroeconomics factors like interest rate, inflation, investors expectation, GDP etc. This risk is that part of total risk cannot eliminate by allocating capital to a diversified portfolio of investments. It can be stated as:

Systematic risk = Total risk- Unsystematic risk

$$s_j^2 + \sigma_m^2 = \sigma_j^2 - Var(e)$$

$$\text{Proportion of systematic risk} = \frac{\text{systematic risk}}{\text{total risk}} \times 100$$

Proportion of percentage of systematic risk is also measured by coefficient determination. Coefficient of determined is the square of correlation. It can be stated as:

$$\text{Coefficient of determination } (R^2) = \frac{\text{Systematic Risk}}{\text{Total Risk}} = \frac{S_j^2 \times \sigma_m^2}{\sigma_j^2}$$

B. Unsystematic Risk

"Unsystematic risk is the portion of total risk that is unique to a firm or industry. Factors such as management quality, consumer preferences, and labor strikes cause systematic variability of returns in a firm. Unsystematic factors are largely independent of factors affecting one firm; they must be examined for each firm" (Fisher and Jordan, 2000, p. 72).

Unsystematic risk can be stated as:

Unsystematic risk = total risk - systematic risk

$$\text{Var}(e) = \sigma_j^2 - S_j^2 \times \sigma_m^2$$

3.5.10. Total Risk

Risk refers to the dispersion of a probability distribution: How much do individual outcomes deviate from the expected value.

The total risk of return of an asset or portfolio is measured by variance and standard deviation. The total risk can be divided into two parts: diversifiable and undiversifiable risk.

Therefore,

Total risk = Diversifiable risk + Un-diversifiable risk.

$$\sigma_j^2 = \text{Var}(e) + S_j^2 \sigma_m^2$$

Where,

Var(e) = (σ_e^2) Standard error square

S_j = Beta of security j

σ_m^2 = Variance of market

3.6 Limitation of the Methodology

Every research paper has its own limitation. It has also some limitation. This study is based on secondary data. Analysis and interpretation are done for them. It does not cover every aspect of private domestic commercial banks. Average return is assumed as expected rate of return. Financial and statistical tools are used to analyze the data that are based on the certain assumption, so reliability of this analysis depends upon the circumstances on which models are used.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

This chapter explains the presentation of data and their analysis. It includes all the data and their interpretation. In this study the data of market price of shares of selected banks, cash dividend paid, market return, NEPSE index and many related terms are presented and analyzed. Tables and diagrams are used to make the result simple and clear.

4.1 Analysis of Individual

The following analysis contains the analysis of sampled domestic private commercial bank and their market price per share, dividend per share and other related data are presented in table and analysis is made accordingly, using appropriate tools.

4.1.1 Analysis of Historical Return of Sampled Domestic Private Commercial banks

In this study 4 listed domestic private commercial banks are included. They are MBL, NIBL, LBL and KBL. The study period covers the 16th July 2004/2005 to 16th July 2008/2009. To analyses the risk and return of commercial banks, tables and figures have been also used. Historical return of sampled commercial banks is calculated with the help of their closing price of share and dividend per share. Trend line has been also demonstrated to analyze historical return of sampled commercial banks.

4.1.1.1. Analysis of Historical Return of Machhapurchchhere Bank Ltd.

The yearend return of Machhapurchchhere Bank Ltd (MBL) over the study period has been presented in Table 4.1

Table 4.1**Historical Return and Average Rate of Return of MBL**

Fiscal Year	Closing Price	Dividend			$R_j = \frac{P_t - P_{t-1} + Div_t}{P_{t-1}}$
		Cash (%)	Stock (%)	Total (Rs)	
2004/05	256	-	-	-	-
2005/06	320	0.79	15	48.79	0.4406
2006/07	620	-	-	-	0.9375
2007/08	1285	1.05	21	270.9	1.5095
2008/09	420	-	-	-	-0.6732
Total					$\sum R_j = 2.2144$

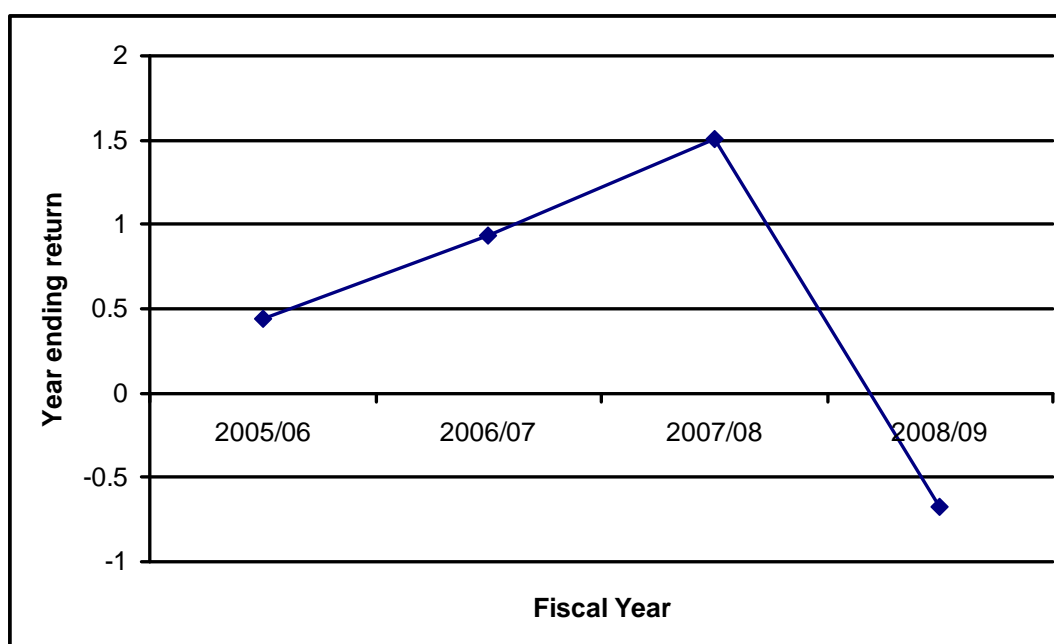
Source: Data Exacted from Trading Report of NEPSE and Annual of MBL

$$\text{Average Rate of Return } (\bar{R}_j) = \frac{R_j}{N} = 55.36\%$$

The year ended return of MBL is maximum or positive in year 2007/08 that is 105.95% and the closing price is Rs.1285. MBL has declared dividend in FY 2005/06 and FY 2007/08. Average return of MBL is 55.36%. The fig. 4.1 shows the trend line of historical return of MBL.

Figure 4.1 shows the trend of annual return of MBL under the study period. In F/Y 2006/07 abnormal increment is observed that was the highest return observed in the study period. Then in F/Y 2007/08 normal increment and abnormal decrement in return and negative return is observed in F/Y 2008/09.

Fig. 4.1: Trend Line of Historical Return of MBL



4.1.1.2 Analysis of Historical Return of Nepal Investment Bank (NIBL)

The historical return of NIBL over the study period has been presented in Table 4.2.

**Table 4.2
Historical Return and Average of NIBL**

Fiscal Year	Closing Price	Dividend			$R_j = \frac{P_t - P_{t-1} + Div_t}{P_{t-1}}$
		Cash (%)	Stock (%)	Total (Rs)	
2004/05	800	12.58	-	12.58	-
2005/06	1260	20	35.46	466.80	1.16
2006/07	1729	5	25	437.25	0.72
2007/08	2450	7.5	33.33	824.09	0.89
2008/09	1388	20	-	20	-0.43
Total					$\sum R_j = 2.35$

Source: Data Exactrated from Trading Report of NEPSE and Annual of NIBL

$$\text{Average Rate of Return } (\bar{R}_j) = \frac{\sum R_j}{N} = 58.75\%$$

In the study there is maximum historical return in year FY 2005/06 that is 116 percent and negative or zero return in FY 2008/09. NIB has declared dividend in all FY. The average rate of return of NIB is 58.75 percent. The trend line of NIB over the study period has been depicted in Fig. 4.2.

Fig. 4.2: Trend line of Historical Return of NIBL

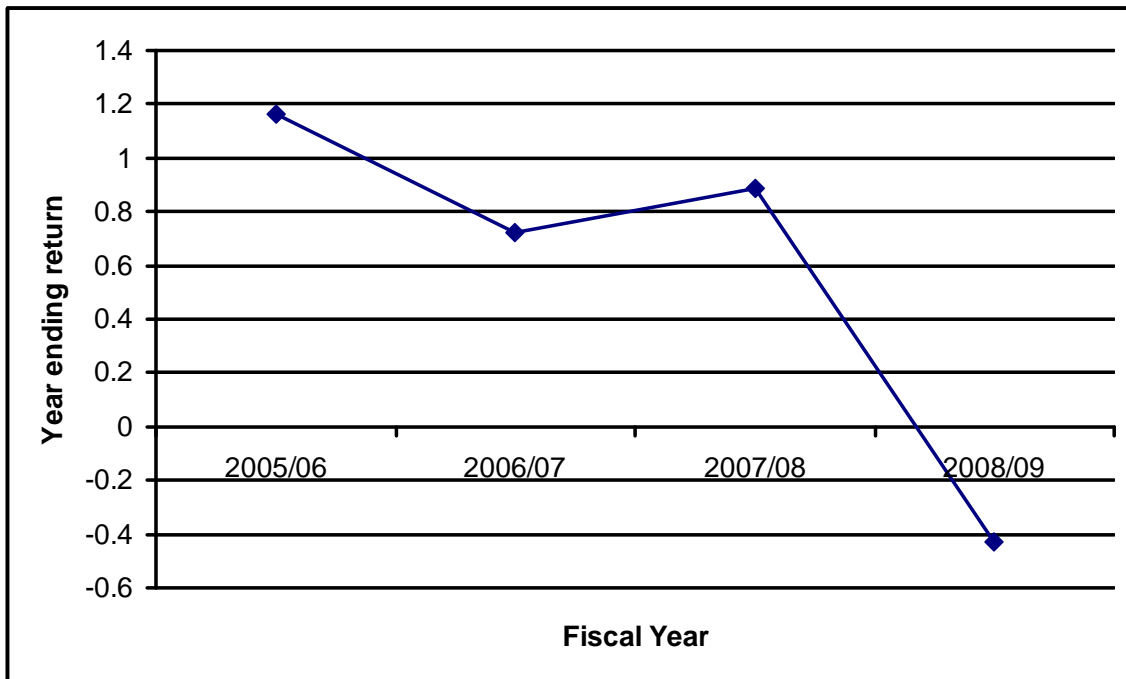


Figure 4.2 shows the trend of annual return of NIBL under the study period. In F/Y 2006/07 abnormal decrement is observed that was the lowest return observed in the study period. Then in F/Y 2007/08 normal increment in return is observed again abnormal increment and negative return is observed in F/Y 2008/09.

4.1.1.3 Analysis of Historical Return and Average Rate of Return of Laxmi Bank Ltd. (LBL)

The historical return of LBL over the study period has been presented in Table 4.3

Table 4.3
Historical Return and Average Rate of LBL

Fiscal Year	Closing Price	Dividend			$R_j = \frac{P_t - P_{t-1} + Div_t}{P_{t-1}}$
		Cash (%)	Stock (%)	Total (Rs)	
2004/05	285	-	-	-	-
2005/06	368	-	-	-	0.2912
2006/07	690	-	-	-	0.875
2007/08	1113	1.05	20	223.65	0.9372
2008/09	1062	0.26	5	53.36	0.0021
Total					$\sum R_j = 2.1055$

Source: Data Exactrated from Trading Report of NEPSE and Annual of LBL

$$\text{Average Rate of Return } (\bar{R}_j) = \frac{R_j}{N} = 52.64\%$$

In the study there is maximum historical return in year FY 2007/08 that is 93.72 percent and positive return in all fiscal year. Laxmi Bank Ltd. has declared stock dividend in any year 2007/08 and 2008/09. The average rate of return of LBL is 52.64percent. The trend line historical return over the study period has been presented in Fig.4.3.

Fig. 4.3: Trend Line of Historical Return of LBL

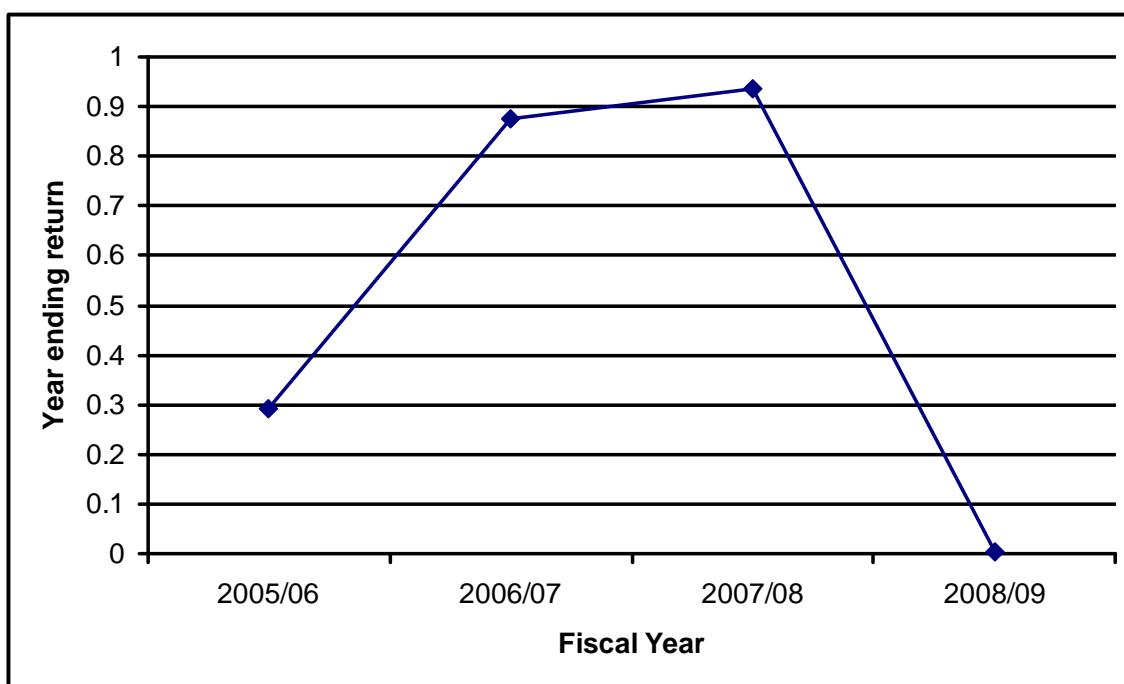


Figure 4.3 shows the trend of annual return of LBL under the study period. In F/Y 2006/07 abnormal decrement is observed but in F/Y 2007/08 normal increment is observed that was the lowest return observed in the study period. Again abnormal decrement return is observed in F/Y 2008/09.

4.1.1.4 Analysis of Historical Return and Average Rate of Return of Kumari Bank Ltd. (KBL)

The historical return of KBL over the study period has been presented in Table 4.4

Table 4.4
Historical Return and Average Rate of KBL

Fiscal Year	Closing Price	Dividend			$R_j = \frac{P_t - P_{t-1} + \text{Div}_t}{P_{t-1}}$
		Cash (%)	Stock (%)	Total (Rs)	
2004/05	369	-	-	-	-
2005/06	443	1.05	20	89.65	0.4435
2006/07	830	1.05	20	167.05	1.2507
2007/08	1005	0.53	10	101.03	0.3326
2008/09	700	0.55	10.03	70.76	-0.2331
Total					$\sum R_j = 1.7937$

Source: Data Exactrated from Trading Report of NEPSE and Annual of KBL

$$\text{Average Rate of Return } (\bar{R}_j) = \frac{R_j}{N} = 44.84\%$$

In the study there is maximum historical return in year FY 2006/07 that is 125.07 percent. Kumari Bank Ltd. has declared stock dividend in every year. The average rate of return of KBL is 44.84 percent. The trend line historical return over the study period has been presented in Fig.4.4.

Fig. 4.4: Trend Line of Historical Return of KBL

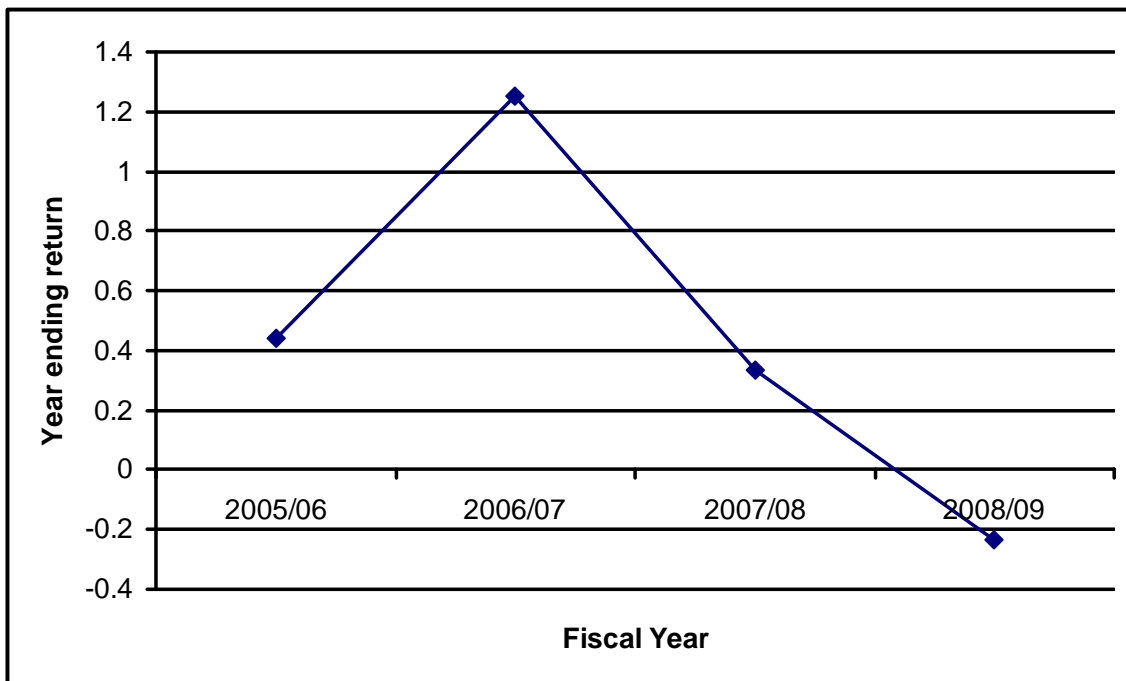


Figure 4.4 shows the trend of annual return of KBL under the study period. In F/Y 2006/07 abnormal increment is observed but in F/Y 2007/08 abnormal decrement is observed that was the lowest return observed in the study period. Then abnormal decrement and negative return is observed in F/Y 2008/09.

4.1.2 Comparative Analysis of Historical return of Sampled Bank Ltd.

Comparative analysis of historical return of sampled bank Ltd over the study period has been presented in Table 4.5.

**Table 4.5
Comparative Analysis of Historical Return of Sample Bank Ltd**

FY	MBL	NIBL	LBL	KBL
2004/05	-	-	-	-
2005/6	0.4406	1.6	0.2912	0.4435
2006/07	0.9375	0.72	0.875	1.2507
2007/08	1.5095	0.89	0.9372	0.3326
2008/09	-0.6732	-0.43	0.0021	-0.2331
Average	0.5536	0.5875	0.52.64	0.4484

Source: Data Exacrated from Annual Report of Sample Bank Ltd.

In year 2008/09, MBL, NIBL and KBL are negative return. Average return of KBL has the lowest than other sampled banks i.e. 44.84 percent and NIBL has the highest return i.e. 58.30 percent. MBL has the medium return i.e. 55.36 percent. Table 4.5 exhibits the overall return of sampled banks.

As a whole MBL, NIBL and LBL result are satisfactory but KBL result is not satisfactory. The historical return over the study period has been depicted in Fig. 4.5

4.1.3 Analysis of Domestic Private Commercial Bank Return with Market Rate of Return

Capital market index indicates the overall share price of listed commercial banks. But commercial banks sector index indicates share price of listed commercial banks only. In this section, the study has described the relationship between market index and commercial banks sector index. The data for the study has been taken from NEPSE, Annual report and trading report. To calculate annual return, the study has been opening and closing share price of NEPSE and commercial banks sector index. Capital market annual return and Domestic Commercial banks sectors index return over the study period has been presented in Table 4.6.

Table 4.6

Expected Market Return and Domestic Private Commercial Banks Return

FY	NEPSE Index (Closing)	Aggregate Annual Return of NEPSE Market (R_{cm})	Commercial Banks Index (Closing)	Aggregate Annual Return of Commercial Banks Index (R_{bm})
2004/05	286.67	-	304.67	-
2005/6	386.83	0.3494	437.49	0.4359
2006/07	683.95	0.7681	789.21	0.8039
2007/08	963.95	0.4085	683.90	-0.1334
2008/09	749.00	-0.2224	780.87	0.1418
Total		$\sum R_j = 1.3036$		$\sum R_j = 1.2482$

Source: Calculated on the basis of data Extracted from NEPSE.

$$\overline{R_{cm}} = 32.59\%$$

$$\overline{R_{bm}} = 31.21\%$$

In FY 2007/08 commercial banks market return (13.34 %) is negative. Otherwise the NEPSE return (14.18%) is negative in FY 2008/09. Average rate of return of commercial banks index is 31.21 percent and capital market index is 32.59 percent. Both returns are positive and satisfactory. The study shows the positive relationship between NEPSE and commercial banks index. The NEPSE return and commercial banks sector return over the study period has been depicted in Fig. 4.6. and 4.7.

Fig. 4.5: Average Return of NEPSE Index

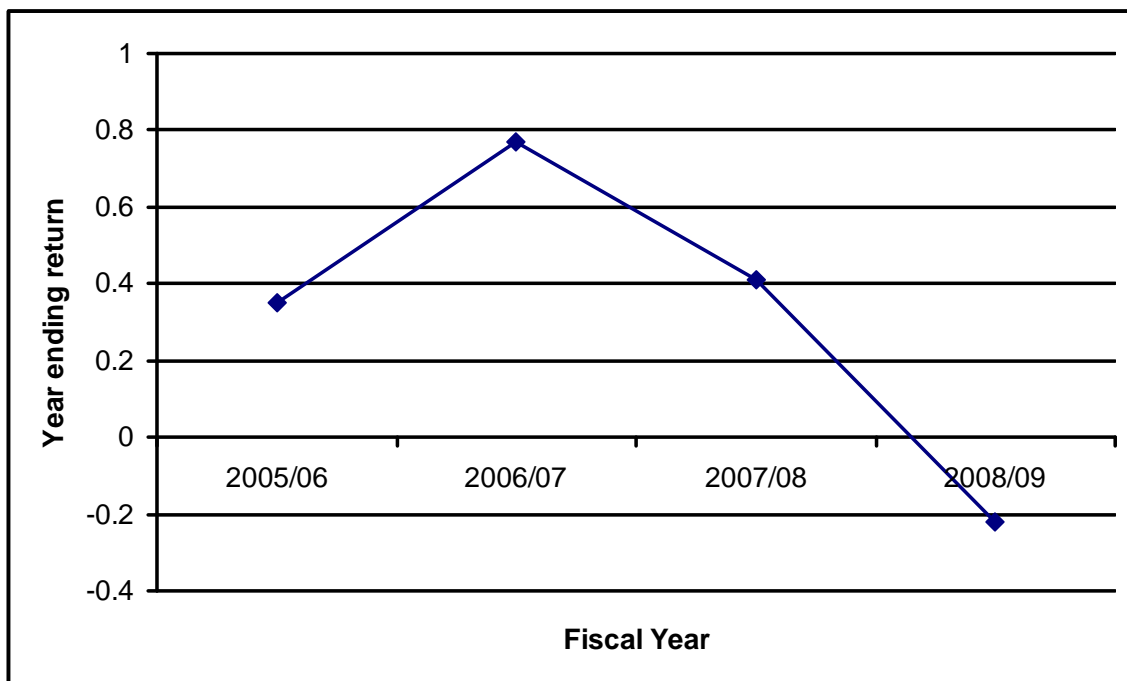


Figure 4.6 shows the trend of annual return of NEPSE Index under the study period. In F/Y 2006/07 abnormal increment is observed but in F/Y 2007/08 abnormal decrement is observed that was the lowest return observed in the study period. Then abnormal decrement and negative return is observed in F/Y 2008/09.

Fig. 4.6; Average Return of Commercial Banks Index

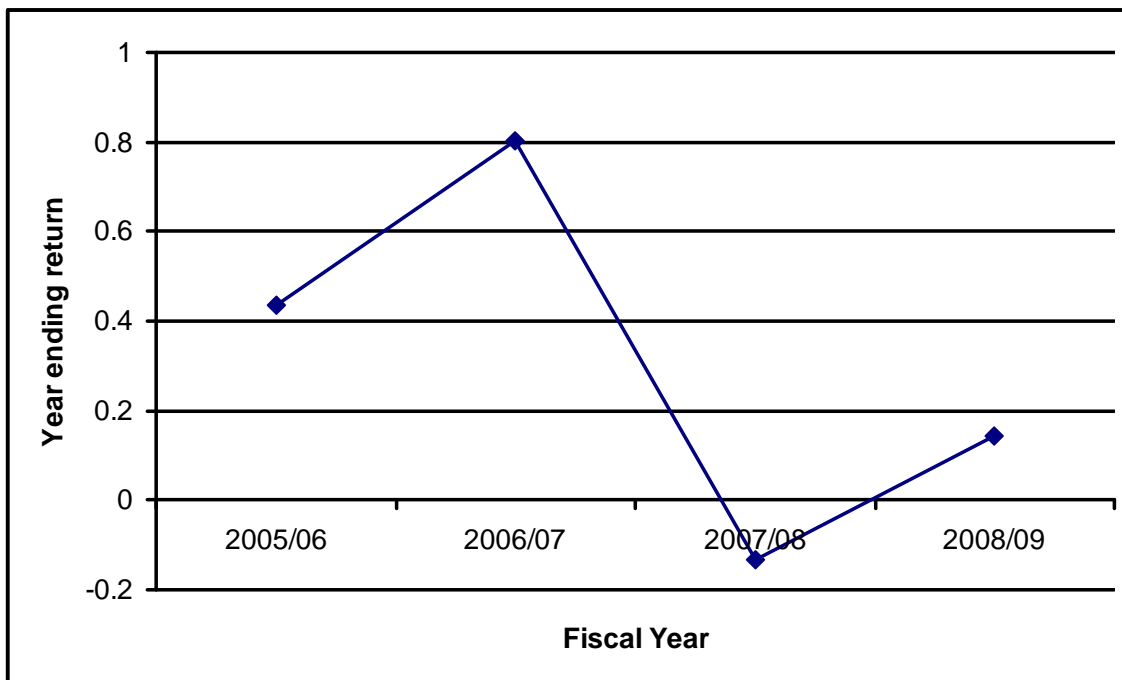


Figure 4.7 shows the trend of annual return of Commercial Banks Index under the study period. In F/Y 2006/07 abnormal increment is observed but in F/Y 2007/08 abnormal decrement and negative return is observed in the study period. Then normal increment positive return is observed in F/Y 2008/09.

4.1.4 Analysis of Risk Premium of Domestic Commercial Banks Sectors Index, Market (NEPSE) and Individual Banks

Following section has been described about risk premium of sampled commercial banks and its sector. It also describe capital market risk premium. To calculate risk premium, Risk-free rate of return has been taken from NRB and individual historical return from Table 4.1-4.4. Similarly, historical return of capital market and commercial banks sector has been calculated by the formula which is given on Research Methodology. Risk premium over the study period has been presented in Table 4.7.

Table 4.7

**Risk Premium of Individual Commercial Banks, Commercial
Bank Sector and Capital Market**

FY	MBL	NIBL	LBL	KBL	R_F	Aggregate risk premium of market	Aggregate risk premium Of commercial bank sector
2004/05	-	-	-	-	-	-	-
2005/6	0.4122	0.2628	1.1316	0.4151	0.0284	0.321	0.4075
2006/07	0.9133	0.8508	0.6958	1.2265	0.0242	0.744	0.7797
2007/08	1.484	0.9117	0.8645	0.3071	0.0255	0.383	-0.1589
2008/09	0.6995	-0.0242	-0.4563	-0.2594	0.0263	-0.2487	0.1155
Total	3.509	2.0011	2.2356	1.6893	-	1.1993	1.1438

Source: Calculated on the basis of data Extracted from NEPSE and NRB.

From above calculation, total risk premium of KBL has the lowest and MBL has the highest. It can be observed in Table 4.7. MBL is the positive risk premium in FY 2008/09. Risk premium shows the return position of commercial bank it is called reward for bearing risk. Table 4.7 also represents risk premium of market index and sectors index where market risk premium is higher than commercial banks risk premium that is 1.1993 and 1.1438 respectively. When return goes up, risk premium also goes up and vice-versa.

4.1.5 Comparison between Average Rate of Return and Required Rate of Return of Domestic Private Commercial Banks in NEPAL.

Capital assets pricing model (CAPM) has been used to calculate the required rate of return of sampled domestic commercial banks which is given in research methodology. To calculate required rate of return, market rate of return has been taken from Table 4.6 and excess return is calculated by assign average rate of return and required rate of return. Risk free rate of return taken from NRB. It is the average Treasury bill rate (91) of past 4 year Treasury bill rate. Average rate

of return and required rate of return over the study period has been presented in Table 4.8.

Table 4.8
Average Rate of Return and Required Rate of Return

Domestic Private commercial bank	Average Rate of Return	Require Rate of Return	Excess Return
MBL	0.5536	0.6474	-0.0938
NIBL	0.5875	0.3557	0.2318
LBL	0.5264	0.1821	0.3443
KBL	0.4484	0.4364	0.012

Source: Data Exactraced from Tading Report of NEPSE

Table 4.8 exhibits annualized expected rate of return on stock of domestic commercial banks. It also exhibits required rate of return on stock of domestic commercial bank. Table 4.8 represents average return and required rate of return of MBL, NIBL, LBL and KBL are 55.36 percent, 58.75 percent, 52.64 percent and 44.84 percent and 64.74 percent, 35.57 percent, 18.21 percent and 43.64 percent respectively. Average rate of return of NIBL, LBL and KBL are 23.18 percent, 34.43 percent and 1.2 percent more than required rate of return respectively. It implies the security is under priced. For the under priced stocks if a investor holds the share of NIBL, LBL and KBL he/she will earn are 23.18 percent, 34.43 percent and 1.2 percent more than compensation for the level of risk which cannot be diversified. The average return of MBL is 9.38 percent less than required rate of return. It implies the KBL is overpriced.

4.1.6 Risk Analysis

Previous analysis has only observed return position of individual banks, risk premium of capital market, risk premium of domestic commercial banks sector index and individual sampled banks and required rate of return of

sampled banks. But in this section, the study has analyzed risk position of individual commercial banks, capital market and commercial banks sector index. The study has mainly focused on standard deviation, Beta, risk indicators (systematic and unsystematic risk) and relative measurement of risk (coefficient of variation). From the risk perspective, standard deviation, variance, coefficient of variation is calculated through. Beta is taken as an indicator to measure the relative risk of the individual stock to the market. In term of beta coefficient, when beta is negative the movement of market (NEPSE) is negative.

4.1.6.1 Risk Analysis of MBL

Risk analysis of MBL over the study period has been presented in Table 4.9.

Table 4.9
Risk Analysis of MBL

Variance (Total Risk)	0.8596
Standard deviation	0.9272
Coefficient of Variation	1.6749
Covariance	0.9187
Beta	2.078
Systematic Risk	0.7254
Unsystematic Risk	0.1342
Average Return	0.5536

Beta of MBL is positive. It reveals the positive relation with market return (NEPSE). As beta of stock is measured 2.078 the positive change in NEPSE, the stock will have positive response. This stock can be categorized as defensive stock. The systematic risk and unsystematic risk of bank is 0.7254 and 0.1342 respectively. The standard deviation is 0.9272 and variance is 0.8596.

4.1.6.2 Risk Analysis of NIBL

Risk analysis of NIBL over the study period has been presented in Table 4.10.

Table 4.10
Risk Analysis of NIBL

Variance (Total Risk)	0.484
Standard deviation	0.6957
Coefficient of Variation	1.1842
Covariance	0.6495
Beta	1.1024
Systematic Risk	0.2042
Unsystematic Risk	0.2798
Average Return	0.5875

Beta of NIBL is positive. It reveals the positive relation with market return (NEPSE). As beta of stock is measured 1.1024 the positive change in NEPSE, the stock will have positive response. This stock can be categorized as defensive stock. The systematic risk and unsystematic risk of bank is 0.2042 and 0.2798 respectively. The standard deviation is 0.6957 and variance is 0.484

4.1.6.3 Risk Analysis of LBL

Risk analysis of LBL over the study period has been presented in Table 4.11.

Table 4.11
Risk Analysis of LBL

Variance (Total Risk)	0.2068
Standard deviation	0.4548
Coefficient of Variation	0.8640
Covariance	0.4702
Beta	0.5217
Systematic Risk	0.0457
Unsystematic Risk	0.1611
Average Return	0.5264

Beta of LBL is positive. It reveals the positive relation with market return (NEPSE). As beta of stock is measured 0.5217 the positive change in NEPSE, the stock will have positive response. This stock can be categorized as defensive stock. The systematic risk and unsystematic risk of bank is 0.0457 and 0.1611 respectively. The standard deviation is 0.4548 and variance is 0.2068.

4.1.6.4 Risk Analysis of KBL

Risk analysis of KBL over the study period has been presented in Table 4.12.

Table 4.12

Risk Analysis of KBL

Variance (Total Risk)	0.7844
Standard deviation	0.8856
Coefficient of Variation	1.9751
Covariance	0.6351
Beta	1.3722
Systematic Risk	0.3163
Unsystematic Risk	0.4681
Average Return	0.4484

Beta of LBL is 1.3722. This reveals the stock has positive correlation with market (NEPSE). From the view point of volatility the stock is less volatile the market. Therefore this stock also can be categorized as defensive stock. The systematic risk and unsystematic risk of bank is 0.3163 and 0.4681 respectively. The standard deviation is 0.8856 and variance is 0.7844.

4.1.6.4 Comparative Analysis of four Sampled Domestic Private Commercial Banks

The comparative analysis of four sampled banks has been presented in this section. For this study data has been taken from 4.9 – 4.12. Comparative analysis of sampled domestic private commercial banks over the study period has been shown in Table 4.13.

Table 4.13

Comparative Analysis of Sampled Domestic Commercial Banks

	MBL	NIBL	LBL	KBL
Variance	0.8596	0.484	0.2068	0.7844
Standard deviation	0.9272	0.6957	0.4548	0.8856
Coefficient of Variation	1.6749	1.1842	0.8640	1.9751
Covariance	0.9187	0.6495	0.4702	0.6351
Beta	2.078	1.1024	0.5217	1.3722
Systematic Risk	0.7254	0.2042	0.0457	0.3163
Unsystematic Risk	0.1342	0.2798	0.1611	0.4681
Average Return	0.5536	0.5875	0.5264	0.4484

Table 4.13 has been presented overall risk indicators of MBL, NIBL, LBL and KBL. NIBL has the highest expected rate of return of 58.75 percent with standard deviation of 69.57 percent. Coefficient of Variation measured the risk per unit of return. LBL has the lowest variance so that this bank has less risky. The result shows that LBL has lower coefficient of variation (0.8640). If investors want to invest, he / she can invest LBL securities because it can give high return with bearing less risk. Coefficient of Variation is the relative measurement of risk and return. Table 4.13 indicates that systematic risk of sampled banks has less than unsystematic risk. Unsystematic risk can diversify but systematic risk cannot diversify. Among four banks, LBL has the minimum systematic risk and MBL has the maximum systematic risk.

4.1.6.5 Risk Analysis of overall Capital Market Relative to Domestic Private Commercial Bank Sector Index.

Risk analysis of overall capital market relative to commercial banks sector index over the study period has been presented in Table 4.14

Table 4.14
Risk Analysis of Overall Capital Market Relative to
Commercial Banks Index

	NEPSE Index	Commercial Banks Index
Average return	0.3259	0.3120
Variance	0.1680	0.1616
Standard deviation	0.4098	0.4020
Coefficient of Variation	1.2574	1.2880
Beta of MBL	2.078	-0.0969
Beta of NIBL	1.1024	0.2992
Beta of LBL	0.5217	0.0549
Beta of KBL	1.3722	2.2180

Table 4.14 shows the market index and domestic private commercial banks index for the study period. Average rate of return is 32.59 percent of NEPSE index and 31.20 percent of commercial banks index. Commercial bank index shows less risky than NEPSE index of 16.16 percent and 16.80 percent respectively. From the view point of coefficient of variation of NEPSE index has less risk 1.2574 than commercial bank index of 1.2880.

Beta of MBL with market is 2.078 and with commercial bank index is -0.0969. It reveals that the negative correlation with commercial bank index. Therefore it can be categorized as defensive stock. Beta of NIBL, LBL and KBL are 1.1024, 0.5217 and 1.3722 with capital market and 0.2992, 0.0549 and 2.2180 with commercial bank index. It reveals that the positive correlation with both capital and commercial bank index.

4.2 Major Findings of the Study

4.2.1 Average rate of return of MBL, NIBL, LBL and KBL are 55.36%, 58.75%, 52.64% and 44.84% respectively. Among four samples Domestic private bank LBL has the highest return.

- 4.2.2 Over the study it has been found that the slope of MBL, NIBL, LBL and KBL are 0.1381, 0.0395, 0.1435 and 0.0402 respectively.
- 4.2.3 In FY 2008/09 annual return of MBL, NIBL, LBL and KBL is negative that is -67.32%, -43%, 0.21% and 23.31% respectively..
- 4.2.4 Expected return and risk (in terms of variance) of banking sectors are 31.20% and 16.16% respectively whereas CV remains 1.2880. Similarly, expected return and risk (in terms of variance) of NEPSE is 32.59% and 16.80% whereas CV remains 1.2574.
- 4.2.5 Aggregate risk premium of MBL, NIBL LBL and KBL are 55.36 percent, 58.75 percent, 52.64 percent and 44.84 percent respectively. Aggregate risk premium of NEPSE and banking sector are 1.1993 and 1.1438 respectively. Aggregate risk premium of banking sectors has the less than over all capital market.
- 4.2.6 Standard deviation of MBL, NIBL, LBL and KBL are 0.9272, 0.6957, 0.4548 and 0.8856 respectively and Beta coefficient of MBL, NIBL and LBL are 2.078, 1.1024, 0.5217 and 1.3722 respectively. Standard deviation of MBL has highest.
- 4.2.7 Coefficient of Variation of MBL, NIBL, LBL and KBL are 1.6749, 1.1842, 0.8640 and 1.9750 respectively. Coefficient of Variation of KBL has highest.
- 4.2.8 According to CAPM theory, MBL has the highest required rate of return i.e. 64.74% and all the sample banks are under priced.
- 4.2.9 Systematic risk of MBL, NIBL, LBL and KBL are 0.7254, 0.2042, 0.0457 and 0.3163 respectively. Unsystematic risk of MBL, NIBL LBL and KBL are 0.1342, 0.2798, 0.1611 and 0.4681 respectively.

CHAPTER V

SUMMARY, CONCLUSION AN RECOMMENDATION

5.1 Summary

Bank plays important role in economic development of the country. Risk and Return analysis of commercial banks helps to know the risk and return position of banks. Risk and return are the two parts of the business world. If there is no risk, there is no return. Risk and return measures the performance of the organization. Risk and return analysis is necessary for every investment decision. No investments would like invest in risky assess unless he/ she has been assured of adequate compensation for the assumption of risk. Most of the investors are least familiar to risk and return the presented study has been analyzed risk and return of common stock investment. Common stock is the most risky security. The main objective of the study is to analyze the risk and return of domestic private commercial bank in Nepal.

In this study 4 listed domestic commercial banks in NEPSE have been taken as sample and their risk and return has been calculated analyzed to find out of the performance of each commercial banks. For the study related studies has been done in brief. Theoretical review has been presented for definition of risk and return from different book and authors. Related journals and thesis are reviewed from website and master dissertation of T.U. The study has included research methodology to fulfill the objective of the study. To analysis the data average rate of return, standard deviation, beta, required rate of return and coefficient variation have been calculated. The study is fully depended upon the secondary data. For the study, secondary data were collected from NEPSE, NRB and related domestic private commercial bank's annual report. The study has been focused on risk and return of commercial banks on the basis of major finding conclusion and picked up.

5.2 Conclusion

- 5.2.1 Average rate of return of NIBL has highest (58.75 percent), KBL has lowest (44.84 percent). From the point of view average rate of return, if investor wants to invest, he/ she should invest share of NIBL.
- 5.2.2 According to CAPM theory, MBL has the highest required rate of return of 64.74 % and LBL has the lowest required rate of return of 18.21 %. MBL is overpriced and the rest banks are under priced. So it can be say that investor will purchase of share NIBL, LBL and KBL and sell the share of MBL.
- 5.2.3 In term of risk, common stock of MBL is most risky while LBL is the least risky. If investors want to invest the share of banking sector having least risky, he/ she should purchase the shares of LBL.
- 5.2.4 From the view of Beta of MBL has the highest and LBL has the lowest beta. Hence if investor has high risk tolerance could purchase MBL's share and if investor has low risk tolerance could purchase LBL's share.
- 5.2.5 Coefficient of variation of banking sector is more than NEPSE therefore banking sector is more risky than the market as whole.

5.3 Recommendation

From the above conclusions following recommendations are

- 5.3.1. All the sampled banks betas are near between 0.5 and 2 which indicates all banks are risky so it is recommended that investors should select securities of those banks whose betas are low.
- 5.3.2. The returns on common stock of commercial banks are found less sensitive to market. Therefore this sector is attraction for the investor to invest.
- 5.3.3. On the basis of under priced or overpriced, it is recommended to the investors they should purchase those securities which are under priced and should sell overpriced securities.

BIBLIOGRAPHY

Books

- Alexander, Gordan J., Willam F. Sharpe and Jeffery V. Bailey. (2003). *Fundamentals of Investments .3rd ed.* New Delhi: Pearson Education (Singapore) Pte. Ltd., Indian Branch.
- Bajaracharya, B. C. (2057). *A Text Book of Statistics.* Kathmandu: M. K. Publishers and Distributors.
- Bajaracharya, B. C. (2058). *Business Statistics and Mathemetics.* Kathmandu: M. K. Publishers and Distributors.
- Bhalla, V.K. (1983). *Investment Management.* New Delhi: S. Chand and Company Ltd.
- Brealey, Richard A., Steward C. Myers, Franklin Allen and Pitabas Mohanty (2007). *Principles of Corporate Finance. 8th ed.* New Delhi: Tata McGraw-Hill Publishing Company Ltd.
- Chandra, Prasanna (1996). *Fundamentals of Financial Management. 2nd ed.* New Delhi: Tata McGrew-Hill Publishing Company Ltd.
- Gitman, Lowrence J. (2005). *Principles of Managerial Finance. 10th ed.* Delhi: Pearson Education (Singapore) Pte. Ltd., Indian Branch.
- Joshi, Padam R. (2004). *Fundamentals of Financial Management.* Kathmandu: Asmita Books Publishers and Distributors.
- Kothari, C.R. (1990). *Research Methodology : Methods and Techniques. 2nd ed.* New Age International (P) Ltd.
- Lipsey, Richard G., Peter O. Steiner, Douglas D. Purvis and Paul N. Courant (1990). *Economics. 9th ed.* New York: Harper and Row, Publishers.
- Pandey, I.M. (2005). *Financial Management. 9th ed.* New Delhi: Vikash Publishing house Pvt. Ltd.
- Panneerselvam, R. (2004). *Research Methodology.* New Delhi: Prentice Hall of India Pvt. Ltd.
- Reed, Edward W., Richard V. Cotter , Edward K. Gill and Richard K. Smith, J.D. (1976). *Commercial Banking.* New York: Printice-Hall Inc.
- Regmi, Resham Raj. (2064). *Banking Law of Nepal.* Kathmandu; Lumbini Pustak Pasal, Pp 1-2.

- Rose, Stephen A., Rondolph W. Westerfield and Bradford D. Jordon. (2006). *Fundamentals of Corporate Finance. 7th ed.* New York: McGraw-Hill Companies, Inc.
- Saravanavel, P. (1999). *Research Methodology.* New Delhi: Kitab Mahal.
- Schall, Lowrence D. and Charles W. Haley (1991). *Introduction to Financial Management. 6th ed.* McGrew-Hill, Inc.
- Sekaran, U. (1992). *Research Methods in Business: A Skill Building Approach.* Singapore: John Wiley and Sons.
- Sharpe, Willam F.,Gordan A. Alexander and Jeffery V. Bailey (2003, 2005, 2006). *Investments.* New Delhi: Prentice Hall of India Pvt. Ltd.
- Shrestha, Monohar K., Rajan B. Poudel and Dipak B. Bhandari (2003). *Fundamentals of Investments.* Kathmandu: Buddha Academic Publishers & Distributors Pvt. Ltd.
- Stafford, Alan D. and Catherine H. LoCascio (1995). *Introduction to Economics.* New York: McGraw-Hill Publishers.
- Sthapit, Ajaya B., Hiranya Gautam, Pushpa R. Joshi and Prakash M.Dongol (2006). *Statistica Methods. 4th ed.* Kathmandu: Buddha Academic Publishers & Distributors Pvt. Ltd.
- Subedi, Vishma R., Surya P. Devkota and Deependra K. Neupane (2062). *Banking and Insurance.* Kathmandu: Asmita Books Publishers and Distributors.
- Thapa, Kiran and Narayan Koirala (2006). *Corporate Financial Management.* Kathmandu: Khanal Books Publishers and Distributors.
- Van Horne, James C. and John M. Wachowicz, JR. (2007). *Fundamentals of Financial Management. 12th ed.* New Delhi: Dorling Kindersley (India) Pvt. Ltd.
- Van Horne, James C. (2004). *Financial Management and Policy. 12th ed.* New Delhi: Pearson Education (Singapore) Pte. Ltd.
- Weston, J. F.and E. F. Brigham (1996). *Essential of Managerial Finance. 11th ed.* New York: Harcourt Brace Collage Publisher.
- Wolf, Howard K. and Prem R. Pant (1999). *Social Science Research and Thesis Writing.* Kathmandu: Buddha Academic Enterprises Pvt. Ltd.

From Dissertations

- Bhatta,Gopal Prashad.(1995)."Assessment of the Performance of Listed companies inNepal." Master's diss., Tribhuvan University.

Khadka, Ram Hari.(2004). "Analysis of Risk and Return on Selected Nepalese Commercial Banks Listed in NEPSE." Master diss., Tribhuvan University.

Lamichhane, Bijaya Laxmi. (2006). "Risk and Return Analysis of Listed Commercial Banks in Nepal." Master's diss., Tribhuvan University.

Sapkota, Jeet Bahadur.(2000). "Risk and Return Analysis in Common Stock Investment." Master's diss., Tribhuvan University.

Satyam,MohanPurna.(2002). "Risk and Return Analysis of Listed Companies." Master's diss., Tribhuvan University.

Tamang,Buddhi Raj.(2003). "Risk and Return Analysis of Commercial Bank inNepal." Master's diss., Tribhuvan University.

Upadhyay, Sudeep.(2000). "Risk and Return Analysis in Common Stock Investment." Master's diss., Tribhuvan University.

From Journals

Berkowitz and Briens.(2002)."How Accurate are value -At- Risk Models at Commercial Banks ". A Journal of Money and Banking ,Vol.3. no.15 Pp.14-17.

Rosly and Zaini . (2008). "Investment deposits and shareholders fund". The Journal of Risk return analysis of Islamic bank V, no.1: pp. 76-84.

Sorros John N.(2003). "A case study in Equity Mutual Funds Operating in the Greek financialMarket ". Journal of Management . I, no. 1 (2008): pp. 83-90.

Pradhan, Radhe Shyam. (1993)."Stock Market Behaviour on aSmall Capital Market". Journal of Neplese Business , pp. 16-20.

Annual Report (2008-2009).Kumari Bank Ltd

Annual Report (2008-2009).Laxmi BankLtd

Annual Report (2008-2009).Machhapuchechhre BankLtd

Annual Report (2008-2009).Nepal Investment BankLtd

Websites

www.nrb.org.np

www.nepalstock.com.np

APPENDIX I

1. Calculation of Total Dividend MBL

Fiscal Year	Closing Price	Dividend		
		Cash (%)	Stock (%)	Total (Rs)
2004/05	256	-	-	-
2005/06	320	0.79	15	48.79
2006/07	620	-	-	-
2007/08	1285	1.05	21	270.9
2008/09	420	-	-	-

CALCULATION

Total Dividend = Cash (%) + Stock (%) *Closing Price

F/Y 2004/05 = 0 + 0* 256 = 0

F/Y 2005/06 = 0.79 % + 15%* 320 = Rs.48.79

Similarly for F/Y 2006/07, 2007/08 and 2008/09

Calculation of Average Return, Variance, Standard Deviation, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of MBL

Fiscal Year	Closing price (P _t)	Total Dividend (D _t)	$R_1 = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \bar{R}_1)$	$(R_1 - \bar{R}_1)^2$	$(R_m - \bar{R}_m)$	$\frac{(R_1 - \bar{R}_1)(R_m - \bar{R}_m)}{(R_m - \bar{R}_m)}$
2004/05	256	---	---	----	----	----	----
2005/06	320	48.79	0.4406	-0.1130	0.00128	0.0235	-0.0027
2006/07	620	--	10.9375	0.3839	0.1474	0.4422	0.1698
2007/08	1285	270.9	1.5095	0.9559	0.9137	0.0826	-0.079
2008/09	420	----	-0.6732	-1.2268	1.5050	-0.5483	0.6726
Total	-----	-----	2.2144	-----	2.5789	-----	0.9187
Average Return (\bar{R}_1)						0.5536	
Variance (\uparrow_1^2)						0.8596	
Standard Deviation (\uparrow_1)						0.9272	
Coefficient of Variation (C.V.)						1.6749	
Beta (β)						2.078	
Systematic Risk						0.7254	
Unsustematic Risk						0.1342	
Requires Rate of Return						64.74	

CALCULATION

$$\begin{aligned}\text{Average Return } (\bar{R}_1) &= \frac{\sum \bar{R}_1}{n} \\ &= 2.2144/4 \\ &= 0.5536 \\ &= 55.36\%\end{aligned}$$

$$\begin{aligned}\text{Variance } (s_1^2) &= \frac{\sum (R_1 - \bar{R}_1)^2}{N-1} \\ &= 2.5789/4-1 \\ &= 0.8596\end{aligned}$$

$$\begin{aligned}\text{Standard Deviation } (\sigma_j) &= \sqrt{\sigma_1^2} \\ &= \sqrt{0.8596} \\ &= 0.9272\end{aligned}$$

$$\begin{aligned}\text{Coefficient of Variation } (C.V_1) &= \frac{\sigma_1}{R_1} \\ &= 0.9272/0.5536 \\ &= 0.1.6749\end{aligned}$$

$$\begin{aligned}\text{Beta Coefficient } (j) &= \frac{\dots_{jm} \times \dagger_j}{\dagger_{cm}} \\ &= 0.9272 * 0.9187 / 0.4099 \\ &= 2.078\end{aligned}$$

$$\begin{aligned}\text{Systematic Risk} &= (j)^2 * \sigma_{cm}^2 \\ &= 2.078^2 \times 0.1680 \\ &= 0.7254\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk} &= \text{Variance} - \text{Systematic Risk} \\ &= 0.8596 - 0.7254 \\ &= 0.134\end{aligned}$$

$$\begin{aligned}\text{Required rate of Return} &= R_f + (\Sigma R_{cm} - R_f) j \\ &= 2.61\% + (32.51\% - 2.61\%) 2.078 \\ &= 64.74\%\end{aligned}$$

APPENDIX II

Calculation of Total Dividend NIBL

Fiscal Year	Closing Price	Dividend		
		Cash (%)	Stock (%)	Total (Rs)
2004/05	800	12.58	-	12.58
2005/06	1260	20	35.46	466.80
2006/07	1729	5	25	437.25
2007/08	2450	7.5	33.33	824.09
2008/09	1388	20	-	20
Total				

CALCULATION

Total Dividend = Cash (%) + Stock (%) *Closing Price

F/Y 2004/05 = 0 + 0* 800 = 0

F/Y 2005/06 = 20 % + 35.46%* 320 = Rs.466.80

Similarly for F/Y 2006/07, 2007/08 and 2008/09

Calculation of Average Return, Variance, Standard Deviation, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of NIBL

Fiscal Year	Closing price (P _t)	Total Dividend (D _t)	$R_1 = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \bar{R}_1)$	$(R_1 - \bar{R}_1)^2$	$(R_m - \bar{R}_m)$	$\frac{jm}{(R_1 - \bar{R}_1) \times (R_m - \bar{R}_m)}$
2004/05	800	12.58	---	----	----	----	----
2005/06	1260	466.80	1.16	0.5725	0.3278	0.0235	0.0135
2006/07	1729	437.25	0.72	0.1325	0.0176	0.4422	0.05860
2007/08	2450	824.09	0.89	0.3025	0.0915	0.0826	0.02499
2008/09	1388	20	-0.42	-1.0075	1.0151	-0.5483	0.5524
Total	-----	-----	2.35	-----	1.452	-----	0.6495
Average Return (\bar{R}_1)						0.5875	
Variance (\uparrow_1^2)						0.484	
Standard Deviation (\uparrow_1)						0.6957	
Coefficient of Variation (C.V.)						1.1842	
Beta (β_1)						1.1024	
Systematic Risk						0.2042	
Unsystematic Risk						0.2798	
Requires Rate of Return						35.57	

CALCULATION

$$\begin{aligned}\text{Average Return } (\bar{R}_1) &= \frac{\sum \bar{R}_1}{n} \\ &= 2.35/4 \\ &= 0.5875 \\ &= 58.75\%\end{aligned}$$

$$\begin{aligned}\text{Variance } (s_1^2) &= \frac{\sum (R_1 - \bar{R}_1)^2}{N-1} \\ &= 1.452/4-1 \\ &= 0.484\end{aligned}$$

$$\begin{aligned}\text{Standard Deviation } (\sigma_j) &= \sqrt{\sigma_1^2} \\ &= \sqrt{0.484} \\ &= 0.6957\end{aligned}$$

$$\begin{aligned}\text{Coefficient of Variation } (C.V_1) &= \frac{\sigma_1}{R_1} \\ &= 0.6957/0.5875 \\ &= 1.1842\end{aligned}$$

$$\begin{aligned}\text{Beta Coefficient } (j) &= \frac{r_{jm} \times \dagger_j}{\dagger_{cm}} \\ &= 0.6495 * 0.6957 / 0.4099 \\ &= 1.1024\end{aligned}$$

$$\begin{aligned}\text{Systematic Risk} &= (j)^2 * \sigma_{cm}^2 \\ &= 1.1024^2 \times 0.1680 \\ &= 0.2042\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk} &= \text{Variance} - \text{Systematic Risk} \\ &= 0.484 - 0.2042 \\ &= 0.2798\end{aligned}$$

$$\begin{aligned}\text{Required rate of Return} &= R_f + (\Sigma R_{cm} - R_f) j \\ &= 2.61\% + (32.51\% - 2.61\%) 1.1024 \\ &= 35.57\%\end{aligned}$$

APPENDIX III

Calculation of Total Dividend LBL

Fiscal Year	Closing Price	Dividend		
		Cash (%)	Stock (%)	Total (Rs)
2004/05	285	-	-	-
2005/06	368	-	-	-
2006/07	690	-	-	-
2007/08	1113	1.05	20	223.65
2008/09	1062	0.26	5	53.36

CALCULATION

Total Dividend = Cash (%) + Stock (%) *Closing Price

F/Y 2004/05 = 0 + 0* 285 = 0

F/Y 2005/06 = 0 % + 0%* 368 =

Similarly for F/Y 2006/07, 2007/08 and 2008/09

Calculation of Average Return, Variance, Standard Deviation, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of LBL

Fiscal Year	Closing price (P _t)	Total Dividend (D _t)	$R_1 = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \bar{R}_1)$	$(R_1 - \bar{R}_1)^2$	$(R_m - \bar{R}_m)$	$\frac{\dots j m =}{(R_1 - \bar{R}_1) \times (R_m - \bar{R}_m)}$
2004/05	285	----	---	----	----	----	----
2005/06	368	----	0.2912	-0.2352	0.0553	0.0235	-0.0055
2006/07	690	----	0.875	0.3486	0.1215	0.4422	0.1542
2007/08	1113	223.65	0.9372	0.4108	0.1688	0.0826	0.0340
2008/09	1062	53.36	0.0021	-0.5243	0.2749	-0.5483	0.2875
Total	-----	-----	2.1055	-----	0.6205	-----	0.4702
Average Return (\bar{R}_1)					0.5264		
Variance (\uparrow_1^2)					0.2068		
Standard Deviation (\uparrow_1)					0.4548		
Coefficient of Variation (C.V.)					0.8640		
Beta (β)					0.5217		
Systematic Risk					0.0457		
Unsustematic Risk					0.1611		
Requires Rate of Return					18.21%		

CALCULATION

$$\begin{aligned}\text{Average Return } (\bar{R}_1) &= \frac{\sum \bar{R}_1}{n} \\ &= 2.1055/4 \\ &= 0.5264 \\ &= 52.64\%\end{aligned}$$

$$\begin{aligned}\text{Variance } (\sigma_1^2) &= \frac{\sum (R_1 - \bar{R}_1)^2}{N-1} \\ &= 0.6205/4-1 \\ &= 0.2068\end{aligned}$$

$$\begin{aligned}\text{Standard Deviation } (\sigma_j) &= \sqrt{\sigma_1^2} \\ &= \sqrt{0.2068} \\ &= 0.4548\end{aligned}$$

$$\begin{aligned}\text{Coefficient of Variation } (C.V_1) &= \frac{\sigma_1}{R_1} \\ &= 0.4548/0.5264 \\ &= 0.8640\end{aligned}$$

$$\begin{aligned}\text{Beta Coefficient } (j) &= \frac{\dots_{jm} \times \dagger_j}{\dagger_{cm}} \\ &= 0.4548 * 0.4702 / 0.4099 \\ &= 0.5217\end{aligned}$$

$$\begin{aligned}\text{Systematic Risk} &= (j)^2 * \sigma_{cm}^2 \\ &= 0.5217^2 \times 0.1680 \\ &= 0.0457\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk} &= \text{Variance} - \text{Systematic Risk} \\ &= 0.2068 - 0.0457 \\ &= 0.1611\end{aligned}$$

$$\begin{aligned}\text{Required rate of Return} &= R_f + (\sum R_{cm} - R_f) j \\ &= 2.61\% + (32.51\% - 2.61\%) 0.5217 \\ &= 18.21\%\end{aligned}$$

APPENDIX IV

Calculation of Total Dividend of KBL

Fiscal Year	Closing Price	Dividend		
		Cash (%)	Stock (%)	Total (Rs)
2004/05	369	-	-	-
2005/06	443	1.05	20	89.65
2006/07	830	1.05	20	167.05
2007/08	1005	0.53	10	101.03
2008/09	700	0.55	10.03	70.76

CALCULATION

Total Dividend = Cash (%) + Stock (%) * Closing Price

F/Y 2004/05 = 0 + 0* 369 = 0

F/Y 2005/06 = 1.05 % + 20%* 443 = 89.65

Similarly for F/Y 2006/07, 2007/08 and 2008/09

Calculation of Average Return, Variance, Standard Deviation, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of KBL

Fiscal Year	Closing price (P _t)	Total Dividend (D _t)	$R_1 = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \bar{R}_1)$	$(R_1 - \bar{R}_1)^2$	$(R_m - \bar{R}_m)$	$\dots^{jm} = \frac{(R_1 - \bar{R}_1)}{(R_m - \bar{R}_m)}$
2004/05	369	----	---	----	----	----	----
2005/06	443	89.67	0.4435	-0.0049	0.00002	0.0235	-0.0012
2006/07	830	167.05	1.2507	0.8023	0.6437	0.4422	0.3548
2007/08	1005	101.03	0.3326	-1.1158	1.245	0.0826	-0.0922
2008/09	700	70.76	-0.2331	-0.6815	0.4644	-0.5483	0.3737
Total	-----	-----	1.7937	-----	2.3531	-----	0.6351
Average Return (\bar{R}_1)						0.4484	
Variance (\dagger_1^2)						0.7844	
Standard Deviation (\dagger_1)						0.8856	
Coefficient of Variation (C.V.)						1.9751	
Beta (β)						1.3722	
Systematic Risk						0.3163	
Unsystematic Risk						0.4681	
Requires Rate of Return						43.64%	

CALCULATION

$$\begin{aligned}\text{Average Return } (\bar{R}_1) &= \frac{\sum \bar{R}_1}{n} \\ &= 1.7937/4 \\ &= 0.4484 \\ &= 44.84\%\end{aligned}$$

$$\begin{aligned}\text{Variance } (\sigma_1^2) &= \frac{\sum (R_1 - \bar{R}_1)^2}{N-1} \\ &= 0.23531/4-1 \\ &= 0.7844\end{aligned}$$

$$\begin{aligned}\text{Standard Deviation } (\sigma_j) &= \sqrt{\sigma_1^2} \\ &= \sqrt{0.7844} \\ &= 0.8856\end{aligned}$$

$$\begin{aligned}\text{Coefficient of Variation } (C.V_1) &= \frac{\sigma_1}{R_1} \\ &= 0.8856/0.4484 \\ &= 0.8640\end{aligned}$$

$$\begin{aligned}\text{Beta Coefficient } (j) &= \frac{\dots_{jm} \times \dagger_j}{\dagger_{cm}} \\ &= 0.8856 * 0.6351 / 0.4099 \\ &= 1.3722\end{aligned}$$

$$\begin{aligned}\text{Systematic Risk} &= (j)^2 * \sigma_{cm}^2 \\ &= 1.3722^2 \times 0.1680 \\ &= 0.3163\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk} &= \text{Variance} - \text{Systematic Risk} \\ &= 0.7844 - 0.3163 \\ &= 0.4681\end{aligned}$$

$$\begin{aligned}\text{Required rate of Return} &= R_f + (\sum R_{cm} - R_f) j \\ &= 2.61\% + (32.51\% - 2.61\%) 1.3722 \\ &= 43.64\%\end{aligned}$$

APPENDIX V

Year 16 th July	NEPSE Index (Closing)	Commercial Bank Index (Closing)	Treasure Bill Rate
2004/05	286.67	304.67	2.46
2005/06	386.83	437.49	2.84
2006/07	683.95	789.21	2.42
2007/08	253.72	241.41	2.55
2008/09	749.00	780.87	2.63

Sources: NEPSE and NRB