

**A STUDY ON
RISK AND RETURN ANALYSIS OF COMMERCIAL BANKS
BETWEEN HIMALAYAN BANK LTD. AND EVEREST BANK
LTD.**

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*In partial fulfillment of the requirement for the degree of
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RECOMMENDATION

This is to certify that the thesis

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DECLARATION

I hereby declare that the work reported in this thesis entitled “**A Study on Risk and Return Analysis of Commercial Banks between Himalayan Bank Ltd. and Everest Bank Ltd.**” submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the degree of Master of Business Studies (MBS) under the supervision of **Asso. Prof. Rita Maskey** and **Bishwo Raj Poudyal** of Shanker Dev Campus, T.U.

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ABBREVIATION

AGM	-	Annual General Meeting
BVPS	-	Book Value per Share
CAPM	-	Capital Assets Pricing Model
CML	-	Capital Market Line
CV	-	Coefficient of Variation
DPS	-	Dividend per Share
EBL	-	Everest Bank Limited
ERR	-	Expected Rate of Return
FY	-	Fiscal Year
GDP	-	Gross Domestic Production
HBL	-	Himalayan Bank Limited
HPR	-	Holding period Return
IPO	-	Initial Public Offering
MBS	-	Masters of Business Studies
MPS	-	Marker Price per Share
n. d	-	No date of publication
n. p	-	No place of publication
N/G	-	Nepal Government
NA	-	Not Applicable
NEPSE	-	Nepal Stock Exchange Limited
No.	-	Number
Pvt. Ltd.	-	Private Limited
RRR	-	Required Rate of Return
SD	-	Standard Deviation
SEBO	-	Security Board
SML	-	Security Market Line
TU	-	Tribhuvan University

CHAPTER-7

INTRODUCTION

1.3 Background of the Study

Nepal is known as underdeveloped and landlocked country and poor country in all over the world. Most of the people depend on the agriculture sector but they are not earning as compared to their investment from the agriculture product because of the traditional system of working process. The country's economic activities have increased very slowly. The economic condition of the country cannot be improved only with the development of agriculture. Economic sector plays vital role to change the nation's aggregate development. So the establishment and development of different non agriculture based industry and institutions are essential for the rapid economic growth of the country and also should be given priority to its successful operation. All round development of the country can be possible with the development of industry and business. Unemployment problem can be solved and resources can be utilized properly by the help of industries.

After the adoption of liberal economic policy many business institutions were established in private and public sector. The contribution of industrial production is about 10 percent in the GDP. They collect necessary capital from the public by selling their shares and debentures. The transaction of share in the market is increasing. Nepal stock exchange, (NEPSE) is only authorized institution for share transaction. It works as mediator between the seller and purchaser of shares in the open market. The company can issue the share after registration in the NEPSE. All the interested investors can invest their saving in the share of companies with the help of NEPSE for effective and smooth share transaction. The share transaction is the indicator of the trend of national economy. The investors should analyze the financial position of the company before purchasing their share on the basis of risk and return relationship.

Each and every individual investor wants to invest his capital in more secure and more returnable investment area. But the investor does not bear risk he cannot earn more return by easy way. If the investor wants to yield more return he must bear high risk. When the saving is converted into profitable investment then risk is associated with the profitability of that investment. Thus, risk and return always is a significant analysis to every investor. To maximize the share price, the financial manager must learn to assess two key determinants risk and return characteristics and the unique combination of characteristics has an impact on share price (Gitman, 2001:236). Investor can invest his capital by different way of investment like giving loan to another person, promoting sole trading business, purchasing risk free T-bills, debenture, bond, preferred stock, common stock etc. here my study area is investment of common stock of some listed commercial bank in Nepal. Common stock represents commitment on the part of a corporation to pay periodically what ever its board of directors seems to appropriate as a cash dividend (Shrestha, 1995:1). Investors of common stock are the ultimate owners of the company and ultimate risk is associated with ownership. So the common stock is known as risky security. Thus, before the investment made in common stock, investor must consider the risk associated with their investment and to do so, they need to; define the risk properly.

Now a day, each and every managerial decision making is based on financial analysis. It covers the acquisition, utilization, control and administration of fund. Managerial finance is an interesting, exciting and dynamic area of study. And its importance to the long run success of today's business is unquestioned (Gitman, 2001:250). Common shareholders are the residual owner of the firm. In real, they are the real owner of the firm. They invest in the firm. That is why, they participate in the management and entitled to all the profit left after all liabilities or claims are satisfied. So common shareholders have to bear all the risk relating to the business. Thus, common stock is the most risky security. The rights and responsibilities attached to the equity consist of positive considerations (income potential and control of the firm) and negative

considerations (loss potential, legal responsibilities, and personal liability) (Weston and Copeland, 1992:931).

Risk is the better truth of the life, which is a product of future uncertainty and its magnitude depends upon the degree of variability in uncertain cash flow. Risk in fact, is an indication of chance of losing investment back. Interpretation of risk varies as per people's attitude towards it, in real; risk is any unknown, unfavorable event. It is a chance of happening some or huge unfavorable event or danger of losing some materials value.

Risk was defined as the variability of possible outcomes from that which was expected an investor always wants high return but low risk which is totally impossible. Where there is high return, there is high risk and vice versa. To earn more return, people invest their wealth in common stock thinking that they will get the entire residual amount as dividend. But their expected return may or may not be high in reality. So, it can be easily conclude that return is uncertain. This uncertainty is the major risk to investor in common stock investment.

The return on investment is dividend plus, changes in market price of the share (MPS). It is expressed in percentage. Both of these items are uncertain. So the actual return on investment in common stock may differ substantially from the expected return. Return is the income received in investment. People invest their belongings with an expectation of getting some reward for leaving its liquidity. They only invest in those opportunities where they can get higher return. Hence, investor wants favorable return to be yield by its stock. And go for those, which yield more.

The expected rate of return for any asset is the weighted average rate of return using then probability of each rate of return as the weight

To invest in common stock the following investment procedure need to be considered (Sharpe et.al, 2005:11)

-) Set investment policy
-) Perform security analysis
-) Construct a portfolio
-) Revise the portfolio
-) Evaluate the performance of portfolio

The investment activity must consider the following dimensions:

-) Maximization of expected return for varying levels of risk.
-) Minimize the risk for varying level of expected return.

In context of Nepal, many investors invest their money on single security without considering the investment process and calculating risk. Though some of the investors invest in two or more it is found that they don't make any analysis of portfolio before selection of such securities of invest. They invest their money in different securities on the basis of expectation and assumptions of individual security rather than analysis of portfolio. So, it is a must to make them well acquainted with these tools along with their practical implication on investment decisions and evaluation.

Generally, investors are risk averse; they are always seeking higher return for more risk as risk premium. So, primary problem in investment is to identify the security which has low risk and high return. However, return can not increase substantially; risk can reduce by diversification of funds in different stock making a portfolio. Well diversified portfolio can eliminate the unsystematic risk, which is not explained by general market movement. Systematic risk, which is associated with change in return on market as a whole can not be avoided by, are obviously an important concept in investment and hence to be provided to investors to motivate them to invest rationally.

1.4 Introduction of Stock Market

Stock market is a financial market which probably has the greatest glamour and is perhaps the least understood. Some observers consider it as a legalizes heaven for

gambling and many investors stock market investing as a game in which the sole purpose is picking winners.

Capital market is the part of financial market. A financial market is a market in which financial asset such as stocks and bonds can be purchased or sold. One party transfers funds in financial market by purchasing financial asset previously hold by another party. Financial market facilitates financing and investing by households, firms and governments agencies. The main objective of market is to create opportunity for maximum number of people to get the benefit from the return obtained by directing the economy towards the productive sectors by mobilizing the long term capital. The objective can be fulfilled only by the rational and accountable behavior relating to the three factor of the capital market such as institution, mediator and investor. Emergence growth and popularity of corporate securities, including common stock are accompanied by the development of capital market.

Financial market comprises of money market and capital market. Money markets for debt security that payoff in the short-term i.e. less than one year, like government treasury bills of 90 days. Capital market refers to the market for long term debt equity shares. Theses can be further dividend into primary market and secondary market. Primary market is the market where the shares are issued to general people for the first time and in the secondary market the securities that have already been purchased by the general public in primary market are traded again and again.

1.3 Introduction of Nepal Stock Exchange

In Nepalese context the institutional development of securities market began along with the ‘‘Securities Exchange Center’’ (now Nepal Stock Exchange Limited) in 1976 A.D. as the institutional set up of securities market supports to potential investor by providing information of listed companies stock regularly and manage trading environment of the stocks.

Securities Exchange Center was established with an objective of facilitating and promoting the growth of capital markets. Before conversion into stock exchange it was the only capital market institution under taking the job brokering underwriting managing public issue, market making for government bonds and other financial services.

Nepal Government, under a program initiated to reform capital markets converted Securities Exchange Center into Nepal Stock Exchange in 1993. Nepal Stock Exchange, in short NEPSE, is a non profit organization, operating under Securities Exchange Act 1983.

The basic objective of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transaction in its trading floor through member, market intermediaries, such as broker, market markers, etc. NEPSE opened its trading floor on 13th January 1994.

Listing is primarily determined by the wishes of the economy, the size of the company and the trading activity of the stock.

And Stock exchange means any body of individuals, whether incorporated or not, constituted for the purpose of regulating or controlling the business of buying, selling or dealing in securities. Security market exists in order to bring together buyers and sellers of securities meaning their mechanism are created to facilitate the exchange of financial assets

1.4 Commercial Bank in Nepal

In general, bank means an institution that accepts deposits in different account and provides loans of different types. Many changes have taken place in the functions of a bank from the initial stages of its development to present day. There are many types of bank which do not accept deposits such as central bank and industrial bank.

The modern complex economic system can not function without bank. The banking system has facilitated the personal transactions such as deposit and remittance of money, and lending and borrowing of money. It has made easier to develop agriculture, industry and trade. At the same time it has helped to accelerate the pace of economic development. The bank helps in mobilization and allocation of scarce resources, which are essential for economic development.

When a bank performs multiple tasks, the efficiency and effectiveness of work become weak. Hence, different bank are established with different purpose and in different categories. Among them commercial bank are only the focus of this study.

The commercial bank is the oldest form of bank. There are various changes in the original concept and functions of commercial bank. In general, banks mean the commercial banks. In other words, The bank that collect deposit, advance loans and provide wide range of financial service are called commercial bank. Commercial banks are established as a joint stock company with a view to earn profit. Thus, banks are regarded as the heart of modern economy. It is because they mobilise resources by collecting deposit and canalise those resources to productive sector by granting loans.

In Nepal, for a very long time the development of bank was affected by the rule of Rana Government and the slowdown in the Nepalese economy. Nepal Bank Limited was established on 30th Kartik 1994 (BS) as the first commercial bank of the country. That time also the banking sector wasn't in growth and progress. Nepal Bank Limited also going on 30 year without any competitor, Nepal Rastra Bank was established on 14th Baishakh 2013 (BS) as the central bank of Nepal. The second commercial bank,

Rastriyan Banijya Bank was established on 2022 (BS) in order to play major role not only domestic also in foreign trade.

With the initiation of economic liberalization in the country, entry restriction on banking business was lifted. So, the number of private and commercial bank have been established such as Nabil Bank Ltd (2041), Standard Chartered Bank Ltd (2043), Himalayan Bank Ltd (2049), Everest Bank Ltd (2051), Nepal Investment Bank Ltd and many more.

1.5 A Brief Overview of Commercial Banks Selected for the study

i) Himalayan Bank Ltd. (HBL)

Himalayan bank ltd. was established on 1992 A.D. (B.S. 2048) which was the first foreign joint-venture bank managed by Nepalese chief executive joint-venture with Habib Bank Ltd. Pakistan. Himalayan bank ltd was listed in NEPSE on 03-21-2050 B.S.

Table 1.1
Capital Structure of HBL

Authorized Capital	Rs. 2,00,00,00,000
Issued Capital	Rs. 1,21,62,15,000
Paid Up Capital	Rs. 1,21,62,15,000
Par Value Per Share	Rs. 100
No. of Shares	1,21,62,150

Data Source: www.himalayanbank.com

i) Everest Bank Ltd (EBL)

Everest Bank Limited (EBL) started its operations in 1994 with a view and objective of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer-friendly services through its Branch Network. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS), which enables customers for operational transactions from any branches.

Table 1.2
Capital Structure of EBL

Authorized Capital	Rs. 1, 00, 00, 00,000
Issued Capital	Rs. 84, 06, 20,000
Paid Up Capital	Rs. 83, 88, 21,000
Par Value Per Share	Rs. 100
No. of Shares	83, 88, 210

Data Source: www.ebl.com.np

1.6 Focus of the Study

There are different types of securities via government bonds, corporate bond, preferred stock, common stocks etc. Among these securities this study has focused on Risk and Return Behavior of common stocks of securities among the selected commercial Banks, which enables all the stakeholders to guide the investment related activities. Benefits of the study received primarily by potential investors. Security businesspersons, issue manager, broker and marketing managers will also be benefited by this study.

1.7 Statement of the Problem

The investment opportunities are shrinking due to the economic recession through out the country. This may be the major reasons that banks have been found to be unable in utilizing the available fund efficiently. Because of unfavorable present situation, these banks are being compelled to reduce in the interest rate offered to depositors in order to minimize the collection of deposit. In this situation, Nepalese banks were suffering from various problems. Lower per capita income, high population growth rate, lack of inadequate infrastructure and lower economic growth rate are the features of Nepalese economy. Similarly, lower employment opportunities as well as high unemployment in agriculture sectors are the challenging issues in national economy. All these unfavorable circumstances of economy adversely impact on investment activities. On the other hand, due to the lack of knowledge and information about the security market large amount of saving being stayed idle. Most of the investors aren't aware of

the financial position of the companies in term of their financial indicators, in which they are investing their fund through primary and secondary markets. The market price of common stock does not seem to be in accordance with the financial indicators NWPS, EPS, DPS, ROE, e.tc. Instead, in determination of the market price of share, there has been major influence of rumors rather than strength of the companies.

Risk and Return is a new concept in Nepalese financial market and the investors have also little knowledge in risk and return management due to lack of adequate information as well as present unstable political and economical condition the stock price volatility rate is high. Because of that, the investors are losing their confidence toward NEPSE and hesitate to invest in securities, so investors who invest in common stock do not made investment activities rationally.

A part from mentioned problem, there are no any separate institution, which provide information required to rational decision that can accelerate the stock investment and market efficiency. Government policy is less encouraging in promoting common stock investment trading volume, absence of professional brokers, early limited information available to investors.

To sum up this study deals with the following issues:

-) How much risk is associated with common stock investment?
-) How much return is provided by the commercial bank to their common stockholders?
-) What kind of relation does exist with risk and return?
-) What extent there is systematic risk is related to total risk?
-) Does the relation between risk and return support the theory of CAPM?
-) Does the portfolio of common stock of commercial bank help to reduce the risk?
-) What is effect of portfolio on return?

1.8 Objectives of the Study

The general level objective of this study is to examine the situation of securities market of Nepal and to assess the risk and return on common stock investment of commercial banks. The specific level objectives of the study are:

-) To analyze the risk and return associated with the common stock of Commercial Banks.
-) To study and analyze the relationship of each bank's return & market return's.
-) To analyze dividend of each bank
-) To analyze Earning per share of each bank

1.9 Significance of the Study

Open economic policy of the government encouraged the establishment of the financial institution. As result the people's participation in security investment and stocks trading is increasing unexpectedly. The recent trend and attitude towards common stock investment shows that there is a high potentiality in stock investment, which result an increase in economic activity. It is important to increase financial and economic activities to nation. But in Nepalese context, very few studies and research are made and there are no specific journals and articles on the topic. Thus this study has tried to fulfill the need in this aspect. The study may also help for interested management. A part from above, this study will be a matter of interest for academicians, students, practitioners, concerned authority: i.e. analyst, promoters, investors, shareholders and policy makers.

1.10 Limitation of the Study

Each and every researcher is bounded by certain limitation of time, resources, study material, data etc. so this study is also not free from its limitation. The main limitations are:

-) Only Cash dividend is considered for the study.
-) Secondary data has been used and the authentic of the result depends upon the data.
-) Only limited tools have been used for the study.
-) Variation in data published from different source e.g. figure published by NEPSE, NRB, SEBON and related companies differ to some degree.
-) The study is only to fulfill the requirement of Master Degree in Business Studies so the study cannot cover all the dimension of the subject matter.
-) Resource and time period are also the major limitation of the study.

1.12 Organization of the Study

The whole study is divided into the following five chapters. These are as follows:

Chapter-I: Introduction

The first chapter includes background, stock market, Nepal stock exchange, commercial banks in Nepal, a brief overview of selected commercial banks for the study, focus of the study, statement of the problem, objective of the study, significant of the study, limitation of the study and organization of the study.

Chapter-II: Review of Literature

The second chapter deals with conceptual framework like capital market, security, common stock, stock certificate, stock exchange, theories of risk and returns, review of relevant research studies and related studies.

Chapter-III: Research Methodology

The third chapter contains research methodology employed in the study. It includes the introduction, research design, nature and sources of data, tools of analysis and definition of key items.

Chapter-IV: Presentation and Analysis of Data

The fourth chapter contains presentation and analysis of data. In this chapter, rough data are collected and presented in tables thereafter major findings and analysis of interpretation of data have been performed.

Chapter-V: Summary, Conclusion and Recommendations

This fifth chapter contains summary and conclusion of the study. After that all necessary recommendations are presented.

At the last part of the study, a bibliography has been included. All necessary appendixes are also included after bibliography.

CHAPTER-II

REVIEW OF LITERATURE

2.1 Introduction

Review of literature means reviewing research studies or other relevant propositions in related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be concluded. It is an integral mandatory process in research works.

The objective of this chapter is to present basic concept on risk and return provided by various renowned writers through different books and journals. Various independent studies, unpublished previous thesis, article, are incorporated, in this chapter. Reviewing these all provides us background to research work, guidelines to deal with prospective below consecutively.

2.2 Conceptual Framework

Before getting into the core subject matter of the risk-return analysis of the common stock investment in the market it is imperative to be acquainted with the general concepts of the share and other related matters and the general profile of the selected company under study as well. Following section will be explaining the conceptual matters of the capital market and give an introduction of the sample company under it.

2.2.1 Capital Market

Capital market is a market for long-term securities having maturities greater than one year

Capital market is a mechanism through which public savings are channelised to industrial and business enterprises. The key instruments used in capital market are debts, stock, preferred stocks, bonds and convertible issues.

Capital market, in other words, can be defined as the market place where the trading of capital will be done. In order to trade there must be demanders of capital and suppliers of capital. The suppliers of capital are the individuals and institutions. They can supply the capital by converting their hard savings into investment and also can make investment by borrowings from the financial intermediaries such as commercial banks, financial institutions, provident fund, and others. Besides individuals, the financial intermediaries can also participate in the market.

Primary Market

A primary market is the offering of stocks or bonds that have never been previously issued.

Secondary Markets

Secondary market is the market place where second hand securities are traded. It means securities once purchased through primary market are traded in secondary market. Both primary and secondary markets are complementary to each other. In the absence of one market other market remains incomplete. Secondary market comprises organized stock exchange and over-the counter market.

2.2.2 Security

When someone borrows money for a vacation, he or she may simply sign a piece of paper promising repayment with interest. The loan is unsecured in the sense that there is no collateral, meaning that no specific asset has been promised to the lender in the event of default. In such a situation the lender would have to take the borrower of court to try to recover the amount of the loan. Only a piece of paper called promissory note stands as evidence of such a loan.

When a firm borrows money, it may or may not offer collateral. For example, some loans may be secured (backed with specific pieces of property: building equipment). Such a loan are recorded by means of mortgage bonds, which indicate the term of

repayment and the particular assets pledged to the lender in the event of default. However, it is much more common for corporation to simply pledge all of its assets, perhaps with some provision for the manner in which the division will take a place in the event of default. Such a promise is known as a debenture bond.

In general, only a piece of paper represents the investor's rights to certain prospects of property and the conditions under which he or she may exercise those rights. This piece of paper, serving as evidence of property rights, is called a security. It may be transferred to another investor, and with it will go all its rights and conditions. Thus everything from pawn ticket to a share of GM common stock is a security. Hereafter that the term security will be used to refer to a legal representation of the right to receive prospective future benefits under stated conditions.

2.2.3 Common Stock

The study is focused on common stock investment therefore light is thrown on it. Common stock represents an ownership position in a corporation. It is a residual claim, in the sense that creditors and preference shareholders must be paid as scheduled before common stockholders can receive any payment. In bankruptcy common stockholders are in the principal entitled only to assets remaining after all prior claimants have been satisfied. Thus risk is highest with common stock and so must be in this excepted return. When investor buys common stock, they receive certificate of ownership as a proof of there being part owners of the company. The certificate states the numbers of shares purchased and their par value.

All the shares, with the exception of preference shares, are regarded as equity shares (common stock) (Nepal company act 2053). In Nepal, as per the provision of Nepal Company Act 2053, the par value of a share should be Rs. 10 or Rs.100. The issuance trend of common stock of Nepalese company is Rs. 100 per share.

Common stocks have one important investment characteristics and are important speculative characteristics. Their investment value and average market price tends to increase regularly but persistently over the decades as their net worth builds through the reinvestment of undistributed earnings. Of all the forms of securities, common stock appears to be the most romantic, which fixed income investment revenue may be more important to most of the investor; common stock seems to capture their interest the most. The potential reward and penalties associated with common stock (equity) make them an interesting even exciting proposition, no wonder; common stock investment is a favourite topic for conversation in parties and get together (Prasanna, 2012).

2.2.4 Stock certificates

A single certificate has typically represented the ownership of a firm's stock, with the number of shares held by the particular investor noted on it. Such a stock certificate is usually registered. With the name, address and holding of the investor included on the corporation's books. Dividend payments; voting materials, annual and quarterly reports and other mailings are sent directly to the investor, taking into account the size of his or her holdings.

Shares of stock held by an investor may be transferred to a new owner with the assistance of either the issuing corporation or, more commonly, its designated transfer agent. This agent will cancel the old stock certificate and issue a new one in its place, made out of the new owner. Frequently, a registrar will make sure that this canceling and issuing of certificate has been done properly. Usual- holders have chosen to avoid these rather cumbersome procedures (Sharpe, Alexander and Baily, 2000: 502).

2.3 Meaning and Theories of Risk and Return Analysis

Return is sacrifice of the current investment for the future benefit. Future is uncertain; hence future return will be associated with some risk. The risk associated with an

investment may be defined as the variability that is likely to occur in the future returns from the investment risk is related to future.

But risk is manageable rather than uncertain. Company's specific risk and company's ability to serve its debt burden are intimately related to the particular, they are affected by economic conditions and management's ability to generate satisfactory operating performance. The return from holding an investment over some period says a year is simply any cash payments received due to ownership, plus the change in market price, derived by the beginning price. The single-period rate of return is the basic random variable in investment analysis. "This rate of return concept is important because it measures the speed at which the investor's wealth increases or decreases. An investor would receive during the investment period or holding period stated as a percent of the investment's price at the start of the holding period.

An investor can obtain two kinds of income from an investment in a share or stock or bond.

-) Income from price appreciation (or losses from price depreciation) some time called capital gain or loss.
-) Cash flow income from cash dividend or coupon interest payment represented by conversation.

The sum of these two sources of income or loss equals the change in the invested wealth during any given holding period. The rate of return formula can be restated in a form appropriate for almost any investment.

$$r = \frac{\text{price change} + \Gamma \text{ cash flow (if any)}}{\text{beginning wealth (or, purchase price)}} = \frac{p_t - p_{t-1} + \Gamma c_t}{p_{t-1}}$$

Where,

p_t = market price at end of period t.

p_{t-1} = price at end of period t-1.

c_t = cash flow income received during the period(Francis& Clark,1991:1-2).

The dictionary defines risk as ‘the chance of injury, damage or loss. This is an intuitively pleasing definition. However, different people can interpret verbal definitions in different ways. They can be made clearer only.

“Return on a typical investment consists of two components basis ”

component is the periodic cash receipt (or income) on investment, either in the form of interest or dividends. The second component is the change in the price of the asset- commonly called the capital gain or loss. Thus, element of return is the difference between the purchase price and the price at which the asset can be or is sold; therefore, it can be a gain or loss.

The income form and investment consists of one or more cash payment paid at specific intervals of time. Interest payments on most bonds are paid semiannually, whereas dividends on common stocks are usually paid quarterly. The distinguishing feature of these payments is that they are paid in cash by the issuer to the holder of asset.

The term yield if often used in connection with this component of return. Yield refers to the income components in the relation to some price for a security. For our purposes, the price that is relevant is the purchase price of the security. The capital gain or loss must also be considered” (Fisher & Jordon, 2000:6).

Return may vary due to factors listed below as elaborated by Francis:

Some risk factors that may affect an asset

-) Interest rate risk
-) Purchasing power risk
-) Bull-bear market risk
-) Management risk

-) Default risk
-) Liquidity risk
-) Capability risk

Equals: Total risk Var. (R)

Unpredictable character of income, variability of returns, chances of suffering losses and probability of earning less than expected etc, these all indicate riskiness of common stock.

Investors want to maximize expected returns subject to their tolerance for risk. Return in the motivating factor and the principle reward in the investment process and it is the key method available to investors in comparing alternative investments. Measuring historical returns allows investors to assess how well they have done, and it plays a part in the estimation of future, unknown returns.

It is need to distinguish between two terms often used in the language of investments: realized return and expected return. Realized return is after the fact return that was earned. Realized return is history. Expected return is the return from an asset that investors anticipate they will earn over some future period. It is a predicted return. Investors should be willing to purchase a particular asset if the expected return is adequate, but they must understand that their expectation may not materialize.

Risk is a difficult concept to grasp, and a great deal of controversy has surrounded to define and measure if the tighter the probability distribution of expected future returns the smaller the risk of a given distribution. To be most useful, any measure of risk should have a definitive value- we need a measure of the tightness of the probability distribution. One such measure is the standard deviation, the symbol for which is pronounced sigma. The smaller the standard deviation, the tighter the probability distribution and accordingly the lower the risk ness of the stock.

The average rate of return is the sum of the various one period rates to return divided by number of periods. Variability of the return may be defined as the extent of deviations (dispersions) of individual rates of return from the average rate of return.

Following formula can be used to calculate variance and standard deviation on historical rate of return of a share.

$$\sigma = \sqrt{\frac{1}{n} \sum_{i=1}^n (R_i - \bar{R})^2}$$

Where,

σ = Standard deviation

R = Holding period rate of return

\bar{R} = Expected or average return

Higher the standard deviation of past return, greater will be risk due to the volatile composition of the past return and future would be more unpredictable and uncertain on the other if smaller the standard deviation, lesser will be the risk due to the return pattern being less volatile and more predictable as well.

“Instead of using historical data for calculating return and risk we must use forecasted data and for this purpose we shall have to think of the outcomes of the dividend and the share price under possible economic condition to arrive at a judgment about the expected return. Similar judgment will have to be carried to estimate the chance or likelihood for each outcome anticipated by us to occur. If each outcome will be multiplied by its probability and sum them, we shall obtain the expected rate of return $E(R)$ ” (Weston & Copeland, 1992:118).

“Another useful measure of risk is the coefficient of variation (CV), which is the standard deviation divided by expected return. The coefficient of variation shows the risk per unit of return, and it provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same” (Weston & Copeland, 1992:120).

From the above discussion it is clear that “the fact that most investors do not place available funds into the one or two stock promising the greatest returns suggests that other factors must be considered besides return in the selection process. Investors not only like return, they dislike risk. To say that investors like returning and disliking risk is however simplistic. To facilitate our job of analyzing securities and portfolios with in a risk return context we must begin with a clear understanding of what risk and return are, what creates them, and how they should be measured.

The ultimate decisions to be made in investment are (i) Which securities should be hold and (ii) how many amount should be allocated to each. These decisions are normally made in two steps. First, estimates are prepared of the return and risk associated with available securities over a forward holding period. This step is known as security analysis. Second, return-risk estimates must be compared in order to decide how to allocate funds among these securities on a continuing basis. This study comprises portfolio analysis. In effect, security analysis provides necessary inputs for analyzing and selecting portfolios. Security analysis is built around the idea. Those investors are concerned with principal properties inherent in securities: the return that can be expected from holding a security, and the risk that the return that is achieved will be less than the return that was expected” (Fisher & Jordon, 2000:65).

“In theory, three possible attitudes toward risk are identifying: a desire for risk, an aversion to risk and indifference to risk. A risk seeker is one who prefers risk. Given a choice between more or less risky investments with identical expected monetary returns, this person would prefer the riskier investments. Faced with the same choice, the risk averter would select the less risky investment.

About portfolio risk and return, “Most financial assets are not hold in isolation; rather they are hold as parts of portfolio, even individual investors- at least those whose security holdings constitute a significant part of their total wealth- generally hold stock portfolio is not the stock of only one firm. This being the case, from an

investor's standpoint the fact that a particular stock goes up or down is not very important: what is important is the return on his or her portfolio, and the portfolio's risk.

Logically, then the risk and return of an individual security should be analyzed in terms of how that security affects the risk and return of the portfolio in which it is held" (Weston & Copeland, 1992:124).

Rate of return on portfolio simply is a weight average of expected returns, for securities making up that portfolio. The weights are equal to the proportion at total funds invested in each security and the weights must sum to 100 percent.

The return on portfolio can be determined using the equation below:

$$\bar{R}_p = \sum_{i=1}^n X_i \bar{R}_i$$

Equation indicates that the portfolio return is the proportion of wealth in each assets (X_i) multiplied by respective assets return (\bar{R}_i) and summed overall assets in the portfolio.

As the mean (the expected return on portfolio) and variance (or standard deviation is the foundation of the portfolio decision now let's turns to the risk of portfolio and its measurement.

As we just discussed, "The expected return of a portfolio is simply a average of the expected returns on the individual stocks in the portfolio. However, unlike returns, the riskiness of a portfolio p is generally not a weighted average of the standard deviations of the individual securities in the portfolio" (Weston, Fred & Copeland, 1992:125).

The portfolio variance (or standard deviation) is affected by the association of movement of returns of two securities, covariance of movement of returns of two securities measures their co-movement.

The reason why the weighted average of standard deviation fails to yield the correct standard deviation of portfolio is that it ignores the relationship or co-variance, between the returns of two securities.

The variance of two security portfolio is given by the following equation:

$$\sigma_p^2 = X_i^2 \sigma_i^2 + X_j^2 \sigma_j^2 + 2X_i X_j \sigma_i \sigma_j \rho_{ij}$$

“It may be noticed from the above equations that variance of portfolio is not simply the weighted average to the variance of return of the individual securities in the portfolio. The variance of a portfolio includes the proportionate variance of the individual securities and covariance of the security along with the weights of securities. The variance depends on the correlation between the securities in portfolio.

Covariance between two assets can be measured by using the expression:

$$\text{COV}_{ij} = X_i X_j \rho_{ij}$$

The covariance measures how two variables co-vary. If two assets are positively correlated, their covariance will also be positive. For example most common stocks have a positive covariance with each other. If two variables are independent, their covariance is zero. If two variables vary inversely their covariance is negative (Francis & Jack, 1991:234).

The degree of correlation between returns of stock is most influencing factor on portfolio construction and its benefit.

“The correlation coefficient always lies between +1.0 and -1.0. Return of security vary perfectly together when the correlations +1.0 (or perfectly positive) and in perfectly opposite when it is -1.0 (or perfectly negative). A zero correlation coefficient implies

that there is no relation between the returns of securities. In practice, the correlation coefficient of returns may vary between +1.0 and -1.0. How the portfolio variance is affected by the correlation coefficient is describe below.

-) When the returns of two securities are perfectly negatively correlated the portfolio variance will be zero. The combination of this security completely reduces the risk.
-) When the returns of two securities are perfectly positively correlated, the portfolio variance will be just equal to the variance of individual securities and thus, combination of these securities is as risky as the individual securities.
-) When the return of two securities are weakly positively correlated, the portfolio variance will be less than the variance of individual security.
-) When the return of two securities is weakly negatively correlated, the portfolio variance will be less than that of weekly positively correlated returns of securities.

From the above we come to know that “ In one extreme cases ($r = -1$) risk can be completely eliminated, while in the other extreme case ($r = +1$) diversification does not good, whatever in between these extremes, combining two stocks into a portfolio reduces, but does not eliminate the risk ness inherent in the individual assets” (Weston, Fred & Copeland, 1992:127).

2.3.1 Portfolio

A portfolio is a collection of investment securities. If you owned some General Motors, stock, some Exxon stock and some IBM stock, you would be holding a three stock portfolio (Weston & Brigham, 1996:193). In other words, a portfolio is defined as a combination of assets. Portfolio theory deals with the selection of optimal portfolio; that is, portfolios that provide the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Since portfolio theory has been developed most thoroughly for financial asset stock and bonds. A fundamental aspect of portfolio theory is the idea that the riskiness inherent in any single asset held in a portfolio is different from the riskiness of that asset held in isolation. As we shall see, it is possible for a given asset to be quite risky when held in isolation, but not very risky of held in a portfolio (Weston and Copeland, 1992:366-368).

For a portfolio of two or more securities, things are different. The expected return r_p is straightforward:

$$r_p = \sum_{j=1}^m r_j A_j$$

Where, r_j is the expected return on security j , A_j is the proportions of total funds invested in securities j , and m is the total number of securities in the portfolio. The Greek sigma denotes the summation from security 1 through security m . This equation merely says that expected return for a portfolio is a weighted average of expected rate for securities making up that portfolio (Van Horn, 2006: 51).

The modern portfolio theory, originally, was proposed by Harry Markowitz in 1990 for portfolio theory in economy. He gave a very new concept of investment on more than single asset to minimize risk and maximize return. The portfolio theory developed by Markowitz based on following assumption:

-) The expected return from an asset is the mean value of probability distribution of future return over some holding period.

-) The risk of an individual asset or portfolio is based on the variability of return (i.e standard deviation or variance).

2.3.2 Choosing the Optimal Portfolio

Investors are risk-averse. They would choose that portfolio which offers highest return for a given level of risk.

Optimal portfolio can be chosen out of the feasible set. The feasible set simply represents all portfolios that can be formed for a group of N securities that is all possible portfolios that could be formed from the N securities lie either on or within the boundary of the feasible set.

2.3.3 Markowitz Efficient Frontier

According to the Markowitz mean variance maxim an invest or should seek a portfolio of securities that lies on the efficient. A portfolio is efficient if there is another portfolio with a higher expected return and a lower standard deviation, a higher expected return and the same standard deviation, or the same expected return but a lower standard deviation. If your portfolio is not efficient, you can increase the expected return without increase the risk, decrease the risk without decreasing the expected return, or obtain some combination of increase expected return and decreased risk by switching to a portfolio on the efficient frontier (Van Horn, 2006:58). An investor will choose his or her optimal portfolio from the set of portfolio that

-) Offer maximum expected return for varying level of risk and
-) Offer minimum risk for varying level of expected return.

The set of portfolio meeting these two conditions is known as the efficient set (also known as the efficient portfolio).

Under the Markowitz portfolio theory, an investor invest in those portfolios a) which have the highest return of portfolio at similar level of risk and b) which have the

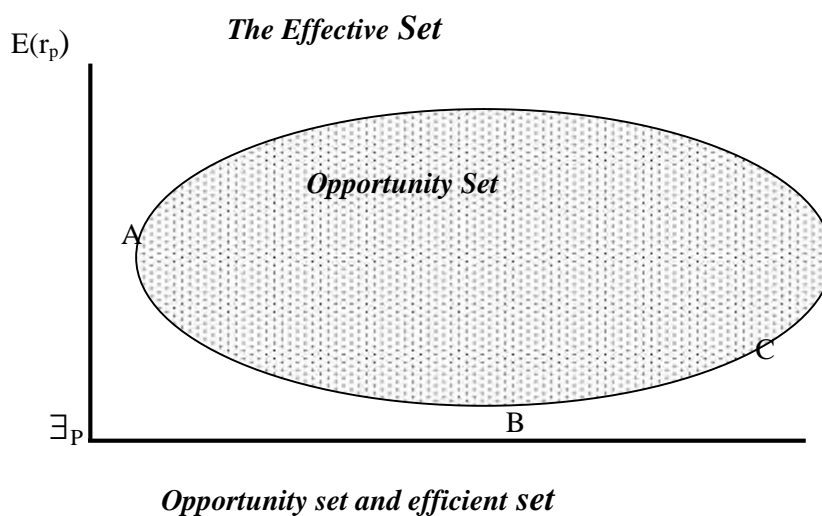
lowest risk at similar level of portfolio return. Thus, the portfolio giving the highest return at a similar level of risk and the lower risk at a similar level of return are called dominant portfolios.

For example:

Portfolios	$E(r_p)$	\dagger_p
A	15%	7%
B	13%	6%
C	14%	6% (dominant: it dominates B and E)
D	15%	8%
E	12%	6%
F	15%	5% (dominant: it dominates B and D)

In above the example, the group of all portfolio is called an opportunities set of portfolio. Portfolio C and F are the dominant portfolios. The dominant portfolio is called efficient portfolios. The group of efficient portfolios is called an efficient set of portfolio. The efficient set of portfolios comprises the efficient frontier. The efficient frontier dominates all other portfolio.

Figure 2.1
Efficient Frontier



In above the figure, the shadowed area is the opportunity set, A C is the efficient set, the line of locus of dominating portfolios A C is the efficient frontier and the line BAC is the minimum variance opportunity set (Bhattarai Rabindra, 2010:120).

2.3.4 Risk Diversification

Van Horn describes the total risk into two parts i.e. systematic risk and unsystematic risk, which can be presented of follows:

Total Risk = Systematic Risk + Unsystematic Risk (Van Horn, 2006: 66).

Total risk can be measured by the variance of return $\text{var}(r)$. This measure of total risk is partitioned into systematic and unsystematic component in equation.

$$\text{var}(r_i) = X b_i^2 \text{var}(m) + \Gamma \text{var}(e)$$

The unsystematic risk measure $\text{var}(e)$ is called in regression language the residual variance or synonymously, the standard error squared.

The percentage of total risk that is systematic can be measured by coefficient by determination p^2 i.e., $\text{systematic risk}/\text{total risk} = b^2 \text{var}_m/\text{var}(r_i) = \text{portion of systematic risk}$.

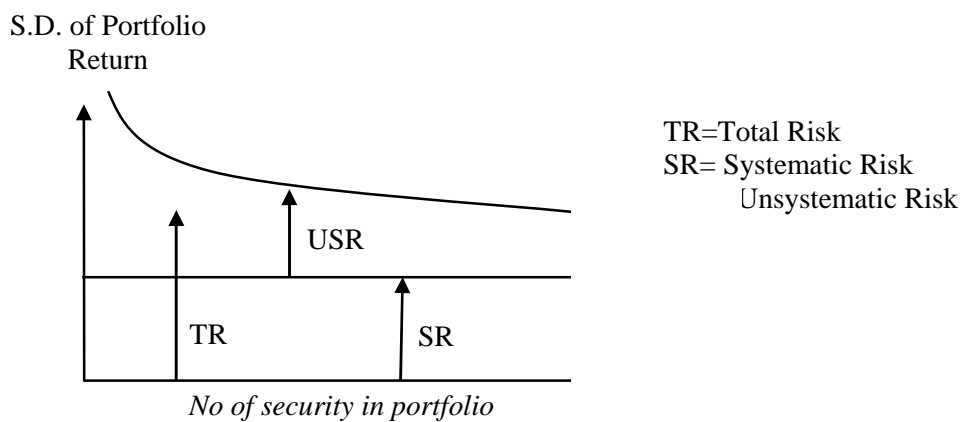
The writer describes the systematic risk mentioned above can also be known as non-diversifiable or unavoidable risk when as the unsystematic risk can also be known as diversifiable or avoidable risk. Systematic risk is due to the overall market risk, change in the nation's economy, tax reform by government a change in the world energy situation risks that affect securities overall and, consequently, cannot be diversified away. In other words, even the investor who holds a well-diversified portfolio will be exposed to this type of risk. Unsystematic risk is unique to a particular company, being independent of economic, political, and other factor that affect securities in a systematic manner.

Unsystematic risk is reduced at a decreasing rate towards zero as more randomly are selected securities are added to the portfolio. Various studies suggest that 15-20 stocks

selected randomly are sufficient to eliminate most of unsystematic risk of portfolio. Thus, a substantial reduction in unsystematic risk can be achieved with a relatively moderate amount of diversification. For the typical stock, unsystematic risk account for around 75 percent of the total risk or variance of the stock. Expressed differently systematic risk explains only about 25 percent of the total variability of an individual stock.

Conceptually, diversification can be viewed in given in the figure:

Figure 2.2
Total, systematic, Unsystematic Risk



The figure above represents as the number of randomly selected securities hold in portfolio is reduced in keeping with the reduction of unsystematic risk (USR). Efficient diversification reduces the total risk of the portfolio to the point where only systematic risk remains.

The second measure with which we are concerned and most important for our purpose is the beta. The beta is simply the slope of characteristic line. It depicts the sensitivity to the security's excess return to that of market portfolio. If the slope is 1, it means that excess return for the stocks vary proportionately with excess returns for the market portfolio. In other words, the stock has the same unavoidable or systematic risk as the market as whole. A slope sleeper than 1 means that the excess return varies more than proportionally with the excess return of market portfolio put another way, it

has more systematic risk than the market as whole. This type of investment is often called an aggressive investment. A slope less than 1, means that the stock has less unavoidable or systematic risk than does the market as a whole. This type of stock is often called defensive investment” (Francis, 1995:273-274).

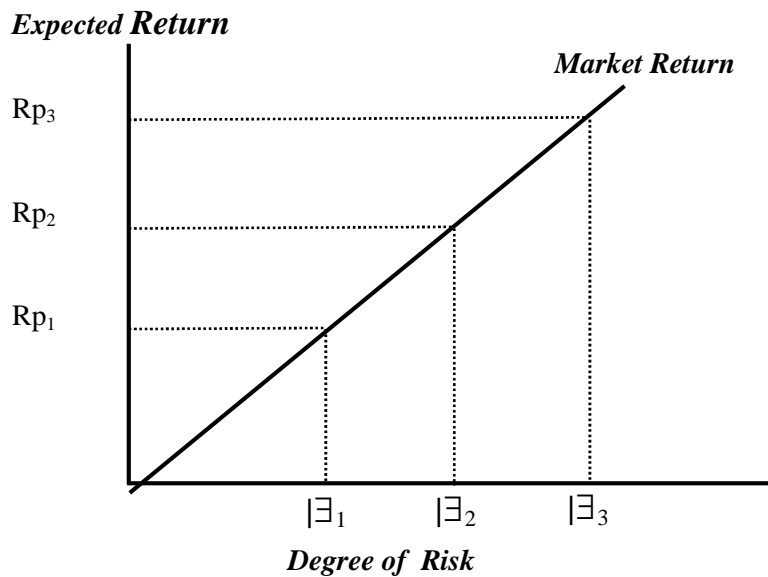
2.3.5 Relationship between Risk and Return

There is a positive relationship between the risk and return. The relationship between risk and return is one of the essential concepts to understand when investing and it's unique for every investor. While some investor may be willing to withstand a higher level of market volatility, other prefers a more conservative approach. What is crucial understands your risk portfolio and how to translate into a disciplined approach to investing. In other, the risk and return relationship is a fundamental concept is not only financial analysis but in every aspect of life. If decisions are to lead to benefit maximization, it is necessary that individual's/institution consider the combined influence on expected (future) return or benefit as well as risk/cost. Risk is generally equated with the potential of an investment to generate financials loss. Return is the usual measure of performance. As investments that offer higher potential for total return generally carry a higher potential for risk, informed investors don't simply seek to maximize return.

The relationship between risk and return is described by investor's perception about risk and their demand for compensation (pradhan, 1994:325). In order to, acceptable a higher proposal must offer a higher forecasted return then lower risk proposal. Here, tries to show the relationship with the help of given figure below. The figure below represent, if the level of risk increase the return will also increase. Here it is seen that the value of expected return is increase for level R_{p1} to R_{p2} as a result the level of risk is also increased from level Ξ_1 to Ξ_2 Similarly, it is increases from the level R_{p2} to R_{p3} consequently the level of risk will also increase from Ξ_2 to Ξ_3 vice

Figure: 2.3

General Relations of Risk and Return



2.4 Review of Capital Assets Pricing Model (CAPM)

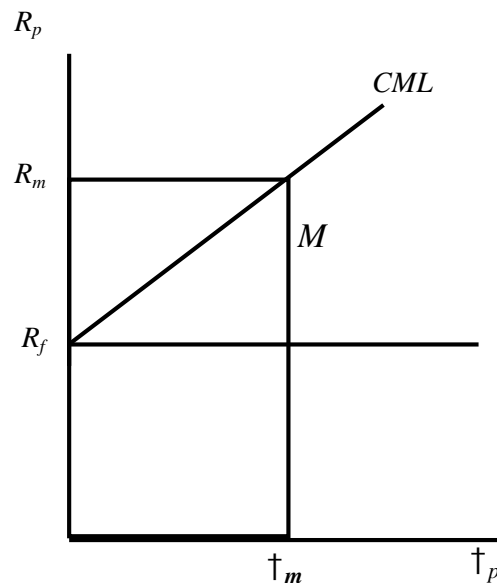
Based on the behavior of risk averse investor, there is implied an equilibrium relationship between risk and expected return for each security. In market equilibrium, a security will be expected to provide a return commensurate with its unavoidable risk. This is simply the risk that can not be avoided by diversification. The greater the unavoidable risk of security the greater the return that investors will expect from the security. The relationship between expected return and unavoidable risk, and valuation of securities that follow is the essence of capital asset pricing model (Van Horn, 2006:62). The CAPM is an important instrument used to analyze the relationship between risk and return. This model was developed by William Sharpe, John Lintner and Jan Mossion. Capital asset is the long term financial as well as real assets and CAPM is based on the pricing of these assets. The CAPM specifies the relationship between risk and required rate of return on asset when they are held in well-diversified portfolio. The CAPM suggests that any investor can create a portfolio of asset that will eliminate virtually all diversifiable risk, the only relevant risk is non-diversifiable risk therefore, and the investment decision and the pricing of capital asset should be based on the undiversifiable risk.

Sharpe et al have described the following assumption behind CAPM are as follows (Sharpe et al, 2005:228)

-) Investors evaluate portfolios by looking at the expected returns and standard deviation of the portfolios over a one period horizon.
-) Investors are never satiated, so when given a choice between two portfolios with the higher expected return.
-) Investors are risk averse, so when given a choice between two portfolios with identical expected returns, they will choose the one with the lower standard deviation.
-) Individual assets are infinitely divisible, meaning that an investor can buy a fraction of a share if he or she so desires.
-) There is a risk free rate at which an investor may either lend (that is, invest) or borrow money.
-) Taxes and transaction costs are irrelevant.
-) All investors have the same one period horizon.
-) The risk free rate is the same for all investors.
-) Information is freely and instantly available to all investors.

In the world of capital asset pricing model it is a simple matter to determine the relationship between risk and expected return for efficient portfolios. Figure below this though graphically.

Figure: 2.4
Capital Market Line (CML)



Point M represents the market portfolio and R_f represents the risk free rate of return. Efficient portfolio plot along the line starting at R_f and going through M and consists of alternative combinative of risk and return obtainable by combining the market portfolio with risk free borrowing or lending. This liner efficient set of the CAPM is known as the capital market line (CML). All portfolios other than those employing the market portfolio and risk free borrowing or lending would lie below the CML, although some might plot very close to it. The slope of the CML is equal to the difference between the expected return of the market portfolio and that of the risk free security ($r_p^z - r_f$) divided by the difference in their risks ($\Xi_M - 0$), or $(r_p^z - r_f)/\Xi_M$. Because the vertical intercept of the CML is r_f , the straight line characterizing the CML has the following equation:

$$r_p^z = r_f + \frac{r_M^z - r_f}{\Xi_M} \Xi_p$$

Where, r_p^z and Ξ_p refer to the expected return and standard deviation of an efficient portfolio.

The capital market line represents the equilibrium relationship between expected return and standard deviation for efficient portfolio. Individual risky securities will always plot below the line because a single risky security when held by itself is an inefficient portfolio. The capital asset pricing model does not imply any particular relationship between the expected return and standard deviation (that is, total risk) of an individual security. To say more about the expected return of an individual security requires deeper analysis. The exact form of the equilibrium relationship between risk and return can be written as follows:

$$\bar{r}_i = r_f + \beta_i \left(\frac{\sigma_{r_m}}{\sigma_m} \right) (r_m - r_f)$$

Where,

r_i = return from security i

r_f = risk free rate of return

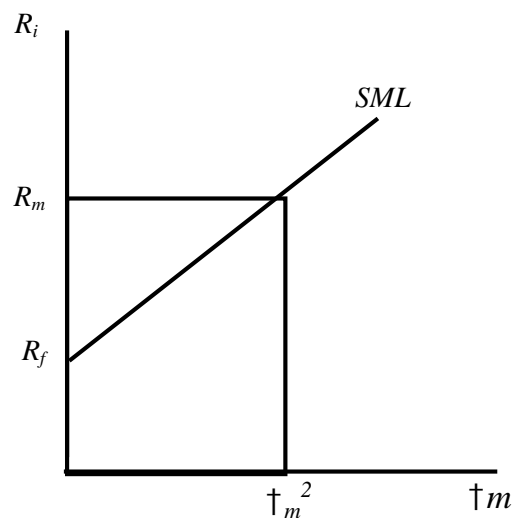
r_m = market return

σ_m^2 = market variance

σ_{im} = cov of security with market portfolio.

As can be seen in figure below and above equation represent straight line having vertical intercept of r_f and a slope of $\beta_i \left(\frac{\sigma_{r_m}}{\sigma_m} \right)$. Because the slope of is positive, the equation indicate that securities with larger covariance with market (σ_{im}) will be priced so as to have larger expected return (r_i). This relationship between covariance and expected return is known as security market line (SML).

Figure: 2.5
Covariance Version of SML



Market risk is related to the risk of the market portfolio and to the beta of the security in question. Securities with large beta will have larger amount of market risk. In the world of CAPM, securities with large beta will have larger expected return. These two relationships together imply that securities with larger market risk should have larger expected return. Non market risk is not related to beta. This means that there is no reason why securities with larger amounts of non market risk should have larger expected returns. Thus, according to CAPM investors are rewarded for bearing market risk but not for bearing non market risk.

2.4.1 Tests of CAPM

CAPM was developed on the basis of a set of assumption. If those assumptions were all true, then CAPM would have to be true. However, all the assumption is not completely correct. The basic SML equation might or might not represent an accurate description of how investors behave and how rates are established in the market place.

If many investor are not fully diversified, here have not eliminate all diversifiable risk from their portfolio, then beta would not be an accurate measures of risk and the SML would not fully explain how required return are set. If the interest rate that investors

must pay to borrow money is greater than risk free rate, then the CML would not continue in a straight line. For all the reasons, it is entirely possible that the CAPM is not completely valid. Therefore CAPM must be tested empirically and validated before it can be used with real confidence.

a) Test of the Stability of Beta Coefficients

According to the CAPM, the beta used to estimate a stock's market risk should reflect investor's estimates of the stocks future volatility in relation to that of the market. Robert Levy, Marshall Blume and others have studied the question of beta stability in depth. Levy calculated betas for individual security as well as for portfolio of securities. He concluded that:

-) The beta of individual stocks is unsuitable; hence the past betas for individual securities are not good estimators of their future risk.
-) The beta of the portfolio of ten or more randomly selected stocks is reasonably stable; hence the past portfolios betas are good estimators of future portfolio betas are good estimators of future portfolio volatility.

b) Test of the CAPM based on the Slope of the SML

The CAPM states that a linear relationship exists between a security's required rate of return and its beta. Further, when the SML is graphed, the vertical axis intercept should be k_{ft} and the required rate of return for a stock with $b_i = 1.0$ should be k_m , the required rate of return on the market. There are various researcher have attempted to test the validity of the CAPM by calculating beta and realizes rates of return. Following summary represents validity of the SML.

-) The evidence generally shows a significant positive relationship between realized return and systematic risk. However, the slope of the relationship is usually less than predicated by CAPM.
-) The relationship between risk and return appears to be linear. Empirical studies give no evidence of significant curvature in the risk/ return relationship.
-) The CAPM implies that company specific risk should not be relevant, yet both kinds of risk appear to be positively related to security returns that is higher

returns seem to be required to compensate for diversifiable as well as the markets.

-) Richard Roll showed that the linear relationship, which prior researchers had observed from the mathematical prosperities of the models being, tested hence that linearity proved nothing whatsoever about the validity of the CAPM.
-) If the CAPM were completely valid, it should apply to all financial assets including bonds. In fact, when bonds are introduced into the analysis, they do not plot on the SML.

2.4.2 Role, Relevance and Current Status of the CAPM

The CAPM is extremely appealing at an intellectual level: it is logical and relational and someone works through understands the theory, his or her reaction is usually to accept it without question. However, doubts begin to rise when one thinks about the assumptions upon which the model is based and these doubts are as much reinforced as reduced by the empirical tests. Role, Relevance and current status of the CAPM are as follows:

-) The CAPM framework is clearly a useful way to think about the risky ness of assets. Thus a conceptual model of CAPM is of truly fundamental importance.
-) The CAPM is logical in the sense that it represents the way risk adverse people ought to behave.
-) It is appropriate to think about many financial problems in CAPM framework. However, it is important to recognize the limitation of the CAPM when using it in practice.
-) When CAPM are applied in practice, the CAPM provide neat, precise answer to important questions about risk and required rate of return.
-) Investors will always combine a risk free asset with a market portfolio of risky assets. They will invest in risky assets in proportion to their market value.
-) Investor will be compensated only for that risk which they cannot diversified. This is the market related risk (systematic risk)

Thus, the concept of risk return as developed under CAPM has intuitive appeal and they are quite simple to understand. Financial managers use these concepts in a number of financial decision making such as valuation of securities, cost of capital measurement, investment risk analysis etc.

2.5 Review of Arbitrage Pricing Theory (APT)

The CAPM is an equilibrium model that describes why different securities have different expected returns. In particular, this positive economic model of assets pricing assets that securities have different expected returns because they have different betas. However, there exists an alternative model of assets pricing that was developed by Stephen Ross. It is known as Arbitrage pricing theory (APT).

CAPM requires a large number of assumptions. In however, APT makes fewer assumptions. One primary APT assumption is that each investor, when given the opportunity to increase the return of his or her portfolio without increasing its risk, will proceed to do so. The mechanism for doing so involves the use of arbitrage portfolios.

Arbitrage is the earning of risk less profit by taking advantage of differential pricing for the same physical asset or security. Arbitrage typically entails the sale of a security at a relatively high price and simultaneous purchase of the same security at a relatively low price.

Arbitrage activity is a critical element of modern, efficient security markets. Because arbitrage profits are by definition risk less, all investors have incentives to take advantage to them whenever they are discovered. Some investors have greater resources and inclination to engage in arbitrage than others. However, it takes relatively few of this active investor to exploit arbitrage situations by their buying and selling actions.

APT does not assume that investors employ mean-variance analysis for their investment decision. However, APT is founded on the notion that investors are rewarded for assuming no diversifiable risk; diversifiable risk is not compensated. Beta is considered as the most important single factor in CAPM that captures the systematic risk of an asset. In APT, there may be one or more macro-economic factors that may measure the systematic risk of an asset. The fundamental logic of APT is that investor always indulges in arbitrage whenever they find differences in the return of asset with similar risk characteristics.

In APT, the return of an asset is assumed to have two components: predictable and unpredictable returns. Thus, return on asset 'j' will be

$$E[R_j] = A_j R_f + \Gamma_j UR$$

Where,

R_f = predictable return (Risk-free return on a zero-beta asset)

UR = the unanticipated part of the return

There are two sources for the unexpected return. The firm specific and the market related. The firm-specific factors are special to the firm and affect only the firm. The market related factors affect all asset and they comprise macro economic factors.

APT does not indicate the factors that explain the asset return. The factors are empirically derived from the available data. Different asset will be affected differently by the factors. The following factors were found in a research study in USA that is important in explaining the expected return.

-) Industrial production
-) Changes in default premium
-) Inflation rate changes in the structure of interest rate
-) Changes in the real rate of return

Conceptually, it is compensation over and above, the risk free rate of return that investors require for the risk contributed by the factor. The beta of the factor is the sensitivity of the assets return to the changes in the factor.

The primary theoretical advantage of the APT is that it permits several economic factors to influence individual stock returns, whereas the CAPM assumes that the impact of all factors, except those unique to the firm, can be captured in a single measure, the volatility of the stock with respect to the market portfolio, APT requires fewer assumptions than the CAPM assumes that the impact of all factors, except those unique to the firm, can be captured in a single measure, the volatility of the stock with respect to the market portfolio. APT requires fewer assumptions than the CAPM and hence is a more general theory. Finally, the APT does not assume that all investors hold the market portfolio.

However, the APT faces several major hurdles in implementation, the most serious being that the APT does not identify the relevant factors. Thus, APT does not tell us what factors influence returns, nor does it even indicate how many factors should appear in the model. There is some empirical evidence that only three or four factors are relevant; perhaps inflation, industrial production and the spread between low and high-grade bonds.

Thus, the basic premise of the APT that return can be a function of several factors rather than just one. If the factors can be identified and if the theory can be satisfactorily explained to practitioners, then the APT might replace the CAPM as the primary model describing the relationship between risk and return.

2.6 Reviews from Journals and Other Studies

Advanced and research based journals of finance are hardly found in Nepal. Very limited number of journals of finance cannot cover its full dimensions. Though, in this selection articles from various national and international journals are reviewed and the

attempt is concentrated to build the sound conceptual framework of subject matter, which may help for the success of the study.

There is growing empirical evidence that multiple factors are cross sectionals correlated with average return in the united state. Measured over long time periods, small stock earns higher average returns than large stock (Bang, 2008.) Fama French (2011, 2012) and Lakonishock, Shleifer, and Vishny (2010) show that value/stocks with high book market (B/M) earning to price (E/P); cash-flow to price (C/P) outperform growth stocks with low B/M, E/P or C/P. moreover, stock with high return over the past three months to one year continues to outperform stocks with poor prior performance. The evidence that beta is also compensated for in average returns is weaker.

The interpretation of the evidence is strongly debated. Some believe that the premiums are a compensation for pervasive risk factors; others attribute them to firm characteristics or inefficiency in the way market incorporate information into prices. Yet others average that the premiums may be biased by survivorships of data snooping.

This paper examines the sources of return variation in emerging stock markets. From the perspective of collecting independent samples, emerging market countries are particularly interesting because of their relative isolation from the perspective of collecting independent samples; emerging market countries are particularly interesting because of their relative isolation from the capital markets of other countries. Compared to developed markets, the correlation between most emerging markets and other stock markets has historically been low (2012) and until recently many emerging countries restricted investment by foreign investors.

Interestingly, Bejaert and Harvey (2008) find that despite the recent trend toward abolition of these restrictions and the substantial inflows of foreign capital, some emerging equality markers have actually becomes more segmented from world capital

markets. Local investors who are likely to evaluate their portfolios in light of local economic and market condition hold a large portion of the equity capital of emerging economies” (Rouwenhorst & Greet,).

On the above background Rouwenhorst attempts to answer two set of questions, “The first set of three questions concerns the existence of expected return premium; (i) do the factors that explain expected return differences in developed equality markets also describe the cross section of expected returns of emerging markets firms? (ii) Are the returns factors in emerging markets primarily local or they having global components as well? (iii) How does the emerging market evidence contribute to the international evidence from developed markets that similar return factors are present in markets around the world?

The second set of question of the paper includes (IV) is there a cross sectional relationship between liquidity and average returns in emerging markets? (V) Are the returns factors in emerging markets cross sectionals correlated with liquidity?

About the data Rouwenhorst stated that: as of April, 2009 the Emerging Market Database (EMDS) of the IFC contains data on more than 2200 firms from 31 emerging markets, but not all are included in the sample. Even countries are exclude because of insufficient return histories, which leaves 1705 firms in the 20 countries that the IFC tracks for at least seven years. For some firm’s monthly closing process and dividends is available dating back to 2009. Starting at various points during 1980’s the IFC expanded its reporting to include monthly times series for price-to-book ratios, price earning ratios market capitalization, trading volume, and the number of days per month that stock is traded.

The return are calculated as the sum of the dividend return and price appreciation, using price scaled by a capital adjustment factor, which the IFC computes to correct for price effects associated with stock splits, stock dividends and right issues. Many

emerging market have firms with multiple classes to shares classes are treated as a single value weighted portfolio of the outstanding equity securities.

In this research Rouwenhost has been made detail analysis of the data and he interpreted the result in each section. Lastly, he has conclude his findings as follows: The first conclusion is that the return factors in emerging markets are qualitatively similar to those in developed markets, small stocks out perform growth stocks and emerging markets stocks exhibit momentum. There is no evidence that local market betas are associated with average returns. The low correlation between the country return factors suggests that the premium have a strong local character. Furthermore, global exposures cannot explain in the average factor portfolios have increase, which suggest that the factors responsible for the increase of emerging market country correlation are separate from those that drive the difference between expected return within these markets. A Bayesian analysis of premium in developed and emerging markets shows that, unless one has strong prior beliefs to the contrary, the empirical evidence factors the hypothesis that size, momentum, and value strategies are compensated for in expected returns around the world. Finally, the paper documents the relationship between expected return and share turnover, and examines the turnover characteristics of the local returns and share turnover, and examines the turnover characteristics of the local return factor portfolios. There is no evidence of a relation between expected returns and turnover, in emerging markets. However, beta, size momentum and value are positively cross-sectional correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity.

Robert G. vov man, at his article: The theoretical relationship between systematic risk and financial variables on journal of finance (Vol. xxxiv, June, 1979) has presented theoretical relationship of systematic risk and various financial variables.

Robert utilized the assumption of CAPM and additional assumption that corporation can borrow and lend at risk free interest rate. He has presented various formulas to present theoretical relationship of systematic risk the firm's leverage, accounting beta, earning variability, dividend or payout and growth. Shortly his findings are as follows:

- J The result shows that the systematic risk of leverage firm (β_l) is equal to the systematic risk of the individual firm (β_u) adjusted for the difference in equity value in two firms. He worked out that $\beta_l = \beta_u \left(1 + \frac{D_1}{S_1} \right)$ and concluded that the systematic risk of levered firm is equal to systematic risk of the same firm without leverage times one plus leverage ratio (Debt to Equity).
- J The market-based measure of systematic risk is directly related to the accounting Beta.
- J Using different approaches and assumptions, it is represent the relationship between earning variability and market risk in number of additional ways. The original point, however, remains. There is no direct relationship between earning variability and market risk.
- J On a strictly prior basis, it is obvious that even if we are to admit to dividend in a valuation mode. There is no theoretical basis for relationship of dividend of payout to beta. The assumptions, which seem and we using must in accord with current corporate and capital market theory, establish no theoretical relationship between dividends in any form and systematic risk.
- J Size and growth of the firm has no also any theoretical relationship to market risk.

The purpose of this paper was to provide a theoretical basis for empirical research into relationship between risk and financial (accounting) variables; we have shown there are a theoretical relationship systematic risk and the firm's leverage and accounting beta. We also demonstrated that systematic risk is not a function of earning variability, growth and size of dividend policy. The assumptions employed provide a very general model. It is not surprising that the results are sufficient. Additional relationship

between systematic risk and other variables may be obtained by imposing more strengthen assumptions.

It has utilized the assumptions of CAPM and the additional assumption that corporation can borrow and lend at risk free rate of interest many of these assumptions are obviously violated in the real world (e.g. Homogeneous expectation).

However, as Fama pointed out, the assumptions of CAPM are sufficient but many not to be necessary. The violation of which are observe do not necessarily negate the theory.

Finally, the distinctions between a theoretical model and the results of an empirical test have generally shown as association between systematic risk and dividend payout ratio. Such result may only indicate that variable being tested in a surrogate. For another variable (e.g. accounting beta) or that causality may be operating in the opposite from that being that hypothesized.

There are very few independent study can be found in the topic of finance. Specifically, it is rare in the case of this research topic, risk and return analysis. However here are only few independent studies, which are related to the Nepalese stock market and about shareholder democracy. Even though these studies were carried out before more than five years, these can give intellectual ground in our domestic stock market and its dimension. Because such types of study in this subject matter is not available recently.

(Pradhan, 1993) studied the stock market behavior and concluded that:

-) Large stocks have larger price-earning ratios, larger ratios of market value to book value of equity, and smaller dividends. However, price earning ratios and dividend ratios are more variable for smaller stocks whereas market value to book value of equity is more variable for larger stocks.

-) Large stocks also have higher liquidity, higher leverage, lower profitability, lower assets turnover, and lower interest coverage's but these are more variable for smaller stocks than for larger stocks.
-) Smaller dividend, lower profitability, lower assets turnover, and lower interest coverage's for larger stocks may be attributed to the fact that most of larger stocks are at their initial stage of operation.
-) Stocks with larger market value to book value of equity have larger price-earning ratios, and lower dividends. Price-earning ratios are more variable for stocks with larger market value to book value ratios and dividend ratios are more variable for stocks with smaller market value to book value.
-) Stocks with larger price-earning ratios have larger market value to book value to equity and smaller dividends ratios. But these ratios of market value to book value of equity, and dividends are more variable for smaller stocks than for larger stocks.
-) Stocks with larger price-earning ratios have lower liquidity, higher leverage, lower profitability, lower asset turnover, and lower interest coverage's. However, liquidity, leverage, earnings, turnover, and interest coverage's are all more variable for stocks with smaller price-earning ratios.

Common stock investors are termed as shareholders. Prof. Dr. Manohar Krishna Shrestha carried out another study in the title "Shareholders Democracy and annual general meeting feedback." This study has critically analyzed the situation of common stock investors and the situation has not improved till now. "Though the size of the shareholders population in Nepal has been growing constantly the government seems to have not taken any initiative in formulating the separate act which protects the shareholders rights."

Company and other acts relating to financial and industrial sector has provisioned rights of shareholders as:

-) Voting rights

-) Participation in general meeting
-) Right of getting information
-) Electing as a board of director
-) Participation in the profit and loss of the company
-) Transferring shares

The collective rights of the shareholders are:

-) Amend the internal by laws.
-) Authorized the sales of assets.
-) Enter into merger.
-) Change the authorized capital.

Some public limited companies have floated the shares to the general public without having shareholders representation in the board. There are many such companies, which conduct the annual general meeting just to fulfill their desire and do not consider the voice of the majority of the shareholders similarly management involvement and government intervention in the board election have brought a greater setback in the voting rights of the shareholders.

Shrestha argued further to safeguard investors' interest: "The encouraging and growing confidence of shareholders over their investment seek an independent inquiry of disclosed contents of prospectus. This helps to satisfy minimum standard of faith on investment in share through relying on pros and cons on prospectus. It is therefore, important to disclose everything in prospectus, which could reasonably influence the mind of the prudent investors. Various annual general meetings held by different public limited companies reveal a greater gap between disclosures made in prospectus and the actual result which were reported. In this context the expression of disclosure philosophy and investigation of frauds in prospectus need to be reconciles to check the growing problems in development of the capital market in Nepal.

Various books, journals and independent studies by different author are presented here in this chapter. Fundamental knowledge, relating to the topic has been achieved and here onward, we more for more specific knowledge and search step by step.

2.7 Reviews from Thesis

In this context two theses are reviewed here, some parts of which are strongly related to this research topic that have been carried out as a thesis for the partial fulfillment of Master's Degree in Business Studies (MBS), Tribhuvan University.

Tiwari (2009) completed the thesis work on the topic “*Risk and Return Analysis of Selected Finance Companies Listed in Nepal*” The specific object to analyze the risk and return associated with the common stock of six finance companies. They are Kathmandu Finance Co. Ltd., Samjana Finance Co. Ltd., National Finance Co. Ltd., Citizen Investment Trust, Ace Finance Co. Ltd., and Peoples Finance Co. Ltd. His research has been based on the collected data from the secondary source. Nepal Stock Exchange (NEPSE) Ltd is the main organization, which provides most of the data required for the study from year 2009 to 2010. For analyzing the data, he has used various statistical techniques of simple linear regression as well as other financial tools. The major findings of his study were as follows:

-) The finance company has positive expected return as well as most of the finance company has the return near to the average.
-) All the investment involved certain amount of risk (i.e. standard deviation) as well as most of the finance company has the risk less than the average.
-) The value of beta suggests majority of finance company stock volatility is less than the market volatility and they are defensive stock.
-) There is positive relationship between expected return and different measure of risk of the finance company.
-) The overall effect of portfolio on risk and return shows mixed result. It means the portfolio helps to increase the return in some case but in some case it has also decreased the result up to negative level. But in other hand, nearly in all case it has helped to decrease the level of risk up to some extent.

Bastakoti (2009), conducted a research work entitled “*Determinants of Share Price of Nepalese Commercial Banks*” with some objective that were to identify the prime determining factors of share price fluctuation of Nepalese commercial banks and

evaluate the relationship between MPS with the various financial indicators like EPS, BPS and DPS. For this purpose he has taken 15 commercial banks. His research has been based on secondary as well as primary data from F.Y 2004/01 to 2008/09. For the data analysis, statistical tools as well as financial tools are used in his study. He has short listed some major finding are as follows:

-) Dividend pattern plays a great role on share price movement. Higher the DPS more will be the share price.
-) Majority of the investors are convinced that higher EPS cause higher share price.
-) EPS and DPS are the major influence of the share price.
-) The MPS of the Banks are found to be correlated with other individual indicators like, BPS, EPS and DPS insignificantly.
-) Company assets structure and capital structure plays moderate role on share price movement.

The risk of organization does not significantly influence the share price. Most of the Nepalese investors are risk avoider, who never wants to see the risky organization for their investment.

Thapa (2010) has carried out a research named “*Risk and Return in Stock Market Investment in Nepal: Issue and Challenges*” having a major objectives of the study is to find out and analyze the risk and return as well as to examine the trend of risk, return, total paid up value, annual turn over and capitalization of twenty three companies out of listed companies. Five companies of each sector from Banking, Finance and Insurance sector; two of each from Hotel, Trading, Manufacturing and Processing and other companies, are included in this study. Her research has been based on the collected data from secondary source as well as some information primary source (2005/06 to 2009/010). For analyzing data, she has applied various statistical tools in her study to find out the risk and return. She has concluded with findings which are as follows:

-) Most of the investors are found to be risk averters. They are investing in portfolio having more than four securities.
-) Most preferable sector for investors is banking and finance sectors.
-) Stock brokers are major source of information to the investors which show they have a remarkable role in share market.
-) Increasing trends of share price and surplus money for investors are the influencing factors to buy share by investors.
-) Profitability and marketability has equal influence for motivation to invest.
-) The level of investor's satisfaction towards the present trading system (open-out cry system) has found low. Most investors are not satisfied with it, because whim and rumors influenced every time. Thus, most of investors wish to have automation trading system.
-) The expected return of securities market as a whole by using NEPSE index is 11.72 percent. Banking and other sectors stand higher expected return then market, while Manufacturing and Processing , Finance, Insurance, Hotel and Trading sectors have lower the expected return compared to the market return.
-) The specific risk of market during the consideration period of study is 31.65 percent. Banking, Hotel and other sectors have higher specific risk compared to the market specific risk whereas the specific risk of Manufacturing and Processing, Finance and Insurance sectors are lower then market.
-) In terms of CV, market has 2.70 CV. All sectors have found highest CV in comparison with market relative risk.
-) In comparison of market portfolio and average return of selected companies shows that there is no difference significantly.

Bhatta (2012), conducted a research on the topic of “*Risk and Return Analysis of Various Bank in Nepal (With Special Reference to Commercial Banks)*” with the main objectives of his study were to analyze the risk and return of common stock investment companies i.e. commercial banks. They are Everest Bank Ltd and Himalayan Bank Ltd. His research has been based on recent historical data collected

from NEPSE, Securities Board and other sources from F.Y 2004/05-2009/10. Some discussion has been made to interpret the existing secondary information which has been analyzed by using analytical tools and techniques. His study puts forward some finding which are as follows:

-) Analysis and interpretation as to the industry wise NEPSE index shows that banking sector has higher return than all other. Standard deviation seems in its midst position for this sector.
-) Most of all the banks have positive beta showing positive relationship with market return.
-) The entire stocks under study are under priced.
-) All of the banks under study have higher level of risk whereas return were relatively smaller.
-) All the finance company have positive expected return as well as most of the finance company has the return near to the average.
-) All the investment involved certain amount of risk (i.e. standard deviation) as well as most of the finance company has the risk less than the average.
-) The value of beta suggests majority of finance company stock volatility is less than the market volatility and they are defensive stock.
-) Some finance companies securities have highest value of CV (3.49). Although many of the finance companies CV is less than the average CV (1.77) but not in acceptable level.
-) There is positive relationship between expected return and deferent measure of risk of the finance company.

Shrestha (2012), completed the thesis work on the topic “*Risk and Return Behaviour of Listed Commercial Bank in NEPSE*”. The specific object to analysis the risk and return associated with the common stock of four commercial banks, to analyses and recommend the risk and return behaviour within and between commercial banks and to determinate effect of portfolio on risk and return. They are Nabil Bank Ltd, Nepal Investment Bank Ltd. His research has been based on the collected data from the

secondary source. Nepal Stock Exchange (NEPSE) Ltd is the main organization, which provides most of the data required for the study from year 2007/2008 to 2011/2012. For analyzing the data, he has used various statistical techniques of as well as other financial tools. The major findings of his study were as follows:-

-) There is no positive relationship between risk and return.
-) Investment on banking sectors has more risk; investors are interested to invest their fund in it.
-) The overall effect of portfolio on risk and return shows mixed result. It means the portfolio helps to increase the return in some cases but in some cases it has also decreased the result to negative level.
-) The stock of some of the banks is aggressive and these are highly sensitive to market as well as stock of some of the banks is defensive which is not so more sensitive to market.
-) The average expected rate of return of selected banks and overall market return have positive relationship.

Chhetri (2013), conducted a research on the topic of “*Risk and Return Analysis of Listed Companies in Nepal (With Special Reference to Commercial Banks)*” with the main objectives of his study were to analyze the risk and return of common stock investment companies i.e. commercial banks. They are Nepal Bangladesh Bank Ltd., Nabil Bank Ltd., Nepal . His research has been based on recent historical data collected from NEPSE, Securities Board and other sources from F.Y 2008/09 to 2012/013. Some discussion has been made to interpret the existing secondary information which has been analyzed by using analytical tools and techniques. His study puts forward some finding which are as follows:

-) Analysis and interpretation as to the industry wise NEPSE index shows that banking sector has higher return than all other. Standard deviation seems in its midst position for this sector.
-) Most of all the banks have positive beta showing positive relationship with market return.

) The entire stocks under study are under priced.

2.8 Research Gap

Research gap focuses that the researcher how much trying to give new things from his/her study with compare to previous studies held by different researcher. Due to changing the time and environment the pervious and present may be different in many ways. This is the research gap between the present research and previous research. Though many affiliated researcher have been done in this area but these have been very few exclusive researchers on this subject.

To achieve the target goals of commercial banks are not enough so various financial tools to be applied to analyze the risk and return of the organization in due course of time. In general in Nepal most of the commercial bank cannot meet/address the financial tool to do the micro analysis of the banks in the coming days so it should be understood that how the factors would be affected in the days to come. Otherwise, organizational goal can not meet in prolong period.

All researchers mentioned in review of literature are concerned with the study of expected rate of return of the selected bank. They did not applied the various financial tools to check the calculated data is correct or not so in this thesis many financial tools have been used like the test of CAPM, Testing of Hypothesis, Sharp's Portfolio Performance Measure etc. Hence in this study overall commercial banks are taken in a definable way in which make sense and rational for the theist research.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology refers to the various sequential steps that to be adopted by a researcher during the course of studying a problem with certain objectives. It tends to solve the search problem in a systematic way. Hence, overall research method adopted by the researcher is mentioned. The research methodology is the process of arriving to the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of fact and figure research is a systematic method of finding out solution to a problem where as research methodology refers to the various sequential steps to adopt by a researcher in studying the problem with certain objective in view. It covers quantitative methodologies in a greater extent and also uses the descriptive part based on both technical aspects and logical aspect. This research tries to perform a well designed quantitative and qualitative research in a very clear and direct way using both financial and statistical tools.

3.2 Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combined relevance to the research purpose with economy in procedure.

The research design is the conceptual structure within research is conducted. Research design is the plan, structure and strategy of investigation conceived so as to obtained answers to research questions and to control variance (Kerlinger, 2004, 275). In order to conduct this study, descriptive cum analytical research design has been adopted. Descriptive research design has been utilized mainly for conceptualization of the problem and to describe the risk and return involved in common stock investment as well as the correlation of returns between commercial banks. Whereas analytical research design has been adopted to analyze the relation between risk and return. The

study is more analytical and empirical than descriptive through EPS and other financial tools are considered.

In this study first of all data are collected and presented in tabulated in diagram and various Financial and statistical tools will be used to analysis the data. The analysed data will be interpreted for the conclusions.

3.3 Sources of Data

Secondary data have used been in this study. The secondary sources of data are as follows:

-) Annual report and other publication of concerned company.
-) Newspaper and magazines.
-) Booklet published by Nepal Rastra Bank and Government of Nepal.
-) From the websites of concern companies.

3.4 Population and Sample

Population

Population is the aggregative or totality of statistical data forming a subject of investigation. Population having finite number of items is an item is called finite population and population having infinite number of items is called infinite population. The No. of commercial banks listed in NEPSE is one of the examples of finite population. (yadav, R. P. ; 2009:133) Total populations of the Commercial Banks listed in NEPSE are as follow:-

1. Nepal Bank Limited
2. Rastriya Bannijya Bank
3. Agriculture Dev. Bank Ltd.
4. Nabil Bank Limited
5. Nepal investment Bank limited
6. Standard chartered Bank Limited
7. Himalayan Bank limited

8. Nepal SBI Bank Limited
9. Nepal Bangladesh Bank Limited
10. Everest Bank Limited
11. Bank of Kathmandu
12. Nepal credit & Commercial Bank. Ltd.
13. Lumbini Bank Limited
14. Machhapuchchhre Bank Ltd.
15. Kumari Bank Limited
16. Laxmi Bank Limited
17. Siddharth Bank Limited
18. Global IME Bank Limited
19. Citizens Bank International Ltd
20. Prime Commercial Bank Limited
21. Sunrise Bank Limited
22. Development Credit Bank Limited
23. NMB Bank Limited
24. Prabhu Commercial Bank Limited
25. Janta Bank Limited
26. Mega Bank
27. Civil Bank Limited
28. Century Bank Limited
29. Sanima Bank Limited
30. NIC Asia Bank Nepal Limited

Sample

A sample is portion of the population which is examined with a view to estimate the characteristics. There are 30 Commercial Banks listed in NEPSE which can be regarded as the size of population of this study. Because of various limitations, analysis of whole population is not possible. Thus, following Commercial Banks are selected as the sample for research purpose:-

) Himalayan Bank Ltd.(HBL)

) Everest Bank Ltd.(EBL)

3.5 Re-Organization of Data

Crude data gathered from various sources are reorganized into graphs, tables, diagrams, charts and figure to make them presentable for analysis.

3.6 Data Analysis Tools

Several tools and techniques used to analyse the primary and secondary data collected from various sources for obtaining the logical conclusion. Following statistical and financial tools will be used in this thesis to analyse the data:-

A) Financial Tools

(i) Market Price of Stock (P)

One of the major data of this study is market price of stock. There are three price records are available (i.e. high, low and closing price of each year). So two approaches either average price (of high and low) or closing price can be used. Main argument of average price may be, it represents the price of whole year. But to get the real average, volume and price of each transaction in the stock and duration of time of each transaction in the whole year are essential. It is difficult to obtain and include these all information and average of high and low price may not be reliable and representative information. Hence, the closing price used as market price of stock which have a specific time span of one year and the study focussed in annual basis.

(ii) Dividend (D)

Company pays dividend to its shareholders. If a company declares only the cash dividend, there are no problems to take the dividend amount. But if company declares stock dividend (bonus share), it is difficult to obtain the amount that really shareholder has gained. In such condition, they get extra number of shares as dividend and simultaneously price of the stock declines, as a result of increased number of stock. To

get a real amount of dividend there are no any model (formula). So the models have been developed considering practical as well as theoretical aspect of the model are:

) In the case of stock Dividend:

$$\text{Total div. Amount} = \text{Cash div.} + \text{stock div. \%} \times \text{next year's MPS}$$

) In the case of right issued at par

$$\text{Total div. Amount} = \text{cash div.} + \% \text{ of right share} \times (\text{next year's MPS} - \text{PV})$$

(These Models are based on the opinion for investors)

(iii) Return on Common Stock Investment (r)

Return is total gain or loss on an investment over a given period of time. In other words, the return is the difference between terminal (ending) value and initial (beginning) value plus cash received during the given period. The return can be measured in rupees or percentage. The rupees return on an investment is called absolute return while percentage return on an investment is called the rate of return or relative return. The rate of return can be calculated as below.

Symbolically,

$$r_t = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

Where,

r = Actual rate of return on Common Stock at time t.

D_t = Cash Dividend received at time t.

P_t = Price of a stock at a time t

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

(iv) Expected Return on Common Stock (\bar{R}_j)

Expected return simply is arithmetic mean of the past year's return. Statistically it is mathematical expectation. It is useful tools for risk and return practices.

Symbolically,

$$E(R_j) = \overline{R_j} = \frac{\sum R_j}{n}$$

Where,

$E(R_j) = \overline{R_j}$ = Expected rate of return on stock j.

n= Number of years that the returns are taken.

ϕ = sign of summation

(v) Beta ()

Beta measures non-diversifiable risk. Beta show the price of a security responds to market forces. In effect, the more responsive the price of s security is to change in the market; the higher will be its beta. Beta measures changes in stocks return resulting from per unit change in the market return. It is useful tool for CAPM.

Symbolically,

$$S_j = \frac{\text{COV}_{jm}}{\sigma_m^2}$$

Where,

S_j = Beta coefficient of stock j.

COV_{jm} = Covariance of stock j and market return.

σ_m^2 = Variance of market return.

(vi) Alpha (Intercept:)

Alpha is the intercept, where the characteristics line intercepts the vertical axis. Alpha is an estimate of the j_{th} assets rate of return when the market is stationary, $R_{mt}=0$.

Symbolically,

$$r_j = \alpha_j + \beta_j \overline{R_m}$$

Where,

Expected return of common stock $j = \overline{R}_j$

Expected return of market = \overline{R}_m

Beta coefficient of common stock $j =$

(vii) Systematic Risk and Unsystematic Risk

Systematic risk refers to that portion of total risk variability in return caused by factor affecting the price of all securities. Systematic risk is external to an industry and of business, and is attributed to board forces out of the business. Unlike, systematic risk, it is the risk that cannot be diversified away. Due to the character of this risk it is said to be relevant risk to be concerned.

Total risk = Systematic risk + Unsystematic risk

Symbolically,

$$\sigma_j^2 = \beta_j^2 \sigma_m^2 + e^2$$

$$\text{Systematic risk} = \beta_j^2 \sigma_m^2$$

$$\text{Unsystematic risk } (e^2) = \sigma_j^2 - \beta_j^2 \sigma_m^2$$

$$\text{Portion of systematic risk} = \frac{\text{Systematic Risk}}{\text{Total Risk}} = \frac{\beta_j^2 \sigma_m^2}{\sigma_j^2}$$

Where,

σ_j^2 = Variance or total risk of common stock j .

σ_m^2 = Variance of market.

β_j^2 = Square of beta of stock j .

e^2 = Var (e) = Unsystematic risk.

Portion of unsystematic risk will simply be (1- portion of systematic risk) or

$1 - \frac{\beta_j^2 \sigma_m^2}{\sigma_j^2}$ Any knowledgeable investor can eliminate this systematic portion of risk

by holding a large enough portfolio of securities.

(viii) Market Return (R_m)

Market return is the return in over all market portfolios, which can be obtained by taking different between the markets indices (i.e., NEPSE Index).

Symbolically,

$$(R_m) = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

(R_m) = Market rate of return.

NI_t = NEPSE, Index of time t.

NI_{t-1} = NEPSE, Index at time t-1.

(ix) Portfolio Return ($\overline{R_p}$)

Portfolio return is simply a weighted average of individual stock return making up that portfolio. Portfolio expected return could be calculated using the following expressions.

Symbolically,

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

Where,

$\overline{R_p}$ = Expected return of portfolio.

W_A = Weight of stock A.

W_B = Weight of stock B.

W_N = Weight of n^{th} assets.

(x) Portfolio Risk

Unlike expected return on portfolio, it is generally, not a weighted average of risk of individual security. It depends also upon co-movement of returns of stocks making up that portfolio. Co-movement it measured by covariance or correlation of return of the stocks in portfolio.

It is measure as below:

Symbolically,

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

Where,

σ_p = Standard deviation of portfolio.

W_A^2 = Squared of weight of stock A.

W_B^2 = Squared of weight of stock B.

COV (A, B) = Covariance of stock A and B.

Risk minimizing portfolio of two assets, which minimize the risk (r_p).

Symbolically,

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

$$W_B = 1 - W_A$$

Where,

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

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

(xi) Portfolio Performance Measure

To measure the portfolio performance Sharpe method is one of the best that have been developed to evaluate a portfolio performance considering both return and total risk.

Symbolically,

$$S_j = \frac{\text{Riskpremium}}{\text{TotalRisk}} = \frac{\bar{R} - R_f}{\dagger}$$

Where,

S_j = William f. Sharpe performance

\bar{R} = Average return from the individual portfolio

\dagger = Standard deviation of individual portfolio

R_f = Risk free rate of return

Method of Analysis and Presentation

Results are presented in tabular form and clear interpretation on it is given simultaneously. Detail calculation is presented in appendices at the end of report. To make report similar and easily understandable charts, diagrams and graphs have been used. Summary, conclusion and recommendations are presented chapter five finally.

B) Statistical Tools

(i) Standard Deviation (\dagger)

It is a statistical tool to measure risk on stock. It tells how the returns on stock are dispersing from its average return. It is the square root of variance of return. Variance of returns equals the sum of the products of the squared deviations of each rate of return from the expected rate of return dividend by number of years minus one.

Symbolically,

$$\sigma_j = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n}}$$

Where,

σ_j = Standard deviation of returns on stock j during the time period n.

(ii) Coefficient of Variation (C.V)

It measures the risk per unit return. It is the ratio of standard deviation to the mean of that distribution. Unlike standard deviation it provides us relative measure of risk.

Symbolically,

$$C.V.j = \frac{\sigma_j}{\bar{R}_j}$$

Where,

C.V.j = Coefficient of variation on stock j.

σ_j = Standard deviation on stock j.

\bar{R}_j = Expected rate of return on stock j.

(iii) Correlation ()

Correlation analysis is the statistical tool generally used to describe the degree to which one variable is related to another. Its values are limited between the range of +1 and -1.

$$r_{xy} = \frac{\sum xy - \frac{\sum x \sum y}{N}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{N} \right) \left(\sum y^2 - \frac{(\sum y)^2}{N} \right)}}$$

Where,

= Sign of summation

N = Numbers of variables

X = Variable of X

Y = Variable of Y

= Correlation between X and Y.

(iv) Regression

Regression analysis is used to estimate the likely value of one variable from the known value of the other variable. It is an average irreversible functional relationship between two variables. In other words regression analysis is a mathematical measure of the average relationship between two or more variables in terms of original units of data. Regression analysis clearly indicates the cause and effect relationship than by correlation analysis. In the regression analysis there are two types of variables these are dependent variable and independent variable. In simple regression, mathematical regression equation is developed to describe the functional relationship that exists between the two variables.

Regression equation of Y on X is given by $Y = a + bx$ f_i^A

Where,

Y = Dependent variable

X = Independent variable

a = Intercept of the line of regression

b = Slope of the line of regression / regression coefficient of Y on X

(v) Multiple Regression Analysis

Multiple Regression Analysis consists of the measurement of the relationship between a dependent variable and two or more independent variable. In most of real life phenomena there exists number of influencing variables i.e. independent variables impinging into one regressed or explained variable i.e. dependent variable. In multiple regression analysis a mathematical regression equation is developed to describe the

functional relationship that exists between a dependent variable and number of independent variables. In case of three variables Y, X₁, and X₂ where Y is dependent variable and X₁, and X₂ independent variables the multiple regression equation of Y on X₁, and X₂ is given by

$$Y = a + b_1 X_1 + b_2 X_2 + \dots + \epsilon$$

Where,

a = Point of intercept on Y- axis

b₁, b₂ = Regression coefficient of 1st and 2nd variables respectively

(vi) Test of Significance

To test the significance of model as well as variables we use t-test for a single mean.

Symbolically:

$$t = \frac{\bar{\epsilon} - \mu}{\frac{s}{\sqrt{n}}}$$

Where,

t = Student's test statistics

μ = Arithmetic mean of population parameter.

$\bar{\epsilon}$ = Arithmetic mean of sample statistics.

s = Standard deviation of population parameter.

Test result: If t calculated value < t tabulated value: accept the null hypothesis or vice-versa.

(vii) Hypothesis

This study will test the following hypothesis.

Null Hypothesis (H_0)

There is no significant different between the average return of common stock of joint venture banks and overall market (population) return.

Alternative Hypothesis (H_1)

There is significant different between the average return of common stock of joint venture banks and overall market (population) return.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter comprises detail data of the joint venture Banks. The data are arranged into tables, diagrams, graphs and figures as per its nature. The arranged data are scrupulously analyzed and interpreted to serve the purpose of study using the various statistical and non statistical tools and techniques. More specifically, data need to calculate risk and return are presented and other various dimensions of this aspect like expected return, standard deviation of return, systematic and unsystematic risk, CAPM and beta coefficient are presented and analyzed.

In the beginning, it is provided risk and return of joint venture banks and then hint and ideas as to making investment decision based on expected return and risk statistics along with comparative risk and return position of the companies. After being capable to select common stock, it is better to go forward to portfolio context.

4.2 Analysis of Individual Companies

Here analysis of all joint venture bank are made listed companies in NEPSE are taken. There MPS, DPS and other related data are presented in table and analysis is made accordingly using appropriate tools.

4.2.2 Analysis of Himalayan Bank Ltd.

Table 4.1

Annual Return on Stocks of HBL

Fiscal Year	Closing Price (In Rs.)	Dividend (In Rs.)	Annual rate of return (In %)
2008/09	1760	12	-0.1051
2009/10	816	11.84	-0.5296
2010/11	575	16.84	-0.2747
2011/12	653	13.42	0.1590
2012/13	700	10	0.08723
Max	1760	16.84	0.1590
Min	575	10	-0.5296
Avg.	900.80	12.82	-0.132634

Data Source: www.hbl.com.np

The above table presents the summary of the financial performance of HBL of last five years (2008/09-2012/13). The table shows, the bank has distributed dividend in F/Y 2008/09, 2009/10, 2010/11, 2011/12 and 2012/13 are 12, 11.84, 16.84, 13.42, and 10 respectively. The annual rates of return of the bank in F/Y 2008/09, 2009/10, 2010/11, 2011/12 and 2012/13 are -10.51%, -52.96%, -27.47%, 15.90% and 8.723% respectively. The annual rates of return are negative in F/Y 2008/09, 2009/10 and 2010/11 due to continuously decrease in MPS. So it can be said that MPS was increased first and at the mid of the study period it has been decreased. The average MPS is Rs. 900.80. The average dividend paid is Rs. 12.82. In the F/Y 2008/09 and 2012/13 the bank distributed dividend lower than the average. The average return is -0.1326%.

Figure 4.1
Annual Return of HBL

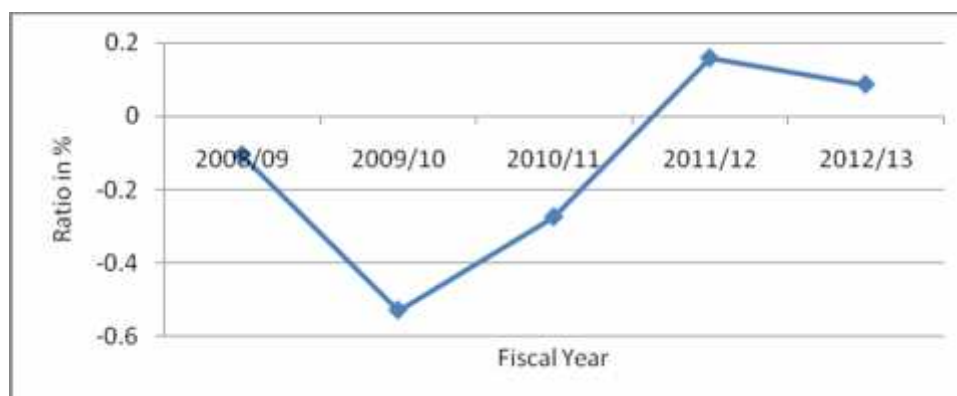


Figure 4.1 HBL it is found that the annual rate of return of HBL is not constant. The annual rate of return is negative in the years 2008/09, 2009/10 and 2010/11 maximum in year 2009/10.

4.2.5 Analysis of Everest Bank Ltd.

Table 4.2
Annual Return on Stock of EBL

Fiscal Year	Closing Price (In Rs)	Dividend (In Rs)	Annual rate of return (In %)
	3132		
2008/09	2455	30	-0.2066
2009/10	1630	30	-0.3238
2010/11	1094	50	-0.2982
2011/12	1033	0	-0.0558
2012/13	1591	50	0.5885
Max	2455	50	0.5885
Min	1033	0	-0.0558
Avg.	1560.60	32	-0.0592

Data Source: www.ebl.com.np

The above table presents the summary of the financial performance of the Everest Bank Ltd of the last five year (2008/09-2012/13). The table shows that the bank has distributed dividend in F/Y 2008/09, 2009/10, 2010/11, 2011/12 and 2012/13 are 30,

30, 50, 0 and 50 respectively. The annual rates of return of the bank in F/Y 2008/09, 2009/10, 2010/11, 2011/12 and 2012/13 are -20.66%, -32.38%, -29.82%, -5.58% and 58.85% respectively. The annual rates of return of the bank are negative in F/Y 2008/09, 2009/10, 2010/11 and 2011/12 due to decrease in MPS. So it can be said that the MPS of the bank has been increased in F/Y 2012/13. The average MPS is Rs. 1560.60. The MPS are lower than average in the F/Y 2010/11 and 2011/12. The average dividend paid is Rs. 32. The bank distributed lower dividend than average in the F/Y 2008/09 and 2009/10. The average return is -0.0592%. The return is lower than average in the F/Y 2011/12.

Figure 4.2
Annual Return of EBL

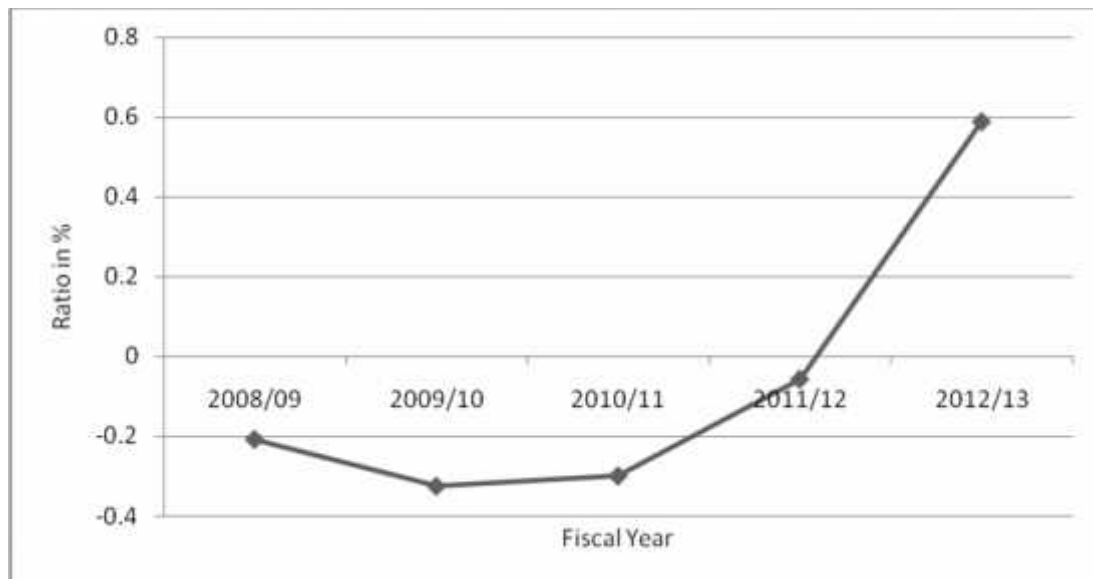


Figure 4.2 (EBL) chart. It is found that the annual rate of return of EBL is not constant. The annual rate of return is negative in the years 2008/09, 2009/10, 2010/11 and 2011/12 and maximum in year 2012/13.

4.3 Comparison of Risk-Return of Stock with Market

4.3.1 Risk-Return of HBL and Market

Table 4.3
Risk-Return of HBL and Market

Statistics	HBL	Market
Expected Return = \bar{R} = mean	-0.13264	0.0842
Total risk or Var (R) = σ^2	0.0779	0.1128
Total risk or S.D = (σ)	0.2792	0.3359
Co-efficient of variation (C.V)	2.1049	3.9893
Systematic risk measure $\sigma^2_{\text{fmAX}} = \sigma^2_{\text{fR}^A}$	0.0019	NA
Unsystematic risk measure Residual Variance = Var (e)	0.0760	NA
Beta (β) = index of systematic risk	-0.6742	1
Alpha (α) Intercept	-0.07587	NA
Correlation with market (ρ)	0.1562	NA
Systematic Risk Percentage (σ^2)	0.0244	NA
Unsystematic Risk Percentage ($1-\sigma^2$)	0.9756	NA

Data Source: Appendix B, C & E

Expected Return (\bar{R})

HBL's common stocks expected returns is lesser than the market return (i.e. $-0.13264 < 0.0842$) which means HBL's stocks return is -1.5724 times (i.e. $-0.13264/0.0842$) lesser than the market return. Because it's share price is ups and downs in market that means MPS of HBL is not constant and its dividend distribution is also increase and decrease over the study period. And this study takes only cash dividend as a total dividend.

Standard Deviation (σ)

HBL's common stocks standard deviation is lesser than the market standard deviation ($0.2792 < 0.3359$) which means HBL's stocks total risk on return is 0.8312 times (i.e. $0.2792/0.3359$) less riskier than the market return.

Coefficient of Variation (C.V)

Coefficient of variation is better to measure of risk because it measure per unit risk. HBL's is more than market (i.e. $2.1049 > 3.9893$) which means HBL has more risk per unit than the market return.

Beta Coefficient ()

HBL has a beta of -0.6742 based on the yearly return during 2008/09 to 2012/013. A beta of -0.6742 (<1) means that HBL's return is less volatile than market return and is called defensive assets. Hence, HBL's stock has less undiversifiable risk.

Alpha (r)

The intercept is -0.07587 (i.e.-7.58%). It shows that HBL's return (value of R) when the market return (value of R_m) is zero. HBL's beta is -0.07587. If the year market return is expected to be 1 percent. HBL's expected yearly return is:
$$R = r_f + \beta_j R_m = 0.0758 + (-0.6742) \times 0.01 = 0.069058 = 6.91\%$$

Coefficient of Correlation with Market (ρ)

The coefficient of correlation is 0.1562. The positive high degree correlation indicates that the market return goes up. HBL's return also goes up by 15.62% or vice-versa.

Coefficient of Determination or Systematic Percentage (ρ^2) and Portion of Unsystematic Risk ($1 - \rho^2$)

The squared coefficient of correlation or the coefficient of determination (ρ^2) is 0.0244 (i.e. 2.44%). It indicates the percentage of the variance of HBL's return explained by the change in the market returns. Thus 2.44% of HBL's risk (variance of return) is explained by the market. It is called the market (systematic) risk and therefore 2.44% it is un-diversifiable.

0.0244 ($1 - \rho^2 = 1 - 0.0244$) unexplained variance is the firm's specific risk. It is called unsystematic risk and it is diversifiable. The value of systematic risk and unsystematic risk are shown in table 4.7.

4.3.5 Risk -Return of EBL and Market

Table 4.4

Risk -Return of EBL and Market

Statistics	EBL	Market
Expected Return = \bar{R} = mean	-0.0591	0.0842
Total risk or Var (R) = σ^2	0.1421	0.1128
Total risk or S.D = (σ)	0.3769	0.3359
Co-efficient of variation (C.V)	-6.377	3.9893
Systematic risk measure $\sigma^2_{\text{Var } f_m A X} \rho^2 \text{Var } f_R A$	0.2978	NA
Unsystematic risk measure Residual Variance = Var (e)	-0.1557	NA
Beta (β) = index of systematic risk	1.635	1
Alpha (α) Intercept	-0.1968	NA
Correlation with market (ρ)	1.45	NA
Systematic Risk Percentage (ρ^2)	2.0957	NA
Unsystematic Risk Percentage ($1 - \rho^2$)	1.0957	NA

Data Source: Appendix B, D and F

Expected Return (\bar{R})

EBL's common stocks expected return is less than the market return (i.e. $0.0842 < -0.0591$) which means EBL's stocks return is -0.7019 times ($-0.0591/0.0842$) less than the market return. Because of its less market price of share and regular distribution of less percentage of dividend in common share.

Standard Deviation ()

EBL's common stocks standard deviation is higher than the market standard deviation ($0.3769 > 0.33592$) which means EBL's stocks total risk on return is 0.89 times (i.e. $0.3359/0.3769$) high risky than the market return.

Coefficient of Variation (C.V)

Coefficient of variation is better measure of risk because it measure per unit risk. EBL's is less than market (i.e. $-6.769 < 3.9893$) which means EBL has high risk per unit than the market return.

Beta Coefficient ()

EBL has beta of 1.635 based on the yearly return during 2008/09 to 2012/013. A beta of 1.635 (>1) means that EBL's return is more volatile than the market return. It is called aggressive assets. Hence, EBL's stock has most undiversifiable risk.

Alpha (r)

The intercept is -0.1968 (i.e. -19.68%). It shows that EBL's return (value of R) when the market return (value of R_m) is zero. EBL's expected yearly return is -19.68% when the market earns nothings. EBL's beta is 1.635 . If the year market return is expected to be 1 percent. EBL's expected y early return is:

$$R = \alpha + \beta R_m = -0.1968 + 1.635 [0.01] = -0.18045$$

Coefficient of Correlation with Market (ℓ)

The coefficient of correlation is 1.45. The positive high degree correlation indicates that the market return goes up. EBL's return also goes up by 1.45 or vice-versa.

Coefficient of Correlation or Systematic Percentage (v^2) and Portion of Unsystematic Risk ($1 - v^2$)

The squared coefficient of correlation or the coefficient of determination (v^2) is 2.0957 (i.e. 209.57%). It indicates the percentage of the variance of EBL's return explained by the change in the market returns. Thus 209.57% of EBL's risk (variance of return) is explained by the market. It is called the market (systematic) risk and therefore it is undiversifiable. $1 - v^2 = 1 - 2.0957$ unexplained variance is the firm's specific risk. It is called unsystematic risk and it is diversifiable. The value of systematic risk and unsystematic risk are shown in table 4.10.

Comparative Analysis of Risk and Return

Table 4.5
Analysis of risk-return

Statistics	Market	HBL	EBL
\bar{R}	0.0842	-0.13264	-0.0591
\dagger^2	0.1128	0.0779	0.1421
	0.3359	0.2792	0.3769
C.V	3.9893	2.1049	-6.377
$s^2 Var_{fmA}$	NA	0.0019	0.2978
e^2	NA	0.0760	-0.1557
	1	-0.6742	1.635
r	NA	-0.07587	-0.1968
ℓ	NA	0.1562	1.45
v^2	NA	0.0244	2.0957
$1 - v^2$	NA	0.9756	1.0957

Data source: Table 4.4 & 4.3

EBL's expected rate of return is less and the expected rate of return of HBL depending exclusively upon expected rate of return, it can say HBL is best of all to investment. Standard deviation of EBL is highest

The beta coefficient is an index of systematic risk. Beta coefficient may be used for the ranking the systematic risk of different assets. Beta of HBL and EBL have greater than one (i.e. >1). Hence, these companies common stocks are defensive assets, its price fluctuation are less volatile than the market.

Alpha is the intercept, where the characteristic line intercepts the vertical axis. Alpha is an estimate of the i^{th} assets rate of return when the market is stationary, $R_{\text{mt}} = 0$, or market rate of return is zero. EBL's alpha is highest ($= -0.1968$) among the companies. So EBL's common stocks are the best.

Correlation coefficient is bounded by the values -1.00 and $+1.00$. All the companies are positive correlation with market. The positive correlation indicated that, when the market return goes up, companies' common stocks return also goes up and vice-versa. EBL's correlation coefficient is the highest (i.e. $= 1.45$) while HBL's correlation coefficient is the lowest (i.e. 0.1562).

Total risk can be measured by the variance of returns. Total risk of common stock can be divided into two parts systematic risk (undiversifiable risk) and unsystematic risk (diversifiable risk) by using CAPM. Systematic risk and unsystematic risk can be converted to coefficient of determination (p^2) and proportion of unsystematic risk ($1-p^2$). Coefficient of determination of EBL common stock has highest (i.e. 1.0957) among the companies. Similarly, HBL's has 0.9756 while HBL's common stock has lowest coefficient of determination. Higher the coefficient of determination higher will be undiversifiable risk. Alternatively, lower the coefficient of determination means higher the proportion of unsystematic risk (higher the diversifiable risk). That

means there is inverse relationship between the coefficient of determination and proportion of unsystematic risk. While, EBL's common stock risk has not highly diversifiable and vice-versa.

4.4 Testing of Hypothesis

The hypothesis is based on the test of significance of difference of mean (t-test). For this purpose expected returns of individual company is taken to calculate overall expected returns of all companies.

Table 4.6

Calculation of expected return, standard deviation and coefficient of variance

Name of company	\bar{R}	$fR Z\bar{R}^2$	$fR Z\bar{R}^3$
HBL	-0.13264	0.03677	0.001352
EBL	-0.0591	-0.03677	0.001352
	$\bar{R} \times -0.19174$		$fR Z\bar{R}^3 \times 0.002704$

Source: Table 4.11

$$\text{Expected Return (R)} = \frac{\bar{R}}{N} \times \frac{0.19174}{2} \times 0.09587$$

Where N = number of observations

$$\text{Standard deviation} = \sqrt{\frac{fR Z\bar{R}^2}{N \times 1}} \times \sqrt{\frac{0.002704}{f2 Z1A}} \times 0.052$$

Null Hypothesis (H₀)

$\mu = \mu_0$ i.e. There is no significant difference between the average return of common stock of joint venture banks and overall market (population) return.

Alternative Hypothesis (H₁)

$\mu \neq \mu_0$ i.e. there is significant difference between the average return of joint venture companies' common stock and overall market return. In other words, average returns on common stock of sample companies are not equal to market return.

Test Statistics,

$$= 0.05$$

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

$$= \frac{0.09587 - 0.0842}{\frac{0.052}{\sqrt{2}}}$$

$$= \frac{0.18007}{0.03676}$$

$$= -4.8985$$

Where,

\bar{X} = Average return on the portfolio of common stock of sample companies.

μ = Average return of market portfolio

n = number of companies

s = Standard deviation of return of common stock of joint venture banks

α = level of significant.

The tabulated value of t at 5% level of significance for 5 degree of freedom is 2.015

Decision

Since the calculated value of t (-4.8985) is lesser than the tabulated value (2.015) at 5% level of significance for 5 degree of freedom. The null hypothesis (H_0) is accepted which means that there is no significant difference between the average return of joint venture banks common stocks return and over all market return. In other words, average returns on the common stock of joint venture banks are equal to the market return.

4.5 Capital Assets Pricing Model (CAPM) and Price Evaluation

Table 4.7

RRR, ERR and Price Situation

S.N	Name of Company	Beta ()	RRR = $R_f + \beta_j (R_m - R_f)$	ERR	Situation of Price
1	HBL	-0.6742	0.0382	-0.13264	Over price
2	EBL	1.635	0.1017	-0.0591	Under price

Source: Table 4.11

Where,

R_f = Risk free rate of return i.e. 0.0567

R_m = Market rate of return i.e. 0.0842

$(R_m - R_f)$ = Risk premium in market

β_j = Beta coefficient of common stock (from table 4.7)

Significance of the beta co-efficient is CAPM. It is the model which gives the required rate of return (RRR) of common stock. While comparing of RRR and expected rate of return (ERR) determines whether the stock is under price or over price. If RRR is higher than ERR, stock is said to be overprice, and vice-versa. Similarly, expected rate of market return (R_m), Risk free rate of return (R_f) and Beta coefficient are the major affecting variables to RRR. CAPM and its variables have been already discussed in above chapter II. Here only the application of it in RRR, ERR and price evaluation of each stock.

The HBL's common stocks are under price. As per CAPM analysis these overpriced stocks are recommended to sell but investor should mark other analysis before selling these assets. And other all the companies common stocks are under priced. As per CAPM analysis these under priced stocks are recommended to buy but investor should mark other analysis before buying these assets.

4.6 Portfolio Analysis

Portfolio means a combination of two or more securities or assets. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to portfolio. It reduces a portfolio's total diversifiable risk to zero. The portfolio theory provides a normative approach to the investor's decision to invest in assets of securities or under risk. It is based on the assumption that investor's hold well diversified portfolios instead of investing their entire wealth in a single asset or security. A portfolio is a bundle or combination of individual assets or securities. If the investor diversified portfolio than his concern should be the expected return and risk of the portfolio rather than individual securities. The second assumption of the portfolio is that the return of the securities is normally distributed. This means that the variance analysis is the foundation of the portfolio decision. The expected return of the portfolio is simply the weighted average of the expected returns of the securities comprising that portfolio. The weights are equal to the proportion of total fund invested in each security.

Previous analysis to risk and return is based on the investment in single security. The expected return of the portfolio is simply a weighted average of the expected rate of return of the securities comprising that portfolio the weights are equal to the proportion of total fund invested in each security. The sum of weight must be 100%. Analysis has shown that many Nepalese private investors placed their entire wealth in single asset or investment. If they are construct a portfolio or group of investment in such kind of asset which are negatively correlated. They can reduce unsystematic risk dramatically without losing their return. Therefore, we have to extend our analysis of risk and return portfolio context.

4.6.1 Analysis of Risk Diversification

The risk diversification is based on two-asset portfolio and over all portfolio and tools for analysis are presented in the chapter –III research and methodology. Here, the portfolio of the common stock of two asset cases over all cases only analyzed.

Selected Sample Banks

-) Himalayan Bank Limited
-) Everest Bank Limited

Combination of Banks

HBL & EBL

Now, Investors have to invest their amount on feasible and efficient combination of two assets at a time. Such combination minimizes the risk factor associated with the investment. There are so many possibilities of forming portfolio. Here, the study has to take portfolio construction using risk minimizing weight.

Summary of Portfolio Risk and Return, Covariance (Cov) and Correlation Coefficient () of sample Banks.

Table 4.8

Comparative Study Using Risk minimizing weight

Combination of Banks	Weight		$E(r_p)$	\uparrow_p		Cov.
HBL & EBL	1.3825	-0.1382	-0.14163	3.0573	0.52944	0.05571320

Data Sources: Appendix G

In this section, the portfolio risk and returns between two banks are calculated and analyzed. The required proportionate weight to make portfolio is calculated by using the risk minimizing weight. The risk minimizing weight for different banks is showed in above table. The portfolio formed assuming only two banks once at a time to calculate the portfolio risk and return. It helps to know on what extent the portfolio is success to decrease the level of risk and which two banks are best to invest for the risk minimizing purpose as well as to know the effects of portfolio on returns.

4.7 Portfolio Investment Performance Evaluation

When considering a portfolio and performance evaluation and selection. There are various methods applied to measure the portfolio performance. Sharpe's performance

measure that has been developed to evaluate a portfolio performance considering both return and risk simultaneously. Equation below defines a single parameter portfolio performance index that is calculated from both the risk and return statistics.

$$S_i = \frac{\text{RiskPremium}}{\text{TotalRisk}} \times \frac{\bar{R} - R_f}{\sigma}$$

Where,

S_i = William F Sharpe performance

\bar{R} = Average return from the individual portfolio

σ = Standard deviation

R_f = Risk free rate or return

Table 4.9

Sharpe's Portfolio Performance Measure

Company	\bar{R}	R_f		$\frac{\bar{R} - R_f}{\sigma}$	Ranking
HBL	-0.13264	0.0567	0.2792	-0.6782	1
EBL	-0.0591	0.0567	0.3769	-0.3072	2

Data Source: Table 4.5

Sharpe's index of performance generates one (ordinal) number that is determined by both risk and the return of the portfolio or other investment being evaluated. Here, individual assets evaluated. Thus, EBL > HBL. Indicates that assets of EBL are better performance than HBL.

4.8 Regression Analysis

The regression analysis is used to estimate the likely value of one variable from the known value of the other variable. The regression analysis clearly indicates the cause and effect relationship of the variables. There are two types of variables in regression analysis- dependent variables and independent variables. The main objective of the regression analysis is to predict or estimate the value of the dependent variable corresponding to a given value of independent variables.

The simple regression equation is follow:

$$Y = a + bx$$

Where,

Y = Dependent Variable

a = Constant term of the model

b = Coefficient of the model

X = Independent Variable

4.8.1 Regression Analysis between Return (R) and Dividend (D)

$$R = Xa + bD$$

Table 4.10

Regression Analysis of R and D

Bank	Variables	B	Std. Error	T. Value	Sig. T	R ²
HBL	Constant (a)	-.036	.168	-.217	.833	.166
	D	.007	.005	1.338	.214	-
EBL	Constant (a)	1.294	.647	2.001	.116	.227
	D	-.037	.034	-1.083	.340	-

Data Source: websites of Concerned Banks

The above table of regression analysis shows that among the commercial banks under study, all the banks have mix (positive and negative) relation between R and D. The regression relation between R and D of HBL indicates that all average increase of R is

.007% as a result of 1% increase in D and other variable remaining constant. In case of HBL 1% increase in D the R will be increase by .007%. In case of EBL 1% increase in D the R will decrease by .037% and assuming that the other variables are constant.

The standard error of estimate of HBL and EBL are .005 and .034 respectively. These values indicates that the probable error in the predicted value for the respective companies.

4.8.2 Regression Analysis between Return (R) and Market Price per Share (MPS)

Table 4.11
Regression Analysis of R and MPS

Bank	Variables	B	Std. Error	T. Value	Sig. T	R ²
HBL	Constant (a)	-.355	.316	-1.122	.295	.271
	MPS	.000	.000	1.725	.123	-
EBL	Constant (a)	.385	.330	1.167	.277	.013
	MPS	.000	.000	.326	.753	-

Data Source: websites of Concerned Banks

The above table of regression analysis shows that among the commercial banks under study, all the banks have positive relation between R and MPS. The regression relation between R and MPS of the HBL indicates that the average change of R is .000% as a result of 1% increase in MPS and other variable remaining constant. Similarly, in case of EBL with 1% increase in MPS, the R will increase by .000 and assuming that the other variables are constant.

The standard error of estimate of HBL and EBL are also .000. There values indicates that the probable error in the predicted value for the respective banks.

The coefficient of multiple determinations (R²) is the lowest for EBL i.e. .013 which indicates that only 1.3% in R is explained by MPS i.e. 1.3% variation in R of the bank

is explained due to the change in value of MPS of the bank. The value of R² HBL is .271 which indicate that 27.1% variation in R of these banks are explained by the change in MPS of the respective commercial banks

4.8.3 Multiple Regression Analysis between R on D and MPS

Simple regression analysis is used before for predicting the liner relationship between R and D & R and MPS. There were a dependent variable and only one independent variable. But in real phenomena there exists number of independent variables which influence dependent variables. So only simple regression analysis is not sufficient. Hence for remedy multiple regression is used for predicting unknown value of dependent variable for a given values of two or more independent variables.

The Multiple Regression Equation is:

$$Y = Xa + \Gamma b_1 X_1 + \Gamma b_2 X_2 + \dots + f_i^A$$

Where,

- Y = Dependent Variable
- a = Constant term of the model
- b = Coefficient of the model
- X = Independent Variable

Now,

$$D = Xa + \Gamma b_1 R + \Gamma b_2 MPS$$

Table 4.12
Multiple Regression Analysis between D, R and MPS

Bank	Variables	B	Std. Error	T. Value	Sig. T	R ²
HBL	Constant (a)	-.389	.307	-1.269	.245	.406
	D	.008	.006	1.258	.249	-
	MPS	.000	.000	1.196	.270	-
EBL	Constant (a)	1.563	.773	2.023	.136	.349
	D	-.042	.037	-1.142	.336	-
	MPS	.000	.000	-.752	.507	-

Data Source: websites of concerned banks

Above table shows that the multiple regression analysis of the selected commercial banks, HBL has positive relation between R on D and MPS. But in case of EBL, there is negative relation between R on D and positive relation between R on MPS. The multiple regression relation between R on D and MPS of 1. With 1% change in D and MPS the R will change by 0.29% and 0.000% respectively and other variable remains constant. In case of HBL and EBL the constant (a) indicate that the R would be negative by -.389, and positive by .563 if D and MPS are zero or nil. With 1% change in D the R will change by .008% and -.042% respectively. Similarly, with change in 1% in MPS the R will be .000% i.e. zero percent change in all commercial banks, assuming other variable remaining constant.

The value of coefficient of multiple determinations (R²) of HBL and EBL are 0.406 and .349 respectively, which indicates that 40.6%, and 34.9% variation in R of these commercial banks are explained due to change in D and MPS of the respective commercial bank.

4.9 Major Findings

Depending upon the analysis done on the risk and return of the bank the following major findings are given below:

-) Security market line (CAPM) analysis, it was found that only HBL's common stock is overpriced and EBL's common stock is under priced.

-) Sharpe's performance measure that has been developed to evaluate and portfolio performance considering both risk and return. Here, individual assets evaluated by using the sharp's preliminaries index. This $HBL > EBL$ indicate that assets of the HBL is better performance than EBL.
-) Expected return on the common stock of HBL and EBL is -0.13264% and -0.0591% respectively. Expected return of HBL is highest and expected rate of return of EBL is lowest.
-) Testing hypothesis was conducted to test the relationship between overall market rate of return of NEPSE and average expected rate of return of selected sample banks. This hypothesis is based on t-test. The result is come there is no significant difference
-) As per coefficient of variation EBL has less risk per unit than the market return with comparison in HBL.
-) HBL expected rate of return is higher than EBL so HBL is best to investment for investor.
-) EBL common stock risk has not highly diversified then EBL
-) HBL and EBL annual rate of return is not constant.
-) The portfolio between HBL and EBL is not be able to reduce its unsystematic risk significantly

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study enquires upon the Risk and Return analysis of 5 commercial banks of Nepal. It covers the period of ten years from 2007/08 to 2012/013. It included the data of two commercial banks listed in Nepal Stock Exchange Ltd (NEPSE). This chapter summarizes the whole study, draws the major findings/conclusions and forwards the recommendation for minimizing the risk and maximizing the return of Nepalese commercial banks.

5.1 Summary

Nepal's financial sector, especially the banking sector has been going through rapid changes in the one & half decades. The role of commercial banks has seriously been considered in the growth and development of the national economy. Although, commercial banks are especially concerned with the development of the commercial sector of the country. They provide banking facilities to general public such as deposit, collection, lending, overdraft facilities, share issues, agency service, investment and general utility services. Himalayan Bank Ltd. and Everest Bank Ltd. are two commercial banks which provide best banking services and generate employment for various people.

There is a positive relation between risk and return. The higher the level of risk, the higher will be the rate of return. Hence, from the point of view of the investor, the attitude towards risk varies from investor to investors. These investors who are risk averters don't like to bear additional risk to secure and safe investment. But risk taker investors like to bear additional risk to maximize return as extra premium for extra risk. The level of risk is not easy to measure. However, different scholars have suggested various statistical tools like standard deviation, variance, coefficient of variation, beta coefficient etc. There are different factors that affect risk and return such as market rate of return, risk-free rate of return. These factors indicate the risk and return position of

investment. If investors have good vision about his factor, it is possible to take minimize risk for maximum of return.

The study mainly aims to analysis the risk and return of commercial banks of Nepal listed in NEPSE. Their specific objectives, to examine the relationship between risk and return, to analyze comparative risk and return position of listed commercial bank, to analyze risk of these sectors these can be eliminated through diversification without any cost and to provide useful suggestions to the different sector.

This study covers 2 samples of commercial banks of Nepal. The study is based on secondary data of 2 companies listed in Nepal stock exchange limited. The data is collected from website and AGM reports of concern banks. This study doesn't use primary data.

The study of relationship between risk and return was accomplished by collecting the data on market price per share, dividend per share and NEPSE index. To analysis, the data were rearranged for various statistical and financial tools. In statistical tools expected return (mean), standard deviation, variance, coefficient of correlations, coefficient of variance, residual variance, beta coefficient, coefficient of determination, portion of systematic and unsystematic risk were used. In financial tools capital assets price model and Sharpe's performance index is used. Result were tasted and analyzed to get the solution according to objective. Hypothesis: t-test was done and result was tasted at 5% level of significance.

5.2 Conclusion

Depending upon the analysis done on the risk and return analysis of the Nepalese commercial banks, the following conclusions are drawn.

-) As overall economy Nepalese stock market is in emerging stage. Its development is accelerating since the political change in 1990 in effect of opens and liberalization in national economy. But due to the lack of information and poor

knowledge, Nepalese individual investors can not analyze the securities as well as market properly.

- J On the dividend paying company EBL is the highest and continuous dividend payer, while HBL is lowest dividend payer during the analysis period. Those people who are interested only in dividend, EBL is the best for investment purpose.
- J Expected return on the common stock of HBL and EBL are -0.13264% and -0.0591% respectively. Expected return of HBL is highest & expected rate of return of EBL is lowest among these commercial banks. So, both banks expected rate of return is lower than the market rate of return.
- J Risk is variability of returns which is measured in terms of standard deviation of returns. Standard deviation is only the measure of unsystematic risk which is not defined by worked. Standard deviations of HBL & EBL are 0.3769 and 0.2792 respectively. In this regard HBL is least risk (0.2792) and EBL is most risky (0.3769).
- J Based on the coefficient of variation, which measures risk per unit of the stock individuality. The values of coefficient of variation (CV) are -6.377 and 2.1049 of EBL & HBL respectively. CV of HBL is very high and CV of EBL is very low. So using this relative measure of risk, HBL is best of all to investment.
- J The beta coefficient in this section of market sensitivity analysis, which measured the index of systematic risk. It may be used for the ranking the systematic risk of different assets. Betas of HBL has less than one (i.e. <1). Hence, this company's common stocks are defensive assets. fluctuation are less volatile than the market. Similarly, betas of EBL has more than one (i.e. >1). Hence this company's common stocks is aggressive assets.
- J Alpha is an estimate of the asset's rate of return when market is stationary, in our analysis, alpha of HBL is lowest (-0.07587%) then EBL which is -0.1968 so both the commercial banks common stocks are negative co-related with market which describe markets downwards companies stock return also downwards & vice versa.

- J In evaluation of risk involved with in the common stock, EBL has maximum value or total risk (0.1421) and HBL has minimum value of total risk (0.0779). And proportion of systematic risk of HBL is lowest (0.0244) and HBL is highest (0.2.0957) as well as proportion of unsystematic risk of EBL is highest (1.0957) and HBL is lowest (0.9756).
- J Testing hypothesis was conducted to test the relationship between overall market rate of return of NEPSE and average expected rate return of selected sample banks. This hypothesis is based on t-test. The result is come there is no significant difference.
- J Security market line (CAPM) analysis, it was found that only HBL's common stock is over priced and EBL's common stock is under priced.
- J While comparing with portfolio between common stocks of two combinations of all stocks are not beneficially attractive to reduce risk because the reason is that the correlation of portfolio between the common stock of all securities are positive and about high and moderate degree. Finally, it is quite unusual to conclude that investor can get advantage by commercial banks portfolio.
- J Sharpe's performance measure that has been developed to evaluate and portfolio performance considering both risk and return. Here, individual assets evaluated by using the sharp's preliminaries index. This $HBL > EBL$ indicates that assets of HBL is better performance than EBL.
- J The risk free rate of return of (HMG/N) Treasury bill is higher than the overall market return of Nepal.

5.3 Recommendations

Basically, this study has been focused on the individual investors who are going to invest their capital on the banking sector. Based on the analysis of data and findings of the research, recommendations and suggestions are prescribed into the following. It is relevant for all the interested persons and institution related directly or indirectly to investment and its activities.

- J Investors have to prefer to invest their capital in the sector which provides them a handsome return at minimum risk within the short time period. Therefore, investors must be able to inform and analyze the whole component of stock market and financial condition of various banks as well as be aware of political and various other factors of the country.
- J The investors are recommended to receive fact information of their financial position before investing. Investors have to be clear and be aware about the financial statement of relative company, brokers' behavior and attitude, real tendency of NEPSE and rules and regulations of the government. Investors are required to boost their knowledge up regarding share (common stock) value of the company and share market to get expected return from their investment.
- J Before making an investment decision in stock, assessment of personal risk attitude, needs and requirements will always be helpful. To make several discussions with stock brokers before reaching at the decision on the basis of reliable information rather than rumor and thoughts will ultimately favor the investors. Investors have to make their investment decision based on the financial performance and service sector of the banks. Be aware whim and rumors and keep contact regularly and constantly with stock market.
- J Investment on the stock market has greater chance of benefit as far as it may have heavy losses due to many reasons and factors affecting it. So investors must be well aware of this fact and must be able to inform and analyze the whole things of it. It is possible to beat the stock market but proper analysis of individual security, industry and overall market is always essential as well as general Knowledge about economy, political, technological trends and various other factors of the country is advantageous.
- J Investors need to diversify their fund to reduce risk. Efficient portfolio depends on market movement. For the portfolio construction investors have to select the stock which has higher return and negative correlation or moderate positive correlation between stock of different commercials banks and sectors.

- J The stock is under price if their expected rate of return is higher than required rate of return and the stock is over price if their expected rate of return is lower than required rate of return. Depending upon general rule regarding buy and sell, all the under price stock have to purchase and all the over price stock have to sell.
- J A tool that has been considered in this study may not be appropriate in our economy giving view to the prevailing condition in western market. This may not perform exactly as it should in condition like ours. Investors can develop different kinds of tools for analyzing, for try can consultancies organization e.g. NEPSE, people and SEBO.
- J At present individual potentials investors due to lack of their education, awareness and confidence are hesitated to invest in common stock so their education, awareness and confidence should be uplifted by providing related information.
- J Government needs to amend the rules and regulation regarding stock market in time to time and to make the policy that protects individual investor's right. And it also needs to follow up the implementation of rules and regulation and to make sure the objective is achieved. On that regard Government of Nepal needs to monitor and to make active all the components of stock market properly.
- J It is also strongly suggested that further study should be conducted on this topic risk and return and also would like to suggest including maximum number of sample having at least 10 year financial data.

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Web Sites

Available: < <http://www.ebl.co.np>

Available: < <http://www.hbl.co.np>

Available: < <http://www.nrb.org.co.np>

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APPENDICES

Appendix A

NEPSE INDEX, Sample Companies Market Price Per share (MPS) and Dividend per share (DPS)

Name of Company		Fiscal Year				
		2008/09	2009/10	2010/11	2011/01 2	2012/01 3
	Nepse Index/ CPS, DPS	749.10	477.73	362.85	389.74	518.33
HBL	MPS	1760	816	575	653	700
	DPS	12	11.84	16.84	13.42	10
EBL	MPS	2455	1630	1094	1033	1591
	DPS	30	30	50	-	50

Data Source: - company's AGM report, NEPSE trading report, SEBON's

APENDEX B

Calculation of Realized Return, its Expected Return (\bar{R}), Standard deviation () and Coefficient of variation (C.V) of market.

Fiscal Year	Nepse Index (NI)	R_m	$\sum R_m \bar{R}_m$	$\sum R_m \bar{R}_m^2$
2007/08	963.36	-	-	-
2008/09	749.1	0.2224	0.1382	0.01909
2009/10	477.73	0.3622	0.2780	0.0773
2010/11	362.85	0.2405	0.1563	0.0244
2011/12	389.74	-0.0741	-0.3988	0.1590
2012/13	518.33	-0.3299	-0.4141	0.1715
Total		$R_m \times 0.4211$		$\sum R_m \bar{R}_m^2 \times 0.4513$

Data Source: Appendix A

$$\text{Expected Return } E\bar{R}_m = \frac{\sum R_m \bar{R}_m}{n} = \frac{0.4211}{5} = 0.0842$$

$$\text{Standard Deviation } \sigma_m = \sqrt{\frac{\sum R_m \bar{R}_m^2}{n} - (\bar{R}_m)^2} = \sqrt{\frac{0.4513}{5} - (0.0842)^2} = 0.3359$$

$$\text{Variance of Market Return } \sigma_m^2 = 0.1128$$

$$\text{Co-efficient of Variation of Market (C.V)} = \frac{\sigma_m}{\bar{R}_m} = \frac{0.3359}{0.0842} = 3.9893$$

APPENDEX C
Himalayan Bank Limited

Fiscal Year	Year end price(P)	Dividend(D)	Realized Return(R)	\bar{R}	\bar{R}^2
2007/08	1980	-	-	-	-
2008/09	1760	12	-0.1051	0.0275	0.0008
2009/10	816	11.84	-0.5296	-0.3969	0.1575
2010/11	575	16.84	-0.2747	-0.1421	0.0202
2011/12	653	13.42	0.1589	0.2915	0.0849
2012/13	700	10	0.0873	0.2199	0.0484
Total			-0.6632		0.3118

Data Source: Appendix A

$$\text{Expected Return } E(R) = \frac{\sum R}{n} = \frac{-0.6632}{5} = -0.13264$$

$$\text{Standard Deviation } \sigma = \sqrt{\frac{\sum R^2}{n} - \bar{R}^2} = \sqrt{\frac{0.3118}{5} - (-0.13264)^2} = 0.2792$$

$$\text{Variance of Market Return } \sigma^2 = 0.0779$$

$$\text{Co-efficient of Variation (C.V)} = \frac{\sigma}{R} = \frac{0.2792}{-0.13264} = 2.1049$$

APPENDIX D
Everest Bank Limited.

Fiscal Year	Year end price(P)	Dividend(D)	Realized Return(R)	$\sum R Z \bar{R}^t$	$\sum R Z \bar{R}^t$
2007/08	3132	-	-	-	-
2008/09	2455	30	-0.2065	-0.1474	0.0217
2009/10	1630	30	-0.3238	-0.2647	0.0700
2010/11	1094	50	-0.2981	-0.2390	0.0571
2011/12	1033	0	-0.0557	0.0034	0.00001
2012/13	1591	50	0.5885	0.6476	0.4194
Total			-0.2956		0.5682

Data Source: Appendix A

$$\text{Expected Return } E\bar{R} = \frac{R}{n} \times \frac{0.2956}{5} \times 0.0591$$

$$\text{Standard Deviation } \sigma = \sqrt{\frac{\sum R Z \bar{R}^2}{n \times 1} \times \frac{0.5682}{5 \times 1}} \times 0.3769$$

$$\text{Variance of Market Return } \sigma^2 = 0.1421$$

$$\text{Co-efficient of Variation (C.V)} = \frac{\sigma}{R} \times \frac{0.3769}{0.0591} = 6.377$$

APPENDIX E
Calculation of Beta () Co-efficient and Other Values of HBL

Fiscal Year	$(R_m - \bar{R}_m)$	$(R - \bar{R})$	$(R - \bar{R})(R_m - \bar{R}_m)$
2007/08	-	-	
2008/09	0.1382	-0.1051	-0.0145
2009/10	0.2780	-0.5296	-0.1472
2010/11	0.1563	-0.2747	-0.0429
2011/12	-0.3988	0.1589	-0.0634
2012/13	-0.4141	0.0873	-0.0362
Total			-0.3042

$$Cov(R, R_m) = \frac{\sum (R - \bar{R})(R_m - \bar{R}_m)}{n - 1} = \frac{-0.3042}{5 - 1} = -0.0761$$

$$\text{Beta Co-efficient (} \beta \text{)} = \frac{Cov(R, R_m)}{\sigma_m^2} = \frac{-0.0761}{0.1128} = -0.6742$$

$$\text{Alpha (} \alpha \text{)} = \text{Intercept} = \bar{R} - \beta \bar{R}_m = 0.13264 - (-0.6742 \times 0.0842) = 0.07587$$

$$\text{Systematic Risk} = \sigma_m^2 \times \beta^2 = 0.1128 \times (-0.6742)^2 = 0.0019$$

$$\text{Unsystematic Risk (} e^2 \text{)} = \sigma^2 - \text{Systematic Risk} = 0.0779 - 0.0019 = 0.0760$$

$$\text{Portion of systematic risk (} \beta^2 \text{)} = \frac{\text{Systematic Risk}}{\text{Total Risk}} = \frac{0.0019}{0.0779} = 0.0244$$

$$\text{Correlation with market (} \rho \text{)} = \sqrt{0.0244} = 0.1562$$

$$\text{Portion of unsystematic risk} = 1 - \beta^2 = 1 - 0.0244 = 0.9756$$

APPENDIX F
Calculation of Beta () Co-efficient and Other Values of EBL

Fiscal Year	$(R_m - \bar{R}_m)$	$(R - \bar{R})$	$(R - \bar{R})(R_m - \bar{R}_m)$
2007/08	-	-	-
2008/09	0.1382	-0.1474	-0.0204
2009/10	0.2780	-0.2647	-0.0735
2010/11	0.1563	-0.2390	-0.374
2011/12	-0.3988	0.0034	-0.0014
2012/13	-0.4141	0.6476	-0.2681
Total			-0.7374

$$Cov(R, R_m) = \frac{\sum (R - \bar{R})(R_m - \bar{R}_m)}{n} = \frac{-0.7374}{5} = -0.14748$$

$$\text{Beta Co-efficient (} \beta \text{)} = \frac{Cov(R, R_m)}{\sigma_m^2} = \frac{-0.14748}{0.1128} = -1.307$$

$$\text{Alpha (} \alpha \text{)} = \text{Intercept} = \bar{R} - \beta \bar{R}_m = 0.0591 - (-1.307) \times 0.0842 = 0.161$$

$$\text{Systematic Risk} = \beta^2 \sigma_m^2 = (-1.307)^2 \times 0.1128 = 0.1968$$

$$\text{Unsystematic Risk (} e^2 \text{)} = \sigma^2 - \text{Systematic Risk} = 0.2978 - 0.1968 = 0.101$$

$$\text{Portion of systematic risk} = \frac{\text{Systematic Risk}}{\text{Total Risk}} = \frac{0.1968}{0.2978} = 0.661$$

$$\text{Correlation with market (} r \text{)} = \sqrt{0.661} = 0.813$$

$$\text{Portion of unsystematic risk} = 1 - 0.661 = 0.339$$

APPENDIX G
Calculation of Portfolio Risk and Return for HBL(X) and EBL(Y)

Fiscal Year	R_x	R_y	$(R_x - \bar{R}_x)$	$(R_y - \bar{R}_y)$	$[(R_x - \bar{R}_x)(R_y - \bar{R}_y)]$
2008/09	-0.1051	-0.2065	0.0275	-0.1474	-0.0040535
2009/10	-0.5296	-0.3238	-0.3970	-0.3379	0.1341463
2010/11	-0.2747	-0.2981	-0.1421	-0.083	0.0117943
2011/12	0.1589	-0.0557	-0.0263	0.0034	-0.00008942
2012/13	0.0873	0.5885	0.2199	0.3686	0.08105514
Total	-0.6632	-0.2956			0.22285282

$$\text{Expected Return } E(R_X) = \bar{R}_x = \frac{R_x}{n} = \frac{0.6632}{5} = 0.1326$$

$$\text{Expected Return } E(R_Y) = \bar{R}_y = \frac{R_y}{n} = \frac{0.2956}{5} = 0.0591$$

$$\text{Cov}(R_x, R_y) = \frac{\sum (R_x - \bar{R}_x)(R_y - \bar{R}_y)}{n - 1}$$

$$= \frac{0.22285282}{5 - 1}$$

$$= 0.055713205$$

To minimize the risk the weight of the stock X in the portfolio is given as

$$W_x = \frac{\sigma_y^2 \text{Cov}(R_x, R_y)}{\sigma_x^2 \sigma_y^2 - \text{Cov}(R_x, R_y)^2}$$

$$= \frac{0.3769 \times 0.055713205}{0.2792 \times 0.3769 - 0.055713205^2}$$

$$W_x = 1.1382$$

We know,

$$W_x + W_y = 1$$

$$W_y = -0.1382$$

Hence, the portfolio return (r_p) is given as

$$\begin{aligned}
r_p &= XW_X \bar{R}_X + YW_Y \bar{R}_Y \\
&= 1.1382 (0.1326) + 0.1382 (0.0591) \\
&= -0.14163
\end{aligned}$$

And, Portfolio Risk (σ_p) is given as

$$\begin{aligned}
\sigma_p &= \sqrt{W_X^2 \sigma_X^2 + W_Y^2 \sigma_Y^2 + 2W_X W_Y \text{Cov}(R_X, R_Y)} \\
&= \sqrt{(1.1382)^2 (0.2792)^2 + (0.1382)^2 (0.3769)^2 + 2(1.1382)(0.1382)(0.05571305)} \\
&= 3.0573
\end{aligned}$$

The Correlation between two stock X and Y (ρ_{XY}) is calculated as

$$\begin{aligned}
\rho_{XY} &= \frac{\text{Cov}(R_X, R_Y)}{\sigma_X \sigma_Y} \\
&= \frac{0.05571305}{(0.2792)(0.3769)} \\
&= 0.52944
\end{aligned}$$

Since, the correlation is positive. The portfolio between HBL and EBL is not be able to reduce its unsystematic risk significantly.

APPENDIX H

Regression Analysis between Return (R) and Dividend (D) of HBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.407(a)	.166	.073	.31145

a Predictors: (Constant), dividend

ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.174	1	.174	1.790	.214(a)
	Residual	.873	9	.097		
	Total	1.047	10			

a Predictors: (Constant), dividend

b Dependent Variable: return

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.036	.168		-.217	.833
	dividend	.007	.005	.407	1.338	.214

a Dependent Variable: return

Regression Analysis between Return (R) and Dividend (D) of EBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476(a)	.227	.034	.39447

a Predictors: (Constant), dividend

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.183	1	.183	1.174	.340(a))
	Residual	.622	4	.156		
	Total	.805	5			

a Predictors: (Constant), dividend

b Dependent Variable: return

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.294	.647		2.001	.116
	dividend	-.037	.034	-.476	-1.083	.340

a Dependent Variable: return

Regression Analysis between Return (R) and Market Price Per Share (MPS) of HBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.521(a)	.271	.180	.30512

a Predictors: (Constant), mps

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.277	1	.277	2.977	.123(a)
	Residual	.745	8	.093		
	Total	1.022	9			

a Predictors: (Constant), mps

b Dependent Variable: return

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.355	.316		-1.122	.295
	mps	.000	.000	.521	1.725	.123

a Dependent Variable: return

Regression Analysis between Return (R) and Market Price Per Share (MPS) of EBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.115(a)	.013	-.110	.63834

a Predictors: (Constant), mps

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.043	1	.043	.107	.753(a)
	Residual	3.260	8	.407		
	Total	3.303	9			

a Predictors: (Constant), mps

b Dependent Variable: return

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.385	.330		1.167	.277
	mps	.000	.000	.115	.326	.753

a Dependent Variable: return

Multiple Regression Analysis between Return on Dividend and MPS of HBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637(a)	.406	.236	.29457

a Predictors: (Constant), dividend, mps

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.414	2	.207	2.388	.162(a)
	Residual	.607	7	.087		
	Total	1.022	9			

a Predictors: (Constant), dividend, mps

b Dependent Variable: return

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.389	.307		-1.269	.245
	mps	.000	.000	.375	1.196	.270
	dividend	.008	.006	.394	1.258	.249

Multiple Regression Analysis between Return on Dividend and MPS of EBL

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.591(a)	.349	-.084	.41785

a Predictors: (Constant), dividend, mps

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.281	2	.141	.805	.525(a)
	Residual	.524	3	.175		
	Total	.805	5			

a Predictors: (Constant), dividend, mps

b Dependent Variable: return

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.563	.773		2.023	.136
	mps	.000	.000	-.356	-.752	.507
	dividend	-.042	.037	-.541	-1.142	.336

a Dependent Variable: return