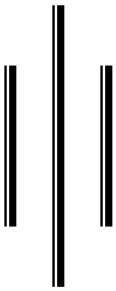
A STUDY ON RISK & RETURN ANALYSIS OF NEPALESE COMMERCIAL BANKS

(With Reference to NABIL, EBL, BOK & SBI Bank Limited)

A Thesis



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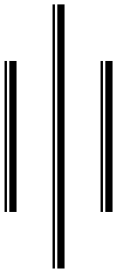

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In the Partial Fulfillment of the Requirement for the Degree of

Master in Business Studies (MBS)

Kathmandu, Nepal

April, 2014

RECOMMENDATION

This is to certify that the Thesis
Submitted by

DEVI RAM BHANDARI

Entitled:

A STUDY ON RISK & RETURN ANALYSIS OF NEPALESE COMMERCIAL BANKS

(With Reference to NABIL, EBL, BOK & SBI Bank Limited)

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

.....	……	……
Achyut Raj Bhattarai	Prof. Dr. Kamal Deep Dhakal	Asso. Prof. Prakash Singh Pradhan
(Thesis Supervisor)	(Head of Research Department)	(Campus Chief)

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VIVA-VOCE SHEET

We have conducted the viva-voce of the thesis presented
By

DEVI RAM BHANDARI

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A STUDY ON RISK & RETURN ANALYSIS OF NEPALESE COMMERCIAL BANKS
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And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the

Degree of Master's in Business studies (M.B.S.)
Viva-Voce Committee

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Member (External Expert) ...…….

DECLARATION

I, hereby, declare that the work reported in this thesis entitled ***"A Study On Risk & Return Analysis Of Nepalese Commercial Banks (With Reference to NABIL, EBL, BOK & SBI Bank Limited)"*** submitted to office of the Dean, Faculty of Management, Tribhuvan University, is my original work done for the partial fulfillment of the requirement for the Masters of Business Studies (MBS) under the supervision of Achyut Raj Bhattarai & Pitri Raj Adhikari of Shanker Dev Campus, Putalisadak, Kathmandu.

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TABLE OF CONTENTS

CHAPTER – III
RESEARCH METHODOLOGY

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ABBS	Any Branch Banking System
ATM	Automated Teller Machine
BOK	Bank of Kathmandu
CAPM	Capital Assets Pricing Model
CV	Coefficient of Variation
DPS	Dividend Per Share
EBL	Everest Bank Limited
HBL	Himalayan Bank Limited
HPR	Holding Period Return
IFC	International Finance Corporation
LC	Letter of Credit
MBA	Masters' of Business Administration
MBS	Masters' of Business Studies
MVPS	Market Value Per Share
NCC	Nepal Credit and Commerce Bank Limited
NEPSE	Nepal Stock Exchange
NIC	Nepal Industrial & Commercial Bank
NP	Net Profit
NRB	Nepal Rastra Bank
NSBIL	Nepal SBI Bank Limited
P/E	Price Earning
PNB	Panjab National Bank
SCBNL	Standard Chartered bank Limited
SCT	Smart Choice Technology
SDC	Shankar Dev Campus
SEBON	Securities Boar of Nepal
SR	Systematic Risk
T. U.	Tribhuwan University
USR	Unsystematic Risk

CHAPTER - I

INTRODUCTION

1.1 Background of the Study

In a general view bank is an institution, which collect the money from people and give loan if anyone need the fund. However, in the broad sense, bank is that institution which polls the scatter fund and utilizes it into the productive sector that may contribute in the development of the economy. Bank deals with the money also it deals with credit and remittance and expanding business and perform the agent between the two parties (Bhandari, 2004).

Bank is an institution, which performs the intermediary between the surplus and deficit in the financial resources. An economic activity is directly or indirectly channele through the bank. Bank is the only one perfect institution, which makes easier the investment. Therefore, we can say the bank plays a crucial role in the process of economic development and its importance is as a means of achieving economic growth and prosperity within the country. In the process of providing financial services, they assume various kinds of risk. Investment in its simplest from means employing money to generate more money in future. It is the sacrifice of current rupees for the future return there is always some degree of risk. Investment is not gambling rather than it should be systematic and scientific way of investment for the expected return. Each investor spends most of his/her life for capital formation, which is invested later on. That's why each should be rational for investing their surplus. But in replace concern, most of the investor run after the market trend without being leads them to run in the future beside good return. So, in this study we decide for where to invest one of among the various of banking assets.

Investment decision depends upon two factors i.e. risk and return. Risk is the fluctuation of actual returns and expected returns. The objective of risk and return analysis is that investors how to create more returns and decrease the risk. Portfolio analysis is to minimize risk at the given rate of return. Portfolio is known as mix of two and more assets to investment. The minimization of risk is possible by investing in two or various securities. The portfolio theory is concerned with the selection of optimal portfolios i.e. portfolio that provides the highest possible return for any specific level of risk or the lower possible risk for any specified rate of return. Portfolio theory has been developed for financial assets to making investment from selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio (Alexander, Sharpe & Bailey, 2003).

Risk and return arise simultaneously out of any financial assets on which investors invest their funds. To maximize return without considering risk is almost impossible. Risk and return are needed not only at the time of initial investment but also for the whole investment processes where major decision should be made.

Financial market facilitates the flow of funds from surplus to deficit units. Those financial markets that facilitate the flow of short- term funds, that is, less than one year are know as money market. While those that facilitate the flow of long-term funds are known as capital markets. There are two types of securities. Securities having life less than one year are called money market securities and securities having long life, generally of more than one year are called capital market securities.

Return is income received from an investment, which is mainly two types one, is cash flow (revenue) receipts and other is income earned by appreciation of investment. These aforesaid terms should be quantified and examined the thoroughly to help investors achieve there investment goal. Risk and return,

portfolio selection, portfolio performance evaluation, efficient and frontier set, capital assets pricing model etc. are the most important dimensions of investment and without these aspects we cannot assume investment (Fisher & Jordan, 2000).

Most of Nepalese investors invest in single security. Though, some of the investors invest in two or more security, it is found that they don't make any analysis of portfolio before creation of such securities to invest. They invest their funds in difference securities on the basis of expectation and assumptions of individual security rather than on the basis of effect of portfolio. So, it is necessary to make them well acquainted with these tools along with their practical implications on investment decision and evaluation. Generally, investors are risk-adverse meaning that given the choice they choose less risky assets for the same level of return. Investor always seeks higher return for more risk as risk premium. So, primary problem in investment is to identify the security which has low and high return. Risk can be reduced by the creation of the portfolio. Right portfolio can diversification and eliminate the unsystematic risk, which is associated with change, in return on the market as a whole cannot be avoided. These risk and return, are obviously an important concept in investment and should be addressed. Commercial banking sectors have been fast growing situation at the current time. For investment in this sector should be analyzed carefully in terms of risk, return and portfolio creation. Reported profits, dividend is not enough base for rational investment and it is suggested not to quit from this sectors, risk and return should be performed between the firms of this industry to combine securities and to from portfolio. Securities of losing company may prove to be useful to construct portfolio combining with the stock of profit making company (Bajracharya & Bhattarai, 2005).

1.2 Profile of Sample Companies

1.2.1 Everest Bank Limited (EBL)

Everest Bank Limited was registered on November 17, 1992, come into operation on October 18, 1994 with an objective of extending professionalized, and efficient banking services to various segments of the society. Today the bank has grown to become one of the leading banks in Nepal.

Panjab National Bank (PNB) joined hands with EBL as a Joint Venture in 1997 and turned it around to a highly profitable bank. PNB joint venture partner of EBL one of the largest nationalized bank in India having 114 years of banking history holds 20% equity.

Everest Bank Limited (EBL) provides customer-friendly services through its wide Network connected through ABBS system, which enables customers for operational transactions from any branches. The bank has 50 Branches, 71 ATM Counters, 5 extension counter & 20 Revenue Collection across the country making it a very efficient and accessible bank for its customers, anytime, anywhere.

Everest Bank Limited was the first bank to introduce Any Branch Banking System (ABBS) in Nepal. All the branches of the bank are connected with ABBS, which enables the customers to do all their transactions from any branches other than where they have their account. Everest Bank has introduced the Mobile Vehicle Banking System to see the segment deprives of proper banking facilities through Birtamod branch, which is the first of its kind (www.everestbankltd.com).

Table: 1.1

Share Capital & Ownership of EBL

(Rs. In Millions)

Capital		Ownership	
Details	**Amount**	**Details**	**%**
Authorised Capital	2000	General Public	69.50
Issue Capital	1761.13	Institutions	10.50
Paid up Capital	1761.13	Foreign Ownership	20
Proposed Bonus Share	160.11	Total	100

Source: Annual report of EBL, fiscal year 2069/070

1.2.2 Nepal SBI Bank Limited (SBI)

Nepal SBI Bank was incorporated in Nepal on April 28, 1993 as a public limited company. It commenced operations on July 7, 1993 and is principally engaged in the business of banking, as defined in the Banks and Financial Institutions Act, 2006. Nepal SBI Bank Ltd. is a subsidiary of State Bank of India which has 55 percent of ownership and rest is held by a local partner viz. Employee Provident Fund (15%) and general public (30%).

The Bank is listed on Nepal Stock Exchange, Kathmandu. Nepal SBI Bank has since expanded into a network of 59 banking and non-banking outlets including 50 full-fledged commercial banking branches, 6 extension counters and 3 administrative offices. A network of 68 online ATMs covering all major cities in Nepal, 24 hours Mobile Banking and Internet Banking services support the delivery for speedier customer service (www.nepalsbi.com.np).

Table: 1.2

Share Capital & Ownership of SBI Bank Limited

(Rs. In Millions)

Capital		Ownership	
Details	**Amount**	**Details**	**%**
Authorised Capital	3000	General Public	29.64
Issue Capital	2364.71	Institutions	15.08
Paid up Capital	2355.74	Foreign Ownership	55.28
Proposed Bonus Share	294.47	Total	100

Source: Annual report of SBI Bank Limited, fiscal year 2069/070

1.2.3 NABIL Bank Limited (NABIL)

Nabil bank Limited the first foreign joint venture bank in Nepal was established in 1984, under the Company Act 1964. It was incorporated with the objective of extending international standard modern banking services to the various sector of the society. Pursuing its objective, Nabil bank provides a full range of commercial banking services through its 19 points of representation across the country and over 170 reputed correspondent banks across the globe. The mission of Nabil bank is to be the "Bank of the 1st Choice". The slogan of NABIL Bank is "Your Bank at Your Service". Until the date 2069 Ashad last, NABIL has 49 branch offices and 78 ATM counters all over the Nepal.

The bank expanded its banking services towards the different and parts of the country by expanding its branches. Besides banking, the bank also provides Credit cards, International trade and bank guarantee, Tele banking, Society for worldwide interbank financial telecommunications, Safe deposit locker, Western Union Money Transfer, ATM (Automated Teller Machine), E-Banking and Remittance facilities to its clients (www.nabilbank.com).

Table: 1.3

Share Capital & Ownership of NABIL Bank Limited

(Rs. In Millions)

Capital		Ownership	
Details	**Amount**	**Details**	**%**
Authorised Capital	2500	General Public	30
Issue Capital	2436.85	Institutions	15.07
Paid up Capital	2436.85	Others	4.93
Proposed Bonus Share	601.2	Foreign Ownership	50

Source: Annual report of NABIL Bank Limited, fiscal year 2069/070

1.2.4 Bank of Kathmandu (BOK)

BOK started its operation in March 1995 with the objective to stimulate the Nepalese economy and take it to newer heights. BOK also aims to facilitate the nation's economy and to become more competitive globally. Bok has 50 branches and 56 ATM counters.

November 30, 2011, will henceforth be marked as a milestone date in the history of the Bank, for it was on this day that an eminent panel of judges selected Bank of Kathmandu Ltd. as the deserving recipient of the “Bank of the Year – 2011” award. This prestigious award, established by The Banker – Financial Times, London, is the world’s longest running international banking title. It is a testament to the strong management, sound business model and prudent risk approach of the winner Bank (www.bok.com.np).

Table: 1.4

Share Capital & Ownership of BOK

(Rs. In Millions)

Capital		Ownership	
Details	**Amount**	**Details**	**%**
Authorised Capital	2000	General Public	96.004
Issue Capital	1684.39	Institutions	3.996
Paid up Capital	1684.39		
Proposed Bonus Share	235.82		

Source: Annual report of BOK, fiscal year 2069/070

1.3 Statement of the Problem

In comparison to the development and growth of capital market the investors attitude and knowledge does not seem to have changed significantly. They do not have sufficient knowledge about risk and return. There are no separate institutions to provide required information to make rational decision and on the other hand lacks of proper policy discourage the investors. Government policy is less encouraging proper investment situations. Some plans and policies are not implemented. There are no strong commitment towards increasing public investment in policy makers and government. Investors are the bases for any company they are the sources of revenue as a customer for the stockbrokers and financial institutions and ultimately they are the backbone of economic development of the nation. However, any above body has no any effective program to develop investor's knowledge. People feel more risk in stock investment than its real risk that may due to lack of proper knowledge about the stocks he/she is trading in due to the false presentation of stock prices in the secondary market. To build their confidence unbiased analysis and information about it is necessary. Unavailability of a simple and clear way or technique to analyze risk and return of individual stock and portfolio is therefore being a major weakness to increase stock investment and stock market efficiency as well (Bhalla, 2001).

In context of Nepal, investors are facing the problem of institutions to provide adequate information about the investment options. Investor should not get enough informational related to risk return as well as portfolio analysis of investing sectors. After the emergence of NEPSE in 1993 A.D. these type of problem somehow solved but the problem to another the Nepalese people is they feel more risk in stock investment than as its real risk. It keeps them in dilemma, whether they should invest in stock not and this all conditions makes them to not utilize their funds as a result investors have no much more alternatives for investment. So everyone is making investment on security market. Only few companies are listed in NEPSE which still limits the opportunities of investment. This trend has made the market unbalanced and unfair. If any bank or financial institution issues share their becomes huge demand rather than supply but if any manufacturing and processing issues shares very little investors make investment (Bhatarai, 2008).

- What is the risk and return on investment in selected banks stocks?
- Which bank can be selected based on risk and return?
- Which bank is better for investor to select?
- How to create an optimal portfolio using selected banking assets?
- What is the relation of each bank with the industry index?
- What is the proportion of systematic risk and unsystematic risk from the total risks?

1.4 Objectives of the Study

The basic objective of the study is to find out the condition of risk and return analysis of common stock investment and suggestion how to create a optimal portfolio among the selected commercial banks. The other specific objectives of the study are as follow.

- To analyze risk and return of investment in common stock of commercial bank.
- To determine relation of each bank with the industry index.
- To explain portion of systematic risk and unsystematic risk from the total risk.
- To analyze how to create optimal portfolio combination using selected commercial banks.

1.5 Significance of the Study

This study will be helpful to investors regarding the risk return statistics association with investment. Analysis of comparative study among various banks will be benefited for them to know about the position of financial performance. Risk return analysis and portfolio theory will create awareness to utilize their scarce resources with optimization. The customers financing agencies and stock traders are interested in the performance of the banks and they can identify as to which bank they should invest. This study will be helpful to know an idea about the optimum portfolio creation for Nepalese investors and financial institution.

In Nepalese context, there will lacks wider invest opportunities, which provides good rate of return. That's result huge amount of unutilized saving funds with general public. Nowadays, the capital market is also growing very slowly, the market is not efficient. There are very few magazines and articles related to capital market and very few studies are made on the topics risk and return. But in Nepalese investors one is investing on the capital market without any good knowledge and information. Therefore, investment on the capital market is just like 'shooting in dark'. The study will give more information about the condition of companies and it will help to contribute to increase the analytical power of the investors in capital market. This study also helps to banking institutions definitely contribute and play vital role for domestic resource mobilization, economic development and maintain economic confidence of various segments and extends credit to people.

So, every investor has to diversity their investment to minimize risk without diversity its investable funds into different companies common stock Maintenance of sound investment policy is impossible. So, the study is mainly concerned with the risk and return analysis at Nepalese commercial banks. Considering the above in mind, following problems are identified which are to be researched. In Nepalese contest the concept of security market began with the set up of Nepal stock exchange "former known as securities exchange center" in 1976. This is the only stock market in Nepal. Many investors are still afraid to invest in securities because of inadequate knowledge in this field and most investors are exploited from market intermediaries. For this purpose potential investors must be able to analyze risk and return of individual stock to increase market efficiency and consequently speed up the economic development.

1.6 Limitations of the Study

Every work has its own limitation due to lack of time, resources and knowledge. This study has following limitations.

- This study has been based on mainly secondary as well as primary sources of data i.e. annual reports of banks, Nepal Rastra Bank, SEBON, NEPSE, government publications, other related journals and news papers.
- The study is only concerns about risk and return analysis of sample banks and idea about optimal portfolio creation.
- Among the various commercial banks in Nepal the study is only concerned on four commercial banks.
- The study covers only thevperiod of five fiscal years since the fiscal year 2065/066 to 2069/070, which will be processed for drawing conclusion.
- The study concentrates only on those factors which are related with common stock and available in the form required for analyzing the different issues.

1.7 Organization of the Study

The research will be divided into five chapters.

Chapter -I - Introduction

It introduces background of study, Profile of the sample companies, statement of problem, objective of the study, significance of the study, limitations of the study and organization of the study.

Chapter - II - Review of Literature

It includes pilot studies and textual concepts with regard to conceptual framework on investment, risk, return and portfolio along with the review of major books, journal, research work and thesis etc.

Chapter - III - Research Methodology

This chapter includes research design, population & sample, sources and types of data, data processing technique and method & tools of data analysis.

Chapter - IV - Presentation and Analysis of Data

This chapter deals with the presentation and analysis of data. It analyses the data and interprets the results using different financial and statistical tools, table, chart and graphs.

Chapter - V - Summary, Conclusion and Recommendations

This is the last chapter of the study. It summarizes the result of analysis and suggestive framework.

Besides these, bibliography and annexure are presented at the end of the thesis. Similarly acknowledgements, table of contents, list of tables, list of figures, abbreviations are included in the front part of the thesis report.

CHAPTER - II

REVIEW OF LITERATURE

Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies their conclusions and deficiencies may be known & further research can be conducted. This chapter deals with the theoretical aspects of the topic risk & return and portfolio analysis in comprehensive detail and descriptive manner. Main purpose of reviewing the literature is to develop some expertise in ones area to see what new contribution can be made and to receive some idea for developing a research design.

This chapter focuses on the review of literature, research studies and other pertinent prepositions in the related field study, textbooks and reference books relevant to the risk, return, investment and portfolio of commercial banks in Nepal particularly different journals, article, annual reports and some research paper related with this topic .This chapter is arranged into the following manner.

1. Conceptual Review
2. Review of Related study
    - Review of Journals and Articles
    - Review of Thesis

2.1 Conceptual Review

Conceptual Review provides the fundamental theoretical frame work and foundation to the present study. Hence books, research paper etc. dealing with theoretical aspects of risk, return, investment and portfolios are taken into consideration.

2.1.1 Investment

Investment usually means the sacrifice of the current money for future money. The sacrifice takes place in the present and the reward comes later, if at all, and the magnitude is generally uncertain. However, Shrestha (2000) describes investment as utilization of saving for something that is expected to produce profit or benefits. Investment is employment of funds to achieve added income or growth in value. It involves the commitment of resources put off from current consumption with hope of capitalizing some benefits in future. It includes both real asset and financial asset .Real asset investment denotes the tangible assets like building, land, machinery, factory and the like. On the other hand, financial asset investment indicates papers representing an indirect claim to real asset held by someone else. .Nevertheless, real asset is less liquid than financial asset.

Investment may be defined on the purchase by an individual or institutional investor of financial or real assets that produces a return proportional to the risk assumed over some future investment period. It is an investment is a commitment of funds made in the expectation of some rate of return. If the investment is properly undertaken the return will be commensurate with the risk the investor assumes (Shrestha, 2000).

Investment can be made on real assets or financial assets. An investment on real asset is known as real investment and on financial assets is known as financial investment. Real investment is also known as fixed assets investment, which indicates investment on land and buildings, machinery, factory & etc. Financial investment means the investment on financial assets like shares, debentures, warrants, convertibles etc.

“Investment is the current commitment of funds for a period of time to derive a future flow of funds that will compensate the investing unit for the time funds are

committed, for the expected rate of inflation and also for uncertainty involved in the future flow of the funds" (Frank & Keith, 2004).

The above definitions infer that an investment is the allocation and mobilization of funds for a certain time period to acquire some extra benefit or extra attachment with mobilized fund.

2.1.1.1 Investment Portfolio

A portfolio is usually defined as a combination of assets. It is a collection of securities. Portfolio means the lists of holding in securities owned by an investor or institution. A portfolio is a collection of investment securities. Example, if you hold some stocks of Nepal Investment Bank Ltd., some of Bottlers Nepal Co., some of Radisson Hotel and some of Standard Chartered Bank Ltd. Your investment portfolio consists of the stocks of these four different companies. Portfolios analysis considers the determination of future risk; and return is a weighted average of the expected return of the individual securities.

Portfolio theory deals with the selection of optimal portfolio i.e. the portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Portfolio theory has been developed for the financial assets. Thus making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

A portfolio simply represents the practice among the investors of having their funds in more than one asset. The combination of investment assets is called a portfolio (Weston & Brigham, 1982).

An investor who has been paying someone or actively manages his or her portfolio has every right to insist on knowing what sort of performance was obtained. Such information can be used to alter either the constraint placed on the manager, the

investment objective given to the manager, to the amount of money allocated to manager. Perhaps more importantly, by evaluating performance in specified ways a client can forcefully communicate his\ her interest to the investment manager and in all likelihood, affect the way in which his or her portfolio is managed in the future. Moreover, an investment manager, by evaluating his or her own performance, can identify sources of strengths or weakness.

2.1.1.2 Investment Alternatives

There are various alternatives for investors.

<table>
<tr><td>1. Equity Securities</td><td colspan="2">• Common Stock
• Preferred Stock</td></tr>
<tr><td>2. Short term debt securities</td><td colspan="2">• Negotiable certificates of deposit
• Commercial paper
• Banker’s acceptances
• Treasury Bills</td></tr>
<tr><td rowspan="4">3. Intermediate and Long Term Debt Securities</td><td>• Government securities</td><td>➢ Treasury Notes
➢ Treasury Bonds
➢ Saving Bonds</td></tr>
<tr><td colspan="2">• Agency securities</td></tr>
<tr><td>• Municipal Securities</td><td>➢ Revenue bonds
➢ General obligation bonds</td></tr>
<tr><td colspan="2">• Corporate bonds</td></tr>
<tr><td>4. Hybrid Securities</td><td colspan="2">• Convertible preferred stock
• Convertible bonds</td></tr>
<tr><td>5. Derivative securities</td><td colspan="2">• Options
• Community futures
• Financial futures
• Options in futures
• Rights
• Warrants</td></tr>
<tr><td>6. Real Assets</td><td colspan="2">• Precious Metal
• Real State
• Collectibles</td></tr>
</table>

7. International Investment	• Multinationals Corporations • Foreign stocks traded on all local exchange • American Depository Receipts (ADRs
8. Other Investment Alternatives	• Pension Funds • Mutual funds • Closed –end Companies

Source: Weston, and Brigham, 1982

2.1.1.3 Investment process

The investment process analyze how an investors makes decision about what securities to invest in, how extensive this investment should be and when they should be made. The investment process is as follows.

i. Setting investment policy

The initial step in setting an investment policy involves determines the investment objectives and the amount of one's invest able wealth. Investment is always related with risks and returns. This step involves the identification of potential categories of financial assets for consideration in the ultimate portfolio. The identification of assets based on the investment on the investment objectives, amount of invests able wealth and tax status of investor.

ii. Performing security Analysis

In this stage, security analysis involves examining a number of individual securities/ group of securities within the broad categories of financial assets. The investor will evaluate them of their price whether they are under price and overpriced, risk associated with that specific security, their expected return and real return and so on.

iii. Portfolio construction

At a stage we identify assets in which in invest and what proportion of the investor's wealth to put in each one. While constructing a portfolio, the selectivity, timing and diversification need to be addressed by the investor.

iv. Portfolio Revision

This step involves both realizing that the currently held portfolio is not optimal and specifying another portfolio to hold with superior risk-return characteristic. The investor must balance the cost of moving to the new portfolio against the benefit of the revision.

v. Portfolio Performance Evaluation

In this stage is to evaluate the investment performance. The performance should be evaluated not only in terms of the returns but also in terms of the risks experienced. To evaluate the performance appropriate measures and standards are needed (Bhalla, 2001).

2.1.2 Common Stock

It is an ownership share in a corporation. Common stock certificates are legal documents that evidence ownership in a company that is organized as a corporation they are also marketable financial instrument. Sole proprietorship and partnership are other forms of business organizations, but only corporations can issue common stocks.

Common stock is the recipient of the residual income of the corporation. Through the right to vote, holders of common stock have a legal control over the corporation. An element of risk is also involved in equity ownership due to its low priority of claim at liquidation. Common stockholders have limited liability. Common equity provides

a cushion for creditors if losses occur on dissolutions. The equity-to-total-assets ratio is an indicator of the degree by which the amounts realized on the liquidation may decline from the stated book values before creditors suffer losses.

Common stock has one important investment characteristic and one important speculative market price tends increase irregularly but persistently over the decades as their net worth builds through the reinvestment of undistributed earnings. However, most of the time common stocks are subject to irrational and excessive price function in both directions, as the consequence of the ingrained tendency of most people to speculative or gamble, i.e. to give way to hope fear and greed.

Of all the forms of securities common stock appears to be the most romantic while fixed income investment revenue may be more important to most of the investor. Common stock seems to the capture their interest the most. The potential reward and penalties associated with common stock make them on interesting even exciting proposition, no wonder, and common stock investment is a favorite's topic for conversation in parties and gets together (Fisher, & Jordan, 2000).

Common stockholders of a corporation are its residual owners, their claim to income and assets comes after creditors and preferred stock holders have been paid full. As a result, stockholders return on investment is less certain than the return to lender or to a preferred stockholder. On the other hand, the share of a common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance (Van Horne, 1997).

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merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the difference between the below par price they paid and the par value. Common stock holders are entitled certain right, which are as follows (Van Horne, 1997).

- Control through voting right
- Preemptive right
- Limited liability
- Right to income and distribution of additional shares
- Residual right

2.1.2.1 Common Stock Values

Common stock values are either denoted by par value, book value or market value. These three terms are different and their rupee amount differs.

a. Par Value

The face value of one stock established at the time the stock is initially issue known as par value. Generally common stock carry Rs100 par value.

b. Book Value

The sum of the cumulative R/E and other entries such as common stock and capital contribution in excess of par value under stock holders equity is the book value of the equity.

c. Market Value

The value of share in secondary market traded between investors and traders is the market value. Market value is the consequence of demand and supply.

2.1.3 Security Market

A security market can be defined as a mechanism for bringing together buyers and sellers of financial assets. In order to, facilitate trading. It means the market where the securities are treated. Security market can be distinguished in to.

- Primary and secondary market
- Money and Capital Market

2.1.3.1 Primary Market

Security offered for the first time to the general public through the primary securities market. The issuer may be a brand new company. It is also known as New Issue Market (NIM).

2.1.3.2 Secondary Market

“The secondary market is not keeping pace with the growth of the primary market. This is mainly due to lack of the needed efforts on the concerned authority to devise suitable package of measure to encourage the growth of broker network in the country's growing stock exchange” (Shrestha, 2000).

2.1.3.3 Money Market

Money market is also called short term financial market which is the set of supplying short term debt or working capital needed for industries, business or incorporated etc. The instruments of money market are inter-bank deposited, government securities, banker’s acceptance, certificate of deposited and commercial papers issued by non financial institutions.

2.1.3.4 Capital Market

Capital Market is the market where the transaction of long term finance is made. The fund collected in this market are raised and traded by long term financial instrument such as equities and bonds.

2.1.4 Return on Common Stock

The meaning of return has different meaning to different investors. The rate of return from capital investment is a concept that has different meaning to different investors. Some competitive seek near term cash inflow and give less value to more distant returns. Return can be expressed by cash dividend or capital gain or loss. Some investors measure return using financial ratios. Single holding period return may be defined as all possible future cash flows that can be earned holding securities up to holding period. It can be also defined as the changes in the value plus any cash distribution expressed as a percentage of the beginning of the period of investment value. An investor can obtain two kind of income from the investment is a share or bonds.They are as follows;

- Income from price appreciation or losses from price depreciation. It is called capital losses and gain.
- Cash flows income from cash dividend or coupon interest payment.

Return shows financial position of any organization. The company position of any Organization may be better if it has higher return. Return is rewards for an investor from his or her organization. Investors always want to maximize expected return subject to their tolerance for risk. Return is motivating forces and it is the key method available to investors in capering investment alternatives. Realized rate of return and expected rate of return which are often used in language of investment. Realized rate of return is after the fact return that was earned or it is the historical return.

The return on investment can be measured as the total gain and losses expressed on the behalf of owner over the given period of time. It is commonly stated as the change in value plus any cash distribution expressed as percentage of the beginning period investment value. The expression for calculating the rate of return (Ks) earned any assets over the period (t) is commonly defined as; (Bhattarai, 2008).

Total Return = Capital Gain + Regular Gain (Ordinary Gain)

Capital Gain = Ending Price - Beginning Price

Regular Gain = Dividend Or Interest

2.1.4.1 Single Period Rate of Return

The investment return is defined as the after tax increase in the value of the initial investment. The increase in value can come from to sources direct cash payment to the investor or an increase in the market value of the investment relative to the original purchase price. The rate of return over the holding period, or HPR is computed as.

$$\text{HPR} = \frac{\text{Endng Price} - \text{Begnning Price} + \text{Cash Receipt}}{\text{Begnning price}}$$

2.1.4.2 Required Rate of Return

When setting the required rate of return on an Investment, an investor must consider the real rate of return, expected inflation and risk. Because consumption is foregone today, the investor is entitled to a rate of return that compensated for this deferred consumption since the investor expects to receive an increase in the real goods purchase later, and assuming for the moment, zero inflation and risk, the required rate could equal to the real rate of return, in which case it would represent the pure time value of money. The capital markets determine this real based upon

the supply of money to be invested relative to the demand for borrowed money (Cheney and Moses, 1995).

The required rate of Return is the minimum rate of return that an investor expects from his/her investment in risky assets. It is the function of real rate of return and risk. The required rate of return is the return on risk free assets.

2.1.4.3 Expected Rate of Return

If an investment is to be made, the expected rate of return or the expected holding period return, should be equal to or greater than the required rate of return for that investment. The expected rate of return is based upon the expected cash receipt (e.g. divided and interest) over the holding period and the expected ending or selling price. The expected rate of return is unknown future return. The investor has forecast possible outcomes each based upon a possible state of the economic. Each economic state will result in a different expected rate of return. Subjective probabilities are assigned to each out come. The overall expected rate of return, E (HPR) can be calculated as a weighted average of the three forecasts (Cheney and Moses, 1995).

2.1.5 Risk on Common Stock

Risk, in simple word, is an uncertainty. Risk and uncertainties are the facts of life so to the common stock holder. Technically, their meanings are different. Risk, simply in Investment, means a chance of happening some unfavorable event or danger of losing some value. Risk suggests that a decision maker knows the possible consequences of a decision and their relative livelihoods at the times he makes decision.

The practice is to translate the uncertainty into a mathematical value which represents the uncertainty into a mathematical value which represent the best estimate of all uncertainty value. But risk is treated differently. Although risk arises

from uncertainty, its magnitude depends upon the degree of variability in uncertain cash flows, it is measured in terms of standard deviation. In project analysis the project risk indicated of the probability of return being less than the expected value higher the probability of such loss or less return, higher the project risk (Pradhan, 1993).

Risk is defined in Webster's dictionary as a „hazard: a peril: exposure to loss or journey", thus for most, risk refers to the chance that some unfavorable event will occur. If u invest in speculative stock (or, really, any stock), you are taking a risk in the hope of making an appreciable return (Weston & Brigham, 1982).

2.1.5.1 Sources of Risk

Financial risk is an umbrella term for multiple types of risk associated with financing, including financial transactions that include company loans in risk of default. Risk is a term often used to imply downside risk, meaning the uncertainty of a return and the potential for financial loss

a. Interest Rate Risk

Interest rate risk is potential variability of return caused by changed in the market interest rate. If market interest rates rise, then investment's values and market price will fall and vice versa. The variability of return that results is interest rate risk. This interest rate risk affects the price of bond and stock etc.

b. Purchasing Power Risk

It is the variability of return an investor suffers because of inflation. Economists measure the rate of inflation by using a price index. The percentage change in the consumers price index is a widely followed measure of the rate of inflation.

c. Bull-Bear Market Risk

Bull bear risk arise from the variability in market return resulting from alternating bull and bear market forces. When a security index arises fairly consistently from a low point, called a though, for a period of time, this upward trend is called a bull market. The bull market ends when the market Index reached a peak and starts a downward trend. The period during which the market declined to the next through is called a bear market.

e. Management Risk

Though many top executives earn princely salaries, occupy luxuries offices and wield enormous power within their organization, they are mortal and capable of making a mistake or a poor decision. Furthermore errors made by business managers can harm those who invested in their firm forecasting management errors is difficult work that may not be worth the effort and, as a result, impacts a needlessly skepticism with informed insight as they endeavor to analyze subjective management risks.

f. Default Risk

Default risk is that portion of an investments total risk that results from changed in the financial integrity of the investment.

g. Liquidity Risk

Liquidity risk is that portion of an assets total variability of return which results from the price discounts given or sales commissions paid in order to sell the asset without delay.

h. Call Ability Risk

That portion of a securities total variability of return that derives from the possibility that the issue may be called is the call ability risk. Call ability risk commands a risk premium that comes in the form of a slightly higher than average rate of return. This additional return should increase as the risk that the issue will be called increases.

i. Convertibility Risk

Convertibility risk is that portion of the total variability of return from a convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock at a time harmful to the investors best interests.

j. Political Risk

Political risk arises from the exploitation of a politically weak group for the benefit of a politically strong group, with the efforts of various group to improve their relative positions increasing the variability of return from the affected assets (Frank & Keith).

k. Industry Risk

An industry may be viewed as a group of companies that complete with each other to market a homogeneous product. Industry risk is that portion of an investments total variability of return caused by events that effect the products and firms that make up an industry. The stage of the industry's life cycle, international tariffs and or quotas on the products produced by an industry, product or industry related taxes, industry wide labor union problems, environmental restrictions. Raw materials availability and similar factors interact and affect all the firms in an industry simultaneously (Cheney and Moses, 1995).

2.1.5.2 Types of Risk

The total variance of the rate of return is the sum total of various risks which are primarily classified into two types.

1. Systematic Risk
2. Unsystematic Risk

Hence,

Total Risk = Systematic Risk + Unsystematic Risk

a. Systematic Risk

It refers to that portion of the variability of an individual security's return caused by factors affecting the market as a whole as such it can be thought of being nondiversifiable.It is because of this that it is also called market risk or relevant risk. The systematic risk is market related. In other words, it arises from the changes in the economy and market condition. For example, high inflation, recession, impact of political factors, wars, depression, long term changes etc which are beyond the control of company management. It affects all the firms in the market. The systematic risk is rewarded in the form of risk premium, sometimes; systematic risk is called market risk. systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at a small number of assets. The principle of diversification has an important implication to a diversified investor, only systematic risk matters. Systematic risk accounts for 25% to 50% of the total risk of any security (Fisher & Jordan, 2000). Some of the sources of systematic risk include.

- Interest rate changes.
- Changes in purchasing power.
- Changes in investor's expectation about the overall performance of the economy.

- Because diversification cannot eliminate systematic risk, this type of risk is the
- predominant determinant of the individual security risk premium. This risk is also called beta risk (Weston & Brigham, 1982).

b. Unsystematic Risk

It is also called diversifiable risk or company specific risk or unavoidable risk. It is such a risk which is unique to the firm. The unsystematic risk is non market factors related. In other word, it arises from the project specific factors. This portion of risk is possible to reduce or eliminate through diversification of their investments. It is inherent individual companies or projects. It is the variability in the security's return caused by such factors as (Weston & Brigham, 1982).

- Management capability and decisions.
- The availability of the raw materials.
- Strikes.
- The unique effects of government regulations such as pollution control.
- The effect of foreign competition.
- The particular levels of financial and operating leverage of the firm employees

2.1.6 Statistical Measure of Risk

The parameter of return distribution is a measure of dispersion of variability around expected return. The basic and conventional measure of dispersion is the standard deviation. For normally distributed returns, the mean and the variance of the distribution well describe the investment performance and support in right way valuing risky investment. The measurement of risk has always been a subject for

debate. This disagreement stamps primarily from the various was investors perceive risk (Cheney & Moses, 1995).

2.1.6.1 Standard Deviation (SD)

Standard deviation measures the risk as variability of return. “Standard deviation is a statistical measure of the variability of a set of observations. It is the measure of total risk. Smaller the variance, lower the risky of the stock and vice- versa. The risk or standard deviation is denoted by the symbol sigma (σ). The square root of the variance of the rate of return is called the standard deviation (σ) of the rate of return” (Bhattarai, 2008).

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R_A - \bar{R}_A)^2}{n-1}}$$

Where,

R_A = Rate of return of individual asset

$\bar{R}_A$ = Expected Return of Asset ‘A’

σ = Standard deviation or risk

n = no. of years

2.1.6.2 Coefficient of Variation (CV)

Standard deviation is obsolete measure of return where as coefficient of variation is relative measure of return. Risk is measured by standard deviation. And risk per unit of expected return is measured by coefficient of variation is denoted by CV. Greater the CV the greater relative risk of the investment. Coefficient of variation is calculated to compare the variability in returns of two alternative investments. Hence, it is useful to compare the investments having different expected return and different level of risk (Ven Horne & Wachowicz, 2001).

2.1.6.3 Beta coefficient

This is a mathematical value that measures the risk of one asset in term of its effect on the risk of group of assets called portfolio. It is concerned solely with market related risk as would be the concern for the investor holding stocks and bonds. It is derived mathematically so that a high beta indicates a high level of risk and low beta represents a low level of risk (Weston & Brigham, 1982).

2.1.7 Relationship between Risk and Return

The relationship between risk and return is described by investor perception about risk and their demand for compensation. Those investors who can tolerate higher level of risk should be regarded with higher level of return. This statement is supported by the most empirical studies of historical risk return relationship. No investors like to invest in risky security unless he is assured of adequate compensation for the assumption of risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rational investors, higher risk will command higher premiums, the trade-off between the two assumes a liners relationship between risk and risk premium.

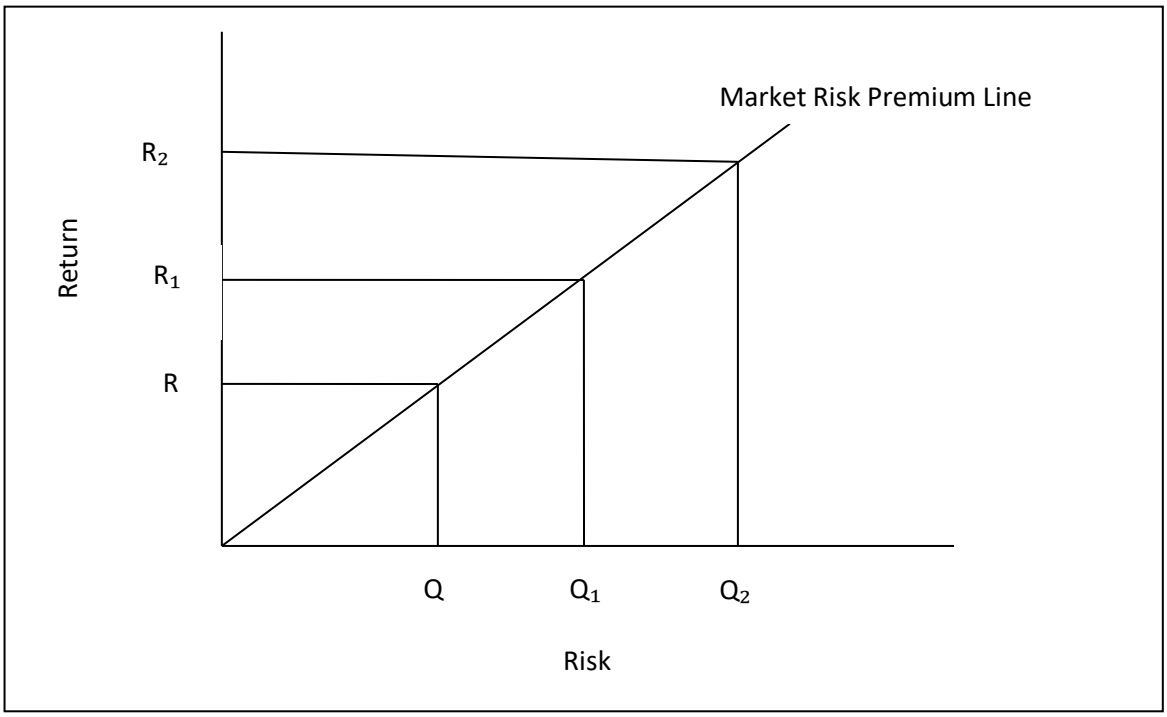
The observe different in both the levels and variability of the rates of return across securities are indicative of the underlying risk return relation in the market (Weston & Brigham, 1982).

Generally, there is a positive relationship between rate of return and risk. It means an investor can usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a riskier asset will pay. A higher average rate of return, It is usually. The reason is that investors are risk averse. As a result, high risk assets most offer investors high return to induce them to make this riskier investment. Naturally, investors are likely to prefer more return and less risk. It means investors will not choose an investment that guarantee less return when

investment promising higher return in the same level of risk class are readily available. Risk and Return relationship can be shown by following figure.

Figure 2.1

Relationship between Risk and Return



2.1.8 Portfolio Risk and Return

Each asset's expected return and risk along with the expected return and risk for other asset's and their interrelationships are important inputs in portfolio selection. In order to construct efficient portfolios, the investor must be able to quantify the portfolios expected return and risk (Cheney & Mosses, 1992).

From an investor's standpoint the fact that a particular stock goes up or down is not very important. What is important is the return on his /her portfolio, and the portfolio's risk. Logically, then the risk and return characteristics of an investment should not be evaluated in isolation rather, the risk and return of an individual

security should be analyzed in terms of how the security affects the risk and return of the portfolio in which it is held.

2.1.8.1 Portfolio Return

The expected return of a portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportions of the investor's wealth invested in each asset and the sum of the weight must equal to one (Cheney & Mosses, 1992).

The expected return on portfolio depends upon the amount of funds invested in each security, given expected return on the individual securities.The portfolio expected return is defined in equation as follows.

Portfolio return (R_P) = $W_A \overline{R}_A$ + $W_B \overline{R}_B$ + ……. + $W_N \overline{R}_N$

Where,

R_P = Return on Portfolio

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

$\overline{R}_A$ = Expected Return of Asset 'A'

$\overline{R}_B$ = Expected Return of Asset 'B'

2.1.8.2 Portfolio Risk

The calculation of a portfolio risk is not as straight forward as the calculation of a portfolio's expected return. In order to calculate the risk of a portfolio, consideration must be given not only to the risk of the individual assets in the portfolio and their relative weights but also to the extent to which the assets returns move together. We measure the risk of an individual asset by the variance of returns or its square root, the standard deviation. The degree to which the asset's return move together is measured by the covariance or correlation coefficient. By combining the measures of

individual asset risk (variance or standard deviation), relative asset weights, and the co-movement asset's return (covariance or correlation), the risk of the portfolio can be estimated. Total risk is measured by either the variance or its square root, the standard deviation of returns (Cheney & Mosses, 1992).

For two assets case;

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$$

Where,

δ_P = Portfolio Risk

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

δ_A = Risk on Asset 'A'

δ_B = Risk on Asset 'B'

COV_{AB} = Covariance between Asset 'A' and Asset 'B'

$$COV_{AB} = \frac{\sum[(R_A - \bar{R}_A)(R_B - \bar{R}_B)]}{n-1}$$

For three assets case;

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + W_C^2 \delta_C^2 + 2COV_{AB} W_A W_B + 2COV_{BC} W_B W_C + 2COV_{AC} W_A W_C}$$

Where,

δ_P = Portfolio Risk

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

W_C = Weight or Proportion of Asset 'C'

δ_A = Risk on Asset 'A'

δ_B = Risk on Asset 'B'

δ_C = Risk on Asset 'C'

COV_{AB} = Covariance between Assets 'A' and Asset 'B'

$\mathrm{COV}_{\mathrm{AC}}$ = Covariance between Assets 'A' and Asset 'C'

$\mathrm{COV}_{\mathrm{BC}}$ = Covariance between Assets 'B' and Asset 'C'

2.1.9 Capital Asset Pricing Model (CAPM)

CAPM is a model based on the presentation that the required rate of return on any stock is equal to the risk free rate of return plus its risk premium, where risk is measured by the beta coefficient.The CAPM is a relationship in which the expected rate of return of the asset is a linear function of that assets systematic risk.The CAPM represents the trade-off systematic risk for the returns that investors expect to receive.The CAPM explains the behaviour of security prices. Its further explains how the prices and interest rate on risky financial assets are determined in the capital market. CAPM combines the principles of portfolio theory with certain assumption regarding investors expectations and market characteristics (Francis, 1997).

Assumptions

- Individual are risk averse.
- Individual can borrow and lend free at risk free rate of interest.
- Individuals have homogenous expectations regarding risk and returns of securities.
- The market is perfect and competitive.
- There are no transaction costs and taxes.
- Securities are divisible.

The CAPM equation is written as follows;

$$\sum(Rj) = Rf + (Rm - Rf)\beta j$$

where,

$\sum(Rj)$ = Expected return on assets

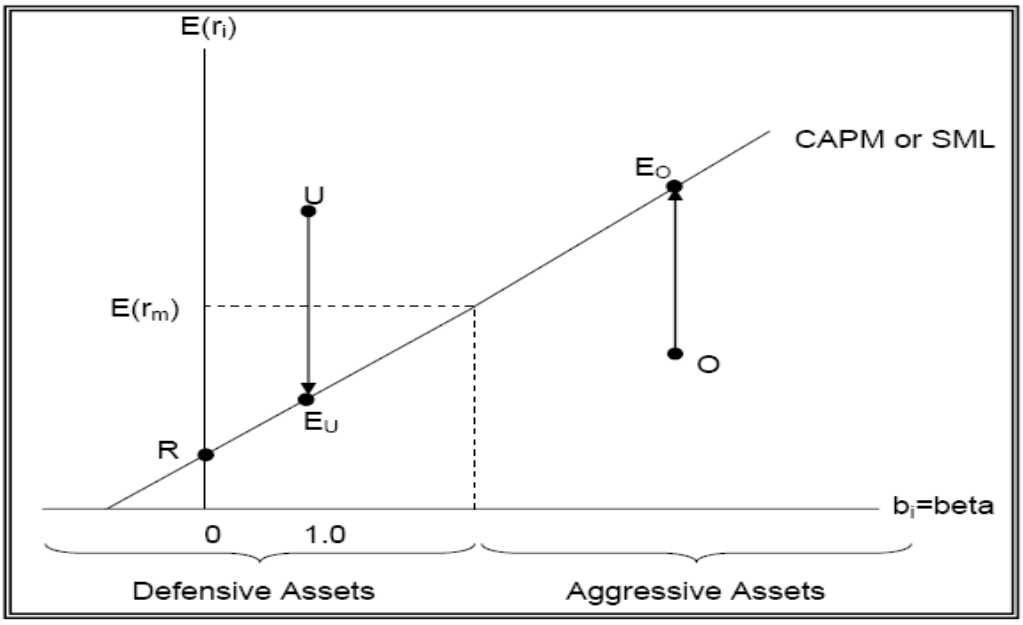
Rf = Risk free rate of return

Rm = Market return

Bj = Coefficient of Beta

Figure: 2.2

Capital Assets Pricing Model



Source: Francis, 1997

A vertical line in the Figure shows a risk class for systematic risk. The CAPM relates an expected return to each of the systematic risk. These expected returns can be interpreted as the appropriate discount rates, as the cost of capital, or as equilibrium rate of return that investors expect for that amount of systematic risk. In the figure, U and O are not in equilibrium on the CAPM. Asset U is undervalued and therefore desirable to own the asset. The price of U will rise in the market as more investors purchase it. When price goes up of asset U, its return falls. When U's return falls to the return consistent with its beta on the SML, equilibrium is attained. The asset O is overvalued. Investors will attempt to sell O, and therefore puts the downward pressure on O's price. When the return on asset O increases to the rate that is consistent with the beta risk level given by the SML, equilibrium will be achieved and downward price pressure will cease. Hence, the CAPM or SML is relationship in which

the expected rate of return of the individual asset is a linear function of that asset's systematic risk as represented by beta (β), symbolically. According to Sharpe & Litner (CAPM) study: the greater the beta of a security, the greater the risk and the greater the expected return required. The lower the beta, the lower will be the risk (Francis, 1997).

2.1.10 Optimal Portfolio Creation

One of the safest ways an investment portfolio generates money is through fixed income investments. These are usually in the form of bonds issued by corporations or governments or from dividends paid to shareholders by a corporation. Issues effecting fixed income are the credit worthiness, or default risk, of the issuer, and the yield earned by the bondholder. Safer lenders, such as those of governments or blue-chip companies, typically pay a lower yield--at times, so low that the real return after inflation is at or below zero! On the other hand, a company or government that goes bankrupt will be unable to pay its high dividends or service its debt. Yields between 3% and 7% are generally considered safe. When an investor sells something for more than they paid for it, they're said to have realized a capital gain. This sort of buying low and selling high is, of course, the goal of most investors. To do this successfully, however, requires patience, discipline and a deep knowledge of macroeconomic trends. In an environment when an economy is growing, most assets will tend to rise in value, making capital gains relatively easy to come by. Asset allocation is much more difficult and crucial in a period of stagnant or contracting growth. During these times, investors will have to monitor capital flows to know which assets can maintain their value or appreciate while others decline. Capital gains can be realized over a very long period of time, which is recommended for most novice investors, or over a very short period of time, as little as a few minutes or hours for risk-taking day traders.

To mitigate the risks of asset allocation within a portfolio, managers diversify their holdings. This means they invest partially in fixed income while pursuing capital gains across the risk spectrum with other investments. If done correctly, diversification will vastly reduce risk while preserving growth potential. One asset class that got increased attention from portfolio managers recently was commodities. Traditionally, commodities were only traded on futures exchanges in contracts for delivery, which made them inconvenient for traditional portfolio investment. The proliferation of exchange-traded funds and exchange-traded notes backed by commodities futures, at a time when commodities in general were appreciating rapidly, led many managers to make commodities a permanent asset class in their portfolios. This study also gives an idea for how to create an optimum portfolio which gives knowledge about portfolio (Hampton, 1998).

1st Step: - The first thing a good portfolio must have is a solid base. This includes plenty of cash. There is no reason to have committed all of one's money unless things are ridiculously cheap. However, one doesn't have to restrict oneself to US currency. Other currencies can be bought without thinking of them as an actual investment. There are plenty of etfs and even some bank accounts for this. Two stocks to consider when anchoring a portfolio are Philip Morris International and Berkshire Hathaway. These two are tops as far as stability goes. Big companies like these shouldn't really be thought of as investments but rather as anchors. They are there to keep the portfolio from sinking. Precious metals fall into this base group as well.

2nd Step: **-** The ideal portfolio needs a health portion of energy companies. The days of cheap fuel are over. The four dollar gas and one hundred forty dollar oil we had a while back wasn't a fluke but rather a sign of things to come. The large foreign oil companies like Petro China and Petrobrazil are probably a good move. Petrobrazil seems more expensive right now. Natural gas has been hit hard. Unl and ung are decent proxies for the stuff. I'd also look for a fund that invests in oil futures directly.

3rd Step: - Small and medium sized companies are the real drivers of a portfolio. Don't pay much attention if someone suggests a large cap. Very few can be found that are mispriced. The rule is if you've heard of it without research it will probably be an average performer for a portfolio. Big stocks anchor portfolios. Don't expect them to drive yours. Look in less explored waters. For example one small cap I'm interested in is nep. It's an energy company in China that has some cost advantages against other players. Have only a few companies over five billion in your portfolio. This is about the cut off line for performance.

4th Step: - One should try to get some actual real state, metals, and controlled businesses in a portfolio. Don't let anyone tell you resist are a substitute for real estate. They're not. Look for investments where you control the cash flow. I know these are the hardest to get hold of and manage, but they are often far more powerful choices than paper assets. No one has ever gotten rich off of buying paper assets in a reasonable amount of time. Remember that even Warren Buffett's main advantage was his ability to be paid for managing partnership money not the returns he gathered from the paper assets.

5th Step :- Zero coupon bonds are nice to have in the portfolio for when hard times hit and the government starts cutting rates. Obviously, rates are too low to buy them now but wait and maybe and some later when the time is right (www.investopedia.com).

2.2 Review of Journal/Articles

Smith (1996) published an article *"The Application of economic theory to financial markets"* it is a large body of theory including such as well known models as Modern portfolio Theory of Markowitz (1952). The capital assets pricing model of Sharpe (1964), The efficient market Hypothesis of Samuelson (1965) and Fama (1965), and the option pricing model of Black and Scholes (1973). Although these model are all included in institute of faculty education ltd., their acceptance or use is controversial.

Investor's whether they are individual or institutions such as pension funds mutual funds or cloolege endowments hold portfolio that is they hold a collection of different securities. Much of the innovation in investment research over the past 40 years has been the development of a theory of portfolio management and this module is principally an introduction to these new methods. It will answer the basic question what rate of return will investors demand to hold a risky security in their portfolio.

The investor return is a measure of growth in wealth resulting from that investment. This growth measure is expressed in percentage forms to make it comparable across large and small investors. Stock return may be riskier or more volatile, but this concept is a difficult one to express simply. To do so, we borrow a concept from statistics, called standard deviation. It as single measure, allowing us to quantity asset return by risk, and it also provides the basis for investor decision about portfolio choice.

Acharya & Dhungana (2002) on the title of *"Expected return, realized return and asset pricing tests"* is also relevant in our research. In this paper the writer mentioned that "almost all of the testing I am aware of involves using realized returns as proxy for expected returns relies on a belief that information surprise trend to cancel out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, I believe that here is sample evidence that is belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risky long term bonds on average under perform the risk free rate (1927 to 1981). Having a risky assets with an expected return above the risk less rate is an extremely weak condition for realized returns to be an appropriate proxy for expected returns and 10 and 50 years is an awfully long time for such a week condition not to be satisfied.

Shrestha (2004) has given a short glimpse on the *"Portfolio Management in Commercial Bank, theory and practice"* Shrestha has highlighted the following issues in the articles. The portfolio Management becomes very important both for individuals as well as institutional investors. Investors would like to select a best mix of investment assets subject to the following aspects;

- Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- Good Liquidity with adequate safety of investment.
- Certain capital gains.
- Maximum tax concession.
- Flexible investment.
- Economic, efficient and effective investment mix.
- In view of above aspects, following strategies are adopted.
- Do not hold any single security i.e. try to have a portfolio of different securities.
- Do not put all the eggs in one basket i.e. have a diversified investment (making investment in different sectors)
- Chose such a portfolio of securities, which ensures maximum return with minimum risk or lower of return but with added objectives of maximization.

However, Mr. Shrestha has also presented the following approaches to be added for designing a good portfolio and its investment.

- To find out the invisible assets (generally securities) having scope for the returns depending upon individual characteristics like age, health, disposition, liquidity, tax liability.
- To find out the risk of securities depending upon the attitude of investor toward risk. To develop alternative investment strategies for selecting a better portfolio, this will ensure a trade off between risk and return. So as to attach primary objective of wealth maximization at lowest risk.

- To identify securities for investment to refuse volatility of return and risk. In the context, Shrestha has presented two types of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any securities such as equity debentures or bond and other money and capital market instruments.

He has suggested that the banks having international network can also offer access to global financial market. Shrestha has also pointed out the required skilled manpower research and analysis and proper Management Information System (MIS) in any type of commercial banks to get success in portfolio management and customer's confidence.

Robert & Nardin (2006) entitled *"Commonality in the Determinants of Expected Stock Returns"* they presented with evidence that the determinants of the cross section of expected stock return were stable in their identify and influence from period to period and from country. The determinants were related to risk, liquidity, price level, growth potential and stock price history. Out of sample predications of expected returns, using moving average values for the pay-offs to these firm characteristics were strongly and consistently accurate. Two findings, however, distinguished their paper form others in the contemporary literature. First, the stock with higher expected and realized rate of return was unambiguously of lower risk than the stocks with lower returns. Second, they found that the important determinants of expected stock returns were strikingly common to the major equity markets of the world. Given the nature of the texts, it was highly unlikely that those results may be attributed to bias or data snooping. Consequently, the result seems to reveal a major failure in the efficient market hypothesis.

Kristean (2009) published an article *"Risk-Return Tradeoff'"* is the principle that potential return rises with an increase in risk. Low levels of uncertainty (low-risk) are associated with low potential returns, whereas high levels of uncertainty (high-risk) are associated with high potential returns. According to the risk-return tradeoff,

invested money can render higher profits only if it is subject to the possibility of being lost.

The relationship between risk and return is often represented by a trade-off. In general, the more risk take on, the greater possible of return. Think of lottery tickets, for example. They involve a very high risk (of losing your money) and the possibility of an extremely high reward (the giant check with lots of zeroes). On the other hand, penny stocks: They are also very risky and yet seem full of amazing potential. Because of the risk-return tradeoff, must be aware of personal risk tolerance when choosing investments portfolio. Taking on some risk is the price of achieving returns (www.investiopedia.com).

Damodaran (2013) in the article *"The Investment Principle: Risk & Return Model"* explain a good riek and return model must have the following features.

- It should come up with a measure of risk that applies to all assets and not be asset specific.
- It should clearly delineate what types of risk are rewarded and what are not and provide a rationale for the delineation.
- It should come up with standardized risk measures, i.e. an investor presented with a risk measure for an individual asset should be able to draw conclusions about whether the asset is above average or below average risk.
- It should translate the measure of risk into a rate of return that the investor should demand as compensation for bearing the risk.
- It should work well not only at explaining past returns, but also in predicing future expected returns.

2.3 Review of Previous Thesis

Manandhar (2008) conduct a study on the topic "A *Study on Risk and Return Analysis on Common Stock of Listed Commercial Bank in Nepal*" the main objective of the study was to analyze the risk return and other relevant variables that help in making

decisions about investment on securities of the listed commercial banks. The other specific objectives of this study were as follows;

- To evaluate common stock of listed commercial bank in terms of risk and return and to perform sector wise comparison on the basis of market capitalization.
- To identity whether the share of commercial banks are overpriced, under priced or at equilibrium price.
- To identify the correlation between returns of commercial banks.
- To construct optimum portfolio from listed common stock.
- To make relevant suggestion and practical idea and materialize recommendations based on findings.

The major Findings of the study were;

- Among all the securities common stock is known to be must risky security.
- Higher the risk higher will be the return.
- Most of investors attached to common stock securities because of its higher expected returns.
- As for the investors it is important to analyze each investment, company to pentagonal returns with the risk and average the potential returns form an investment should compensate for the level of risk undertaken.

Gyawali (2009) has conducted a research work on the topic *"Risk and return on common stock"* He used secondary data analysis with five commercials banks covering 5 years period from 2056/057 to 2060/061. The major objectives of the studies were as follows.

- To determine the risk, return and other relevant factors that directly affect the investment in common stock.

- To evaluate the common stock of the listed commercial banks in terms of risk and return to perform sector wise comparison on the basic of market capitalization.

This study used market prices of stock and dividend per share as well as statistical tools to analysis the data. The major findings of the study were;

- Among five commercial banks standard chartered bank and Himalayan bank is the continuous dividend payer.
- Among sample banks Nepal Bangladesh bank ltd it has lowest expected return.
- Bangladesh bank is high risky and standard bank is low risky.

Joshi (2010) has studied on the topic *"Problems in choice of optimum portfolio of stock in Nepal stock Exchange"* This study s based on 21 listed 'A' graded companies data are used to analyze. The main objectives of the study is to find out and analyze the major problems of investors facing regarding selection of most profitable stocks in NEPASE and other objective were;

- To analyze the trend of NEPSE.
- To analyze the problems and find out some resolutions for the problems.
- To suggest the measure of the improvement of the stock market as well as for better meet of invest.
- To try to found out the best portfolio of NEPSE to invest

This was an empirical study on investors problem regarding selection of most portfolio stock of NEPSE. Therefore to conduct the study analytical and descriptive research has been made from readily available data of stock market. Some information is gathered with the help of questionnaire and meeting with people. Various financial tools are used to fund out the best stock available in the NEPSE such as standard deviations, holding period return, coefficient of variation portfolio return, portfolio standard deviation and others.

With the help of coefficient of variation more variable stocks are ignored where as the only lesser variable stock are used to construct portfolio. It return more the only yardstick to make investment decision than CIT be the better are which gives the optimum of 37% monthly holding period return. Per standard deviation NHDFC seems better though its HPR comes to negative. So to make decision easier negative return stocks were ignored and picked three least standard deviation stock to construct portfolio, due to high fluctuating almost stocks seems riskier so to invest in single stock means to welcome the risk. So to diversify the risk investment possibility more searched in different efficient lets and the analysis and calculation concluded the stock of CIT and PFC be the best when the proportion on investment of PFC and CIT is 55% and 45% respectively.

Pokharel (2011) has under taken a study entitled *"Risk & Return on Common Stock Investment of Commercial Banks, With Reference to Six Commercial Banks"* the basic objectives of the research were as follows.

- To analyze whether the common stock of commercial banks are correctly priced or not.
- To analyze the required rate of return and expected rate of return.
- To study the systematic and unsystematic risk associated with securities of the commercials banks.

Majors finding of the study were given below.

- Among the six commercials banks, NABIL bank has highest expected rate of return on common stock (i.e.14.03%) and NIB bank has negative expected rate of return o common stock (i.e.-3.9698%). Similarly, The common stock of BOKL is most risky asset, which has highest standard deviation (i.e.52.15%) and HBL's stock is less risky due to lowest standard deviation (i.e.19.49%).

- Regarding the market capitalization of six selected companies, SCBNL has the maximum market capitalization (i.e.31.36%) and the market capitalization of BOKL is low by 7.11%.
- Considering the different investment sectors, the expected return of other sector is maximum by 34.53% and the processing sector has very low expected return (- 12.076%). Similarly, considering coefficient of variation of different sectors, the trading sector has maximum by 18.49 units, which indicate that to earn 1 unit of return, the investor has to bear 10.49 units of risk. The coefficient of variation on manufacturing & processing is – 3.1349 and –3.28 (negative) respectively.

Mishra (2012) has conducted a study entitled *"Risk and Return Analysis of Common Stock of Five Listed Commercial Banks"* The major objectives of the study were as follows.

- To calculate and analyze the risk and return of banking sector.
- To evaluate common stock of listed commercial banks.
- To analyze whether the common stock of commercial banks are correctly priced or not etc.

The major findings of the study were summarized below.

- Regarding the market capitalization of selected companies, SCBL has the maximum market capitalization and NBBL has the minimum market capitalization.
- Regarding the market capitalization of the inter industry, Banking sector has 65%, Insurance & Finance has 14%, Manufacturing & Processing sector has 13%, Hotel sector has 7%, Trading sector has 1% and Other sector has negotiable proportion of share in over all market capitalization.
- The return of SCBL is maximum (i.e.73.30%) but its risk also maximum but if risk is taken into account for consideration, NIBL has the minimum risk of 43.82%.

- In industry wise analysis, the expected return of finance and insurance has a maximum expected return (i.e. 27.70%), while other sector has a minimum expected return (i.e.16.61%). If the risk is assessed in term of C.V., Banking sector has minimum C.V. like 1.66, which indicates that it is better to invest on the shares of banking sector.

Oli (2013) has conducted a study entitled *"A Study On Risk & Return Analysis On Common Stock Investment Of Nepalese Insurance Companies"* The major objectives of the study were as follows.

- To analyze risk and return of investment in common stock of Insurance companies.
- To determine relation of each Insurance company with the industry index.
- To evaluate common stock's price under CAPM method.

The major findings of the study were summarized below.

- Expected rate of return of insurance sector is 1.55% with the Standard deviation of 24.47% and coefficient of variation of insurance index is 3.16.
- The common stock of SIC, NLIC & UIC are under priced and the common stock of NLICL and SICL are overpriced.
- From the analysis of optimal portfolio creation between SIC and UIC it is find that, the optimum portfolio is made if investment is made into 50% and 50% of SICL & UIC common stock.
- The proportion of systematic risk and unsystematic risk on total risk of NLICL has 24.54% & 75.46%, NLIC has 8.91% & 91.09%, SIC has 30.54% & 69.46%, SICL has 58.05% & 41.95% and UIC has 40.17% & 59.83% respectively.

2.4 Research Gap

There are lot of research work done by different researcher on the topic of "Risk and Return Analysis of Nepalese Commercial Banks" Some researcher used very few

sample size which may not cover the whole population and some researcher used nominal fiscal period which may not provide the whole scenario of market. Some researcher use only statistical tools and technique to determine the risk and return of the assets or securities of firm. This research work on the topic of "Risk and Return Analysis and Optimal Portfolio Creation of Common Stock Investment With Reference to SBI, NABIL, BOK & EBL " has taken the five year data from Fiscal year 2065/066 to Fiscal year 2069/070 and four commercial banks are taken as sample so that this study is differ from other research work.

To find out the condition of Risk and Return and Portfolio Creation the research is done in 4 banks among the 30 commercial banks, which are listed in Nepal Stock Exchange. In the study of few thesis on same topic of several commercial banks, companies and hotels by previous researcher. There is found a poor analysis of risk and return. The previous researcher used the Nepse index, but this study finds out conclusion using industry index i.e. banking index which is a sub index. Banking index calculated based on listed commercial banks.

The main gap of this thesis is that gives an idea about how to create an optimal portfolio. Past researcher only analyzes about portfolio. They don't give any suggestion for creation of optimal portfolio and also present market movement in trend line figure. So, this study gives more reliable and accurate conclusion than past research.

CHAPTER - III

RESEARCH METHODOLOGY

Research methodology is the way in which the data are collected for a research project. It refers to various sequential steps to be adopted by a researcher in studying a problem with a certain objective on view. It describes the method and process of getting to the solution process applied in the entire subject of the study. It is a way to systematically solve a research problem It embraces different dependent and independent variables, types of research design, research questions and hypothesis, sample, data collection activities, technique of analysis etc. Thus, research methodology is the process of arriving at the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of facts and figures (Kothari; 1999).

3.1 Research Design

Research design is a plan, structure and strategy of investigations conceived so as to obtain answer to research questions and to control variance. It is the arrangement of conditions for collection and analysis of data in a manner aiming at combining relevance to the research purpose with economy in procedure. Considering this study objectives, the analysis is based on certain research design. In order to achieve the objectives, descriptive and analytical research design has been adopted. Descriptive research design describes the general pattern of investors, business environment, problem of portfolio management etc. The analytical research design carries out the analysis of information and data. Most of the data and information of the study were related with the past phenomenon. The study covers the data from the FY 2065/066 to FY 2069/070. It deals with the study of risk and return analysis and optimal portfolio creation of common stock investment. As the title of the study itself indicates that it is more analytical and empirical and less descriptive.

3.2 Population & Sample of the Study

The collection or the aggregate of the objects of the set of results of an operation is called population of universe. The term population of data denotes for the data of each organization which is within the boundary of specific organization. The population data for this study comprises all commercial banks, which are currently operating in Nepal.

A represented part of population selected from it to investigating its properties is called sample. Whereas sample data are the data of those organizations, which has, been selected from that whole population for study. The population of this study is all commercial banks operating in Nepal nowdays, there are 30 commercial banks are operating in Nepal. The sample consists of four selected bank. The sample consists 12.90% of the total population. Judgemental aampling method is to be used while selecting sample organizations for this study. These sample banks includes all types of commercial banks i.e. high financial position, medium financial position, jointventure, old establihed bank and some of these banks are the major financial institutions of Nepalese financial market so, these banks are selected as sample for the study. The selected sample bank for the analysis are as follows.

- Nabil Bank Limited (NABIL)
- Everest Bank Limited (EBL)
- Bank Of Kathmandu (BOK)
- Nepal SBI Bank (SBI)

3.3 Nature & Sources of Data

The data, which is originally collected by an investigator or an agent for the first time for the purpose of statistically inquiry, are known as primary data. The data is thus original in character. This type of data is obtained in the survey and enquiries conducted by government, institutions, some individuals and research body. The

data collected by the investigator himself or with the help of his representative, are primary data. Data, which are originally collected but obtained from some published or unpublished source, are secondary data. This type of data is not original in character. The study is mainly based on secondary data. Data are collected from concern bank Nepal Rastra Bank, NEPSE, SEBO and various libraries. Likewise, the micro-level data have been derived from the different libraries, such as Shankar Dev Campus, TU central library etc. Furthermore, several data and information were gathered from periodicals, economic journals and the other published and unpublished reports.

3.4 Method of Data Collection

It indicates the sources of data and how they collected. In this study, data were collected through published sources. They were collected from the correspondent offices and their respective websites. The annual reports of sample banks for the period of five years are obtained from the website of selected banks. The data regarding the profile of sample banks and other related documents are collected from internet websites. Unpublished master's thesis, books, research papers, articles, journals have been collected mainly form Centre Library of Tribhuvan University, library of Shanker Dev Campus and NRB Magazines and newspapers are from concerned authorities.

3.5 Data Analysis Tools

A host of analytical tools can be applied to perform risk and return analysis of a firm. Following the nature of the study, a set of appropriate tools, particularly financial and statistical may be used for effective and significant analysis to meet the research objective.

3.5.1 Market Price of Stock (P)

In this study, market price is one of the major data. In this study we have taken closing price of the stock as market price because it is difficult to get all the required data accurately. The closing price is used as market price of stock that has a specific time of one year.

3.5.2 Dividend (D)

Dividend is relevant during the computation of rate of return. This is a reward to the shareholders for their investment. If a company declares only the cash dividend, there are no problems to take the dividend amount. However, if the company declares stock dividend (Bonus Share), it is difficult to obtain the amount that really shareholders has gained. In this case, they get extra numbers of shares as dividend and simultaneously price the stock declines as a result of increased number of stocks. To get a real amount of dividend there are no any model. So the models have been developed considering practical as well as theoretical aspect.

Divided per share (DPS) = $\frac{Total\ Amount\ of\ Dividend\ Paid}{No.\ of\ Common\ Stock\ Outstanding}$

If company declares only cash dividend, there is no problem while taking the exact amount of dividend that is relevant. But if the company declares stock dividend (bonus share), it is difficult to obtain the amount that really shareholders have gained. In this case, they get extra numbers of shares as dividend and simultaneously price of stock declines as a result of increased number of stocks.

3.5.3 Return on Common Stock (R)

Return is the income received on as investment plus any change in market price, usually expressed as a percent of the beginning market price of the investment. The single period rate of return can be calculated by using the following formula.

Return on Share and Debenture (Rs) = $\frac{P_1 - P_0 + D_1}{P_0} \times 100$

Where,

P_1= Ending Value of Share

P_0= Beginning Value of Share

D_1= Dividend per Share

3.5.4 Expected Rate of Return E (R_j)

Expected rate of return E(R_j) is the arithmetic mean of the past years return. It can be calculated using the following formula,

$$E(R_j) = \sum Pj \times Rj$$

Where,

Pj = probability distribution of stock j

Rj = Rate of return of stock j

In another way, when historical data (time series data) are given, it can be calculated as,

$$E(R_j) = \frac{\sum Rj}{N}$$

Where,

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

N = Number of years that the return is taken

Σ = Sign of summation

3.5.5 Standard Deviation (S.D) of the Stock Return

Standard deviation measure the dispersion from the mean. In other words, it is the statistical measure of the variability of the distribution of return around its mean. It is the square root of the variance and measures the risk on the stock investment.

Standard deviation (σ) = $\sqrt{\frac{\sum(R_A - \bar{R}_A)^2}{n-1}}$

Where,

R_A = Rate of return of individual asset

$\bar{R}_A$ = Expected Return of Asset 'A'

σ = Standard deviation or risk

n = no. of years

3.5.6 Coefficient of Variation (C.V)

It is applicable to calculate the risk per unit of the expected return. "It is the ratio of standard of returns to the mean of that distribution. It is the measure of reliable risk". (Van Horne and Wachowicz, 1995). The CV is a measure of relative dispersion that is useful in comparing the risk of assets with differing expected return. The higher the coefficient of variation the greater the risk, which is expressed as follows.

$$CV_j = \frac{\sigma_j}{\bar{R}_j} \times 100$$

Where,

CV_j = Coefficient of variation of stock j.

σj = Standard deviation of return on stock j.

$\bar{R}_j$ = Average rate of return of stock j.

3.5.7 Correlation Coefficient

Correlation coefficient defines the degree of relationship between two assets whether they are going in same direction or opposite direction. It always ranges from +1 to -1. It can be calculated by using following formula.

Correlation between Assets A & B (r_{AB}) = $\frac{COV_{AB}}{\delta_A \, \delta_B}$

Where,

δ_A = Risk on Asset 'A'

δ_B = Risk on Asset 'B'

$\mathrm{COV_{AB}}$ = Covariance between Assets 'A' and Assets 'B'

- If r_{AB}= +1, Correlation between two assets is perfectly positive in this condition a single unit of risk cannot be minimized.
- If r_{AB}= -1, Correlation between two assets is perfectly Negative in this condition all the risk can be minimized.
- If r_{AB}= 0, There is no correlation between two assets in this condition a little bit of risk can be minimized.

3.5.8 Covariance

It defines the combined risk or accumulated risk between two assets. Covariance and correlation are closely related, covariance between two assets can be calculated by using following formula.

Covariance between Assets 'A' and Assets 'B'

$$(\mathrm{COV_{AB}}) = \frac{\sum[(R_A - \bar{\mathrm{R}}_\mathrm{A})\,(R_B - \bar{\mathrm{R}}_\mathrm{B})]}{n-1}$$

Where,

$\mathrm{R_A}$ = Rate of return of individual asset 'A'

$\bar{\mathrm{R}}_\mathrm{A}$ = Expected Return of Asset 'A'

$\mathrm{R_B}$ = Rate of return of individual asset 'B'

$\bar{\mathrm{R}}_\mathrm{B}$ = Expected Return of Asset 'B'

3.5.9 Beta coefficient (β)

The beta coefficient is an idea of systematic risk. It may be used for ranking the systematic risk of different assets. It is an index of the degree of movement of an assents return in response to a charge in the market return. An asset's historical returns are used in finding the asset's beta coefficient.

Beta coefficient shows the market sensitivity of stock, higher the beta greater the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less than equal or more than 1, but the beta of market beta serves as a benchmark or measuring scale for the evaluation of risk of individual stock. Beta coefficient can be expressed as follows.

$$\text{Beta coefficient } (\beta j) = \frac{\text{cov}(r_i r_m)}{\sigma m^2}$$

Where,

$\text{cov}(r_i r_m)$ = Covariance of the return on assets j, and market portfolio.

σm^2 = Variance of the return on the market portfolio.

R_m = required rate of return on the market portfolio of securities.

3.5.10 Portfolio Return

The return on portfolio is simply the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportions of the investor's wealth in each asset.

$$\text{Portfolio return } (R_P) = W_A \overline{R}_A + W_B \overline{R}_B + \ldots\ldots\ldots + W_N \overline{R}_N$$

Where,

R_P = Return on Portfolio

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

$\overline{R}_A$ = Expected Return of Asset 'A'

$\overline{R}_B$ = Expected Return of Asset 'B'

3.5.11 Portfolio Risk

The portfolio risk is a function of the proportions invested in the components, the riskiness of the components and the correlation of returns on the component securities. It is measured by either variance or standard deviation.Lower the standard deviation and variance lower the riskiness and vice versa. It can be computed by using the following formula.

For two assets case;

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$$

Where,

δ_P = Portfolio Risk

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

δ_A = Risk on Asset 'A'

δ_B = Risk on Asset 'B'

COV_{AB} = Covariance between Assets 'A' and Assets 'B'

$$COV_{AB} = \frac{\sum[(R_A - \overline{R}_A)(R_B - \overline{R}_B)]}{n-1}$$

For three assets case;

$$\delta_P = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + W_C^2 \delta_C^2 + 2COV_{AB} W_A W_B + 2COV_{BC} W_B W_C + 2COV_{AC} W_A W_C}$$

Where,

δ_P = Portfolio Risk

W_A = Weight or Proportion of Asset 'A'

W_B = Weight or Proportion of Asset 'B'

W_C = Weight or Proportion of Asset 'C'

δ_A = Risk on Asset 'A'

δ_B = Risk on Asset 'B'

δ_C = Risk on Asset 'C'

COV_{AB} = Covariance between Assets 'A' and Asset 'B'

COV_{AC} = Covariance between Assets 'A' and Asset 'C'

COV_{BC} = Covariance between Assets 'B' and Asset 'C'

3.5.12 Hypothesis Test (Analysis of Variance, F-test)

The analysis of variance is a statistical technique used to test whether the difference between the mean of three or more populate is significant or not. The testing procedure is to find out differences among the sample mean, which is done by investigating variances. As the procedure focus on analysis of variance, so it is called analysis of variance.

Set up Hypothesis

Null hypothesis (H_0); $\mu_1 = \mu_2 = \mu_3 = \mu_4$ i.e. There is no significant difference between the concerned variable (Risk & Return) of different sample banks.

Alternative Hypothesis (H_1); $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$ i.e. there is significant difference between the return of concerned variable (Risk & Return) of different sample banks.

Test statistic under H_0;

$$F = \frac{Sum\ of\ square\ between\ sample/K-1}{Sum\ of\ square\ within\ sample/n-k}$$

Where,

K = No. of Sample

n = Total no. of observations

Degree of Freedom = (K-1, n-k)

Critical Value: Tabulated or critical value of t at ∝ % level of significance for (K-1, n-k) degree of freedom obtain from'F' tables.

Decision: If calculated 'F' is less than or equal to tabulated value of 'F' it falls in the accepted region and the null hypothesis is accepted and if calculated 'F' is greater than tabulated 'F' null hypothesis is rejected.

3.6 Methods of Analysis and Presentation

Methods of analysis are applied as simple as possible. Results are presented in tabular form and clear interpretation on it is given simultaneously. Detail calculations, which can not be shown in the body part of the report, are presented as annexes at the end of the report. To make report simpler and easily understandable; charts, bar diagrams and charts have been used. Summary, findings and recommendations are presented finally.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

To find the answer of research problem, the collected data are necessary to present and analyze by processing. This chapter will present the data on table & figure.The main objective of the study is to present data and analyze them with the help of various financial and statistical tools.

4.1 NEPSE Index Movement

Index is one of the most important indicators of secondary market which is considered as mirror of country's economic tend. NEPSE index group consists of various indices and they are calculated on the basis of market capitalization. Out of them overall NEPSE index is the oldest one which is being calculated from the initial days of NEPSE. Similarly the other indices are sensitive index, group wise index and Float index. NEPSE Index is calculated by considering all listed share including that of promoter share of all listed companies at NEPSE.

Table : 4.1

NEPSE Index Movement

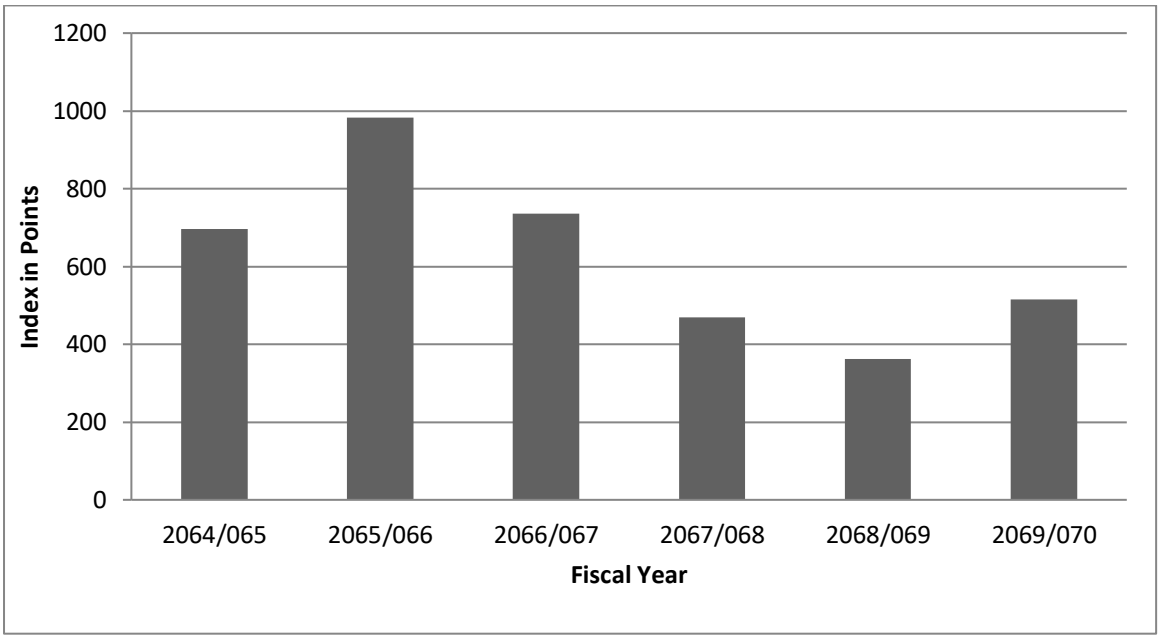
Fiscal Year	Index (In Point)
2064/065	696.58
2065/066	982.12
2066/067	735.87
2067/068	468.53
2068/069	362.85
2069/070	514.77

Source: Annual Report of NEPSE From 2064 to 2069 (www.nepse.com)

Above table shows that the NEPSE Index is in increasing trend at the beginning of the study period, it has highly increase in the fiscal year 2065/066 after that it is decreasing trend and NEPSE index falls less than 500 point in the fiscal year 2068/069. The highest index is 982.12 points in the fiscal year 2065/066 and that of lowest is 362.85 in the fiscal year 2068/069. The trend of NEPSE index is shows in the following figure.

Figure: 4.1

Graph of NEPSE Index Movement



4.2 Analysis of Commercial Baking Industry Index Movement

Commercial Banking Index is a sub index of NEPSE, which is calculated based on only Banking sector, the number of listed commercial bank operating in Nepal increase to 31, mid April 2013. The study take sample five commercial bank for analyze. Banking Index represent the banking sector, it is the mirror of Banking sector Development and growth.

Table : 4.2

Commercial Baking Industry Index Movement

Fiscal Year	Commercial Banking Index (In Point)	Annual Return (R) From Banking Industry (In %)
2064/065	804.26	-
2065/066	1098.5	36.585
2066/067	864.48	-21.30
2067/068	541.87	-37.31
2068/069	412.70	-23.83
2069/070	690.69	67.36
Expected Return ($\bar{R}$)		4.30
Risk (δ)		45.27
Coefficient of Variation (CV)		10.54

Source: Annual Report of NEPSE From 2064 to 2069 (www.nepse.com) & Appendix I

Figure: 4.2

Graph of Commercial Baking Industry Index Movement

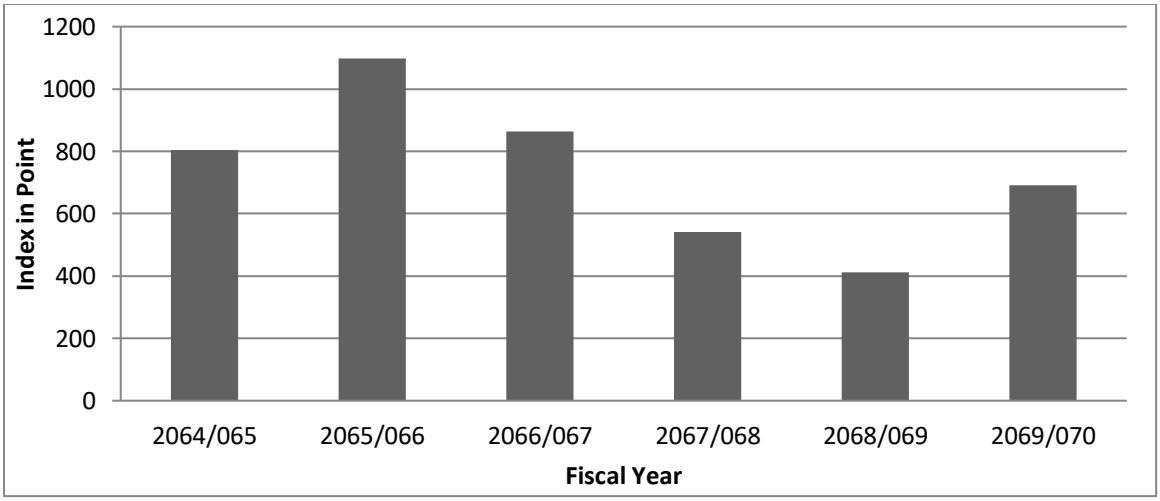


Table 4.2 & Figure 4.2 show the Industry Movement or Commercial Banking Index Movement in several years, it can be seen that there is fluctuation at Index from 2063/064 2068/069. There is maximum Index touch at point 1098.5 in the fiscal year 2065/066. While NEPSE Index at Boom point then after NEPSE Index falls downward that affected all sub-Index and current stock market situations is very critical, NEPSE

Index is struggled at 514.77 point and Banking Index is struggled at 690.69 point at the end of the fiscal year 2069/070.

Table 4.2 shows that The Expected rate of return of banking sector is 4.30% with the Standard deviation of 45.27% and coefficient of variation of banking index is 10.54. This denotes that to get per unit return 10.54 risk must be bearded.

Figure : 4.3

Annual Realized Rate at Return from Banking Index

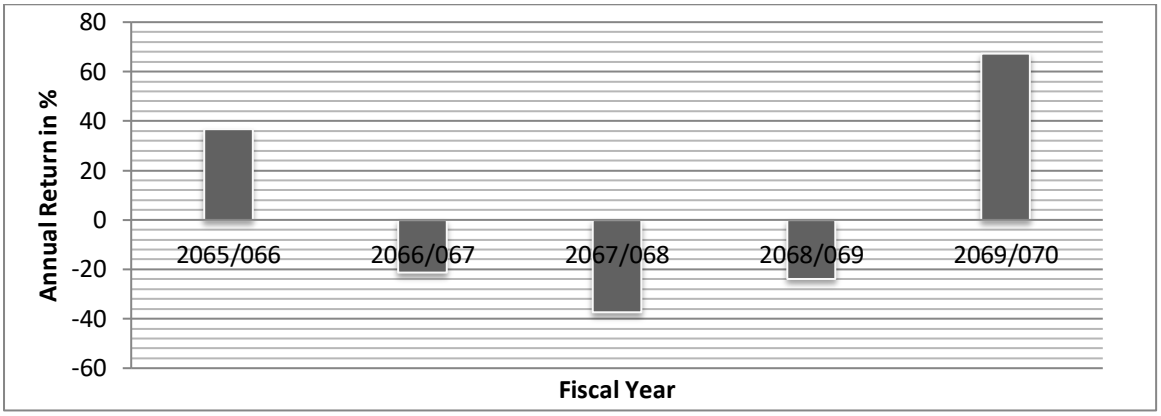


Figure 4.3 shows that annual Realized Rate of Return of commercial Banking Sector, the annual return of Banking Sector is in the fiscal year 2065/0656 i.e. 36.58% which shows that in this year investor are Received profit from Commercial Banking Sector's Common stock but after the fiscal year 2065/066 the annual rate of return of Banking Sector is Negative. The high negative return is 37.31% in the fiscal year 2067/068. In these year investor bear lose from banking investment but in the fiscal year 2069/070 the banking sector return is 67.36%.

4.3 Risk and Return Analysis of Sample Bank

4.3.1 Everest Bank Limited (EBL)

Table: 4.3

Analysis of Major Financial Indicator of EBL

FY	MVPS	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Annual Return (%)	EPS (Rs.)	P/E Ratio (Times)
065/66	2455	30	30	519	-0.0504	99.99	24.55
066/67	1630	30	30	358	-0.1902	100.16	16.27
067/68	1094	50	10	153	-0.2350	83.19	13.15
068/69	1033	-	30	477	0.3803	88.55	11.67
069/70	1591	50	10	255	0.7870	91.88	17.23

Source: Annual Report of EBL from 2063 to 2068 & Appendix II & III

Above table 4.3 shows that the EBL is paying cash dividend and stock dividend in each fiscal year except the fiscal year 2068/069 the cash dividend is in increasing trend and the stock dividend is fluctuating. The highest cash dividend is paid in the year 2069/070 i.e. Rs. 50 per share. The P/E Ratio of EBL is maximum in the year 2065/066 and minimum in the year 2068/069 i. e. 24.55 times and 11.67 times respectively similarly the earning per share is fluctuating each year it is highest in the fiscal year 2066/067 i.e. Rs. 100.16 and that of lowest is Rs. 83.19 in the fiscal year 2067/068.

Figure: 4.4

Graph of MVPS of EBL

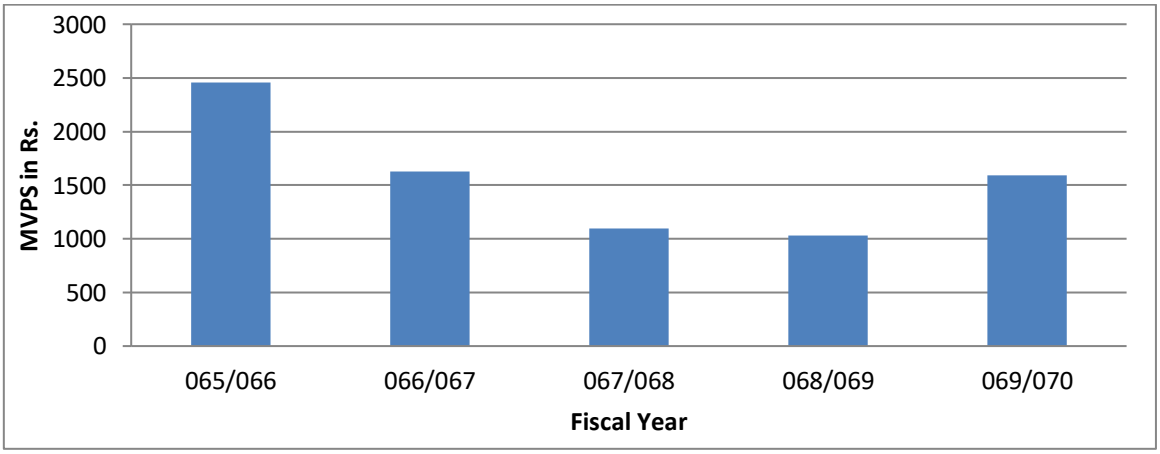


Figure 4.4 shows the trend line of Closing market price of EBL, the closing MVPS of EBL is highest in the year 2065/066 i.e. Rs. 2455 and minimum in the fiscal year 2068/069 i.e Rs. 1033 and the market price of EBL is decreases from the fiscal year 2065/066 to 2068/069 but in the fiscal year 2069/070 the market price is increases from Rs. 1033 to Rs. 1591.

Figure: 4.5

Graph of Annual Return on Stock of EBL

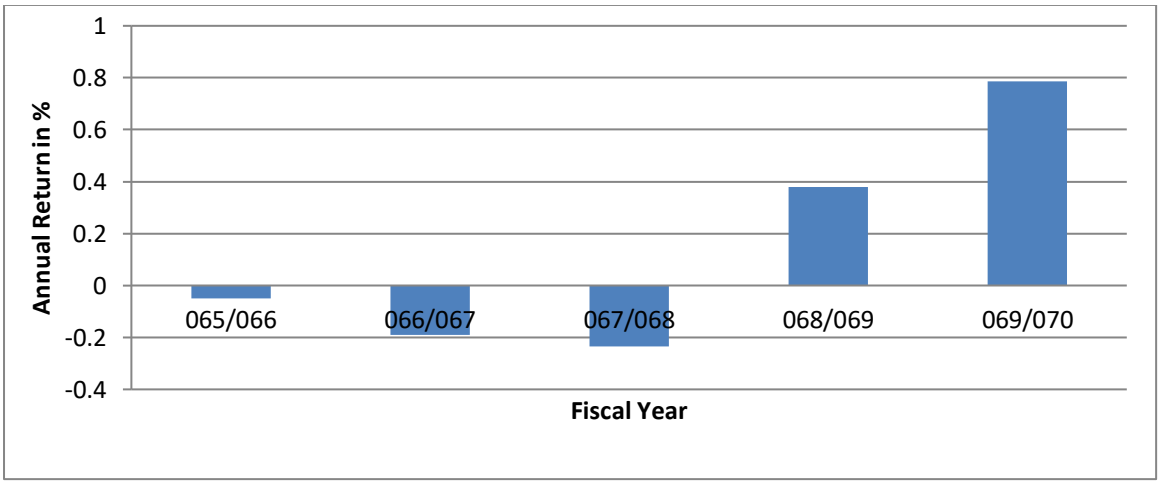


Figure 4.5 shows the annual return on stock of EBL over the study period. The annual return on stock of EBL is negative from the fiscal year 2065/066 to 2067/068 the highest negative return is 0.2350 in the fiscal year 2067/068 and that of lowest is 0.0504 in the fiscal year 2065/066. However, in the fiscal year 2068/069 and 2069/070 the return on stock is 0.3803 & 0.7870. The annual return shows the investor's annual return who invested in the common stock of EBL. From the analysis it is conclude that the negative return bay be the cause of heavy fall in share price of company stock.

Table: 4.4

Summary of Risk and Return Indicators of EBL

Variables	Value
Expected Return ($\bar{R}_{EBL}$)	0.1383
Risk (δ_{EBL})	0.4365
Variance $(\delta_{EBL})^2$	0.1905
Coefficient of Variation (CV)	3.1562
Covariance between Return of Banking Industry & Return of EBL ($COV_{EBL\,\&\,BI}$)	0.1299
Correlation between Return of EBL & Return of Banking Industry ($r_{EBL\,\&\,BI}$)	0.6574
Beta Coefficient (β_{EBL})	0.6339
Systematic Risk (SR)	0.2870
Unsystematic Risk (USR)	0.1495
Proportion of Systematic Risk in Total Risk	65.75%
Proportion of Unsystematic Risk in Total Risk	34.25%

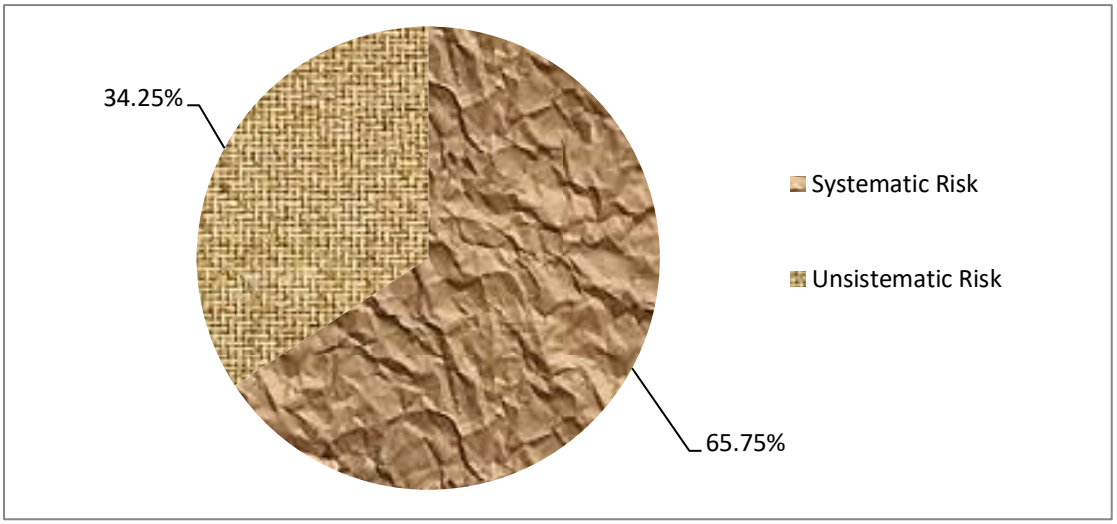
Source: Appendix III

Above table 4.4 shows, the expected rate of return of EBL is positive of 0.1383 with the standard deviation of 0.4365 and coefficient of variation of EBL is 3.1562 this denotes that to get per unit return 3.1562 unit of risk must be beared.

According to table, beta coefficient of EBL is found 0.6339 that is lower than one (1) therefore, this is a defensive asset. That means stock of EBL is less volatile than the industry. Beta is an indicator of systematic risk and that is found to be lower than one (1). So, this is defensive type of assets and found to be less risky. Correlation coefficient between industry and EBL is 0.6574, which is positive this shows the positive relation between industry and EBL's stock. EBL has 0.2870 systematic risk from the total risk and 0.1495 unit unsystematic risks.

Figure: 4.6

Proportion of Systematic Risk & Unsystematic Risk of EBL



According to figure 4.6, EBL has 65.75% systematic risk which can not be diversifiable and 34.25% unsystematic risk which can be diversifiable. The systematic risk is very high in the company so it may be harmful to the company.

4.3.2 NABIL Bank Limited (NABIL)

Table: 4.5

Analysis of Major Financial Indicator of NABIL

FY	MVPS	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Annual Return (%)	EPS (Rs.)	P/E Ratio (Times)
065/66	4899	35	50	1227	-0.2629	113.44	43.19
066/67	2384	30	40	531	-0.2521	83.81	28.45
067/68	1252	30	0	30	0.1062	70.67	17.72
068/69	1355	40	20	403	0.6369	83.23	16.21
069/70	1815	40	25	518	0.3377	95.14	19.08

Source: Annual Report of NABIL from 2063 to 2068 & Appendix VI & VII

Above table 4.5 shows that the NABIL is paying cash dividend and stock dividend in each fiscal year the cash dividend is Rs. 35 in the fiscal year 2065/066 and decrease to Rs. 30 in the fiscal year 2067/068 after that it is increase to Rs. 40. The P/E Ratio of

NABIL is maximum in the year 2065/066 and minimum in the year 2068/069 i.e. 43.19 times and 16.21 times respectively and the earning per share is highest in the fiscal year 2065/066 i.e. Rs. 113.44 and that of lowest is Rs. 60.67 in the fiscal year 2067/068.

Figure: 4.7

Graph of MVPS of NABIL

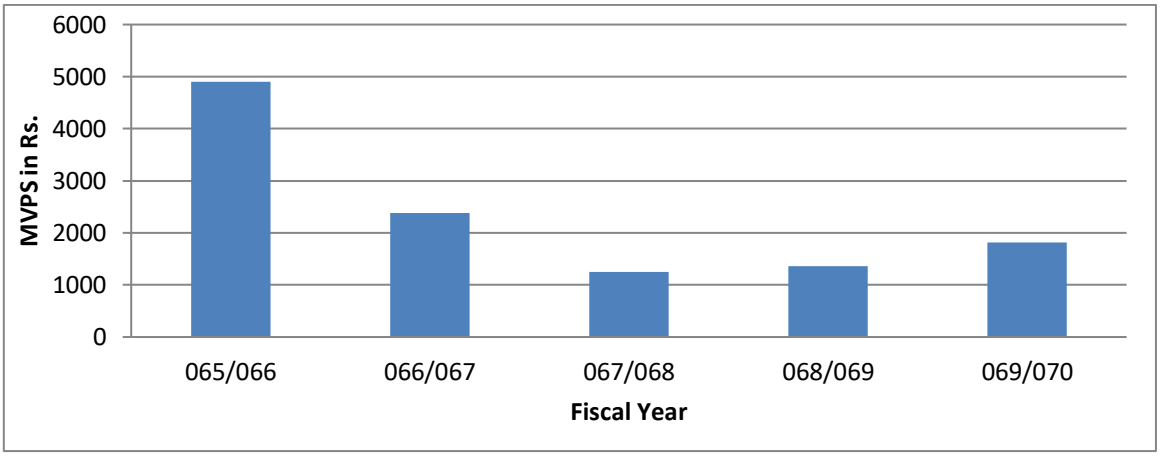


Figure 4.7 shows the trend line of Closing market price of NABIL, the closing MVPS of NABIL is highest in the year 2065/066 i.e. Rs. 4899 and minimum in the fiscal year 2067/068 i.e Rs. 1252 and the market price of NABIL is decreases from the fiscal year 2065/066 to 2067/068 after that it is increases to Rs. 1355 & Rs. 1815 in the fiscal year 2068/069 & 2069/070 respectively.

Figure: 4.8

Graph of Annual Return on Stock of NABIL

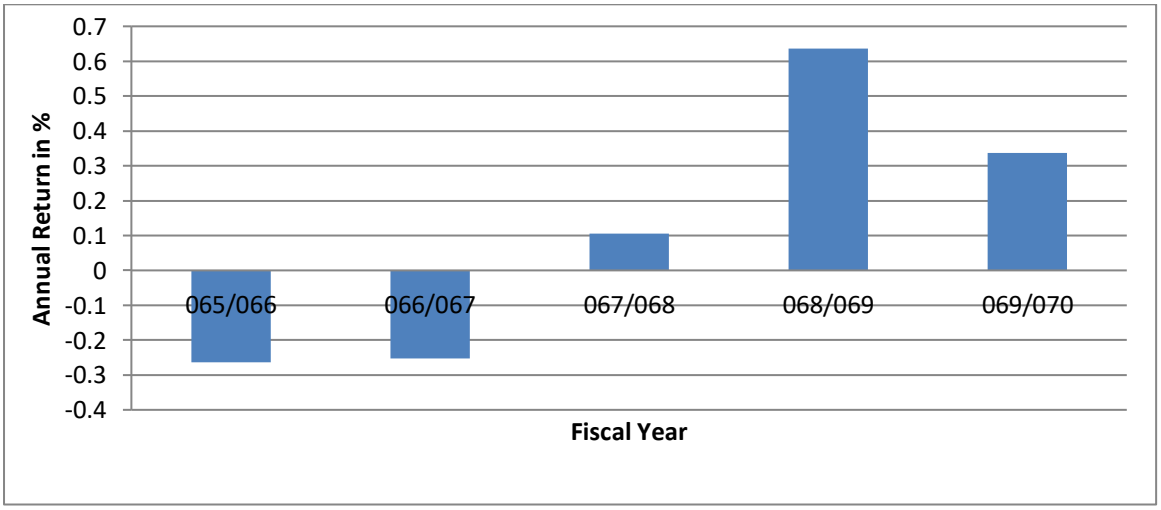


Figure 4.8 shows the annual return on stock of NABIL over the study period. The annual return on stock of NABIL is negative from the fiscal year 2065/066 to 2066/067 the highest negative return is 0.2629 in the fiscal year 2065/066 and that of lowest is 0.2521 in the fiscal year 2066/067. However, in the fiscal year 2067/068, 2068/069 & 2069/070 the return on stock is 0.1062, 0.6360 & 0.33377 respectively. The annual return shows the investor's annual return who invested in the common stock of NABIL. From the analysis it is conclude that the negative return bay be the cause of heavy fall in share price of company stock.

Table: 4.6

Summary of Risk and Return Indicators of NABIL

Variables	Value
Expected Return ($\bar{R}_{NABIL}$)	0.1132
Risk (δ_{SCBNL})	0.3872
Variance (δ_{NABIL})^2	0.1499
Coefficient of Variation (CV)	3.4205
Covariance between Return of Banking Industry & Return of NABIL ($COV_{NABIL\,\&\,BI}$)	0.0077
Correlation between Return of NABIL & Return of Banking Industry ($r_{NABIL\,\&\,BI}$)	0.0439
Beta Coefficient (β_{NABIL})	0.0376
Systematic Risk (SR)	0.017
Unsystematic Risk (USR)	0.3702
Proportion of Systematic Risk in Total Risk	4.39%
Proportion of Unsystematic Risk in Total Risk	95.61%

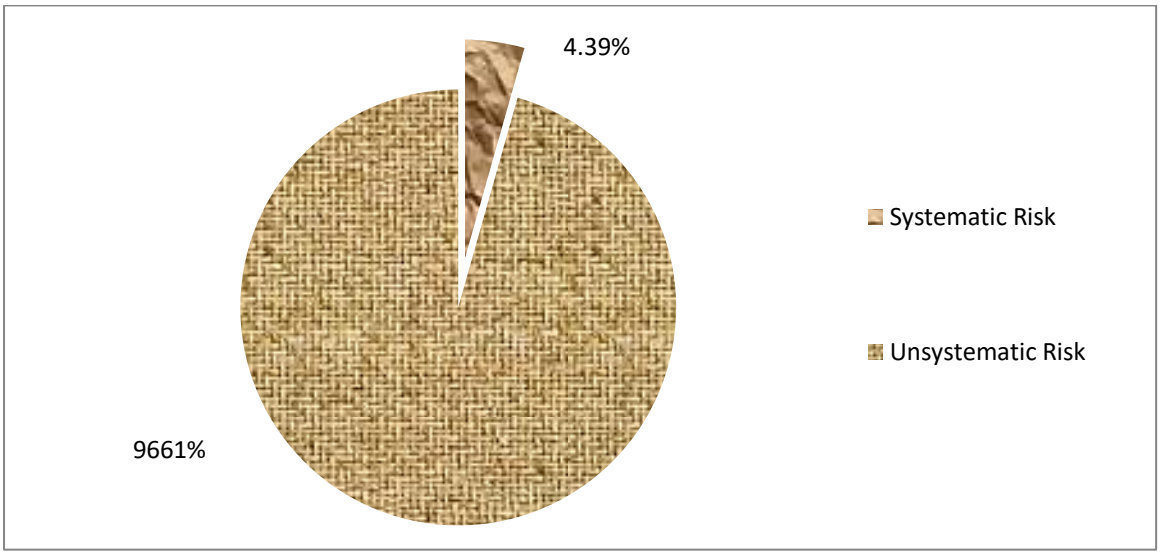
Source: Appendix VII

Above table 4.6 shows the expected rate of return of NABIL is positive of 0.1132 with the standard deviation of 0.3872 and coefficient of variation of NABIL is 3.4205. This denotes that to get per unit return 3.4205 unit of risk must be beared.

According to table, beta coefficient of NABIL is found 0.0376 that is lower than one (1) therefore, this is a defensive asset. That means stock of NABIL is less volatile than the industry. So, this is defensive type of assets and found to be less risky. Correlation coefficient between industry and NABIL is 0.0439, which is positive this shows the positive relation between industry and EBL's stock. EBL has 0.017 systematic risk from the total risk and 0.3702 unit unsystematic risks.

Figure: 4.9

Proportion of Systematic Risk & Unsystematic Risk of NABIL



According to figure 4.9, NABIL has 4.39% systematic risk which can not be diversifiable and 95.61% unsystematic risk which can be diversifiable. The unsystematic risk is very high in the company so it may be harmful to the company the management could try to minimize it.

4.3.3 Bank of Kathmandu Limited (BOK)

Table: 4.7

Analysis of Major Financial Indicator of BOK

FY	MVPS	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Annual Return (%)	EPS (Rs.)	P/E Ratio (Times)
065/66	1825	7.37	40	343	-0.0774	54.68	33.37
066/67	840	15	15	101	-0.4844	43.08	19.50
067/68	570	16.75	18	130	-0.1667	44.51	12.81
068/69	628	21.23	5	49	0.1877	37.88	16.58
069/70	553	0.74	14	80	0.0080	36.64	15.09

Source: Annual Report of BOK from 2064 to 2069 & Appendix IV & V

Above table 4.7 shows that the BOK is paying cash dividend in each fiscal year the cash dividend is increases up to the fiscal year 2068/069 after that it is decrease to Rs. 0.74. The highest cash dividend is paid Rs. 21.23 in the fiscal year 2068/069 and that of lowest is Rs. 0.74 in the fiscal year 2069/070. The P/E Ratio of BOK is maximum in the fiscal year 2065/066 and minimum in the fiscal year 2067/068 i.e. 33.37 times and 12.81 times respectively and the earning per share is highest in the fiscal year 2065/066 i.e. Rs. 54.68 and that of lowest is Rs. 36.64 in the fiscal year 2069/070

Figure: 4.10

Graph of MVPS of BOK

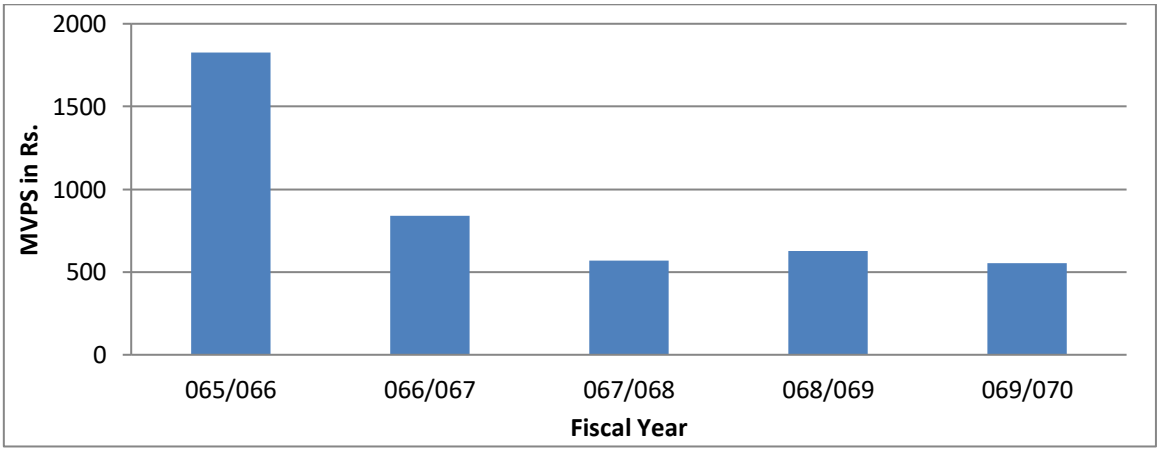


Figure 4.10 shows the trend line of Closing market price of BOK, the closing MVPS of BOK is highest in the year 2065/066 i.e. Rs. 1825 and minimum in the fiscal year 2069/070 i.e Rs. 553 and the market price of BOK is decreases from the fiscal year 2065/066 to 2067/068 but in the fiscal year 2068/069 the MVPS of BOK is increase to Rs. 628.

Figure: 4.11

Graph of Annual Return on Stock of BOK

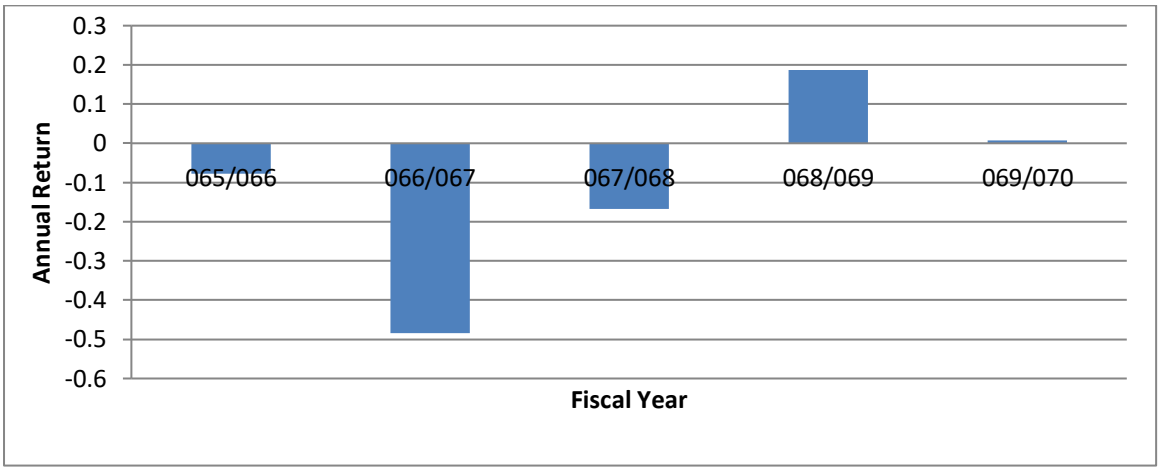


Figure 4.11 shows the annual return on stock of BOK over the study period. The annual return on stock of BOK is negative from the fiscal year 2065/066 to 2067/068 the highest negative return is 0.4844 in the fiscal year 2066/067 and that of lowest is 0.0774 in the fiscal year 2065/066. However, in the fiscal year 2068/069 & 2069/070 the return on stock is 0.1877 & 0.0080 respectively. The annual return shows the investor's annual return who invested in the common stock of BOK. From the analysis it is conclude that the negative return bay be the cause of heavy fall in share price of company stock.

Table: 4.8

Summary of Risk and Return Indicators of BOK

Variables	Value
Expected Return ($\bar{R}_{BOK}$)	-0.1066
Risk (δ_{BOK})	0.2484
Variance (δ_{BOK})^2	0.0617
Coefficient of Variation (CV)	2.3302
Covariance between Return of Banking Industry & Return of BOK ($COV_{BOK\ \&\ BI}$)	0.0301
Correlation between Return of BOK & Return of Banking Industry ($r_{BOK\ \&\ BI}$)	0.2677
Beta Coefficient (β_{BOK})	0.1469
Systematic Risk (SR)	0.0665
Unsystematic Risk (USR)	0.1819
Proportion of Systematic Risk in Total Risk	26.77%
Proportion of Unsystematic Risk in Total Risk	73.23%

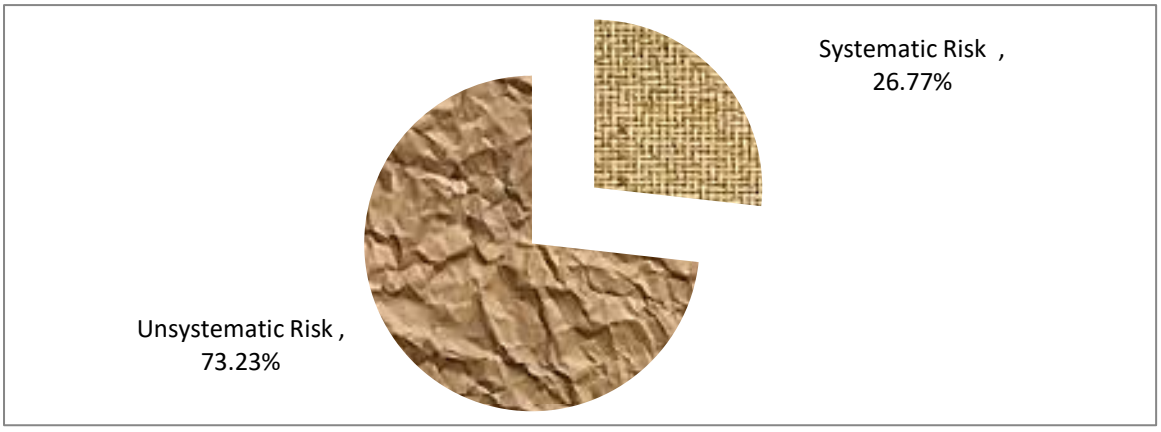
Source: Appendix V

Above table 4.8 shows, the expected rate of return of BOK is negative of 0.1066 with the standard deviation of 0.2484 and coefficient of variation of BOK is 2.3302. This denotes that to get per unit return 2.3302 unit of risk must be beared.

According to table, beta coefficient of BOK is found 0.1469 that is lower than one (1) therefore, this is a defensive asset. That means stock of BOK is less volatile than the industry. So, this is defensive type of assets and found to be less risky. Correlation coefficient between industry and BOK is 0.2677, which is positive this shows the positive relation between industry and BOK's stock. BOK has 0.0665 systematic risks from the total risk and 0.1819 unit unsystematic risks.

Figure: 4.12

Proportion of Systematic Risk & Unsystematic Risk of BOK



According to figure 4.12, BOK has 26.77% systematic risk which can not be diversifiable and 73.23% unsystematic risk which can be diversifiable. The unsystematic risk is high in the company so the management of the company focuses to reduce the risk.

4.3.4 Nepal SBI Bank Limited (SBI)

Table: 4.9

Analysis of Major Financial Indicator of SBI

FY	MVPS	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Annual Return (%)	EPS (Rs.)	P/E Ratio (Times)
065/66	1900	2.11	40	299	0.4553	36.18	52.52
066/67	741	5	12.50	76	-0.5700	23.69	31.28
067/68	565	5	12.50	84	-0.1242	24.85	22.73
068/69	635	5	12.50	111	0.3204	22.93	27.69
069/70	850	7.50	12.50	131	0.5449	32.75	25.95

Source: Annual Report of SBI from 2064 to 2069 & Appendix VIII & IX

Above table 4.9 shows that the SBI is paying cash dividend and stock dividend in each fiscal year during the study period the cash dividend is Rs. 2.11 in the fiscal year 2065/066 after that the cash dividend is constant at Rs.5 and stock dividend is constant at 7.50% up to the fiscal year 2068/069 and in the fiscal year 2068/069 the

cash dividend is increase to Rs. 7.50. The P/E Ratio of SBI is maximum in the year 2065/066 and minimum in the year 2067/068 i.e. 52.52 times and 22.73 times respectively and the earning per share is highest in the fiscal year 2065/066 i.e. Rs. 36.18 and that of lowest is Rs. 22.93 in the fiscal year 2068/069.

Figure: 4.13

Graph of MVPS of SBI

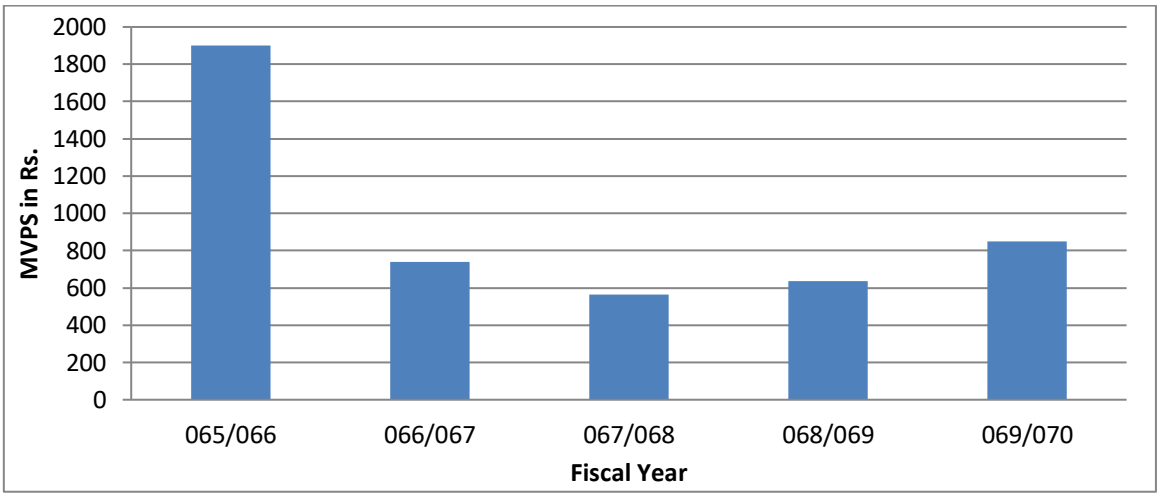


Figure 4.13 shows the trend line of Closing market price of SBI, the closing MVPS of SBI is highest in the year 2065/066 i.e. Rs. 1900 and minimum in the fiscal year 2067/068 i.e Rs. 565 and the market price of SBI is decreases from the fiscal year 2065/066 to 2067/068 but in the fiscal year 2068/069 & 2069/070 the MVPS of SBI is increase to Rs. 635 & Rs. 850 respectively.

Figure: 4.14

Graph of Annual Return on Stock of SBI

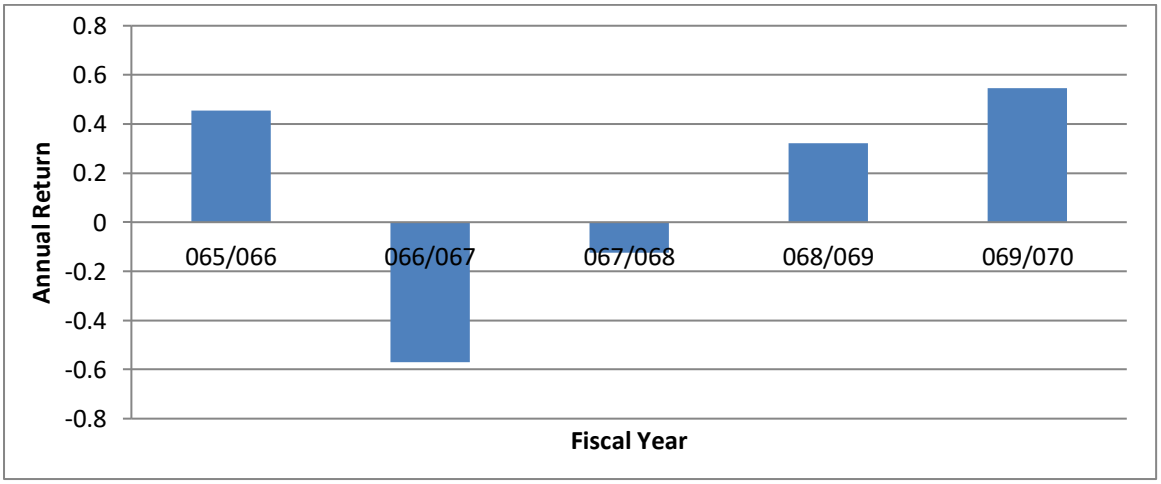


Figure 14 shows the annual return on stock of SBI over the study period. The annual return on stock of SBI is 0.4553 in the fiscal year 2065/066 after that the return is negative from the fiscal year 2066/067 to 2067/068. However, in the fiscal year 2068/069 & 2069/070 the return on stock is 0.3204 & 0.5449 respectively. From the analysis it is conclude that the negative return bay be the cause of heavy fall in share price of company stock

Table: 4.10

Summary of Risk and Return Indicators of SBI

Variables	Value
Expected Return ($\bar{R}_{SBI}$)	0.1253
Risk (δ_{SBI})	0.466
Variance $(\delta_{SBI})^2$	0.2172
Coefficient of Variation (CV)	3.7197
Covariance between Return of Banking Industry & Return of SBI ($COV_{SBI\ \&\ BI}$)	0.1495
Correlation between Return of SBI & Return of Banking Industry ($r_{SBI\ \&\ BI}$)	0.7087
Beta Coefficient (β_{SBI})	0.7295
Systematic Risk (SR)	0.3303
Unsystematic Risk (USR)	0.1357
Proportion of Systematic Risk in Total Risk	70.88%
Proportion of Unsystematic Risk in Total Risk	29.12%

Source: Appendix IX

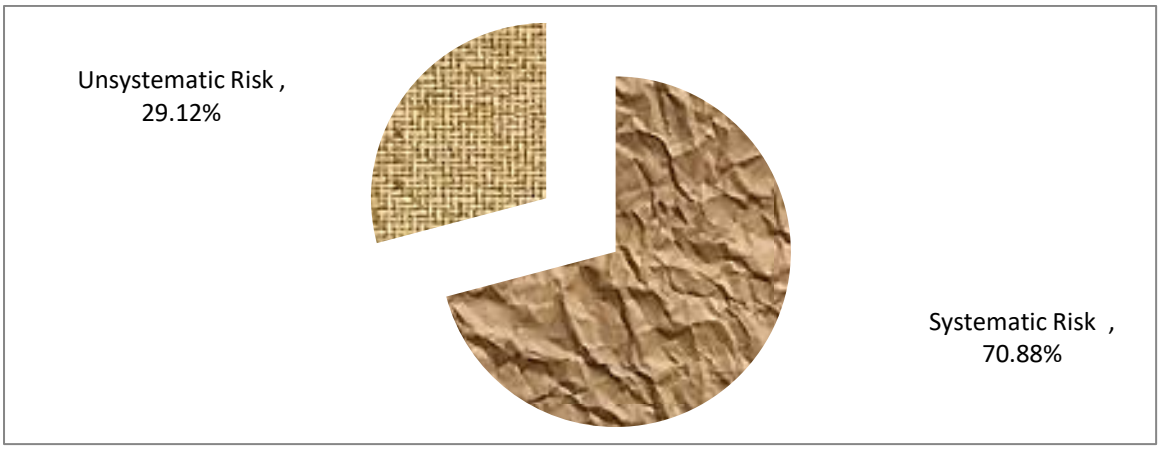
Above table 4.10 shows, the expected rate of return of SBI is 0.1253 with the standard deviation of 0.466 and coefficient of variation of SBI is 3.7197. This denotes that to get per unit return 3.7197 unit of risk must be beared.

According to table, beta coefficient of SBI is found 0.7295 that is lower than one (1) therefore, this is a defensive asset. That means stock of SBI is less volatile than the industry. So, this is defensive type of assets and found to be less risky. Correlation

coefficient between industry and SBI is 0.7087, which is positive this shows the positive relation between industry and SBI's stock. SBI has 0.3303 systematic risks from the total risk and 0.1357 unit unsystematic risks.

Figure: 4.15

Proportion of Systematic Risk & Unsystematic Risk of SBI



According to figure 4.15, SBI has 70.88% systematic risk which can not be diversifiable and 29.12% unsystematic risk which can be diversifiable. The systematic risk is very high in the company so it may be harmful to the company.

4.4 Analysis of Common Stock's Price

Comparison of required rate of return and expected rate of return gives that result whether the common stock in under priced or overpriced. Generally for the price evaluation, the calculation of required rate of return is necessary and it can be calculated by using the following formula,

Required rate of return (R) = $R_f + (\overline{R}_{BI} - R_f)\ \beta$

Where,

R_f = Risk free rate of return i.e. 3.4%

$\overline{R}_{BI}$ = Average return of commercial banking sector for the study Period i.e. 0.0430

β = Beta coefficient of each bank

In the above equation, the risk free rate of return (R_f) is needed to determine required ratef of return. The discount rate of Treasury bill (T-bill) issued by Nepal Ratra Bank is taken as risk free rate (R). In Nepal, NRB issued two types of T-bill i.e. 91 days and 365 days but according to the suggestion of T-bill section of NRB. It is better to take 91 days's weighted average discount rate as risk free rate. T-bill rate will be differs in various issues but in the study it is taken weighted average discount rate of 91 days T-bill of mid July (2013) fiscal year (2012/13). As provided by the T-bill section T-bill rate for fiscal year 2012/013 is 3.49%.

Table: 4.11

Analysis of Common Stock's Price Based on Required Rate of Return and Eexpected Rate of Return

Bank	Beta	Required Rate of Return	Expected Rate of Return	Price Evaluation
EBL	0.6339	0.0397	0.1383	Underpriced
NABIL	0.0376	0.0343	0.1132	Underpriced
BOK	0.1469	0.0353	-0.1066	Overpriced
SBI	0.7295	0.0406	0.1253	Underpriced

Source: Appendix X

From the above table 4.11 it is observed that the pricing of common stock of all sampled banks under study are under priced except the BOK. The common stocks of all sample banks are underpriced. In this situation the investors can gain from purchases the underpriced stocks. It is recommended to purchase under priced stock but rational and efficient investment decision-maker need to analyze other dimensions as well as invest from the investment point of view.

4.5 Creation of Optimal Portfolio

The portfolio is the holding of securities and investment financial assets i.e. bond, common stock. A portfolio is a combination at investment assets. Portfolio management is related to efficient portfolio investment in financial assets. If portfolio is being constructed they can reduce unsystematic risk without losing considerable return. The portfolio analysis is performed to develop a portfolio that has the maximum return at whatever level of risk an investor thinks appropriate. Therefore, the investor need to extend analysis about create an optimal portfolio. For the study purpose, this study take ten combination for create portfolio from the sample banks.

Table: 4.12

Portfolio Risk & Return

Combination	Portfolio Risk	Portfolio Return
EBL & NABIL	0.1910	0.1258
EBL & SBI	0.2219	0.1318
EBL & BOK	0.1465	0.0161

Source: Appendix XI, XII & XIII

According to table 4.12 we get portfolio return and portfolio standard deviation from investing different proportion in common stock of sample banks. The maximum portfolio return is 13.18% if investment made into common stock of EBL 50% and SBI 50% and risk is 0.2219 but the return is 12.58% and risk is 19.10% if the investment made on 50% EBL & 50% NABIL in other combination the risk is very high than return. In comparison to risk return is better if investment made on 50% EBL & 50% NABIL Therefore, the optimum portfolio is made if investment is made into 50% and 50% of EBL & NABIL banks stock.

4.6 Hypothesis Test

Null hypothesis (H_0); $\mu_1 = \mu_2 = \mu_3 = \mu_4$ i.e. There is no significant difference between the annual return of different sample banks.

Alternative Hypothesis (H_1); $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$ i.e. there is significant difference between the annual return of different sample banks.

Table: 4.13

One Way ANOVA Table

Source of Variation	Sum of Square	Degree of Freedom	Mean Sum of Square	F- ratio
Between Samples	0.0901	4 – 1 = 3, 16	$\frac{0.0901}{3}$ = 0.0300	$\frac{0.03}{0.1676}$ = 0.1790
Within Samples	2.6823		$\frac{2.6823}{16}$ = 0.1676	
Total	**-0.4275**	**20 – 4 = 16**		

Source: Appendix XIV & XV

Table: 4.14

Summary of Hypothesis Test

Variables	Degree of Freedom	Level of Significance	Calculated 'F' Value	Tabulated 'F' Value	Result
Annual Return	3, 16	5%	0.1790	3.24	H_0 Accepted

Source: Appendix XIV & XV

Table 4.13 & 4.14 shows the testing of hypothesis of annual return of sample banks from the analysis it is found that the calculated 'F' value is less than the tabulated value i.e. 0.1790 < 3.24 therefore the null hypothesis is accepted and alternative hypothesis is rejected it means there is no significant difference between the annual return of different sample banks.

4.7 Major Findings

- NEPSE index falls less than 500 point in the fiscal year 2068/069. The highest index is 982.12 points in the fiscal year 2065/066 and that of lowest is 362.85 in the fiscal year 2068/069.
- The banking sector index touch at point 1098.5 in the fiscal year 2065/066. NEPSE Index is struggled at 514.77 point and Banking Index is struggled at 690.69 point at the end of the fiscal year 2069/070.
- The Expected rate of return of banking sector is 4.30% with the Standard deviation of 45.27% and coefficient of variation of banking index is 10.54.
- The expected rate of return of BOK is negative of 0.1066 with the standard deviation of 0.2484 and coefficient of variation of BOK is 2.3302. Similarly, beta coefficient of BOK is found 0.1469, correlation coefficient between industry and BOK is 0.2677 and BOK has 0.0665 systematic risks from the total risk and 0.1819 unit unsystematic risks.
- The expected rate of return of SBI is negative of 0.1253 with the standard deviation of 0.466 and coefficient of variation of SBI is 3.7197. Similarly, correlation coefficient between industry and SBI is 0.7087 and SBI has 0.3303 systematic risks from the total risk and 0.1357 unit unsystematic risks.
- The expected rate of return of EBL is 0.1318 with the standard deviation of 0.4365 and coefficient of variation of EBL is 3.1562. Similarly, beta coefficient of EBL is finding 0.6339, Correlation of coefficient between industry and EBL is 0.6574 and EBL has 0.2870 systematic risks from the total risk and 0.1495 unsystematic risks.
- The expected rate of return of NABIL is 0.1132 with the standard deviation of 0.3872 and coefficient of variation of NABIL is 3.4205. Similarly, beta coefficient of NABIL is found 0.0376, correlation coefficient between industry and NABIL is 0.0439 and NABIL has 0.017 systematic risks from the total risk and 0.3702 unit unsystematic risks.
- The common stocks of all sample banks except BOK are underpriced. In this situation the investors can gain from purchases the underpriced stocks.

- From the analysis of optimal portfolio creation it is found that, the optimum portfolio is made if investment is made into 50% and 50% of EBL & NABIL banks common stock.
- The proportion of systematic risk and unsystematic risk from the total risk is 65.75% & 34.25% of EBL, 4.39% & 95.61% of NABIL, 26.77% & 73.23% of BOK and 70.88% & 29.12% of SBI.
- From the hypothesis test it is found that there is no significant difference between the annual return of different sample banks.

CHAPTER - V

SUMMARY, CONCLUSION & RECOMMENDATIONS

5.1 Summary

Central focus of finance is tradeoff between risk and return. Its major part stock market has greatest glamour, not only for the professional or institutional investors, but for the individual or private too. Risk and return is getting highlight in financial management. Financial ratios have been used for centuries as a rule of thumb to aid in understanding tradeoff between risk and return. Development in the field of finance has led to the application of many new concepts and models to deal with various issue related to corporate financial management.

Investors have varying perception towards risk and enterprising activity. Investors would want their investment to yield favorable return. Hence they invest in those opportunities which has certain degree of risk is associated with it. Finance mostly deals on the monetary risk and return, which is the most affecting matter for an individual to a large corporation. Investors sacrifice their current cash in securities in anticipation of higher future benefits than in risk of free sector. An investor seeking common stock investment usually pays the price for the stock based on his estimation about future dividends and growth in stock price. Though, in case of imperfect capital market so many financial and non financial factors play a great role in price determination.

The investment decision is one of the important parts of financial management. As blood is necessary for human beings, finance is for business organizations and industries. Every business organization should base their decision-making in financial management. Financial management is mainly concerned with the acquisition and utilization of funds. For this, financial market plays vital role in utilizing financial resource for expanding productive sectors in the country. It mobilizes unproductive

and unutilized financial resources towards productive sectors and helps in expanding economic growth of a country.

It can be said that the rate of return on investment is a function of many factors including the real cost of money, inflation, risk etc, investors willingly offer more capital at higher rate of return, whereas users of capital always show their readiness to use more capital at lower rate. Common stock is a source of capital which is considered to be riskier and lifeblood of stock market. Therefore investment in common stock is very sensitive regarding risk. Dividends to common stock holders are only paid if the firm makes an operating profit after tax and preference shareholders dividend. The company can return the principal in case of its liquidation only to the extent of the residual assets after satisfying to all of its preference shareholders. Beside this the investors have to sacrifice the return on their investment in common stock, which would be earned investing elsewhere.

The main focus of the study is trade-off between risk and return. 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 the risk plays the vital role in the analysis of the investment. Risk and return is getting considerable attention in financial decision. The rate of return on the investment is the function of many factors including the real cost of money, inflation risk, maturity risk and default risk etc. The investors willingly offer more capital at higher rate of return where as the users of capital shows their readiness to use more capital at lower rate. Risk is the probability of chances of losses. It shows the variability of the return on the investment.

Common stock is the most risky security and life blood of stock market. An investment in common stock of corporate firm neither ensures the rate of return nor ensures the return of principle. Common stock is the residual claimant to the

earnings of the company. Common stocks holders receive whatever is left after all the other claimholder have taken their rightful share. Therefore, investment in common stock is very sensitive on the ground of risk.

The main objectives of the study are to analyze the risk and return of common stocks in Nepalese context that's why is focused on the common stock of listed commercial banks of Nepal and gives an idea about how to create a optimal portfolio. The study has taken a sample of listed four commercial banks as reference to analyze the risk and return in common stock investment, while analyzing the risk and return, brief reviews of related studies has been performed. Tables, graphs and diagrams are used to present the results of the analysis.

Secondary data are collected from NEPSE, previous studies, NRB publications and publications of selected commercial banks journals, books and Internet. Other types of information are collected through personal visit to the executives and officers of the companies and official of security board of Nepal (SEBON) and NEPSE.

The study has adopted historical and analytical research design. The data utilized are mostly secondary in nature. Various financial tools are applied to used for analyze and present for the data. Among the 30 commercial banks listed in the NEPSE, four banks are taken as sample for the study. Data of the last five years are used for the study. Market price per share and dividend per share of the banks are used to analyze the risk and returns of the banks together with the commercial banking index. And portfolio creates using two sample banks. EBL and NABIL banks used for create minimum variance portfolio.

This study divided into five chapters. First chapter is introduction chapter, introduction chapter include background of the study, profile of sample companies, statement of the problem, objectives of the study, focus of the study, significance of the study, limitation of the study, and organization of the study. Second chapter is review of literature. This chapter includes conceptual review, review of journal

and article, review of related articals and related unpublished thesis. Third chapter is research design. This chapter include population and sample, sources of data, data collection technique and analysis tools. Fourth chapter is presentation and analysis of data, this chapter shows related table, figure and describes of the study. Fifth and last chapter is summary, conclusion and recommendation and bibliography, annexed presented at the end of the study.

5.2 Conclusion

Nepalese stock market is in emerging stage. Its development is acceleration since the political change in effect of openness and liberalization in National economy. But due to lack of information and poor knowledge, Nepalese individual investor cannot analyze the securities as well as market properly. From the analysis of various financial indicators of all the sample banks, the following conclusion can be found: The return is defined as income received on common stock investment, which is usually expressed in percentage.

All the sample banks have positive return except the BOK. BOK has the lowest rate of return i.e. -10.66% and EBL has the highest rate of return i.e. 13.83 percentages. All the sample banks stock is less risky assets. BOK is the best security measuring than others in terms of CV. Stock of SBI is most aggressive and the stock of NABIL is the most defensive stock than other due to the highest and lowest beta coefficient.

Considering the banking sectors risk and return, expected return of overall banking index is 4.30% which is the lowest than the expected return of all sampled banks. The standard deviation found in banking index is 45.27%, which represent the sensitivity on investment in the banking sectors. The stock of NABIL has more USR i.e. 95.61% that can be diversifiable and SBI bank has lowest USR i.e. 29.12%. Comparing the expected rate of return and equilibrium rate of return there is found common stock of NABIL, EBL & SBI are underpriced and common stock of BOK has overpriced. It is conclude that there is no significance deferent between the annual return of sample

banks and the negative annual return BOK may be the cause of continuously decrease in the stock price.

5.3 Recommendations

The finding of this study might be useful for those who are concerned with the investment in common stock of commercial bank directly or indirectly. On the basis of major finding of the study the researcher thinks appropriate to recommend the concerned institutions to individual authorities as well as other in order to consider the following suggestions.

- Expected return recommends that commercial banks common stock are the best option for the investment as they are providing attractive rate of return.
- Among selected four commercial banks, the stocks of all commercial banks except BOK are underpriced so the investor should purchases the stock to make more beneficial.
- Investors who want to have high return should invest in EBL & NABIL because the return on stock of these company is higher and risk is lower than other in comparison to return involved in their securities.
- Investment should be done with clear objective i.e. to make additional money not to cover up losses and better to investigate.
- Stock market is very risky job so investors should know his need, desires, risk taking capabilities, adaptability in the changing market to win the stock market. Good forecasting ability self knowledge and sound understanding on information of stock market can give a winning edge to the investors.
- Before making an investment decision in stock market, analyze your own risk attitude yours needs and requirements make several discussion with stock broker and make your decision on the basis of reliable information rather than rumor and imagination.

- The development of stock market is also dependent on political stability of the nation. So, government should be stable for the development of the stock market.

- In case of the stocks are undervalued and some are overvalued thus investors are recommended to sell the overvalued stocks and to buy the undervalued stock.

- Investors must concern with the portion of systematic risk in the total risk if portion of which is arises form external factors which can not be diversifiable but Unsystematic risk can be diversifiable risk this type risk arises from internal factor.

- It is recommended that for future student they can prepare new thesis based on this study and they can increase sample size and study period for advance result

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Appendix – I

Commercial Baking Industry Index Movement

Fiscal Year	Commercial Banking Index (In Point)	Annual Return (R_{BI})	R_{BI} - $\bar{R}_{BI}$	$(R_{BI}$ - $\bar{R}_{BI})^2$
2064/065	804.26	-	-	-
2065/066	1098.5	0.3659	0.3229	0.1042
2066/067	864.48	-0.2130	-0.2560	0.0656
2067/068	541.87	-0.3732	-0.4162	0.1732
2068/069	412.7	-0.2384	-0.2814	0.0792
2069/070	690.69	0.4822	0.6306	0.3976
Total		$\sum R_{BI}$= 0.2148	$\sum(R_{BI} - \bar{R}_{BI})^2$ = 0.8198	

Calculation of Annual Return from Banking Index, which is calculated with the use of following formula;

$$R_{BI} = \frac{P_1 - P_0}{P_0} \times 100$$

For the fiscal year, 2065/066,

$$= \frac{1098.5 - 804.26}{804.26} \times 100 = 0.3659 \text{ or, } 36.59\%$$

For the calculation of other fiscal year, same process will be repeated.

Expected Return ($\bar{R}_{BI}$) = $\frac{\sum R_{BI}}{N} = \frac{0.2148}{5} = 0.0430$ or, 4.30%

Risk (δ_{BI}) = $\sqrt{\frac{\sum(R_{BI} - \bar{R}_{BI})^2}{N-1}} = \sqrt{\frac{0.8198}{5-1}} = 0.4527$ or, 45.27%

Coefficient of Variation (CV) = $\frac{\delta_{BI}}{\bar{R}_{BI}} = \frac{0.4527}{0.0430} = 10.5360$

Appendix – II

Calculation of Total Dividend of EBL

Year	MVPS (Rs.)	Cash Dividend (Rs.)	Stock Dividend		Total Dividend (Rs.)
			%	Amount (Rs.)	
2065/066	2455	30	30	489	519
2066/067	1630	30	30	328	358
2067/068	1094	50	10	103	153
2068/069	1033	0	30	477	477
2069/070	1591	50	10	205	255
2070/071	2049				

$$\text{Stock Dividend (In Rs.)} = \frac{Next\ Year\ MVPS \times Current\ Year\ Stock\ Dividend\ In\ \%}{100}$$

For the fiscal year 2065/066,

$$\frac{1630 \times 30}{100} = \text{Rs. } 489$$

Same process will be repeated for the calculation of other year stock dividend.

Appendix III

Calculation of Annual Return, Expected Return, Risk, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of EBL

F/y	MVPS (Rs.)	Dividend (Rs.)	Return (R_{EBL})	$R_{EBL} - \bar{R}_{EBL}$	$(R_{EBL} - \bar{R}_{EBL})^2$	$R_{BI} - \bar{R}_{BI}$	$(R_{EBL} - \bar{R}_{EBL})(R_{BI} - \bar{R}_{BI})$
064/065	3132						
065/66	2455	519	-0.0504	-0.1892	0.0358	0.3229	-0.06109
066/67	1630	358	-0.1902	-0.329	0.1082	-0.256	0.084224
067/68	1094	153	-0.2350	-0.3738	0.1397	-0.4162	0.155576
068/069	1033	477	0.3803	0.2415	0.0583	-0.2814	-0.06796
069/070	1591	255	0.7870	0.6482	0.4202	0.6306	0.408755
Total		**$\sum R_{EBL}$ = 0.6917**		**$\sum(R_{EBL} - \bar{R}_{EBL})^2$ = 0.7622**		**$\sum(R_{EBL} - \bar{R}_{EBL})(R_{BI} - \bar{R}_{BI})$ = 0.5195**	

$$R_{EBL} = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

For the fiscal year, 2065/066,

$$= \frac{2455 - 3132 + 519}{3132} \times 100 = -0.0504$$

For the calculation of other fiscal year, same process will be repeated.

$$\text{Expected Return } (\bar{R}_{EBL}) = \frac{\sum R_{EBL}}{N} = 0.1383$$

Risk (δ_{EBL}) = $\sqrt{\frac{\sum(R_{EBL} - \bar{R}_{EBL})^2}{N-1}}$ = 0.4365

Variance $(\delta_{EBL})^2$ = 0.1905

Coefficient of Variation (CV) = $\frac{\delta_{EBL}}{\bar{R}_{EBL}}$ = 3.1562

Covariance between Return of Banking Industry & Return of EBL ($COV_{EBL\ \&\ BI}$)

= $\frac{\sum(R_{BI} - \bar{R}_{BI})\ (R_{EBL} - \bar{R}_{EBL})}{N-1}$ = $\frac{0.5195}{5-1}$ = 0.1299

Correlation between Return of EBL & Return of Banking Industry ($r_{EBL\ \&\ BI}$)

= $\frac{COV_{EBL\ \&\ BI}}{\delta_{EBL} \times \delta_{BI}}$ = $\frac{0.1299}{0.4365 \times 0.4527}$ = 0.6574

Beta Coefficient (β_{EBL}) = $\frac{COV_{EBL\ \&\ BI}}{{\delta_{BI}}^2}$ = $\frac{0.1299}{0.4527^2}$ = 0.6339

Systematic Risk (SR) = $r_{EBL\ \&\ BI} \times \delta_{EBL}$ = 0.6574 × 0.4365 = 0.2870

Unsystematic Risk (USR) = $\delta_{EBL} - (r_{EBL\ \&\ BI} \times \delta_{EBL})$ = 0.4365 – 0.2870 = 0.1495

Proportion of Systematic Risk in Total Risk = $\frac{SR}{Total\ Risk}$ = $\frac{0.2870}{0.4365}$ × 100 = 65.75%

Proportion of Unsystematic Risk in Total Risk = $\frac{USR}{Total\ Risk}$ = $\frac{0.1495}{0.4365}$ × 100 = 34.25%

Appendix – IV

Calculation of Total Dividend of BOK

Year	MVPS (Rs.)	Cash Dividend (Rs.)	Stock Dividend		Total Dividend (Rs.)
			%	Amount (Rs.)	
2065/066	1825	7.37	40	336	343
2066/067	840	15	15	86	101
2067/068	570	16.75	18	113	130
2068/069	628	21.23	5	28	49
2069/070	553	0.74	14	79	80
2070/071	565				

Stock Dividend (In Rs.) = $\frac{Next\ Year\ MVPS \times Current\ Year\ Stock\ Dividend\ In\ \%}{100}$

For the fiscal year 2065/066,

$$\frac{840 \times 40}{100} = \text{Rs. } 336$$

Same process will be repeated for the calculation of other year stock dividend.

Appendix - V

Calculation of Annual Return, Expected Return, Risk, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of BOK

F/y	MVPS (Rs.)	Dividend (Rs.)	Return (R_{BOK})	R_{BOK} - $\bar{R}_{BOK}$	(R_{BOK} - $\bar{R}_{BOK}$)²	R_{BI} - $\bar{R}_{BI}$	(R_{BOK} - $\bar{R}_{BOK}$) (R_{BI} - $\bar{R}_{BI}$)
064/65	2350						
065/66	1825	343	-0.0774	0.0291	0.0008	0.3229	0.0094
066/67	840	101	-0.4844	-0.3778	0.1427	-0.256	0.0967
067/68	570	130	-0.1667	-0.0601	0.0036	-0.4162	0.0250
068/069	628	49	0.1877	0.2943	0.0866	-0.2814	-0.0828
069/070	553	80	0.0080	0.1145	0.0131	0.6306	0.0722
Total		**$\sum R_{BOK}$ = -0.5328**		**$\sum(R_{BOK}$ - $\bar{R}_{BOK})^2$ = 0.2469**		**$\sum(R_{BOK}$ - $\bar{R}_{BOK})$ (R_{BI} - $\bar{R}_{BI}$) = 0.1205**	

$$R_{BOK} = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

For the fiscal year, 2065/066,

$$= \frac{1825 - 2350 + 343}{2350} \times 100 =$$

For the calculation of other fiscal year, same process will be repeated.

Expected Return ($\bar{R}_{BOK}$) = $\frac{\sum R_{BOK}}{N}$ = -0.1066

Risk (δ_{BOK}) = $\sqrt{\frac{\sum(R_{BOK} - \bar{R}_{BOK})^2}{N-1}}$ = 0.2484

Variance (δ_{BOK})² = 0.0617

Coefficient of Variation (CV) = $\frac{\delta_{BOK}}{\bar{R}_{BOK}} = \frac{0.2484}{0.1066}$ = 2.3302

Covariance between Return of Banking Industry & Return of BOK ($COV_{BOK\ \&\ BI}$)

$= \frac{\sum(R_{BI} - \bar{R}_{BI})\ (R_{BOK} - \bar{R}_{BOK})}{N-1} = \frac{0.1205}{5-1}$ = 0.0301

Correlation between Return of BOK & Return of Banking Industry ($r_{BOK\ \&\ BI}$)

$= \frac{COV_{BOK\ \&\ BI}}{\delta_{BOK} \times \delta_{BI}} = \frac{0.0301}{0.2484 \times 0.4527} = 0.2677$

Beta Coefficient (β_{BOK}) $= \frac{COV_{BOK\ \&\ BI}}{\delta_{BI}^{\ 2}} = \frac{0.0301}{0.4527^2} = 0.1469$

Systematic Risk (SR) $= r_{BOK\ \&\ BI} \times \delta_{BOK} = 0.2677 \times 0.2484 = 0.0665$

Unsystematic Risk (USR) $= \delta_{BOK} - (r_{BOK\ \&\ BI} \times \delta_{BOK}) = 0.2484 - 0.0665 = 0.1819$

Proportion of Systematic Risk in Total Risk $= \frac{SR}{Total\ Risk} = \frac{0.0665}{0.2484} \times 100 = 26.77\%$

Proportion of Unsystematic Risk in Total Risk $= \frac{USR}{Total\ Risk} = \frac{0.1819}{0.2484} \times 100 = 73.23\%$

Appendix – VI

Calculation of Total Dividend of NABIL

Year	MVPS (Rs.)	Cash Dividend (Rs.)	Stock Dividend		Total Dividend (Rs.)
			%	Amount (Rs.)	
2065/066	4899	35	50	1192	1227
2066/067	2384	30	40	501	531
2067/068	1252	30	0	0	30
2068/069	1355	40	20	363	403
2069/070	1815	40	25	478	518
2070/071	1910				

$$\text{Stock Dividend (In Rs.)} = \frac{Next\ Year\ MVPS \times Current\ Year\ Stock\ Dividend\ In\ \%}{100}$$

For the fiscal year 2065/066,

$$\frac{2384 \times 50}{100} = \text{Rs. } 1192$$

Same process will be repeated for the calculation of other year stock dividend.

Appendix – VII

Calculation of Annual Return, Expected Return, Risk, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of NABIL

F/y	MVPS (Rs.)	Dividend (Rs.)	Return (R_{NABIL})	R_{SCBNL} - $\bar{R}_{NABIL}$	(R_{NABIL} - $\bar{R}_{NABIL}$)²	R_{BI} - $\bar{R}_{BI}$	(R_{NABIL} - $\bar{R}_{NABIL}$) (R_{BI} - $\bar{R}_{BI}$)
064/65	5275						
065/66	4899	1227	-0.2629	-0.3761	0.1415	0.3229	-0.1214
066/67	2384	531	-0.2521	-0.3653	0.1334	-0.256	0.0935
067/68	1252	30	0.1062	-0.007	0.0000	-0.4162	0.0029
068/069	1355	403	0.6369	0.5237	0.2743	-0.2814	-0.1474
069/070	1815	518	0.3377	0.2245	0.0504	0.6306	0.1416
Total		$\sum R_{NABIL}$ = **0.5659**		$\sum(R_{NABIL}$ - $\bar{R}_{NABIL})^2$ = **0.5996**		$\sum(R_{NABIL}$ - $\bar{R}_{NABIL})$ (R_{BI} - $\bar{R}_{BI}$) = **-0.0308**	

$$R_{NABIL} = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

For the fiscal year, 2063/064,

$$= \frac{4899 - 5275 + 1227}{5275} \times 100 = -0.2629$$

For the calculation of other fiscal year, same process will be repeated.

Expected Return ($\bar{R}_{NABIL}$) = $\frac{\sum R_{NABIL}}{N} = 0.1132$

Risk (δ_{NABIL}) = $\sqrt{\frac{\sum(R_{NABIL} - \bar{R}_{NABIL})^2}{N-1}} = 0.3872$

Variance (δ_{NABIL})² = 0.1499

Coefficient of Variation (CV) = $\frac{\delta_{NABIL}}{\bar{R}_{NABIL}} = \frac{0.3872}{0.1132} = 3.4205$

Covariance between Return of Banking Industry & Return of NABIL ($COV_{NABIL\ \&\ BI}$)

$= \frac{\sum(R_{BI} - \bar{R}_{BI})\ (R_{NABIL} - \bar{R}_{NABIL})}{N-1} = \frac{-0.0308}{5-1} = 0.0077$

Correlation between Return of NABIL & Return of Banking Industry ($r_{NABIL\ \&\ BI}$)

$= \frac{COV_{NABIL\ \&\ BI}}{\delta_{NABIL} \times \delta_{BI}} = \frac{0.0077}{0.3872 \times 0.4527} = 0.0439$

Beta Coefficient (β_{NABIL}) = $\frac{COV_{NABIL\ \&\ BI}}{\delta_{BI}^2} = \frac{0..0077}{0.4527^2} = 0.0376$

Systematic Risk (SR) = $r_{NABIL\ \&\ BI} \times \delta_{NABIL}$ = 0.0439 × 0.3872= 0.017

Unsystematic Risk (USR) = $\delta_{NABIL} - (r_{NABIL\ \&\ BI} \times \delta_{NABIL})$ = 0.3872 – 0.017 = 0.3702

Proportion of Systematic Risk in Total Risk = $\frac{SR}{Total\ Risk} = \frac{0.017}{0.3872} \times 100 = 4.39\%$

Proportion of Unsystematic Risk in Total Risk = $\frac{USR}{Total\ Risk} = \frac{0.3702}{0.3872} \times 100 = 95.61\%$

Appendix – VIII

Calculation of Total Dividend of SBI

Year	MVPS (Rs.)	Cash Dividend (Rs.)	Stock Dividend		Total Dividend (Rs.)
			%	Amount (Rs.)	
2065/066	1900	2.11	40	296	299
2066/067	741	5	12.50	71	76
2067/068	565	5	12.50	79	84
2068/069	635	5	12.50	106	111
2069/070	850	7.50	12.50	123	131
2070/071	984				

Stock Dividend (In Rs.) = $\frac{Next\ Year\ MVPS \times Current\ Year\ Stock\ Dividend\ In\ \%}{100}$

For the fiscal year 2065/066,

$\frac{741 \times 40}{100}$ = Rs. 269

Same process will be repeated for the calculation of other year stock dividend.

Appendix - IX

Calculation of Annual Return, Expected Return, Risk, Coefficient of Variation, Covariance, Correlation and Beta Coefficient of SBI

F/y	MVPS (Rs.)	Dividend (Rs.)	Return (R_{SBI})	$R_{SBI} - \bar{R}_{SBI}$	$(R_{SBI} - \bar{R}_{SBI})^2$	$R_{BI} - \bar{R}_{BI}$	$(R_{SBI} - \bar{R}_{SBI})(R_{BI} - \bar{R}_{BI})$
064/65	1511						
065/66	1900	299	0.4553	0.3300	0.1089	0.3229	0.1066
066/67	741	76	-0.5700	-0.6953	0.4834	-0.256	0.1780
067/68	565	84	-0.1242	-0.2495	0.0622	-0.4162	0.1038
068/069	635	111	0.3204	0.1951	0.0380	-0.2814	-0.0549
069/070	850	131	0.5449	0.4196	0.1760	0.6306	0.2646

Total	$\sum R_{SBI}$ = 0.6264	$\sum(R_{SBI} - \bar{R}_{SBI})^2$ = 0.8687	$\sum(R_{SBI} - \bar{R}_{SBI})(R_{BI} - \bar{R}_{BI})$ = 0.5981

$$R_{SBI} = \frac{P_1 - P_0 + D_1}{P_0} \times 100$$

For the fiscal year, 2065/066,

$$= \frac{1900 - 1511 + 299}{1511} \times 100 = 0.4553$$

For the calculation of other fiscal year, same process will be repeated.

Expected Return ($\bar{R}_{SBI}$) = $\frac{\sum R_{SBI}}{N}$ = 0.1253

Risk (δ_{SBI}) = $\sqrt{\frac{\sum(R_{SBI} - \bar{R}_{SBI})^2}{N-1}}$ = 0.466

Variance $(\delta_{SBI})^2$ = 0.2172

Coefficient of Variation (CV) = $\frac{\delta_{SBI}}{\bar{R}_{SBI}} = \frac{0.466}{0.1253}$ = 3.7197

Covariance between Return of Banking Industry & Return of SCBNL ($COV_{SBI\ \&\ BI}$)

$= \frac{\sum(R_{BI} - \bar{R}_{BI})(R_{SBI} - \bar{R}_{SBI})}{N-1} = \frac{0.5981}{5-1}$ = 0.1495

Correlation between Return of SBI & Return of Banking Industry ($r_{SBI\ \&\ BI}$)

$= \frac{COV_{SBI\ \&\ BI}}{\delta_{SBI} \times \delta_{BI}} = \frac{0.1495}{0.4660 \times 0.4527}$ = 0.7087

Beta Coefficient (β_{SBI}) = $\frac{COV_{SBI\ \&\ BI}}{\delta_{BI}^2} = \frac{0.1495}{0.4527^2}$ = 0.7295

Systematic Risk (SR) = $r_{SBI\ \&\ BI} \times \delta_{SBI}$ = 0.7087 × 0.466 = 0.3303

Unsystematic Risk (USR) = $\delta_{SBI} - (r_{SBI\ \&\ BI} \times \delta_{SBI})$ = 0.466 – 0.3303 = 0.1357

Proportion of Systematic Risk in Total Risk = $\frac{SR}{Total\ Risk} = \frac{0.3303}{0.466}$ × 100 = 70.88%

Proportion of Unsystematic Risk in Total Risk = $\frac{USR}{Total\ Risk} = \frac{0.1357}{0.466}$ × 100 = 29.12%

Appendix X

Calculation of Required Rate of Return

Bank Name	R_f	$\bar{R}_{BI}$	R_f	β	R
EBL	0.034	0.0430	0.034	0.6339	0.0397
NABIL	0.034	0.0430	0.034	0.0376	0.0343
BOK	0.034	0.0430	0.034	0.1469	0.0353
SBI	0.034	0.0430	0.034	0.7295	0.0406

Required rate of return (R) = $R_f + (\bar{R}_{BI} - R_f)\ \beta$

Appendix XI

Calculation of Coefficient of Variation between NABIL & EBL Bank

F/Y	$R_{EBL} - \bar{R}_{EBL}$	$R_{NABIL} - \bar{R}_{NABIL}$	$(R_{EBL} - \bar{R}_{EBL})\ (R_{NABIL} - \bar{R}_{NABIL})$
065/66	-0.1892	-0.3761	0.0712
066/67	-0.329	-0.3653	0.1202
067/68	-0.3738	-0.007	0.0026
068/069	0.2415	0.5237	0.1265
069/070	0.6482	0.2245	0.1455
$\sum(R_{EBL} - \bar{R}_{EBL})\ (R_{NABIL} - \bar{R}_{NABIL})$			0.466

Covariance between Return of EBL & Return of NABIL ($COV_{EBL\ \&\ NABIL}$)

$$= \frac{\sum(R_{EBL} - \bar{R}_{EBL})\ (R_{NABIL} - \bar{R}_{NABIL})}{N-1} = \frac{0.466}{5-1} = 0.1165$$

Portfolio return ($\bar{R}_P$) = $W_A\ \bar{R}_A + W_B\ \bar{R}_B$

Portfolio Risk (δ_P) = $\sqrt{W_A^2\ \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$

If,

W_A = 0.50 and W_B = 0.50

For, EBL & NABIL

$\overline{R}_P = 0.50 \times 0.1383 + 0.50 \times 0.1132 = 0.1258$

$\delta_P = \sqrt{0.50^2 \times 0.4365^2 + 0.50^2 \times 0.3872^2 + 2 \times 0.1165 \times 0.50 \times 0.50}$

= 0.1910

Appendix XII

Calculation of Coefficient of Variation between EBL & SBI Bank

F/Y	$R_{EBL} - \bar{R}_{EBL}$	$R_{SBI} - \bar{R}_{SBI}$	$(R_{EBL} - \bar{R}_{EBL})(R_{SBI} - \bar{R}_{SBI})$
065/66	-0.1474	0.2781	-0.1892
066/67	-0.2646	-0.5881	-0.329
067/68	-0.239	-0.2115	-0.3738
068/069	0.0034	0.152	0.2415
069/070	0.6478	0.3697	0.6482
$\sum(R_{EBL} - \bar{R}_{EBL})(R_{SBI} - \bar{R}_{SBI})$			0.5787

Covariance between Return of EBL & Return of SBI ($COV_{EBL\ \&\ SBI}$)

$= \frac{\sum(R_{EBL} - \bar{R}_{EBL})(R_{SBI} - \bar{R}_{SBI})}{N-1} = \frac{0.5787}{5-1} = 0.1447$

Portfolio return ($\overline{R}_P$) = $W_A \overline{R}_A + W_B \overline{R}_B$

Portfolio Risk (δ_P) = $\sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$

$W_A = 0.50$ and $W_B = 0.50$

$\overline{R}_P = 0.50 \times 0.1388 + 0.50 \times 0.1253 = 0.1318$

$\delta_P = \sqrt{0.50^2 \times 0.4365^2 + 0.50^2 \times 0.466^2 + 2 \times 0.1447 \times 0.50 \times 0.50}$

= 0.2219

Appendix XIII

Calculation of Coefficient of Variation between EBL & BOK Bank

F/Y	$R_{EBL} - \bar{R}_{EBL}$	$R_{BOK} - \bar{R}_{BOK}$	$(R_{EBL} - \bar{R}_{EBL})(R_{BOK} - \bar{R}_{BOK})$
065/66	-0.1892	0.0291	-0.0055
066/67	-0.3290	-0.3778	0.1243
067/68	-0.3738	-0.0601	0.0225
068/069	0.2415	0.2943	0.0711
069/070	0.6482	0.1145	0.0742
$\sum(R_{EBL} - \bar{R}_{EBL})(R_{BOK} - \bar{R}_{BOK})$			0.2865

Covariance between Return of EBL & Return of SBI ($COV_{EBL\ \&\ BOK}$)

$= \frac{\sum(R_{EBL} - \bar{R}_{EBL})(R_{BOK} - \bar{R}_{BOK})}{N-1} = \frac{0.2865}{5-1} = 0.0716$

Portfolio return ($\bar{R}_P$) = $W_A \bar{R}_A + W_B \bar{R}_B$

Portfolio Risk (δ_P) = $\sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$

$W_A = 0.50$ and $W_B = 0.50$

$\bar{R}_P = 0.50 \times 0.1388 + 0.50 \times (0.1066) = 0.0161$

$\delta_P = \sqrt{0.50^2 \times 0.4365^2 + 0.50^2 \times 0.2484^2 + 2 \times 0.0716 \times 0.50 \times 0.50}$

= 0.1465

Appendix XIV

Hypothesis Test

R_{EBL}	R_{NABIL}	R_{BOK}	R_{SBI}	R_{EBL}^2	R_{NABIL}^2	R_{BOK}^2	R_{SBI}^2
-0.0504	-0.2629	-0.0774	0.4553	0.0025	0.0691	0.0060	0.2073
-0.1902	-0.2521	-0.4844	-0.57	0.0362	0.0636	0.2346	0.3249
-0.235	0.1062	-0.1667	-0.1242	0.0552	0.0113	0.0278	0.0154
0.3803	0.6369	0.1877	0.3204	0.1446	0.4056	0.0352	0.1027
0.787	0.3377	0.008	0.5449	0.6194	0.1140	0.0001	0.2969
0.6917	**0.5658**	**-0.5328**	**0.6264**	**0.8579**	**0.6636**	**0.3037**	**0.9472**

$\sum R_{EBL}$ = 0.6917

$\sum R_{NABIL}$= 0.5658

$\sum R_{BOK}$ = -0.5328

$\sum R_{SBI}$ = 0.6264

$\sum R_{EBL}{}^2$ = 0.8579

$\sum R_{NABIL}{}^2$ = 0.6636

$\sum R_{BOK}{}^2$ = 0.3037

$\sum R_{SBI}{}^2$ = 0.9472

N = 20

Grand Total (T) = $\sum R_{EBL}$+ $\sum R_{NABIL}$ + $\sum R_{BOK}$ + $\sum R_{SBI}$

= (0.6917) + (0.5658) + (-0.5328) + (0.6264) = 1.3511

Correction Factor (CF) = $\frac{T^2}{N} = \frac{(1.3511)^2}{20}$ = 0.0913

Total Sum of Square (TSS) = $\sum R_{EBL}{}^2$ + $\sum R_{NABIL}{}^2$ + $\sum R_{NABIL}{}^2$ + $\sum R_{BOK}{}^2$ - CF

= 0.8579 + 0.6636 + 0.3037 + 0.9472 – 0.0913 = 2.7724

Sum of Square between Sample (SSC) =

$$\frac{(\sum R_{EBL})^2}{N_{EBL}} + \frac{(\sum R_{NABIL})^2}{N_{ANBIL}} + \frac{(\sum R_{BOK})^2}{N_{BOK}} + \frac{(\sum R_{SBI})^2}{N_{SBI}} - CF$$

$= \frac{(0.6917)^2}{5} + \frac{(0.5658)^2}{5} + \frac{(-0.5328)^2}{5} + \frac{(0.6264)^2}{5} - 0.0913 = 0.0901$

Sum of Square with in Sample (SSW) = TSS – SSC = 2.7724 – 0.0901 = 2.6823

Appendix XV

One Way ANOVA Table

Source of Variation	**Sum of Square**	**Degree of Freedom**	**Mean Sum of Square**	**F- ratio**
Between Samples	0.0901	4 – 1 = 3,	$\frac{0.0901}{3} = 0.0300$	$\frac{0.03}{0.1676} = 0.1790$
Within Samples	2.6823	16	$\frac{2.6823}{16} = 0.1676$	
Total	**-0.4275**	**20 – 4 = 16**		