

CHAPTER I

INTRODUCTION

1.1. BACKGROUND

Nepal is a landlocked country with an agro-based economy. Its economy is characterized by underutilized mass economy, illiteracy, miserable agriculture, deficit trade and so on. Although agriculture is the main livelihood, scientific methods of agriculture have not yet been implemented. Although it is one of the richest countries in the world in terms of natural resources, it does not utilize them effectively. Its economy is underdeveloped not because of a lack of resources but because of inefficient utilization of resources; therefore, a proper plan and strategy should be developed for the efficient utilization of resources to enhance the growth of the economy. The natural resources available here have remained underutilized due to various reasons. The living standard of people is very low; poverty, misery, and conflict exist all around. While the country has been moving towards a market-oriented economy since the early 1990s, frequent changes in government have hampered the realization of development projects. It not only depends on the available ability of funds to fulfill the needs of government and business but also on individuals. Private domestic investment is very essential for economic growth as well as for employment generation in a developing country.

A healthy economy can be made only through resource mobilization, which is possible by the efficient collection of the scattered capital of the people and the transfer of this capital to the firms and individuals who are in need to make investment in the productive sector. Resource mobilization will not be fruitful only by collecting the scattered resources and making investment. For this, proper investment plays a significant role.

In today's market is highly competitive, consumers are treated as king and consumer are now quality oriented and they prefer qualities goods. Technological changes has made easier to give many new and surprising materials to the market. Organizations that do not have new costly. So an organization should raise enough money to get the new technology. But it is not easy to raise enough money by the firm's post profit and surplus of individual sector only. Thus market manages the funds transfer to one unit to another. "The financial market permits both businessman and government to raise the needed funds by selling securities, simultaneously, investor with excess of funds is able to invest and earned in term enchanting their welfare". (John, 1992:261) The purpose of financial market is an economy is to allocated saving, efficiently during the period of time, a day a week or quarters to parties , who used funds for investment in real assets of consumption (Van Horne, 1998:491).In financial market financial intermediaries play an importance role to inflow of saving from sever to uses of funds indirectly.

Securities market exists in order to bring together buyers and sellers of securities. The stock market is a financial market which probably has the greatest glamour and is perhaps the least understood. Some observers considers it as a legalized heaven for gambling and many investors considers stock market investing as a game in which the sole purpose is picking winners . Lord Keynes was the first person to express stock market as "a game of professional investments". The main objectives are to win or loss of money. Stock market provides both opportunity as well as threats. The people having better knowledge realized opportunity and those who is unknown get threats.

So in context of Nepal banking plays significant role to the development of national economy. Bank is a financial institution, which primary deals in borrowings and lending. Modern bank perform varieties of function. So it is not easy to define the function of bank. The bank is derived medieval money exchange. Oxford dictionary defined bank as " an established for the custody of money " (Oxford.1967:3)

The different economist defines bank in different way, " a bank is an institution whose debts (bank deposit) are widely accepted in settlement of their people's debt to each other" (Sayers, 1967:3).

Financial transaction were operated though Nepal from ancient time. Financial transaction through personal ledgers is still in economy. In eighteenth century King Gunkma Dev took the loan from the merchant to rebuild the Kthmandu city and later on Shankhadhar Shakh a trader cleared the loan in B.S. 937 and established " Nepal Sambat" as found in the history .

In Nepal some financial institution involved in capital market are Nepal Rastra Bank, commercial Bank , Nepal industrials Development corporation, Agriculture Development Bank, Citizen investment trust, Rastriya Bima Sansthan, Financial institution employees provident funds Securities board NEPSE co-operative organization. The non-government organization some hotel, manufacturing companies and trading agencies are also involves in capital market

Among various types of bank only commercial bank are consider. Nepal bank limited is the commercial bank established in 1994 B.S. as a central on Nepal rastra bank was established in 2013 B.S. as a central bank and rastroua namojya bank was established in 2022B.S. under full ownership of government. After then

many other joint venture banks were established. Nepal Arab Bank Limited (NABIL) was the first joint venture bank established named as Indouse in 2041 B.S. In 2043 B.S. second joint venture Bank was established named as Indosuez Bank Ltd, now it is known as Investment Bank. In the same year Nepal Grindlay's Bank (now Standard Chartered) in the form of joint venture bank came into existence. After the restoration of democracy, economic policies were liberalized and provision was made to SBI Bank Ltd. (2050), Everest Bank Ltd. (2051).

These institutions play a vital role in the development of capital market. Nepalese capital market is also classified in organized and non-organized sector. Government agencies and other institutions, which are already mentioned above, are categorized in organized sector. They provide long term funds for development of agriculture and commercial sector by investing Common stock, Debenture and government bond. Investors, Merchant and private sector also help for development of capital market.

Thus the present study is carried out to analyse the risk and return of stock. Why they are important and how to minimize the risk. The risky side of investment cannot be defined. But most of the investors are risk averters, they do not like risk and they do every activity to avoid or minimize the risk.

"Risk is defined as the variability of returns of a period, greater variability of returns risky investment. Risk can be defined as the change of 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 interchangeably with uncertainty to refer to the variability of returns associated with a given asset" (Lawrence, 2001:237).

Thus it creates curiosity to researcher and other individual towards the risk and return. Hence study of the risk and return on analysis of commercial bank has great importance and are interesting subject. In today's dynamic and competitive environment, it is increasingly important for the financial institution to evaluate the risk and return position and compare with their competitors to retain their existing customers and attract their potential customers.

The Nepalese economy has not become successful in creating an investment friendly environment. The private sector does not seem to be confident with the current economic political environment. In such a situation, there remain fewer possibilities to materialize the slogan of public-private partnership. Nepalese economy is experiencing increasing internal challenges. In this situation of ongoing socio-political anomaly, the economic development of the country is not just happened easily. The government needs huge resources to develop the country properly. To fulfill the objective of economics to development of the country, one of the most important sources is capital. This is generated by Bank and other financial institutions. Before going to in-depth of the study, it is better to give the introduction of Nepal Rastra Bank and development of commercial banks in Nepal.

1.1.1 Nepal Rastra Bank – The Central Bank of Nepal

The history of Nepal Rastra Bank is not longer in Nepal. It began with the independence of Nepal from Rana Regime in 1950. After the independence from Rana Regime, Planned effort of economic development was initiated and in almost all economic planning, Nepal Rastra Bank has played significant role, Nepal Rastra

Bank has been playing crucial role towards fulfilling Nepal's development aspirations. It has instrumental in bringing about substantial improvements in the statue of socio- economic development in the country. Hardly, any sector of the economy exists which has been untouched by the guideline of Nepal Rastra Bank. The Nepal Rastra Bank is responsible of management and supervision of the monetary and credit system of the country. This central bank has been given wide power under the various provisions of the following legislation, Nepal Rastra Bank Act 2058, Banks and Financial Institutions Act, 2063. The provisions of this Act are applicable to domestic as well as joint venture banking institutions.

Prior to the establishment of Nepal Rastra Bank in 2013, Nepal Bank Limited, the first and only one commercial bank, had to perform some of the functions of the central bank. Before the establishment of Nepal Bank Ltd, There was *Tejarath Adda*, which was established with a view to extent credit to the public on the security of gold and silver. Up to 2013, the Nepal bank Ltd was one and only financial institution and taking charge of all the business transaction of government including currency exchange except commercial banking function. NRB later took a lead role as the central bank of the country and assumed the responsibility of ensuring proper management of the issuance of Nepalese currency notes; making proper arrangements for the circulation of Nepalese currency throughout the kingdom; stabilizing the exchange rates of the Nepalese currency; mobilizing capital for development; encouraging activities related to expansion of trade and industry; and developing banking.

"Against the background, an urgent necessity was felt for the establishment of a central bank dedicated to the development of banking and finance to promote trade and industries, to manage circulation of national currency and to maintain exchange rate stability, Hence, the Nepal Rastra Bank Act 1955 was formulated."¹

Nepal Rastra Bank was established as a central bank on Baishakh 14, 2013. The bank was empowered to Act to have direct control over banking institution within the country. It also took over the treasury function of “*Mulukikhana Adda*” (Government Treasury) and started issuing currency in 1959; and also thus relieved the various ‘*Mal Addas*’ (Revenue Office) of their work in the connection.

1.1.2 Development of Commercial Banks in Nepal:

"The history of banking in Nepal may be described as component of the gradual and orderly evolution in the financial and economic sphere of the Nepalese life. Even now the financial system is still in the evolutionary phase. The existence of unorganised money market consisting of landlords, *shahukars* (rich merchants), shopkeepers and other indigenous individual money lenders has acted as barrier to institutionalised credit. These institutions although quite underdeveloped could still mobilize funds from a wide range of different sources. For many years, the indigenous individual wealthy agriculturists, landlords, merchants and traders conducted some banking activities along with their other business occupations. The activities were fragmented and mostly localized."

Nepal Bank limited was the first commercial banks of Nepal. It is taken as the milestone of modern banking of the country. It was established on 30th Kartik 1994, which was incorporated as a semi-government organization with an authorized capital of Rs. 10 million of which 51 percent share was owned by the government and rest by the private shareholders. It started with collected of Rs. 170,200 from public deposit. From the beginning, it has rendered the following services to the customers:

- ◆ Accepted deposit,
- ◆ Extend loan,

- ◆ Invest in government bond and securities,
- ◆ Perform agency function,
- ◆ Act as banker to the government,
- ◆ Render customer service (i.e., issue of bill of exchange, *hundis*)

Until mid-1940s, only metallic coins were used as medium of exchange. So the government need of separate institution or body to issue national currencies and promote financial organization in the country.

Later *Nepal Rastra Bank* was established as a central bank of Nepal in 2013 B.S under the Nepal Rastra Bank Act 2012 B.S.

With the establishment of Nepal Rastra Bank, the process of banking development started to gain momentum. *Rastriya Banijya Bank* was established, dated 10th Magh 2022, under the Nepal Rastra Banijya Bank Act, 2020 B.S, as a 2nd commercial bank of Nepal. It is the fully state owned and providing banking facilities with an authorised capital of Rs. 10 million. These two commercial banks, with 319 branches in the kingdom, are from the largest group of financial institutions.

Nepal is an agricultural country and agriculture is the basis occupation of major Nepalese people. The development of this sector plays the prime role in the economy. So the first separate institution in agriculture financing namely *Agriculture Development Bank* was established, dated 7th Magh 2024.

For more than two decades, no more banks have been established in the country.

After declaring free economy and privatisation policy, HMG encouraged the foreign banks for joint venture in Nepal. As a result *Nepal Arab Bank Ltd (NABIL)* came into existence on 29th Ashad 2041 under Commercial Bank Act-2031 B.S. as a joint venture bank. It has the authorised capital of Rs. 30 million, 50 percent share is held by Union Bank of Middle East, Dubai, 20 percent by Nepal Industrial development Corporation, Nepal Insurance Corporation and Securities Marketing Centre and rest by the general public. This is the first modern bank with latest banking technology. Then a lot of commercial banks have been opened in the country.

Nepal Indosuez Bank was established on 26th Falgun 2024 as a joint venture of Indosuez bank, France and public shareholder with an authorised capital of Rs 120 million.

Nepal Grindlays Bank, the Nepalese really saw modern banking when Nepal Grindlays Bank was established on 16th Magh 2043. This is also another joint venture between the Grindlays Bank of U.K., Nepal Bank Ltd and the general public. Today the name of this bank has been changed into Standard Chartered Bank Limited. In Nepal there are massive entrances of foreign banks as the country followed economic liberalization.

The *Himalayan Bank Ltd* is a joint venture with Habib Bank of Pakistan. It started its operation in 5th Magh 2049 with paid up capital of Rs. 60 millions.

Nepal SBI Bank Ltd is a joint venture between Employees Provident Fund and State Bank of India, established in 23rd Ashad 2050 with the initial paid up capital was 119.95 million, when Indian bank holds 50 percent of the equity.

Nepal Bangladesh Bank Ltd was established on 23rd Jestha 2050 in technology collaboration with IFFC Bank Ltd. of Bangladesh.

On 1st Kartik 2051 *Nepal Everest Bank Ltd* was entered into joint venture commercial banking with Punjab National Bank of India (PNB). PNB holds 20 percent equity stake in the bank.

Bank of Kathmandu Ltd was established in a joint venture with Syan Bank of Thailand on 28th Falgun 2051.

Similarly other joint venture banks in Nepal are *Bank of Cylon* as a joint venture with Srilanka Bank established on 28th Ashoj 2053, and today the name of this bank has been changed into *Nepal Credit and Commerce Bank Ltd*.

In the beginning, most of the bank Came into exist as a joint venture bank but at present situation some of the bank has converted into fully stated owned, those banks are as fallows,

Lumbini Bank was established on 1st Shrawan 2055 in Narayangadh. This is the first regional bank of Nepal.

Nepal Industrial and Commercial Bank was established on 5th Shrawan 2055; it does not have any joint venture yet. But it has employed senior managers from India to handle its operation. *Machhapuchre Bank* started its operation on 17th Ashoj 2057, its head office is established in Pokhara.

Kumari Bank was established on 21st Chaitra 2057 and its head office is in Kathmandu. This bank has introduced internet banking which is a Hi-Tech banking system of the world.

Laxmi Bank was established on 21st Chaitra 2058. Its head office is situated in Kathmandu. Then rapidly *Siddhartha Bank*, *Agriculture development Bank*, *Global Bank*, *prime commercial Bank*, *Bank of Asia*, *Sunrise Bank*, *DCBL Bank*, *NMB Bank*, *Kist Bank*, *Janata Bank*, *Mega Bank*, *Commerz and Trust Bank*, *Civil Bank*, *Century Commercial Bank* and *Sanima Bank* was also established.

The banking industry is the lifeblood of economy. It is the bridge of nation's development. The entry of commercial banks functions led to rapid growth of banking system. The government's liberalization policy led to a dozen of commercial banks actively playing in the financial market of the counter. "Suggestion for the development of banking in the country on the basis of area approach is being made by the policy makers recently. The central idea behind this is that, depending on there area of operation and location, commercial banks could be assigned particular areas where they act as pace setter in providing integrated banking facilities. The establishments of commercial and Industrial Bank in Biratnagar, Lumbini Bank in Narayangadh, Machhapuchhre Bank in Pokhara are some of the example in the promotion of regional banking industries in the country. Similarly the introduction of Nepal Development Bank from the private sector in exemplary in the history of banking in Nepal. Many of these banks have shown tremendous progress in term of deposits, lending or in customer base within a short period of time. In addition the government has also introduced five regional development banks, which have boost up the income of poor in rural areas."

Commercial banks should establish under the Banks and Financial Institutions Act, 2063 (BAFIA). This Act sets out regulations for licensing, supervision and cancellation of license of commercial bank. Among all financial intermediaries, commercial bank is the dominant one. Commercial banks have strictly follows the rules and regulations issued by Nepal Rastra Bank.

1.2 FOCUS OF THE STUDY

The main focus of study is to analysis how one can get sustainable profit by minimizing the risk. People prefer less risk to more return i.e. they try to ignore risk, which is not possible for this purpose. Expected return, total risk, systematic risk and unsystematic risk are analyzed to give an idea to get sustainable profit by

divesting the risk to avoid future loss of the common stock investment. The analysis of risk and return is very significant in investment decision as well as financial decision. It influences the risk and return of the shareholder. Consequently, the risk and return analysis influences the market price of the stock. So before making an investment decision a person must analysis the risk and return from the particulars stock as well as they can make good risk minimizing portfolio between their investments in the stock

Risk and return are two most importance criteria for investment decision. Normally an investor prefers a higher from a lower risk. But we all know the fact that higher return has higher risk associated with it. To make a trade of between risks and return the risk relating to investment project is determined by using statistical tools viz., profitability ratio, trend analysis, mean, standard deviation, coefficient of variation, Karl's person coefficient of correlation.

In context of Nepal, the capital market is growing very slowly, the market is not sufficient. Here are lack of magazines and related documents of capital market without any proper knowledge and information. This study will give information about Nepalese capital market by analyzing risk and return and will definitely contribution to increase the analyzing power of the investors in capital market. The study may be the matter of interest for academicians; student, teacher and researcher in the field of financial became study is not only fulfill the requirement of Master degree in business but also provide some knowledge about the Nepalese stock market development. It is suggested to the policy makers to make necessary policies to attract private sector investment in the productive sector and reforms in policies related to stock trade. It is believed that this study will help many investors to know how they should use their money while investing in financial securities.

Thus it is cleared that study is focused on the risk and return analysis of commercial banks viz. Everest Bank Ltd. (EBI), Himalayan Bank Ltd.(HBL), Nepal SBI Bank Ltd (SBI), Nepal Arab Bank Ltd (NABIL) and Standard Chartered Bank Ltd (SCBNN) among the 32 commercial Banks.

1.3 STATEMENT OF THE PROBLEM

Several commercial banks have been established in the country within a short span of time. Due to high competition in the market, these banks are providing more loan and advances against their client's insufficient deposit. Unsecured loan and investment may cause the liquidation of the commercial banks. Most of people of Nepal do not know about share debenture and other securities because capital market is not so development in Nepal. On the other hand there are no any strong commitments or policy made by the government towards increasing public investment in policy market. Mainly some private and joint venture commercial banks are main root for many of such investment in financial securities. Limited option exists in financial securities. Stockbroker and financial institution have no effective program to develop investor's knowledge. So moreover people are unfamiliar with the stock investment sector is limited except then a bank deposit or real estate. They would rather prefer to invest in unproductive sector e.g. building, gold and other unproductive item.

The attitude and perception of investor lay chief role in investment decision which is influenced by the information and access to the data, required for analysis. So lack of information and learn knowledge is chief problem faced by investor. Investor invested their wealth on the basis of guess and hunches because they do not have appropriate information about the financial assets and also lack of idea to reach to ideal decision. Investor purchase stock merely looking past trends of stock

prices and sometimes they have to bear heavily due to inadequate knowledge and information related to field of stock investment.

Thus in Nepalese context, the investment decision is rarely taken after the analyzing the performance of stock. So the risk and return analysis of selected commercial bank in Nepal is faced many problem. Some research problems are ad following:

- What are the criteria for evolution of the stock, which will give favorable decision?
- What are the sources of the risk?
- How do they know about the magnitude of risk?
- What is the meaning of return and expected return?
- How the returns are calculated?
- What are the rates of return of each commercial bank?
- How can one make higher return through lower risk?
- What are correlations among the return of commercial bank?
- What are the determinate of the share of selected commercial bank?
- What are the comparative risk

This study is attempt to answer such question and also attempt to give suggestions for a rational investor.

1.4 OBJECTIVE OF THE STUDY

The main object of the study is to analyze the risk, return and other relevant variable of common stock investment of commercial banks that help in making decisions about investment on securities of the banks. The specified objectives of the study are as follows:

- To evaluate risk, return and other relevant variable that directly effects the investment in common stock.
- To find out the rate of return of various common stock.
- To find out the standard deviation and coefficient of variation of commercial banks.
- To analyzes the correlation among the return of commercial banks.
- To analyzes comparative risk and return position of these sector.
- To know the permanent risk of stock.
- To know the requires rate of return (SML equation) of a stock.

- To provide suggestions, some practical ides and recommendation based on analysis of data for investment on common stock of commercial banks.

1.5 SIGNIFINCE OF THE STUDY

This study will provide practical importance to commercial banks to making their financial decision. Most of the investors have sufficient funds for investment but they don't have the knowledge to analyzed the risk return and construct option portfolio in order to make investment in the common stock of commercial banks. People are curious to know risk and return of common stock invested of commercial banks that help to minimize their risk position. As all the financial institutions are the bases for economics growth of nation. The study has significance to various people in various ways e.g. Management, Shareholders, the businessman and entrepreneur, the government and the individuals.

The managers are always interested to know the financial condition of the organization. It helps them to find the degree of tolerance of the risk under a given

return. In the same way the shareholders are the real owners of the institution. They have been interested to know about the risk ness of their investment. The commercial banks that perform well is always regarded, appreciated and preferred by the businessman and entrepreneur for their financial transaction. They prefer the bank having low risk and high return. Similarly, it helps to the government of nation. The government had always interested to know the risk ness of commercial banks because the study helps to formulate the appropriate plan and policy for the country and also create conducive investment environment. In addition from above mentioned parties, the study is also important to other individuals that comprise of customers, investors, competitors, stockbrokers, student economist statistician and other rational individuals.

1.6 RESEARCH HYPOTHESIS

Simply, Hypothesis is a statement about the population. Hypothesis is an assumption made about the population parameter for which the test is carried out. It is an assumption made on the basis for reasoning "a hypothesis in statistics is simply a quantitative, statement about a population" (HUPTA, 1995/32). Hypothesis is a statement which, if proved becomes a theory. Each test contains two hypothesis, are begin null hypothesis and other is being alternatives hypothesis. Since there are only one tests carried out in the study, there are two hypothesis which are presented as under.

Hypothesis Applied For the Test

Ho: there is no significant relationship between expected return and beta coefficient of commercial banks under study.

H1: there is no significant relationship between expected return and beta coefficient of selected commercial banks under study.

Test of Statistics F- Test

$$F = \frac{\text{Explained Variance}}{\text{Unexplained Variation}}$$

$$= \frac{\text{Explained Variance / d.f.}}{\text{Unexplained Variation/d.f.}}$$

Where, d.f. = Degree of Freedom.

If calculated value of F is less than its critical value i.e. ($F_{cal} < F_{tab}$), Ho or null hypothesis accepted otherwise H1 is accepted.

1.7 Methodology

The research methodology's the systematic way of solving research problem "research methodology refers to the various sequential steps to be adopted by a researcher in studying in view "(Kothari, 2000;2). Thus the main purpose of this study is to stress on the different research methods and conditions, which are used in this study.

Research is systematic and organized effort to investigate specific problem that needs a solution. This process of investigation involves a series of well thought

activates of gathering, recording analyzing and interpreting the data with the purpose of finding of problem is called research.

It consists of research design, nature and sources of data, population and sampling method statistical tools and method of data analysis.

Research design

Research design is defined as a framework plan and structure for collecting analyzing and evaluating data. It is a procedure and techniques, which provide ways for research validity. As research is based on the recent historical data so simply it is a historical research. The research belongs to risk and return analysis; the research is based on historical data, which covers the six years period form 2004/005to 2009/010 . It deals with the common stocks of commercial banks on the basis of available information.

Nature and sources of data1

The study is primarily based on the secondary sources of data. The data are obtained from Nepal stick exchange (NEPSE). Security board of Nepal, data's related to market price of stock, market capitalization, movement of NEPSE index is taken from the trading, report published by NEPSE and website of Nepal stock exchange. Annual report of commercial banks and financial statement are also taken for respective banks. During the study informal option survey has been taken with individual investor and bank officer.

Publication and sampling method

The study is based on the commercial banks listed in the Nepal stock exchange, since; study is concentrated in listed commercial banks only. The commercial

banks listed in Nepal stock exchange for the purpose of study only 5 commercial banks are taken as sample.

Statistical tools and method

Before analysis data are presented systematically in the formats of table, charts and graphs. For analysis purpose, following factors and statistical and financial tools are used.

Mean

It is the simplest statistical tools, which may be defined as the average value of distribution.

$$\bar{X} = \frac{\sum x}{N}$$

Standard deviation: It is an important statistical tool commonly used to measure the dispersion in the distribution. It is square root of variance. It is express as:

$$S.D. = \sqrt{1/N \sum f(x - \bar{x})^2}$$

Similarly, correlation coefficient, regression analysis, co-efficient of variation, DPS, MPS is used for data analysis.

1.8 ORGANIZATION OF THE STUDY

The study has been divided into five chapters. The titles of the chapter are as follows:

Chapter one: - Introduction

The first introduction chapter deals with subject matter of the study. This chapter consists of back ground of the study objective of the study, focus of the study, significant of the study, limitation of the organization and study of the study etc.

Chapter two: - Review of the Literature

It included review of available literature related to area of this study. It is directed towards the review of conceptual framework and review of major related studies.

Chapter three: - Research Methodology

This chapter consists of research methodology, express the way and use technique while studying, applied in research process; this includes research design, population and sample, sources of data, tools and technique, method of data analysis and interpretation.

Chapter Four: - Presentation and Data Analysis

This chapter has covered the “Presentation and analysis of data”, with presenting charts, figures and other statistical tools, mathematical tools and financial tools.

Chapter Five: - Summary, Conclusion and Recommendation

This chapter is concerned with output of thesis as summary, major findings and recommendation for improvement.

1.9 LIMITATION OF THE STUDY

This study has been undertaken for the partial fulfillment of the requirement for master's degree in business studies. The major limitations and constraints of this

study are as follows.

- The study covers the relevant data only for five year i.e., from fiscal year 2006/07 to 2010/11.
- The study consist only five commercial banks i.e. Nepal Everest Bank Ltd., Himalayan Bank Ltd., Nepal SBI Bank Ltd., Nepal Arab Bank Ltd.(NABIL), Standard Chartered Bank Nepal Ltd. have been taken as sample for the study purpose listed in NEPSE.
- The risk is measure by the standard deviation of the return of banks.
- The study is limited from the point of view submission in partial fulfillment of the requirement of master degree.
- The study is fully based on student, financial resources and is to be completed with in the limited time.

So these are the major limitations of the study.

CHAPTER-II

REVIEW OF LITERATURE

The review of literature is a crucial aspect of planning of the study. Basically it is a stock taking of available literature in one's field of research. "The purpose of reviewing the literature is to develop some experience in one's area to see what new contribution can be made, and to receive some ideas for developing a research designs. The previous study cannot be ignored because they provide the foundation to the present study. The present study is simply the continuity in the research design" (*Wolf and Panta: 1999:30*)

Financial institutions are the life hood of the economy and serve as the barometer of the economy prosperity. However in order to serve as barometer of economic prosperity, the financial condition of these institutions needs to be in proper condition. The risk and return aspect of institutions to review the literature. The review of literature is most important part of all study. Review of literature is the chapter where a researcher review the books, journals, magazines or any other types of studies, which are related to his/her field of literature is a way to discover what other research in the area of our problem has uncovered. It provides the foundation for developing a comprehensive theoretical framework from which hypothesis can be developed for testing. "The purpose of review of literature is to find out what the research studies have been conducted in ones chosen field of study and what remains to be ignored because they provide foundation to the present study.

In these chapter for our study is classified into three sessions. The first session begins with a definition. The second session follows with the theoretical review of

risk-return and finally reviews the previous related study in the field. Topics from basic academic course of book, different study are reviewed below.

2.1 DEFINITIONS AND THEORETICAL FRAMEWORK

The definitions of the terminologies use in the study needs to be described properly. It helps to clear the vision of the study. This makes the study more meaningful and easy to understand the problem of the study. The objective of this session is to know how the various writers have defined the risk and return.

1. Common stock

"Common stock represents equity of an ownership position in a corporation. It is a residual claim, in the sense that creditors and preferred shareholders must be paid as schedules before common stock holders can receive any payment. In bankruptcy, common stock holder are in the principle entitle only to any value remaining after all claim given been satisfied. Thus, risk is the highest with common stock and so must be in expected return, when investors buy common stock they receive certificate of their being part of owners of the company. "The certificate states the number of shares purchased an their par value" (*Bhalla: 2000: 154*)

As owner, common stock holders are entitled to certain rights and privilege. There are controls, preemptive rights, liquidation rights and right to income an distribution of additional shares. Similarly, the common stock value are quite different in some cases, the donor amount of these value is no related for an individual stock. The common stock value includes par value, book value and market value.

Return:

Return is the prime factor in the financial investment decision. Every investor wants sufficient return from the investment. It is the return that encourage accepting the challenge. It strengths will power to assume risk. The term return is often used in our daily life also. But still the conceptual meaning of return differs from one person to another. Some consider it as revenue, other consider it as a reward while the other consider it as a profit and so on.

However in financial return means the return form investment on single assets of portfolio assets. Return is rewarded received from investment for sacrifice of present certain amount of assets. Return is motivational factor encouraging investors to sacrifice some certain amount of assets for uncertain benefits in future. The term form capital investment is a concept that has different meaning to different investors. Some investors regarded it as short term cash inflow while other perceives it a high growth rate and higher growth rate of return in the long run. Still other measures it in term of financial ratio such as return on investment of return on equity.

The investment may make of more than one sources of income. There are two kinds of return that investors receive common stock. They are current yields and capital gain yield. Current yield is the cash flow divided by the beginning price and capital gain means increment in the value of investment. Cash flow refers to the cash received in the regular interval divided for stock holder and interest for debt holder. Capital gain means loss in the value of investment known as capital loss.

Investment may be done only one project or assets, known as single assets or portfolio assets. Investment may be one or more than one asset at a time is known

as portfolio assets. Return can be classified and studied in various terminologies as that are as follows.

A. Single period return

The return carried for a single period is known as single period return. It measures the increment or decrement of the investor's wealth." The single period return is simply a cash payment receipt due to ownership, plus the change in the market price divided by beginning price". (*Van Horn and John: 1995: 09*). "an investment's single period rate of return is simply the total rate of return, an investors period rate of investment's at start of the holding period return measure is useful with an investment horizon of one year of less" The rate of return achieved is the composition of dividend yield and change in price." (*Fisher and Jordan: 1993: 06*)

Investor can obtain two kinds of income form investment in assets. They are:

1. Cash flow income (cash dividend for stock holder, coupon interest payment for debt holder)
2. Income from price appreciation of loser form price depreciation turned as capital gain of loss.

Notationally,

Single period return is expressed as

$$\text{Return} = \frac{\text{cash flow} + \text{change in price of assets}}{\text{Beginning price of assets}}$$

$$R = \frac{CF + (P - P_0)}{P_0}$$

Where

R=Actual (or expected) return when 't' refers to a particular time period in the past (or future)

CF= Cash dividend (or coupon interest) at the end of time period 't'

P= Ending market price of investment at 't' time

P=Beginning market price of invest at 't-1' time

From the above formula we can say that single period rate of return is we composite of current yield and capital gain yield.

Single period rate of return = current yield =capital gain yield

This above formula can be utilized to determine single period rate of return when the figure are based on historical data as well as expected single period return when the investment is based on future cash flow dividend and price.

Annualized rate of return are several period can be calculated in two ways The first one is simply to take the arithmetic average of the annual holding period return over a given period and the second one, which also takes into account the compounding effects of each cash receipts over different time intervals, is the geometric means rate of return.

Arithmetic mean of holding period returns $\overline{\text{HPR}}$

$$\text{HPR (S.M.)} = \frac{\sum_{t=1}^n \text{HPR}}{n}$$

Here

HPR_t=Holding period return for 't' time

t= Time period 1, 2, 3.....n

n= no of period

B. Expected rate of return

The rate of return that is expected in the future is known as expected rate of return. The expected rate of return is the weighted possible return with the weight being the probabilities of occurrence. "The expected rate of return is weights average of the possible outcome with each outcomes weight being equal to its probability of occurrence "(Brigham: 1980:98) Generally, the expected rate of return is applied one stock to earn over a future period because the interest rate on debt is mostly fixed.

The expected rate of return expresses what investors expected to receive from the stock as a rate of return in the course of next period. Many investment decisions are based on future exceptions. If the investors can describe the possible variable that will influence each of the possible rates of return and assign probabilities to these outcome, the expected rate of return will be equal to the weighted average of the various probability contribution are used to describe possible outcome. They are used to assign exceeding the total probability to be one.

^The expected rate of return is calculated by adding all the product of expected value under each situation with their expected of occurrence.

Nationally

$$R \text{ or } E(R) = \sum_{i=1}^n P_i R_i$$

$$\bar{R} \text{ or } E(R) = P_1 R_1 + P_2 R_2 + P_3 R_3 + \dots + P_n R_n$$

Where

R or E(R) = Expected rate of return

P₁ = probability that the return R₁ will occur

R₁ = Return on it possibility

P_n = Total no of possibilities of future outcome

The above formula is based on the probability distribution. The probability of occurrence serves as the foundation for the expected return. However the future events are uncertain. So, the assignment of probabilistic to the future events is a very difficult

The average rate of return is considered as expected rate of return for the period on the assumption that same rate of return will be prevalent in future time. Since the world is dynamic expected rate of return is not always remaining same. So the expected rate of return may lose its accuracy. The expected rate of return on the past average rate of return may not be regarded as a proper indicator of expected rate of return.

C. Required Rate of Return

Required Rate of Return is that rate of return an investor must earn on their investment. It is the minimum rate of return that an investor must earn. The required rate of return when compared to the expected rate of return must be equal or less than the expected rate of return. If the expected rate of return, the investor

will to purchase the investment and this will drive the price upward and vice versa. When the expected rate of return is equal to be the required rate of return is equal to be the required rate of return it is said to be equilibrium price of correctly price. Equilibrium price generally exist for a given investment because securities price adjust rapidly to new development changes in equilibrium price can be bought about.

- i. By a change in risk aversion.
- ii. By a change in risk free rate.
- iii. By a change in the stock's beta co-efficient value.
- iv. By a change in in the stock's growth rate.

D. Return on Single Assets

When an investor invests only in on assets, the return generally from the single assets is known as return on single assets. The return on single assets under this method is based upon the total return realized in the form of cash receipt and capital gain dividend by the initially investment amount. The return on single assets may be on the basis of expected return where the different probabilities of outcome are multiple to their respective expected return and after than added together.

F. Return on Portfolio Assets

Portfolio is the combination of two of more than two assets, since the investment on only one asset is risky; the investor prefers to diversify their investment into different assets. This activity of diversifying the investment in more than one asset is known as portfolio. The portfolio is act of keeping eggs in different baskets.

When the portfolio. The portfolio assets means the combination of two or more than two assets return on portfolio means come form portfolio investment.

Investors have different investment opportunity but they have limited resources, so the investors have to select that opportunity which maximum the return and for a given level of risk. Therefore it is needed to extent the analysis of risk and return through portfolio. There are two objectives of portfolio primary and secondary objectives. The primary objective is to maximize return and to minimize the risk. The secondary objectives are to earn regular and stable return, safety of investment, appreciation of capital, even liquidity and tax benefits etc.

"The expected return on portfolio may be defined as weighted return on the assets, which compression the portfolio. The weight reflects the proportion of the portfolio or wealth invested in each asset."(*Joshi: 2004:134*)

The general formulae for the expected return on portfolio are a follow:

$$\bar{R} = \sum_{j=1}^n W_j R_j$$

Where

W_j =The proportion or weight of the total funds investment in security j

R_j =Expected return for the security j

n=Total no of different securities existing in the portfolio

$$\text{Weight} = \frac{\text{Amount of rupees investment in on assets}}{\text{Total investment on the portfolio}}$$

The expected return on portfolio for two assets is given in the portfolio

$$R_p = W_A \bar{R}_A + W_B \bar{R}_B$$

Where

W_A = The factor of the total value of the portfolio investment in the assets A or $(1 - W_B)$

W_B = The factor of the total value of the portfolio invested in assets B or $(1 - W_A)$

\bar{R}_A = Expected rate of return of assets A

\bar{R}_B = Expected rate of return of assets B

G. Return on the basis of Risk ness:

Return can be assigned on the basis of risk. On the basis of risk ness of an asset, return can be divided into two parts

- 1. Risk free rate of return**
- 2. Market rate of return**

1. Risk free rate of return:

Risk free rate of return is that rate of return which is sure to be received. Generally Government issued Treasury note and interest provided on this security is known as risk free rate of return. Generally the risk free rate is lower than market rate of return.

2. Market rate of return:

The market rate of return is based on the risk free rate of return. But since there is a tough competition in the market, the risk is also prevailing in the market. So, the market rate of return gives higher rate of return than risk free rate of return. Generally, market rate of return constitutes of risk free rate and market risk premium.

3. Risk:

Risk is one of the most importance criteria for investment decision. Risk present virtually in every decision. Although the term risk is used in our daily life and is felt by every individual, no one has been able to give the universal acceptance definition of risk, Different person perceives the risk in different way and they define according to their own experience and perception. Some perceive it as a fluctuation in market price of the investment while other considers it as an uncertainty of return. View of the most people risk is defined as chances of loss. In reality, risk occurs when we can not be sure about the outcome, i.e. investment can produce more than one outcome in future.

In real word, we cannot predict or forecast the future. Therefore every investment has some degree of risk. Risk exists because of disability of the decision maker to make perfect forecast. Forecast cannot be made with the perception of certainty. Since the future events in which they depend are uncertain in this dynamic world. Some investor compares it as variable of the return from those they are expected.

Thus, the risk is defined as chance of receiving an actual return other than expected, which simply means there is variability in the return outcomes from the investment. (*Weston & basely, 1996: 182, 183*).

Thus, the risk can also be defined as a financial loss or more formally the variability of returns associated with a given stock.

"The risk ness of asset is defined in terms of likely variability of future return from the assets"(Sharma, 2001: 290)

In Webster's dictionary, Risk is defined as a hazard; a peril; express to loss or injury.

Risk is the fate of life, which is a product of uncertainty and its magnitude depends upon the virility in uncertain cash flow. Risk, in fact is an indication of losing investment value. Therefore risk is defined as the like hood that the actual return and investment will be less than the forecast return standard differently, it is the variability of return from an investment. (Hampton, 1996; 343)

In this way, risk is defined as in different ways. Some express it loss injury of damage, in certainty, and return validity, variability of return outcome variation and dispersion of return and so on. Only the term used by the people is different. Though the different people perceive or express the risk accordingly to their own perception or experience, the risk is what the risk bearer and investor believe and experiences.

3. a. Measurement of Risk:

The measurement of risk has always been subject for debate in the investment inquiry. Risk is sometimes distinguished from uncertain. Risk is referred to the situation where the probability distribution of the cash flow on investment

proposal, on the other hand, there is no information to formulate a probability distribution of the cash flows, the situation is known as uncertainty.

Probability assignment

Probability may be defined as a measure of someone's belief about the likelihood that an event will occur. If an event is certain to occur, we say that it has a probability of occurring of 1. If an event is certain not to occur, we say that its probability of occurring is zero; probabilities can be used to assess risk more precisely. Risk involved in an asset, probability distribution may be defined as a set of possible values that a random variable can assume and their associated probabilities of occurrence. Probability distribution may consist of only a few estimates, one commonly used from which only the high, low and best guess estimate, or optimistic, most likely and pessimistic estimates. Probabilities can also be the possible outcome of expected future returns for a given investor. Risk can be measured in the following terms.

a) Standard deviation

b) Variance

c) Coefficient of variance

a) Standard deviation

Risk is defined as the variability of return from an investment. Various factors play an important role in bringing such variability or deviation. Such variability is stability measured by standard deviation. Standard deviation is the absolute measure of the degree of risk of common stock. We can associate it with the possible outcomes. It is widely used to measure risk from holding a single asset. The smaller the standard deviation, the higher the probability distribution and accordingly lower will be the riskiness of an investment,

Standard deviation is the square root of variance and it is denoted by

$$\delta = \sqrt{\sum (\bar{R} - R)^2 X P_1}$$

Where

R=Expected rate of return

R=Rate of return

P1=Probability occurring, return

In statistical term, standard deviation is defined as square root of sum of product of the required deviation of each possible rate of return from the expected rate of return and multiplied by the probability that the rate of return occurs. The greater is the standard deviation of a probability distribution, the greater is dispersion of outcome around the expected values. Standard deviation is measure that indicates the degree of uncertainty of return and is one important measure of risk. Smaller the standard deviation, lower the risk, higher the standard deviation, higher the risk.

b) Variance

Variance means the variation of return from the expected return. It measures the volatility of return. The concept of variance is highly important in advanced work where it is possible to split the total into several parts, each attributable to one of the factor causing variance in their original series. The variance is well known among statisticians, several hand calculator and computer are programmed to calculate it. The variance of assets of return equals the sum of products of the required deviation of each possible rate of return from the expected rate of return and multiplied by the probability that rate of return occurs

n

$$\text{Var (R)} = \sum_{i=1}^n [R_i - E(R)]^2 P_i$$

Where

Var (R)=Variation of return

R_i=Rate of return for the it possible

E(R_i)Expected rate of return

P_i=Probability occurring R_i return

n=Total no of possibilities

c) Coefficient of variance

The standard deviation and variance are equally acceptable and conceptually equivalent quantitative measure of assets of total risk. The standard deviation can sometimes be misleading in comparing the risk of uncertainty surrounding alternative if they differ in size. To adjust for the size of scale problem, the standard deviation is divided by the expected rate of return, is called coefficient of variance. Coefficient of variance is a relative measure of risk.

Coefficient of variation measure per unit risk.

$$CV = \sigma/E(R) \text{ or } \sigma/\bar{R}$$

Where

E(R)= Expected rate of

\bar{R} =Average rate of return

δ =Standard deviation of return

CV= Coefficient of variation

Since CV shows the risk per unit, it provide more meaningful basis for comparison when the expenses return on two alternatives are not same. It is useful measure of risk to compare the projects which have same standard deviation, different expected value or same expected return but different standard deviation. Higher the coefficient of variance indicates that coefficient has more volatility of return which signifies the higher risk and lower the coefficient of variation indicates the less volatility of return which the lower risk.

3. b. Types of Risk

Risk can be defined on the basis of its avoidance. Total risk is measure by the standard deviation. Total risk is composition of systematic risk and unsystematic risk.

System Risk

System risk is caused by the different factor that effect over all market economy such in the nation's economy, tax reforms made by the government or state of change in world energy situation, interest rate, gross domestic product and investor's expectations. More over it cause of eternal environment. Since it can not be diversified, it also called non diversifiable risk. "Systematic risk is variability of return on stocks or portfolios associated with change in return on market as whole". (Van Home, John, 1995:100) The beta coefficient is an index of systematic risk. This is a modern scientific technique of measuring a security's risk. It is an indicator of relationship between an individual investment return and general market return.

Beta coefficient of a stock will be less than, equal to or more than 1 and the beta of a market will be always 1. An investment which has a beta suppose 1.5 indicates that the stock has greater fluctuation than the market portfolio. In the simple word, we can say that if the return on portfolio is expressed to increase by 10%. The return on security with beta of 1.5 is expressed to increase by 10% x 1.5) on the other hand; a security has the beta of suppose 0.9 indicates that fluctuates less than market portfolio. If the market portfolio is expected to rise by 10% the return on the stock with beta of 0.9 is expected to rise by 9 % (0.9 x 10%). Individual security's beta generally falls between the ranges of 0.60 to 1.80 and rarely, if ever, assumes a negative value.

In this way, beta indicates the relationship between an individual investment return and market return. Statistically, beta is defined as their stock with the market proxy portfolio return divided by the variance of stock market proxy return.

$$\beta_1 = \frac{\text{COV}(R_j, R_m)}{\sigma^2_m} + \frac{\text{COV}(R_j, R_m)}{\text{Var}(R_m)}$$

Where

$\beta_1 = \text{Beta}$ coefficient of security

$\text{COV}(R_j, R_m)$ = Covariance between the return of security j and market portfolio

σ^2 or $\text{Var}(R_m)$ = Variance of return on market portfolio

Unsystematic Risk

Unsystematic risk is the part of the total risk which can be diversified and usually arise due to the managerial inefficiency. This type of risk is unique to the organization and can be largely eliminated by holding a diversified portfolio of investment. So this type of risk is also known as diversifiable risk. Diversifiable risk created through events like labor strikes, management errors, invention, advertising campaigns, lack of availability of raw materials etc. unsystematic risk is the variability of return on stock or portfolio not explained by general market movements. It accounts for between 60 to 70 percent of the stock total risk of standard deviation."(*Van Hone Wachowizs: 1997:100*)

The unsystematic risk comprises of business risk and financial risk. Business risk is related with the asset efficiency. Financial risk is related with financial aspect of the company.

Unsystematic risk = financial risk + Business risk

Unsystematic risk = arise due to the company or industry

Financial risk = arise due to the financial leverage

Business risk = arise due to assets operational problem

Rational between systematic & unsystematic risk

Total risk = systematic risk + Unsystematic risk
 (Non diversifiable+ Diversifiable)
 (Unavoidable Avoidable)

$\text{Var}(R_1) = b^2 \times \text{Var}(R_m) + \text{Var}(e)$

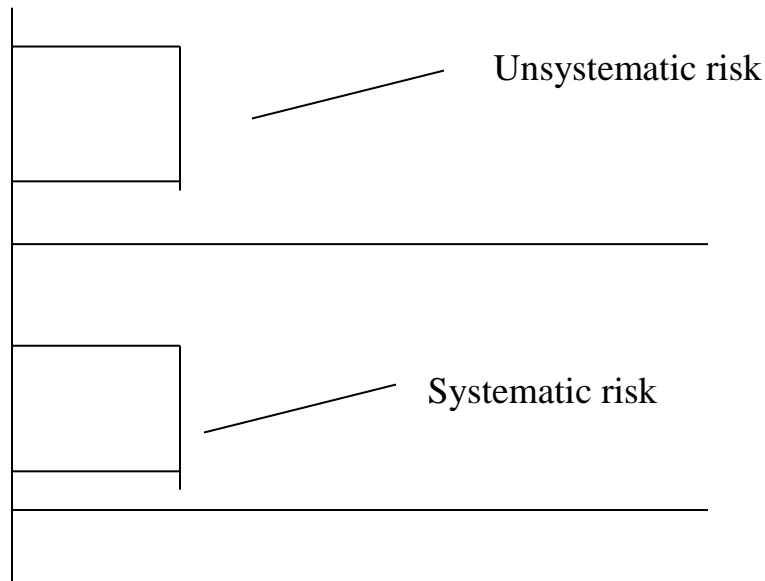
$\text{Var}(R_1)$ = Variance of return of 'I' security

B_i = Beta coefficient of security

$\text{Var}(R_m)$ = Variance return in the market

$\text{Var}(e)$ = Residual variance or unsystematic risk

Diagram No 2.1



Investor invests in only one stock the company composed of total risk that includes both systematic risk and unsystematic risk. The portion of unsystematic risk can be eliminated by diversification of investment in many companies. If the number of security in the portfolio increases, total risk occur will be decreased and finally reached to the level of systematic risk.

3. C. Theories of risk and return

The theories, which are based on the concept of risk and return, are known as risk and return portfolio theory. CAPM (Capital Assets Pricing Model) and APT (Arbitrage Pricing Theory) are most common and important theories of risk and return. The theories are described under given below

A. Portfolio Theory

The process of selecting an optimum portfolio is known as portfolio theory. As discussed earlier portfolio is combination of individual or a group of assets. They are two objectives of portfolio is primary objective and secondary objective .Primary objective of portfolio is minimize the risk and maximize the return and secondary objective is regular and stable return safety of investment, appreciation of capital, tax, benefit etc.

1. Risk aversion: Investor are risk averse. They prefer higher risk to lower risk and higher return to lower return.
2. Return: The return expected from any assets of portfolio is the mean value of probability distribution of future return.
3. Risk: The variability of return from the expected return is the risk that is to be tolerated by an investor.
4. Utility: The determinant factor of risk and return is the utility curve or indifference curve that states the investor bearing high risk requires more return than low risk hearing investor.

A.1.Portfolio Return

Portfolio is the combination of two or more then two assets. The return gained from the investor in two of more then two assets of investment is known as portfolio return. Portfolio return means weighted average of return and proportion of investment on assets. Portfolio return always depended upon the individual rate of return and the ratio of investment in those assets. The expected return on a portfolio may be defined as the weighted average of the expected return on the

assets. Which comprise the portfolio? The weight reflects the proportion of the portfolio or wealth investment in each asset.

$$E(RP) = \sum_{i=1}^n W_{ij} E(R_{ij})$$

For two assets

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

For more than two assets

$$E(RP) = W_i E(R_i) + W_j E(R_j) + \dots + W_n E(R_n)$$

Where

$E(RP)$ = Expected return for portfolio

W_i = Weigh Investment in 'i' assets

W_j = Weigh Investment in 'j' assets

$E(R_i)$ = Weigh Investment for T assets

$E(R_j)$ = Expected return for 'j' assets

n = Total number of assets congaing in portfolio

A.2. Portfolio risk

The risk arise from the investment in more than one assets is known s portfolio risk. In other words, the variation in expected return from investing in two or more than two assets is known as portfolio risk. Thus the portfolio risk depends upon the three basis factors. The first one being individual risk of an assets, second one being the proportion or weight of investment in each assets and third is the relation between the co- movements return of assets among the portfolio known as

covariance or correlation. Portfolio return portfolio risk means combination of individual assets risk proportion of investment and nature of return of those assets forming portfolio. Portfolio risk the variance of portfolio return. The variance of portfolio reflects not only the variance of the asset that makes up the portfolio but also how the return of the assets that comprise of the portfolio, vary or more together. The nature of such co-moment of return is called co- variance.

Mathematically,

$$W_i^2 d_i^2 + 2 \sum_{i=1}^{n-1} W_i W_j D_{ij} d_i d_j$$

$$\text{Var}(R_p) =$$

Portfolio risk for two assets

$$d_p = W_i^2 d_i^2 + W_j^2 d_j^2 + 2 W_i W_j \text{Cov}(R_i, R_j)$$

Where

W_i = Weight investment in 'i' assets

W_j = Weight investment in 'j' assets

d_{ij} = Correlation co-efficient between assets 'i' and 'j'

$\text{Cov}(i, j)$ = Covariance of return of assets 'i' and 'j'

d_i = Standard deviation of return for 'i' assets

d_j = Standard deviation of return for 'j' assets

d_p = Standard deviation of return for portfolio

n = Number of securities containing in portfolio

A.3. Risk minimize portfolio

It is a difficult task to determine the amount of money investment to a portfolio, the ratio of investment on each assets that minimize the risk to its lowest form is known as risk minimizing portfolio. The ratio of investment is known as optimum weight.

In cause of two assets, the percentage of weight of fund investment in each asset is obtained by the following formula

Weight of investment in assets A

$$W_A = \frac{(\sigma_B)^2 - r_{AB} \sigma_A \sigma_B}{(\sigma_A)^2 + (\sigma_B)^2 - 2r_{AB} \sigma_A \sigma_B} \quad \text{OR} \quad \frac{(\sigma_B)^2 - \text{Cov}_{AB}}{(\sigma_A)^2 + (\sigma_B)^2 - 2\text{Cov}_{AB}}$$

Where

σ_A = standard deviation of assets A

σ_B = standard deviation of assets B

r_{AB} = correlation coefficient between the returns of assets A and B

Cov_{AB} = Covariance between the returns of assets A and B

The weight of fund in each calculated from the above formula helps to identify the optimum weight for the risk minimizing portfolio in case of two assets.

A.4. Portfolio Selection

When it is cleared that the portfolio helps to minimize the risk the investor's looks for the assets combination that can be attainable. From the available assets, the limitless number of portfolio can be performs. Each possible portfolio will have on expected rate of return and risk. The hypothetical set of all possible portfolios is called the portfolio opportunity set or attainable set as shown in above diagram.

A.5 Determination of efficient frontier or portfolio

In the portfolio theory the principle of dominance exists and the highest expected return for a given level of risk and the minimum risk for a given level of return is called an efficient portfolio.

From the figure the three portfolios (P Q and R) are recognized as the dominant assets. In the figure lone PR is the efficient frontier and it represent the locus of all portfolios, which has the highest rerun for a given level of portfolio, which has the highest return for a given level of risk. Portfolio that lie below the efficient frontier are not possible because they lie outside of the attainable set portfolio to the right could provide either a higher return with the some degree of risk or lower risk the same level of return

Comparing among the efficient frontier P,Q and R portfolio has low risk and low return. Portfolio Q has high risk and high return. Similarly, portfolio R has high risk and low return as compared to portfolio. So portfolio Q dominates portfolio R.

In the figure the line PR is the efficient frontier and represents the locus of all portfolio that has the highest return for a given level of risk

B.CAMP (Capital Assets Pricing Model)

CAMP is a model that describes the relationship between risk and expected return. It explains the behavior of a secured price. It also describes how the price and interest rate on risky. Financial assets are determined in the capital market. In this model, a security's return is the risk free rate plus a premium based on the systematic risk of the security, where the risk is measured by the beta co-efficient.

Harry M. Markowitz laid down the foundation of modern portfolio theory in 1952. Capital assets are the long term financial assets as well as real assets and CAPM is based on the pricing of assets. Modern portfolio theory of Markowitz suggestion that investment decision should be based on total risk. But the CAPM suggestion that any investor can create a portfolio of asset should be based on the un-diversifiable risk. This is the primary important of selecting assets with the most desired risk return characteristics. The CAPM further suggests that price of capital assets should determine in way to compensate the systematic risk.

Based on the behavior of risk adverse investor, there is an implied equilibrium relationship between risk and expected return for each security. In market equilibrium compensation for systemic for systemic risk is provided to expected return. The relationship states greater the systemic risk, greater will an investor expect from an investor.

"The major implication of the CAPM model is that the expected return of an asset will be related to a measure of risk for those assets known as beta. The exact

manner, in which expected return and beta are related, is specified by the CAPM. It provides the intellectual basis for a number of current practices in the investment industries." (Sharpe, Alexander & Bailey: 2009)

CPMA is based on number of assumption. They are:

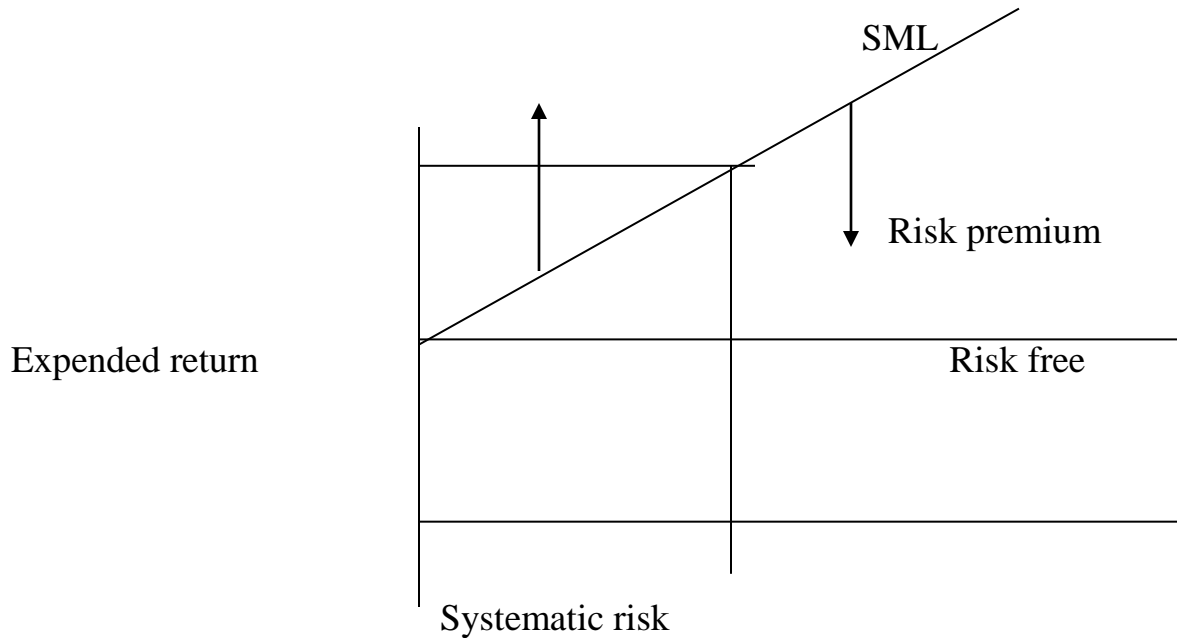
1. Market efficiency: It is assumed that capital market is efficient
2. Risk averse. They evaluate security's return and risk in terms of the expected return and variance or standard deviation respectively. They prefer the higher expected return for a given level of risk.
3. All the investor has same expectation about the expected return and risk of securities
4. All the investor's decision is based on single time period.
5. All investors can lend or borrow at a risk free rate of interest (Pandey; 1997:355)

C. The Security Market line (SML)

SML is the graphical representation of the CAPM. It shows the relationship between risk and required rate of return. "SML is the line that shows the relationship between risk as measured by beta and the required rate of return for individual securities." (Western and Brigham p 208. The SML clearly shows that return is an increasing function: in fact a linear increasing function of risk. The line shows that if risk increases, the return should also increase proportionally, risk affecting the return is market risk.

A Figure for CAMP is presented

Diagram No 2.1



In the figure, the expected one year return is shown on vertical axis. Beta an index of systematic risk is on the horizontal axis. At zero risk, the SML has intercept on the vertical axis equal to the risk free rate. The return is presented even in the situation of zero risk, for the compensation to the time value of money. As risk, increase the required rate of return also increase in the manner as shown figure.

The figure of CAPM describes to assets A and b that are not in equilibrium. Assets A are undervalued and therefore very desirable assets to invest. Assets A price will rise in the market, as more investors are attracted to purchase it. However as A's price goes up its return falls. When A's return falls to certain consistent with its beta on the SML, equilibrium is attained. In case B, just the opposite situation takes place. Investors will attempt to sell B, because of its overvalued and therefore, this put down pressure on its price. When the return on assets B increases to the rate, that is, consistent with the beta risk level given by SML, equilibrium will be achieved and down world price will lose its existence.

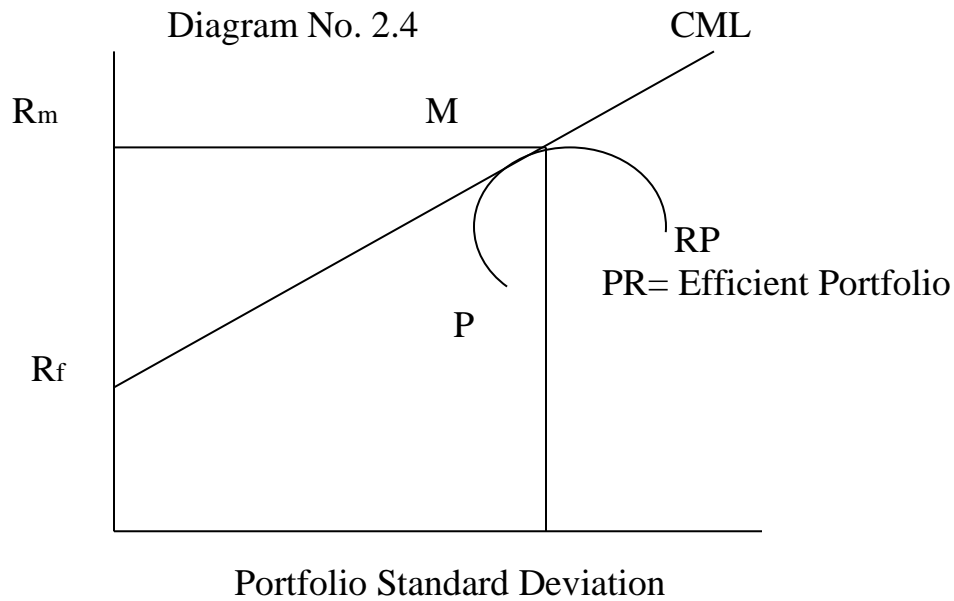
The expected rate of return on SML can be presented in following equation.
 $E(R_i) = R_f + (R_m - R_f) \beta_i$

$E(R_i)$ = Expected return for an (ith) assets

- R_f = Risk-free rate of return
- R_m = Expected Market return
- β_i = systematic risk of assets

D. Capital Market Theory (CML)

CML represent the equilibrium relationship between the risk (β) and return (expected) for the efficient portfolios. CML is the theory of risk and return used to describe the relationship between the risk and return in a market portfolio and the risk free rare of return. Thereby defining widely held conception of the price of risk and the price of immediate consumption. The theory describes the price as a reward to the seller, in fact, when a risk free assets is introduced into Marketwitez portfolio analysis, the efficient frontier change from a curve to a straight line. This new efficient frontier is called capital market line (CML).



The CML starts with the risk free assets (R_f) that is tangent to a risky portfolio (M) on the market efficient frontier. In the above figure portfolio M is the only risky portfolio. to the left side of M present on CML will hold both the risk free asset and risky portfolio.

The slope of CML can be represent as follows

$$\text{Slope of CML} = \frac{\overline{R_m} - R_f}{\delta m} \times \delta p$$

Where, \overline{R}_p = required rate of return on any efficient Portfolio on the CML
 \overline{R}_m = Expected rate of return
 δm = standard deviation of return on market Portfolio
 δp = Standard deviation of return on efficient Portfolio

This equation states that the required return on only efficient portfolio in equilibrium equals to the risk free rate plus the market price of risk, multiplied by the amount of risk on the portfolio being considered.

E. Relationship of SML and CML

After the study of SML and CML, the relationship between SML and CML can be established, SML and CML are only the different drawings of the same market equilibrium. SML is used to explain the required rate of return of all securities, whether they are efficient and presents a unique relationship between systematic risk and expected return. On the other hand, CML is used to explain the required return only for those efficient portfolios that are perfectly corrected with the market portfolio because those assets fall on the CML.

The relationship between SML and CML are expressed as :

2.2. REVIEW FROM RELATED STUDIES

The objective of this section is to show, how the relationship between risk and return is defined, described and measured by different studies. In this section, we will review the previous study which is related to this topic, which is published in journals, thesis and independents.

2.2.1 Review from journal

There are very few books and research based on journals in the field of finance in Nepalese context. Almost on any articles about the risk and return analysis on common stock investment can be found. Now a day's information highway or the internet has become the most easily accessible medium to gain information in any subject matter. So some foreign journals have taken into account to review 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 examining the relationship between risk, financial variability and market risk. Systematic risk is directly related to the accountancy. There is no theoretical basis for relationship of dividends and 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 to 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 monthly journal of finance, published by American finance association for many decades, is considered. In August 1999, an article entitled “local return factors and turnover is 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, employment by hedge funds, 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 reversed strategic monthly important as depreciation rate, common cost allocation and transfer pricing issues in accounting profits. “(*Lark. Richard and croft 1999:850-873*)

2.2.2 Review from related studies

In Nepalese context, very few independent studies can be found in the topic of finance. However, the available independent studies which are related to Nepal stock market, views expressed by different person in their articles regarding risk and return of common stock of commercial banks are presented or reviewed have in the topic.

Narayan Prasad Poudel study carrier in the topic of investing shows of “Return and Risk Elements” in 2001 which was based on the data collection from eight banks from mid July of 2001. the main objective of the study was to determine whether shows of commercial banks in Nepal are over or under priced by analyzing risk and return characteristics of individual shares.

Mr Paudel has given the following finding:

1. From the study we get Nepal Arab Bank Ltd. Indosuez Bank Ltd. and Himalayan Bank Ltd. where overpriced and others were under priced.
2. Most of the individual shows appear to be defensive as beta coefficient were less than one. Low beta shares were less volatile than market as whole only the return of shares of bank of Kathmandu had beta coefficient of greater than one indicating that share was more risky than the market.

Nepal Arab Bank Ltd, Nepal Indosuez Bank Ltd, Himalayans Bank Ltd had higher expected equilibrium return than expected rate of return and standard chartered Bank Ltd, Nepal SBI Bank Ltd, Nepal Bangladesh Bank Ltd, Bank of Katmandu had lower equilibrium return than expected rate of return.

Another independent study carried out by pro. Dr. Radha Shyam Pradhan in 1993 carried out a study entitled “stock market behaviour an small capital market & case study in Nepal” (*Pradhan 1993:23-49*). This study was based on data collected from ecventeen enterprises from 1986-1990. One of the major objective which are related to this study was “to assets the stock market behavior in Nepal”

Mr Radha Shyam Pradhan has given the following findings:

1. Dividend per share and market price per share was positively correlated.
2. There are positive relationship between dividend payout and liquidity.
3. Higher the earning on stock larger the ratio of dividend per share to market price per share.

2.2.3.Review from Thesis:

There are some studies related to topic “Risk and return” had been conducted as a thesis for the partial fulfillment of Master’s Degree in Tribhuvan University which are reviewed here. These are the some studies related to this topic such as the study conducted by M. Pasuram Neupane in 2003 entitled. “Risk and Return analysis with reference listed commercial Banks”. By Mr. Jeet Bdr Sapkota in 2000 entitled. “Risk and return analusis in common stock investment ” By Mr. Durga Bhattarai in 2004 entitled “Risk and return analysis of common stock investment with special reference to commercial banks” is review here.

The study conducted by Mr. Durga Hari Bhattarai was included seven listed commercial bank with data from 1998/99 to 2002/03, the main objective of the study was “Risk and return analysis of common stock. There is deep relationship

between risk and return. It plays vital role in the process of investment. However, the relationship ship between risk and return is descried by investor's perception about risk and their demand for compensation. The investors will invest in risky assets only when he is assured of adequate compensation for risk bearing.

On the basis of finding Mr Bhattarai derived following conclusion.

1. Price of share is determines by economic condition, policy of government, peace and political situation of nation.
2. Inventor can invest in such companies whose coefficient of variation of return of common stock is lowest.
3. To minimize the risk, investor should invest their fund n various companies.
4. The under priced common stock should be purchase and over priced common stock should be sold.
5. NEPSE should improved information technology and expand many branches in other main cited around country.
6. Real financial statement should be providing financial institution.
7. Government should also monitor the activates of financial institution.

From the study of Mr Bhatterrai research, it can be said that the focus has given the analysis of risk and return in common stock investment. Due to various other aspects of analysis investor cannot easily assess the result. The study has not focused the view point of investor and concentrated on the companies and stock market. However this study has explored some dimension for further research in this subject.

Another thesis submitted by Mr. Passuram Neupane in 2003 entitled risk and return analysis with reference to listed commercial banks is also related to this study.

In this study he has taken six listed commercial banks in account and has given the following conclusion the return is the income receive on stock investment, which is usually expressed in percentage. Expected return on the common stock of SCBNL is maximum (i.e.) 60%, which is very high rate of return. In reality this rate exists only due to the effects of unrealistic ammonal return because issued of bonus share increase in share price. Similarly expected rate of return of common stock of Himalayan Bank Ltd is found minimum i.e. (28.94%) . About the risk he has conclude .Risk is the variability of return which is measured in terms of standard deviation, On the basis of S.D. common stock of NBBL is most risky since it has high S.D. and common stock of HBL is least risky because if its lowest S.D. on the other hand, we know that C.V. is more national basis of investment decision,

which measure the risk per unit of return on the basis of C.V. common stock of NABIL is the best among all banks. NABIL has 0.86 unit of risk per unit of return, but common stock of NBBL has the highest risk per unit of return (i.e.1.2729) *Neupane: 2003:80*)

Another study by Mr. Jeet Bahadur Sapkota in 2000 entitled “Risk and return analysis in common stock investment” is a very closely related to this study. Researcher’s main objective of the study is to analyze the risk and return of common stock in Nepalese stock market. This study is focused on the common stock of commercial banks.

Mr. Sapkota in the study has concluded that, common stock is the most risky security and lifeblood of stock market because of high expected return. Common stock attractive the more investor. Private common stock holders are passive owners of the company. But the private investor’s ply vital role in the economic development of nation by mobilizing the dispersed capital remained in deferent form in his society. As over all economy. Nepalese stock market is in emerging sate. Its development is accelerating since the political change in 1990 effects the openers and knowledge, Nepalese private investor cannot analysis the security as well as market properly, (*Sapkota,2008:89*)

Above Journal, independent studied and thesis by different author are presented here in this chapter knowledge relating to the topic has been achieved and those studies provided crucial cases for the research purpose.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem (Kothari, 2009:10) it may be understood as a science of studying how research is only scientifically. Research methodology refers to the overall research processes, while a researcher follows his/her study. This chapter describes about the research design, population and sample, sources of data, data collection techniques, data analysis tools and limitations of the methodology.

3.1 Research Design

The research is based on the recent historical data so simply it is historical research. Research design may be defined as a work plan and structure for collecting, analyzing, and evaluating data. The research design focuses on the data collection methods, the tools utilized for the research and sampling plan to be followed. It is also an integrated system that guides the researcher in formulating, implementing, and controlling the study.

Thus the research design is an integrated form that guides the researcher to plan and execute the research work. The research design is the plan and structure supported by the strategy of investigation conceived in order to obtain answers to the research queries and to control the variance.

The research study attempts to analyze the position of risk and return of the selected commercial banks. For the analysis, data are obtained from Nepal stock

exchange website [www. Nepalstockexchange.com](http://www.Nepalstockexchange.com). as research is based on historical data it covers the six year data from fiscal year.

The pattern of return and volatility are analyzed in the study. The trend of return of each commercial bank is also studied. More than that the relationship between mean, return standard deviation and the coefficient of variation are examined to find whether the relationship between these variables in the study is positive or negative. The test of correlation and analysis of variance are also done in this study. Therefore the research design used in the study is basically descriptive analytical in nature.

3.2 Population and sample

Population is the combination of each unit/. It is also known as universe of the study. "The word 'universe' is used in statistics denotes the aggregate form which the sample is to be taken " *Gupta: 1995:E-42*). Population may be finite or infinite. A finite population is one in which the number of the items is determinable. An infinite is that in, which the number of items is not determined. Our study has finite population. In many cases, the study of the whole population is neither feasible nor desirable. In this case, samples are taken for the study. Sample is the representative of the population. It is the part of universal which the researcher selects for the purpose of investigation. The sample should exhibit the characteristics of the population. It should be a small population. Sample is a subject of population unit and the process of choosing a sample from the population to learn about the population on the basis of sample is known as sampling. For our purpose the financial statements of commercial banks are regarded as population.

Among the commercial banks, only five commercial banks are taken as example for the study namely EBL, HBL, SBI, NABIL and SECNL. These sample are selected according to the judgment and convenience sampling

3.3 Nature and sources of data

It is the data on which the analysis is done, evaluated and the results are obtained. Data is the foundation on which the research is performed.

There are two sources from, which the data can be collected namely the primary sources of data and secondary data. A primary source is one that it collects the data; primary data are those, which are collected at fresh and for first time and those happen to be original in nature. The research directly goes to the field and collects necessary information for the study by observation interview with he concerned one.

Secondary data source is one that makes available data that were collected by some other agency. Secondary data are those, which have already been passed through statistical proceeds. They are collected from various published and unpublished sources and were already been used by researcher.

The study is mainly based on his data tabulated from financial statement of selected banks for the study for the period of six years i.e.2004/05 to 2009/10. Which have been derived from NEPSE website ([www. Nepalstock.Com](http://www.Nepalstock.Com)). Also the annual report of concerned bank data related to the market price of stock market capitalization, movement of NEPSE index etc. is taken from trading report published by NEPSE and the website of Nepal stock exchange. Therefore, data for

the study have been primarily secondary in nature. During the study information opinion survey has also been taken with the individual related person

3.4 Techniques of Analysis:

For this study descriptive and inferential techniques are applied as techniques of analysis. Descriptive analysis is based a profitability ratio, standard deviations and co-efficient of variation. The trends of return, trend equation with their predicted values are also computed. Apart from this Karl person's coefficient of correlation is also calculated to describe the nature of relationship between risk and return.

For the inferential analysis, null and alternative hypothesis were formulated and tested in ANOVA. if critical value of F ratio were than the calculated value of 5% level of significance with (N-K, K-1) degree of freedom, the null hypothesis will be accepted and alternative hypothesis will be rejected otherwise vice versa.

3.5 Analytical tools:

For the analysis of data, appropriate tools are to be unutilized in order to secure the required findings of the study. All those tools, which are used tor the analysis and interpretation of the data's knows as analytical tools, there are two typws of analytical tools applied in the study. They are;

Statistical tools

Financial tools

3.5.1 Statistical tools:

Statistical tools include arithmetic mean (Return on common stocks), standard deviation and coefficient of variation, Karl person's trend analysis, coefficient of variation, correlation regression and (ANOVA).

a. Arithmetic Mean: Arithmetic Mean is the most popular and widely used measure for representing the entire data by one value and which is also

known as average. Adding all the items together and then dividing this total by number of items added, the value of mean is determined. Mean is used to find out the expected rate of return of common stock.

It is denoted by:

$$E(R_j) = \frac{R_1 + R_2 + R_3 + \dots + R_n}{n}$$

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

Where

$E R_j$ Expected rate of return of j stock

R = Return on stock

N = no of years that the return is taken

Σ = Sign of summation

b. Returns on market:

It is the percentage increase in NEPSE index. Market return is the average return of market as 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 of 't' time

NI_{t-1} = NEPSE index at 't' - 1 time

c. Expected Return on market [E (R_m)]:

It is average return for future expected. It is calculated by summing up the past return and dividing by number of samples of period.

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

$E(R_m)$ = Expected return on Market

$\sum E(R_m)$ = Summation of market return

n = Number of sample period

d. standard deviation

Standard deviation is the absolute measure of dispersion. Absolute measure of dispersion or variation of items around their expected value i.e. arithmetic means standard deviation is also regarded as root mean square of deviation. Because it is the squared root of the mean of the square deviation. It is derived from the arithmetic mean, The standard deviation is derived so that high S.D. represented a large of return and high risk and vice vers.

Symbolically

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

$\Sigma\sigma_j$ = standard deviation of stock

R_j = single period rate of return on stock j

$E(E_i)$ expended rate of return on stock j

n= No of years that the return are taken

If probability is given

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

Where P_j = Probability distribution of observation.

e. Coefficient of variation (CV): Coefficient of variation is the relative measure of dispersion, Relative measure of dispersion is the ration of absolute dispersion to an appropriate average. It measures risk unit of return. It provides more meaningful basis for comparison when the expected returns on two alternatives are same the higher the coefficient of variation, the higher the risk and vice versa.

Symbolically, it can be expressed as:

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

C.V. = Co-efficient of variation of stock j

σ_j = Standard deviation of return as stock j.

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

The series for which the coefficient of variation is greater is said to be more variable or more risky, less consistent, less uniform or less homogeneous and vice versa.

f. Beta co-efficient: Beta coefficient is an index that measures the systematic (un-diversifiable) risk of any stock. More specifically speaking, beta coefficient of any securities tells, how sensitive is that securities return with respect to the return in the market. Beta coefficient of particular stocks will be less than, equal or more than one. But beta coefficient of market will be always one. If beta of stock is less than one, than the stock is defensive and if the beta coefficient or stock is more than one then stock is aggressive.

g. Portfolio Return: The return gained from the investment in two or more than two assets an investment is known as portfolio return. The expected return on portfolio may be defined as weighted average of expected return on the assets, which comprise the portfolio. The weight reflects the proportion of the portfolio or wealth invested in each asset.

There are various method that can be used for determining trend such as trend percentage method lest square, graphical method and like that. However the method used in this study is the method of lest squares and to make the study simple and easy to understand. Graphical method is also used.

H .a. method of least Squares:

The method of lest square is widely used in practice with the help of this method: a trend line is fitted to the data in such a manner that the following two conditions are fulfilled.

$$i. \Sigma (Y - Y_n) = 0$$

Where,

Y= actual dependent variable value.

Y_n = computes value for different n periods

N = 1, 2, 3, 4... n.

ii. $\Sigma (Y - Y_n)^2 =$ are lest i.e sum of the deviations of the actual and computed value is least from this line and hence the name is given the method of least square.

The method of least square may be use either to fit a straight-line trend or parabolic trend. The straight-line trend is represented by the equation.

$$Y_n = a + bx$$

Where,

Y_n = is used to designate the trend values to distinguish from the Y values

a = is the Y intercept.

b= is the slope of the trend line

x= is the independent variable that represents time taking mid point as original.

Symbolically

$$a = \frac{\Sigma Y}{N}$$

$$b = \frac{\Sigma XY}{\Sigma X^2}$$

Where,

ΣY = sum of the value of dependent variable Y

N = No. of observation

ΣXY = sum of the variable X and Y multiplied

ΣX^2 = sum of the squares value of variable.

The constant 'a' is equal to men of Y value and the constant 'b' gives the rate of change.

H. b. Graphical Method

Graphical method used in the study shares the calculated or predicted value for different five years derived from the trend equation. The graphical method used in the study is presented with a view of supporting the4 tabulated values of trend equation and trend values of selected commercial banks on the X-axis of the graph

fiscal years are presented and on Y-axis the banks with their predicted values are shown.

i. Analysis of Variance

Analysis of Variance or ANOVA is statistical technique developed by R.A. Fisher designed specially to test whether the mean value is more than two quantitative population or equal. It tests the null hypothesis that two or more sample come from population with equal mean and i.e different only due to sampling error.

The f- test mechanism is used in analysis of variance. This technique is used in present study to test the null hypothesis that mean value of various parameters of six years of selected banks are equal and come from the sample or similar population.

Step 1- Formulate the null and alternative hypothesis.

Step 2 – Compute variance between the samples sing following procedure:

Compute the mean of each sample i.e. X

1. Compute the deviation of the sample mean from the grand means and square these deviations and multiply by the sample size. This will give sum of squares in column (SSR).
2. Compute the mean square between the samples (MSR).

$$MSR = \frac{SSR^1}{K-1}$$

Where

K = No. of sample

K-1 = Degrees of freedom.

Step- 3 Compute variance within the samples using following:

Procedure

- 1) Compute the mean value of each sample
- 2) Sum the squares of deviation values sample items from their mean.
- 3) Repeat (2) for all sample and obtain the total of sum squares of deviation of various samples from their respective means (SSR)
- 4) Calculate the mean square within the sample (MSR)

$$MSR = \frac{SSR}{N-K}$$

- 5) Calculate the total sum of squares of variations.

$$SST = SSR + SSE$$

Step-4 Prepare the ANOVA table

Source variation	of	SS	df	Ms	F-ration	Result
Explain variance		SSR	K-1	MRS--=SSC/K-1		
unexplained variance		SSE	N-1	MSE=SSE/N-K		
Total		SST	N-1			

Where,

SS = sum of square

df = degree of freedom

MS = mean square

$$\text{F-Ratio} = \frac{\text{Explain variance}}{\text{Unexplained variance}}$$

Step- 5 Make Decision

If Compute value of F is less than the critical value says at 5..... Level of significance. Ho accepted otherwise, H1 is accepted.

j. Karl Pearson's coefficient of correlation

Correlation is an analysis of co-variation between two or more variables. If two or more quantities vary in such a way that movement in the other accompany movement in one these quantities are said to be correlated. It is statistical device that helps to analyze the co-movement between two of more variables. The correlation co-efficient however only helps to determine the extent to which two variables are correlated but does not full us about the case and effect of the relationship. Even there is high degree of correlation between two which one is the cause and which one is the effect.

Correlation may be positive or negative. It return on two securities one negatively correlation which combined in portfolio reduces the risk. If securities are positively correlated risk can not reduce.

The person's coefficient of correlation is mathematically expressed as

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where, r= Karl Pearson's coefficient of correlation.

K = No. of observation

$\sum x$ = Sum of the values of variables

$\sum y$ = Sum of the values of variables Y

$\sum xy$ = sum of the multiplied variables of X and Y

$\sum y^2$ = sum of the square values of variable y

$\sum x^2$ = sum of the square values of variable x.

The values of correlation co-efficient always lie between +1 to -1.

1. Regression Analysis:

Regression analysis is the statistical tools, which is used to determine the statistical relationship between tow (or more) variable. It is simple a relationship between dependent variable and independent variable. This analysis helps to identity sensitivity of return on various the financial variables. In this model, we study following relationships:

- i) **Simple regression model.**
- ii) **Multiple regression models.**

i. Simple Regression Model

In this model one dependent variable and one independent variable is used to measure the regression. If Y is the liner function of X, Y on X can be express as

$$Y = a + bx$$

Where,

Y = Dependent variable

X = Independent variable

a,b = Regression parameters

ii. Multiple Regression Model

Multiple regression equation describes the average relationship between one dependent and two or more independent variables and this relationship is used to predict (or control) the dependent variable.

The multiple regression equation of dependent variables Y on X independent variables, $X_1 X_2 X_3 \dots \dots \dots X_n$ can generally be expressed as:

$$Y = a + b_1x_1 + b_2x_2 + \dots \dots \dots b_nx_n$$

To test the significance of model as well as its validity following test should be done.

- i) **Coefficient of determination**
- ii) **F- statistics**

3.5.2 Financial tolls

Financial tolls are applied to find out rate of return

1. Market price of stock (MPS)

If the market prices of share of companies are followed then it can be found that are three types of prices, high, low and closing. For the analysis single one is needed, so average price (that of high and low) or closing approaches can be used. Here in the study, the closing price is taken as market price of stock, which has specific time of sjwn of one year and the study has focused in annual basis. To get the real average volume and price of each transaction in the whole year are essential, which is tedious and impossible to consider the data availability and maintenance. Hence the closing price is used as the market price of stock.

2. Dividend per share (DPS)

1. Dividend is relevant during the computation of rate of return, which is reward to shareholder's for their investment. If a company declares only the cash divided, there is no problem to take the dividend; it is difficult to obtain declines as a result of increased number of stock. To get the real amount of dividend following model has been used.

Total dividend amount = cash dividend +% of stock dividend/X next year MPS.

Sometime the company issued right issued at par. In this situation we can calculate total dividend amount by

Total dividend = cash dividend + Right share (next year MPS- Price of right share.)

3. Return on common stock

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

Symbolically

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

R_j = annual rate of return at time

P_t = price of security at 't' time

P_{t-1} = price of security at 't-1' time

D_t = cash dividend received during the t period

Chapter IV

PRESENTATION AND ANALYSIS OF DATA

In this the effort has been made to analyze risk and return on common stock investment which includes detail date 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 is 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 six fiscal years (2004/005 to 2010/11) 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 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 including regression analysis based o

expected return as dependent beta and correlation coefficient with the market as independent.

4.1. ANALYSIS OF INDIVIDUAL COMMERCIAL BANKS

As the study considered special reference to listed commercial banks. Among commercial banks operating in Nepal, only five commercial banks have taken as sample. These are Everest Bank Ltd. (EBL), Nepal SBI Bank Ltd. (SBI), Nepal Arab Bank Ltd. (NABIL) and Standard Chartered Bank Ltd. (SCBNL).

4.1.1. Everest Bank Ltd

Everest Bank Ltd was established in 1994 A.D. 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 20% equity shares, 50% equity by

4.1.1.1. Following table No 4.1 represents the market prize of the share and dividend per share of EBL bank for purpose of risk and return analysis.

Table No 4.1

MPS and DPS data of EBL

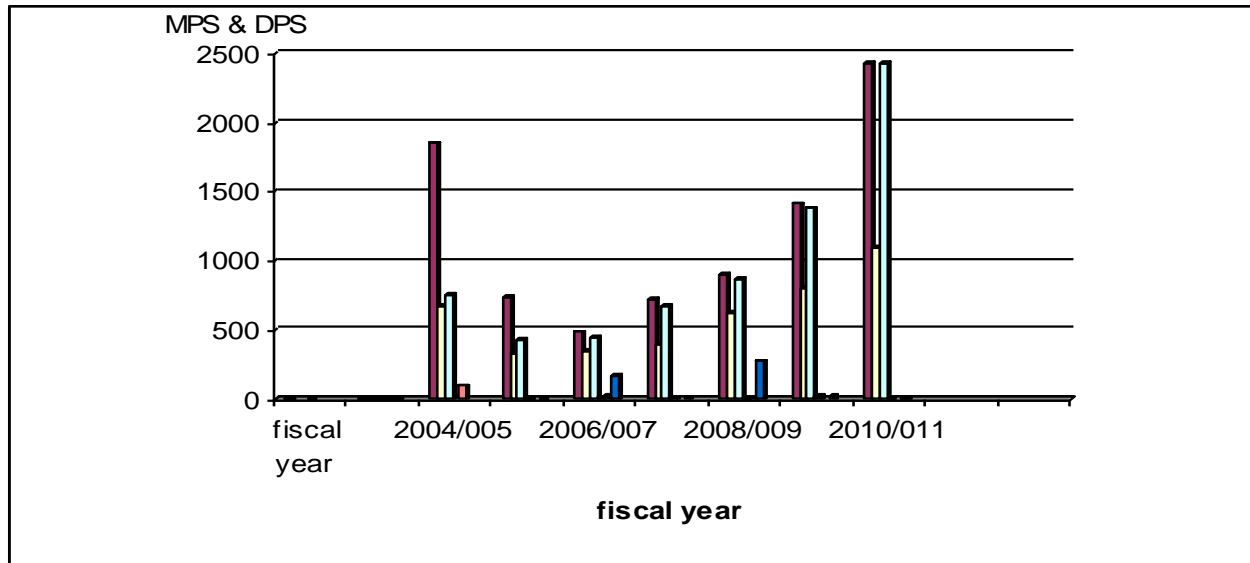
Fiscal Year	Market price per share			dividend per share		
	High	Low	Closing	Cash	Stock %	Total
2004/005	1850	670	750	-	100	-
2005/06	740	235	430	0	-	0
2006/07	490	349	445	20	22	169.60
2007/08	723	400	680	20	-20	20
2008/09	905	625	870	0	20	275.80
2009/010	1410	800	1379	25	-	25
2010/011	2430	1100	2430	10	-	10

Sources: NEPSE index and AGM report of EBL [appendix -1]

*20+22% of 680=169.60

**0+20% of 1379=275.80

Diagram No 4.1
MPS and DPS of EBL



Market price per share is maximum in F/Y 2010/011 and lowest in F/Y 2005/06.

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

TABLE NO 4.2

Rate of return, Expected return and SD and CV of common stock of EBL

<i>Fiscal Year</i>	<i>Closing price</i>	<i>Dividend</i>	$R = \frac{Pt - Pt-1 + D1}{Pt-1}$	$[R - E(R)]$	$[R - E(R)]^2$
2004/005	750				
2005/06	430	0	-0.43	-0.872	0.76.4
2006/07	445	169.60	0.43	-0.012	0.0001
2007/08	680	20	0.57	0.128	0.016
2008/09	870	275.80	0.69	0.248	0.0615
2009/010	1379	25	0.61	0.168	0.0282
2010/011	2430	10	0.78	0.338	0.1142
Total			2.69		0.98.8

Sources table No. 4.1

We have

$$\text{Expected Return } E(R) = \sum R/N = 2.65/6 = 0.442 = 44.2\%$$

$$\text{Standard deviation } (\delta) = \sqrt{\frac{[R-E(R)]^2}{N-1}} = \sqrt{\frac{0.9809}{6-1}} = 0.4492$$

$$\text{Coefficient of variation (C.V.)} = \delta/E(R) = \frac{0.4429}{0.4420} = 1.002$$

4.1.1.3. Trend values for each year are calculated on the base rate of return on common stock of EBL respectively year by using least square method as follows.

Table No 4.3 shows the calculation of trend value of common stock of EBL

Table No 4.3

Trend value of EBL

Fiscal Year	Rate of return	of Definition from F/Y	XY	X	Trend Value
2005/06	-0.43	-2.5	1.075	6.25	-0.037
2006/07	0.43	-1.5	-0.645	0.25	0.154
2007/08	0.57	-0.5	-0.285	0.25	0.346
2008/09	0.69	0.5	0.345	0.25	0.538
2009/010	0.61	1.5	0.915	0.25	0.730
2010/011	0.78	2.5	1.95	6.25	0.921
	2.65	0	3.335	17.5	

Sources Table No 4.2

We have

The equation of trend line is $Y_c = a + bx$

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

$$b = \frac{\sum XY}{\sum X^2} = \frac{3.335}{17.5} = 0.1836$$

Now trend line equation is $Y_c = a + bx$

When

$$X = -2.5 \quad Y_c = 0.2895 + 0.1836x (-2.5) = -0.1695$$

$$X = -1.5 \quad Y_c = 0.2895 + 0.1836x (-1.5) = 0.0141$$

$$X = -0.5 \quad Y_c = 0.2895 + 0.1836x (-0.5) = 0.1977$$

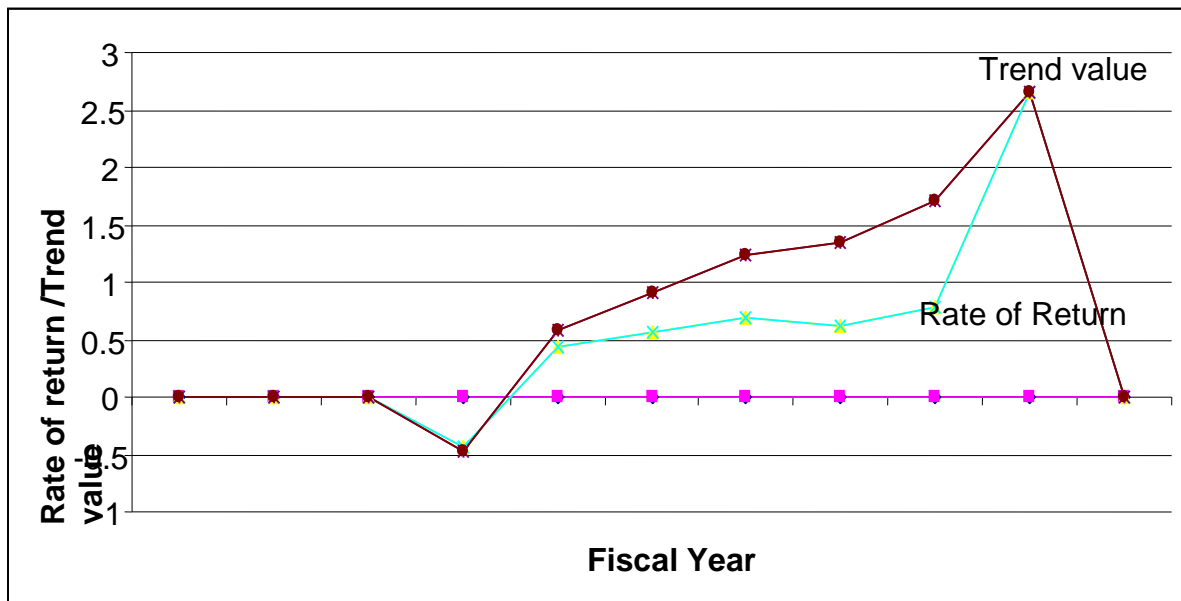
$$X = 0.5 \quad Y_c = 0.2895 + 0.1836x (0.5) = 0.3813$$

$$X = 1.5 \quad Y_c = 0.2895 + 0.1836x (1.5) = 0.5619$$

$$X = 2.5 \quad Y_c = 0.2895 + 0.1836x (2.5) = 0.7485$$

Diagram No. 4.2

Movement of stock rate of return and trend line of EBL



Source: Table No 4.3

Above diagram shows that movement of stocks of HBL bank rate of returns and trend line of EBL bank. In the begin rate of return in F/Y 2005/006 is negative and firstly move upward and become positive in 2006/007 and highest in F/Y 2010/011. Similarly, trend value is negative in F/Y 2005/006 gradually moves upward and becomes positives in F/Y 2006/007.

4.1.2. Himalayan Bank Ltd.

Himalayan Bank Ltd. 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 Ltd. is join venture commercial bank with Habik Bank Ltd. of Pakistan. Now its 20% share is hold by Habik Bank of Pakistan and 80% equity hold by Nepalese promoters, financial institution, organization institution, 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	Low	Closing	cash	Stock %	Total
2004/005	2726	1325	1500	27.5	25	
2005/06	1530	610	1000	25	30	275.80
2006/07	950	750	836	1.31	10	85.31
2007/08	1010	600	840	0	25	230
2008/09	1181	855	920	11.58	20	231.58
2009/010	1200	900	1100	30	20	382
2010/011	1760	950	1760	15	5	114
			1980			

Sources: NEPSE index and AGM report of HBL {appendix II}

Total dividend = cash +% of stock divided x next year MPS

* 25+30% of 836=275.80

** 1.31+10% of 840=85.31

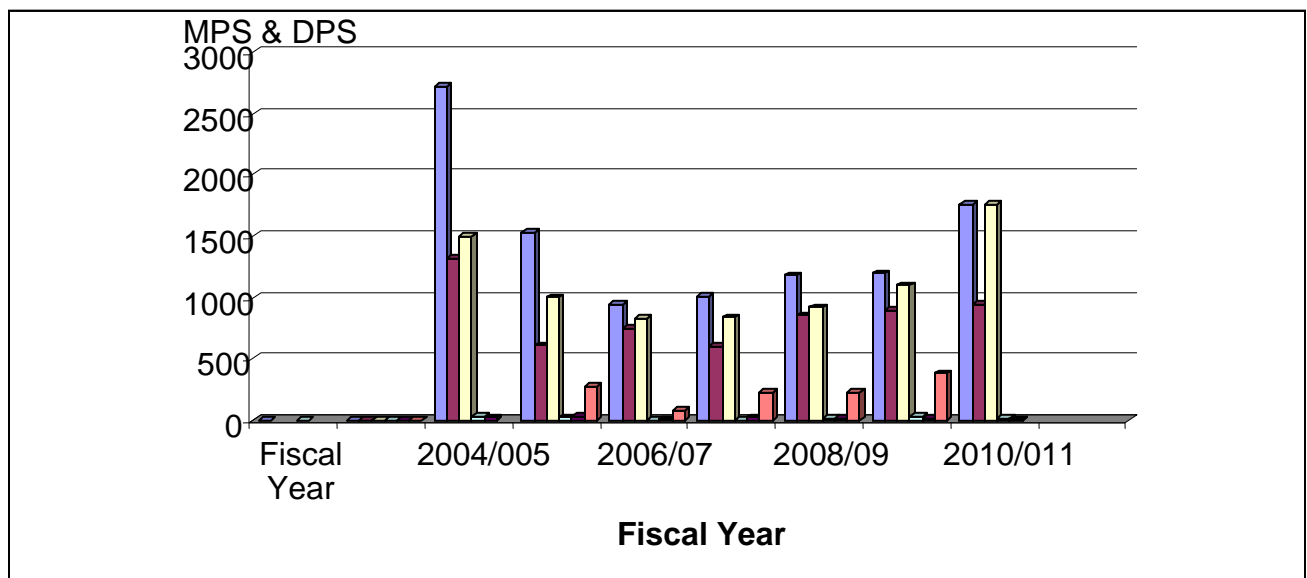
*** 0+25% of 920=230

**** 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 highest in F/Y 2010/011

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

Table No 4.5

Rate of return, expected return, SD and CV of common stock of HBL

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
2004/005	1500				
2005/06	1000	275.80	-0.1495	-0.439	0.1927
2006/07	836	85.31	-0.0787	-0.3682	0.1356
2007/08	840	230	0.2799	-0.0096	0.0001
2008/09	920	231.85	0.3709	0.0814	0.0066
2009/010	1100	282	0.6109	0.3214	0.1033
2010/011	1760	114	0.7036	0.4141	0.1715
			1.7371		0.6098

Sources table No 4.4

We have

$$\text{Expected return } E(R) = \frac{\sum R}{n} = \frac{1.7371}{6} = 0.2895$$

$$\begin{aligned} \text{Standard deviation } (\sigma) &= \sqrt{\frac{[R-E(R)]^2}{n-1}} = \sqrt{\frac{0.6098}{6-1}} \\ &= \sqrt{0.1220} = 0.3493 \end{aligned}$$

$$\text{Coefficient of variation} = \frac{\sigma/E(R)}{\sigma} = \frac{0.3493}{2.8595} = 1.2066$$

4.1.2.3. Trend value for each year is calculated on the base rate of return on common stock of HBL respectively year by using least square method as follows.

Table No 4.6 shows the calculation of trend value of common stock of HBL

Table No 4.6
Trend value of return of HBL

Fiscal Year	Rate of return(Y)	Deviation from F/Y 2008	XY	X ²	Trend value Yc
2005/06	-0.1495	-2.5	0.3738	6.25	-0.1695
2006/07	-0.0787	-1.5	0.1181	2.25	1.0141
2007/08	0.2799	-0.5	-0.1400	0.25	0.1977
2008/09	0.3709	0.5	0.1855	0.25	0.3813
2009/10	0.6109	1.5	1.9164	2.25	0.5649
2010/11	0.7036	2.5	1.7590	6.25	0.7485
	1.7372	0	3.2128	17.5	

Sources table No 4.2

We have

The equation of trend line is

$$Y_c = a + bx$$

$$\sum x = 0$$

$$a = \frac{\sum Y}{N} = \frac{1.7371}{6} = 0.2895$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{3.2128}{17.5}$$

$$= 0.1836$$

Now

Trend line equation $Y_c = a + bx$

When

$$X = -2.5 \quad Y_c = 0.2895 + 0.1836x \quad (-2.5) = -0.1695$$

$$X = -1.5 \quad Y_c = 0.2895 + 0.1836x \quad (-1.5) = 0.0141$$

$$X = -0.5 \quad Y_c = 0.2895 + 0.1836x \quad (-0.5) = 0.1977$$

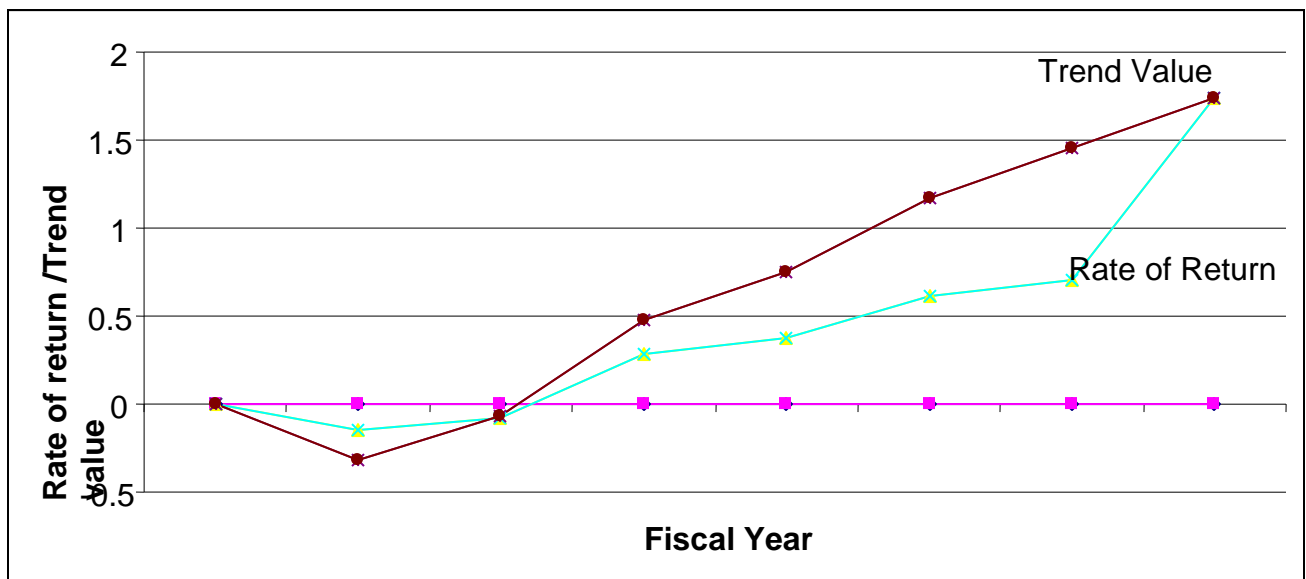
$$X = 0.5 \quad Y_c = 0.2895 + 0.1836x \quad (0.5) = 0.3813$$

$$X = 1.5 \quad Y_c = 0.2895 + 0.1836x \quad (1.5) = 0.5649$$

$$X = 2.5 \quad Y_c = 0.2895 + 0.1836x \quad (2.5) = 0.4785$$

Diagram No 4.4

Movement of stock rate of return and trend line of HBL



Above diagram shows that movement of stocks of HBL bank rate of returns and trend line. In the beginning rate of return and trend line both are negative in F/Y 2005/006, and 2007/008 trend line and rate of return respectively.

4.1.3 Nepal SBI Bank Ltd.

Nepal SBI Bank Ltd. is a fifth joint venture of state bank of India and Nepalese promoters. It was established in 1993 A.D. under the company act. 1964. The bank is managed by state bank of India. The main objective 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 NSBI for the purpose of risk and return analysis.

Table No 4.7

MPS and DPS data of NSBI

Fiscal Year	Market price per share			Divided per share		
	High	Low	Closing	Cash	Stock %	Total
2004/005	2690	1150	1500			
2005/06	1600	300	401	0	200	510
2006/07	410	255	255	8	-	8
2007/08	307	231	307	0	-	0
2008/09	480	315	365	0	-	0
2009/010	689	335	612	5	5	63.80
2010/011	1176	505	1176	12.59	47.59	731.67
			1511			

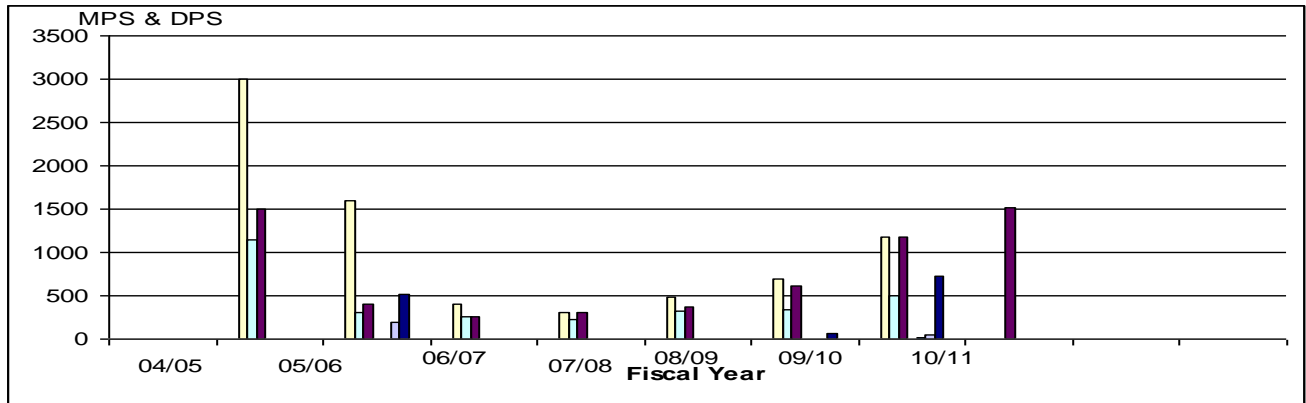
Sources NEPSE index and AGM report of NSBI [appendix IIIA]

* $0+200\%$ of 255=510

** $5+5\%$ of 1176=63.80

*** $12.59+47.59\%$ of 1511=731.67

Diagram No 4.5
MPS and DPS date of NSBI



Market price per share is highest in F/Y 2010/011 and lowest in 2005/006

4.1.3.2. Calculation of rate of return, expected returns standard deviation and coefficient variation of common stock of NSBI.

Table No 4.8

Rate of return, expected return, SD and cv of common stock of NSBI

Fiscal Year	Closing price	Dividend	$R = \frac{Pt - Pt_{-1} + Dt}{Pt_{-1}}$	$[R - E(R)]$	$[R - E(R)]^2$
2004/005	1500				
2005/06	401	510	-0.3927	-0.8302	0.6892
2006/07	255	8	-0.3441	-0.7816	0.6109
2007/08	307	0	0.2039	-0.2336	0.0546
2008/09	365	0	0.1890	-0.2485	0.0618
2009/010	612	63.80	0.85.15	0.414	0.1714
2010/011	1176	731.67	2.1171	1.6796	2.8211
			2.6247		

Source table No 4.7

We have

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

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{R-E(R)}{n-1}} = \sqrt{\frac{4.4090}{6-1}}$$

$$=0.9390$$

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

4.1.3.3. Trend value for each year is calculated on the base rate of return on common stock of NSBI respectively year by using least square method as follows. Table No 4.9 shows the calculation of trend value of common stock.

Table No 4.9
Trend value of return of NSBI

Fiscal Year	Rate of return(Y)	Deviation from F/Y 2008	XY	X ²	Trend value Yc
2005/06	-0.3927				
2006/07	-0.3441	-1.5	0.5162	2.25	-0.2536
2007/08	0.2039	-0.5	-0.1020	0.25	0.2072
2008/09	0.1890	0.5	0.0945	0.25	0.6679
2009/010	0.8515	1.5	1.2773	2.25	1.1286
2010/011	2.1171	2.5	5.2938	6.25	1.5893
	2.6247	0	8.0606	17.5	

Source: Table No 4.8

We have

The equation of trend line is

$$Y_c = a + bx$$

$$\sum X = 0$$

$$a = \sum Y / n = 2.6247 / 6 = 0.4375$$

$$b = \frac{\sum XY / X^2 = \frac{8.06165}{17.5}}{=} = 0.4607$$

Now

Trend line equation $Y_c = a + bx$

When

$$X = -2.5 \quad Y_c = 0.4375 + 0.4607x (-2.5) = -0.7143$$

$$X = -1.5 \quad Y_c = 0.4375 + 0.4607x (-1.5) = -0.2536$$

$$X = -0.5 \quad Y_c = 0.4375 + 0.4607x (-0.5) = 0.2072$$

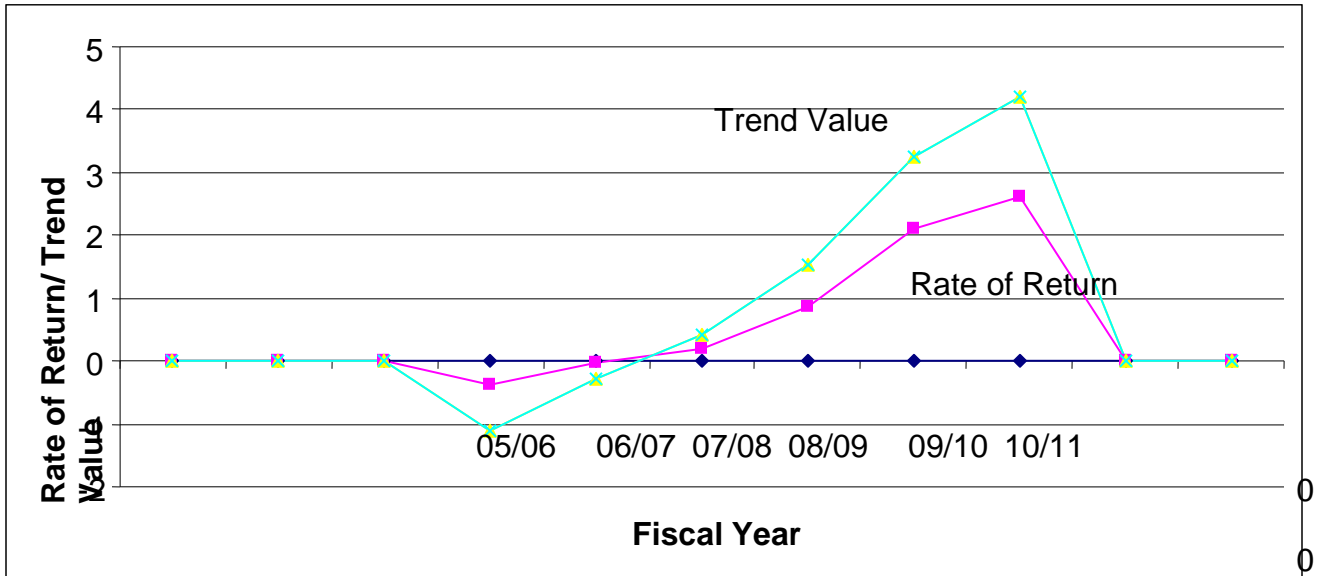
$$X = 0.5 \quad Y_c = 0.4375 + 0.4607x (0.5) = 0.6679$$

$$X = 1.5 \quad Y_c = 0.4375 + 0.4607x (1.5) = 1.1286$$

$$X = 2.5 \quad Y_c = 0.4375 + 0.4607x (2.5) = 1.5893$$

Diagram No 4.6

Movement of stock rate of return and trend line of SBI.



Source Table No 4.9

Above diagram shows that movement of stock of NSBI bank Ltd, rate of returns and trend line. In the beginning trend value of NSBI in F/Y 2005/006 is low and gradually moves upward. And rate of return is in positive in 2007/008 and again slightly moves downward and than moves gradually upward.

4.1.4 Nepal Arab Bank Ltd.

Nepal Arab Bank Ltd. is the first joint venture commercial bank I Nepal. It is the joint ventures of Nepalese promoters and Emirates Bank international (Dubai) and established in 1984 A.D. Its 50% of equity shares hold by Emirates Bank international, 20% equity hold by Nepalese promoters and financial institution and remaining 30% have issued to general public of Nepal. The authorized capital is 50 crores. The issued capital 49.16 crores and the paid up capital is 49.10 crores.

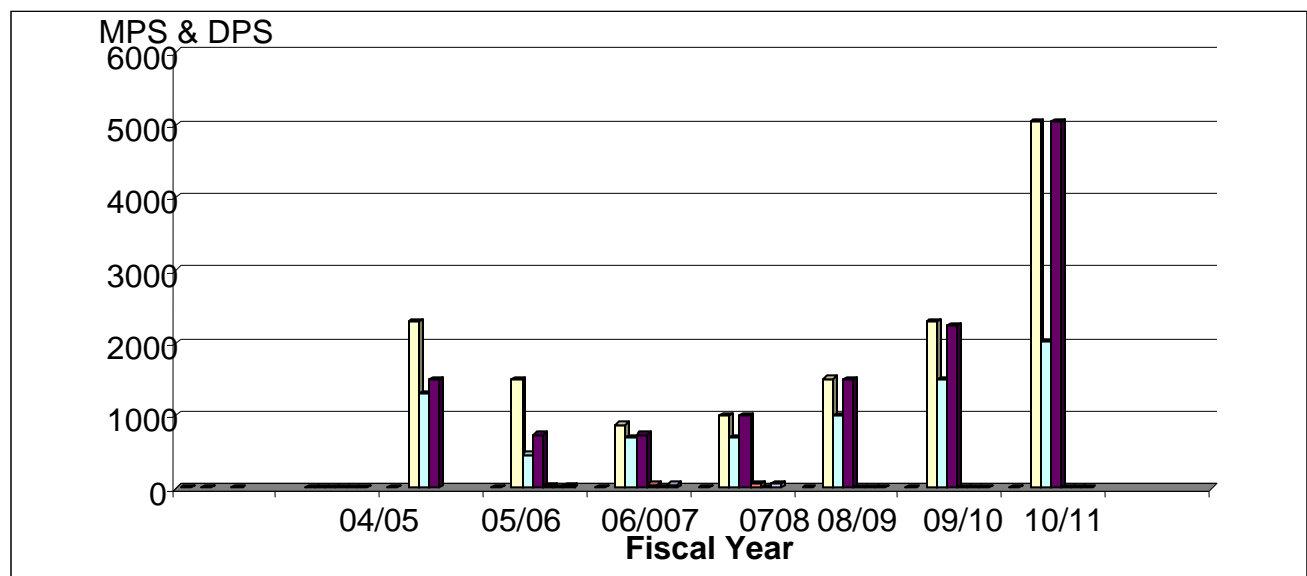
4.1.4.1. Following table No 10 shows market price per share (MPS) and divided per share (DPS) of stock of NABIL for the purpose of risk and return analysis.

Table No 10
MPS and DPS data of NABIL

Fiscal Year	Market price per share			Dividend per share		
	High	Low	Closing	Cash	Stock %	Total
2004/005	2301	1310	1500			
2005/06	1500	465	735	30	-	30
2006/07	875	700	735	50	-	50
2007/08	1005	705	1000	65	-	65
2008/09	1515	1000	1505	0	-	0
2009/010	2300	1500	2240	5	-	5
2010/011	5050	2025	5050	12.59	-	12.59

Sources: NEPSE index and AGM report of NABIL [appendix IV (A)]

Diagram No 4.7
MPS and DPS data of NABIL



Market price per share is highest in F/Y 2010/011 and lowers in 2005/006

4.1.4.2. Calculation of rate of return, expected return, standard deviation and coefficient of variation of common stock of NABIL.

Table No 4.11

Rate of return, expected return, SD and cv of common stock of NABIL

Fiscal Year	Closing price	Dividend	$R = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$[R - E(R)]$	$[R - E(R)]^2$
2004/005	1400				
2005/06	735	30	-0.45	-0.91	0.8281
2006/07	735	50	0.07	-0.39	0.1521
2007/08	1000	65	0.45	-0.01	0.0001
2008/09	1505	0	0.51	0.05	0.0025
2009/010	2240	5	0.49	0.03	0.0009
2010/011	5050	12.59	1.26	0.80	0.6400
			2.78		1.6237

Sources: Table No 4.10

We have
 Expected return $E(R) = \sum R/n = \frac{2.78}{6} = 0.4633$

Standard deviation $(\sigma) = \sqrt{\frac{[R - E(R)]^2}{n-1}} = \sqrt{\frac{1.6237}{6-1}} = 0.5699$

Coefficient of variation $= \sigma/E(R) = \frac{0.5699}{0.4633} = 1.23$

4.1.4.3. Trend value for each year is calculated on the base rate of return on common stock of NABIL respectively year by using least square method as follows. Table No 4.12 shows the calculation of trend value of common sock of NABIL.

Table No 4.12
Trend value of return of NABIL

Fiscal Year	Rate of return(Y)	Deviation from F/Y 2008	XY	X ²	Trend value Yc
2005/06	-0.45	-2.5	1.125	6.25	-0.24
2006/07	0.07	-1.5	-0.105	2.25	0.04
2007/08	0.45	-0.5	-0.225	0.25	0.32
2008/09	0.51	0.5	0.255	2.25	0.60
2009/10	0.49	1.5	0.735	2.25	0.88
2010/11	1.26	2.5	3.15	6.25	1.16
	2.78	0	4.395	17.5	2.76

Sources: Table No 4.11

We have

The equation of trend line is

$$Y_c = a + bx$$

$$\sum X =, \quad a = \sum Y / n = 2.78 / 6 = 0.4633$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{4.935}{17.5} = 0.28$$

Now

Trend line equation $Y_c = a + bx$

When $X = -2.5$ $Y_c = 0.46 + 4.28x (-2.5) = -0.24$

$X = -1.5$ $Y_c = 0.46 + 4.28x (-1.5) = 0.04$

$X = -0.5$ $Y_c = 0.46 + 4.28x (-0.5) = 0.32$

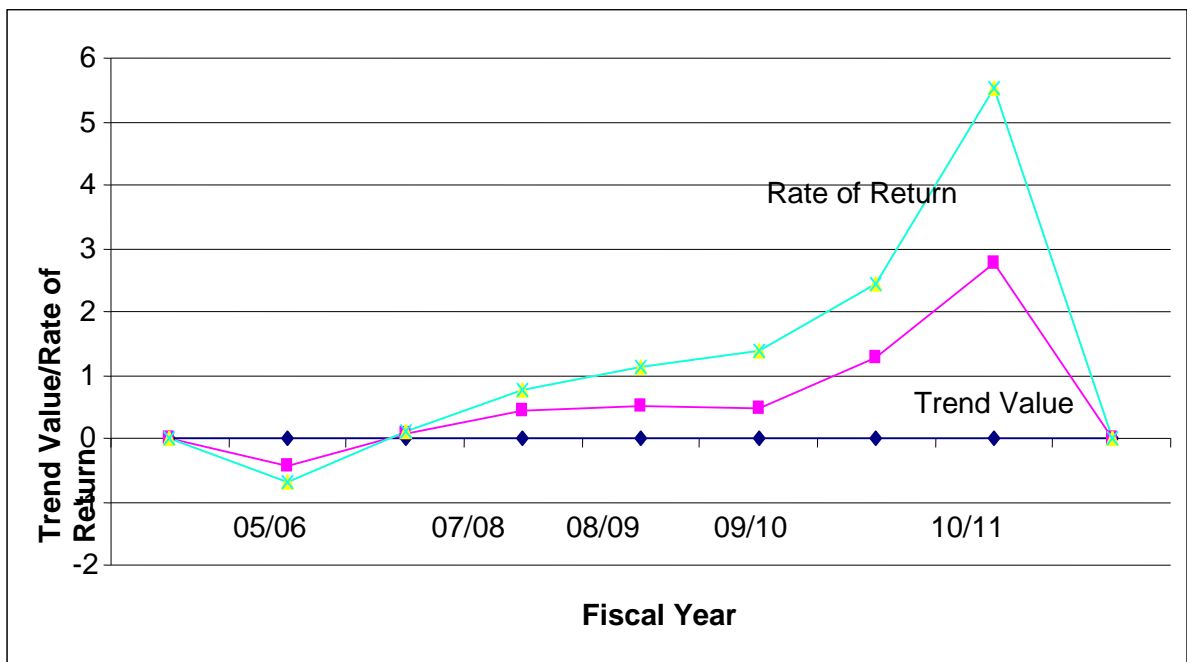
$X = 0.5$ $Y_c = 0.46 + 4.28x (0.5) = 0.60$

$X = 1.5$ $Y_c = 0.46 + 4.28x (1.5) = 0.88$

$X = 2.5$ $Y_c = 0.46 + 4.28x (2.5) = 1.16$

Diagram No.4.8

Trend value of return of NABIL



Above diagram shows that movement of stock's of NABIL bank rate return and trend line in the beginning both are negative in F/Y 2005/006 and become positive in F/Y 2006/007 and then trend line gradually moves upward. The rate of return slowly moves downward from F/Y 2007/008 to nearly 2008/009 and than fast moves upward.

4.1.5. Standard Chartered Bank Ltd.

Standard Chartered Bank Ltd. was formerly named as Grind lays Bank Ltd. It was established in 1985 A.D. AS foreign joint venture under the company act.1964. Nepal Grind lays bank was amalgamated in Standard Chartered banking group and the fifth present shares was transferred to it by the virtue of amalgamation in 2000.

4.1.5.1 Following table No 4.13 shows market price per share (MPS) and dividend per share (DPS) of stock of SCBNL for the purpose of risk and return analysis.

Table No. 4.13

MPS data of SCBNL

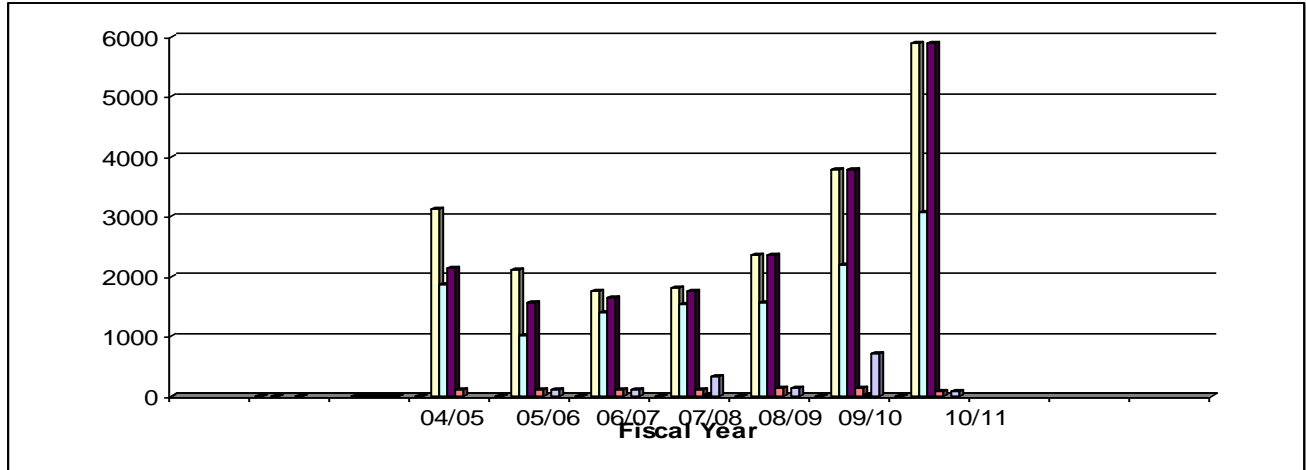
Fiscal Year	Market price per share			Dividend per share		
	High	Low	Closing	Cash	Stock %	Total
2004/005	3111	1860	2144	100	-	
2005/06	2100	1000	1550	100	-	100
2006/07	1760	1380	1640	110	-	110
2007/08	1800	1520	1745	100	-	110
2008/09	2350	1553	2345	120	-	120
2009/010	3775	2200	3775	120	10	710
2010/011	5900	3058	5900	80	-	80

Sources: NEPSE index and AGM report of SCBNL [appendix-V (A)]

*100+10% of 2345=334.5

**120+10% of 5900=710

Diagram No 4.9
MPS and DPS data of SCBNL



Market price per share in maximum in F/Y 2010/011 and lowest in F/Y 2005/006.

4.1.5.2. Calculation of rate of return, expected return, standard deviation and coefficient of variation of common stock of SCBNL.

Table No 4.14

Rate of return, expected return, SD and cv of common stock of SCBNL

Fiscal Year	Closing price(P)	Dividend 9(D)	Pt-Pt- 1+Dt R= ——— Pt-1	[R-E(R)]	[R-E(R)] ²
2004/005	2144				
2005/06	1550	100	-0.23	-0.58	0.3364
2006/07	1640	110	0.13	-0.22	0.484
2007/08	1745	334.5	0.27	0.08	0.0064
2008/09	2345	120	0.41	0.06	0.0036
2009/010	3775	710	0.91	0.56	0.3136
2010/011	5900	80	0.58	0.23	0.529
			2.07		

Sources: Table No 4.1

We have
 Expected return $E(R) = \sum R/n = \frac{2.07}{6} = 0.345$

Standard deviation (σ) = $\sqrt{\frac{[R-E(R)]^2}{n-1}} = \sqrt{\frac{0.7613}{6-1}}$

= $\sqrt{0.15226} = 0.3902$

Coefficient of variation $= \sigma/E(R) = \frac{0.3902}{0.345} = 1.1310$

4.1.5.3. Trend value for each year is calculated on the base rate of return on common stock of SCBNL respectively year by using least square method as follows. Table No 4.15 shows the calculation of trend value of common stock of SCBNL.

Table No 4.15
 Trend value of return of SCBNL

Fiscal Year	Rate of return(Y)	Deviation from F/Y 2008	XY	X ²	Trend value Y _c
2005/06	-0.23	-2.5	0.575	6.25	-0.1215
2006/07	0.13	-1.5	-0.195	2.25	0.0651
2007/08	0.27	-0.5	0.135	0.25	0.2517
2008/09	0.41	0.5	0.205	0.25	4383
2009/10	0.91	1.5	1.365	2.25	0.6249
2010/11	0.58	2.5	1.450	6.25	0.8115
	2.07		3.265	17.5	

Sources: Table No 4.14

We have
The equation of trend line is,

$$Y_c = a + bx$$
$$\sum X = 0, \quad a = \sum Y/n = 2.07/6 = 0.345$$

$$b = \frac{\sum XY}{\sum X^2} = \frac{3.265}{17.5} = 0.1866$$

Now

Trend line equation = $Y_c = a + bx$

Where

$$X = -2.5 \quad Y_c = 0.345 + 0.1866x (-2.5) = -0.1215$$

$$X = -1.5 \quad Y_c = 0.345 + 0.1866x (-1.5) = 0.0651$$

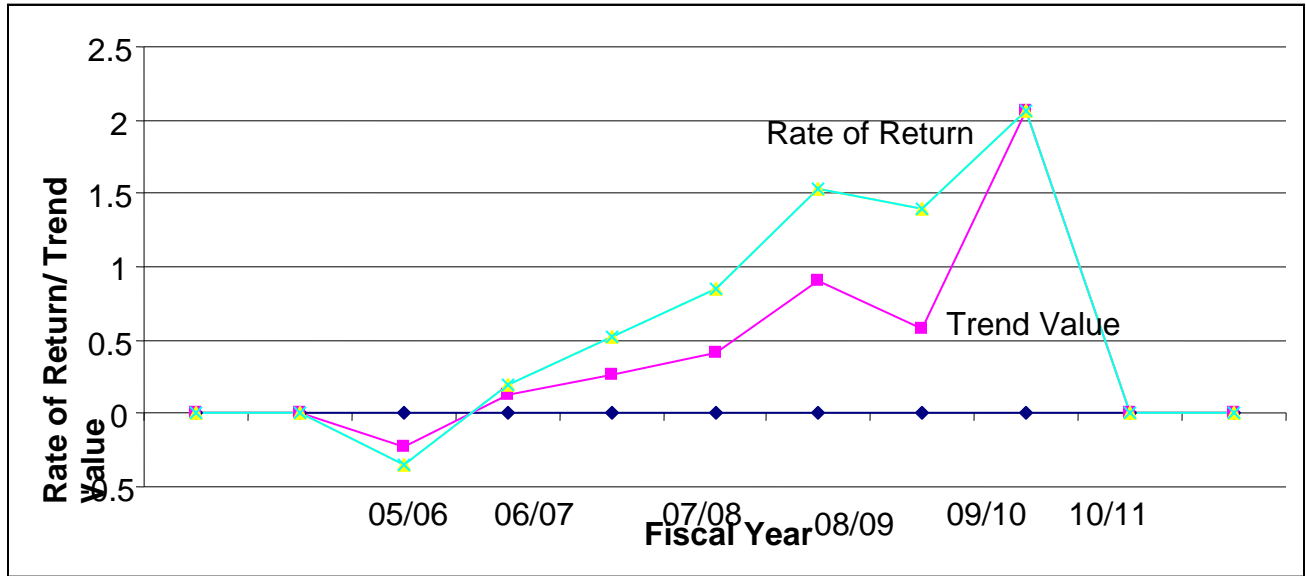
$$X = -0.5 \quad Y_c = 0.345 + 0.1866x (-0.5) = 0.2517$$

$$X = 0.5 \quad Y_c = 0.345 + 0.1866x (0.5) = 0.4388$$

$$X = 1.5 \quad Y_c = 0.345 + 0.1866x (1.5) = 0.6249$$

$$X = 2.5 \quad Y_c = 0.345 + 0.1866x (2.5) = 1.8115$$

Diagram No 4.10
Trend value of return of SCBNL



Sources: Table No 4.15

Above diagram shows movement of stock's of SCBNL bank rate of return and trend line in the beginning both are negative in F/Y 2005/006 and gradually moves upward. The rate of return is highest in F/Y 2009/010 and then slowly moves downward.

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.

Table No 4.16

Expect return, SD and cv of sample bank

Fiscal year	NEPSE index (NI)	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$R_m - E(R_m)$	$[R_m - E(R_m)]^2$
2004/005	348.43			
2005/006	227.54	-0.3470	-0.5561	0.3092
2006/007	204.80	-0.0999	-0.3090	0.0955
2007/008	222.04	0.0842	-0.1249	0.156
2008/009	686.67	0.2911	0.0820	0.0067
2009/010	300.05	0.467	-0.1624	0.264
2010/011	683.95	1.2795	1.0704	1.1458
		1.2546		1.5992

Source: NEPSE index

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

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

$$\sqrt{0.31984} = 0.5655$$

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

4.2.2. Trend value of each year is calculated on the basis of rate of return in market index respectively year by using least square method. The following table shows the calculation of year wise expected return of NEPSE index.

Table No 4.17
Trend value of sample bank

Fiscal Year	Rate of return(Y)	Deviation from F/Y 2008(X)	XY	X ²	Trend value Yc
2005/006	-0.3470	-2.5	0.8675	6.25	-0.9407
2006/007	-0.0999	-1.5	0.1499	2.25	-0.1671
2007/008	0.0842	-0.5	-0.0421	0.25	0.0837
2008/009	0.2911	0.5	0.1456	0.25	0.3345
2009/010	0.0467	1.5	0.0701	2.25	0.5853
2010/011	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

$$Y_c = a + bx$$

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

$$b = \frac{\sum XY}{\sum X^2} = \frac{4.3898}{17.5} = 0.258$$

Here

Trend line $Y_c = a + bx$

When $X = -2.5$ $Y_c = 0.2019 + 0.2508x (-2.5) = -0.9407$

$X = -1.5$ $Y_c = 0.2019 + 0.2508x (-1.5) = -0.1671$

$X = -0.5$ $Y_c = 0.2019 + 0.2508x (-0.5) = 0.037$

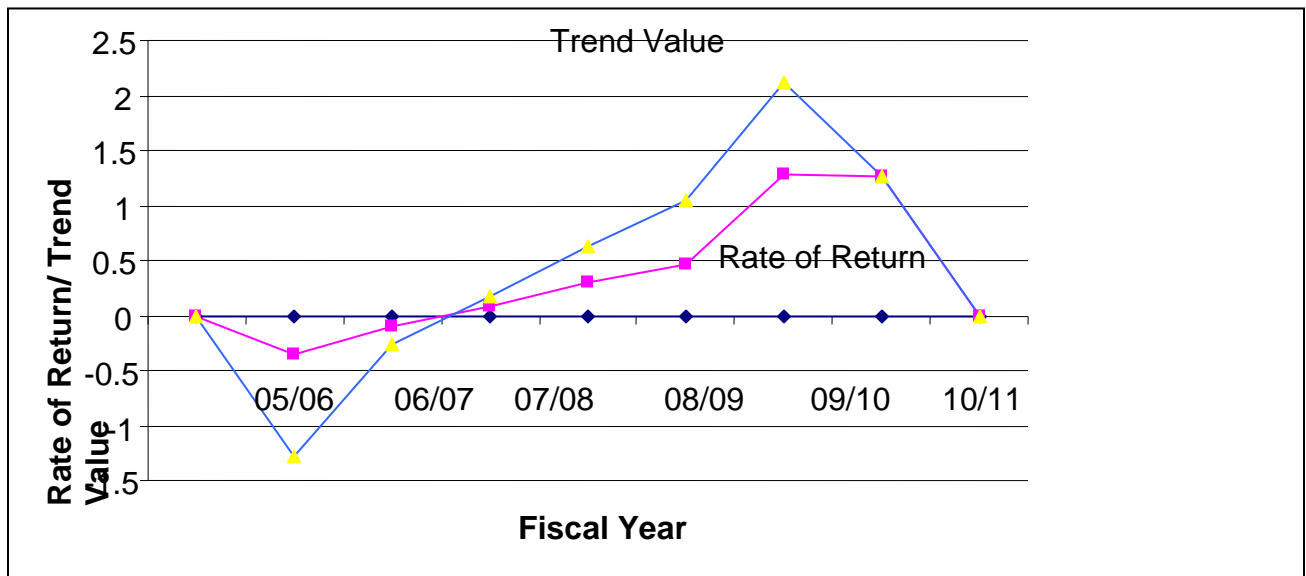
$X = 0.5$ $Y_c = 0.2019 + 0.2508x (0.5) = 0.3345$

$X = 1.5$ $Y_c = 0.2019 + 0.2508x (1.5) = 0.5853$

$X = 2.5$ $Y_c = 0.2019 + 0.2508x (2.5) = 0.8361$

Diagram No 4.11

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



Sources Table No 4.17

Above diagram shows that movement of stocks rate of return and trend line of market. In the beginning trend line and rate of return both are negative. Trend line gradually moves upward and become positive in F/Y 2007/008. the rage of return also fatly moves upward and become positive in F/Y 2007/008

4.3 Inter bank Comparison

1.3.1. On the basis of Risk and Return Analysis

After analyzing expected return, standard deviation, coefficient of variation of each bank for the fiscal year 2005/006 to 2010/011 results are given in the following table.

Table No 4.18

Comparative expected return, SD and cv of sample bank

S.N.	Sample Bank	Expected return E(R)	Standard deviation (σ)	Coefficient of variation (CV)	Remarks		
					E(R)	(σ)	(CV)
1	EBL	0.4420	0.4429	1.0020			Lowest
2	HBL	0.2895	0.3493	1.2066	Lowest	Lowest	
3	SBI	0.4375	0.9390	2.1463		Highest	Highest
4	NABIL	0.4633	0.5699	1.2300	Highest		
5	SEBNL	0.3450	0.3902	1.1310			

The table shows that the investors can get the highest return from investing in common stock of NABIL and lowest in investing in HBL has the lowest standard deviation and SBI bank 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 measure the risk per unit. Nepal SBI bank has highest CV and Everest bank Ltd. has lowest CV. To earn one unit of return the investor has to bear 1.0020 units investing in share of Everest bank Ltd.

4.3.2. On the basis of market capitalization

Market capitalization of sample commercial bank at the end of fiscal year 2006/007 is presented in table No 4.19 market capitalization is the total market value at specific time period of the company

Table No 4.19

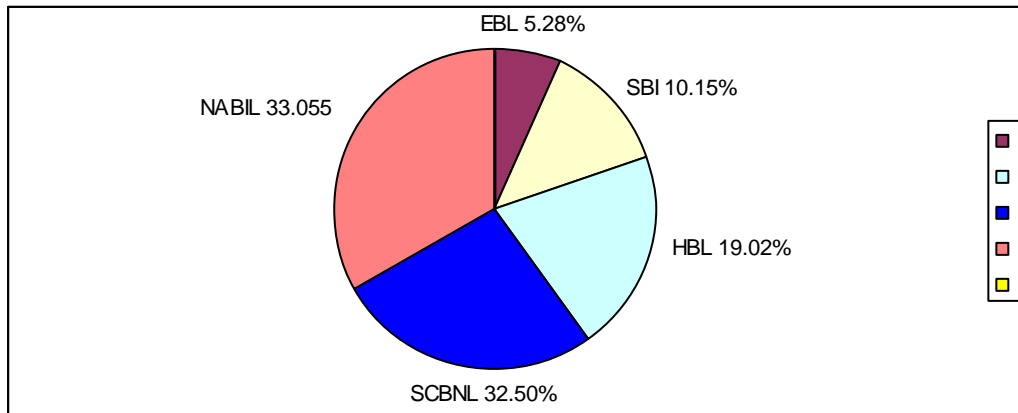
Market capitalization of commercial bank at the end of fiscal year 2006/007

S.N.	Sample Bank	Market capitalization (Rs million)	Percentage of market	Remarks
1	EBL	3959.59	5.28	Smallest
2	HBL	14270.26	19.02	
3	SBI	7618.17	10.15	
4	NABIL	24795.25	33.05	Biggest
5	SEBNL	24382.03	32.50	
		75025.30	100	

Sources: NEPSE Index

Diagram No 4.12

Pie chart showing Market capitalization



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

Table No 4.20

Year wise comparative movement of market capitalization (in million)

Bank	Year					
	2004/005	2005/006	2005/006	2005/006	2005/006	2005/006
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
SBI	1703.81	1084.16	1310.52	1446.04	3964.56	7618.17
NABIL	3613.63	3613.63	4916.50	7389.47	10998.29	27795.25
SEBNL	5263.03	5568.62	6537.47	8785.32	14142.68	24382.03

Sources: NEPSE index

Diagram No 4.13

Year wise comparative movement of market capitalization (in million)

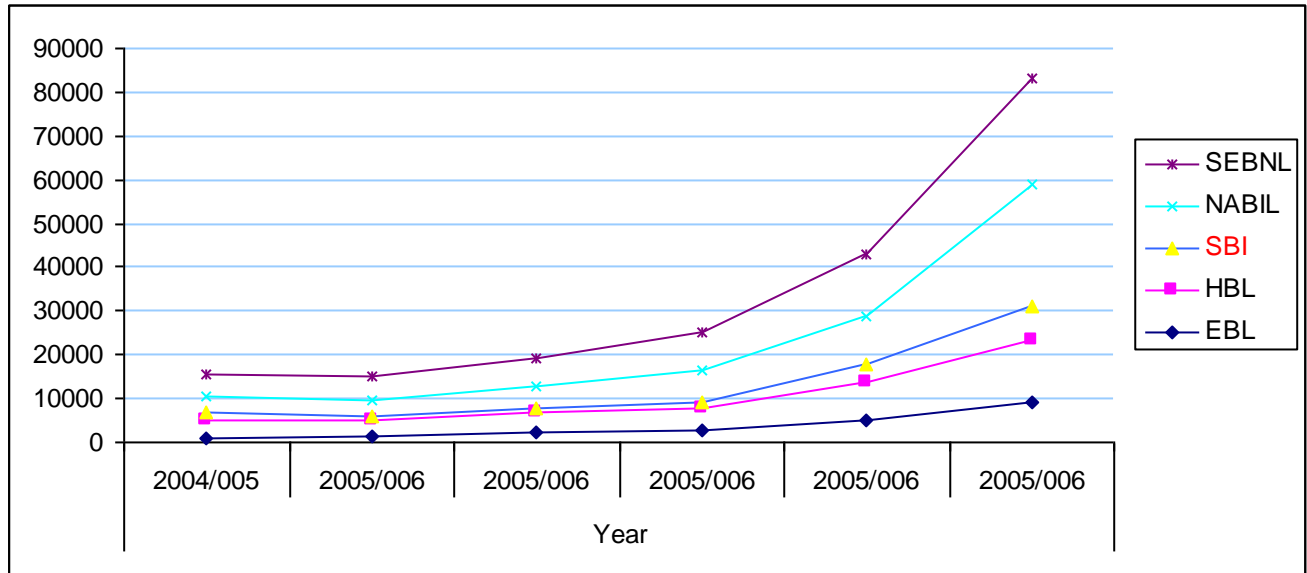


Table No 4.21

SUMMARY OF THE RISK AND RETURN FOR SAMPLE BANKS

Statistics	EBL	EBL	EBL	EBL	EBL
E(R)	0.442	0.2895	0.4375	0.4633	0.345
∂	0.4429	0.3493	0.9390	0.5699	0.3902
∂^2	0.1962	0.1220	0.8818	0.3247	0.15226
CV	1.002	0.2066	2.1463	1.23	1.1310
$\beta^2 \partial^2 m$	0.856	0.0775	0.7461	0.0635	0.0393
Var (e)	0.1106	0.0445	0.1357	0.2612	0.1130
β	0.5174	0.4921	1.5273	0.4456	0.3505
ρ^2	0.4363	0.3552	0.8461	0.1956	0.2581
1- ρ^2	0.5637	0.3648	0.1539	0.8044	0.7419
r	0.6607	0.7970	0.9200	0.4422	0.5080
Alpha	0.338	0.1866	0.1181	0.3701	0.5080

Sources: Table No 4.18 and appendix I (B) to V (B)

4.4. Price Evaluation of selected Banks

CAPM is model that assumes stocks required rate of return is equal to risk free rate plus risk premium where risk is measure by beta coefficient for this analysis, risk free rate is measured, which is taken interest rate of Treasury of required rate of return and price evaluation by CAPM model.

Table No 4.22

Beta and required rate of return of sample bank

Sample bank	Beta	$R_j = R_f + (R_m - R_f) \beta_j$	E(R)	Price situation
EBL	0.5174	0.1202	0.4420	Under priced
EBL	0.4921	0.1156	0.2895	Under priced
EBL	1.5273	0.3062	0.4375	Under priced
EBL	0.4456	0.1070	0.4633	Under priced
EBL	0.3505	0.0895	0.3450	Under priced

Sources: *Quarterly economic bulletin, mid July 2007*

Where

E(R) =expected rate of return

R_F=Risk free rate (0.025)

E_{Rm}= Marker price of return (0.2091)

β=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 investors can gain from buying the stock. The investors, who are holding the stock, should not sell the stock.

4.5 Comparison of sample banks with market

4.5.1. Nepal Everest Bank Ltd. (EBL)

Table No 5.23

SUMMARY OF THE RISK AND RETURN FOR EBL and MARKET

Statistics	EBL	Market
Expected return E(R)	0.442	0.2091
Standard deviation (σ)	0.4429	0.5655
Variance(σ^2)	0.1962	0.31984
Coefficient of variance (CV)	1.002	2.7044
Systematic risk $\text{Var}(\beta^2\sigma^2)$	0.0856	
Un systematic risk $\text{Var}(e)$	0.1106	
Index of systematic risk(β)	0.5174	
Proportion of systematic risk (l^2)	0.4363	
Proportion of unsystematic risk ($1-l^2$)	0.5637	
Correlation coefficient(r)	0.6607	
Alpha	0.3338	

Sources: Table No 4.17, 4.18 and appendix IIIB

Expected return of stock of EBL is more than expected return of market which means 2.1138 ($0.4420/0.2091$) times highest than market return.

Standard deviation of EBL is lowest than standard deviation of market i.e. (0.4429<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. 1.0002 <2.7044 which means EBL has been less risk per unit than market.

Beta of EBL is 0.5174 based on the yearly return during the F/Y 2005/006 to 2010/01. 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 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- β^2) 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 indicatives that market return goes up and EBL return also goes up or vice versa.

The intercept is 0.3338 shows the EBL 'S return when market returns 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 4.24

Summary of risk and return for HBL and market

Statistics	HBL	Market
Expected return E(R)	0.8595	0.2091
Standard deviation (σ)	0.3493	0.5655
Variance(σ^2)	0.1220	0.31984
Coefficient of variance (CV)	102.66	2.7044
Systematic risk $\text{Var}(\beta^2\sigma^2)$	0.0775	
Un systematic risk $\text{Var}(e)$	0.0445	
Index of systematic risk(β)	0.4921	
Proportion of systematic risk (I^2)	0.6352	
Proportion of unsystematic risk ($1-I^2$)	0.3648	
Correlation coefficient(r)	0.0970	
Alpha	0.1866	

Sources: Table No 4.17,4 and appendix II (B)

Expected return of stock of HBL is more than expected return of market which means 1.3845 ($0.2895/0.2091$) times higher than market return.

Standard deviation of HBL is lower than standard deviation of marker i.e. (0.3493<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 marker i.e.1. 2066<2.7044 which means HBL has risk per unit than marker.

Beta of HBL is 0.4921 based on the yearly return during the F/Y 2005/006 to 2010/011 called defensive assets.

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

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

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

The intercept is 0.1866 shows the HBL'S return when marker return is zero. Expected return of HBL is 18.66% when return earns nothing.

4.5.3. Nepal SBI Bank Limited

Table No 4.25

Summary of risk and return for SBI and Market

Statistics	SBI	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 variance (CV)	2.1463	0.7044
Systematic risk $\text{Var}(\beta^2\sigma^2)$	0.7461	
Un systematic risk $\text{Var}(e)$	0.1357	
Index of systematic risk(β)	1.5273	
Proportion of systematic risk (I^2)	0.8461	
Proportion of unsystematic risk ($1-I^2$)	0.1539	
Correlation coefficient(r)	0.9200	
Alpha	0.1181	

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

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

Similarly, standard deviation of SBI is higher than standard deviation of market which means total risk on SBI is more risky than market.

Coefficient is better measure of risk because it measure risk per unit. CV of SBI is less than the CV of market i.e. $2.1461 < 2.7044$ which means SBI has less risk per unit.

Beta of SBI is 1.5273 based on the yearly return during the F/Y 2005/006 to 2010/011. A beta of ($B < 1$) means stock if SBI is more volatile than market. So it is aggressive assets.

The proportion of systematic risk is 0.8461. This risk is portion of total variability changed by the market. Thus 84.61% risk of SBI is change by the market. It is non diversifiable.

The 0.1539 (1.1^2) residual variance is specific risk of the firm. It is called unsystematic risk and it is diversifiable. The correlation with market is 0.9200. The positive indicates that market return goes up and SBI return also goes up or vice versa.

The intercept is 0.1181. It shows the SBI return when market return is zero. Expected return of SBI is 11.81% when market return earns nothing.

4.5.4. Nepal Arab Bank Limited (NABIL)

Table No 4.26

Summary of risk and return for NABIL Market

Statistics	NABIL	Market
Expected return E(R)	0.4633	0.2091
Standard deviation (σ)	0.5699	0.5655
Variance(σ^2)	0.3247	0.31984
Coefficient of variance (CV)	1.23	2.7044
Systematic risk $\text{Var}(\beta^2\sigma^2)$	0.0635	
Un systematic risk $\text{Var}(e)$	0.2112	
Index of systematic risk(β)	0.2612	
Proportion of systematic risk (I^2)	0.4456	
Proportion of unsystematic risk ($1-I^2$)	0.1956	
Correlation coefficient(r)	0.8044	
Alpha	0.3701	

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

Expected rerun of stock of NABIL is more than expected return of market which means 2.2157 (0.4633/0.2091)times higher than market return.

Similarly, standard deviation of NABIL is higher than standard deviation of market i.e. $1.0078(0.5699/0.5655)$ times higher than standard deviation of market which means total risk on NABIL is more risky than market.

Coefficient of variation is better measure of risk because it measure risk per unit. CV of NABIL is less than the CV of market i.e. $1.23 < 12.7044$ which means NABIL has less risk per unit.

Beta of NABIL is 0.4456 based on the yearly return during the F/Y 2005/006 to 2010/011. A beta of ($\beta < 1$) means sock of NABIL is less volatile than market. So it is called defensive assets. T

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

The intercept is 0.3701. It is shows the NABIL'S return when market return is zero. Expected return of NABIL is 37.01 when market return earns nothing.

4.5.5. Standard Chartered Bank Limited (SCBNL)

Table No 4.27

Summary of risk and return for SCBNL and Market

Statistics	SCBNL	Market
Expected return E(R)	0.345	0.2091
Standard deviation (σ)	0.3902	0.5556
Variance(σ^2)	0.15226	0.31984
Coefficient of variance (CV)	1.1310	2.7044
Systematic risk $\text{Var}(\beta^2\sigma^2)$	0.393	
Un systematic risk $\text{Var}(e)$	0.1130	
Index of systematic risk(β)	0.3505	
Proportion of systematic risk (l^2)	0.2581	
Proportion of unsystematic risk ($1-l^2$)	0.7419	
Correlation coefficient(r)	0.5080	
Alpha	0.2717	

Sources: Table No 4.17, 4.18 and appendix V (B)

Expected return of stock of SCBNL is more than expected of market which means 1.650 (0.3450/0.2091)times higher than market return.

Standard deviation of SCBNL is lowest than standard deviation of market i.e. (0.3902<0.5655).

Coefficient of variation is better measure of risk because it measure risk per unit. CV of SCBNL is less than the CV of market i.e. $1.1310 < 2.7044$ which means SCBNL has less than risk per unit than market.

Beta of SCBNL is 0.3505 based on the yearly return during the F/Y 2005/006 to 2010/011. So it is called defensive assets.

The proportion of systematic risk is 0.2581. This risk is portion of total variability changed by the market. Thus 25.81% risk of SCBNL is changed by the market. It is non diversifiable.

The 0.7419 ($1 - \rho^2$) residual variance is specific risk of the firm. It is called unsystematic risk and it is non diversifiable.

The correlation with market is 0.5080. The positive correlation indicated that market return goes up and SCBNL return also goes up or vice versa.

The intercept is 0.2717. It shows the SCBNL return when market return is zero. Expected return of SCNNL is 27017% when market return earns nothing.

4.6. Correlation between banks

The correlation coefficient always lies between +1 and -1. Return of securities are very per perfectly together when the correlation coefficient is +1 and is perfectly opposite direction when it is -1. A zero correlation coefficient implies that there is no relation between the return of securities reduce by portfolio construction.

4.6.1. Correlation coefficient between EBL & HBL bank

The table No 4.28 shows the calculation of correlation coefficient between EBL and HBL

Let

Stock of EBL is X

Stock of HBL is Y

Table No 4.28
Correlation coefficient between EBL & HBL bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.872	-0.439	0.3828
2006/007	-0.012	-0.3682	0.0044
2007/008	0.128	-0.0096	-0.0012
2008/009	0.248	0.0814	0.0202
2009/010	0.168	0.3214	0.0540
2010/011	0.338	0.4141	0.1400
			0.6002

Sources: Table No 4.2&4.5

We have

$$\text{Covariance (XY)} = \frac{\sum[X-E(X) [Y-E(Y)]}{n-1} = \frac{0.6002}{6-1} = 0.1200$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.1200}{0.4429 \times 0.3496}$$

$$= \frac{0.1200}{0.1547} = 0.7757$$

4.6.2. Correlation Coefficient between EBL & SBI Bank

The table No 4.29 shows the calculation of correlation coefficient between EBI and SBI

Let

Stock of EBL is X

Stock of HBL is Y

Table No 4.29

Correlation Coefficient between EBL & SBI Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.872	-0.8302	0.7239
2006/007	-0.012	-0.7816	0.0094
2007/008	0.128	-0.2336	-0.299
2008/009	0.168	0.414	-0.0616
2009/010	0.338	1.6796	0.0696
2010/011			0.5680
			0.2794

Sources: Table No 4.2 & 4.8

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X) [Y-E(Y)]}{n-1} = \frac{1.2794}{6-1} \\ &= \frac{1.2794}{5} = 0.2560 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of correlation (r)} &= \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.2560}{0.4429 \times 0.9390} \\ &= \frac{0.2560}{0.4149} = 0.6155 \end{aligned}$$

4.6.3. Correlation Coefficient between EBL & NABIL Bank

The table No 4.30 shows the calculation of correlation coefficient between EBL & NABIL

Let

Stock of EBL is X

Stock of NABIL is Y

Table No 4.30

Correlation Coefficient between EBL & NABIL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.872	-0.91	0.7239
2006/007	-0.012	-0.39	0.0047
2007/008	0.128	-0.01	-0.0013
2008/009	0.228	0.05	-0.0124
2009/010	0.168	0.03	0.0050
2010/011	0.338	0.80	0.2704
			0.0447

Sources: Table No 4.2 & 4.11

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{1.0847}{6-1} \\ &= \frac{1.0847}{5} = 0.2169 \end{aligned}$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.2169}{0.4429 \times 0.5699}$$

$$= \frac{0.2169}{0.2524} = 0.8594$$

4.6.4. Correlation Coefficient between EBL &SCBNL Bank

Let

Stock of EBL is X

Stock of SCBNL is Y

Table No 4.31

Correlation Coefficient between EBL &SCBNL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.872	-0.91	0.7239
2006/007	-0.012	-0.39	0.0047
2007/008	0.128	-0.01	-0.0013
2008/009	0.228	0.05	-0.0124
2009/010	0.168	0.03	0.0050
2010/011	0.338	0.80	0.2704
			0.0447

Sources: Table No 4.2 & 4.14

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{0.6849}{6-1} \\ &= \frac{0.6849}{5} = 0.1370 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of correlation (r)} &= \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.1370}{0.4429 \times 0.3902} \\ &= \frac{0.1370}{0.1728} = 0.7928 \end{aligned}$$

4.6.5. Correlation Coefficient between HBL & SBI Bank

The table No 4.32 shows the calculation of correlation coefficient between HBL & SBI

Let

Stock of HBL is X

Stock of SBI is Y

Table No 4.32

Correlation Coefficient between HBL & SBI Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.439	-0.8302	0.3645
2006/007	-0.3682	-0.7816	0.2878
2007/008	-0.0096	-0.2336	0.0022
2008/009	0.0814	-0.2785	-0.00202
2009/010	0.3214	0.414	0.1313
2010/011	0.4141	1.6796	0.6955
			1.4629

Sources: Table No 4.5 & 4. 8

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{0.4629}{6-1} \\ &= \frac{0.4629}{5} = 0.09258 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of correlation (r)} &= \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.09258}{0.3280 \times 0.9390} \\ &= \frac{0.09258}{0.3079} = 0.2991 \end{aligned}$$

4.6.6. Correlation Coefficient between HBL & NABIL Bank

The table No 4.33 shows the calculation of correlation coefficient between HBL & NABIL

Let

Stock of HBL is X

Stock of NABIL is Y

Table No 4.33

Correlation Coefficient between HBL & NABIL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.439	-0.91	0.3995
2006/007	-0.3682	-0.39	0.1436
2007/008	-0.0096	-0.01	0.0001
2008/009	0.0814	0.05	0.0041
2009/010	0.3214	0.03	0.00096
2010/011	0.4141	0.8	0.3313
			0.8882

Sources: Table No 4.5 & 4. 11

We have

$$\text{Covariance (XY)} = \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{08882}{6-1}$$

$$= \frac{0.8882}{5} = 0.1776$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.1776}{0.3493 \times 0.5699}$$

$$= \frac{0.1776}{0.1991} = 0.8920$$

4.6.7. Correlation Coefficient between HBL & SCBNL Bank

The table No 4.34 shows the calculation of correlation coefficient between HBL & SCBNL

Let

Stock of HBL is X

Stock of SCBNL is Y

Table No 4.34

Correlation Coefficient between HBL & SCBNL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.439	-0.58	0.2546
2006/007	-0.3682	-0.22	0.0810
2007/008	-0.0096	0.08	0.0008
2008/009	0.0814	0.06	0.0049
2009/010	0.3214	0.56	0.1800
2010/011	0.4141	0.23	0.9524
			1.4737

Sources: Table No 4.5 & 4.14

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{1.4734}{6-1} \\ &= \frac{1.4734}{5} = 0.2947 \end{aligned}$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.2947}{0.3493 \times 0.3902}$$

$$= \frac{0.2947}{0.1363} = 0.21621$$

4.6.8. Correlation Coefficient between SBI & NABIL Bank

The table No 4.35 shows the calculation of correlation coefficient between SBI & NABIL Bank

Let

Stock of SBI is X

Stock of NABIL is Y

Table No 4.35

Correlation Coefficient between SBI & NABIL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.8302	-0.91	0.7555
2006/007	-0.7816	-0.39	0.3048
2007/008	-0.2336	0.01	0.0023
2008/009	-0.2485	0.05	-0.124
2009/010	0.4141	0.03	0.124
2010/011	1.6796	0.80	1.3437
			2.4063

Sources: Table No 4.5 & 4. 11

We have

$$\text{Covariance (XY)} = \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{2.4060}{6-1}$$

$$= \frac{2.4060}{5} = 0.4813$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.4813}{0.9390 \times 0.5699}$$

$$= \frac{0.4813}{0.5351} = 0.8995$$

4.6.9. Correlation Coefficient between SBI & SCBNL Bank

The table No 4.36 shows the calculation of correlation coefficient between SBI & SCBNL Bank.

Let

Stock of SBI is X

Stock of SCBNL is Y

Table No 4.36

Correlation Coefficient between SBI & NABIL Banki am a student

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.8302	-0.58	0.4815
2006/007	-0.7816	-0.22	0.1720
2007/008	-0.2336	-0.08	0.187
2008/009	-0.2485	0.06	-0.0149
2009/010	0.4141	0.56	0.2318
2010/011	1.6796	0.23	0.3863
			1.2754

Sources: Table No 4.8 & 4. 14

We have

$$\text{Covariance (XY)} = \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{1.2754}{6-1}$$

$$= \frac{1.2754}{5} = 0.2551$$

$$\text{Coefficient of correlation (r)} = \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.2551}{0.9390 \times 0.3902}$$

$$= \frac{0.2551}{0.3664} = 0.6962$$

4.6.10. Correlation Coefficient between NABIL & SCBNL Bank

The table No 4.37 shows the calculation of correlation coefficient between NABIL & SCBNL Bank

Let

Stock of NABIL is X

Stock of SCBNL is Y

Table No 4.37

Correlation Coefficient between NABIL & SCBNL Bank

Year	X-E(X)	Y-E(Y)	[X-E(X)][Y-E(Y)]
2005/006	-0.91	-0.58	0.5278
2006/007	-0.39	-0.22	0.0858
2007/008	-0.01	-0.08	0.0008
2008/009	0.05	0.06	0.0030
2009/010	0.03	0.56	0.0168
2010/011	0.80	0.23	0.1840
			0.8182

Sources: Table No 4.11 & 4.14

We have

$$\begin{aligned} \text{Covariance (XY)} &= \frac{\sum[X-E(X)][Y-E(Y)]}{n-1} = \frac{0.8182}{6-1} \\ &= \frac{0.8182}{5} = 0.1636 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of correlation (r)} &= \frac{\text{Cov (XY)}}{\sigma_X \sigma_Y} = \frac{0.1636}{0.2699 \times 0.3902} \\ &= \frac{0.1636}{0.2224} = 0.7356 \end{aligned}$$

The table No 4.38 shows the various correlations between each sample bank.

Table No 4.38
Correlation Matrix

Sample Banks	EBL	HBL	SBI	NABIL	SCBNL
EBL	1	0.7757	0.6155	0.8594	0.7928
HBL		1	0.8921	0.8920	2.1621
SBI			1	0.8995	0.6962
NABIL				1	0.7356
SCBNL					1

Sources: Table No 4.28 & 4.37

Above table No 4.38 shows that the correlation between sample bank's stock. There is positive correlation between various banks. As correlation between stock of banks are positive than any part of risk can not be reduced.

4.7. Presentation and analysis of data according to inferential analysis based on ANOVA or F-test

The presentation and analysis of data according to inferential analysis includes the study of regression analysis. Analysis of regression is designed to ascertain if there is some kind of relationship between the average return and variance fundamental variable of bank. In this context, we are using only linear relationship. For the analysis expected return of sample banks are taken as dependent variable and beta coefficient and correlation coefficient with market are chosen as independent variable.

4.7.1. Presentation and analysis of data according to inferential analysis based on ANOVA or F-test

The hypothesis is set out and the calculated value of F is compared with critical value of F at 5 % level of significance. The test is carried out on the basis of simple regression analysis.

Simple regression analysis is applied as expected return E(R) as dependent and beta coefficient as independent variable.

The model is

$$Y = a + bx$$

Where

Y=expected return

a=intercept

x=beta coefficient

The regression equation is $E(R) = a+bx$

Regression as expected return $E(R)$ depends on beta (B)

Table No 4.39

S.N.	Sample Bank	Dependent(Y)	Independent (X)	XY	X ²
1	EBL	0.4420	0.5174	0.2287	0.2677
2	HBL	0.2895	0.4921	0.1425	0.2422
3	SBI	0.4375	1.5273	0.6682	2.3326
4	NABIL	0.4633	0.4456	0.2044	0.1986
5	SCBNL	0.3750	0.3505	0.1209	0.1229
		1.9773	3.3329	1.3667	3.1640

Sources: Table No 4.21

The regression equation Y on x is

$$Y = a + bx$$

Now

Required nominal equation can be written as

$$\sum Y = na + b\sum x \dots\dots\dots 1$$

$$\sum XY = a\sum x + b\sum x^2 \dots\dots\dots 2$$

Substitution the value in normal equation (1) & (2)

$$1.9773 = 5a + 3.3329b \dots\dots\dots 3$$

$$1.3667 = 3.3329a + 3.1640b \dots\dots\dots 4$$

By solving equation (3) & (4), we get

$$a = 0.3610$$

$$b = 0.517$$

Hence

The regression equation Y on X is

$$Y=0.3610+0.5117X$$

It can be written as,

$$Y=0.3610+0.517X$$

Now

Analysis of variance of regression line ANOVA

Table No 4.40

Sample Bank's	Y	(Y- \bar{Y})	(Y- \bar{Y}) ²	\hat{Y}	(\hat{Y} - \bar{Y})	(\hat{Y} - \bar{Y}) ²
EBL	0.4420	0.0465	0.0022	0.3877	-0.0078	0.0001
HBL	0.2895	0.1060	0.0112	0.3864	-0.0091	0.0001
SBI	0.4375	0.0420	0.0018	0.4400	0.0455	0.0020
NABIL	0.4633	0.678	0.0046	0.3840	-0.0115	0.0001
SCBNL	0.3450	0.0505	0.0026	0.3792	-0.0163	0.0003
	1.9773		0.224			0.0026

Now

$$\bar{Y} = \frac{\sum Y}{N} = \frac{1.9773}{5} = 0.3955$$

Here

$$\text{Total variance (SST)} = \sum(Y-\bar{Y})^2 = 0.224$$

$$\text{Explained variance (SSR)} = \sum(\hat{Y}-\bar{Y})^2 = 0.0026$$

$$\begin{aligned} \text{Unexplained variation (SSE)} &= \text{SST} - \text{SSR} \\ &= 0.0224 - 0.0026 \end{aligned}$$

$$= 0.0198$$

Hypothesis formulation

H0: b_0 i.e. the regression equation Y on X is not significant. In other word, there is no relationship between dependent variable Y and independent variable X.

H1: $b \neq 0$ i.e. the regression equation Y on X is not significant. In other word, there is no relationship between dependent variable X and independent variable Y.

Test statistics

Under H0 the test statistic is $F = \frac{\text{MSR}}{\text{MSE}}$

Table No 4.41
ANOVA Table

Sources of variable	Sum of square	Degree of freedom	Mean sum of square	F- ratio
Explain variance	SSR=0.0026	K-1=2-1=1	MSR=SSR/K-1=0.0026/2-1=0.0026	MSR/MSE=0.0026/0.0009=2.8889
Explain variance	SSE=0.198	N-K=5-2=3	MSE=SSR/N-K=0.0026/5-2=0.0009	
Total variance	0.224	N-1=5-1=4		

The critical value of F at 5 % level of significance for degree of freedom (1,3) is 10.1. Hence calculated value of F is less than critical value of F at 5% level of significance.

$$\text{Coefficient of determination (R}^2\text{)} = \frac{\text{SSR}}{\text{SST}} = \frac{0.0026}{0.224} = 0.1161$$

Table No 4.42
Regression of Expected returns on beta coefficient

Dependent variable	Intercept (a)	Regression coefficient of beta (B)	R ²	Calculation F	Tabulated F
E(R)	0.3610	0.517	0.1161	2.8889	10.1

Sources: Table No 4.41

The result presented in above table shows that the regression result which is positive relationship between expected return and beta one rupee increase in beta leads 0.0517 rupee increase in E(R) keeping other variable consistent. The coefficient of determination R² is 0.1161, which indicates that calculated value of F is less than tabulated value of F at 5% levels of significance. Which means accept H₀: i.e. regression equation Y on X is not significant? In other word there is no relationship between independent variable X and dependent variable Y.

CHAPTER – V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This Chapter deals with three headings 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 sections of the study .Justification for this recommendation are related theory structure and finding .

5.1 Summary

Financial institutions play important 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 industrials sector, agricultures 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 financial. 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 of 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 is high return and low risk. An investor looking for the common stock investment

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

been divided into five chapters 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 deviations and coefficient of variation, beta, 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 diagrams, tables, graphs are used to present the results. All the data are collected from secondary sources. Secondary sources of data are NEPSE, AGM reports of various banks, trading report of SEBO website of NRB etc.

5.2 Conclusions

In conclusion, 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

- ❖ On the basis of dividend paying Standard Chartered Bank Nepal is the highest and continuous dividend payer whereas Nepal SBI Bank is lowest dividend payer among the sample of banks during sample period. Those people or investors who want to have a continuous return. Thus SCBNL is the best sample bank on the basis of dividend paying.
- ❖ Expected return on common stock of NABIL is the highest among five sample banks whereas HBL has lowest expected return.
- ❖ On the basis of standard deviations, Standard deviation measures total risk. On the basis of S.D, common stock of SBI bank Ltd 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 whereas CV of SBI is highest, so common stock of SBI 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, NABIL is in the highest position and EBL bank is in the lowest positions.
- ❖ Beta coefficient measures the systematic risk and explains the sensitivity or volatility of stock with market. In this context, common stock of SBI is the most and common stock of SCBNL is the least volatile. Common stock of SBI is aggressive because it has beta more than beta coefficient of market

i.e.($B > 1$). Similarly, common stock of EBL, HBL, NABIL and SCBNL are defensive because of less beta than beta of market i.e.($B < 1$).

- ❖ 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. NABIL has the highest alpha and SBI has lowest alpha among the sample of banks. On the basis of alpha analysis. NABIL 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 SBI is highest and NABIL 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 of banks are positive, then any part of risk can not be reduced.
- ❖ Common stock of SBI has the highest proportion of systematic risk which can not be minimized through diversification where as common stock of NABIL has lowest 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 NABIL has higher diversifiable risk while common stock of SBI has less diversifiable risk. Unsystematic risk can be avoided through diversifiable. From above analysis, investors are recommended to purchase their stock which has highest expected return and with low proportion un-diversifiable risk to make portfolio investment.

- ❖ Capital assets pricing Model describes that the relationship between risk and return. Stock is identified 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, then the stock is under priced and should buy it. If required rate 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 riskness 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.

5.3 Recommendations

1. Since the return of NABIL for given sample period is the highest, investors can get more benefit if they invest in the common stock of NABIL.
2. Expected return on common stock of NABIL is lowest for given sample period so investors can not get more benefit if they invest in common stock of HBL.
3. Beta of SCBNL bank is 0.3505 which is defensive; investor can use stock of SCBNL bank to minimize the risk portfolio.
4. If the investor is risk averter, then he/she can choose the stock of EBL if the investor is risk seeker he/she can choose stock of SCBNL Bank Ltd.
5. 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 give security.
6. Correlation coefficient between all the sample banks has positive correlation.
7. The proportion of unsystematic or diversifiable risk on common stock of NABIL bank is 0.3701 investors are suggested to invest into stock of NABIL bank to minimize the risk of portfolio. Since the correlation coefficient both market and stock of NABIL is least, it could help to construct the optimal portfolio.
8. 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.
9. The commercial bank should communicate the real financial statements. Value of assets and liabilities should not be manipulated to report under or over profitability. Every decision of the banks should be made to maximize the value of the firm and value per share.

However, this study is done under the certain limitation both methodological as well as scope limitation, further researcher in this field will give 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 future 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.

BIBLIOGRAPHY

Bhalla, V.K. (2000); *Management Security Investment analysis and Portfolio Management* , New Delhi S. Chanda & Company Ltd.

Brigham, Eugene F; *Fundamental of Finance 2nd edition*, The Dryden press, India, New Ddlhi,1980.

Chandar, Pramanna;*Financial Management Theory and Practice"*, New Delhi, Tata Mc Graw Hill, 1999

Gupta, S.P. ;*Statistical Method, 27th edition*, Suftan Chand & Sons Publisher, New Delhi, 1995

Hampton, J.J.; *Finacial Decision Making Concept, Problem and Cases*, New Delhi: Prentice Hall of India Pvt. Ltd., 1990.

Joshi, Padam Raj; *Fundamentals of Finance Management, 1st edition*, Asmita Books Publisher and Distribution Kathmandu, Nepal, 2004.

Kothari, C.R.;*Research Methodology, Mehods ands Technaques*, Wishea Prakashan, 2nd edition, New Delhi, 2000.

Pandey, I.M. ;*financial Mannagement*, New Delhi Vikssh Publishing House, 1999
Sayer's R.S. Money and Banking, India:Oxford Cleander Press 1967

Sharp, William F., Alexander Gordin J. and Jaffery V. Bailey ; *Investment*, New Delhi, Practice Hall 2000.

Van Home, James C. and Wachowitz Jhon M. Jr; *fundamentals of Financial Management, 9th edition*, Prentice-Hall of India Pvt. Ltd., New Delhi, 1997

Wolf, Howard K. and Panth, Prem P ;*A hand Book For Social Science Research and Thesis writing , 3rd edition*, Buddha Academic Enterprise Pvt. Ltd. Kathmandu, 2003

Articales:

Bowman, Rebert G. (1997); *The Theoretical Relationship Between Systematic Risk and Financial Variable*, Journal of Financial, American Finance Assiciation Vol. 54, No.3, June, P.850-873

Pradhan, R.S. Balampaki, S.B. (2003); *Fundamentals of Return, SEBO Journal*, Vol I.P.8-22

Websites

[www.himalayanbank .com](http://www.himalayanbank.com)

[www.nabilbank .com](http://www.nabilbank.com)

[www.everestbank .com](http://www.everestbank.com)

[www.nepalsbi .com](http://www.nepalsbi.com)

www.standard chartered .com

www.nrb.org.np

Appendix –I(A)
Everest Bank Limited

year	High	Low	Closing	EPS	DPS	Stock Dividend%
2005/006	740	325	430	62.91	0	--
2006/007	490	349	445	29.90	20	22
2007/008	723	400	680	45.58	20	--
2008/009	905	625	870	32.47	0	20
2009/010	1410	800	1379	48.81	25	--
2010/011	2430	1100	2430	57.55	10	--

Source: NEPSE index & AGM report of EBL

Appendix –II(A)
Himalayan Bank Limited

year	High	Low	Closing	EPS	DPS	Stock Dividend%
2005/006	1530	610	1000	60.26	25	30
2006/007	950	750	836	39.45	1.31	10
2007/008	1010	600	840	49.05	0	25
2008/009	1181	855	920	47.91	11.58	20
2009/010	1200	900	1100	59.24	30	20
2010/011	1760	950	1760	60.66	15	5

Source: NEPSE index & AGM report of HBL

Appendix –III (A)

SBI Bank Limited

year	High	Low	Closing	EPS	DPS	Stock Dividend%
2005/006	1600	300	401	9.61	0	200
2006/007	410	255	255	11.47	8	--
2007/008	307	231	307	14.26	0	--
2008/009	480	315	365	13.29	0	--
2009/010	689	335	612	18.27	5	5
2010/011	1176	505	1176	39.35	12.59	47.59

Source: NEPSE index & AGM report of SBI

Appendix –IV (A)

Nepal Arab Bank Limited

year	High	Low	Closing	EPS	DPS	Stock Dividend%
2005/006	1500	465	735	55.25	30	--
2006/007	875	700	735	84.66	50	--
2007/008	1005	705	1000	92.61	65	--
2008/009	1515	1000	1505	105.79	0	--

2009/010	2300	1500	2240	129.21	5	--
2010/011	5050	2025	5050	137.08	12.59	--

Source: NEPSE index & AGM report of NABIL

Appendix –V (A)

Standard Chartered Bank Limited

year	High	Low	Closing	EPS	DPS	Stock Dividend%
2005/006	2100	1000	1550	141.13	100	--
2006/007	1760	1380	1640	149.30	110	--
2007/008	1800	1520	1745	143.55	100	10
2008/009	2350	1553	2345	143.14	120	--
2009/010	3775	2200	3775	175.84	120	10
2010/011	5900	3058	5900	167.37	80	--

Source: NEPSE index & AGM report of SCBNL

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

Year	[R-E (R)]	[Rm-E (Rm)]	[R-E (R)] [Rm-E (Rm)]
2005/006	-0.872	-0.5561	0.4849
2006/007	-0.012	-0.3.90	0.0037
2007/008	-0.0128	-0.1249	-0.0160
2008/009	0.248	0.0820	0.0203
2009/010	0.168	-0.1624	0.0.273
2010/011	0.338	1.0704	0.0.3618
			0.8274

We have

$$\text{Cov } R_j R_m = \frac{\sum [R-E (R)] [Rm-E (Rm)]}{n-1} = \frac{0.8274}{6-1}$$

=0.1655

$$\beta = \frac{\text{Cov } R_j R_m}{\sigma^2_m} = \frac{0.1655}{0.31984} = 0.5174$$

Systematic risk = $\beta^2 \times \sigma^2_m = (0.5174)^2 \times 0.31984 = 0.0856$

Unsystematic Risk = Total risk – systematic risk

Var (e) = 0.1962 - 0.0856

$$\text{Proportion of systematic risk } l^2 = \frac{\beta^2 \sigma_m^2}{\sigma_j^2} = \frac{0.1106 \times 0.0856}{0.1962} = 0.4363$$

Proportion of unsystematic risk = $1 - l^2 = 1 - 0.4363 = 0.5637$

$$\begin{aligned} \text{Intercept} &= E(R_j) - E(R_m) \times \beta_j \\ &= 0.442 - 0.2091 \times 0.5174 \\ &= 0.3338 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient (r)} &= \frac{\text{Cov}(R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.1655}{0.2655 \times 0.4429} \\ &= \frac{0.1655}{0.250} = 0.6607 \end{aligned}$$

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

Year	[R-E (R)]	[Rm-E (Rm)]	[R-E (R)] [Rm-E (Rm)]
2005/006	-0.493	-0.5561	0.2742
2006/007	-0.3682	-0.3090	0.118
2007/008	-0.0096	-0.0820	0.0012
2008/009	-0.0814	-0.1624	0.0067
2009/010	0.3214	1.0704	-0.0522
2010/011	0.4141		0.4433
			07870

We have

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

$$\beta_j = \frac{\text{Cov } R_j R_m}{\sigma_m^2} = \frac{0.1574}{0.31984} = 0.4921$$

$$\text{Systematic risk} = \beta^2 \times \sigma^2_m = (0.0.4921)^2 \times 0.31984 = 0.0775$$

$$\text{Unsystematic Risk} = \text{Total risk} - \text{systematic risk}$$

$$\text{Var} (e) = 0.1220 - 0.0775 = 0.0445$$

$$\text{Proportion of systematic risk } l^2 = \frac{\beta^2 \sigma^2_m}{\sigma^2_j} = \frac{0.0775}{0.1220} = 0.6352$$

$$\text{Proportion of unsystematic risk} = 1 - l^2 = 1 - 0.6352 = 0.3648$$

$$\text{Intercept} = E(R_j) - E(R_m) \times \beta_j = 0.2895 - 0.2091 \times 0.4921 = 0.2895 - 0.1029 = 0.1866$$

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

$$= \frac{0.1574}{0.1975} = 0.7970$$

Appendix III (B)
Beta Coefficient of Common Stock of SBI

Year	[R-E (R)]	[Rm-E (Rm)]	[R-E (R)] [Rm-E (Rm)]
2005/006	-0.8302	-0.5561	0.4617
2006/007	-0.7816	-0.3090	0.2415
2007/008	-0.2336	-0.1249	0.0292
2008/009	-0.2485	0.0820	-0.0204
2009/010	0.141	-0.1624	-0.06672
2010/011	1.6796	1.0704	1.7987
			2.4426

We have

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

$$\beta_j = \frac{\text{Cov } R_j R_m}{\sigma^2_m} = \frac{0.4885}{0.31984} = 1.5273$$

$$\text{Systematic risk} = \beta^2 \times \sigma^2_m = (0.5273)^2 \times 0.31984 = 0.7461$$

$$\text{Unsystematic Risk} = \text{Total risk} - \text{systematic risk}$$

$$\begin{aligned} \text{Var (e)} &= 0.8818 - 0.7461 \\ &= 0.1375 \end{aligned}$$

$$\text{Proportion of systematic risk } l^2 = \frac{\beta^2 \sigma^2_m}{\sigma^2_j} = \frac{0.7461}{0.8818} = 0.8461$$

$$\text{Proportion of unsystematic risk} = 1 - l^2 = 1 - 0.8461 = 0.1539$$

$$\text{Intercept} = E(R_j) - E(R_m) \times \beta_j$$

$$= 0.4375 - 0.2091 \times 1.5273 = 0.4375 - 0.3194 = 0.1181$$

$$\begin{aligned} \text{Correlation of coefficient (r)} &= \frac{\text{Cov } (R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.4885}{0.5655 \times 0.9390} \\ &= \frac{0.4885}{0.5310} = 0.9200 \end{aligned}$$

Appendix IV (B)
Beta Coefficient of Common Stock of SBI

Year	[R-E (R)]	[Rm-E (Rm)]	[R-E (R)] [Rm-E (Rm)]
2005/006	-0.91	-0.5561	0.5061
2006/007	-0.39	-0.3090	0.1205
2007/008	-0.01	-0.1249	0.0012
2008/009	0.05	0.0820	0.0041
2009/010	0.03	-0.1624	-0.0049
2010/011	0.08	1.0704	0.0826
			0.7126

We have

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

$$\beta_j = \frac{\text{Cov } R_j R_m}{\sigma^2_m} = \frac{0.14252}{0.31984} = 0.4456$$

$$\text{Systematic risk} = \beta^2 \times \sigma^2_m = (0.4456)^2 \times 0.31984 = 0.0635$$

$$\text{Unsystematic Risk} = \text{Total risk} - \text{systematic risk}$$

$$\text{Var}(e) = 0.3247 - 0.0635$$

$$= 0.1375$$

$$\text{Proportion of systematic risk } l^2 = \frac{\beta^2 \sigma^2_m}{\sigma^2_j} = \frac{0.0635}{0.3247} = 0.1956$$

$$\text{Proportion of unsystematic risk} = 1 - l^2 = 1 - 0.1956 = 0.8044$$

$$\text{Intercept} = E(R_j) - E(R_m) \times \beta_j$$

$$= 0.4633 - 0.2091 \times 0.4456$$

$$= 0.3707$$

$$\text{Correlation of coefficient } (r) = \frac{\text{Cov}(R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.14252}{0.5655 \times 0.5699} = 0.4422$$

Appendix V (B)
Beta Coefficient of Common Stock of SCBNL

Year	[R-E (R)]	[Rm-E (Rm)]	[R-E (R)] [Rm-E (Rm)]
2005/006	-0.58	-0.5561	-0.3225
2006/007	-0.22	-0.3090	0.0680
2007/008	-0.08	-0.1249	0.0100
2008/009	0.06	0.0820	0.0049

2009/010	0.56	-0.1624	-0.0909
2010/011	0.23	1.0704	0.2462
			0.5607

We have

$$\text{Cov } R_j R_m = \frac{\sum [R - E(R)] [R_m - E(R_m)]}{n-1} = \frac{0.5607}{6-1} = 0.1121$$

$$\beta_j = \frac{\text{Cov } R_j R_m}{\sigma^2_m} = \frac{0.1121}{0.31984} = 0.3505$$

$$\text{Systematic risk} = \beta^2 \times \sigma^2_m = (0.3505)^2 \times 0.31984 = 0.393$$

$$\text{Unsystematic Risk} = \text{Total risk} - \text{Systematic risk}$$

$$\begin{aligned} \text{Var } (e) &= 0.15226 - 0.393 \\ &= 0.1130 \end{aligned}$$

$$\text{Proportion of systematic risk } l^2 = \frac{\beta^2 \sigma^2_m}{\sigma^2_j} = \frac{0.0393}{0.15226} = 0.2581$$

$$\text{Proportion of unsystematic risk} = 1 - l^2 = 1 - 0.2581 = 0.7419$$

$$\text{Intercept} = E(R_j) - E(R_m) \times \beta_j$$

$$= 0.3450 - 0.2091 \times 0.3505$$

$$= 0.4375 - 0.3194$$

$$= 0.2717$$

$$\text{Correlation of coefficient } (r) = \frac{\text{Cov } (R_j, R_m)}{\sigma_m \sigma_j} = \frac{0.1121}{0.5655 \times 0.3902} = 0.5080$$