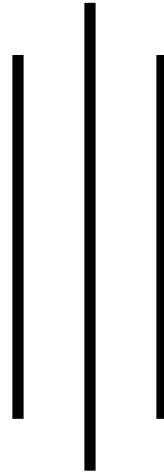


RISK AND RETURN ANALYSIS OF COMMON STOCK OF NEPALESE COMMERCIAL BANKS

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TRIBHUWAN UNIVERSITY
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RECOMMENDATION

This is to certify that the thesis

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Entitled
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NEPALESE COMMERCIAL BANKS**

*has been prepared as approved by this Department in the prescribed format
of the Faculty of Management. This thesis is forwarded for examination.*

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VIVA-VOCE SHEET

We have conducted the viva-voce examination of the thesis presented by

SHAILESH DAHAL

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**RISK AND RETURN ANALYSIS OF COMMON STOCK OF
NEPALESE COMMERCIAL BANKS**

*and found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for
Master's Degree in Business Studies (M.B.S.)*

Viva-voce Committee

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DECLARATION

I hereby, declare that the work reported in this thesis entitled **RISK AND RETURN ANALYSIS OF COMMON STOCK OF NEPALESE COMMERCIAL BANKS** submitted to the Research Department of Degree Campus, Old Airport, faculty of Management, Tribhuwan University in my original done in the form of partial fulfillment of the requirements for the Master of Business Studies (MBS), under the supervision of Prof. Dr. Khagendra Acharya.

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Date:

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.....

Shailesh Dahal
Researcher

Date:

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ABBREVIATIONS

B.S.	Bikram Sambat
C.E.	Capital Employed
DFL	Degree of Financial Leverage
DPS	Dividend Per Share
EBIT	Earning Before Interest and Tax
EBL	Everest Bank Limited
EBT	Earning Before Tax
EPS	Earning Per Share
FY	Fiscal Year
HBL	Himalayan Bank Limited
LTD	Long Term Debt
NIB	Nepal Investment Bank Limited
NEPSE	Nepal Stock Exchange
NI	Net Income
NOI	Net Operating Income
Rs	Rupees
ROA	Return on Assets
ROE	Return on Equity
ROSHE	Return on Shareholders' Equity
SHE	Shareholders' Equity
TA	Total Assets
TD	Total Debt
WACC	Weighted Average Cost of Capital

CHAPTER-I

1.1 BACKGROUND OF THE STUDY

Nepal is the kingdom of hills and mountains. It occupies area of 1,47, 181 square meters. It is located on the southern flock of Himalayan range. It extends about 885 kms along cost west, the northern extension varies from 145 km to 241 kms. Nepal is landlocked country. It lies in between China and India. Economic growth in Nepal is primarily concentrated in urban areas particularly in Kathmandu valley neglecting the vast rural areas. According to recent government statistics 38 percent of the total population lives below the poverty line. Based on a world bank report Nepal is the 12th poorest country in the world and the poorest in the south Asia with a per capital income of us \$ 220 per annum planned attempts have been made to address the problem of poverty with focus on agriculture and rural development several credit programs have been initiated in an attempt through bank credits and thereby increase income and improve living standard of the poor people in rural areas. Cooperative is one of such rapidly expanding models of rural financing.

Most of the Nepalese of people are dependent on agriculture we can say agriculture is the back bone of country. Although it is back bone of country they have no good quality of seeds, there is scarcity of fertilizer, they dependent on Mansoon, they have least knowledge of agriculture.

Although agriculture is the back bone of the country, non agriculture sectors has also significant contribution in the national economy. All sectors need a sound financial system to carry out its activities effectively, because each and every managerial decision making is based on financial analysis. We can't image about managerial decision without financial analysis. It involves acquisition utilization, control and administration of funds needed for the different sector.

The development of financial system in Nepal dates back to a rudimental economy dealing in the commodity money, as it would have been elsewhere in the world, such as gold and silver coins. The silver coin age which came into existence in Nepal in the 12th century is said to have marked a new epoch in the economic history since then, the financial system under went through various stages it till the evolution of modern banking in 1937. The financial monopoly has changed with the introduction of joint venture banks in 1984. The domestic banks of Nepal Nepal Bank LTD. And Rashtriya Baniijya Bank could no longer able to enjoy monopoly. The number of commercial bank has been increasing so in various sectors. Contribution of commercial banks has been increasing in the overall economic development of the country.

"Commercial bank exchanges money, deposits grants loan and perform other commercial bank function and is not a bank meant for corporative agriculture, industrial as per specific function." (Commercial Bank Act. 2031 p-45)

Return is the rewards for uncertainty of risk. It is the income received in investment people invest their belonging with in expectation of getting some reward for leaving its liquidity, they only invest in those opportunities where they can get higher return. In other worlds return in the main attraction for investor to invest in risky securities as stock accepting a varying degree of risk tolerance. Hence investor wants favourable return to be yield by its stock and go for those which yield more.

"Risk plays a central role in the analysis of investment Risks are the facts of life, which are product of uncertainty and its magnitude, depend upon the degree of variability in uncertain cash flows. Risk infect is the indication of chance of losing investing values. Different people interpret risk in different ways. To, some it is simply a lack of definite outcome, which can be any unknown event, which may be unfavourable. It is chance of happening some unfavourable event or danger of losing some material value. Risk can be thought of as the possibility that the actual return from holding security will deviate from unexpected return." (Pandey 1997 p-878)

"The concept of risk and return are the determinant for the valuation of securities. However risk means that we do not know what is going to happen even though we occasionally have a good idea of the range of possibilities that we face. In the most basic sense risk can be defined as the chance of loss. Assets having greater chance of loss are viewed as more risky than those with lesser chances of loss more formally, the term risk is used inter changeable with uncertainty to refer to the variability of return associated with a given assets." (Gitman, 2001, 2327)

"The rights and responsibilities attached to equity consists of positive consideration (income potential and control of the firm) and negative considerations loss potential, legal responsibility and personal liability.) (Weston J. Fred and Copeland homas E. 1992 -931)

"Risk was defined the variability of possible outcomes from that which was expected". (Van horn, James c 1999, -72)

"Risk refers to the set of unique outcomes for a given event which can be assigned probabilities." (Khan M.Y., Jain P.K. 1992 89)

“A stock refers the uncertainty about future returns. Such that the actual return may be less than expected. The main source of uncertainty is the price at which the stock will be sold. Dividend tend to be much more stable than stock prices and at the same time reduce the amount of earning re-invest by the firm which limits its potential growth. And stock price can be affected by economic factor such as interest rate economic growth, inflation and the strength of dollar. They can also be affected by micro economic factors such specific policies enacted by a particular firm that will affect its future earnings. The risk of a stock can be measurement by its price volatility; it’s between by the value at risk method. “A stock volatility serves as a measure of risk because it may indicate the degree of uncertainty surrounding the stock return.” (Jeff Madura 2001, 298)

A investor involves sacrifice of current rupee for future rupees. The sacrifice takes place in the present and is certain. The reward later and is uncertain. Investor have varying perception towards risk and enterprising ability investor will want their investment to yield favourable return hence, they invest in those opportunity which has certain degree of risk is associated with it.

The stock exchange market or stock market is one of the forms of secondary market. It is a major component of securities market and also a medium through which corporate sector mobilize funds to finance the productivity projects by issuing share in the market. It is a place where shares of listed companies are transferred from one hand to another at a fair price through the organized brokerage firms. The stocks is a financial market, which probably has the greater glamour and is perhaps the least understood more over security market exists in order to bring together buyer and seller of securities to facilitate the exchange assets. Hence it creates and enhances liquidity in the securities. In order to make transaction of securities Hence in tradition of listing the stock of public companies in the stock exchange for which they must meet exchange requirement to such factors as size of company member of years in business earning records, number of shares outstand and their market value. The listed companies receive certain amount of free advertisement publicity and the status being listed enhances their reputation. The securities market provides at least four economic function which are as follows.

Security exchanges facilitates the investment process by providing a market place to conduct efficient and relatively less expensive transaction. The investors thus assure that they would have place to see their securities.

The investor are capable of handling continuous testing the value of securities. The purchase and sale of securities, records judgment on the values and prospects of companies. Those prospects are judged favourable by the investors, have higher value, which facilitate new financing and growth.

Security prices are more stable because of the operation of the security market they improve liquidity by providing continuous market that make a more frequent by smaller price change.

1.2 FOCUS OF THE STUDY:

The main focus of this study is the risk and return analysis of the common stock of investment of the listed commercial banks of Nepal. The relationship between risk and return is a topic of major concern among investor and analyst. The relationship is very critical and very difficult to understand. Common stock is comparatively risky assets than other security in the capital market. The main purpose of the study is to analyze how one can get sustainable profit by minimizing the risk. For this purpose, expected return, total unsystematic risk and systematic risk are analyzed to give an idea to get sustainable profit by diversifying the risk to avoid future loss of the common stock investment.

Investment decision is very difficult for general people, where there is investment there exists risk therefore doing any decision about investment investor should calculate return as well as risk. Investing in share is more risky and return would be comparatively high. Due to high risk investment in share, investor must think about the risk and return before making investment decision.

In the context of Nepal, the capital market is growing very slowly. The market is not efficient, there are very few magazines or articles related to capital market and very few students are made on the topic risk and return. Because of these all things most of the investor are investing on the capital market without any proper knowledge and information.

The study will give information about Nepalese capital market by analyzing risk and return and will definitely contribute to increase analytical power of the investor in capital market. The studying is not only to fulfil but also to provide some useful knowledge about the Nepalese stock market development other theories and tools are also used to support the risk and return theory. It is suggested to the policy maker to make necessary policies to attract private sector investment in the productive sector and reforms in policies reputation to stock trade is quite necessary for development of security market in Nepal. It is believed that this study will help many investors to know how they should use their money in which investing in financial securities. Apart from all these this study may be matter of interest for academicians, students, teachers etc.

1.3 STATEMENT OF THE PROBLEM:

It is true that after the establishment of Nepal stock exchange the capital market has grown rapidly within a very short period, however the attitude, thoughts and knowledge of the most investor is not changed. Most of the investors are least familiar with the financial activities. They don't have idea of risk and return without having associated knowledge of risk with investment most of the investor are making investment on stock, which is very wrong and bad trend.

Theory says that the stock price in market is guided by the intrinsic value, which is calculated by end of company's result of financial performance such as dividend, required rate of return and growth rate. In a efficient market condition stock price is equal to the intrinsic value. Since buyer and the seller are fully aware of the facts and figures of the company. Therefore one can say that market price and financial performance are positively correlated but condition here are totally different from that whatever the theory has depicted is not applicable in our context. Where most of the investors do not know to interpret the information and so they can not make a rational decision regarding transaction of the stock.

Have any knowledge about financial assets and they also don't know to take decision to construct and ideal portfolio and rich a decision. Investors of Nepal invest their wealth on the basis of looking the past trends of stocks prices. In Nepal majority of people do not no about shares debentures and other securities capital market is also not developed. Moreover people are unfamiliar with the banking system. They would rather prefer to invest in land buildings, gold and other on productive items. On the other hands, in Nepal stock price is determined more from the other factor rather than the financial performance of the concerned company.

At the same time there is lack of separate institution which provide information required to make rational decision that can accelerate stocks investment and market efficiency. Government policy is found less encouraging in promoting common stock investment. Therefore courage is needed and at the same time faith to invest in common stock because there are several questions which may have arising in the mind of the individual investors at the time of the investment. Some of the common questions that arise in an investor's mind can be listed as follows.

- ❖ How can we make higher return through risk?
- ❖ How can investor diversify the risk?
- ❖ How do they know about the magnitude of risk?
- ❖ What are the criteria for evaluation that the stock they are holding will give them favourable return?
- ❖ What should be the compensation for bearing risk?

So, these are the burning issues that have influenced researcher to carry on these studies.

1.4 OBJECTIVES OF STUDY:

The basic objective of the study is to focus on the risk, return and common stock investment of Nepalese joint venture banks. The study will also try to focus on the real problems occurring in common stock in joint venture banks. The stated problems are analyzed regarding to banks sectors. The specific level of objectives of the study is:

- ❖ To measure systematic and unsystematic risk of the commercial banks.
- ❖ To identify the co-variance and correlation between the return of common stocks of joint venture banks.
- ❖ To evaluate the common stock of listed joint venture banks in terms of risk and return.
- ❖ To find the overprice, under price and correctly priced of common stocks of joint ventures banks.
- ❖ To provide applicable suggestion on the basis of funding to management and government.

1.5 SIGNIFICANCE OF THE STUDY:

This research study will provide actual information about contribute in the analytical power of the investor. In Nepalese context very few studies are made and there are no specific magazines and articles on the topic so the study will be more significant for exposing and increasing stock investment. The main significance of this study are mentioned below:

- ❖ The study might have the clean concept over their investor, they will be able to distinct the right investment among all investment opportunities.
- ❖ This study may provide significant information to Nepalese stock market development along with providing ideas to minimize the risk on stock.
- ❖ This study will be beneficiation for the person who is directly and indirectly related to the Nepalese stock market.
- ❖ This study will be a matter of interest for academicians' students and investors.

1.6 LIMITATION OF THE STUDY:

Every study has certain limitations. This study also has been conducted with certain limitations as others the main limitation is time constraint and other are as follows:

- ❖ This study is mainly based on only selected commercial banks. Here manufacturing sector is not included.
- ❖ Commercial bank activities are mainly included.
- ❖ The study covers the relevant data and information only for latest five years.

- ❖ Study is based on secondary data, which are extracted from the financial statement of banks concerned.

1.7. THEORETICAL FRAMEWORK:

The theoretical framework is the basis or foundation upon which the study is established. It is within the framework of this theory that the entire study proceeds. Since the general purpose of research is the develop theories about problems and questions, it is important that the theatrical framework be carefully developed and presented.

The theoretical framework is the foundation of which the entire thesis is based. It is the logically developed, described and elaborated network of associations among variables that have been identified through such processes as interviews, observations and literature survey. These variables are deemed relevant to the problem situation. (Sekarn 1992 P-73)

This study focus on the determination of risk, return and investment position of Nepalese commercial banks. Basically, commercial banks are concerned with financial transaction. Different types of financial division are involved in the financial transaction. All the financial decision often involves alternative courses of actions. The alternative actions typically have different risk return implications.

While selection of investment alternative the first priority of the investor is to identify the amount of rate of returns.

1.8 RESEARCH METHODOLOGY

The research design includes specification of the method of the purposed study and detailed plan for carrying out the study with various empirical data study for the analysis of the problem. "Research design is plan, structure and strategy of investigation conceived so as to obtain answer to research question and to controls variances" [Kothari, 1991:24] for identifying the Major determinats of equity price of share shall be analyzed. Correlation coefficient measures the relationship where as multiple regressions analysis measures the degree of influences of each identified variables upon observed market price. In this connection, historical data will be used. Hence it is the historical research design. Data requited for this study will be extracted from www.nepalstock.com. Therefore sources of data collection shall be applied in this study.

The major activities of this study are the collection of data, tabulation and compilation of data, computation of compared data and financial parameter, finding, conclusion and recommendations, These activities will be arranged as according to the model prescribed by TU, Faculty of management. Full efforts

made to cover all significant factors, which either implicitly or explicitly shape. Numerical analysis will be carried as far as practicable and the technique of descriptive analysis will be used whenever necessary. For example, information forces cannot be measured discretely. So their impact on MPS has been quantified in descriptive manner in Chapter-II of this study. The research design is thus an integrated frame that guides the researcher in planning and executing the research works.

1.8.1 RESEARCH DESIGN

In order to make any type of research a well-set research design is necessary to fulfill the objectives of the study. Generally, research design means define procedure and technique which guides to study and provide ways for research viability. It is arrangements for collection and analysis of data. To achieve the objective of this study, descriptive and analytical research design has been used. Some financial tools have been applied to examine facts and descriptive techniques have been adopted to determine factors determining stock prices of commercial banks in the NEPSE.

1.8.2 POPULATION & SAMPLE

The term "Population" and "Universe" for research means all the members of any well defined class of people, events or the objects, organization or firms. The population means aggregate or the entire group. Population consists of large group. Due to its large size it is difficult to collect detailed information. So a subgroup is chosen that believed to be representative of the population. The subgroup is called sample. The sample allows the researchers more time to make an intensive study of a research problem. Good sampling technique can save the researchers time and money as well. Hence, all commercial Bank of Nepal is representative of the population, as Nepal Investment bank, Everest bank, Himalayan Bank, Kumari Bank is some sample of the research.

1.8.3 NATURE AND SOURCES OF DATA

The study is primarily based on secondary sources of data. The required have been collected from financial statements of listed companies which have located at www.nepalstock.com and official website of Nepal stock exchange Ltd.

Financial data of previous year of the selected banks are downloaded from www.nepalstock.com. Different books from library, periodicals newspaper cuttings, companies' magazines will also be used whenever required. Needless to say that this study is associated with past phenomena, therefore, only the secondary data will be used to carry out the whole calculations. Thus the historical data from the NEPSE'S Website shall be used which obviously the secondary sources and past phenomena in nature.

1.8.4 DATA COLLECTION TECHNIQUES

The research consists of both primary and secondary data. Since the nature of these two types of data is different, the data collection procedure also varies. To collect the secondary data, published materials are viewed in various sports. Books by different authors, unpublished thesis report, journals, magazines, internet, AGM reports of the listed companies, SEBO/N, NEPSE etc. trading reports of NEPSE are the major source of secondary data.

1.8.5 DATA ANALYSIS TOOLS

The primary and secondary data collected from various sources leads to the logical conclusion, only if the appropriate tools and techniques are adapted to analyze such data. The collected data has no meaning, if such data are not analyzed. To the data in this research, the researcher has used some statistical and financial tools, which are listed below.

- Standard Deviation
- Co-efficient of variation
- Co-relation

1.9. ORGANIZATION OF THE STUDY:

The study has been organized into five chapter, they are.

Chapter I (Introduction)

It includes background information, focus of the study, statement of the problem, objective of study, significance of the study, limitation of the study, hypothesis and assumptions and so on. Therefore, this chapter highlights on the aim and structure of the study.

Chapter II (Review of literature)

It is dealt in the second chapter. It includes introductions, definition, theories (model) and review of previous studies.

Chapter III (Research Methodology)

In the third chapter research methodology has been discussed. This chapter deals with the research design, population and sample, nature and types of data, source of data collection, procedures data processing procedures tools and techniques for the analysis of data.

Chapter IV (Presentation analysis and interpretation of data)

This chapter attempts to analyze and evaluate the data with the help of analytical tools and interpret the result so obtained.

Chapter V (Summary, conclusion and recommendation)

The last chapter is the summary, conclusion and recommendation. It contains the summary and conclusion of the study and recommendation for the further study. It sums of the result obtained through analysis and recommends some suggestion.

CHAPTER-II

2. REVIEW OF LITERATURE

This chapter deals with the theoretical aspect of the topic on risk and return on stock investment in a descriptive manner. For this study, journals, articles and sources research reports related with this topic have been reviewed. Since there are very limited study materials related to this topic published in Nepal, this study had to refer the books related to this topic published in other countries. Our stock market, being in an emerging state is unable to provide sufficient information concerning to the study. In addition independent study carried out by well-known Nepalese financial experts and others are also taken onto consideration.

This section is divided into two parts, one is conceptual framework and another is review of previous studies.

2.1. CONCEPTUAL FRAMEWORK

There are various books regarding risk and return as major consideration Major focus of finance is on trade between risk and return. Hence, the focus is on the amount that is equal to the price previously paid by the shares.

2.1.1. COMMON STOCK

The study is focused on common stock investment. Therefore main focus is given up on it. Common stock represents an ownership position in an operation. When investor buy common stock, they receive certificate of ownership as a proof of their being part of ownership of the company. The certificate states the number of share purchased and their par value. Securities market exists in order to bring together buyers and sellers of securities to facilitate the exchange of financial asset's stock market. Which probably has the great glamour and is perhaps the least understood. Some observers consider it has a legalized heaven for gambling and many investors consider stock market as an interesting game in which the sole purpose is picking winepress. Load Keynes is the first person to express stock market as "a game of professional's investment". The main purpose is to win or to make lots of money success comes to one who treats it as a game to be played not only for profit but also for enjoyment and sports. Stock market provides both opportunity and threats. It is useful for the well-informed peoples who have better knowledge of market realities and it becomes a danger for the unknown people.

Securities Boards, Nepal, (SEBO) was established on 26 may, 1993 under the provision of the securities Exchange Act 1983. It was established with the objectives of promoting and protecting the interest of investor by regulating the securities market besides the regulatory role. It is also responsible for the objectives of securities market in the country.

Securities exchange act has empowered Nepal stock Exchange (NEPSE) with the capacity of promulgating various bylaws in order to ensure orderly and fair transaction of securities. Accordingly, the NEPSE has made and adopted the securities listing bylaws, 1996 and membership of stock exchange and transactions by laws 1998.¹

As a developing regulator of the capital market, SEBO basically relies on Government's financial assistance. In order to move towards a self-funded institution, it has created revolving funds from which it generates incomes that helps to cover part of its expenses. Income from registration of corporate securities, renewal of license of stock exchange and registration as well as renewal of the license of market intermediaries are its other sources of funds.

Of course, among all the forms of securities, common stock appears to be the most romantic. While 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 make them an interesting and exciting proposition and common stock investment is a favourite topic for conversation in parties and get-together.²

Common stockholders of a corporation are its residual owners. Their claim to income and assets comes after creditors and preferred stockholders have been paid fully. As a result, stockholder's return on investments is less certain than the return to lender or to a preferred stock holder. On the other hand the share of a common stock can be authorised either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance.³

The great advantage of the corporate form of organization is the limited liability of its owners. Common stocks are generally regarded as "fully paid and non assessable", which means that common stockholders may not lose their initial investment. That is, if the corporation fails to meet its obligation, the stockholders cannot be forced to give the corporation the funds that are needed to payoff the obligations. However, as result of such a failure, it is possible that the value of a corporation's shares will be negligible. This will result in the shareholders having listed an amount equal to the price previously paid to buy the shares.

2.1.2. COMMON STOCK FUNDAMENTALS

¹ Security Board Nepal, Annual Report, 1999/2000 SEPO, May 2001 P,15

² Prasanna Chandra, Financial Management Theory and Practices. Tata Mc Graw Hill New Delhi, p 93

³ James C. Van Horne, Financial Management and Policy, Prentic Hall of India Private Limited New Delhi, P560

The true owners of business firms are the common stockholders invest their money in the firm because of their expectation of future returns. A common stock holder is sometimes referred to as residual owner, since in essence she or he receives what is left after all others claim on the firm's income and assets have been satisfied. Here are the fundamental aspects of common stock:

Control

Common stock holders have voting rights that can be used to elect corporate director who in turn, appoints the corporate officers. Generally stockholders also have the right to vote on-

1. Any issue that will have material effect on the cooperation.
2. Any proposal that will change their individual percentage ownership.
3. Any significant contract or financial arrangement.

The extent of control depends on the voting right specified in the corporate charter. Members of the board of directors are elected by two methods: "straight voting and "Cumulative voting". Straight voting is essentially one vote per share for each director.

Pre-emptive Right

A pre-emptive right gives existing stockholders the first option to purchase a proportionate interest in new issue of a corporation's stock. The purpose of this provision is to protect stockholders against a loss of voting control and a dilution in their shares.

Liquidation Right

Common stockholders receive no priority as owner rather than creditors in the distribution of assets resulting from a liquidation of the corporation typically after assets are sold and liabilities as well as preferred stock holders are satisfied.

Dividends

The payment of corporate dividends is at the discretion of the board of director, most corporations pay dividend quarterly. Dividend may be paid as cash, stock or merchandise. Cash dividends are the most common memorial where as merchandise dividends are the least common. Before dividends are paid to the common stockholders, the claims of all creditors, the government and preferred stock holders must be satisfied.

Common Stock Values

Terms that are frequently used to refer to common stock values include par value and the market values. These terms are quite different, and in most cases the rupees amount of these values is not related for an individual stock.

Par Value

The face value of the stock which is established at the time where the stock is initially issued is called par value. Without a stock split or other action performed by the board of direction, the par value of the stock does not change.

Market Value

Market value in the secondary markets is determined by supply and demand factors and reflects the consensus of investors and traders concerning the "value" of the stock

Distribution of Earning and Assets

Common stock holders have no guarantee of receiving any periodic distribution of earnings in the form of dividend, or they are not guaranteed anything in the events of liquidation. However, one thing they are assured of is that they cannot lose any more than they have invested in the firm.

Voting Right

Generally, each share of common stock entitles the holder to one vote in the election of director and in order special election votes are generally assignable and must be cast at the annual stockholder's meeting.

2.2. MEANING OF RETURN

The concept of return has different meanings to different investors. Some investors seek near term cash inflow and give less value to more distant returns such as an investor might purchase the stock of another firm that pays large cash dividends. Other investors are concerned primarily with growth. They would see projects that offer the promise of long term, higher than average growth of sales earnings and capital appreciation. With most investments, an individual or a business organization spends money today with the expectation of earning even more money in the future. Thus, the concept of returns provides investors with a convenient way of expressing the financial performance of an investment.

The return is the total gain or loss experienced on an investment over a given period of time. It is commonly measured as the change in value plus any cash distributions during the period, expressed as a percentage of the beginning of period investment value.⁴

One way of expressing an investment return is in rupee terms. The rupee return is simply the total rupees received from investment in which fewer amounts are invested.

The Return of Common Stock

⁴ Lawrence J. Gitman, Principles of Management Finance, Finance, Addison Wesley Longman, Singapore 2001, p238

The cash pay off to owners of common stocks comes two forms:

- Cash dividend
- Capital Gain

When current price of a share is P_0 that expected price at the end of the year is P_1 and that the expected dividend per share is Div_1 . The rate of return that investor expects from his share over the next year dealing to the expected dividend per share Div_1 , plus the expected price approximately per share $(P_1 - P_0)$ all divided by the price at the start of the year to be shown in the form of (Addison Wesley Long man 2001:238)

$$\text{Expected Return} = r = \frac{Div_1 + (P_1 - P_0)}{P_0}$$

The return from holding an investment over some period of a year is simply any cash payments received due to ownership plus change in the market price dividend by the beginning price. Thus, the return comes from two sources: Income and price appreciation.

Return is defined as the dividend yield plus the capital gain or losses. The relationship between different levels of return on their relative frequencies is called a probability distribution. We could formulate a probability distribution for the relative frequencies of a firm annual return by analyzing its historical returns over the previous year. But we know that history never repeats itself exactly. Hence after analyzing relative frequencies of historical returns for the individual company, we can form a probabilities distribution based on the historical data plus the analyzing for the outlook for the economic and outlook for the industry, the outlook for the firm in its industry and another factor.⁵

The expression for calculation the rate of return earned on any asset over period t . R_t is commonly defines as:

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

Where,

R_t = actual, expected or required rate of return during period 't'

P_t = price (value) of asset at time 't'

P_{t-1} = price (value) of assets of time t-1

C_t = cash (flow) receive from assets investment in the time period t-1 or "t"

⁵ James C. Van Horne & John M. Wachowicz Jr. Fundamental of Financial Management, prentice Hall India, 1997, p90

The return R_t reflects the combined effect change in value, $p_t - p_{t-1}$, and cash flow, C_t , over period "t"

Above formulae can be used to determine both actual one period return based on historical figure as well as expected on period return based on future expected dividend and prices.

Holding period return measures mentioned is useful with investment horizon of one year or less than one year. For longer periods it is better to calculate rate of return as an investment viewed. The viewed calculation is present value- bases and this consider the time value of money.

Investment decisions are based on expectation about the future. The expected rate of return for any asset is the weighted average rate of return, using the probability of each rate of return as the weight. The effected rate of return is calculated by summing the product of the rates and their respective probabilities.⁶

$$E(r) = \sum_{t=1}^n P_t \cdot r_t$$

Where,

$E(r)$ = Expected rate of return

P_t = Probability of stock 't'

r_t = Rate of return of t stock

t = Event are perceived as possibilities

= Sign of summation

Other method for expressing the expected rate of return on investment in common stock can be obtained by or arithmetic means of the post year's return.

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

Where,

$E(R_j)$ = Expected rate of return on stock 'j'

n = Number of year that the return is taken

= Sign of summation

Meaning of Risk

Risk and return are the determined for the valuation of securities. However, risk means that we do not know what is going to happen even though we occasionally have a good idea of the range of possibilities that we face. In other words, when the firm moves to recognize that the forecast return may or may not

⁶ Jack Clark Fransis, Investment Analysis and Management, Mc Graw Hill, New York, 2000, pp 11-12

be achieved. This is the element of risk in the decision making process. Therefore, risk may be defined as the likelihood that the actual return from an investment will be less than the forecast return stated differently. It is the variability of return from investment.⁷

In the most basic sense, risk is the chance of financial loss. Assets having greater chances of loss are viewed as more risky than those with lesser chances of loss. More formally, the term risk is used interchangeable with uncertainty to refer to the variability of returns associated with a given assets.⁸

Risk is defined in Webster's as "a hazard; a peril exposure to loss or injury". Thus, risk refers to the chance that some unfavourable event will occur. If anybody is engaged in skydiving, such person is taking a chance of unfavourable events with his life because skydiving is risky.⁹

The market risk depends on the degree of variability in the market return. The relevant risk of an asset depends on how sensitive the asset return is to the changes in the market return. The relevant risk of individual assets is measured in terms of the sensitivity of its return to changes in the market returns. It is known as systematic or beta risk. The return beta is used to measure the sensitivity of assets return to the changes in the market returns. The total risk of an investment project is the absolute risk and it is measured in coefficient variance or standard deviation. The variability of returns is one and only the cause risk.

The homogenous stocks risk of individual stocks can be eliminated if they are included in a well diversified portfolio. When individual stock with in perfect correlations are combined into a portfolio the lower the return on a stock caused by the factors specific to a company of group of homogenous stocks is usually offset by the higher return on the thus, this part of risk is eliminated and the portfolio risk reduced.

Therefore, assets having a greater probability of loss are left a risky than those with less or chance of loss. Investor must see identify the securities having low risk and having higher return. However return cannot be increased but by will diversification of the funds in different stock marketing a portfolio, unsystematic risk can be reducing and can be eliminated if diversification is efficient. One- way in which investor can reduce risk is by spreading their capital across range of

⁷ John J.Hampton, Financial Decision Making Concept, Problem and Cases, Prentic Hall, India 1996,pp 340-345

⁸Lawrence J.Gitman, Principles of Managerial Finance, Addison Wesley Longman Pvt Ltd, Singapore, 2001, p,237

⁹ Eugene F. Brigham, Louis C. Gapenski and Michael C. Ehrhardt, *Financial Management*, Edition Harcourt Asia Pvt.Ltd, India, 2001, p160.

investment. This can be known by the following proverb "Don't put all the eggs in a single basket".

Setting investment policy involves determining the investor's objectives and the amount of wealth that could be invest. But, the study focuses on the securities analysis and portfolio selection. Securities analysis involves examining a number of individual securities or group securities from the verity of final assets. There are many approaches in securities analysis. However, most of these approaches fall is one of the two classifications. The first classification is known as technical analysis. The second classification is known as fundamental analysis. In the simple form technical analysis involves the study of stock market price in an attempt to predict future price movement for the common stock of a particular firm fundamental analysis beings with the assertion that the "True value of any financial asset equals the present value of all cash flow that the owner of the asset expects to receive. Portfolio construction involves identifying those specific assets in which to invest as well as determining the proportion of the investors wealth to put into each one. Portfolio revision concerns the periodic repetition of the previous three steps. That is over time the investor may change his or her investment objective, which means that the currently held portfolio may no longer be optimal. Portfolio performance evaluation determining periodically how the portfolio performed in term of not only the return earned but also the risk experienced by the investor. Thus appropriate measures of return and risk as well as relevant standard are needed.¹⁰

In Nepalese context, the institutional setup of securities market began along with securities exchange centre now (NEPSE) in 1976. In spite of considerable development there are still more potentialities to be explored for the development of stock market in Nepal. Most of the potential investors and the shareholders are unknown or have least idea about risk return behaviour of stock. Most of the Nepalese investor is found investing, in a single security. Due to the lack of information and poor knowledge market intermediaries exploit investors so many investors afraid to invest in stock, people's participation in security investments and its dynamic trading play a vital role in overall economic development. For this purpose, potential investor must be able to analyze risk and return of individual stock and portfolio and consequently speed up the economic development.¹¹

Banking plays a significant role to the development of national economy. Bank is a financial institution, which primarily deals in borrowing and leading. Modern

¹⁰ William F Sharp, Gordon, J. Alexander Jeffery V. Bailey, Investment, Prentice Hall New Delhi 1999, pp 12-14

¹¹ Gopal Prasad Bhatta, Assessment of the performance of Listed Companies in Nepal. An Unpublished Master's Degree Thesis Central Department of Management, T.U. p.167

bank performs many other varieties of functions. Therefore, it is difficult to define the function of modern bank because of their complexity and verifiable operation.

There are many ways to measure risk. Three models are commonly used:

Beta coefficient

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

Standard Deviation

This is a measure of the dispersion of forecast returns when such return approximate a normal probability distribution. It is a statistical concept and is widely used to measure risk from holding a single asset. The standard deviation is derived so that a high standard deviation represents large dispersion of return and is a high risk. On the other hand, a low deviation is a small dispersion and represents low risk. Mathematical it is denoted by " σ "

Business Risk

Business risk may be define as the change that the firm will not have ability to complete successfully with the assets that it purchases. For example, the firm may acquire a machine that may not operate properly or that may not produce stable products, or that may face other operating or market difficulties that causes losses. Any operational problems are grouped as business risk.

Financial Risk

This is the chance that an investment will not generate sufficient cash flows whether to cover interest payments on money borrowed to finance it or principal repayments on debt or to provide profits to the firm.

2.2.1. RISK ON COMMON STOCK

Having briefly discussed about procedure of quantifying the return the following paragraph will explore on risk and shows how it is perceived by uncertainties, as risk are that facts of life so to the common stockholder. Different people interpret uncertainties and a risk in different ways. For some, uncertainties are simply a lack of defined outcome and they are anything may happen that any unknown event, which may be favourable or unfavourable.

Uncertainty and risk are treated separately in financial analysis. In practice is to translate the uncertainly into a mathematical value that represents the best estimate at all uncertainly values. In order words, uncertainly is taken care of by

calculating the expected values of all possible uncertain outcome. But risk is trended differently. Although risk arises from uncertainly, its level depends upon the degree of variability in uncertain cash flows, and it is measured in terms of standards deviation. In project evaluation, risk in fact, is an indication of chance of losing investment value. The word "chance" here refers to the probability of loss in the investment project. In other word, the project risk indicates the probability of returns begin less than the expected value. Higher the probability of such loss and loss return, higher the project.

Risk is a complicated subjected and need to be properly analyzed. The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risk assets unless he is assured of adequate compensation for the assumption of risk. Therefore, it is the investor's required risk premium that establishes a link between risk and return. In a market dominated by rational investors, higher risk will be commanded by rational premium and the trade off between the two assumes a liner relationship between risk and risk premium.

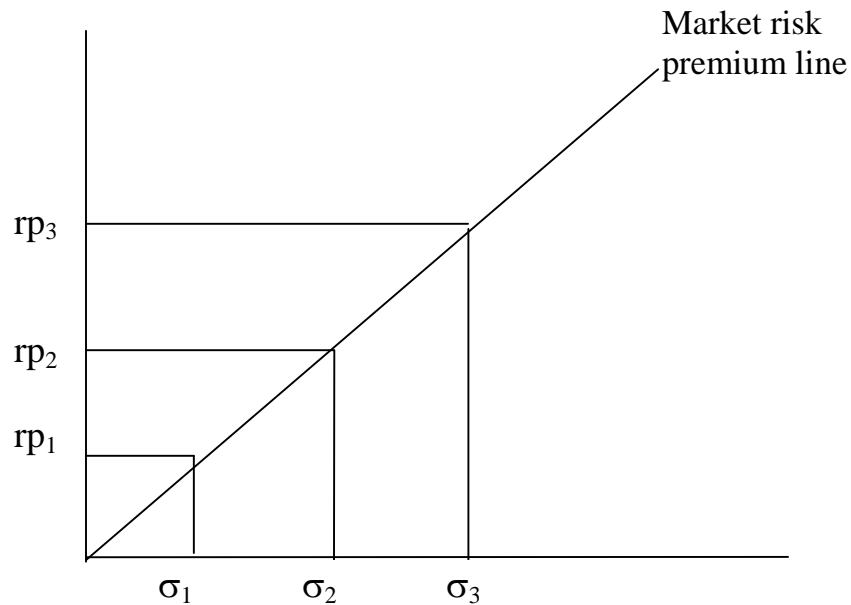


Fig. 2.1 Relationship between risk and return (Risk and risk premium)

This figure represents a higher premium for higher risk in a linear fashion indicating a premium of rp_1 for σ_1 degree of risk, rp_2 for σ_2 and degree of risk rp_3 for σ_3 . Under the assumption of a linear relationship the risk premium increases or decreases in proportion to a change in the level of risk.¹²

For all except risk free securities the return that we expect may be different from return we receive. For risk securities like common stock, the actual rate of return can be viewed as a random variable subject to a probability distribution.

- (1) Expected return
- (2) Standard Deviation

$$\text{The expected return } \bar{R} = \sum_{i=1}^n R_i P_i$$

Where,

R_i = Return for the i^{th} possibility

P_i = probability of that return occurring.

n = Total no. of possibilities, \bar{R} = Expected rate of return.

Another parameter of return distribution is a measure of dispersion of variability around expected return. The conventional measure of dispersion is the standard deviation.

The standard deviation (σ) can be expressed mathematically as:

¹² Surendra Pradhan, *Basic of Financial Management*, Education Enterprises, Kathmandu, 2001. P.328-329

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

Where,

σ = standard deviation of return

\bar{R} = expected return

Operationally we generally first calculate distribution variance or the weighted average of square deviations of possible occurrence from the mean value of the distribution, with the weight being the probabilities of occurrence. The square root of the figure will provide standard deviation.

A standard deviation can sometimes be misleading in comparing the risk or uncertainty-surrounding alternative if they differ in size. To adjust for size, the standard deviation can be divided by the expected return to concept the coefficient of variation (C.V).

$$\text{Coefficient of variation (C.V.)} = \frac{\sigma}{\bar{R}}$$

Thus, the coefficient of variation is a measure of relative dispersion (Risk) which is measure of risk "per unit of expected return". The large the coefficient of variation, the larger the relative risk of the investment of a choice must be made between two investments. Which have the same expected rate of return but different standard deviation, most investor would choose the one with the lower standard deviation. Similarly, given a choice between two investment with the same risk (standard deviation) and different expected rates of return investor would generally prefer the investment with higher expected return. To most people this is commonsense that return "good" and risk is "bad" and consequently investor want as much return and as little risk as possible. But, how do we choose between two investments when one has higher expected rate of return but the other has the lower standard deviation? To answer this question, we use another measure of risk, the coefficient of variation (C.V.) which is the standard deviation divided by the expected return. Thus, the coefficient of variation so the risk per unit return and it provides meaning full basis for comparison when the expected return on two alternatives is not the same.¹³

While consulting different books from different authors, it is found that large number of investor is risk averter. They generally invest their investment in portfolio. Investor rarely place their entire wealth in to a single assess rather they

¹³ Eugene F. Brigham, Louis C. Gapenski and Michael C. Ehrhardt, *Financial Management*, Edition Harcourt Asia Pvt, Ltd, India 2001, p. 167

contract a portfolio or group of investment. Therefore, it is needed to extend analysis of risk and return to include portfolio.

The expected return on a portfolio is simply the weighted begin the fraction of the portfolio invested in each asset.

$$\bar{R}_p = \sum_{i=1}^n W_i R_i$$

Where,

\bar{R}_p = The expected returns to the individual stocks

W_i = The weight of individual stock

n = Total no. of stock in the portfolio

W_i is the fraction of the portfolio's rupees value invested in the stock (i). It is the value of the investment in stock 'i'. Divided by the total value of the portfolio and that the sum of W_i must be 1.00

While the portfolio expected returns is a straight forward weight average of returns on the individual security where as portfolio standard deviation is not the weighted average of individual security standard deviation. To take a weighted average of individual security standard deviation would be to ignore the relationship or correlation between the return of the two securities. This correlation, however, has no effect on the portfolio expected return correlation between security returns complicates the calculation of portfolio standard deviation by forcing to calculate the co-variance between return for every possible pair wise combination of securities in the portfolio. But this dark cloud of mathematical complication contains a silver lining correlation between securities provides the possibility of eliminating some risk without reducing potential return.

The standard deviation of probability distribution of possible portfolio return σ_p is

$$\sigma_p = \sum_{i=1}^n W_i w_k \cdot \sigma_i$$

where,

n = Total no. of different securities in the portfolio

W_i = Proportions of total fund invested in security 'i'

W_j = proportion of total fund invested in security 'j'

σ_p = Co-variance between possible return for securities i&j.

The correlation coefficient always lies in the range from -1.0 to + 1.0. A positive correlation coefficient generally means that the assets generally move in the same direction while a negative correlation coefficient implies that they generally move in opposite directions. The stronger the relationship, the closer the correlation to one of the two extremes or the correlation to one of the two extreme values.

The portfolio theory provides a normative approach to the investor's decision to invest in assets or securities under risk. It is based on the assumption that investors are risk averse. This implies that investors hold well diversified portfolios instead of investing their entire wealth in a single asset or security. If the investor holds a well-diversified portfolio rather than individual assets or securities, the second assumption of the portfolio theory is that the returns of securities are normally distributed. This means that the mean (the expected value) and variance (or standard deviation) analysis is the foundation of the portfolio decisions.¹⁴

The risk of a portfolio could be measured in terms of its variance or standard deviation. However, the variance (or standard deviation) of a portfolio is not simply the weighted average of variance (or standard deviation) that is affected by the association of movement of return of two securities. The covariance of two securities measures their co-movement.

There are three steps involved in the calculation of co-variance between two securities.

- ❖ Determine the expected return for securities.
- ❖ Determine the deviation of possible returns from the expected return for each security.
- ❖ Determine the sum of product of each deviation of return of two securities and probability.

We can use the following equation to calculate co-variance:

$$COV_{ij} = \sum_{i=1}^n p_i [R_i - \bar{R}_i] [R_j - \bar{R}_j]$$

Where,

COV_{ij} = Covariance of return of securities i and j.

R_i = Returns of security i

R_j = Returns of security j

\bar{R}_i = Expected return of i

\bar{R}_j = Expected return of j

¹⁴. I.M Pandey, *Financial Management*, Vikas Publishing House, New Delhi, 2001 p 338-341.

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

$$\sigma_p = \sqrt{\sigma_i^2 w_i^2 + \sigma_j^2 w_j^2 + 2w_i w_j \sigma_i \sigma_j \text{cov}_{ij}}$$

The total risk of an investment project is the absolute risk and it is measured in terms of variance or standard deviation. It is now appropriate to briefly touch the subject of sources of risk and the contribution of each sources to portfolio risk we can divide the total risk into three parts on the basis of sources of risk.¹⁵

(i) Unique Risk

The unique risk, also known as unsystematic, firm specific or non-market risk is a portion of the total risk that is unique to the company or project. Which arises from the inefficiency of company management or some other company related events.

This risk is independent of market condition and arises solely from the factors specific to the company.

(ii) Homogenous Stock Risk

This type of risk is also called extra – market and can be defined as unsystematic risk in the sense that it is caused by non- market related factors. It arises from the co-movements of a stock's returns with these on the homogenous groups of stocks whose movements are independent of the market returns.

(iii) Market Risk

The market risk is known as this systematic risk. It is related to the market as a whole and arises from the tendency of stock returns to fluctuate with the market returns. This portion of the total risk arises from changes in the market conditions such as changes in interest rate, impact of political issue in the market turning points in the national economy etc that affect every firm in the market.

The unique and homogenous stocks risk of individual stocks can be eliminated, if they are included in well – diversified portfolio, when individual stock with imperfect correlation are combined in to a portfolio. The lower the return on a stock caused by the factors to a company or groups of homogeneous stocks is usually offset by the higher return on other stock thus, this parts conceptualization. A well diversified portfolio of stocks is less sensitive than the individual stock.

Having gone through the analysis of risk, it is convenient to discuss the risk elimination process through the portfolio formation. The following figure shows how it possible to reduce total risk to the level of systematic risk by holding more stock in portfolio.

¹⁵Surendra Pradhan, Basic of *Financial Management*, Education Enterprises, Kathmandu.2001 p. 335.

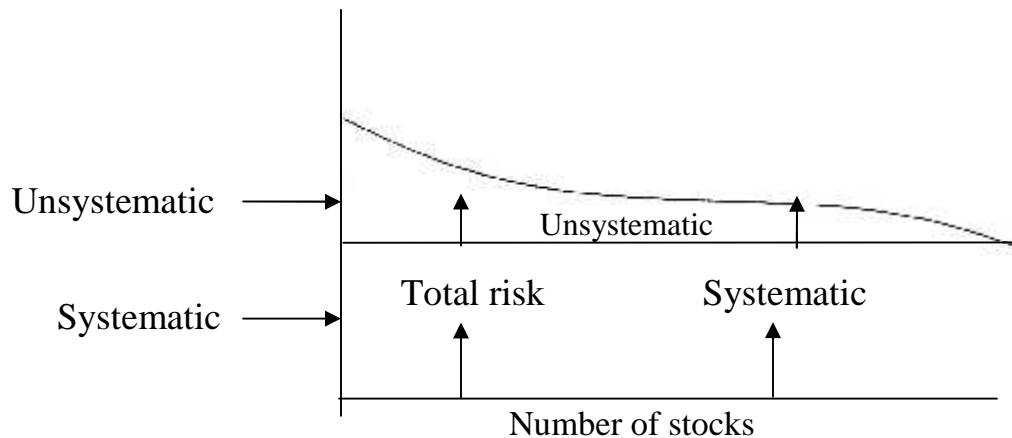


Fig. 2.2 Total Risk

Risk reduction through diversification investment made in only project or in the stock of only one company is exposed total risk that includes both systematic and unsystematic risk. As investments are diversified in many companies stocks, the level of unsystematic risk tends to decline. That is as the number of securities in the portfolio increases the total risk curve decreases and finally reaches to level of systematic risk eliminating the unsystematic portion. Thus the investment diversification eliminates the unsystematic risk completely as the portfolio contents increases. A portfolio containing all the market repeatable stock is fully diversified and its total risk is equal to the market average risk.

Generally, a diversified portfolio consists of ten or more companies stocks. However, it is necessary to include at least 20 to 30 different stocks to form a well diversified portfolio. At this point, it must be noted that the extent to which the portfolio risk can be reduced depends upon their type and the degree of correlation among the stock included in the portfolio.

However, by diversification this kind of risk can be reduced and even eliminated if diversification is efficient. Therefore, not all risk involved in holding a stock is relevant since part of these risk can be diversified away. The important risk of stock is its unavoidable systematic risk. Investor will be compensated for priority this systematic risk they should not however expect the market to provide any extra compensation for bearing available risk. It is this logic that lies behind capital assets pricing model (CAPM).

2.2.2 REASONS TO MANAGE RISK

The term management can be means for many things, but in business it involves identifying events that could have adverse financial consequences and then taking actions to minimize the damage causes by these events. Many years ago corporate risk managers dealt primarily with insurance they made sure the

firm was adequately insured against fire theft, and other casualties, and that it had adequate liabilities cover age.

2.2.3. FUNDAMENTAL OF RISK MANAGEMENT

Risk management by defining some commonly used terms that describe different risk some of these risks can be managed.

Pure Risk

It is such type of risk that offers only the prospects of a loss example includes the risk that a plant will be destroyed by fire.

Speculative Risk

Speculative risks are situations that offer the chance of a gain but might result in loss. Thus, investments in new projects and marketable securities evolved speculative risks.

Demand Risk

Demand risk are associated with the demand for a firm's produces or services. Because sales are essential to Act business, demand risk is one of the most significant risks that firms faces.

Financial Risk

Financial risk are risk that result from financial transaction. If firms plan to issue new bonds, they will face the risk that interest rates will raise before the bonds can be bought to market.

Property Risk

Property risks are associated with destruction of productive assets. Thus, the threat of fire floods and rights imposes property risk on a firm.

Personal Risks

Personal risks are the risks that result from employee's action.

Environmental Risk

Environment risk included risk associated with polluting the environment. Public awareness in recent opinion, coupled with the huge cost of environmental cleanup has increased the importance of this risk.

2.3. REVIEW OF CAPITAL ASSETS PRICING MODEL (CAPM)

CAPM is a model that describes the relationship between risk and expected return. It explains the behaviour of security price. It also describes how the price and the interest rate on risky financial assets are determined in the capital market. In this model a security's expected return is the risk free rate plus a premium based on systematic risk of the security where the risk is measured by the beta coefficient.

"CAPM provides a measure of risk and method of estimating the market's risk return line. The market or systematic risk of security is measured in terms its sensitivity to the market movements this sensitivity is referred to the security's beta. Investors can eliminate unsystematic risk when they invest their wealth in a well diversified market portfolio"¹⁶

"The major implication of the CAPM is that expected return of an asset will be related to measure of risk for that assets known as beta (β). The model provide the intellectual basis for a number of the current practices in the investment Industry."¹⁷

"Based on the behaviour of risk averse investor there is an implied equilibrium relationship between risk and expected return for each security. In market equilibrium a security is supposed it provide an expected return commensurate with its systematic risk of a security. Greater the systematic risk greater the return that investors will expect from the security. The relationship between expected return and systematic risk and the valuation of a securities that follow, is the essence of Noble Laureate William Sharpe's capital assets pricing mode (CAPM)."¹⁸

‘The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return.’¹⁹ The security market line clearly shows that return is the increasing function. The SML equation as suggested for the computation of expected rate of return on common stock.

This model is,

$$E(r_j) = r_f + [E(r_m) - r_f] \beta_j$$

Where,

$E(r_j)$ = Expected return on security j.

¹⁶ Panday, I.M "Financial Management" (1995), Vikash Publishing House, Pvt. Ltd. 7th edition, p. 344.

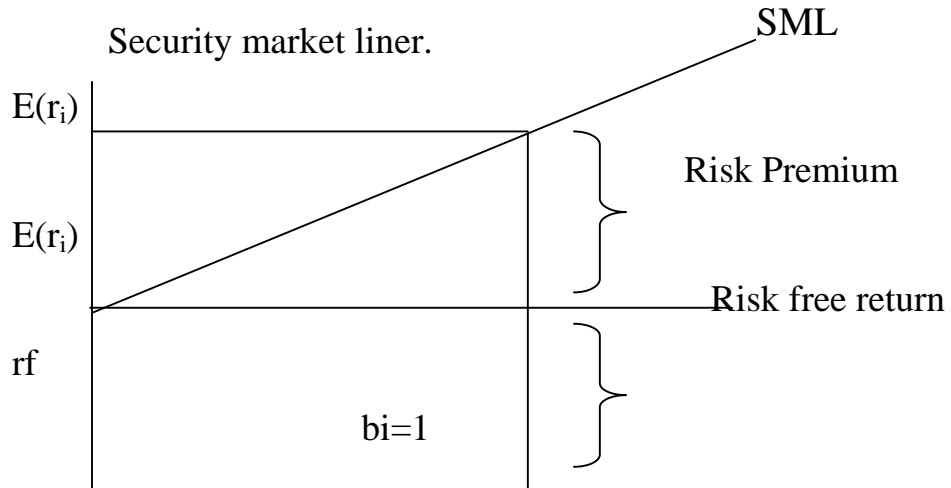
¹⁷ . William F sharp, Gordon J. Alexander and Jeffery V. Baily "Investment" Fifth edition, New Delhi prentic Hall of India.

¹⁸ James C. Van Horne and John M Wachowit Z Jr "*Fundamental of Financial Management*" (1996). Prentice Hall of India Pvt. Ltd.

¹⁹ Prasana Chandra "*Finacial Management*" (1994). 3rd edition Tata Megraw Hill, New Delhi

R_f = Risk free rate.
 $E(r_m)$ = the expected market return.
 β_j = Assets beta.

Diagram 2.1



"Using a comprehensive sample of cash and stock – for- stock mergers, we examine return generated from risk arbitrage, For constraints mergers, an investment in any merger cannot exceed 10 percent of total capital, size are limited by the liquidity of the underlying securities. The index fund must have an adequate amount of each reserve to under taken the investment. In most market environments, risk arbitrage return are uncorrelated with market return however, during market downturns, the correlation between market return and risk arbitrage return increases dramatically. From this study suggest that risk arbitrage returns are similar to those obtained from writing uncovered index put options. Risk arbitrage may be better evaluated using a contingent claims analysis rather than a liner asset pricing model such as CAPM. However, this analysis shows that when measuring excess returns, the error associated with CAPM is significant only when the nonlinearity in returns, in severe. This tends to be the case in time periods when cash, rather than stocks is the predominant from merger consideration. Although liner assets pricing model mark the true risk in risk arbitrage, they do not result in large errors when measuring excess returns."²⁰

2.3.1. REVIEW FROM JOURNALS

Non-a-days internet has become the most easily open medium to gain information in any subject matter. Besides the availability of different books and articles, it is also useful for the study. In this connection "the history of finance" has been taken into consideration. Along with it consistent to talk a little bit about financial economics.

²⁰ Mark Mitchell and told pulvion, "characteristics of and return in risk arbitrage" (2001), the journal of financial vol 56 page – 2171.

Financial economics is defined by Smith (1996) as the application of economic theory to financial markets. It is a large body of theory including such well-known models as 'Modern Portfolio Theory' of Markowitz (1952), the Capital Assets Pricing Model (CAPM) of Sharpe (1964), the Efficient Market Hypothesis of Samuelson (1965) & Fama (1965), and the option pricing model of Black and Scholes (1973), although these models are all included in Institute of Faculty Education Ltd. (1995), their acceptance for use is controversial.²¹

Finance, from the investor's perspective, is explained as: investors, whether they are individuals or organizational, as they hold a collection of different securities. Much of the innovation in investment research over the past 40 years has been development of a theory of portfolio management, and this module is principally an introduction to these new methods. It will answer the basic question: what rate of return will investors demand to hold risky security in their portfolio? To answer this question we first must consider what investors want, how we define return, and what means by risk.²²

One of the fundamental issues in finance are the factors that affect expected return of assets, the sensitivity of expected return to those factors and the reward for bearing this sensitivity. There is a long history of testing in this area, and it is clearly one of the most investigated areas in finance. Almost in all of the examining I'm aware of involves using realized return as a proxy for the expected returns. This relies on a belief that information surprises tend to cancel out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, I believe that there is ample evidence that this belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk-free rate. There are periods longer than 50 years in which risky long-term bonds on average underperform the risk-free rate (1927 to 1981). Having a risky asset with an expected return above the risk-free rate is an extremely weak condition for realized returns to be an appropriate proxy for expected return, and 11 and 50 years is an awfully long time for such a weak condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30 percent per year while Asian markets have had negative returns.²³

There are very few books and research-based journals in the field of finance in the Nepalese context. Almost no articles about the risk and return analysis on common stock investment can be found. Now a days information highway or the

²¹ Eugene F. Brigham, Louis C. Gapenski and Michael C. Ehrhardt, Financial Management, Edition Harcourt Asia Pvt. Ltd., India, 2001, p. 225

²² William N. Goetzmann. An Introduction to Investment Theory, YALE School of Management, 1999, p. 26

²³ Edwin J. Elton, Expected return, Realized Return and Asset Pricing Test, Journal of Finance, Vol., 1999, p.1100.

internet has become the most easily accessible medium to gain information in any subject matter. So some foreign journals taken into account to review the risk and return topics.

There is an article "The theoretical relationship between systematic risk and financial variable" by Robert G. Bownna. The purpose of the study was examine the relationship between the risk and financial variability and market risk. Systematic risk is directly related to the accountancy better. There is no theoretical basis for relationship of dividend payout and beta. There is not only theoretical relationship between dividends and systematic risk and also size and growth of the firm and systematic risk. "This study shows that there is a theoretical relationship between systematic risk and firms accounting beta. This function is not only the function of earning variability dividends and policies but also size and growth of firm" (*Bowmon*, 1979:617-628)

The journal of finance published by monthly by American finance association for many decades is considered. In August 1999, an article entitled "Local return factors and turnover in emerging stock markets", by K. Greet Rawan horst was published, which is reviewed here. "The performance of Hedge funds: Risk, return and incentives" by Carl Ackermann, Richard MC. Enally and David Revenscazft has been reviewed here.

These hedge funds concluded that the flexible investment options employed by hedge funds make it difficult to classify hedge funds, identify the correct bench mark and this measure the relative performance. Standard deviation of returns measure of total risk may not fully capture the complex risk taking from hedge funds dynamic, highly leveresed strategic monthly incentive fees. Therefore contain an unknown reporting bias that may be as important as depreciation rates, common cost allocation and transfer pricing issues in accounting profits. " (*lark. Richard and croft* 1999:850-873).

2.3.2 REVIEW FROM THESIS:

Review of thesis is a section of review of literature where various thesis are review which are related its topic and which may be help full for this study. In this section some thesis are review which have done o risk and return topic and the objective of this section is to know how the relation between risk and return is described and measured by different thesis.

-Study by "Mr. Jeet Bahadur Sopkota:"²⁴

The study by Mr. Jeet Bahadur Sopkota is very closely relateds to this study on the topic of "Risk and Return Analysis in common stock Investment" (2001)

²⁴ Sopkota, Jeet Bahadur "Risk and return Analysis in Common Stock Investment" MBA Thesis, TU, 2000.

Researcher's main objective of the study is to analyze the risk and return of the common stock of Nepalese stock market. This study is focused on the common stock of commercial bank. Sopkota find out the banking sector is the biggest one in terms of market capitalization on turnovers expected return on the common stock of Nepal Bank Limited is maximum (i.e. 66.999%) and common stock of Nepal SBI Bank Limited is found minimum. Common stock of NBL is the most risk and common stock of Nepal SBI is least risk. Mr. Sapkota has concluded that common stock of Nepal Bangladesh Bank is the best one for investment. On the other portfolio return between the common stock of Nepal Grindlays Bank and Nepal SBI is 26.55% but portfolio standard deviation is only 14.97% which is less than single stock standard deviation.

Mr. Sapkota has recommended following points:

- Private investor should try and work out their attitude towards the risk of various investments.
- To reduce the risk, investors should diversify their fund. Proper construction of portfolio never any considerable loss.
- HMG needs to manage the trading of government securities in NEPSE instead of NRB.
- Government frequently needs to amend of the rules and regulation regarding stock market.

-Study by "Miss Sabina Shrestha:"²⁵

Miss Sabina Shrestha has done study on the topic of "Risk and Return analyses of Commercial Bank in Nepal", So this is closely related and helpful to this study. According to her, the relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investors will like to invest in risky assets unless he/she is assured of adequate compensation for the investment. Investors often ask about an investment and like to know if the risk will command higher premium and trade off between the two assume a linear relationship between risks and premium.

Miss Shrestha has recommended that in comparison with industry, banking sectors is more profitable, So the stock of banking sectors is found to have highest return when it has the medium risk whereas manufacturing and processing sector is found to have the lowest return and lowest risk. Therefore, the investor may buy the stocks of banking sectors considering risk and return factor

CHAPTER-III

3. RESEARCH METHODOLOGY

²⁵ Shrestha, Sabina "Risk and Return Analysis of Listed Commercial Bank" MBS Thesis, TU, 2005:

The research methodology is the systematic way of solving research problem. This chapter refers to the overall research process which is a research conducts during his /her study. It includes research design sources of data analytical tools and organizational effort to investigate a specific problem that needs a solution. This problem of investigation involves series of well thought out activities of gathering, recording, analyzing and interpreting the data with the purpose of finding answer to the problems. This research is on the basis of historical data using both financial and statistical tool performs is on the analysis of different variables. Results are presented in simple in simple way. Detail research methods are described in the following headings:

3.1. RESEARCH DESIGN.

Research design is necessary to fulfil the objective of well-set research. Research design may be defined as frame work, plan and structure for collecting analyzing and evaluating data. It is a procedure and techniques, which provide ways for research viability. This research is belongs to risk and return analysis so that this research is based on recent historical data, which covers the five years period data from the FY 2060/061 to 2064/2065. It deals with the common stock of commercial banks on the basis of available information. As the title of the study suggests, it is more analytical and empirical but less descriptive.

3.2. SOURCES OF DATA

The data required for the research is collected from the secondary sources. During the study, informal opinion survey has also been taken with the individual investors, bank official's security board of Nepal, staff on Nepal stock exchange and stockbrokers. Data related to the market price of stock, market price of stocks, market capitalization, movement of NEPSE index etc. It is taken from the trading report published by NEPSE and the website of Nepal stock exchange (i.e. www.nepalstock.com). Annual report of commercial banks and their financial statement are also collected from the respective sample banks. A NEPSE periodical, articles and previous research report etc, has also been considered.

3.3. Population and Samples

The population of the study is all the listed companies in NEPSE index. There are 159 companies listed in NEPSE index. There are 159 companies listed in NEPSE until 21.9.2008. They consist of mainly 21 commercial bank. This study is concentrated in listed commercial banks only. Therefore the total population is 21 for this study, 4 commercial banks are taken as sample, which are Nepal Investment Bank, Everest Bank, Himalayan bank and Kumari Bank.

3.4 DATE COLLECTION PROCEDURE

The data collection procedure is summarized below:

- Financial collection procedure is summarized below.
- Trading report published by Nepal stock exchange limited.
- Related websites.
- Material published in papers and magazines.
- Other related books and booklets.

3.5. DATA ANALYSIS TOOLS.

To achieve the objectives of research, this study has used various financial and statistical tools that are necessary to find results. The following tools shall analyzed by the data presented in the study. The data presented in the study shall be analyzed by the following tools.

3.5.1. MARKET PRICE OF STOCK (MPS)

Market price of stock is one of the major data of this study. There are three types of prices high, low and closing price of each year are available. We can be used average price (of high and low) or closing price of the stock. Closing price of average price represents the price of whole year. But, to get the real average volume and price of each transaction in the stock and during of time of each transaction in the whole year are essential. It is very difficult to obtain and include these all information and average of high and low price is not reliable and representative information. The closing price is used as market price of stock.

3.5.2. DIVIDEND (D):

Dividend is the reward waiting to the investors. The dividend decision is the decision of financial manager that out of earning how much portion of earning should be paid as dividend and how much portion of earning should be retained. The dividend decision is the essential decision because it directly affects to the market price of share. Dividends are of two types cash dividend and stock dividend are paid there will be no problem in calculation of total gain to the stockholders. If stock dividend is paid stockholder gets extra number of shares as dividend and simultaneously price of real stock decline due to increased number of shares. To get the real amount of dividend there are no any model or formula. So the model has developed considering practical as well as theoretical aspects after several discussions with NEPSE staff investors.

The model is

Total dividend amount = Cash dividend + stock dividend % \times next year's MPS.

Sometimes the company issued right issued; at par. In this situation, we can calculate the total dividend amount by this model.

Total dividend amount = cash dividend + Right Share % \times (Next Year MPS-price of right share)

Where, PMS = Market Price per share.

3.5.3. RETURN ON COMMON STOCK (R_j).

It is known as realized rate of return or single period rate of return. It is cash received plus price changes in period of stock (capital gain/loss). It is calculated in the form of percentage. It is calculated by adding change in market price with total dividend and then dividing by market price of previous year.

Symbolically,

$$R_j = \frac{(p_t - p_{t-1}) + D_t}{P_{t-1}}$$

Where,

R_j = Actual rate of return on stock J

D_t = Cash dividend received at time t.

P_t = Price of stock at time t.

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

3.5.4. EXPECTED RATE OF RETURN ON COMMON STOCK E (R_j)

One of the major aims study is to determine the expected return on the investment in common stock. Generally, this is obtained by the arithmetic mean of the year return.

Symbolically,

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

Where,

$E(R_j)$ = Expected rate of return on stock j

R_j = Return on stock j.

n = number of years that the return is taken.

= Sign of summation.

3.5.5. RETURN ON MARKET. (R_M)

It is the percentage increases in NEPSE index. Market return is the average return of the market as a whole. It is calculated as,

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

Where,

R_m = Return on Market.

NI_t = NEPSE index at time t.

NI_{t-1} = NEPSE index at time t-1.

3.5.6. EXPECTED RETURN ON MARKET E (R_M)

It is average of future expectation. It is calculated by summation of the past return and dividing by number of samples period.

$$E(R_m) = \frac{\sum R_m}{n}$$

Where,

$E(R_m)$ = Expected return on market

R_m = Summation of market return

n = Number of samples period

3.5.7. STANDARD DEVIATION [S.D.]

It is a statistical measure of the variability of observation. The symbol is called $[\sigma]$ sigma. It is the measure the total risk on stock investment. Standard deviation can be calculated by using following formula,

If data are given as time series,

$$\sigma_j = \sqrt{\frac{\sum [R_j - E(R_j)]^2}{n-1}}$$

If data are given as probability distribution,

$$\sigma_j = \sqrt{\sum_{i=1}^n [R_j - E(R_j)]^2 P_j}$$

Where,

σ_j = Standard Deviation on of return stock j during the period n.

P_j = Probability distribution of the observation.

R_j = Single period rate of return on stock J.

$E [R_j]$ = Expected rate of return on stock J.

n = Number of years that the return are taken.

3.5.8. COEFFICIENT OF VARIATION [C.V.]

It is the relation measurement of risk with return. It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The higher coefficient of variation, higher the risk. It is calculated as,

$$C.V. = \frac{\sigma_j}{E(R_j)}$$

Where,

C.V. = Coefficient of variation of stock.

σ_j = Standard deviation of return on stock j.

$E(R_j)$ = Expected rate of return on stock j.

3.5.9. BETA COEFFICIENT (β)

Beta coefficient shows the market sensitivity of stock. Higher the beta, greater the sensitivity and reaction to the movement. Beta coefficient of a particular stock will be less equal or more than 1, but the beta for market will be always 1.

$$\beta_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2}$$

Where,

β_j = beta coefficient of stock j.

$\text{Cov}(R_j, R_m)$ = covariance between return on stock j and return on market.

$$= \frac{\sum [R_j - E(R_j)][R_m - E(R_m)]}{n - 1}$$

σ_m^2 = Variance of market return.

3.5.10. CORRELATION COEFFICIENT (ρ_{ij})

Two variables are correlated when they are related that the change in the value of one variable is accompanied by change in the value of other. Correlation may be positive or negative. If return on two securities are negatively correlated when combined in portfolio reduces the risk. If securities are positively correlated risk cannot be reduced. Correlation coefficient is negative or positive which ranges from +1 to -1. It can be calculated as.

$$\rho_{ij} = \frac{\text{COV}_{ij}}{\sigma_i \sigma_j}$$

Where,

ρ_{ij} = Correlation coefficient for securities i and j.

Cov_{ij} = Covariance between securities i and j.

$\sigma_i \sigma_j$ = Standard deviation of return for securities i and j.

3.5.11. PORTFOLIO RISK AND RETURN.

Portfolio is combination of individual or a group of assets. Investors have different types of investment opportunity but they have limited resource for investment. So that investors have to choose that investment opportunity which maximizes return for a given of risk or minimize risk for a given level of return. Thus the combination of this investment is called portfolio.

3.5.11.1 PORTFOLIO RETURN, E (R_p)

The expected return on a portfolio is simply the weight average of expected return on the individual assets in the portfolio with weights being the fraction of the total portfolio invested in each asset.

Symbolically.

$$E(R_p) = W_i E(R_i) + W_j E(R_j)$$

Where,

E(R_p) = expected return on portfolio.

W_i = Proportion of wealth invested in i assets.

W_j = proportion of wealth investment in j assets.

E(R_i) = Expected return on i assets.

E(R_j) = Expected return on j assets.

3.5.11.2 PORTFOLIO RISK

It is the combined standard deviation of individual stock return. It is the risk of individual securities plus covariance between the securities. The formula for the calculation of portfolio risk for two assets case is given by.

$$\sigma_p = \sqrt{\sigma_i^2 w_i^2 + \sigma_j^2 w_j^2 + 2w_i w_j \text{COV}(R_i R_j)}$$

Where,

σ_p = Standard deviation of stock i & j.

σ_i² = Variance of assets i.

W_i = proportion of assets i.

σ_j² = Variance of assets j.

W_j = proportion of assets j.

Cov (R_i R_j) = covariance between return of assets i & j.

3.5.12. RISK MINIMIZING PORTFOLIO

It is the portfolio with lowest level of risk in the efficient frontier. In other word, it is the proportion of risk that minimizes the risk. In two stock portfolios, the optimal weight to invest in stock i & j are calculated as follows:

$$w_i = \frac{\sigma_i^2 - \text{cov}(R_i, R_j)}{\sigma_i^2 + \sigma_j^2 - 2\text{cov}(R_i, R_j)}$$

$$W_j = 1 - w_i$$

Where,

W_i = optimal weight to invest in stock i.

W_j = optimal weight to invest in stock j.

σ_i^2 = variance of stock i.

σ_j^2 = variance of stock j.

$\text{Cov}(R_i, R_j)$ = covariance of return between stock i & j

3.5.13. SYSTEMATIC RISK AND UNSYSTEMATIC RISK:

Total risk can be divided into two parts. They are systematic risk and unsystematic risk.

$$\text{Total risk } (\sigma) = \text{Systematic Risk} + \text{Unsystematic Risk}$$

3.5.14. SYSTEMATIC RISK:

Systematic risk is the portion of total risk of an individual security caused by market factor that simultaneously affects the price of all securities. It cannot be diversified away. The systematic risk is the changes in interest rate, inflation, investor's expectation above the overall performance of the economy etc.

$$\text{Systematic Risk} = \frac{\text{COV}_{im}}{\sigma_m}$$

$$\begin{aligned} \text{Systematic Risk} &= \frac{\rho_{im} \sigma_i \sigma_m}{\sigma_m} \\ &= \rho_{im} \sigma_i \end{aligned}$$

Where,

Cov_{ij} = Covariance of return of assets i with market.

ρ_{im} = Correlation of assets i with market.

3.5.15. UNSYSTEMATIC RISK:

Unsystematic risk is the portion of total risk can be diversified away. It is the result of management capabilities and decisions, strikes, the availability of raw materials, particular level of financial and operating leverage the firm employs.

$$\text{Unsystematic Risk} = \sigma_i - \frac{\text{cov}_{im}}{\sigma_m}$$

$$= \sigma_i - \rho_{im} \sigma_i$$

$$= \sigma_i (1 - \rho_{im})$$

3.5.16. PROPORTION OF SYSTEMATIC RISK AND UNSYSTEMATIC RISK:

The proportion of systematic risk indicates the percentage of variance of stock's return explained by the change in the market return and it cannot be diversified. The proportion of unsystematic risk indicates the % of variance of stock's return and is called unexplained variance which is firm specific risk and can it can diversified.

$$\text{Proportion of systematic risk } (\rho^2) = \frac{\beta_j^2 \sigma_m^2}{\sigma_j^2}$$

$$\text{Proportion of unsystematic risk } (1-\rho^2) = \frac{\text{var}(e)}{\sigma_j^2}$$

Where,

$$\sigma_j^2 = \text{Variance of stock } j$$

β_j^2 = Square beta of stock j.

σ_m^2 = Variance of market return

Var(e) = Residual variance

3.5.17. LIMITATION OF METHODOLOGY:

- 3.5.16.1. This study is based on the historical figures to forecast the future, i.e. their search design for study in historical past may be the genesis for his study the past may not happen in future, i.e. their search design for his study in future in same manner.
- 3.5.16.2. The population is only 21 commercial banks, which are listed in NEPSE and total no. of samples are only 4 listed commercial banks. So the samples do not cover whole industry.
- 3.5.16.3. The source of data is secondary and mainly collected from websites of NEPSE. So, accuracy of methodology is based on secondary data.
- 3.5.16.4. The data analysis tool is based on financial and statistical concepts. The values provided by such tool may be the approximation values only.

CHAPTER - IV

4. PRESENTATION AND ANALYSIS OF DATA

In this chapter the effort has been made to analyze risk and return on common stock investment which includes, detail data of market price of share and dividend of each selected commercial banks, their interpretation and analysis. With reference to the various readings and literature review in the preceding chapter, effort is made to analyze the recent Nepalese stock market movement to the listed commercial banks.

In this chapter the data are presented in tabular and graphical form to analyze and interpret systematically. The data are diagnosed, selected formatted and calculated before giving the tabular and graphical shape. After presenting the data in a tabular and graphical form, they are analyzed and interpreted. The data applied for the study are of five fiscal years (2004/05 to 2009/10) in order to assess the risk and return position of common stock investment in commercial bank.

For the purpose the data are analyzed and interpreted in two ways, descriptively and inferentially. Descriptive analysis is carried out to determine the risk and return position of selected commercial banks using different statistical tools Viz, arithmetic mean, standard deviation and coefficient of variation Karl's Person's coefficient of correlation. The time series analysis (trend analysis) is devoted to examine the trend and trend equation of return of each institution under study.

The inferential analysis is applied to make inter-bank analysis on risk and return position based on analysis of variance (ANOVA) including regression analysis based on expected return as dependent beta and correlation coefficient with the market as independent.

4.1. ANALYSIS OF INDIVIDUAL COMMERCIAL BANKS

As the study has taken a special reference to listed commercial banks. Among commercial banks operating in Nepal, only 4 commercial banks have taken as sample. These are Everest Bank Ltd. (EBL), Himalayan Bank Ltd. (HBL), Nepal Investment Bank Limited and Kumari Bank.

4.1.1 EVEREST BANK LIMITED:

Everest bank limited was established in 1994 AD under the company act 1964 with an objective of carrying out commercial banking activities under the commercial bank act 1974. United bank of India limited under the technical

service agreement signed between it and Nepalese promoters. Nepalese promoters were managing the bank till November 1996. Later on it holds over the management of Punjab National bank limited, India, which holds 20% equity shares, 50% equity hold by Nepalese promoters and 30% hold by general public investors.

4.1.1.1. Following table No. 4.1 represents the market price of the share (MPS) and dividend per share (DPS) of EBL bank for purpose of risk and return analysis.

**Table No.4.1
MPS and DPS data of EBL**

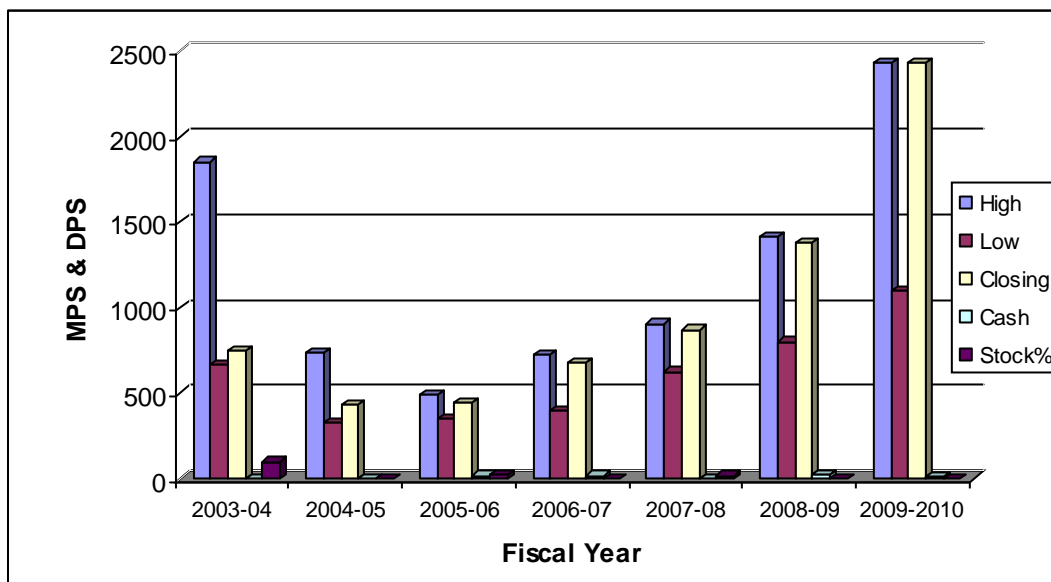
Fiscal Year	Market price per share			Dividend per share		
	High	Low	Closing	Cash	Stock%	Total
2003/04	1850	670	750	-	100	-
04/05	740	325	430	0	-	0
05/06	490	349	445	20	22	169.60
06/07	723	400	680	20	-	20
07/08	905	625	870	0	20	275.80
08/09	1410	800	1379	25	-	25
09/10	2430	1100	2430	10	-	10

Source: NEPSE index and AGM report of EBL [Appendix-1(A)]

* 20+22% of 680=169.60

** 0+20% of 1379 = 275.80

**Diagram NO. 4.1
MPS and DPS shown below**



Market price per share is maximum in F/Y 2009/10 and lowest in F/Y 2003/04.

4.1.1.2 Calculation of rate of return, expected return, stander deviation and coefficient of variation of common stock of EBL.

Table No.: 4.2

Fiscal Year	Closing price (P)	Divided (D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	[R-E(R)]	[R-E(R)] ²
2003/04	750				
04/05	430	0	-0.43	-0.87	0.7569
05/06	445	169.60	0.43	-0.01	0.0001
06/07	680	20	0.57	0.13	0.0169
07/08	870	275.80	0.69	0.25	0.0625
08/09	1379	25	0.61	0.17	0.0289
09/10	2430	10	0.77	0.33	0.1089
Total			2.64		0.9742

Source: Table No. 4.1

We have,

$$\text{Expected Return } E(R) = \sum R/n = 2.64/6 = 0.44 = 44\%$$

$$\text{Standard deviation } (\dagger) = \sqrt{\frac{[R - E(R)]^2}{n-1}} = \sqrt{\frac{0.9742}{6-1}} = 0.4414$$

$$\text{Coefficient of variation (C.V)} = \dagger/E(R) = \frac{0.4414}{0.44} = 1.003$$

$$Yc = a + bx \quad \sum X = 0$$

$$a = \sum Y/n = \frac{2064}{6} = 0.44$$

$$b = \sum XY/X^2 = \frac{3.33}{17.5} = 0.1903$$

4.1.1.3. Trend values for each year are calculated on the base rate of return on common stock of EBL respective year by using least square methods as follows. Table No. 4.3 shows the calculation of trend value of common stock of EBL.

Table No.4.3

Fiscal Year	Rate of return (Y)	Deviation from F/Y 2003/04 (X)	XY	X ²	Trend Value
2003/04	-0.43	-2.5	1.075	6.25	-0.0358
04/05	0.43	-1.5	-0.645	2.25	0.1546
05/06	0.57	-0.5	-0.285	0.25	0.3449
06/07	0.69	0.5	0.345	0.25	0.5352
07/08	0.61	1.5	0.915	2.25	0.7255
08/09	0.77	2.5	1.925	6.25	0.9158
09/10	2.64	0	3.33	17.50	

Source: Table No. 4.2

We have,

The equation of trend line is

$$Y_c = a+bx$$

$$\sum X = 0, \quad a = \frac{\sum Y}{n} = \frac{2.65}{6} = 0.442$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{3.355}{17.5} = 0.1917$$

Now,

Trend line equation is $Y_c = a+bx$

When

$$X = -2.5$$

$$Y_c = 0.44 + 0.1903 \times (-2.5) = -0.0358$$

$$X = -1.5$$

$$Y_c = 0.44 + 0.1903 \times (-1.5) = 0.1546$$

$$X = -0.5$$

$$Y_c = 0.44 + 0.1903 \times (-0.5) = 0.3449$$

$$X = 0.5$$

$$Y_c = 0.44 + 0.1903 \times (0.5) = 0.5352$$

$$X = 1.5$$

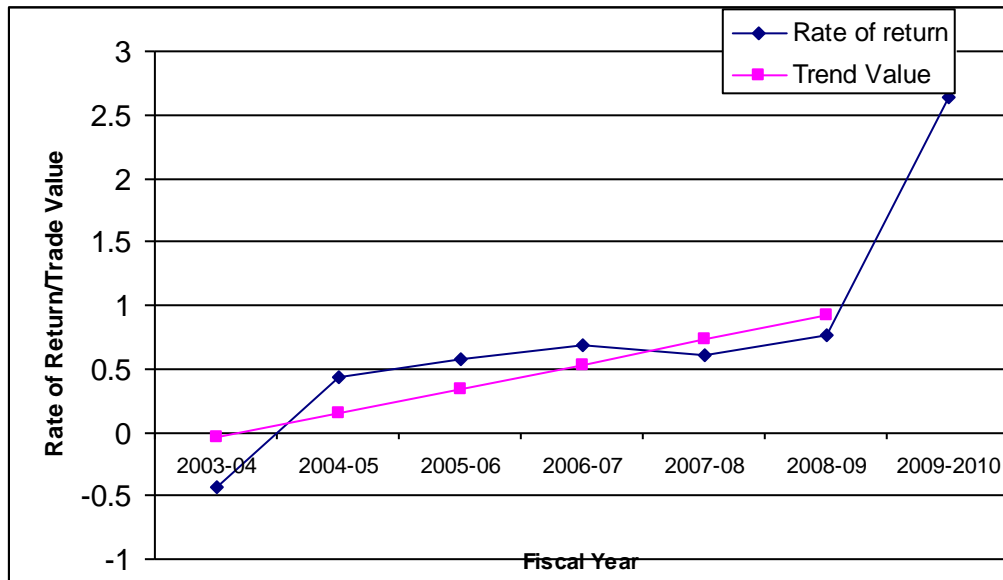
$$Y_c = 0.44 + 0.1903 \times (1.5) = 0.7255$$

$$X = 2.5$$

$$Y_c = 0.44 + 0.1903 \times (2.5) = 0.9158$$

Movement of Stock Rate of Return and Trend Line of EBL

Diagram No. 4.2



Source: Table No. 4.3

Above diagram shows that movement of stock's rate of return and trend line of EBL bank. In the begin rate of return in F/Y 2003/04 is negative and firstly move upwards and becomes positive in 2004/05 and highest in F/Y 2009/10. Similarly, Trend value is negative in F/Y 2003/04 and gradually moves upward and becomes positive in F/Y 2004/05. The equation of trend line is, $Y_c = 0.44 + 0.1903 \times (x)$, here the value of $b = 0.1917$ which indicted the rate of return in increase in each year by 0.1903 in average this also indicated upward trend.

4.1.2 HIMALAYAN BANK LIMITED

Himalayan bank limited was established in 1992. The main objective of the bank is to provide modern banking facilities like tale banking to business man industrialists other profession and to provide loans agriculture and industrial sector. Himalayan bank limited is joint venture commercial bank with Habib Bank limited of Pakistan. Now its 20% share is hold by Habik bank of Pakistan and 80% equity hold by Nepalese promoters, financial institutions, organized institutions, general public and others.

4.1.2.1 The following table no. 4.4 shows the market price per share (MPS) and dividend price per share (DPS) of HBL for the purpose of risk and return analysis.

Table No. 4.4
MPS & DPS data of HBL

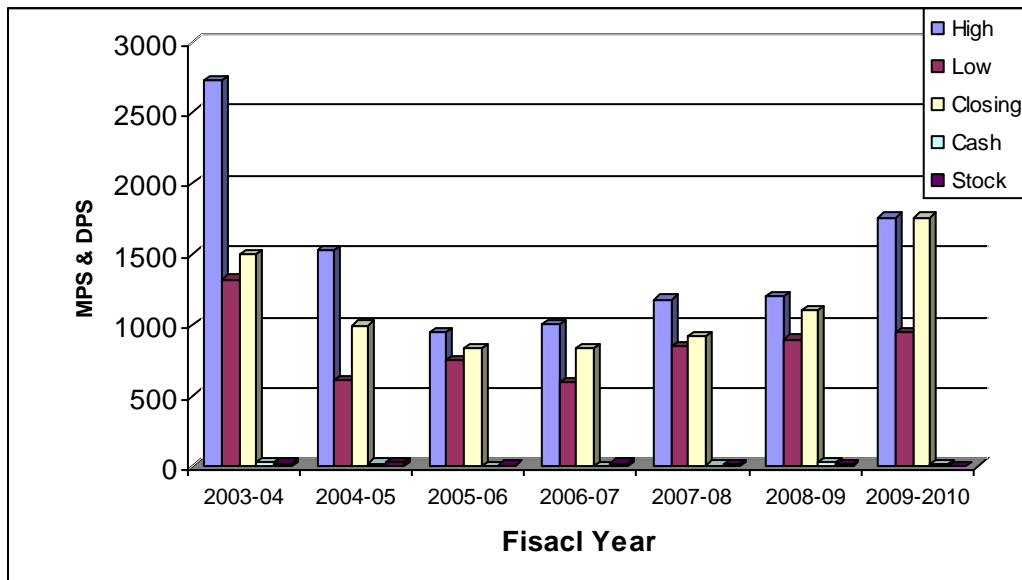
Fiscal Year	Market price per share			Dividend per share		
	High (Rs)	Low (Rs.)	Closing (Rs.)	Cash	Stock%	Total (Rs.)
2003/04	2726	1325	1500	27.5	25	
04/05	1530	610	1000	25	30	275.80
05/06	950	750	836	1.31	10	85.31
06/07	1010	600	840	0	25	230
07/08	1181	855	920	11.58	20	231.58
08/09	1200	900	1100	30	20	382
09/10	1760	950	1760	15	5	114
			1980			

Sources: NEPSE index and AGM report of HBL [Appendix-II (A)]

Total dividend = Cash + % of stock dividend x next year MPS

- * 25 + 30% of 836 = 275.80
- ** 1.31 + 10% of 840 = 85.31
- *** 0 + 25% of 920 = 230
- **** 11.58 + 20% of 1100 = 231.58
- ***** 30 + 20% of 1760 = 382
- ***** 15 + 5% of 1980 = 114

Diagram No. 4.3



Market price per share is maximum in F/Y year 2009/10

4.1.2.2 Calculation of rate of return, expected return, stander deviation and coefficient variation of common stock of HBL.

Table No. 4.5

Fiscal Year	Closing Price (P)	Dividend (D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	[R-E(R)]	[R-E(R)] ²
2003/04	1500				
04/05	1000	275.80	-0.1495	-0.4204	0.1767
05/06	836	85.31	-0.0787	-0.3501	0.1226
06/07	840	230	0.2799	-0.00085	0.00001
07/08	920	231.58	0.3709	0.0995	0.0009
08/09	1100	282	0.5022	0.2308	0.0533
09/10	1760	114	0.7036	0.4322	0.1868
			1.6284		0.5403

Source: Table No. 4.4

We have,

$$\text{Expects return } E(R) = \sum \frac{R}{n} = \frac{1.6284}{6} = 0.2714$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{[R - E(R)]^2}{n-1}} = \sqrt{\frac{0.5403}{6-1}} = \sqrt{\frac{0.5403}{5}} = \sqrt{0.10806} = 0.3287$$

$$\text{Coefficient of variation} = \frac{\sigma}{E(R)} = \frac{0.3287}{0.2714} = 1.2111$$

4.1.2.3 Trend value for each year is calculated on the base rate of return on common stock of HBL respective year by using least square methods as follows. Table No. 4.6 shows the calculation of trend value of common stock of HBL.

Table No. 4.6

Fiscal Year	Rate of return (Y)	Deviation from F/Y 2004/05 (X)	XY	X ²	Trend Value (Y _c)
2004/05	-0.1495	-2.5	0.3738	6.25	-0.1644
05/06	-0.0787	-1.5	0.1181	2.25	0.0009
06/07	0.2799	-0.5	-0.1400	0.25	0.1843
07/08	0.3709	0.5	0.1855	0.25	0.3586
08/09	0.5022	1.5	0.7533	2.25	0.5329
09/10	0.7036	2.5	1.759	6.25	0.7072
	1.6284	0	3.0497	17.50	

Sources: Table No. 4.2

We have,

The equation of trend line is,

$$Y_c = a+bx$$

$$\sum X = 0,$$

$$a = \frac{\sum Y}{n} = \frac{1.6284}{6} = 0.2714$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{3.0497}{17.50} = 0.1743$$

Now,

Trend line equation $Y_c = a+bx$

When, $X = -2.5$

$$Y_c = 0.2714 + 0.1743 \times (-2.5) = -0.1644$$

$X = -1.5$

$$Y_c = 0.2714 + 0.1743 \times (-1.5) = 0.0009$$

$X = -0.5$

$$Y_c = 0.2714 + 0.1743 \times (-0.5) = 0.1843$$

$X = 0.5$

$$Y_c = 0.2714 + 0.1743 \times (0.5) = 0.3586$$

$X = 1.5$

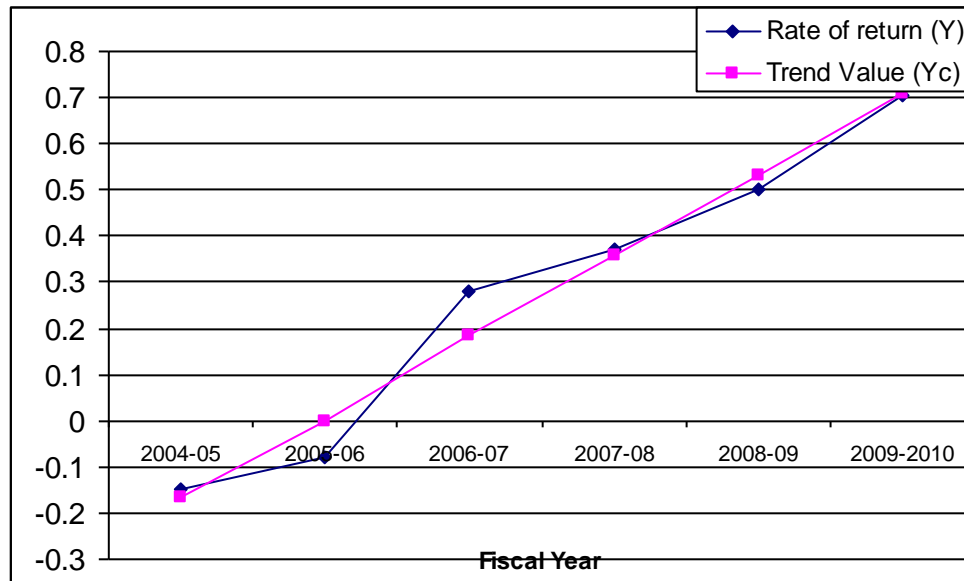
$$Y_c = 0.2714 + 0.1743 \times (1.5) = 0.5329$$

$X = 2.5$

$$Y_c = 0.2714 + 0.1743 \times (2.5) = 0.7072$$

Diagram No. 4.4

Movement of stock rate of return and trend line of HBL



Sources: Table No.4.6

Above diagram shows that movement of stock's of HBL bank rate of return and trend line. In the beginning rate of return and trend line both are negative in F/Y 2004/05. Then both moves upward and become positive in F/Y 2005/06, F/Y 2006/07 trend line and rate of return respectively. The equation of trend line is, $Y_c = 0.2714 + 0.1743 \times (x)$, here the value of $b = 0.1743$ which indicted the rate of

return in increase in each year by 0.1743 in average this also indicated upward trend.

4.1.3 NEPAL INVESTMENT BANK

Nepal Investment Bank is fifth joint venture of state bank of India and Nepalese promoters. It was established in 1993 AD under the company act 1964. The bank is managed by state bank of India. The main objective of the bank is carried out modern banking business in the country under the commercial act 1974. The State bank of India holding 50.60% equity and 49.40% equity hold by Nepalese promoters, general public investors and others. The bank has authorized issued and paid up capital of 1 arab, 50 crores, 42.68 crores respectively.

4.1.3.1 Following table no.4.7 shows market price per share (MPS) and dividend per share (DPS) of stock of Nepal Investment Bank Limited for the purpose of risk and return analysis.

Table No. 4.7
MPS and DPS data of Nepal Investment Bank Limited

Fiscal Year	Market Price per share			Dividend per share		
	High (Rs.)	Low (Rs.)	Closing (Rs.)	Cash (Rs.)	Stock%	Total (Rs.)
2003/04	2699	1150	1500			
04/05	1600	300	401	0	200	510
05/06	410	255	255	8	-	8
06/07	307	231	307	0	-	0
07/08	480	315	365	0	-	0
08/09	689	335	612	5	5	63.80
09/10	1176	505	1176	12.59	47.59	731.67
			1511			

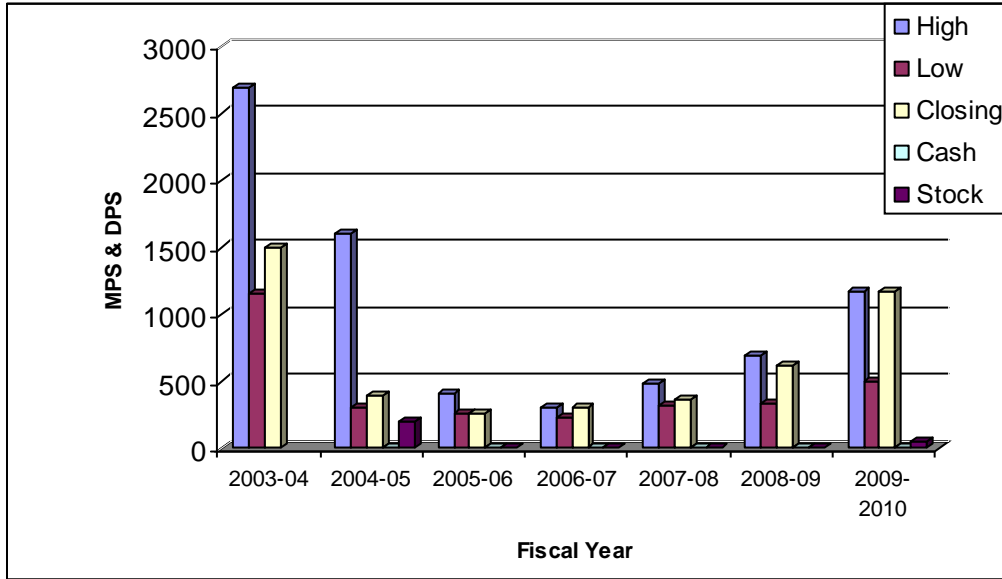
Source: NEPSE index and AGM report of Nepal Investment Bank Limited
[Appendix-III(A)]

* $0 + 200\% \text{ of } 255 = 510$

** $5 + 5\% \text{ of } 1176 = 63.80$

*** $12.59 + 47.59\% \text{ of } 1511 = 731.67$

Diagram No. 4.5
MPS and DPS are shown below



Market price per share is maximum in F/Y 2009/10 and lowest in 2003/04.

4.1.3.2 Calculation of rate of return, expected return, stander deviation and coefficient variation of common stock of Nepal Investment Bank Limited

Table No. 4.8

Fiscal Year	Closing Price (P)	Dividend (D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	[R-E(R)]	[R-E(R)] ²
2003/04	1500				
04/05	401	510	-0.3927	-0.8302	0.6892
05/06	255	8	-0.3441	-0.7816	0.6109
06/07	307	0	0.2039	-0.2336	0.0546
07/08	365	0	0.1890	-0.2485	0.0618
08/09	612	63.80	0.8515	0.414	0.1714
09/10	1176	731.67	2.1171	1.6796	2.8211
			2.6247		4.4090

Source: Table No. 4.7

We have,

$$\text{Expected return } E(R) = \frac{\sum R}{n} = \frac{2.6247}{6} = 0.4375$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{[R - E(R)]^2}{n-1}} = \sqrt{\frac{4.4090}{6-1}} = \sqrt{0.8818} = 0.9390$$

$$\text{Coefficient of variation} = \frac{\sigma}{E(R)} = \frac{0.9390}{0.4375} = 2.1463$$

4.1.3.3 Trend value for each year is calculated on the base rate of return on common stock of Nepal Investment Bank Limited respective year by using least square methods as follows. Table no. 4.9 shows the calculation of trend value of common stock of Nepal Investment Bank Limited.

Table No. 4.9

Fiscal Year	Rate of return (Y)	Deviation from F/Y 2003/04 (X)	XY	X ²	Trend Value (Y _c)
2004/05	-0.3927	-2.5	0.9818	6.25	-0.714
05/06	-0.3441	-1.5	0.5162	2.25	-0.2534
06/07	0.2039	-0.5	-0.1020	0.25	0.2072
07/08	0.1890	0.5	0.0945	0.25	0.6678
08/09	0.8515	1.5	1.2773	2.25	1.1284
09/10	2.1171	2.5	5.2928	6.25	1.589
	2.6247	0	8.0606	17.50	

Sources: Table No. 4.8

We have,

The equation of trend line is,

$$Y_c = a + bx$$

$$\sum X = 0,$$

$$a = \frac{\sum Y}{n} = \frac{2.6247}{6} = 0.4375$$

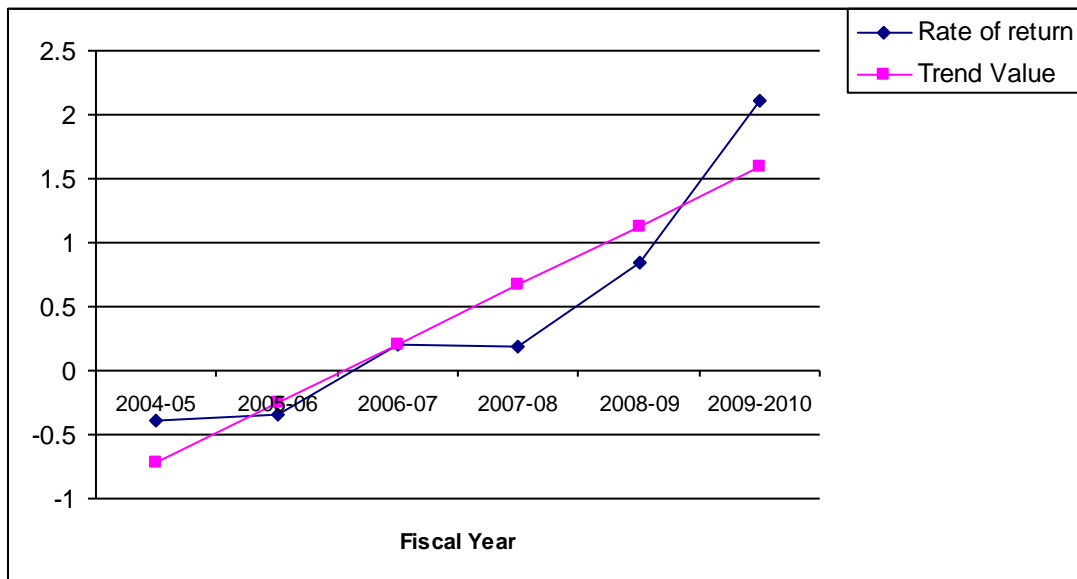
$$b = \frac{\sum XY}{\sum X^2} = \frac{8.0606}{17.50} = 0.4606$$

Now,
Trend line equation $Y_c = a+bx$

When, $X = -2.5$	$Y_c = 0.4375 + 0.4606 \times (-2.5) = -0.714$
$X = -1.5$	$Y_c = 0.4375 + 0.4606 \times (-1.5) = -0.2534$
$X = -0.5$	$Y_c = 0.4375 + 0.4606 \times (-0.5) = 0.2072$
$X = 0.5$	$Y_c = 0.4375 + 0.4606 \times (0.5) = 0.6678$
$X = 1.5$	$Y_c = 0.4375 + 0.4606 \times (1.5) = 1.1284$
$X = 2.5$	$Y_c = 0.4375 + 0.4606 \times (2.5) = 1.589$

Diagram No. 4.6

Movement of stock rate of return and trend line Nepal Investment Bank Limited.



Sources: Table No. 4.9

Above diagram shows that movement of stocks of Nepal Investment Bank Limited Ltd. rate of returns and trend line. In the beginning trend value of Nepal Investment Bank Limited in F/Y 2003/04 is low and gradually moves upward. And rate of return is in positive in 2003/04 and again slightly moves downward and then moves gradually upward. The equation of trend line is, $Y_c = 0.4375 + 0.4606 \times (X)$, here the value of $b = 0.4604$ which indicated the rate of return in increase in each year by 0.4606 in average this also indicated upward trend.

4.1.4 KUMARI BANK

Kumari Bank is the its 50% of equity shares hold by Emirates Bank International, 20% equity hold by Nepalese promoters and financial institutions and remaining 30% have issued to general public of Nepal. The authorized capital is 50crores. The issued capital 49.16 crores and the paid up capital is 49.10 crores.

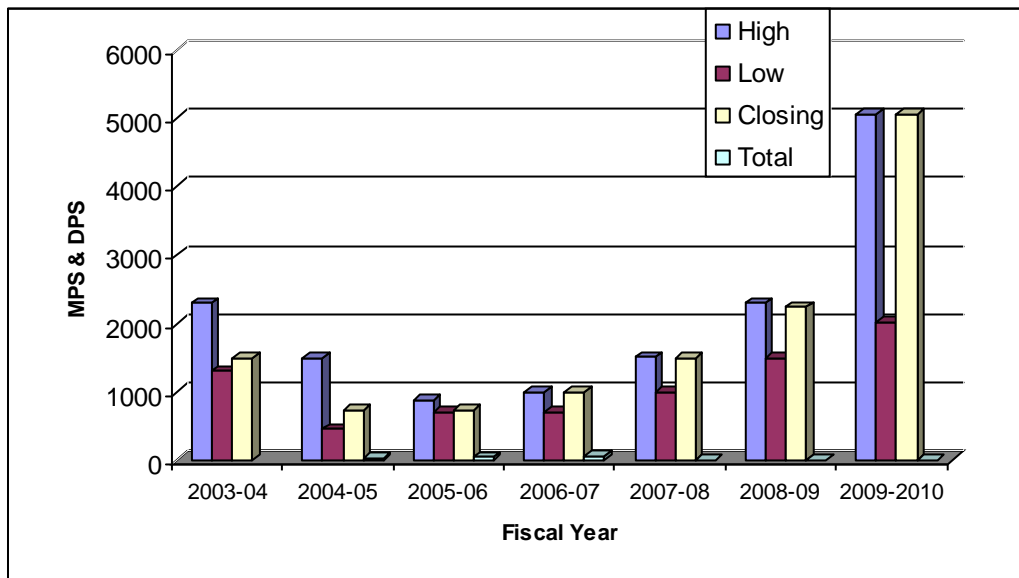
4.1.4.1 Following table no. 10 shows market price per share (MPS) and dividend per share (DPS) of stock of Kumari Bank for the purpose of risk and return analysis.

Table No. 4.10
MPS and DPS data of Kumari Bank

Fiscal Year	Market Price per share			Dividend per share		
	High (Rs.)	Low (Rs.)	Closing (Rs.)	Cash (Rs.)	Stock%	Total (Rs.)
2004/05	2301	1310	1500			
05/06	1500	465	735	30	-	30
06/07	875	700	735	50	-	50
07/08	1005	705	1000	65	-	65
08/09	1515	1000	1505	0	-	0
09/10	2300	1500	2240	5	-	5
10/11	5050	2025	5050	12.59	-	12.59

Source: NEPSE index and AGM report of Kumari Bank [Appendix-IV(A)]

Diagram No. 4.7



Market price per share is maximum in F/Y 2009/10 and lowers in 2003/04.

4.1.4.2 Calculation of rate of return, expected return, stander deviation and coefficient variation of common stock of Kumari Bank.

Table No. 4.11

Fiscal Year	Closing Price (P)	Dividend (D)	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	[R-E(R)]	[R-E(R)] ²
2003-04	1400				
04/05	735	30	-0.45	-0.8383	0.7027
05/06	735	50	0.07	-0.3183	0.1013
06/07	1000	65	0.45	-0.0617	0.0003
07/08	1505	0	0.51	0.1217	0.0148
08/09	2240	5	0.49	0.1017	0.0103
09/10	5050	12.59	1.26	0.8717	0.7599
			2.33		1.5893

Source: Table No. 4.10

We have,

$$\text{Expects return } E(R) = \sum R/n = \frac{2.33}{6} = 0.3883$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{[R - E(R)]^2}{n-1}} = \sqrt{\frac{1.5893}{6-1}} = \sqrt{0.31786} = 0.5638$$

$$\text{Coefficient of variation} = \frac{\sigma}{E(R)} = \frac{0.5638}{0.3883} = 1.4520$$

4.1.4.3. Trend value for each year is calculated on the base rate of return on common stock of Kumari Bank respective year by using least square methods as follows. Table no. 4.12 shows the calculation of trend value of common stock of Kumari Bank.

Table No. 4.12

Fiscal Year	Rate of return (Y)	Deviation from F/Y 2004/05 (X)	XY	X ²	Trend Value (Y _c)
2004/05	-0.45	-2.5	1.125	6.25	-0.3167
05/06	0.07	-1.5	-0.105	2.25	0.0347
06/07	0.45	-0.5	-0.225	0.25	0.2473
07/08	0.51	0.5	0.255	0.25	0.5293
08/09	0.49	1.5	0.735	2.25	0.8113
09/10	1.26	2.5	3.15	6.25	1.0933
	2.33	0	4.935	17.5	3.0326

Sources: Table No. 4.11

We have,

The equation of trend line is,

$$Y_c = a + bx$$

$$\sum X = 0,$$

$$a = \frac{\sum Y}{n} = \frac{2.33}{6} = 0.3883$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{4.935}{17.5} = 0.282$$

Now,

Trend line equation $Y_c = a + bx$

When,

$$X = -2.5$$

$$Y_c = 0.3883 + 0.282 \times (-2.5) = -0.3167$$

$$X = -1.5$$

$$Y_c = 0.3883 + 0.282 \times (-1.5) = 0.0347$$

$$X = -0.5$$

$$Y_c = 0.3883 + 0.282 \times (-0.5) = 0.2473$$

$$X = 0.5$$

$$Y_c = 0.3883 + 0.282 \times (0.5) = 0.5293$$

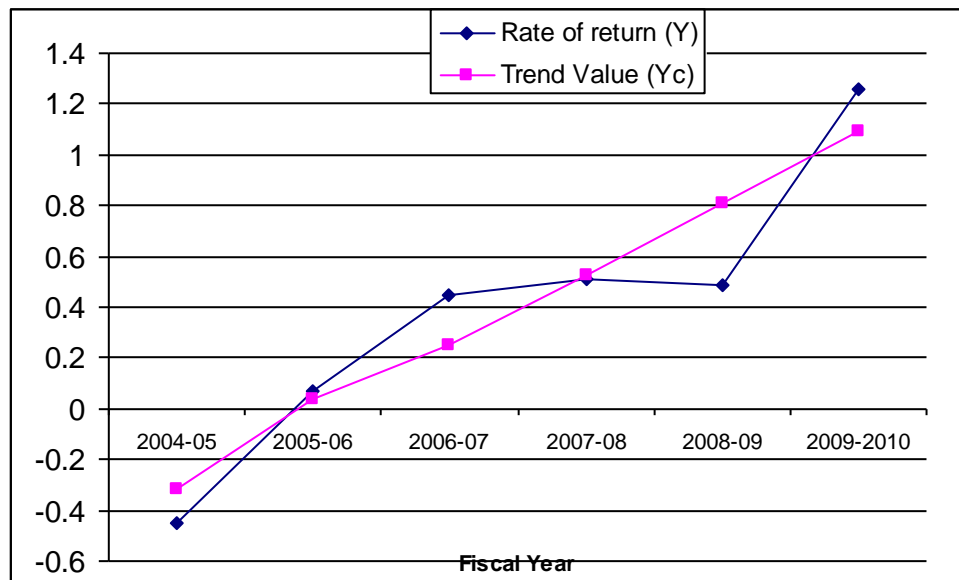
$$X = 1.5$$

$$Y_c = 0.3883 + 0.282 \times (1.5) = 0.8113$$

$$X = 2.5$$

$$Y_c = 0.3883 + 0.282 \times (2.5) = 1.0933$$

Diagram No. 4.8



Sources: Table No. 4.12

Above diagram shows that movement of stock's of Kumari Bank rate of return and trend line in the beginning both are negative in F/Y 2002/03 and become positive in F/Y 2003/04 and then trend line gradually moves upward. The rate of return slowly moves downward from F/Y 2004/05 to nearly 2007/08 and then fast moves upward. The equation of trend line is, $Y_c = 0.3883 + 0.282 \times (X)$,

here the value of $b = 0.282$ which indicated the rate of return in increase in each year by 0.282 in average this also indicated upward trend.

4.2 ANALYSIS OF MARKET RISK AND RETURN:

When talking about the stock market in Nepal, there is only one market that is NEPSE. Country's overall market movement is represented by market index i.e. NEPSE index. Calculation of annual return, expected return, standard deviation and coefficient of variation of market is presented below in table.

4.2.1 Calculation of Rate of return, expected return, Standard deviation & coefficient of variation.

Table No.4.13

Fiscal Years	NEPSE INDEX (NI)	$R_m = \frac{NI_t - NI_{t-1}}{N_{t-1}}$	$[R_m - E(R_m)]$	$[R_m - E(R_m)]^2$
2003-04	348.43			
04/05	227.54	-0.3470	-0.5561	0.3092
05/06	204.80	-0.0999	-0.3090	0.0955
06/07	222.04	0.0842	-0.1249	0.0156
07/08	286.67	0.2911	0.0820	0.0067
08/09	300.05	0.0467	-0.1624	0.0264
09/10	683.95	1.2795	1.0704	1.1458
		1.2546		1.5992

Source: NEPSE index

We have,

$$\text{Expected return } E(R_m) = \frac{\sum R_m}{n} = \frac{1.2546}{6} = 0.2091$$

$$\text{Standard Deviation } (\sigma_m) = \sqrt{\frac{[R_m - E(R_m)]^2}{n-1}} = \sqrt{\frac{1.5992}{6-1}} = \sqrt{0.31984} = 0.5655$$

$$\text{Coefficient of variation (CV)} = \frac{\sigma_m}{E(R_m)} = \frac{0.5655}{0.2091} = 2.7044$$

4.2.2 Trend values for each year are calculated on the basis of rate of return on market index respective year by using least square method. The following table shows the calculation of year wise expected return (trend value) of NEPSE index.

Table No. 4.14

Fiscal year	Rate of return (Y)	Deviation from FY 2003/04 (X)	XY	X ²	Trend value (Y _c)
2004/05	-0.3470	-2.5	0.8675	6.25	-0.9407
05/06	-0.0999	-1.5	0.1499	2.25	-0.1671
06/07	0.0842	-0.5	-0.0421	0.25	0.0837
07/08	0.2911	0.5	0.1456	0.25	0.3345
08/09	0.0467	1.5	0.0701	2.25	0.5853
09/10	1.2795	2.5	3.1988	6.25	0.8361
	1.2546	0	4.3898	17.5	

Source: Table No. 4.16

We have,

The equation of trend line is

$$Y_c = a + bx$$

$$\sum X = 0, \quad a = \frac{\sum Y}{n} = \frac{1.2546}{6} = 0.2091$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{4.3898}{17.5} = 0.2508$$

Here,

Trend line

$$Y_c = a + bx$$

When X = -2.5

$$Y_c = 0.2091 + 0.2508 \times (-2.5) = -0.4179$$

When X = -1.5

$$Y_c = 0.2091 + 0.2508 \times (-1.5) = -0.1671$$

When X = -0.5

$$Y_c = 0.2091 + 0.2508 \times (-0.5) = 0.0837$$

When X = 0.5

$$Y_c = 0.2091 + 0.2508 \times (0.5) = 0.3345$$

When X = 1.5

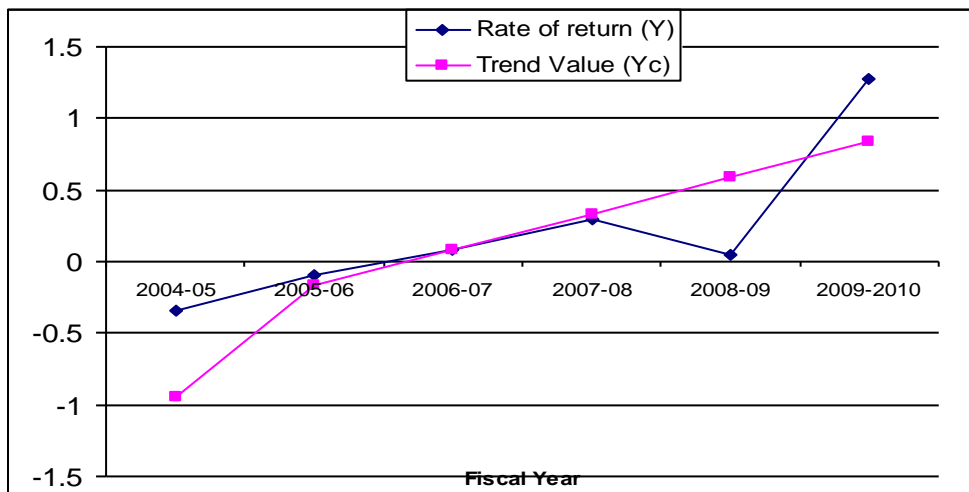
$$Y_c = 0.2091 + 0.2508 \times (1.5) = 0.5853$$

When X = 2.5

$$Y_c = 0.2091 + 0.2508 \times (2.5) = 0.8361$$

Diagram No. 4.9

Movement of the stock rate of return and trend line of Market



Sources: Table No. 4.17

Above diagram shows that movement of stock's rate of returns and trend line of market. In the beginning trend line and rate of return both are negative. Trend line gradually moves upward and becomes positive in F/Y 2004/05. The rate of return also fatly moves upward and become positive in F/Y 2004/05. The equation of trend line is, $Y_c = 0.2091 + 0.2508 \times (X)$, here the value of $b = 0.2508$ which indicted the rate of return in increase in each year by 0.2508 in average this also indicated upward trend.

4.3 INTER BANK COMPARISON:

4.3.1 ON THE BASIC OF RISK AND RETURN ANALYSIS:

After analyzing the expected return, standard deviation, coefficient of variation of each bank for the fiscal year 2001/02 to 2006/07 results are given in the following table.

Table No. 4.15

S.No.	Sample Bank	Expected Return E(R)	Stander Deviation (σ)	Coefficient of Variation (CV)	Remarks		
					E(R)	σ	CV
1.	EBL	0.44	0.4414	1.003	Highest		Low Fluxion of rate of return
2.	HBL	0.2714	0.3287	1.2111	Lowest	Lowest	
3.	NEPAL INVESTMENT BANK	0.4375	0.9390	2.1463		Highest	Highest Fluxion of rate of return
4.	KUMARI BANK	0.2883	0.5638	1.4520			

The table shows that the investors can get the highest return from investing in common stock of Kumari Bank and lowest in investing in HBL. HBL has the lowest standard deviation and Nepal Investment Bank Limited has highest standard deviation but the coefficient of variation is the best way to make investment decision in common stock when two or more investment has different result and risk. Coefficient of variation measures the risk per unit. Nepal Investment Bank has highest CV and Everest bank Ltd. has lowest CV. To earn one unit of return the investor has to bear 1.0020 unit of risk in EBL. So by considering the fact, the best decision would be investing in share of Everest bank Ltd.

4.3.2 ON THE BASIC MARKET CAPITALIZATION:

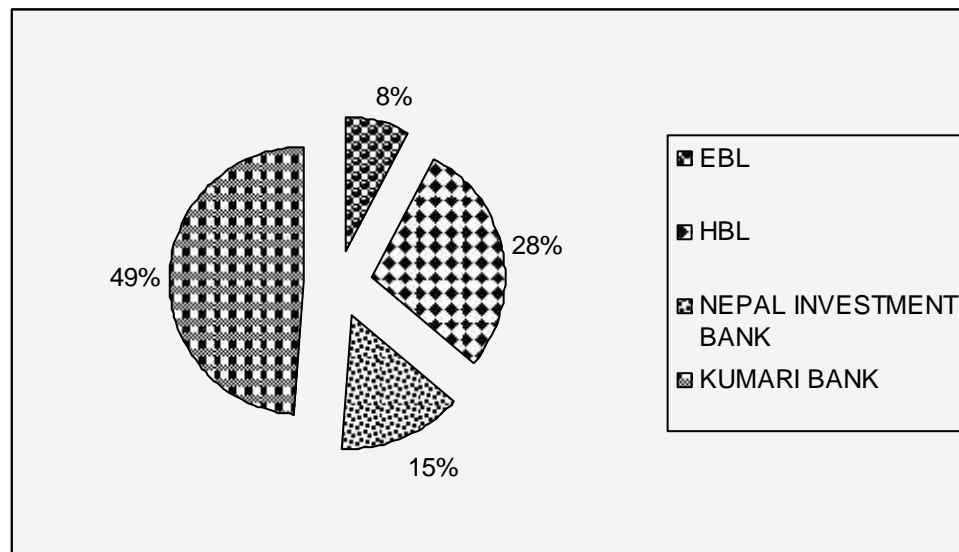
Market capitalization of sample commercial bank at the end of fiscal year 2007/08 is presented in table no.4.19 market capitalization is the total market value at specific time period of the company.

Table No. 4.16

S. No	Sample Bank	Market Capitalization (Rs. in million)	Percentage of market	Remarks
1.	EBL	3959.59	8.28	Smallest
2.	HBL	14270.26	28.02	
3.	NEPAL INVESTMENT BANK	7618.17	15.10	
4.	KUMARI BANK	24795.25	48.05	Biggest
		50643.27	100	

Sources: NEPSE index

Diagram No. 4.10
Market Capitalization of Selected Bank



Sources: Table No. 4.19

The comparison is made on the movement of market capitalization. Here only four commercial banks are taken into consideration as their data cover the entire study period on the basis of market capitalization Kumari Bank is the biggest and EBL is the smallest among the sample banks.

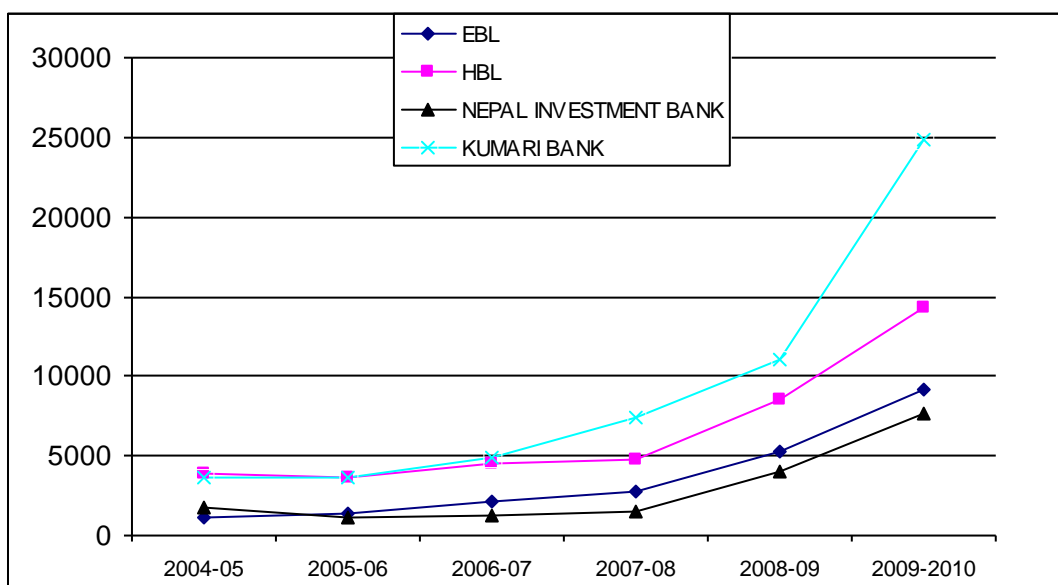
Table No. 4.17

Year wise comparative movement of market capitalization (in million)

Bank	Year					
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
EBL	1115.08	1401.75	2142.00	2740.50	5212.62	9185.40
HBL	3900.00	3586.44	4504.50	4830.00	8494.20	14270.26
NEPAL INVESTMENT BANK	1703.81	1084.16	1310.52	1446.04	3964.56	7618.17
KUMARI BANK	3613.63	3613.63	4916.50	7389.47	10998.29	24795.25

Sources: NEPSE index

Diagram No. 4.11



Source: Table No. 4.20

Table No. 4.18
Summary of risk and return for sample banks.

Statistics	EBL	HBL	NEPAL INVESTMENT BANK	KUMARI BANK
E(R)	0.44	0.2714	0.4375	0.3833
σ	0.4414	0.3287	0.9390	0.5638
σ^2	0.1948	0.1080	0.8818	0.3179
CV	1.003	1.2111	2.1463	1.4520
$s^2 \uparrow_m^2$	0.0856	0.0775	0.7461	0.0635
ℓ^2	0.1106	0.0445	0.1357	0.2612
s	0.5174	0.4921	1.5273	0.4456
r	0.4363	0.6352	0.8461	0.1956
r	0.5637	0.3648	0.1539	0.8044
p^2	0.6607	0.7970	0.9200	0.4422
$1-P^2$	0.3338	0.1866	0.1181	0.3701

Source: Table No. 4.18 and Appendix I (B) to V (B)

4.4 PRICE EVALUATION OF SELECTED BANKS:

CAPM is model that assumes stock's required rate of return is equal to risk free rate plus risk premium where risk is measured by beta coefficient for this analysis, risk free rate is measured, which is taken from interest rate of Treasury Bill issued by Nepal Rastra Bank.

Calculation of required rate of return and price evaluation by CAPM model.

Table No. 4.19

Sample bank	Beta	$R_j = R_f + (R_m - R_f)S_j$	E(R)	Price situation
EBL	0.5174	0.0212	0.4420	Under priced
HBL	0.4921	0.0270	0.2895	Under priced
NEPAL INVESTMENT BANK	1.5273	0.0311	0.4375	Under priced
KUMARI BANK	0.4456	0.0268	0.4633	Under priced

Source: Quarterly economic bulletin, mid July 2007.

Where,

E(R) = Expected rate of return

R_f = Risk free rate (0.025)

$E(R_m)$ = Market price of return (0.0290)

s = Beta of individual sample bank

All the stock of commercial banks are under priced because required rate of return is less than expected rate of return. As the stocks are under priced, investor can gain from buying the stock. The investor, who is holding the stock, should not sell the stock.

4.5 COMPARISON OF SAMPLE BANKS WITH MARKET

4.5.1 NEPAL EVEREST BANK LIMITED (EBL)

Table No. 4.20
Summary of risk and return for EBL and Market

Statistics	EBL	Market
Expected Return E(R)	0.44	0.2091
Standard Deviation (σ)	0.4414	0.5655
Variance (σ^2)	0.1948	0.31984
Coefficient of variation (CV)	1.003	2.7044
Systematic risk ($s^2 + \frac{2}{m}$)	0.0856	
Un-systematic risk (ℓ^2)	0.1106	
Index of systematic risk (s)	0.5174	
Alpha (r) = intercept	0.4363	
Correlation with market (r)	0.5637	
Proportion of systematic risk (p^2)	0.6607	
Proportion of un-systematic risk ($1-P^2$)	0.3338	

Sources: Table No. 4.17, 4.18 and Appendix I (B)

Expected return of stock of EBL is more than expected return of market which means 2.1042 ($0.44/0.2091$) times higher than market return.

Standard deviation of EBL is lower than standard deviation of market i.e. ($0.4414 < 0.5655$).

Coefficient of variation is better measure of risk because it measure risk per unit. CV of EBL is less than the CV of market i.e. $1.003 < 2.7044$ which means EBL has less risk per unit than market.

Beta of EBL is 0.5174 based on the yearly return during the F/Y 2004/04 to 2009/10. A beta of ($B < 1$) means stock of EBL is less volatile than market. So it is called defensive assets.

The proportion of systematic risk is 0.4363. This risk is portion of total variability changed by the market. Thus 43.63% risk of EBL is changed by the market .It is non diversifiable.

The 0.5637 (1-p²) residual variance is specific risk of the firm. It is called unsystematic risk and it is diversifiable.

The correlation with market is 0.6607. The positive correlation indicates that market return goes up and EBL return also goes up or vice versa. The intercept (r) is 0.3338 shows the EBL'S return when market return is zero. Expected return of EBL is 33.38% when market return earns nothing.

4.5.2 Himalayan Bank Limited (HBL)

Table No. 4.21
Summary of risk and return for HBL and Market

Statistics	HBL	Market
Expected Return E(R)	0.2714	0.2091
Standard Deviation (σ)	0.3287	0.5655
Variance (σ ²)	0.1080	0.31984
Coefficient of variation (CV)	1.2111	2.7044
Systematic risk (s ² † _m ²)	0.0775	
Un-systematic risk (ℓ ²)	0.0445	
Index of systematic risk (s)	0.4921	
Alpha (r) = intercept	0.6352	
Correlation with market (r)	0.3648	
Proportion of systematic risk (p ²)	0.7970	
Proportion of un-systematic risk (1-P ²)	0.1866	

Sources: Table No. 4.17, 4.18 and Appendix II (B)

Expected return of stock of HBL is more than expected return of market which means 1.2979 (0.2714/0.2091) times higher than market return.

Standard deviation of HBL is lower than standard deviation of market i.e. (0.3287 < 0.5655).

Coefficient of variation is better measure of risk because it measure risk per unit. CV of HBL is less than the CV of market i.e. 1.2111 < 2.7044 which means HBL has less risk per unit than market.

Beta of HBL is 0.4921 based on the yearly return during the F/Y 2004/05 to 2009/10. A beta of ($B < 1$) means stock of HBL is less volatile than market. So it is called defensive assets.

The proportion of systematic risk is 0.6352. This risk is portion of total variability changed by the market. Thus 63.52% risk of HBL is changed by the market .It is non diversifiable.

The 0.3648 ($1-p^2$) residual variance is specific risk of the firm. It is called unsystematic risk and it is diversifiable.

The correlation with market is 0.7970. The positive correlation indicates that market return goes up and HBL return also goes up or vice versa.

The intercept (r) is 0.1866 shows the HBL'S return when market return is zero. Expected return of HBL is 18.66% when market return earns nothing.

4.5.3 NEPAL INVESTMENT BANK (NEPAL INVESTMENT BANK)

Table No. 4.22
Summary of risk and return for Nepal Investment Bank and Market

Statistics	Nepal Investment Bank	Market
Expected Return E(R)	0.4375	0.2091
Standard Deviation (σ)	0.9390	0.5655
Variance (σ^2)	0.8818	0.31984
Coefficient of variation (CV)	2.1463	2.7044
Systematic risk ($s^2 \uparrow_m^2$)	0.7461	
Un-systematic risk (ℓ^2)	0.1357	
Index of systematic risk (s)	1.5273	
Alpha (r) = intercept	0.8461	
Correlation with market (r)	0.1539	
Proportion of systematic risk (p^2)	0.9200	
Proportion of un-systematic risk ($1-P^2$)	0.1181	

Sources: Table No. 4.17, 4.18 and Appendix III (B)

Expected return of stock of Nepal Investment Bank is more than expected return of market which means 2.0930 (0.4375/0.2091) times higher than market return.

Similarly, standard deviation of Nepal Investment Bank is higher than standard deviation of market i.e. 1.6605 (0.9390/0.5655) times higher than standard deviation of market which means total risk on Nepal Investment Bank is more risky than market.

Coefficient is better measure of risk because it measure risk per unit. CV of Nepal Investment Bank is less than the CV of market i.e. 1.23 < 2.7044 which means Nepal Investment Bank has less risk per unit.

Beta of Nepal Investment Bank is 1.5273 based on the yearly return during the F/Y 2004/05 to 2009/10. A beta of (B>1) means stock of Nepal Investment Bank is more volatile than market. So it is aggressive assets.

The proportion of systematic risk is 0.9200. This risk is portion of total variability changed by the market. Thus 92% risk of Nepal Investment Bank is changed by the market .It is non diversifiable.

The 0.1181 (1-p²) residual variance is specific risk of the firm .It is called unsystematic risk and it is diversifiable.

The correlation with market is 0.1539. The positive correlation indicates that market return goes up and Nepal Investment Bank return also goes up or vice versa.

The intercept (r) is 0.1181. It shows the Nepal Investment Bank return when market return is zero. Expected return of Nepal Investment Bank is 11.81% when market return earns nothing.

4.5.4 KUMARI BANK

Table No. 4.23
Summary of risk and return for Kumari Bank and Market

Statistics	Kumari Bank	Market
Expected Return E(R)	0.3833	0.2091
Standard Deviation (σ)	0.5638	0.5655
Variance (σ ²)	0.3179	0.31984
Coefficient of variation (CV)	1.4520	2.7044
Systematic risk (s ² † _m ²)	0.0635	
Un-systematic risk (ℓ ²)	0.2612	
Index of systematic risk (s)	0.4456	
Alpha (r) = intercept	0.1956	
Correlation with market (r)	0.8044	
Proportion of systematic risk (p ²)	0.4422	
Proportion of un-systematic risk (1-P ²)	0.3701	

Sources: Table No. 4.17, 4.18 and Appendix IV (B)

Expected return of stock of Kumari Bank is more than expected return of market which means 1.833 (0.3833/0.2091) times higher than market return.

Similarly, standard deviation of Kumari Bank is lower than standard deviation of market i.e. 0.99 (0.5638/0.5655) times less than standard deviation of market which means total risk on KUMARI BANK is more risky than market.

Coefficient is better measure of risk because it measure risk per unit. CV of Kumari Bank is less than the CV of market i.e. $1.452 < 2.7044$ which means Kumari Bank has less risk per unit.

Beta of Kumari Bank is 0.4456 based on the yearly return during the F/Y 2004/05 to 2009/10. A beta of ($B < 1$) means stock of KUMARI BANK is less volatile than market. So it is called defensive assets.

The proportion of systematic risk is 0.1956. This risk is portion of total variability changed by the market. Thus 19.56% risk of KUMARI BANK is changed by the market .It is non diversifiable.

The $0.8044(1-p^2)$ residual variance is specific risk of the firm .It is called unsystematic risk and it is diversifiable the correlation with market is 0.4422.The positive correlation indicates that market return goes up and Kumari Bank return also goes up or vs.

The intercept (r) is 0.3701.It shows the Kumari Bank return when market return is zero. Expected return of Kumari Bank is 37.01% when market return earns nothing.

4.6 FINDING OF THE STUDY

Finding of the study is very important part of the study. All the people, investors, banker, researchers and other who are related to investment on common stock may gain advantage from the finding of the study. It is the outcome and follower to the analysis and interpretation of data. Findings rely on the identification whether the problem and purpose of the study has meet its objective or not. From the analysis of this study the-major results on risk and return analysis of common stock investment in Nepalese commercial banks are summarized as under

- ❖ Expected return on common stock of EBL is the highest among four sample banks whereas HBL has lowest expected return.
- ❖ On the basis of standard deviation, Standard deviation measures total risk. On the basis of S.D, common stock of Nepal Investment Bank is more risky and HBL is least risky.

- ❖ Coefficient of variation measures risk per unit. So coefficient of variance is more rational basis for investment decision. On the basis of CV, common-stock of EBL has lowest CV. So common stock of EBL is least risky among sample of banks where as CV of Nepal Investment Bank is highest, so common stock of Nepal Investment Bank is more risky.
- ❖ Calculation of trend value by using least square method on the basis of rate of return is presented and trend line is graphically shown. Movement of trend line has increasing trend.
- ❖ According to inter bank Market capitalization, Kumari Bank is in the highest position and EBL bank is in the lowest position.
- ❖ Alpha is the intercept, where the characteristics line intercepts the vertical axis. Alpha is the estimate of the asset's return when market return is zero. Kumari Bank has the highest alpha and Nepal Investment Bank has lowest alpha among the sample of banks. On the basis of alpha analysis. Kumari Bank is the best.
- ❖ The correlation coefficient lies between (+1) and (-1). All the sample banks have positive correlation with market. The positive correlation indicates that when the market return goes up, return on common stock also goes up and vice versa. Correlation coefficient of Nepal Investment Bank is highest and Kumari Bank is lowest.
- ❖ Correlation coefficient between the banks is shown in correlation matrix table no. 4.38. There is positive correlation between the various banks. If correlation between stocks's of banks are positive, then any part of risk can not be reduced.
- ❖ Common stock of Nepal Investment Bank has the highest proportion of systematic risk which can not be minimized through diversification where as common stock of Kumari Bank has lowest proportion of systematic risk.
- ❖ Lower the coefficient of determination or proportion of systematic risk means higher the proportion of unsystematic risk. That means common stock of Kumari Bank has highly diversifiable risk while common stock of Nepal Investment Bank has less diversifiable risk. Unsystematic risk can be avoided through diversification. From above analysis, investors are recommended to purchase there stock which has highest expected return and with low proportion of undiversifiable risk to make portfolio investment.
- ❖ Capital assets pricing Model describes that the relationship between risk and return. Stock is identifies as overpriced or under priced by comparison between expected rate of return and required rate of return. If required rate of return is less than expected rate of return, than the stock is under priced and should buy it. If required of return is more than expected rate of return, the stock is over priced and should sell it. This study shows that all the stocks are under priced and investors should buy it.
- ❖ Regressions results suggest that beta coefficient of have positive effect upon expected return. It means when beta increases, the risk ness of the firm will

also increase and vice versa.

- ❖ F- Statistics in simple and multiple regression analysis shows that regression equation is not significant at 5% level of significance. So the model cannot best explain the variation. This implies to investors that the dependent variables unable to best explain the dependent variable and there should be increase in independent variable so as to better explanation of dependent variable.

CHAPTER-V

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter deals with three heading Summary, conclusion and Recommendations. Summary of the study describes the contents and format of the study. The conclusion from the whole study is presented in the conclusion heading. Researcher feels free to express their own conclusion and make generalization. Lastly the recommendation heading is death with. The recommendation' are largely based upon the interpretation presented in the previous section of the study. Justification for this recommendation are related to theory structure and finding.

5.1 SUMMARY

Financial institutions play vital role for the economic growth and development of the country. They promote and facilitate the trade and industry. They provide the loan to various sectors likely industrial sector, agricultural sector, service sector and government sector. The investment in such sector helps to create the employment opportunity and helps to alleviate the poverty. Regarding the fact, it is considered that development of the financial institutions is the development of the country. But the development of the financial institutions depends upon the efficient financial management. Various decisions are taken for the financial management relating to different aspect of the finance. Risk and return is the one of the most important aspects of the financial decision. The stakeholders are interested to know about the risk and return of common stock investment in financial institutions. The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risky assets unless he is assured of adequate compensation for the acceptance of risk. Hence risk plays a central role for the analysis of investment.

The term return and investment are always associated with risk. It is the return that motivates to accept the challenge. It strengthens the will power to assume risk. Each and every kinds of return is associated with some degree of risk. Generally investor invests their current cash only to those areas where there is high return and low risk. An investor looking for the common stock investment

Pays the price for stock based on his estimation about future dividends and growth in stock price. This study occupies an important role in the development of stock market. Besides commercial bank development banks are investing their performance in Nepalese banking sector. Thus the study is dedicated on the study of risk and return on common stock of selected commercial banks which has been divided into five chapter starting with introduction, review of literature,

research methodology, presentation, interpretation and analysis of data and finally summary, conclusions, and recommendation. Various financial and statistical tools are applied for the study; e.g. rate of return, expected return, standard deviation and coefficient of variation, beta coefficient and correlation coefficient. Coefficient of determination, least square method regression equation etc. Analysis of the variance also examined in the study. The hypothesis is set out to confirm the study and so on.

Different diagram, tables, graph are used to present the result. All the data are collected from the secondary sources. Secondary sources of data are NEPSE, AGM reports of various banks, trading report of SEBO website of NRB etc.

5.2 CONCLUSION

The major conclusion extracted from the inter bank analysis of risk and return position under study are listed in the following way:

Expected return of EBL has highest and HBL has lowest among four samples of commercial banks. But common stock of Nepal Investment Bank is more risky than other bank because it has highest standard deviation. HBL has lowest return with lowest risk. As coefficient of variation is more rational basis of investment decision, EBL has lowest risk per unit of return among various sample of Bank. So EBL has highest return with lowest risk per unit. Trend line of equation based on rate of return of common stock of each bank has increasing trend. In fact, trend value is low in the beginning and slowly moves upward. Beta coefficient measures the systematic risk and explains the sensitivity or volatility of stock with market. In this context, the common stock of Nepal Investment Bank is more aggressive because it has beta coefficient of market i.e. ($B > 1$) and common stock of EBL, HBL and Kumari Bank are defensive because it has beta less than beta coefficient of market i.e. ($B < 1$). Alpha is the intercept, it shows the return when the market return is zero. Hence Kumari Bank is the best among four samples of banks.

Correlation coefficient lies between +1 and 1. All the sample of banks has positive correlation with market.

Common stock of Nepal Investment Bank has highest proportion of systematic risk and Kumari Bank has lowest which can not be minimized through diversification. Similarly Kumari Bank has highest unsystematic risk means it can not be diversified.

On the basis of capital assets pricing model, the study shows that all the stock of commercial bank are under priced.

Analysis of variance in simple and multiple regressions shows the insignificant result at 5% level of significance. There is no relationship between dependent and independent variable. Hence the model cannot best explain the variation.

The conclusions based on the data analysis, interpretation and major finding states that although there is very common saying of "higher the risk, higher the return and lower the risk and lower the return" however the study does not support the proverb in case commercial bank. The case of lower risk and higher return arc found in most of the case, the higher the risk, lower the return also found. In short, it is concluded that higher the risk, higher the return and lower the risk and lower return is not appropriate.

5.3 RECOMMENDATION AND SUGGESTIONS

Investors are determinant for capital market development. Investors are guided by most of the factors. Capital market is dynamic. The level of understanding of investors cause movement in capital market accordingly sharp fall of 1994 is evidence. The more an investor understands the market, the more sustainable market will be.

Common stock is more risky security among all the marketable securities. Therefore, an investor must have proper knowledge and information to take an investment decision. Before making an investment decision in stock market, the investors should analyze the market situation carefully by analyzing your own risk and return attitude, needs and requirements. Make several discussions with stock brokers and make your decision on the basis of reliable information rather than rumor and imaginations. Investors can join to investors groups and share experience, ideas and expertise to each other.

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

1. Since the return of EBL for given sample period is the highest, investors can get more benefit if they invest in the common stock of Everest Bank Limited.
2. Expected return on common stock of HBL is lowest for given sample period So investors can not get more benefit if they invest in common stock of HBL
3. To assess the profitable investment, it is better to measure the coefficient of variation. CV is measures of relative dispersion, it measures risk per unit and more useful than standard derivation of a given security.
4. Correlation coefficient between all the sample banks has positive correlation.

5. The proportion of unsystematic or diversifiable risk on common stock of Kumari Bank is 0.3701 investors are suggested to invest into stock of Kumari Bank to minimize the risk of portfolio. Since the correlation coefficient both market and stock of Kumari Bank is least, it could help to construct the optimal portfolio.
6. This study find out that the stock in sampling has higher return than market return Under CAPM approach All the stocks are under priced new investors are suggested to purchase and *who* are holding the stocks of commercial banks, they do not sell the stock.

However, this study is done under the certain limitation both methodological as well as scope limitation, further researcher in this field will given more information to investors, marketers and so on. For further study some recommendations are outlined.

1. Risk and return analysis is completely untouched area in Nepalese context It is strongly suggested that further study should be conducted on this topic, and research should include maximum number of sample of bank and long period of data
2. It is recommended to use latest tools and technique for analysis of risk and return.
3. Administration should be made further efficient to check the performance of individual commercial banks and flow of information should be more regular.
4. Lack of information with regard to trading procedure in NEPSE, is also cause for volume of trading.
5. NEPSE needs to initiate to develop different programs for private investor such as meeting and seminar in different subject matter like trading rules and regulation.
6. Government needs to make rule and regulation regarding the stock market and make policy that protect the individual investor's rights.

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Appendix-I (A)

Everest Bank Limited

Year	High	Low	Closing	EPS	DPS	Stock Dividend %
2004/05	740	325	430	32.91	0	--
2005/06	490	349	445	29.90	20	22
2006/07	723	400	680	45.58	20	--
2007/08	905	625	870	32.47	0	20
2008/09	1410	800	1379	45.81	25	--
2009/10	2430	1100	2430	57.22	10	--

Appendix-II(A)

Himalayan Bank Nepal Limited

Year	High	Low	Closing	EPS	DPS	Stock Dividend %
2004/05	1530	610	1000	60.26	25	30
2005/06	950	750	836	39.45	1.31	10
2006/07	1010	600	840	49.05	0	25
2007/08	1181	855	920	47.91	11.58	20
2008/09	1200	900	1100	59.24	30	20
2009/10	1760	950	1760	60.66	15	5

Appendix-III(A)

Nepal Investment Bank limited

Year	High	Low	Closing	EPS	DPS	Stock Dividend %
2004/05	1600	300	401	9.61	0	200
2005/06	410	255	255	11.47	8	--
2006/07	307	231	307	14.26	0	--
2007/08	480	315	365	13.29	0	--
2008/09	689	335	612	18.27	5	5
2009/10	1176	505	1176	39.35	12.59	47.59

Appendix-IV(A)

Kumari Bank

Year	High	Low	Closing	EPS	DPS	Stock Dividend %
2004/05	1500	465	735	55.25	30	--
2005/06	875	700	735	84.66	50	--
2006/07	1005	705	1000	92.61	65	--
2007/08	1515	1000	1505	105.79	0	--
2008/09	2300	1500	2240	129.21	5	--
2009/10	5050	2025	5050	137.08	12.59	--

Appendix-I(B)
Beta Coefficient of Common Stock of EBL

Year	[R-E(R)]	[R _m -E(R _m)]	[R-E(R)] [R _m -E(R _m)]
2004/05	-0.872	-0.5561	0.4849
2005/06	-0.012	-0.3090	0.0037
2006/07	0.128	-0.1249	-0.0160
2007/08	0.248	0.0820	0.0203
2008/09	0.168	-0.1624	-0.0273
2009/10	0.338	1.0704	0.3618
			0.8274

We have,

$$\text{Cor } R_j, R_m = \frac{[R-E(R)] [R_m-E(R_m)]}{n-1} = \frac{0.8274}{6-1} = 0.1655$$

$$\beta_j = \frac{\text{Cor } R_j, R_m}{\sigma_m} = \frac{0.1655}{0.31984} = 0.5174$$

$$\text{Systematic Risk} = \beta^2 \times \sigma_m^2 = (0.5174)^2 \times 0.31984 = 0.0856$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= 0.1962 - 0.0856 \\ &= 0.1106 \end{aligned}$$

$$\text{Proportion of systemic Risk } \ell^2 = \frac{\sigma^2 \beta_m^2}{\sigma^2} = \frac{0.0856}{0.1962} = 0.4363$$

$$\text{Proportion of Unsystemic Risk} = 1 - \ell^2 = 1 - 0.4363 = 0.5637$$

$$\begin{aligned} r - \text{intercept} &= E(R_m) \times \beta \\ &= 0.442 - 0.2091 \times 0.5174 \\ &= 0.3338 \end{aligned}$$

$$\text{Correlation coefficient } (r) = \frac{\text{Cor } (R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.1655}{0.5655 \times 0.4429} = \frac{0.1655}{0.2505} = 0.6607$$

Appendix-II(B)
Beta Coefficient of Common Stock of HBL

Year	[R-E(R)]	[R _m -E(R _m)]	[R-E(R)] [R _m -E(R _m)]
2004/05	-0.493	-0.5561	0.2742
2005/06	-0.3682	-0.3090	0.1138
2006/07	-0.0096	-0.1249	0.0012
2007/08	0.0814	0.0820	0.0067
2008/09	0.3214	-0.1624	-0.0522
2009/10	0.4141	1.0704	0.4433
			0.7870

We have,

$$\text{Cor } R_j, R_m = \frac{[R-E(R)] [R_m-E(R_m)]}{n-1} = \frac{0.7870}{6-1} = 0.1574$$

$$\beta_j = \frac{\text{Cor } R_j, R_m}{\delta_m} = \frac{0.1574}{0.31984} = 0.4921$$

$$\text{Systematic Risk} = \beta^2 \times \sigma_m^2 = (0.4921)^2 \times 0.31984 = 0.0775$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= 0.1220 - 0.0775 \\ &= 0.0445 \end{aligned}$$

$$\text{Proportion of systemic Risk } \ell^2 = \frac{\sigma_u^2}{\sigma^2} = \frac{0.0775}{0.1220} = 0.6352$$

$$\text{Proportion of Unsystemic Risk} = 1 - \ell^2 = 1 - 0.6352 = 0.3648$$

$$\begin{aligned} r - \text{intercept} &= E(R_m) \times \beta \\ &= 0.2895 - 0.0.2091 \times 0.4921 \\ &= 0.2895 - 0.1029 \\ &= 0.1866 \end{aligned}$$

$$\text{Correlation coefficient } (r) = \frac{\text{Cor } (R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.1574}{0.5655 \times 0.3493} = \frac{0.1574}{0.1975} = 0.7970$$

Appendix-III(B)
Beta Coefficient of Common Stock of Nepal Investment Bank

Year	[R-E(R)]	[R _m -E(R _m)]	[R-E(R)] [R _m -E(R _m)]
2004/05	-0.8302	-0.5561	0.4617
2005/06	-0.7816	-0.3090	0.2415
2006/07	-0.2336	-0.1249	0.0292
2007/08	-0.2485	0.0820	-0.0204
2008/09	0.414	-0.1624	-0.0672
2009/10	1.6796	1.0704	1.7978
			2.4426

We have,

$$\text{Cor } R_j, R_m = \frac{[R-E(R)] [R_m-E(R_m)]}{n-1} = \frac{2.4426}{6-1} = 0.4885$$

$$\beta_j = \frac{\text{Cor } R_j, R_m}{\sigma_m} = \frac{0.4885}{0.31984} = 1.5273$$

$$\text{Systematic Risk} = \beta^2 \times \sigma_m^2 = (1.5273)^2 \times 0.31984 = 0.7461$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= 0.8818 - 0.7461 \\ &= 0.1375 \end{aligned}$$

$$\text{Proportion of systemic Risk } \ell^2 = \frac{\sigma_u^2}{\sigma^2} = \frac{0.7461}{0.8818} = 0.8461$$

$$\text{Proportion of Unsystemic Risk} = 1 - \ell^2 = 1 - 0.8461 = 0.1539$$

$$\begin{aligned} r - \text{intercept} &= E(R_m) \times \beta \\ &= 0.4375 - 0.2091 \times 1.5273 \\ &= 0.4375 - 0.3194 \\ &= 0.1181 \end{aligned}$$

$$\text{Correlation coefficient } (r) = \frac{\text{Cor } (R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.4885}{0.5655 \times 0.9390} = \frac{0.4885}{0.5310} = 0.9200$$

Appendix-IV(B)
Beta Coefficient of Common Stock of Kumari Bank

Year	[R-E(R)]	[R _m -E(R _m)]	[R-E(R)] [R _m -E(R _m)]
2004/05	-0.91	-0.5561	0.5061
2005/06	-0.39	-0.3090	0.1205
2006/07	-0.01	-0.1249	0.0012
2007/08	0.05	0.0820	0.0041
2008/09	0.03	-0.1624	-0.0049
2009/10	0.08	1.0704	0.0856
			0.7126

We have,

$$\text{Cor } R_j, R_m = \frac{[R-E(R)] [R_m-E(R_m)]}{n-1} = \frac{0.7126}{6-1} = 0.14252$$

$$\beta_j = \frac{\text{Cor } R_j, R_m}{\uparrow_m} = \frac{0.14252}{0.31984} = 0.4456$$

$$\text{Systematic Risk} = \beta^2 \times \uparrow_m^2 = (0.4456)^2 \times 0.31984 = 0.0635$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= 0.3247 - 0.0635 \\ &= 0.2612 \end{aligned}$$

$$\text{Proportion of systemic Risk } \ell^2 = \frac{s^2 u_m^2}{\uparrow^2} = \frac{0.0635}{0.3247} = 0.1956$$

$$\text{Proportion of Unsystemic Risk} = 1 - \ell^2 = 1 - 0.1956 = 0.8044$$

$$\begin{aligned} r - \text{intercept} &= E(R_m) \times \beta \\ &= 0.4633 - 0.2091 \times 0.4456 \\ &= 0.3701 \end{aligned}$$

$$\text{Correlation coefficient } (r) = \frac{\text{Cor } (R_j, R_m)}{\uparrow_m \uparrow_j} = \frac{0.14252}{0.5655 \times 0.5699} = 0.4422$$