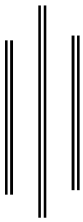
PORTFOLIO PERFORMANCE OF COMMERCIAL BANKS

IN NEPAL



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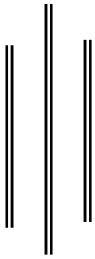

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Declaration

I hereby declare that the work reported in this thesis entitled "PORTFOLIO PERFORMANCE OF COMMERCIAL BANKS IN NEPAL" submitted to Office Dean, Faculty of Management, Tribhuvan University is my original work done for the partial fulfillment of the requirements for the Master of Business Studies (MBS) under the supervision of Dr. Shankar Thapa of St. Xavier College.

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Nabin Panthi

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ABBREVIATIONS

AD	:	Anno Domini
ATM	:	Automated Tailor Machine
B.S.	:	Bikram Sambat
BOK	:	Bank of Kathmandu
BV	:	Book Value
CA	:	Current Assets
CB	:	Commercial Banks
CL	:	Current Liabilities
Co.	:	Company
Cov.	:	Covariance
CR	:	Current Ratio
CRR	:	Compulsory Reserve Ratio
CS	:	Common Stock
CV	:	Coefficient of Variation
d.f.	:	Degree of Freedom
D/Y	:	Dividend Yield
DP	:	Dividend Policy
DPR	:	Dividend Payout Ratio

DPS	:	Dividend per Share
e.g.	:	Example
E/Y	:	Earning Yield
EBL	:	Everest Bank Limited
EMH	:	Efficient Market Hypothesis
EPS	:	Earning Per Share
FY	:	Fiscal Year
GDP	:	Gross Domestic Product
GDS	:	Gross Domestic Savings
HBL	:	Himalayan Bank Limited
i.e.	:	That is
IT	:	Information Technology
JVBs	:	Joint Venture Banks
Ltd	:	Limited
Misc.	:	Miscellaneous
MPS	:	Market Value Per Share
MV	:	Market Value
NBBL	:	Nepal Bangladesh Bank Limited
NEPSE	:	Nepal Stock Exchange Limited
NIBL	:	Nepal Investment Bank Limited

No.	:	Number
NPAT	:	Net Profit after Tax
NRB	:	Nepal Rastra Bank
NT	:	Not Taxable
P.Er	:	Probable Error
P/E Multiple	:	Price Earning Multiple
PNB	:	Punjab National Bank
PSA	:	Public Service Announcement
r	:	Coefficient of correlation
R&D	:	Research and Development
r^2	:	Coefficient of determination
RBB	:	Rastriya Banijya Bank
ROA	:	Return on Assets
ROE	:	Return on Equity
S.D.	:	Standard Deviation
SCBNL	:	Standard Chartered Bank Nepal Limited
SD	:	Standard Deviation
SEBO	:	Security Board
SEBON	:	Securities Board of Nepal
SEC	:	Securities Exchange Centre

SLR	:	Statutory Liquidity Ratio
TU	:	Tribhuvan University

CHAPTER I
INTRODUCTION

1.1 Background of Study

Securities market is recognized as an effective way of raising capital for commercial enterprises, and at the same time providing an investment opportunity for individuals and institutions. The activities of buying and selling securities in the securities markets are extremely important for the efficient allocation of capital within economies. The securities market is a requisite for the sound development of an economy because it not only provides stable long-term capital for companies and an effective savings vehicle for the public, but also functions as an efficient tool for resource allocation. Mass participation in country's industrialization process is possible only through the efficient mechanism of securities markets as it promotes efficient collection of small and scattered savings from the investors and provides returns to them in the form of dividend. A developed securities market is the medium through which only productive firms that have better performance can easily raise capital. In other words, well-developed capital markets enable high-quality firms to increasingly finance themselves from securities (bond and equity) rather than from bank loans. This type of behaviour of developed market enhances economic growth process by productivity growth (Shirai, 2004:189-208).

Economic development depends upon development in the area of industrial, financial, agricultural and social services, which requires huge amount of investment. Financial sector is a medium through which scattered savings and investable resources are converted into actual investment. Financial sector provides sufficient funds through issuing share capital, debt capital, granting short term and long-term loans. But the required knowledge towards the financial activities is lacking in our country. Even educated people do not know about financing and investing activities.

Obviously, the Nepalese economy depends on and predominated by agricultural sector. However, this sector is unable to accelerate the rapid economic growth as desired and targeted. This is due to lack of effective agricultural policies of government, modern way of cultivation and effective management of these sectors. A financial institution collects the funds in term of deposits and extends loan and advance to various sectors. The main sources of funds besides equities are saving and time deposit collection and issuance of debentures.

The collected funds or sources are invested in those areas, which are generally ignored by the commercial bank (i.e. housing finance, consumption loans etc.) Therefore finance company can be considered as complimentary to commercial banks. The financial institutions have great importance to the national economy. They are important part of the trade, commerce and industry, which collect different unused funds and mobilize it into needy sectors (Dahal, 1998:25-35). In the last few years basically after the restoration of democracy (1990) in the country the government's move towards liberalization and privatization have paved the way for economic growth and the resultant effect has been positive. The continuing development has helped in establishing many banks, financial institutions and industries under joint venture arrangements.

In Nepal, the concept of financial institution was introduced when the first financial institution, Industrial Development Center was established in 1957. Later it was converted in Nepal Industrial Development Corporation in 1959 by special charter. Then after three financial institutions are established in 1992 under the company act 1964, they are NIDC Capital Market Ltd., Nepal Finance and Saving Co. Ltd., and National Finance Co. Ltd. Subsequently various financial intuitions are established after then. Due to change on economic policy of the nation and open economic policy of the government, the establishments of the financial institutions are increasing. And the people's participation in security investment and stock trading is increasing unexpectedly, even though the investors do not have enough knowledge to invest in security (Dahal, 1998:37-40).

Economic prosperity is a function of banking development. Economic development is inevitable for the overall prosperity of the country. Well-developed banking system is the route for the economic prosperity. So, banking system is supposed to be the backbone of the nation, which supports for the establishment of industries, development and extension of national and international trade and mobilization of saving to the productive sectors. The number of joint venture banks has been increasing so is the investment volume and opportunity in various sectors that extends to agriculture, industry commercial and social sectors. Among all the banks, 24 commercial banks are listed in Nepal stock exchange till date, which claims the highest contribution on the market capitalization as compared to other sectors. As financial intermediary, the joint venture banks also play an important role as fiscal policy implementing body for central bank. The monetary structure involves analysis of the behavior of banking system, so needs and importance of the commercial banks are increasing.

Now a day, each and every managerial decision-making is based on financial analysis. It covers the acquisition, utilization, control and administration of fund. “Managerial finance is an interesting, exciting and dynamic area of study. And its importance to the long run success of today’s business is unquestioned” (Lawrence, 1985). Common stockholders are residual owners of the firm. In real, they’re the real owners of the firm. They invest in the firm. That is why, they participate in the management and entitled to all the profit left after all the liabilities or claims are satisfied. So, common stockholders have to bear all the risk relating to the business. Thus, common stock is the most risky security. “The rights and responsibilities attached to equity consist of positive considerations (income potential and control of the firm) and negative considerations (loss potential, legal responsibility, and personal liability) (Weston and Copeland, 1992:931).”Risk is the bitter truth of life, which is a product of future uncertainty and its magnitude depends upon the degree of variability in uncertain cash flow. Risk in fact, is an indication of chance of losing investment back. Interpretation of risk varies as per people’s attitude towards it, in real; risk is any unknown unfavorable event. It real, risk is any unknown unfavorable event. It is a chance of happening some or huge unfavorable even or danger of losing some materials value.

“Risk was defined as the variability of possible outcomes from that which was expected ” (Van Horne, 1999:72). “Risk refers to the set of unique outcomes for a given even which can be assigned probabilities” (Khan and Jain, 1992). “Risk is like pornography, it’s hard to define, but you know it when you see it” (Van Horn and Wachowicz, 1986:89). An investor always wants high return but low risk which is totally impossible. Where there is high return, there is high risk and vice-versa. To earn more return, people invest their wealth in common stock thinking that they will get the entire residual amount as dividend. But their expected return may or may not be high in reality. So, it can be easily conclude that return is uncertain. This uncertainty is the major risk to investor in common stock investment.

“Every investment entails some degree of risk, it requires a present certain sacrifice for a future uncertain benefit” (Francis, 2000:11). “The return on investment is dividend plus, changes in market price of the share (MPS). It is expressed in percentage. Both of these items are uncertain. So, the actual return on investment in common stock may differ substantially from the expected return” (Malakar, 2001:32). “Return is the income received in investment. People invest their belongings with an expectation of getting some reward for leaving its liquidity. They only invest in those opportunities where they can get higher return. Hence, investor wants favorable return to be yield by its stock. And go for those, which yield more”

(Upadhya, 2001:25). “The expected rate of return for any asset is the weighted average rate of return using then probability of each rate of return as the weight” (Francis, 2000:11)

1.2 Statement of the Problem

Recent trend shows that the general people are interested to invest their small money on the common stock of financial institutions like joint venture banks. But due to the lack of proper information about market status and situation and poor knowledge, market intermediaries exploit investors. Sometimes they think that investing in common stocks is intolerably hazardous. Due to this, many investors afraid to invest into stocks, this is the main problem that does not allow gearing up the capital market of the nation. The main problem for the individual investors are lack of proper information about market whereas the problem for financial sector to enhance the goodwill among the public due to frequent collapse of some finance companies being unable to utilize public funds properly. The investors are responsible to make rational investment decision. For this rational analytical knowledge is essential. The investor’s attitude and perception also plays a vital role in rational decision regarding whether the investment should be made or not. We look in Nepal most of inventors invest their funds in a single security rather they can be benefited by investing in portfolio of securities and achieving diversification of risk. The main problem is that the general public cannot perfectly analyze the risk and return analysis of common stock of commercial banks in Nepal.

As the economic status and consciousness towards economic activities are very poor, development and growth of the capital market in Nepal is still in its infancy. Investors use their own guess and hunches to invest their wealth because they don’t have any knowledge about financial assets and they also do not know to take decision to construct an ideal portfolio and to reach a profitable decision. Investors’ of Nepal invest their wealth on the basis of looking the past trends of stock prices; so, some times they have to face heavy losses. “People assume more risk in stock investment than its real risk. To boost confidence analysis in the field is a must. Unavailability of clear and simple techniques to analyze risk associated with return is also a constraint” (Upadhya, 2001:11).

Now, it become necessary to make polices, evaluate relative riskness of decision and impact to general investors by the security businesspersons, security manager, and stockbrokers. Considering the above in mind, following problems are identified which are to be researched:

- How the investment decisions are to be taken?

- What are the factors affecting riskiness of the securities?
- What are the comparative risk positions of selected joint venture banks?
- Does the risk and return of selected joint venture banks vary significantly?
- What is the systematic risk position in relation to total risk?
- Would portfolio construction within the selected joint venture banks be profitable?

Investment on common stock is the main sources of fund for the companies. The investors 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. So every policy and plan of financial institutions and government also have to encourage them to invest on common stock. For this there is great need of such institutions, which can give valuable information that accelerates the stock investment and market efficiency.

1.3 Objectives of the Study

The main objective of the study is to analyze the risk and return of common stock investment of listed companies i.e. joint venture banks. The specific objectives are as follows:

a. To analyze the volatility of different stock and other relevant variable that should be considered while deciding investment in stock.
b. To evaluate common stock of selected listed companies i.e. joint venture banks in terms of risk and return to perform sector wise comparison on the basis of market capitalization.
c. To calculate and analyze the risk and return of different portfolio.
d. To provide suggestions, some practical ideas and recommendations based on the analysis of the data.

1.4 Significance of the Study

Open economic policy of the government encouraged the establishment of the financial institution. As result the people's participation in security investment and stock trading is increasing unexpectedly. The recent trend and people's attitude towards common stock investment shows that there is a high potentiality in stock investment, which results an increase in economic activity. It is important to increase financial and economic activities of the nation. Thus this study has tried to fulfill the need in this aspect. The study may also help for interested management. A part from above, this study will be a matter of interest for academicians, students and practitioners.

The focus of the study is on the analysis of risk and return, which will enable all the related persons to guide the investment related activities. Benefits of the study will receive primarily by potential investors. Security businesspersons, issue manager, broker and marketing managers will also be benefited by this study.

1.5 Limitations of the Study

This study explains and analyzes the subject matter with help of well known or already established analytical methods and techniques, therefore as a conclusion oriented research, it does not concern with fundamental and decision oriented research. Considering the above matter, following are the limitations of the study.

a. It only focuses on selected listed companies covering the period of last eight years.
b. This study is mainly based on published secondary data.
c. This study only concerns with the risk and return of selected listed companies i.e. joint venture banks.
d. Secondary data gathered from related sources has been used. The reliability depends on it.
e. Only risk and return of common stock would be analyzed.
f. In this study basic source of data has been taken from NEPSE reports.
g. The truth of the research result is based upon the available data from the NEPSE and other sources.

1.6 Organization of the Study

The study is divided into five chapters as follows:

Chapter 1: Introduction

In this chapter, background of study, introduction of the study, objectives of the study, significances of the study, limitations of the study and origination of the study has been explode separately and details information has been presented.

Chapter 2: Review of Literature

This chapter devoted for the brief review of literature available. Review from books, journals (articles), thesis etc are included in this chapter. Conceptual framework about risk and return is briefly reviewed.

Chapter 3: Research Methodology

This unit presents methodology used in the study. It consists of research design, population sample, and sources of data, tools and technique for analysis and method of presentation of analysis.

Chapter 4: Data Presentation and Analysis

In this chapter, data collected from various relevant sources is presented and analyzed using various statistical and non-statistical methods and major findings of the study has been briefed separately.

Chapter 5: Summary, Conclusion and Recommendations

The fifth chapter presents the summary and conclusion of the study based on the analysis of data and there after the researcher's conclusion and recommendations has been shown and explained.

Similarly, recommendation, viva-voce sheet, declaration, table of content, table of list and figure, abbreviation are presented at the front part of the study. After all, the bibliography and appendices are included at the end.

CHAPTER II

REVIEW OF LITERATURE

The chapter review of literature includes the review of concept and finding of previous research on the some field. Books, journals and unpublished thesis are reviewed for this purpose. In this regard, basic academic course book on finance, recently published books specially related to this topic, some of the major research based journals and the related studies are reviewed.

There is no any special book and research work about the topic “Risk and Return analysis of common stock, and we do not have sufficient required journals and relevant books. Some master degree thesis is available in Tribhuvan University, which are related to this topic to some extent. These theses are also reviewed to the extent they found related. In addition, independent studies carried out by well-known Nepalese financial experts are also taken into consideration.

2.1 Conceptual Framework

Investment decisions are influenced by various motives. Some people invest in a business to acquire control and enjoy the prestige associated with it. Most investor, however, are largely guided by the pecuniary motive of earning a return on their investment. The main focus of finance is tradeoff between risk and return. Here, the focus is its implication in the investment of common stock.

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

“Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory” (Pandey, 1997). What is risk? How is it measured? What is return? How is it measured? , are the basic question, which needs to be answered while making an investment decision. In this chapter, an attempt is made to answer the logic of portfolio theory and the use of Capital Asset Pricing Model (CAPM) for valuing assets with a view to facilitate the investment decision.

2.1.1 Common Stock

Common stock represents equity, or an ownership position in a corporation. It is a residual claim, in the sense that creditors and preferred stockholders must be paid as scheduled before common stockholder can receive any payments. In bankruptcy common stockholders are, in principal, entitled to any value remaining after all other claims have been satisfied. The great advantage of the corporate form of organization is the limited liability of its owners. Common stocks are generally 'fully paid and non-assessable'; meaning that common stockholder may lose their initial investment but not more that that. That is if the corporation ails to meet its obligations, the stockholders cannot be forced to give the corporation the funds that are needed to pay off the obligations. However, as a result of such failure it is result of such failure it is possible that the value of a corporation's share will be negligible. This will result in the stockholders having lost an amount equal to the price previously paid to buy the shares.

2.1.2 Return on Common Stock

The cash payoffs to owners of common stocks are of two kinds:

i. Cash dividend
ii. Capital gain (loss)

As per Brealey and Myers, "If current price of a share is P_0 that the expected price at the end of a year is P_1 and that the expected dividend per share is Div_1. The rare of return that investors expect from this share over the next year is defined as the expected dividend per share Div_1 plus the expected price appreciation per share P_1-P_0 all divided by the price at the start of the year P_0 which can be shown in the form of:

$$\text{Expected return} = R = \frac{Div_1 \ \Gamma \ P_1 \ \Gamma \ P_0}{P_0}$$

The return from holding an investment over some period, say a year, is simply any cash payments received due to ownership, plus the change in market price divided by the beginning price. Thus, the return comes from two sources: income and price appreciation (Barely and Myers, 1994:84).

For common stock, we may define single-period return as:

$$R = \frac{D_t \; \Gamma \; fP_t \; Z \; P_{tZ1} A}{P_{tZ1}}$$

Where,

R = Actual/expected return

t = Particular time period in the past (future).

D_t = Stocks price at time period t.

P_{t-1} = Stocks price at time period t-1.

The above mentioned formulae can be used to find out both actual single-period return (when based on historical data) as well as expected single period return (when based on future expected dividends and prices).

(The term in the parenthesis in the numerator of above equation represents the capital gain or loss during the period.)

"Holding period return measure mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate of return as an investment yield. The yield calculation is presented value-based and this considers the time value of money" (Barely and Myers, 1994).

"Return is defined as the dividend yield plus the capital gain or loss. The relationship between different levels of return on their relative frequencies is called a probability distribution. We could formulate a probability distribution for the relative frequency of a firm's annual return by analyzing its historical return over the previous year. But we know that history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for the individual company, we can form a probability distribution based on historical data plus the analysis for the outlook for the economy and the outlook for the industry, the outlook for the firm in its industry and another factors" (Barely and Myers, 1994).

2.1.3 The Risk on Common Stock

Risk is defined in Webster's dictionary as 'a hazard: a peril: exposure to loss or injury', thus for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stock (or, really, any stock), you are taking a risk in the hope of making an appreciable return" (Weston and Brigham, 1995:182-183).

“Most people view risk in the manner we just described a chance of loss. In reality, risk occurs when we cannot be certain about the outcome of a particular activity or event, so we are not sure what will occur in the future. Consequently, risk result from the fact that an action such is investing can produce more than one outcome in the future. To illustrate the riskiness of financial assets, suppose someone has a large amount of money to invest for one year. Someone could buy a Treasury security that has an expected return equal to 8 percent. The rate of return expected from this investment can be determined quite precisely, because the chances of the government defaulting on treasury securities is negligible; the outcome essentially is guaranteed, which means this is a risk-free investment. On the other hand, someone could buy the common stock of a newly formed company that has developed technology to extract petroleum from the mountains in South America without defacing the landscape and without harming the ecology. The technology has yet to be proven economically feasible, so it is not known what returns the common stockholders will receive in the future. Experts who have analyzed the common stock of the company have determined that the expected or average long-run return for such an investment is 30 present each year, the investment could yield a positive return as high as 900 percent, but there is also the possibility that the company will not survive, in which case the entire investment will be lost, so the return will be 100 percent. Here the investors receive return each year cannot be determined precisely because more than one outcome is possible. This is a risky investment, because there is a significant danger of actual earning considerably less than the expected return. Investors probably would consider the stock to be quite risky. But there is also very good chance the actual return will be greater than expected, which, of course is an outcome we gladly accept. So, when we think of investment risk, along with the chance of actually receiving less than expected, we should consider the chance of actually receiving more than expected. If we consider investment risk from this perspective, then we can define risk as the chance of receiving as actual return other than expected, which simply means, there is variability in the returns or outcomes from the investment. Therefore, investment risk can be measured by the variability of the investments returns. However, we can define risk more precisely, and it is useful to do so” (Weston and Brigham, 1995:182-183).

Different people interpret uncertainties and risks in different ways. For some, uncertainly is simply a lack of definite outcome; it is anything that could happen any unknown event, which may be favorable or unfavorable. To other, it is a risk, many people consider risk as a chance

of happening some unfavorable event or danger or losing some value. The trouble of uncertainty are risk, people often use them interchangeably.

Although the meaning of these two terms may differ, authorities in the field of finance and people concern about fiancé do agree that the risk is the outcome of uncertainty.

If we agree to interpret certainty as a future outcome, which is a hundred percent sure to happen, then uncertainly is nothing but just the opposite of certainty that refers to all possible future outcomes none of which is known for sure to happen. On the other hand, risk is the outcome of all potential future outcomes presented with probability associated with each of them and it is measured in terms of the degree of variability in the probability distribution of each outcome.

In the case of financial analysis, definitely, risk and uncertainly are treated separately. The practice is to translate the uncertainty in to mathematical value, which denotes the best estimate of all uncertainty values. In other words, uncertainty is taken care by calculating the expected value of all possible uncertain outcomes. However, risk is treated differently. Although uncertainty is the root cause of risk, its magnitude depends upon the degree of variability in uncertain cash flows, and it is measured in terms of standard deviation. In project analysis, risk, in fact is an indication of chance of lossing investment value. The word chance refers to the probability of loss in the investment project, here. In other words, the project risk indicates the probability of return being less than the expected value-higher the probability of such loss and less return higher the project risk.

Risk is the unlooked for the unwanted event in the future; someone had said that risk was the sugar and salt of the life. “Risk, defined most generally, is the probability of the occurrence of unfavorable outcomes. But risk has different meaning in different contexts. In our context, two measures developed from the probability distribution have been based as initial measures of return and risk. They are the mean and standard deviation of the probability distribution” (Weston and Brigham, 1995:182-183)

Being a complicated subject, risk needs to be properly analyzed. The relationship between risk and return is described by investors’ perception about risk and their demand for compensation. No investor will like to invest in risky assets unless he/she is assured of adequate compensation of 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, required risk premium that establishes a link between risk and return. In a market dominated by rational investors, higher risk will command by rational premium and the trade-of between the two assumes a linear relationship between risk and risk premium.

2.2 Review of Books

On the topic of book review, here we consider some books for literature review and to get sound knowledge about subject matter of investment analysis, portfolio, CAMP, SML which are concerned about the analysis of risk and return of market as well as individual assets including common stocks.

Portfolio Analysis

In the book "Investments: Analysis and Management", Francis, Jack Clark writes that very broadly the investment process consists of two tasks. The first task is security analysis, which focuses on assessing the risk and return characteristics of the available investment vehicles. The second task is portfolio selection, which involves choosing the best possible portfolio from the set of feasible portfolios. A portfolio is a combination of investment assets. The portfolio is the holding of security and investment in financial assets i.e. bond, stock. Portfolio management is related to the efficient portfolio investment in financial assets (Francis, 2000). "The process of adding securities to a portfolio in order to reduce the portfolio management is related to the efficient portfolio investment in financial assets (Francis, 2000). "The process of adding securities to a portfolio in order to reduce the portfolio's unique risk and thereby, the portfolio's total risk is called diversification" (Francis, 2000:399). The objective of portfolio analysis is to reduce risk. By combining securities of low risks with securities of high risks, success can be achieved by an investor in making a choice of investment outlets. Combination of securities can be made in many ways. In this book, Francis, Jack Clark has focused on the different portfolio approaches or forms of diversification, which areas follow:

Simple Diversification (Naïve or Random Diversification)

Simple diversification can be defined as "not putting all the eggs in one basket" or "spreading the risks". The simple diversification would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. It reduces a portfolio's total diversifiable risk to zero and only the undiversifiable risk remains. So this

approach assumes that an investor can expect a reasonable return for a given level of risk (Francis, 2000).

Superfluous Diversification (Over Diversification)

If refers to the investor spreading himself in so investments on his portfolio. The investor finds it impossible to manage the assets on his portfolio because the management of a large number of assets requires knowledge of the liquidity of each investment, return; tax liability and this will become impossible without specialized knowledge. He also finds it both difficult and expensive to look after a large number of investments. If the plans to switch over investments often selling and buying assets expecting a high rate of return, he involves himself in high transaction costs and more money will be spent in managing superfluous diversification. It will be very difficult for him to measure the return on each of his investments. All those problems may result in inadequate return.

Diversification across Industries

Some investment counselors advocate selecting securities from different industries to achieve better diversification. It is certainly better to follow this advice than to select all the securities in a portfolio from one industry.

Simply Diversification across Quality Rating Categories

Simply Diversification reduces risk within categories of stocks that all have the same quality rating.

Assets Allocation

Francis, Jack Clark writes, assets allocation decisions deal with attaining the optional proportions of investment from different assets categories. Portfolio manager focuses primarily on the stock-bond mix, the decision often boils down to trying to determine the best long-run stock-bond distribution.

Portfolio Analysis with Negative Weights

If an asset has a negative weight, two economic interpretations are possible. First, a negative weight can be used to represent a short sale. Second a negative weight may indicate that the investor created a leveraged (borrowed, or margined) portfolio by selling (issuing) a security

that has the same risk and return statistics as the asset with the negative weight (Francis, 2000:400).

He has fixed the following primary and secondary objectives of the portfolio analysis:

1. Primary objectives
   a. To maximize return
   b. To minimize risk
2. Secondary objectives
   a. Regular returns b. Stable income c. Appreciation of capital
   d. Ever liquidity e. Easy marketability e. Safety of investment
   f. Tax benefits

In another book, "Financial Management" I.M. Pandey also reviewed here. He writes - "The portfolio theory provides a normative approach to the investors' decision to investment in assets or securities under risk" (Pandey, 1997:329). It is based on the assumption that investors are risk-averse. This implies that investors hold well-diversified portfolios instead of investing their wealth in a single assets or security. A portfolio is a bundle or combination of individual assets or securities. If investor holds a well-diversified portfolio, then his concern should be the expected return and risk of portfolio rather than individual assets or securities. The second assumption of the portfolio rather theory, according to him, is that returns of securities are normally distributed. This means that the mean (the expected value) and variance (or standard deviation) analysis is the foundation of the portfolio decisions.

Markowitz's Diversification

Portfolio theory, originally proposed by Harry Markowitz in the 1950s, was the first formal attempt to qualify the risk of portfolio and develops a methodology for determining the optimal portfolio. Prior to the development of portfolio theory, investors somewhat loosely dealt with the concepts of return and risk. Intuitively smart investors knew the benefit of diversification, which is reflected in the tradition adage: "Do not put all your eggs in one basket." Harry Markowitz was the first person to show quantitatively why and how diversification reduces risk. Markowitz diversification is combining the assets, which are less than perfect positively correlated in order to reduce portfolio risk. It can sometimes reduce the risk below the undiversifiable level. Markowitz's diversification is more analytical than simple diversification and consider asset's correlation (or covariance). The lower the

correlation between assets, the more the Markowitz diversification will be able to reduce the portfolio's risk.

Sharpe: The Single Index Model (SIM)

Constructing the Optimal Portfolio

In the book "Investment Management, Security Analysis and Portfolio Management", written by V. K. Bhalla has focused on optimal portfolio Model. "The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R} -T)/\beta_{im}$ where $\tilde{R}_i$ is the expected return on security i, T is the return on a riskless asset, and β_{im} is the expected change in the rate of return on security i associated with a 1 percent change in the market return. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of $(\tilde{R} -T)/\beta_{im}$ will be included and all securities with lower rates excluded. Selecting the optimal portfolio involves the comparison of $(\tilde{R}_i -T)/\beta_{im}$ with C*. All securities whose excess return-to-risk ratios are above the cut-off rate are selected and all those whose ratios are below are rejected. The value of C* is computed from the characteristics of all of the securities that belong in the optimum portfolio. To determine C*, it is necessary to calculate its values as if there are different numbers of securities in the optimum portfolio. Suppose Ci is candidate of C*, the value of C_i is calculated when i securities are assumed to belong to the optimal portfolio" (Bhalla, 2001:533-535).

"Since securities are ranked from highest excess return to beta to lowest, we know that if a particular security belongs in the optimal portfolio, all higher ranked securities also belong in the optimal portfolio. We proceed to calculate values of a variable C_i as if the first ranked security were in the optimal portfolio (i=1), then the first and second ranked securities were in the optimal portfolio (i=2), and so on. These C_i are candidates for C*. We have found the optimum C_i, that is, C*, when all securities used in the calculation of C_i have excess return to beta above C_i and all securities not used to calculate C_i have excess return to betas below C_i. There will always be one and only one C_i with this property and it is C*" (Bhalla, 2001:534). For a portfolio of i securities, C_i is given by:

$$C_i = \frac{\exists^2_m \sum_{i=1}^{i} \frac{\left(\tilde{R}_i - T\right)\beta_{im}}{\exists^2_{ei}}}{1 + \exists^2_m \sum_{i=1}^{i} \frac{\beta^2_{im}}{\exists^2_{ei}}}$$

Where:,

$\exists^2_m$ = variance of the market index

$\exists^2_{ei}$ = variance of a security's movement that is associated with the movement of the market index;

"To construct the optimum portfolio, the percent invested for each selected security in the optimal portfolio is to be calculated. The percentage invested in each security is:

$$X_i^0 = \frac{Z_i}{\sum_{j=1}^{n} Z_j}$$

Where

$$Z_i = \frac{\beta_{im}}{\exists^2_{ei}} \left(\frac{\tilde{R}_i - T}{\beta_{im}} - C^* \right)$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security $\pm^2_{ei}$ plays an important role in determining how much to invest in each security. Applying this formula to selected samples, we obtain Z_i then dividing each security Z_i by the sum of the Z_i we would invest proportional percent of our funds in selected security" (Bhalla, 2001:536).

Capital Asset Pricing Model (CAPM)

In the book "Investment Analysis and Portfolio Management", written by Prasanna Chandra has focused on Capital Asset Pricing Model. "The CAPM predicts the relationship between the risk of an assets and its expected return. The relationship is very useful in the ways. First, it produces a benchmark for evaluating various investments. For example, when we are analyzing a security we are interested in knowing whether the expected return from it is security we are interested in knowing whether the expected return from it is in line with its fair return as per the CAPM. Second, it helps us to make an informed guess about the return that can be expected from an asset that has not yet been traded in the market. For example, how should a firm price its initial public offing of stock? Although the empirical evidence on

the CAPM is mixed, it is widely used because of the valuable insight it offers and its accuracy is deemed satisfactory for most practical applications" (Chandra, 2002:240-245).

P. Chandra presents the following basic assumptions of CAPM.

- Individuals are risk averse.
- Individuals seek to maximize the expected utility of their portfolio over a single period planning horizon.
- Individuals have homogeneous expectation. They have identical subjective estimates of the means, variances, and covariance among returns.
- Individuals can barrow and lend freely at riskless rate of interest.
- The market is perfect, there are no taxes, and there are no transaction costs: securities are completely divisible, the market is competitive.
- The quality of risk securities in the market is given.

Looking at these assumptions, one may feel that the CAPM is unrealistic. However, the value of a model depends not on the realism of its assumption, but on the validity of its conclusions. Extensive empirical analysis suggests that the conclusions of the CAPM are reasonable valid.

The relevant risk for an individual asset is systematic risk (or market-related risk) because non-market risk can be eliminated by diversification. The relationship between an asset's return and its systematic risk can be expressed by the CAPM. The equation for the CAPM is:

$$E(r_i) = R_f + [E(r_m) - R_f] b_i$$

Where,

$E(r_i)$ = expected return for an assets

R_f = the risk-free rate (usually assumed to be a short-term T-bill rate)

$E(r_m)$ = the expected return of market

b_i = the assets' beta

Security Market Line (SML)

As per Prasanna Chandra, "There is a linear relationship between expected return and covariance of securities with the market portfolio" (Chandra, 2002:245).

This relationship, called the security market line (SML), is as follows:

$$E(r_i) = \frac{Rf\ \Gamma [E(r_m)\ Z\ R_f]}{\exists^2_m}\ C_{im}$$

Where,

$E(r_i)$ = expected return for on security i

R_f = the risk-free return

$E(R_m)$ = the expected return on market portfolio

$\exists^2_m$ = Variance of return on market portfolio

C_{im} = Covariance of return between security i and market portfolio

In words, the SML relationship says:

Expected return on security i = Risk free return + (Price per unit of risk) Risk

The price per unit of risk = $\frac{E(r_m)\ Z\ R_f}{\exists^2_m}$

The measure of risk = C_{im}

In above SLM equation, the risk of a security is expressed in terms of its covariance with the market portfolio, $\exists_{im}$.

Can we find a standardized measure of risk? Fortunately we can fin a standardized measure of systematic risk, popularly called beta (b_i), by taking advantage of the relationship.

$$b_i = \frac{C_{im}}{\exists^2_m}$$

Which reflects the slope of a linear regression relationship in which the return on security I is regressed on the return of the market portfolio. Thus, the SML is popularly expressed as:

$$E(R_i) = R_f + [E(R_m) - R_f]\ b_i$$

In words, the SML relationship says:

Expected return on security i = Risk-free return + Market risk premium × Beta of security.

Thus, we can say that the CAPM and the Security Market Line (SML) is same. It means that CAPM is also called the SML.

The CAPM or SML

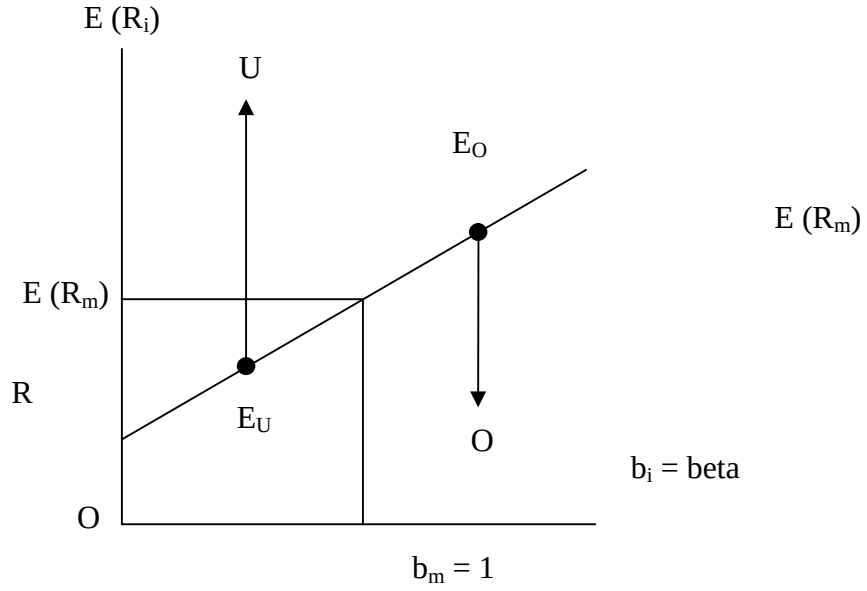


Figure depicts two assets, U and O, which are not in equilibrium on the CAPM. Asset U is undervalued and, therefore, a very desirable asset to own. U's price will rise in the market as more investors purchase it. However, as U's price goes up, its return falls. When U's return falls to the return consistent with its beta on the SML, equilibrium is attained. With O, just the opposite takes place. Investors will attempt to sell O, since it is overvalued, and therefore, put downward pressure on O's price. When the return on assets 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.

Securities Market Indicators

Security market indicators are of two basic type-average and indexes. A stock market average is merely a weighted or unweighted average price for group of stock. Stock market indexes typically employ more defined methods to measure the level in stock prices than do stock market averages.

"Index numbers are void of rupee values or other units of measure. Stock market indexes are usually calculated as ratios of rupee values. They are pure numbers that are used for making comparison between indexes, averages or other numbers. An index is usually a weighted average ratio that is calculated from an average of a large number of different stocks" (Thapa,

2002). The index numbers are typically a time series constructed from the same base value (which is usually set to be 100, 10, or1). Some year in the past is selected as the base year from which the index's base value is calculated in order to impart a time perspective to the index.

2.3 Review of Previous Research Work

There are some studies related to the topic "Risk & Return" had been conducted as a thesis for the partial fulfillment of master's degree in T.U., which are reviewed here.

Bhattrai (2011) conducted on "*Risk and Return Analysis of Common Stock of Commercial Banks of Nepal."*

His Major objectives:

- To study and analyze the risk and return of a common stock investment.
- To find overpriced, under priced and equilibrium priced of common stock of commercial banks.
- To analyze the risk and return relationship of individual stock with that of market.
- To identify the covariance and correlation between the return of common stock of commercial banks.
- To calculate and analyze the risk and return of different portfolio.
- To study and analyze the Beta- coefficient.
- To constructs on optimum portfolio.

His Major findings:

- Nepalese investor has some experience of investing in stock.
- Most of the Nepalese investor prefer to invest in Banking sector.
- Most of the investor are moderately risk taker.
- The main objective of the investment is to grow income level.
- Many of the investor equally focused on risk and return.
- Almost all of the investors create portfolio in order to minimized risk.
- Almost all of the investor has borrowed the fund in order to invest in stock.

Sapkota (2010) on *"Risk and Return Analysis and Optimal Portfolio Creation of Common Stock Investment (With References to SBI, NABIL, BOK, NIC, EBL and SCBL)".*

The main and basic objectives of the study:

- 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.
- 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 evaluate common stock's price under CAPM method.
- To analyze how to create optimal portfolio combination using selected commercial banks.
- To shows the current market movement, banking index movement and selected sample banks price movement in trend line.

Major findings of the study:

- BOK's Common Stock is yielding the highest Expected rate of return with 87.42%. Whereas it is the Lowest 57.40% in case of EBL. The other banks rates of return are 80.13%, 76.29%, 73.58% and 72.84% of NABIL, NIC, SCBL and SBI respectively.
- NABIL's Common Stock consists of the highest 81.82% risk, whereas EBL's Stock is least risky as is consist of only 37.17% risk and BOK, SBI, NIC and SCBL risk is 75.87%, 66.89%, 56.42% and 50.38% of respectively. Coefficient of Variation Analysis it is resulted that there is highest risk beard by investor in NABIL where for per unit return, risk is 1.02 whereas it is the lowest for EBL.
- All Banks have Unsystematic risk which Risk can be diversifiable. The highest USR 99.87% at total risk Common Stock of SBI Bank, whereas the lowest USR for EBL i.e. 42.10.

BOK's Stock is aggressive i.e. market sensitive, to the market changes as evaluated by the highest beta coefficient of 1.25, whereas it is lowest 0.0582 in case of SBI, The other Banks beta are 0.7346, 6968, 0.6932 and 0.5983 at NIC, SCBLK, EBL and NABIL respectively.

Shakya (2009) conducted on *"Risk and Return Analysis of the Commercial Banks"*

His Main Objectives:

According to his studies the main objectives are to determine whether the shares of commercial banks are correctly priced or not analyzing the required rate of return using the capital Assets pricing model (CAPM) & to identify the qualitative factors that are inhibiting NEPSE.

His Major Findings:

- In Nepalese capital market, the contribution of the real sector is negligible. Banking & financial sector occupy majority of pie in terms of capitalization & turn over.
- Most of the listed companies rarely publish their financial statement comprehensively within a specified time frame.
- The common stock of Bangladesh Bank offer highest realized rate of return & Nepal Arab Banks the lowest. On the basis of coefficient of variation, which measure risk per unit of stock individually, Bank of Kathmandu has the lowest & Arab Bank has the highest one.
- The negative correlation coefficient of Arab Banks reveals that the return on the bank goes down if the market return goes up. The rest of the shares move in the direction the markets moves. As beta coefficient shows, common stock of Bank of Kathmandu is most volatile & common stock of Nepal Arab Bank is the least volatile.
- As the average rate of return is more than the required rate of return, common stock of all Banks are under priced expect the Nepal Arab Bank Ltd. Which have less required rate of return in comparison with average rate of return?

Khadka (2008) in his study "*Analysis of Risk and Return on Selected Nepalese Commercial Banks listed in NEPSE*" with special reference to 7 listed commercial banks is also relevant to this study.

Main objective of the study:

To analyze the risk, return and other relevant variables that help in making decision about investment on securities of the listed commercial banks. This study will also target to

determined whether the share of commercial banks are correctly priced or not by analyzing the required rate of return using the CAPM.

His Main Findings:

- In risk return behavior from the analysis of different stock The share of Bangladesh Bank offered highest realized rate or return.
- Amongst them NABIL bank is the lowest having 5.23% which is less than required rate or return.
- NBL, which is hard hit by the events (Return = -0.8809), the ranking of the bank is placed as the highest return earner.
- The realized rate or returns of the samples banks do not have the same features being within the range of 5.23% to 16.12%. Return on the average tock is 5.51% over the period. All the shares under review generated higher rate of return than the market portfolio except NABIL Bank Ltd.
- The price of shares of banks under review except NABIL Bank Ltd. is under priced.
- The unsystematic risk of NBL is the highest one amongst the shares under review which is 95.59% and SCB of Nepal has the lowest one being 45.14%.
- The negative correlation coefficient of NBL (-0.21) revealed that the return on the bank goes down if the market goes up.

His Conclusions:

- In Nepalese capital market, the contribution of real sector is negligible.
- The shares of commercial Banks of Nepal are heavily traded in NEPSE, none of the share NABIL Bank will have positive trend towards the equilibrium.

Shakya (2007), *"Analysis of Risk & Return and application of SML on common stock commercial bank in Nepal."* In this study she has taken three banks as a sample size from listed commercial banks of NEPSE

His main objectives:

- To analyze the risk, return and other relevant variable that help in making decision about investment on securities of the commercial bank.
- To analyze and awareness of individual investors regarding common stock investment.
- To solve the SML (Security Market line) and to analyze whether the stock is under priced or overpriced
- To show the security characteristics line (SCL) of individual stock.
-

His Major Findings:

- 30.12% respectively, Return is an income received by investors for bearing risk within the stock. Expected return on common stock of NBB has the highest with 0.4705 i.e. 47.05%, SCBL and NABIL bank has the expected return of 39.02%. 2. Where there is return, there will be risk also. Common stock of NBB is most risky with standard deviation of 0.5542 whereas NABIL bank has standard deviation of 0.6162.
- C.V. Measures the risk in unitary basis that means it shows how many unit of risk should be bear to gain one unit if return. In terms of C.V. SCBL has lowest C.V. i.e. 1.4203 and highest in NABIL bank with 0.0458.
- Among the three stock, NBB's stock is more volatile having beta of 2.1785 and least volatile stock is SCBL's stock with 1.2142 beta co-efficient. In fact all of them are volatile than the market portfolio or aggressive stock having beta greater than 1.
- All three stock are under priced having greater s. D. i.e. 0.5045 and lowest S.D. in trading sector with 0.0833.
- Among the sectors, banking sector is more volatile with market having highest beta with 1.0728 and the stock of trading sector is defensive having lowest beta with 0.0372. After banking sector, other sector has the maximum beta with 0.7201
- Nepalese stock market is in the emerging stage in our country. Nepalese investors are not able to analyze the securities as well as market properly due to lack of information and poor knowledge on common stock.

Tamang (2003), on *"Risk & Return Analysis of Commercial Banks in Nepal"* is conducted by taking eight commercial Banks as sample, analytical tools like rate of return, standard deviation, c.v., Beta coefficient are used. According to his studies the main objectives are to determine whether the shares of commercial banks are correctly priced or not analyzing the required rate of return using the capital Assets pricing model (CAPM) & to identify the qualitative factors that are inhibiting NEPSE. Similarly the some of his major findings are as follows:

- In Nepalese capital market, the contribution of the real sector is negligible. Banking & financial sector occupy majority of pie in terms of capitalization & turn over.
- Most of the listed companies rarely publish their financial statement comprehensively within a specified time frame.
- The negative correlation coefficient of Arab Banks reveals that the return on the bank goes down if the market return goes up. The rest of the shares move in the direction the markets moves. As beta coefficient shows, common stock of Bank of Kathmandu is most volatile & common stock of Nepal Arab Bank is the least volatile.
- As the average rate of return is more than the required rate of return, common stock of all Banks are under priced expect the Nepal Arab Bank Ltd. Which have less required rate of return in comparison with average rate of return

2.4 Research Gap

Keeping the view of the many research have been made by the researcher with the topic of comparative risk and return analysis of the two joint venture commercial banks. Some case studies have been based on presenting the risk portfolio of solo commercial bank which is not sufficient to extract the optimal conclusion of the study.

With keeping the view of the above studies, the actual findings of the studies have not been clearly mentioned. Thus, Risk and return analysis of the joint venture commercial banks (Sample has been taken from six joint venture commercial banks in Nepal) is been done. Which study may effective for analyzing the actual risk position and yield from the securities of joint venture banks in Nepal.

CHAPTER III

RESEARCH METHODOLOGY

The main objective of this study is to make the analysis of risk and return of joint venture banks. Thus this chapter is designed to meet the set objectives. The brief discussion of the methodology followed in the study is given below. This chapter includes the brief description of research design, population and sample, sources of data, data collection instrument and procedures and method and tools used for analyzing the data.

3.1 Research Design

This research has been based on recent historical data collected from NEPSE, Securities Board and other sources. It deals with the common stocks of selected listed companies. It covers the period of last eight years i.e. from F.Y. 2003/04 to 2011/12. Some discussions have been made to interpret the existing secondary information, which have been analyzed by using analytical tools and techniques. Descriptive and analytical research designs have been followed for the study.

3.2 Population and Sample

There are three hundred and 3elevencompanies listed in Nepal Stock Exchange Ltd. by the end of the fiscal year 2010/11 out of them only 24 commercial banks, which submitted their annual reports to security board though there are 31 commercial banks in Nepal. Twelve commercial banks have been assumed as the population of the study and among them following six listed joint venture banks are taken as sample of the study on the basis of judgmental sampling. They are:

i. Nepal Bangladesh Bank Ltd (NBBIL)
ii. NABIL Bank Ltd(NABIL)
iii. Nepal SBI Bank Ltd.(NSBL)
iv. Himalayan Bank Ltd.(HBL)
v. Standard Chartered Bank Nepal Limited(SCBL)
vi. Everest Bank Limited(EBL)

3.3 Source of Data

The main source of data is secondary data. The necessary data are collected from the secondary data. During the study the data has been taken with the Nepal Stock Exchange, individual investor and stockbrokers, price of the different stocks, NEPSE index is collected from Nepal Stock Exchange. The main source of data is annual trading report published by NEPSE, Securities Board and other concern listed companies' annual report, journal and Nepal Rastra Bank's annual, quarterly publications and others.

3.4 Tools for Analysis

3.4.1 Market price of stock (P)

Among the various major data of this study, market price of stock is the most important. There are three-price records available, namely high price, low price and closing price of each year. Therefore two approaches either average price (i.e. average of high and low price) or closing price can be used. By using average price, result may be very close to reality as it represents the price of whole year. But it is very difficult to obtain the real average. To get the real average, volume and price of each transaction in the stock and duration of time of each transaction in the whole year are essential. So, it is of course very hard and difficult to gather and include all these information and average of high and low price cannot be used for this study. Due to such difficulties, it is very difficult to use average price as market price of stock. So, the closing price issued as market price of stock, which has a specific time span of one year and the study has focused in annual basis.

3.4.2 Dividend (D)

Company pays dividend to its shareholders. If a company declares only cash dividend, then there is no problem to take the dividend amount but it is not necessary to pay dividend in the cash form. Company can pay dividend to shareholder in the form of stock i.e. bonus share. So, if company declares stock dividend, it is difficult to obtain the amount that really shareholder has gained. In such condition, shareholders get additional number of shares as dividend and simultaneously price of stock declines, as a result of increased number of outstanding stock. So, to get the real amount of dividend, there are no any models or formula developed yet. In this study, models have been developed considering practical as well as theoretical aspect.

Model for dividend:

i. In the case of stock dividend:

Total div. Amount = cash div. + stock div. % × next year's MPS

ii. In the case of 'right issued' at par:

Total dividend amount = cash div. + right issued % × next year's MPS

3.4.3 Return on Common Stock Investment (R)

Return is the income received on an investment plus any change in market price, usually expressed as a percent of the starting or beginning market price of the investment.

Symbolically,

$$R = \frac{D_1 \; \Gamma \; (P_t \; Z \; P_{tZ1})}{P_{tZ1}}$$

Where,

R = Actual rate of return on common stock at time 't'.

D_t = Cash dividend received at time 't'.

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

Standard deviation ($\exists_j$): Standard deviation is a statistical tool to measure the variability of a distribution of return around its mean. It measures the unsystematic risk on the stock investment. Standard deviation is the square root of the variance.

Symbolically,

$$\exists_j = \sqrt{\frac{(R_j \; Z \overline{R_j})^2}{n \; Z 1}}$$

where,

$\exists_j$ = Standard deviation of returns on stock j during the time period 'n'.

R_j = Return on common stock 'j' investment.

R_j = Expected return on common stock.

3.4.4 Expected Return of Common Stock E (R_j)

One of the main objectives of the study is to determine the expected return on common stock investment. Generally, this rate is obtained by arithmetic mean of the past years return.

Symbolically,

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

Where,

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

n = Number of years that the return is taken

= Sign of summation

3.4.5 Coefficient of Variation (C.V.)

It is the ration of standard deviation of returns to the distribution. It is a measure of relative risk.

Symbolically,

$$C.V. = \frac{\exists_j}{R_j}$$

3.4.6 Beta Coefficient ( )

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio.

Symbolically,

$$\wp = \frac{Cov.(R_j, R_m)}{\exists^2_m}$$

Where, $\wp$ = beta coefficient of stock j.

$Cov.(R_j, R_m)$ = Covraince between R_j and R_m and is equal to

$$Cov.(R_j, R_m) = \frac{(R\ Z R_j)(R_m\ Z R_m)}{n\ Z 1}$$

$\exists^2_m$ = Variance of market return

3.4.7 Correlation coefficient ($\circ_{ij}$)

Correlation is a measure of the relationship between two assets. The correlation coefficient can take on a value ranging from -1 or +1. Correlation and Covariance are related by the following equation

$Cov._{ij} = \exists_i \exists_j \partial_{ij}$

Therefore, $\partial_{ij} = Cov._{ij} / \exists_i \exists_j$

Where $\exists_i$ and $\exists_j$ are the standard deviations of returns for assets i and j, and ∂_{ij} is the correlation coefficient for assets i and j.

There are various cases of correlation and risk condition, which are presented below:

3.4.7.1 Perfect Positively Correlation ($°_{ij} = +1$)

Returns on two perfectly correlated stocks would move up and down together and portfolio consisting of two such stocks would be exactly as risky as the individuals stocks. Thus, diversification does nothing to reduce risk if the portfolio consists of perfectly positively correlated stock.

3.4.7.2 Perfect negatively correlation ($°_{ij} = -1$)

Return on two perfectly negatively correlated stocks would move perfectly together but in exactly opposite direction. In this condition, risk can be completely eliminated. Perfect negative correlation almost never found in the real world.

3.4.7.3 No relationship between return ($°_{ij} = 0$)

When the correlation between two stocks is exactly zero, there is no relationship between the returns; they are independent of each other. In this condition, some risk can be reduced.

3.4.7.4 Intermediate risk ($°_{ij} = +0.5$)

Most stocks are positively correlated, but not perfectly. On average, the returns on two stocks would lie on the range of +0.4 and +0.75, under this condition, combining stocks into portfolios reduces risk but doesn't eliminated at completely.

3.4.8 Portfolio Return ($R_◦$)

Portfolio is combination of two or more securities or assets and portfolio return is simply a weighted average of individual stock returns.

Symbolically,

$R_\partial = W_A R_A + W_B R_B$

Where,

R = Expected return on portfolio of stock A and stock B.

W_A = Weight of stock A.

W_B = Weight of stock B.

$W_A + W_B = 1$.

3.4.9 Portfolio Risk ($\pm_p$)

Portfolio risk is measured by the combined standard deviation of the standard deviations of individual stock return.

Symbolically,

$$\exists_p = \sqrt{W^2_A \ \exists^2_A \ \Gamma \ W^2_B \ \exists^2_B \ \Gamma \ 2W_A \ W_B \ \text{Cov.}\,(R_A . R_B)}$$

Where,

$\exists$ = Standard deviation of portfolio returns of stock A and Stock B.

Cov. (R_AR_B) = Equivalent representation covariance of returns between assets A and B.

3.4.10 Risk Minimizing Portfolio

It is the ratio of the two assets, which minimize the risk ($\exists_p$).

Symbolically,

$$W_A = \frac{\exists^2_B \ Z \,\text{Cov.}\,(R_A . R_B)}{\exists^2_A \ \Gamma \ \exists^2_B \ Z \, 2\text{Cov.}\,(R_A . R_B)}$$

Where,

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

$\exists_A$ = Standard deviation of stock A.

$\exists_B$ = Standard deviation of stock B.

3.4.11 Constructing the Optimal Portfolio

The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R} - T)/\beta_{im}$ where $\tilde{R}_i$ is the expected return on security i, T is the return on a riskless asset, and β_{im} is the expected change in the rate of return on security i associated with a 1 percent change in the

market return. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of $(\tilde{R} - T)/\beta_{im}$ will be included and all securities with lower rates excluded.

Selecting the optimal portfolio involves the comparison of $(\tilde{R}_i - T)/\beta_{im}$ with C*. All securities whose excess return-to-risk ratios are above the cut-off rate are selected and all those whose ratios are below are rejected. The value of C* is computed from the characteristics of all of the securities that belong in the optimum portfolio. To determine C*, it is necessary to calculate its values as if there are different numbers of securities in the optimum portfolio. Suppose Ci is candidate of C*, the value of C_i is calculated when i securities are assumed to belong to the optimal portfolio. For a portfolio of i securities, C_i is given by:

$$C_i = \frac{\sigma_m^2 \sum_{j=1}^{i} \frac{(\tilde{R}_j - T)\beta_{jm}}{\sigma_{ej}^2}}{1 + \sigma_m^2 \sum_{j=1}^{i} \frac{\beta_{jm}^2}{\sigma_{ej}^2}}$$

Where,

σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a security's movement that is associated with the movement of the market index;

"To construct the optimum portfolio, the percent invested for each selected security in the optimal portfolio is to be calculated. The percentage invested in each security is:

$$X_i^0 = \frac{Z_i}{\sum_{j=1}^{n} Z_j}$$

Where

$$Z_i = \frac{\beta_{im}}{\sigma_{ei}^2}\left(\frac{\tilde{R}_i - T}{\beta_{im}} - C^*\right)$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security σ_{ei}^2 plays an important role in determining how much to invest in each security. Applying this formula to selected samples,

it can be obtain Z_i then dividing each security Z_i by the sum of the Z_i it would be possible to invest proportional percent of total funds in selected security."

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Data Presentation and Analysis

The chapter data presentation and analysis is the main body of the study. Detail data of market price per share and dividend per share of each commercial bank, NEPSE index of each industry or sector and the market are presented and their interpretation and analysis are included in this chapter.

On the background of various reading and literature review in the preceding chapter, it is tried to analyze and diagnose the recent Nepal stock market movement, with taking a special reference with joint venture banks of Nepal. Different tables and figures are used to make the result more simple and understandable.

Among the listed joint venture banks only six joint venture banks are taken as sample namely:

i. Nepal Bangladesh Bank Ltd (NBBL)
ii. Nabil Bank Ltd (NABIL)
iii. Nepal SBI Bank Ltd.
iv. Himalayan Bank Ltd.
v. Standard Chartered Bank Nepal Limited
vi. Everest Bank Limited

As the title is “Analysis of the Portfolio Performance of Commercial bank in Neapal”, it is necessary to analyze the common stock of selected joint venture banks to find out the market performance in Nepal.

4.1.1 Nepal Bangladesh Bank Ltd. (NBBL)

4.1.1.1 Profile of NBBL

Nepal Bangladesh Bank Ltd was established in the year 1994 with IFIC Bank Ltd of Bangladesh with the goal to become “The Bank for Everyone”. Over the years bank has been successful to increase the paid up capital to Rs 2 Billion. Its Head Office is situated at New Baneswor, Bijuli Bazar, Kathmandu. The prime objective of this bank is to render hospitality to the valued customer. With a network of 19 branches and a corporate office, bank has been

providing the extensive services to the valued customer. To facilitate the valued customer bank had successfully install 16 ATMs and holiday banking for their convenience.

The bank has earned the glory of making available the services for almost all the top business houses. Top exporter and importers of the country have established banking relationship with the bank with a substantial volume of foreign business which has enhanced the bank's popularity in the international trade font. With the continuous support of our valued customers the bank has made all round progress in every sphere of its operation. This is the first bank to launch the special deposit product for women introducing "Grihini Bachat Khata". Bank's ensure that the valued customer to deliver the innovative products and services as per requirement which will be highly beneficial to create the value.

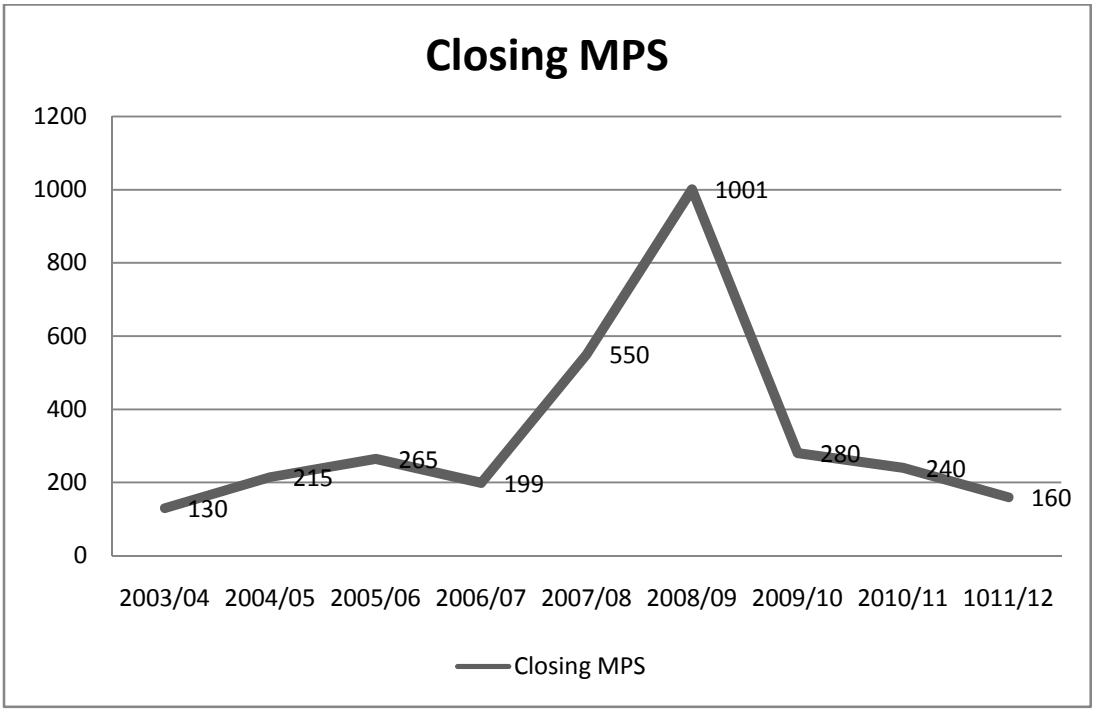
4.1.1.2 Data

Market price, dividend records of common stock of NBBL are shown in Table 4.1, year-end price is shown in the Fig. 4.1. Price reached highest year 2008/09 and lowest in year 2003/2004.

Table 4.1: MPS and Dividend Data of NBBL

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	255	120	130	0
2004/05	282	210	215	32.25
2005/06	300	180	265	39.75
2006/07	`270	140	199	29.85
2007/08	1205	540	550	82.5
2008/09	1710	650	1001	150.15
2009/10	825	220	280	42
2010/11	630	236	240	36
2011/12	324	160	160	24

Fig. 4.1: Year-end Price Movement of NBBL



4.1.1.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\bar{R}$)

Table 4.2: Realized Rate of Returns, Expected Returns and S.D. of C.S. of NBBL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$\int R \; Z \; \bar{R} \; \AA^2$
2003/04	130	0			
2004/05	215	32.25	0.90	0.84	0.70
2005/06	265	39.75	0.42	0.35	0.12
2006/07	199	29.85	(0.14)	(0.20)	0.04
2007/08	550	82.5	2.18	2.11	4.46
2008/09	1001	150.15	1.09	1.03	1.05
2009/10	280	42	(0.68)	(0.74)	0.55
2010/11	240	36	(0.01)	(0.08)	0.01
2011/12	160	24	(0.23)	(0.30)	0.09
			3.53	3.00	7.03

Source: Financial Indicators: Listed and Non-Listed Company, SRC 2010/11 and Nepal Stock Exchange Trading Report, 2011/12.

We have,

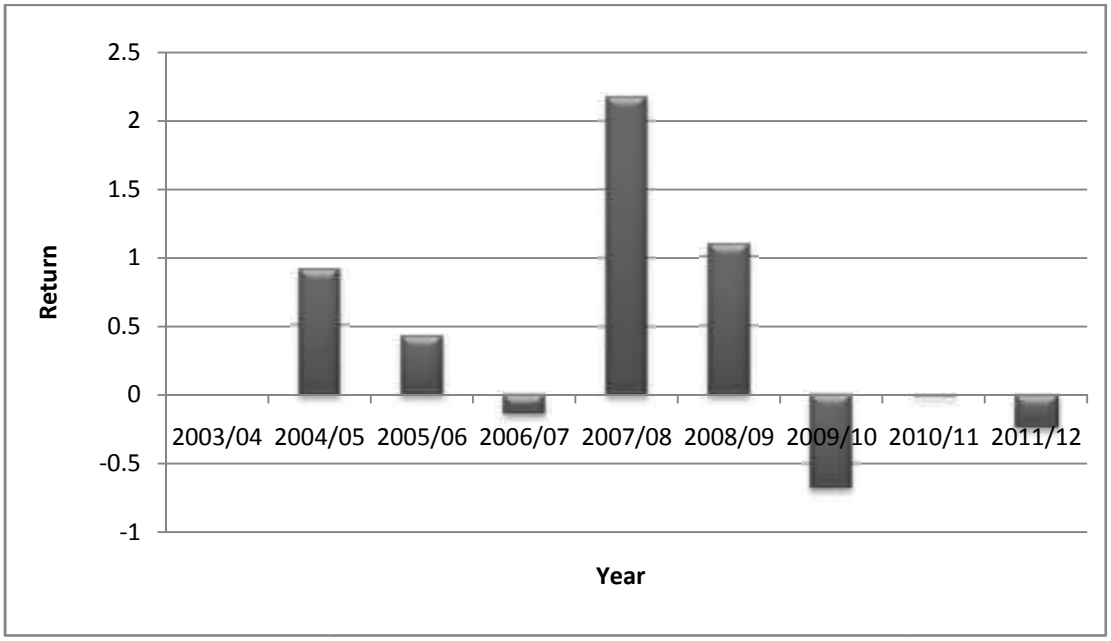
$$\text{Expected } (\bar{R}) = \frac{R}{n} = \frac{3.53}{9} = 0.39$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R\ Z\ \bar{R}\text{Å}}{n\ Z 1}} = \sqrt{\frac{7.03}{9\ Z 1}} = \sqrt{0.87875} = 0.9374$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.9374}{0.39} = 2.40$$

To calculate realized rate of return, year-end price and divided amounts are used. Table 4.2 shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of NBBL is 0.39. Standard Deviation of NBBL is 0.9374 and C.V. is 2.4

Fig. 4.2: Annual Return of Common Stock of NBBL



4.1.2 Nabil Bank Ltd. (NABIL)

4.1.2.1 Introduction

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its 47 points of representation across the

kingdom and over 170 reputed correspondent banks across the globe. Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business. Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team.

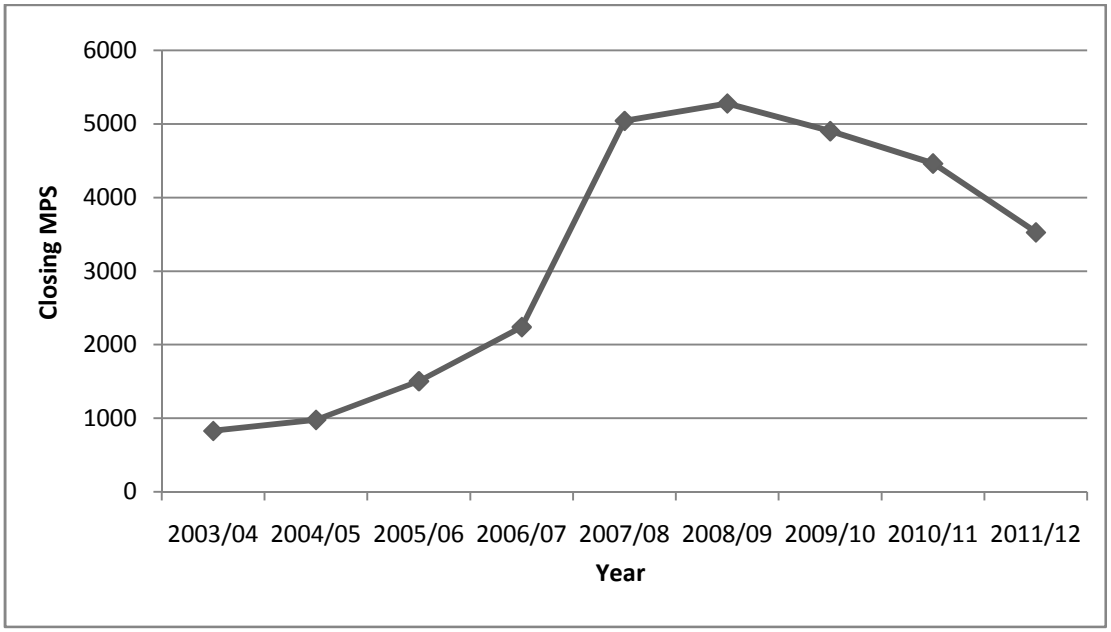
4.1.2.2 Data

Market price, dividend records of common stock of NABIL are shown in Table 4.3, year-end price is shown in the Fig. 4.3. Price reached maximum in year 2008/09 and minimum in year 2003/04.

Table 4.3: MPS and Dividend Data of NABIL

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	890	810	830	0
2004/05	1005	950	980	147
2005/06	1680	1470	1505	225.75
2006/07	2300	2120	2240	336
2007/08	5100	4910	5040	756
2008/09	5360	5130	5275	791.25
2009/10	4910	4780	4899	734.85
2010/11	4800	4350	4460	669
2011/12	3615	3310	3525	618.75

Fig. 4.3: Year-end Price Movement of NABIL



4.1.2.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\overline{R}$) Table 4.4: Realized Rate of Returns, Expected Returns and S.D. of C.S. of NABIL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R - $\overline{R}$	$\int R \; Z \; \overline{R} \; \AA^2$
2003/04	830	0			
2004/05	980	147	0.36	0.29	0.09
2005/06	1505	225.75	0.77	0.70	0.49
2006/07	2240	336	0.71	0.65	0.42
2007/08	5040	756	1.59	1.52	2.31
2008/09	5275	791.25	0.20	0.14	0.02
2009/10	4899	734.85	0.07	0.00	0.00
2010/11	4460	669	0.05	(0.02)	0.00
2011/12	3525	528.75	(0.09)	(0.16)	0.02
			3.65	3.12	3.35

Source: Financial Indicators: Listed and Non-Listed Company, SRC 2010 and Nepal Stock Exchange Trading Report, 2011.

We have,

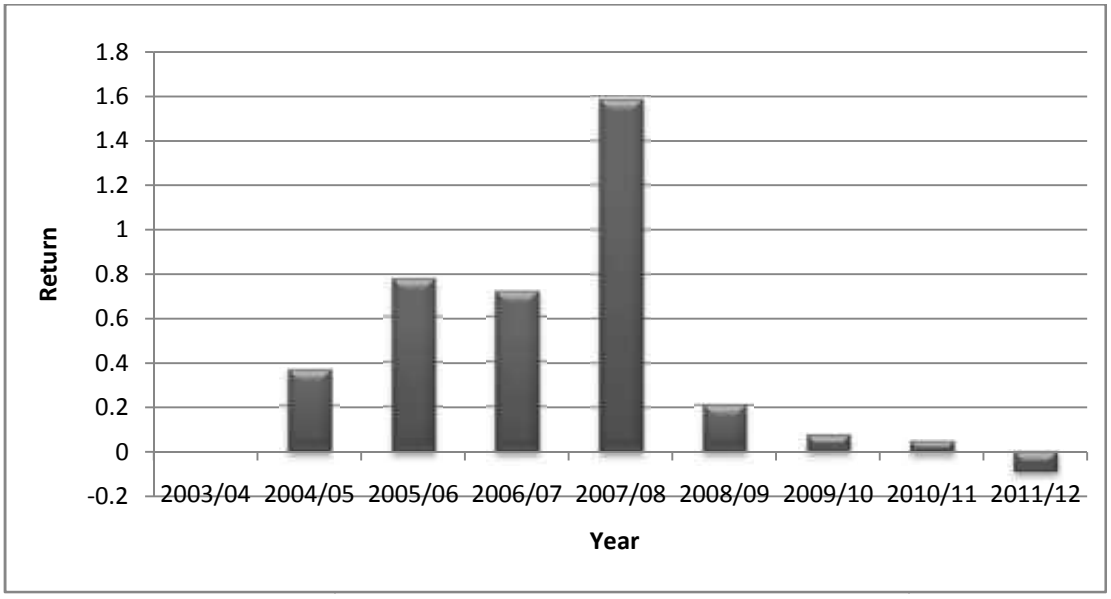
$$\text{Expected } (\overline{R}) = \frac{R}{n} = \frac{3.65}{9} = 0.4055$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R\ Z\ \bar{R}\ \AA}{n\ Z1}} = \sqrt{\frac{3.35}{9\ Z1}} = \sqrt{0.41875} = 0.6471$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.6471}{0.4055} = 1.5958$$

To calculate realized rate of return, year-end price and divided amounts are used. Table 4.4 shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of NABIL is 0.4055. Standard Deviation of NABIL is 0.6471 and C.V. is 1.5958.

Fig. 4.4: Annual Return of Common Stock of NABIL



4.1.3 Nepal SBI Bank Ltd (SBI)

4.1.3.1 Introduction

Nepal SBI Bank Ltd. (NSBL) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India(SBI), Employees Provident Fund(EPF) and Agricultural Development Bank Ltd.(ADBL) through a Memorandum of Understanding signed on 17th July 1992. NSBL was incorporated as a public limited company at the Office of the Company Registrar on April 28, 1993 under Regd. No. 17-049/50 with an Authorized Capital of Rs.12 Crores and was licensed by Nepal Rastra Bank on July 6, 1993 under license No. NRB/l.Pa./7/2049/50. NSBL commenced operation with effect from July 7, 1993 with one full-fledged office at Durbar Marg,

Kathmandu with 18 staff members. The staff strength has since increased to 511. Under the Banks & Financial Institutions Act, 2063, Nepal Rastra Bank granted fresh license to NSBL classifying it as an "A" class licensed institution on April 26, 2006 under license No. NRB/I.Pra.Ka.7/062/63. The Authorized, Issued and Paid-Up Capitals have been increased to Rs. 200 Crores, Rs. 186.93 Crores and Rs. 186.93 Crores, respectively. A core management team viz. Central Management Committee (CENMAC) consisting of the Managing Director, Chief Operating Officer, Chief Financial Officer and Assistant General Manager(Credit) oversees the overall banking operations in the Bank. ADBL divested its stake in the Bank by selling its entire 5% promoter shares to SBI on 14th June, 2009. Consequently, the Bank's corporate status has undergone change from its previous status as a Joint-venture Bank to a Foreign Subsidiary Bank of SBI. Presently fifty five percent of the total share capital of the Bank is held by the SBI, fifteen percent is held by the EPF and thirty percent is held by the general public

4.1.3.2 Data

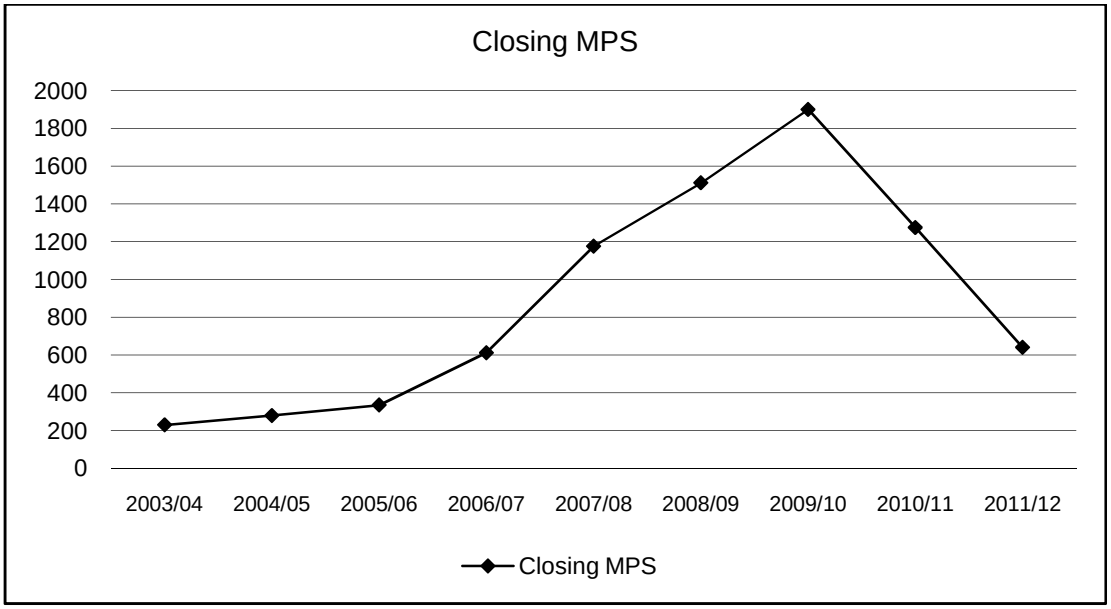
Market price, dividend records of common stock of SBI are shown in table 4.5, year-end price movement is shown in fig. 4.5, The MPS highest at year 2008/09 and lowest at year 2003/04.

Table 4.5: MPS and Dividend Data of SBI

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	250	205	230	0
2004/05	295	265	280	42
2005/06	365	310	335	50.25
2006/07	648	580	612	91.8
2007/08	1230	1140	1176	176.4
2008/09	1580	1500	1511	226.65
2009/10	1925	1700	1900	285
2010/11	1425	1205	1275	191.25
2011/12	810	570	640	96

Source: Nepal Stock Exchange Trading Report, 2003-2011.

Fig. 4.5: Year-end Price Movement of SBI



4.1.3.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\overline{R}$)

Table 4.6: Realized Rate of Returns, Expected Returns and S.D. of SBI

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$ $\overline{R}$		$\int R \; Z \; \overline{R} \; A^2$
2003/04	230	0			
2004/05	280	42	0.40	0.33	0.11
2005/06	335	50.25	0.38	0.31	0.10
2006/07	612	91.8	1.10	1.03	1.07
2007/08	1176	176.4	1.21	1.14	1.31
2008/09	1511	226.65	0.48	0.41	0.17
2009/10	1900	285	0.45	0.38	0.14
2010/11	1275	191.25	(0.23)	(0.29)	0.09
2011/12	640	96	(0.42)	(0.49)	0.24
			3.36	2.83	3.22

We have,

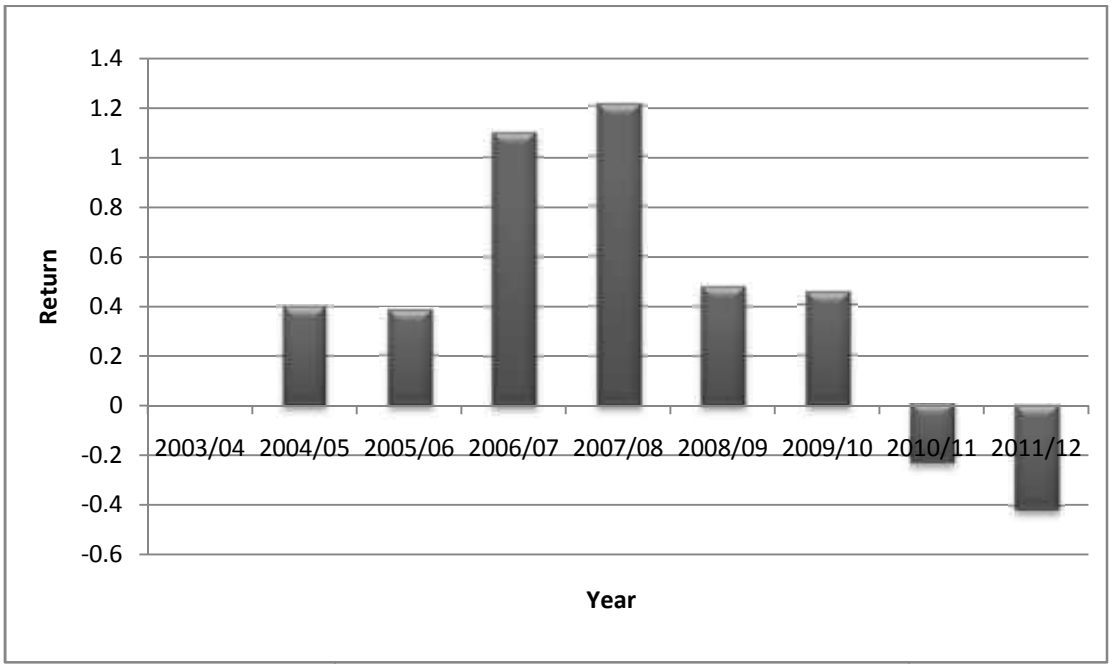
$$\text{Expected } (\overline{R}) = \frac{R}{n} = \frac{3.36}{9} = 0.3733$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R\ Z\ \bar{R}\ \AA}{n\ Z 1}} = \sqrt{\frac{3.22}{9 Z 1}} = \sqrt{0.4025} = 0.6344$$

$$\text{C.V.} = \frac{\pm}{\bar{R}} = \frac{0.6344}{0.3733} = 1.70$$

Year-end price dividend amounts are used to calculate dividend yield and capital gain yield is added to find for each year. Table 4.6, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of SBI is 0.3733. Standard Deviation of SBI is 0.6344 and C.V. is 1.70.

Fig. 4.6: Annual Return of Common Stock of SBI



4.1.4 Himalayan Bank Ltd. (HBL)

4.1.4.1 Introduction

Himalayan Bank was established in 1993 in joint venture with Habib Bank Limited of Pakistan. Despite the cut-throat competition in the Nepalese Banking sector, Himalayan Bank has been able to maintain a lead in the primary banking activities- Loans and Deposits.

Legacy of Himalayan lives on in an institution that's known throughout Nepal for its innovative approaches to merchandising and customer service. Products such as Premium Savings Account, HBL Proprietary Card and Millionaire Deposit Scheme besides services such as ATMs and Tele-banking were first introduced by HBL. Other financial institutions in the country have been following our lead by introducing similar products and services. Therefore, we stand for the innovations that we bring about in this country to help our Customers besides modernizing the banking sector. With the highest deposit base and loan portfolio amongst private sector banks and extending guarantees to correspondent banks covering exposure of other local banks under our credit standing with foreign correspondent banks, we believe we obviously lead the banking sector of Nepal. The most recent rating of HBL by Bankers' Almanac as country's number 1 Bank easily confirms our claim.

All Branches of HBL are integrated into Globus (developed by Temenos), the single Banking software where the Bank has made substantial investments. This has helped the Bank provide services like 'Any Branch Banking Facility', Internet Banking and SMS Banking. Living up to the expectations and aspirations of the Customers and other stakeholders of being innovative, HBL very recently introduced several new products and services. Millionaire Deposit Scheme, Small Business Enterprises Loan, Pre-paid Visa Card, International Travel Quota Credit Card, Consumer Finance through Credit Card and online TOEFL, SAT, IELTS, etc. fee payment facility are some of the products and services. HBL also has a dedicated offsite 'Disaster Recovery Management System'. Looking at the number of Nepalese workers abroad and their need for formal money transfer channel; HBL has developed exclusive and proprietary online money transfer software- Himal Remit TM. By deputing our own staff with technical tie-ups with local exchange houses and banks, in the Middle East and Gulf region, HBL is the biggest inward remittance handling Bank in Nepal. All this only reflects that HBL has an outside-in rather than inside-out approach where Customers' needs and wants stand first Corporate Social Responsibility (CSR) holds one of the very important aspects of HBL. Being one of the corporate citizens of the country, HBL has always promoted social activities. Many activities that do a common good to the society have been undertaken by HBL in the past and this happens as HBL on an ongoing basis. Significant portion of the sponsorship budget of the Bank is committed towards activities that assist the society as large.

Himalayan Bank Limited holds of a vision to become a Leading Bank of the country by providing premium products and services to the customers, thus ensuring attractive and substantial returns to the stakeholders of the Bank. The Bank's mission is to become preferred provider of quality financial services in the country. There are two components in the mission of the Bank; Preferred Provider and Quality Financial Services; therefore we at HBL believe that the mission will be accomplished only by satisfying these two important components with the Customer at focus. The Bank always strives positioning itself in the hearts and minds of the customers. To become the Bank of first choice is the main objective of the Bank.

4.1.4.2 Data

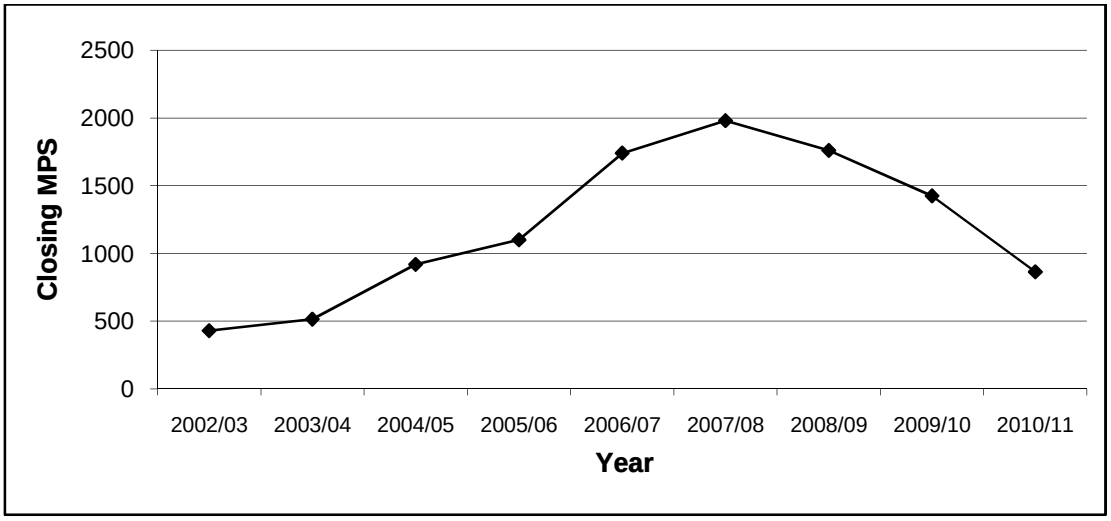
Market price and dividend records of common stock of HBL are shown in Table 4.7. MPS of HBL is very high in FY 2007/08. Year-end price movement of HBL is shown in the fig. 4.7. Annual dividend amounts gained by shareholders of HBL are calculated in the same table. The closing MPS is maximum in FY 2008/09 and lowest in FY 2003/04.

Table 4.7: MPS and Dividend Data of HBL

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	480	405	430	-
2004/05	560	495	515	77.25
2005/06	945	853	920	138.00
2006/07	1135	1051	1100	165.00
2007/08	1805	1537	1740	261.00
2008/09	2010	1840	1980	297.00
2009/10	1785	1660	1760	264
2010/11	1525	1335	1425	213
2011/12	905	750	864	129.60

Source: Nepal Stock Exchange Trading Report, 2003-2012.

Fig. 4.7: Year-end Price Movement of HBL



4.1.4.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\bar{R}$)

Table 4.8: Realized Rate of Returns, Expected Returns and S.D. of HBL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2003/04	430	-			
2004/05	515	77.25	0.38	0.31	0.10
2005/06	920	138.00	1.05	0.99	0.98
2006/07	1100	165.00	0.38	0.31	0.10
2007/08	1740	261.00	0.82	0.75	0.57
2008/09	1980	297.00	0.31	0.24	0.06
2009/10	1760	264.00	0.02	(0.04)	0.00
2010/11	1425	213.75	(0.07)	(0.14)	0.02
2011/12	864	129.60	(0.30)	(0.37)	0.14
			2.58	2.05	1.95

Source: Financial Indicators: Listed and Non-Listed Company, SRC 2011 and Nepal Stock Exchange Trading Report, 2011.

We have,

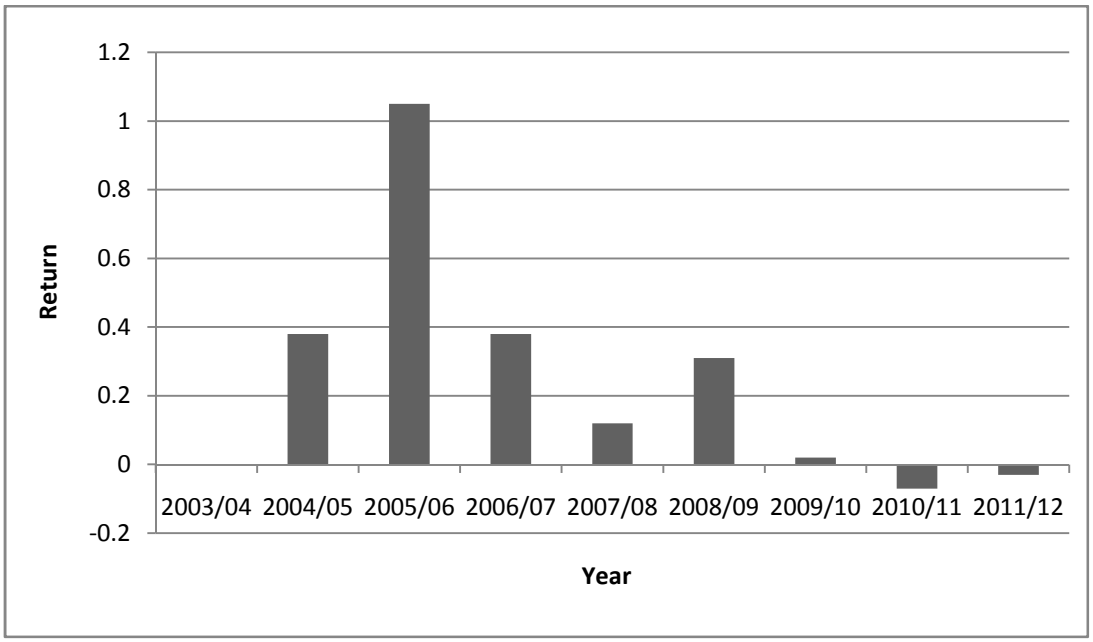
$$\text{Expected } (\bar{R}) = \frac{R}{n} = \frac{2.58}{9} = 0.2867$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R\ Z\ \bar{R}\text{Å}}{n\ Z 1}} = \sqrt{\frac{1.95}{9 Z 1}} = \sqrt{0.27345} = 0.4937$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.4937}{0.2867} = 1.72$$

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.8, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of HBL is 0.2867. Standard Deviation of HBL is 0.4937 and C.V. is 1.72.

Fig. 4.8: Annual Return of Common Stock of HBL



4.1.5 Standard Chartered Bank Nepal Limited

4.1.5.1 Introduction

Standard Chartered Bank Nepal Limited has been in operation in Nepal since 1987 when it was initially registered as a joint-venture operation. Today the Bank is an integral part of Standard Chartered Group having an ownership of 75% in the company with 25% shares

owned by the Nepalese public. The Bank enjoys the status of the largest international bank currently operating in Nepal. Standard Chartered has a history of over 150 years in banking and operates in many of the world's fastest-growing markets with an extensive global network of over 1750 branches (including subsidiaries, associates and joint ventures) in over 70 countries in the Asia Pacific Region, South Asia, the Middle East, Africa, the United Kingdom and the Americas. As one of the world's most international banks, Standard Chartered employs almost 75,000 people, representing over 115 nationalities, worldwide. This diversity lies at the heart of the Bank's values and supports the Bank's growth as the world increasingly becomes one market.

With 19 points of representation, 23 ATMs across the country and with more than 425 local staff, Standard Chartered Bank Nepal Ltd. is in a position to serve its customers through an extensive domestic network. In addition, the global network of Standard Chartered Group gives the Bank a unique opportunity to provide truly international banking services in Nepal. Standard Chartered Bank Nepal Limited offers a full range of banking products and services in Consumer banking, Wholesale and SME Banking catering to a wide range of customers encompassing individuals, mid-market local corporates, multinationals, large public sector companies, government corporations, airlines, hotels as well as the DO segment comprising of embassies, aid agencies, NGOs and INGOs.

The Bank has been the pioneer in introducing 'customer focused' products and services in the country and aspires to continue to be a leader in introducing new products in delivering superior services. It is the first Bank in Nepal that has implemented the Anti-Money Laundering policy and applied the 'Know Your Customer' procedure on all the customer accounts. Corporate Social Responsibility is an integral part of Standard Chartered's ambition to become the world's best international bank and is the mainstay of the Bank's values. The Bank believes in delivering shareholder value in a socially, ethically an environmentally responsible manner. Standard Chartered throughout its long history has played an active role in supporting those communities in which its customers and staff live. It concentrates on projects that assist children, particularly in the areas of health and education. Environmental projects are also occasionally considered. It supports non-governmental organizations involving charitable community activities The Group launched two major initiatives in 2003 under its 'Believing in Life' campaign- 'Living with HIV/AIDS' and 'Seeing is Believing'.

4.1.5.2 Data

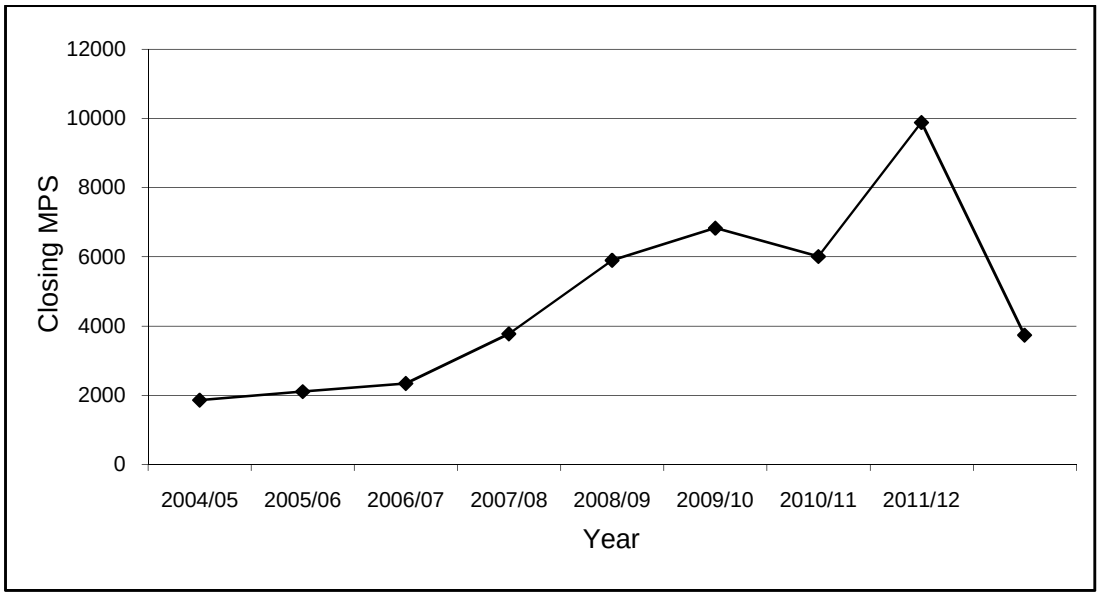
Market price and dividend records of common stock of SCB are shown in Table 4.9. MPS of SCB is very high in FY 2006/07. Year-end price movement of SCB is shown in the fig. 4.9. Annual dividend amounts gained by shareholders of SCB are calculated in the same table. The closing MPS is maximum in FY 2006/07 and lowest in FY 2003/04. The price was increasing trend till 2006/07 and it is decreased in FY 2007/08.

Table 4.9: MPS Dividend Data of SCB

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	1892	1720	1860	-
2004/05	2115	1806	2107	316.05
2005/06	2415	2210	2345	351.75
2006/07	3810	3650	3775	566.25
2007/08	5904	5252	5900	885.00
2008/09	9650	6530	6830	1,024.50
2009/10	6365	5530	6010	901.50
2010/11	6205	5315	5883	1,482.45
2011/12	4015	3015	3740	561.00

Source: Nepal Stock Exchange Trading Report, 2003-2011.

Fig. 4.9: Year-end Price Movement of SCB



4.1.5.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\bar{R}$)

Table 4.10: Realized Rate of Returns, Expected Returns and S.D. of SCB

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$\int R \; Z \; \bar{R} Å^2$
2003/04	1860	-			
2004/05	2107	316.05	0.30	0.24	0.06
2005/06	2345	351.75	0.28	0.21	0.05
2006/07	3775	566.25	0.85	0.79	0.62
2007/08	5900	885.00	0.80	0.73	0.53
2008/09	6830	1,024.50	0.33	0.27	0.07
2009/10	6010	901.50	0.01	(0.05)	0.00
2010/11	9883	1,482.45	0.89	0.82	0.68
2011/12	3740	561.00	(0.56)	(0.63)	0.40
			2.90	2.37	2.40

Source: Financial Indicators : Listed and Non-Listed Company, SRC 2010 and Nepal Stock Exchange Trading Report, 2011.

We have,

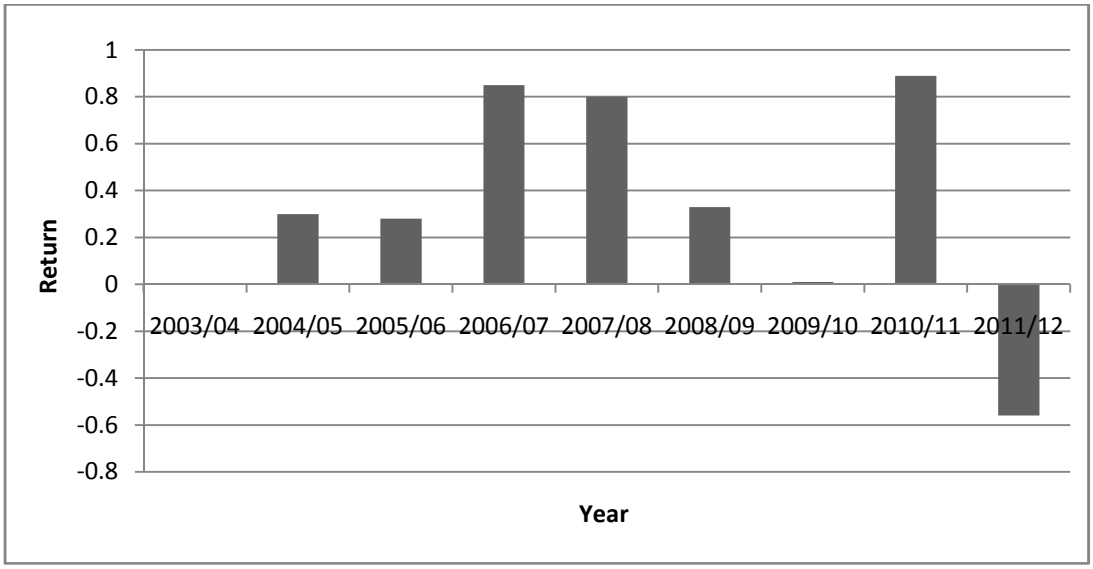
$$\text{Expected } (\bar{R}) = \frac{R}{n} = \frac{1.70}{9} = 0.18$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R \; Z \; \bar{R} Å^2}{n \; Z 1}} = \sqrt{\frac{0.7245}{9 \; Z 1}} = \sqrt{0.090} = 0.30$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.30}{0.18} = 1.67$$

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.10, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of SCB is 0.18. Standard Deviation of SCB is 0.30 and C.V. is 1.67.

Fig. 4.10: Annual Return of Common Stock of SCB



4.1.6 Everest Bank Limited (EBL)

4.1.6.1 Introduction

Everest Bank Limited (EBL) started its operations in 1994 with a view and objective of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer-friendly services through its Branch Network. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS), which enables customers for operational transactions from any branches. With an aim to help Nepalese citizens working abroad, the bank has entered into arrangements with banks and finance companies in different countries, which enable quick remittance of funds by the Nepalese citizens in countries like UAE, Kuwait, Bahrain, Qatar, Saudi Arabia, Malaysia, Singapore and U K.

Bank has set up its representative offices at New Delhi (India) to support Nepalese citizen remitting money and advising banking related services. Joint Venture Partner Punjab National Bank (PNB), joint venture partner (holding 20% equity in the bank) is the largest nationalized bank in India. With its presence virtually in all the important centers at India, Punjab National Bank offers a wide variety of banking services which include corporate and personal banking, industrial finance, agricultural finance, financing of trade and international banking. Among the clients of the Bank are Indian conglomerates, medium and small industrial units, exporters, non-resident Indians and multinational companies. The large

presence and vast resource base have helped the Bank to build strong links with trade and industry.

The bank has been conferred with "Bank of the Year 2006, Nepal" by the banker, a publication of financial times, London. The bank was bestowed with the "NICCI Excellence award" by Nepal India chamber of commerce for its spectacular performance under finance sector Pioneering achievements Recognizing the value of offerings a complete range of services, we have pioneered in extending various customer friendly products such as Home Loan, Education Loan, EBL Flexi Loan, EBL Property Plus (Future Lease Rental), Home Equity Loan, Vehicle Loan, Loan Against Share, Loan Against Life Insurance Policy and Loan for Professionals. EBL was one of the first bank to introduce Any Branch Banking System (ABBS) in Nepal.

EBL has introduced Mobile Vehicle Banking system to serve the segment deprived of proper banking facilities through its Birtamod Branch, which is the first of its kind.

EBL has introduced branchless banking system first time in Nepal to cover unbanked sector of Nepalese society. EBL is first bank that has launched e-ticketing system in Nepal. EBL customer can buy yeti airlines ticket through internet.

4.1.6.2 Data

Market price and dividend records of common stock of EBL are shown in Table 4.11. MPS of EBL is very high in FY 2008/09. Year-end price movement of EBL is shown in the fig. 4.11. Annual dividend amounts gained by shareholders of EBL are calculated in the same table. The closing MPS is maximum in FY 2008/09 and lowest in FY 2003/04. The price seems decreasing trend from year 2009/10.

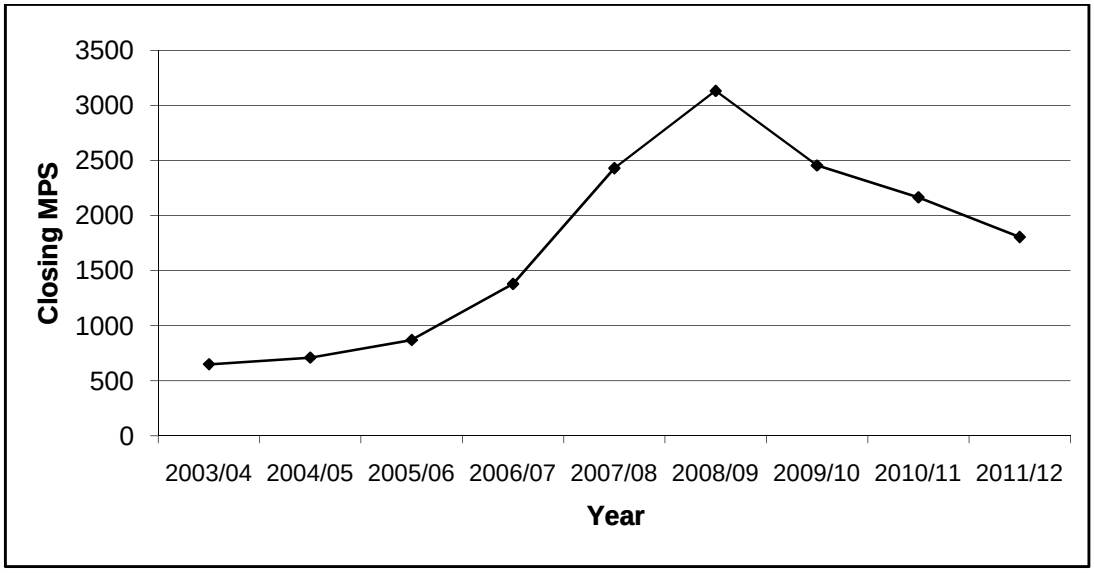
Table 4.11: MPS Dividend Data of EBL

FT	High MPS	Low MPS	Closing MPS	DPS
2003/04	680	610	650	0
2004/05	750	695	710	106.5
2005/06	902	840	870	130.5
2006/07	1405	1180	1379	206.85
2007/08	2605	1735	2430	364.5

2008/09	3610	2780	3132	469.8
2009/10	2840	2320	2455	368.25
2010/11	2530	1985	2165	324.75
2011/12	2568	1760	1805	270.75

Source: Nepal Stock Exchange Trading Report, 2003-2012.

Fig. 4.11: Year-end Price Movement of EBL



4.1.6.3 Realized Returns (R), Standard Deviation (±) and Expected Returns ($\bar{R}$)

Table 4.12: Realized Rate of Returns, Expected Returns and S.D. of C.S. of EBL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R - $\bar{R}$	$\sum (R - \bar{R})^2$
2003/04	650	0			
2004/05	710	106.5	0.26	0.19	0.04
2005/06	870	130.5	0.41	0.34	0.12
2006/07	1379	206.85	0.82	0.76	0.57
2007/08	2430	364.5	1.03	0.96	0.92
2008/09	3132	469.8	0.48	0.42	0.17
2009/10	2455	368.25	(0.10)	(0.16)	0.03
2010/11	2165	324.75	0.01	(0.05)	0.00
2011/12	1805	270.75	(0.04)	(0.11)	0.01
			2.87	2.34	1.86

Source: Financial Indicators : Listed and Non-Listed Company, SRC 2010 and Nepal Stock Exchange Trading Report, 2011.

We have,

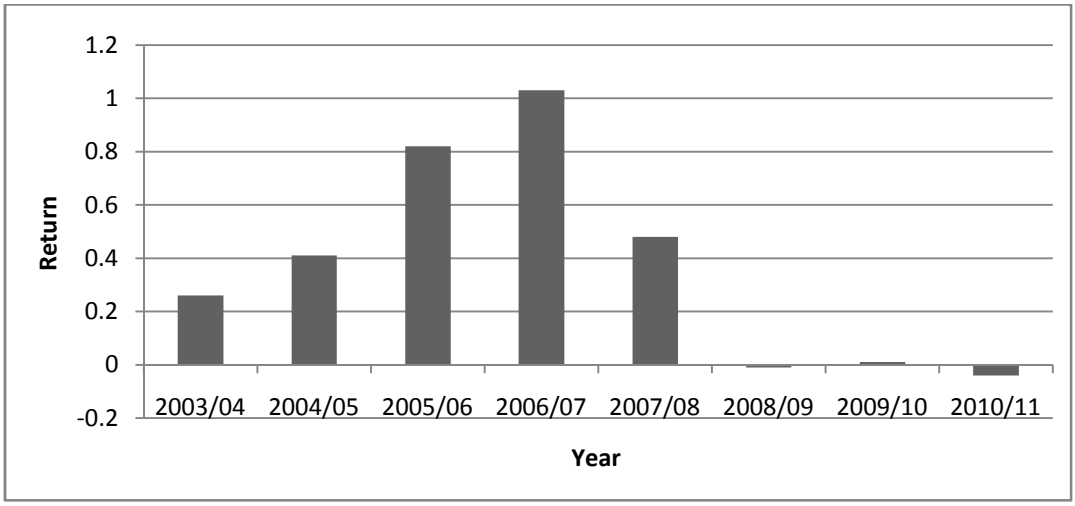
$$\text{Expected } (\bar{R}) = \frac{R}{n} = \frac{2.87}{9} = 0.3189$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{1.86}{9 - 1}} = \sqrt{0.2325} = 0.4822$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.4822}{0.3189} = 1.51$$

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.12, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of EBL is 0.3189. Standard Deviation of EBL is 0.4822 and C.V. is 1.51.

Fig. 4.12: Annual Return of Common Stock of EBL



4.1.7 Inter Bank Comparison

According to the return from the previous section, a comparative analysis of return and unsystematic risk is performed there. Expected return, standard deviation of returns, coefficient of variations of each bank for the year 2003/04 to 2011/12 is presented in table 4.13.

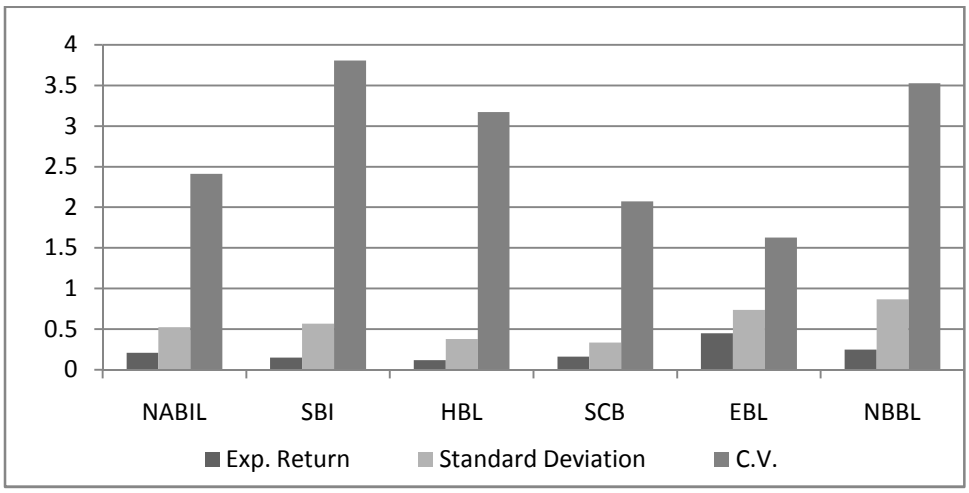
Table 4.13: Expected Return, S.D. and Coefficient of Variation of Each Bank

Bank	Expected Return	Standard Deviation	C.V.	Remarks
NBBL	0.39	0.9374	2.4	Higher C.V., Medium return
NABIL	0.4055	0.6471	1.59	Higher C.V., Highest return
SBI	0.3733	0.6344	1.7	Higher C.V., Medium return
HBL	0.2867	0.4937	1.72	Higher C.V., Lower return
SCB	0.18	0.3	1.67	Higher C.V., Lowest return
EBL	0.3189	0.4822	1.51	Lower C.V., Higher return

Investor can get highest return from investment in common stock of EBL among the six banks and lowest from Himalayan Bank limited. Standard Chartered Bank has least unsystematic risk but HBL Bank has nearly equal unsystematic risk and expected return. To make the comparison easily understandable, diagram No 4.13 is presented below: Coefficient of Variation (C.V.) is the more appropriate basis of taking decision on the investment in

single security because it measures risk per unit return of a stock. So, standard Deviation and Expected Return are included in it. Therefore, an investor should always be careful to invest in a security regarding its C.V. Like traffic red light, investor should provide utter care and be alert with C.V. From below figure 4.13 we have found that EBL Bank Ltd. has the best common stock for investment because of its minimum coefficient of variation.

Fig. 4.13: Expected Return, S.D. and C.V. of Each Bank



On the basis of the market capitalization, this is the total market value at the specific time period of the company, industry and market. The end of year 2010/11, sizes of each bank are presented in table 4.14 and figure 4.14 respectively.

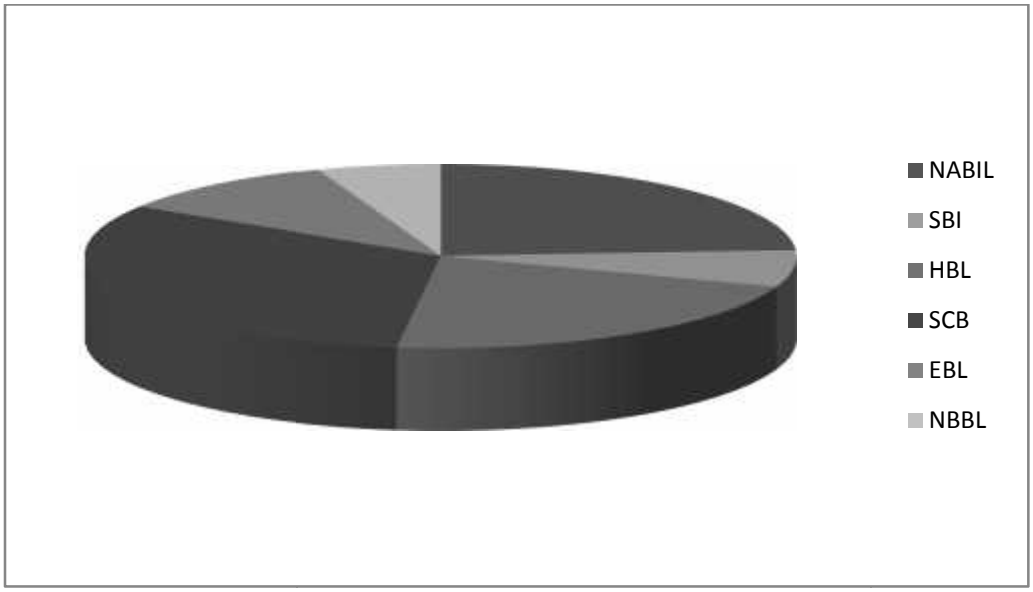
Table 4.14: Market Capitalization of Banks

(Rs. In Million)

Market capitalization as on 15th July 2011	
Banks	Market Capitalization
NBBL	954
NABIL	7389.47
SBI	1446.04
HBL	4830.0
SCB	8785.32
EBL	2704.50
Total	26109.33

Source: Nepal Stock Exchange Annual Report, 2011

Fig. 4.14: Market Capitalization of Selected Banks under Study at 15th July 2011



Similarly, a comparison is made on the movement of market capitalization. Here only six joint venture banks are taken into the consideration during the period of 2003/04 to 2011/12. Table No.4.15 shows the comparative movement of market capitalization of five banks, NBBL, NABIL, SBI, HBL, SCB and EBL.

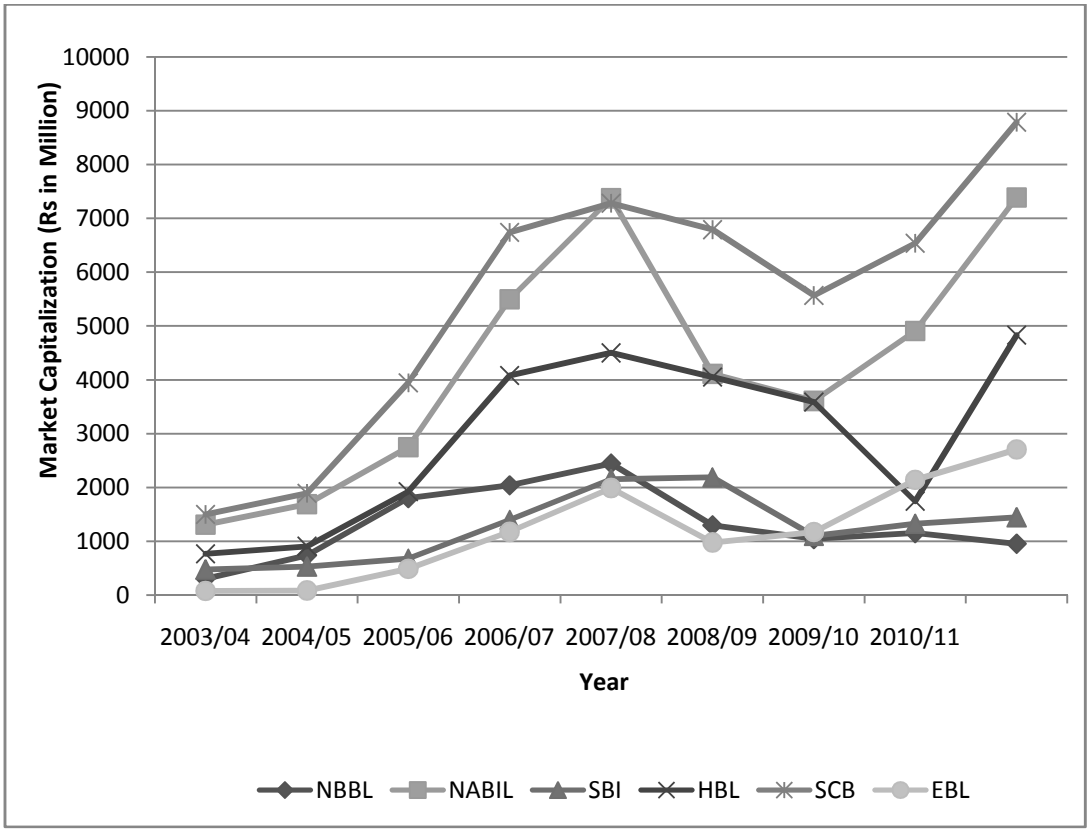
Table 4.15: Year wise Comparative Movement of Market Capitalization

(Rs. In Million)

Banks	Years								
	15 July 03	15 July 04	15 July 05	15 July 06	15 July 07	15 July 08	15 July 09	15 July 10	15 July 11
NBBL	302.40	739.2	1802	2040	2445.60	1296	1044	1152	954
NABIL	1308.50	1689.04	2749.60	5499.20	7374.75	4112.57	3608.81	4909.95	7389.47
SBI	474.19	527.78	674.12	1395.9	2156.76	2190	1100.72	1325.18	1446.04
HBL	768.00	906.00	1920.0	4080	4500	4050	3586.44	1745	4830.0
SCB	1500	1890	3945.56	6740.04	7279.93	6790.98	5568.60	6537.47	8785.32
EBL	80.12	88.32	488.40	1176	1989	979	1171.29	2142	2704.50

Source: Nepal Stock Exchange Trading Report, 2003-2012.

Fig. 4.15: Year wise Comparative Movement of Market Capitalization



4.1.9 Comparison with Market

4.1.9.1 Market Risk and Return

There is only one stock market in Nepal, known as Nepal stock exchange shortly NEPSE. Overall market movement of the country is represented by the NEPSE index. Portfolio market return, its standard deviation and coefficient of variation are shown in Table 4.20.

Table 4.16: Calculation of Market Return, S.D. and C.V.

FY	Nepse Index (NI)	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$(R_m$ -	
2003/04	204.86			
2004/05	222.04	0.08	(0.05)	0.00
2005/06	286.67	0.29	0.15	0.02
2006/07	386.86	0.35	0.21	0.04
2007/08	683.95	0.77	0.63	0.40
2008/09	963.36	0.41	0.27	0.07
2009/10	749.1	(0.22)	(0.36)	0.13
2010/11	477.73	(0.36)	(0.50)	0.25
2011/12	373.2	(0.22)	(0.36)	0.13
		1.10	(0.00)	1.05

S*ource: Economic Survey 2011/12)*

We have,

$$\text{Expected Return } (\bar{R}_m) = \frac{R_m}{n} = \frac{1.1}{8} = 0.1375$$

$$\text{S.D. } (\exists_m) = \sqrt{\frac{\int R_m \; Z \bar{R}_m \text{Å}}{n \; Z1}} = \sqrt{\frac{1.05}{8 Z 1}} = \sqrt{0.15} = 0.3873$$

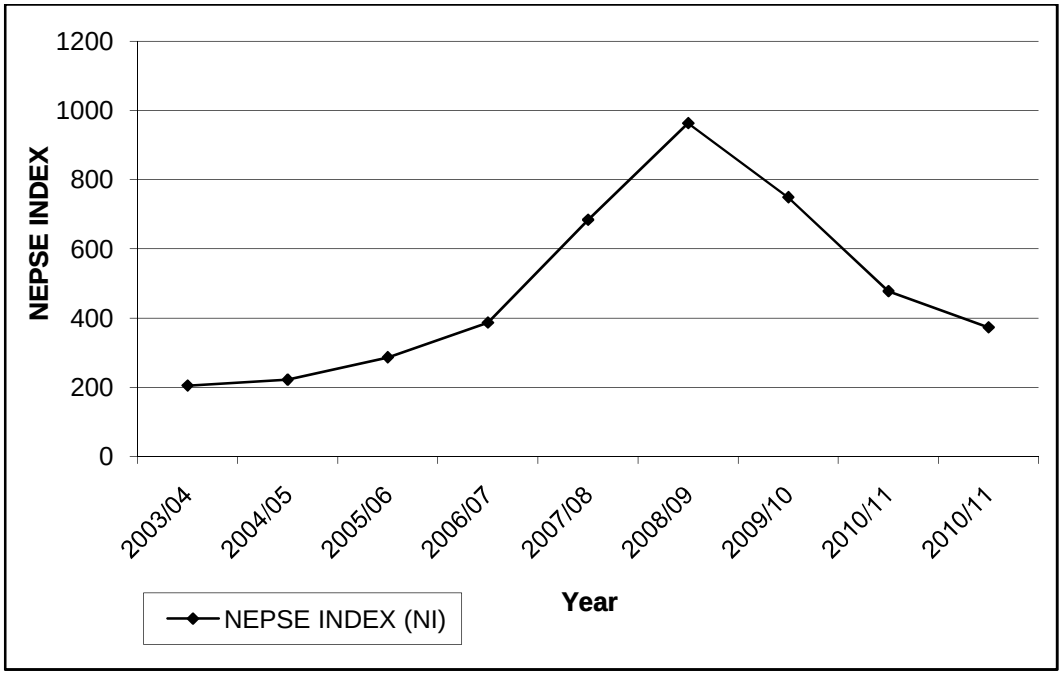
$$\text{C.V.}_m = \frac{\exists_m}{\bar{R}_m} = \frac{0.3873}{0.1375} = 2.82$$

NEPSE index is very high in the year 2008/09 and thereafter NEPSE has been in decreasing trend till date. It is lowest i.e. 204.86 in the FY 2003/04. The movement of NEPSE index during the observed year i.e. from 2003/04 to 2011/12 is shown in the figure 4.18. Market return in FY 2007/08 was very high and is very lower in F/Y 2009/10.

In comparison with market return (9%), others industries (27%) and banking industry (11.33%) have higher return. Remaining industries viz. manufacturing & processing industry (4%), hotel industry (-3.3%), trading industry (-1.8%), finance and insurance industry (4.9%) have lower expected return.

In comparison with market risk (29.44%), manufacturing and processing industry (18.70%), Hotel Industry (19.04%), Trading industry (14.67%) and Finance and insurance industry (21.51%) have lower risk than that of market risk where as banking industry (33.20%) and 'others' industry (87.91%) have higher risk than market risk

Fig. 4.16: NEPSE Index Movement



4.2 Analysis of Market Sensitivity

Beta coefficient explains the market sensitivity. Higher the beta greater the sensitivity and higher will be the reaction to the market movement. Beta measures the systematic risk, which cannot be eliminated by mean of diversification.

Beta coefficient of market is always equal to one. . This statement can be proved as follows:

$$\beta_i = \frac{Cov.(R_i\ R_m)}{\sigma^2_m} = \frac{\sigma_i \sigma_m \rho_{im}}{\sigma^2_m}$$

Where, ρ_{im} = Correlation coefficient between market return and stock return.

Hence,

$$\beta_m = \frac{Cov.(R_m\ R_m)}{\sigma^2_m} = \frac{\sigma_m \sigma_m \rho_{mm}}{\sigma^2_m} = 1, \text{ since } \rho_{mm} = 1$$

Hence, Beta coefficient of market is always equal to 1.

Table 4.17: Equilibrium Return Expected Return and Price Evaluation

Banks	Beta(β_i)	$E(Ri)=R_f+(R_m-R_f)\ \beta_i$	Expected return (R_i)	Price situation
NBBL	0.7255	0.077	0.20	Under price
NABIL	1.529	0.1147	0.25	Under price

SBI	1.1607	0.097	0.14	Under price
HBL	0.8680	0.083	0.11	Under price
SCB	0.8325	0.082	0.18	Under price
EBL	1.67	0.1213	0.43	Under price

Where, R_f = Risk free Rate of Return = 0.0432 i.e. 4.32%

R_m = Market return of return = 0.090 i.e. 9%

$E(R_i)$ = Equilibrium Rate of Return of Capital Assets Pricing Model (CAPM)

Since the NABIL, EBL and SBI bank have higher beta coefficient than that of market, the stocks of these banks are supposed to be aggressive. Nepal Bangladesh Bank Limited, Himalayan bank and Standard Chartered bank have lower beta coefficient than market, so it is defensive stock. As per beta coefficient, EBL's stock is highly sensitive with market return. If the market return rises by 1%, EBL's stock return will rise by 1.67%.

4.2.1 Portfolio Analysis

A portfolio is a combination of different investment assets. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. It reduces a portfolio's total diversifiable risk to zero. Previous analysis to risk and return is based on the investment in single security. The expected return of portfolio is simply a weighted average of the expected return of the securities comprising that portfolio the weights are equal to the proportion of total fund invested in each security. The sum of weight must be 100%. Analysis have shown that many Nepalese private investor placed their entire wealth in single asset or investment If they construct a portfolio or group of investment in such kind of assets, which are negatively correlated. They can reduce unsystematic risk dramatically without loosing their return. Therefore, we need to extend our analysis of risk and return to portfolio context.

Here, we are going to analyze the portfolio. The analysis is based on two assets portfolio and the tools for analysis are described in the chapter - three, research Methodology.

Here the portfolio of the common stock of NABIL (let's suppose stock A) and common stock of SBI (let's suppose stock B) is analyzed. The following table 4.22 shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.18: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2003/04			
2004/05	0.29	0.33	0.10
2005/06	0.70	0.31	0.22
2006/07	0.65	1.03	0.67
2007/08	1.52	1.14	1.74
2008/09	0.14	0.41	0.06
2009/10	0.00	0.38	0.00
2010/11	(0.02)	(0.29)	0.01
2011/12	(0.16)	(0.49)	0.08
Total			2.86

We have

$$\text{Cov}(R_A.R_B) = \frac{(R_A - \bar{R}_A)(R_B - R_B)}{n - 1} = \frac{2.86}{8} = 0.3575$$

The proportion of stock A and stock B, which minimizes the risk in the portfolio

$$W_A = \frac{\sigma_B^2 - \text{Cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}(R_A, R_B)} = \frac{0.241 - 0.3575}{0.41875 + 0.4025 - 2 * 0.3575}$$

$$= \frac{0.063}{0.1046} = 0.6022$$

$W_B = 1 - W_A = 1 - 0.6022 = 0.3978$

Where

σ_A^2 = Variance of stock of NABIL

σ_B^2 = Variance of stock of SBI

Cov (R_A, R_B) = Equivalent representation of covariance of covariance of returns between stock of NABIL and SBI

W_A = Proportion of stock of NABIL.

W_B = Proportion of stock of SBI

Portfolio return,

$R_p = W_A R_A + W_B R_B$

$= -1.09647 \times 0.41 + 2.09647 \times 0.37 = 0.08683$

Portfolio risk,

$$\exists_p X\sqrt{W^2{}_A\exists^2{}_A \Gamma W^2{}_B\exists^2{}_B \Gamma 2W_A W_B Cov.(R_A.R_B)}$$

$$\pm_p X\sqrt{-1.09647 \times 0.42 \Gamma 2.09647 \times 0.4 \Gamma 2 \times -1.09647 \times 2.09647 \times 0.3575}$$

$$\pm_p X\sqrt{0.2029}$$

$$= 0.4505$$

Correlation:

$$fr_{AB} AX \frac{Cov\, fR_A, R_B A}{\exists_A . \exists_B} = \frac{0.3575}{0.65 \times .0.63} = 0.7752$$

Since W_A = 0.6022, and W_B = 0.3978, this result indicates that if the investor wanted to minimize risk, he/she would have to invest 60.22% of his/her capital in stock A i.e. common stock of NABIL and the lower part 39.78% in stock B i.e. common stock of SBI.

The correlation between the return of the two securities plays a significant role in the risk reduction by portfolio construction. If the correlation is perfectly positive or 1 then the portfolio cannot reduce any level of risk. And if the correlation is perfectly negative or -1, then the proper combination of the two securities can reduce unsystematic risk even up to zero. It means the positive correlation between securities is not so beneficial and vice-versa. Here, in case of portfolio of NABIL'S common stock and SBI's common stock, the correlation is positive correlation that's why the portfolio construction between these two stocks is not beneficial.

Again, the portfolio of the common stock of HBL (let's suppose stock A) and common stock of SCB (let's suppose stock B) is analyzed. The following table 4.23, shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.19: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2003/04			
2004/05	0.31	0.24	0.0648
2005/06	0.99	0.21	0.084
2006/07	0.31	0.79	0.3904
2007/08	0.75	0.73	0.011
2008/09	0.24	0.27	0.042
2009/10	(0.04)	(0.05)	0.1457
2010/11	(0.14)	0.82	-0.0045
2011/12	(0.37)	(0.63)	0.0044
Total			0.6084

We have

$$\text{Cov}(R_A.R_B) = \frac{(R_A - \bar{R}_A)(R_B - R_B)}{n - 1} = \frac{0.6084}{8} = 0.0758$$

The proportion of stock A and stock B, which minimizes the risk in the portfolio

$$W_A = \frac{\sigma_B^2 - \text{Cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}(R_A, R_B)} = \frac{0.09 - 0.0758}{0.107 + 0.09 - 2 * 0.0758}$$

$$= \frac{0.0142}{0.0454} = 0.3127$$

$W_B = 1 - W_A = 1-0.3127=0.6873$

Where

σ_A^2 = Variance of stock of HBL

σ_B^2 = Variance of stock of SCB

Cov (R_A, R_B) = Equivalent representation of covariance of covariance of returns between stock of HBL and SCB

W_A = Proportion of stock of HBL.

W_B = Proportion of stock of SCB

Portfolio return,

$R_p = W_A R_A + W_B R_B$

$=0.1506*0.20+0.8494*0.43=0.3953$

$$\exists_p X\sqrt{W^2{}_A\exists^2{}_A \Gamma W^2{}_B\exists^2{}_B \Gamma 2W_A W_B Cov.(R_A.R_B)}$$

$$\pm_p X\sqrt{0.0226 * 0.581 \Gamma 0.7214 * 0.414 \Gamma 2 * 0.1506 * 0.8494 * 0.3780}$$

$$\pm_p X\sqrt{0.0967}$$

$$=0.3109$$

Correlation:

$$fr_{AB} AX \frac{Cov\,fR_A, R_B A}{\exists_A . \exists_B} = \frac{0.0758}{0.329 *. 0.30} = \frac{0.0758}{0.0984} = 0.7703$$

Since W_A = 0.3127, and W_B = 0.6873, this result indicates that if the investor wanted to minimize risk, he/she would have to invest 31.27% of his/her capital in stock A i.e. common stock of HBL and the higher part 68.73% in stock B i.e. common stock of SCB.

The correlation between the return of the two securities plays a significant role in the risk reduction by portfolio construction. If the correlation is perfectly positive or 1 then the portfolio cannot reduce any level of risk. And if the correlation is perfectly negative or -1, then the proper combination of the two securities can reduce unsystematic risk even up to zero. It means the positive correlation between securities is not so beneficial and vice-versa. Here, in case of portfolio of HBL'S common stock and SCB's common stock, the correlation is positive correlation that's why the portfolio construction between these two stocks is not beneficial.

Again, the portfolio of the common stock of NBBL (let's suppose stock A) and common stock of EBL (let's suppose stock B) is analyzed. The following table 4.24 shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.20: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2003/04			
2004/05	0.84	0.19	0.793
2005/06	0.35	0.34	0.9828
2006/07	(0.20)	0.76	-0.0686
2007/08	2.11	0.96	0.396
2008/09	1.03	0.42	0.731
2009/10	(0.74)	(0.16)	0.156
2010/11	(0.08)	(0.05)	0.014
2011/12	(0.30)	(0.11)	0.0481
Total			3.02

We have

$$\text{Cov}(R_A.R_B) = \frac{(R_A - \bar{R}_A)(R_B - R_B)}{n - 1} = \frac{3.02}{8} = 0.3780$$

The proportion of stock A and stock B, which minimizes the risk in the portfolio

$$W_A = \frac{\sigma_B^2 - \text{Cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}(R_A, R_B)} = \frac{0.414 - 0.3780}{0.581 + 0.414 - 2*0.3780}$$

$$= \frac{0.036}{0.239} = 0.1506$$

$W_B = 1 - W_A = 1-0.1506=0.8494$

Where

σ_A^2 = Variance of stock of NBBL

σ_B^2 = Variance of stock of EBL

Cov (R_A, R_B) = Equivalent representation of covariance of covariance of returns between stock of NBBL and EBL

W_A = Proportion of stock of NBBL.

W_B = Proportion of stock of EBL

Portfolio return,

$R_p = W_A R_A + W_B R_B$

$=0.1235*0.25+0.8765*0.4512=-0.4263$

$$\exists_p X\sqrt{W^2{}_A\exists^2{}_A \Gamma W^2{}_B\exists^2{}_B \Gamma 2W_A W_B Cov.(R_A.R_B)}$$

$$\exists_p X\sqrt{0.015252*0.748744\Gamma 0.768252*0.467856\Gamma 2*0.1235*0.8765*0.421748}$$

$$\exists_p X\sqrt{0.462157}$$

=0.6798

Correlation:

$$fr_{AB} AX\frac{Cov\,fR_A, R_B A}{\exists_A . \exists_B} = \frac{0.3780}{0.762 * 0.64} = \frac{0.3780}{0.4876} = 0.7752$$

Since W_A = 0.1506, and W_B = 0.8494. This result indicates that if the investor wanted to minimize risk, he/she would have to invest 15.06% of his/her capital in stock A i.e. common stock of NBBL and the higher part 84.94% in stock B i.e. common stock of EBL.

The main aim of the portfolio construction is to reduce the risk. But the portfolio between the common stock of NBBL and EBL cannot reduce risk significantly with comparison to reduction in return. And the correlation of above two stocks is 0.7752, which is positively correlated, so the portfolio construction between these two stocks is not beneficial.

4.3 Major Findings of the Study

The followings are the major findings of the study:

- Details of data, its presentation and analysis reveal that standard deviation of NBBL is 94.00% which is highest of all the banks selected for study. Standard deviation of EBL, SBI NABIL, HBL, and SCB are 48%, 63%, 65%, 49% and 30% respectively. Depending upon this parameter i.e. S.D., SCB stock is said to be relatively less risky.
- Expected return of' NABIL is 41% indicating its highest position in return and NBBL, EBL, SBI, SCB, and HBL have 39%, 32%, 37%, 18% and 29% respectively in terms of expected return. Thus, both the parameters differ as to which stock to choose - as per S.D. investors must choose SCB (as it has lowest S.D.) while as per expected return, investors must choose NABIL.
- To remove this difficulty regarding the choice of individual stocks, we can use other relative measure of risk i.e. coefficient of variance (C.V.). Stock EBL, which has its C.V. least of all i.e. 1.51, is the best investment alternative as it has least risk per unit of expected return. CVs for other five banks – SBI, NBBL, HBL, NABIL, SCB and are 1.70, 2.40, 1.72, 1.59, & 1.67 respectively.

- CAPM shows how required rate of return on any stock is determined. According to this model, return on any stock equals risk free rate plus excess of market return over-risk free rate weighted by its beta. Systematic risk reflected in its beta is only the risk, which is priced at market. Comparison between the required rate and expected return gives idea, if given stock is over or under priced. Most of the stocks of this sector are under priced.
- According to general rules regarding buy or sell, under priced stocks are suggested to buy. Here, all the joint venture banks, under study are under-priced. So, all the banks are having stock with a good investment opportunity. Their stocks value will be increased in the near future providing the investor higher return. But other dimensions of analysis are also essential for efficient decision-making.
- It is notable that all the stocks under study are under priced. Stocks of NABIL, EBL and SBI are said to be aggressive stocks for being their betas greater than 1, While NBBL, SCB and HBL's stock is defensive as its beta less than 1. When aggressive stock is added to a market portfolio, it increases the risk but opposite type of effect has of the stock having beta less than 1.
- Investing in a single asset is riskier job. If investor constructs a portfolio i.e. group of investments, s/he can reduce risk dramatically without losing considerable return. Therefore, a brief analysis of risk and return is extended to portfolio context.
- Portfolio risks made up of stocks of NABIL and SBI is 45.05%, HBL and SCB is 31.09%, while NBBL and EBL is 67.98%.
- Correlation coefficient of NABIL and SBI is 0.7752, HBL and SCB is 0.7703 and 0.7752 of NBBL and EBL. Portfo1io risk made up of stocks NABIL and SBI is 45.50% and NBBL and EBL is 31.09%. Portfo1io made up of stocks HBL and SCB will be more useful than the portfolio made up of stocks NABIL and SBI & NBBL and EBL. Likewise, portfolio made from combining HBL and SCB do little toward reduction of the risk of' individual stock as it has moderately positive correlation.
- The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R}-T)/\beta_{im}$. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of $(\tilde{R}-T)/\beta_{im}$ is included and all securities with lower rates excluded.

- From analysis it shows that for securities Nepal Bangladesh Bank, Everest Bank and Standard Chartered Bank, $(\tilde{R}_i - T)/\beta_{im}$ is greater than cut off rate, while fore other security, it is greater than $(\tilde{R}_i - T)/\beta_{im}$. Hence, an optimal portfolio consists of securities 1(EBL), 2(NBBL) and 3(SCB).
- By constructing the optimum portfolio, the percent invested for each selected security in the optimal portfolio was determined. The percentage invested in each security was also found. It was found that 62.22 percent of total funds can be invested in Everest Bank Security, 7.14 percent in Nepal Bangladesh Bank Security and 30.64 percent in security of Standard Chartered Bank in order get optimal portfolio.
- According to CAPM model, required rates of' return is risk free rate plus risk premium in market weighted by its beta. Comparison between RRR and ERR gives the idea whether the stock is over or under priced. All the stocks under study are under priced, as their expected returns are higher than required rate of return. Depending upon general rule regarding buy and sell, all the under priced stocks must be bought.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Trade off between risk and return is the central focus of finance. And its major part stock market has greatest glamour, not only for the professionals or institutional investors but for the individual or private as well. Risk and return, a new and complex concept is also foundation of modern investment. Here, risk is defined as the variability of the return of a period. The greater the variability of the returns, the riskier the investment whereas an investment involves the sacrifice of current rupees for future rupees or reward, that future rupees or reward is called the return. It includes both current income and capital gains or losses that arise due to the increase or decrease on price of the security.

We have seen that every investment has the risk factor. And we should minimize the risk to maximize the return. For this we must follow the following statement, 'not to -put all the eggs in one basket' It means appropriate portfolio should be constructed instead of investing in a single security. A portfolio is the combination of different investment assets. It would be able to reduce unsystematic or diversifiable risk. For this study, here, I have taken six joint venture banks, which are listed in NEPSE. An analysis of the risks and return in common stocks of these banks are made in this study.

Stock market investment is the main focus of the study. Stock market investment can be both rewarding and fun so long as sufficient tune is given to appreciate its many facets and characteristics. The relationship between risk and return described by investors' perception about risk and their demand for compensation, all the investors will like to invest in non-risky assets. So, risk plays a vital role in the analysis of investment and to reach an investment decision. Higher risk gives bigger premium and the tradeoff between the two assumes a linear relationship between risk and risk premium.

Due to the various limitations and constraints, only six joint venture banks viz. Nepal Bangladesh Bank Limited, Nabil Bank Limited, Nepal State Bank of' India Limited, Himalayan Bank Limited, Standard Chartered Bank Limited and Everest Bank Limited are taken as sample for the study. Total population of the study is joint venture banks listed in NEPSE. A brief introduction in chapter - 1, review of literature in chapter-2, research

methodology in chapter-3, data presentation and analysis in chapter-4, have been presented in a very simple and clear way as far as possible.

5.2 Conclusions

Details of data, its presentation and analysis reveal that standard deviation of NBBL is 94.00% which is highest of all the banks selected for study and the lowest standard deviation of SCB is 30% which is present low risk. Depending upon this parameter i.e. S.D., SCB stock is said to be relatively less risky. On the other hand, expected return of' NABIL is 41% indicating its highest position in return and lowest return of SCB is 18%.. Thus, both the parameters differ as to which stock to choose - as per S.D. investors must choose SCB (as it has lowest S.D.) while as per expected return, investors must choose NABIL. Market Capitalization of the selected banks, SCB is in its highest position regarding the market capitalization and then NABIL followed by HBL, EBL, SBI and NBBL. Out of the total market capitalization of various industries, banking sector covers most of the share i.e. 65.38%. Overall market risk and return can be accessed through over all NEPSE index. NEPSE index is very high in the year 2007/08 and it has decreased thereafter. It is lowest.

Beta Coefficient, which is sometimes called correct measure of risk shows the stocks return sensitivity relative to market. Most of all of the banks have positive beta showing positive relationship with market return. From analysis it shows that for securities Nepal Bangladesh Bank, Everest Bank and Standard Chartered Bank, $(\tilde{R}_i - T)/\beta_{im}$ is greater than cut off rate, while four other security, it is greater than $(\tilde{R}_i - T)/\beta_{im}$. Hence, an optimal portfolio consists of securities 1(EBL), 2(NBBL) and 3(SCB). By constructing the optimum portfolio, the percent invested for each selected security in the optimal portfolio was determined.

5.3 Recommendation

Basically, this study has focused on individual investors who are going to invest their wealth on banking sector. Moreover, other components of stock market are also considered to some extent. Based on this study, individual investors can invest their wealth on right stocks. On the basis of the analysis and findings of this study, the following recommendations are prescribed. The recommendations are presented separately i.e. number-wise to different aspect of the study, which will be more beneficial and ease to understand and to improve present stock performance by the banks under study.

- Risk and return of banking sector is very divergent. It is suggested to analyze risk and return sincerely before investing in this sector. It is not always reliable to reach in a decision based on the risk and return. It is highly preferable to use CV. to reach to ideal investment alternatives. According to CV, EBL is the best of all, as it has least C.V.
- Standard deviation gives ideas as to total risk. But investors must concern with the systematic risk as measure by the given stock's beta. Systematic risk is only the risk, which is priced at market. Stock of NABIL, has systematic risk greater than other while; SCB has its beta least of all. Although there is chance of more return than that of expected, there is also a chance of heavy loss because stock market investment a risky job. So investor must be well aware of this fact and must be able to visualize and analyze the whole things. It is possible to beat the stock market but proper analysis of individual security, industry and overall market is always essential. General knowledge about economic, political and technological trend is advantageous.
- Investors need to diversify their fund to reduce risk. Efficient portfolio depends on market movement. For the portfolio construction Investor should select the stocks that have higher return and negative correlation or moderate positive correlation between stocks of different companies and sector. Similar, stocks cannot diversify risk properly. Investors should follow the following guidelines: focus on fundamentals but keep an eye on technical, diversify moderately and periodically review and revise the portfolio. Investor like higher return but risk is inevitable thing attached with return. To reduce risk, portfolio evaluation from time to time is necessary. Managing portfolio construction, select the stocks those have higher return with less or negative correction. For our purpose, correlation of returns of the stocks of HBL and SCB are least of all and accordingly, are the best of all for portfolio construction.
- Before making an investment decision in stock, assessment of personal risk attitude, needs and requirements will always be helpful. To make several discussions with stockbroker before reaching at the decision on the basis or reliable information rather than rumor and imagination will ultimately favor the investor. Investor should make their investment decisions based on financial parameters of the banks. They not rush over the rumors.
- Aggressive investors play the equity game actively and vigorously. In addition to general suggestion the aggressive equity investors should bear in mind the following:

- Focus on investments you understand and play your own game.
- Monitor the environment with keenness.
- Scout for special situations in the secondary market.
- Pay need to growth shares.
- Beware of the games operators play.
- Invest selectively in new Issues.
- Anticipate earnings ahead of market
- Leverage your portfolio when you are bullish.
- Take swift corrective action.

- Conservative equity investors seek to minimize the investment risk as well as the time and effort devoted to portfolio management. Conservative equity investors should bear in mind the following suggestions specially applicable to them:
  - Apply stiff serenading criteria.
  - Look for relatively safe opportunities in the primary market.
  - Participate in the schemes of mutual funds.
  - Join a suitable portfolio management scheme.
  - Consult an investment advisor.
  - Refrain from short-term switch-hitting.
- To provide different type of securities at the same place to investors, NEPSE should manage the trading of government securities. It will increase the opportunities for well diversification of funds to investors and it will also increase the private investor's participation in government securities.
- Nepal Sock Exchange needs to modernize the trading system and effective information channel. It needs to 'develop different program for private investors. These programs will contribute to increase investor's rationality as well as market efficiency.
- The listed companies should operate their activity smoothly. They should publish their annual reports and information timely and correctly which will help to the investors to take the investment decision on their common stocks.
- At last, once again, common stock investment is risky. So investors should learn about the operations of the security market, the characteristics or various investment avenues available to them, the concept of time value of money, the basic models of security evaluation, the approach of fundamental analysis, the tools of technical

analysis, the insights provided by modern investors research, and the war of resolving the key issues relating to the process of portfolio management. Now after learning above topics and subject matter investors should translate the knowledge and insights to gain from common stock investment.

- Further studies can be conducted by increasing sample size, study period by using other financial and statistical tools. Primary data also can be analyzed.

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APPENDIX A

Realized return, Standard Deviation and expected return and Coefficient of variance of banking sector

Year	Year End Price (P)	$R=\frac{BI_1 - BI_0}{BI_0}$	$\int R - \bar{R}$	$\int R - \bar{R}$
2003/04	155.63			
2004/05	167.2	0.1660	0.0527	0.00277
2005/06	194.95	0.1256	0.0123	0.00015
2006/07	219.49	0.8099	0.6966	0.4852
2007/08	397.38	-0.0448	-0.1581	0.0249
2008/09	219.35	-0.4218	-0.5351	0.2863
2009/10	199.9	-0.0887	-0.202	0.0408
2010/11	231.97	0.1604	0.0471	0.0022
2011/12	304.64	0.3132	0.1999	0.0399
Total		1.019		0.8822

Source: Nepal Stock Exchange, 2003-2012

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{1.019}{9} = 0.1133$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R - \bar{R}}{n - 1}} = \sqrt{\frac{0.8822}{9 - 1}} = \sqrt{0.1102} = 0.3320$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.3320}{0.1133} = 2.93$$

Where

BI_0 = Starting Banking sector's Index

BI_1 = Ending Banking sector's Index

APPENDIX B

Realized return, Standard Deviation and expected return and Coefficient of variance of hotel sector

Year	Year End Price (P)	$R=\frac{HI_1 - HI_0}{HI_0}$	$\int R - \bar{R}$	$\int R - \bar{R}$
2003/04	277.47			
2004/05	244.49	-0.1189	-0.0889	0.0079
2005/06	241.52	-0.0081	0.0219	0.0005
2006/07	346.15	0.4273	0.4573	0.2091
2007/08	291.34	-0.1583	-0.1283	0.0165
2008/09	216.51	-0.2568	-0.2268	0.0515
2009/10	94.56	-0.0916	-0.0616	0.0038
2010/11	184.41	-0.0624	-0.0324	0.0010
2011/12	178	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange, 2003-2013

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{-0.3035}{9} = -0.033$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\int R - \bar{R}}{n-1}} = \sqrt{\frac{0.2903}{9-1}} = \sqrt{0.0362} = 0.1904$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.1904}{-0.033} = -5.77$$

Where

HI_0 = Starting Hotel sector's Index

HI_1 = Ending Hotel sector's Index

APPENDIX C

Realized return, Standard Deviation and expected return and Coefficient of variance of manufacturing sector

Year	Year End Price (P)	$R=\frac{MI_1 - MI_0}{MI_0}$	$\int R - \bar{R}$	$\int R - \bar{R}$
2003/04	217.05			
2004/05	226.65	0.0442	0.0042	0.0000
2005/06	229.83	0.0140	-0.0260	0.0007
2006/07	340.59	0.4819	0.4419	0.1953
2007/08	349.31	0.0256	-0.0144	0.0002
2008/09	273.67	-0.2165	-0.2565	0.0658
2009/10	240.64	-0.0860	-0.1260	0.0159
2010/11	255.58	0.0218	-0.0182	0.0003
2011/12	276.50	0.081	0.041	0.0016
Total		0.3668		0.2798

Source: Nepal Stock Exchange, 2003-2012

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{0.3668}{9} = 0.040$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R - \bar{R}}{n - 1}} = \sqrt{\frac{0.2798}{9 - 1}} = \sqrt{0.034} = 0.1870$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.1870}{0.04} = 4.67$$

Where

MI_0 = Starting Manufacturing sector's Index

MI_1 = Ending Manufacturing sector's Index

APPENDIX D

Realized return, Standard Deviation and expected return and Coefficient of variance of trading sector

Year	Year End Price (P)	$R=\frac{TI_1 - TI_0}{TI_0}$	$\sum(R - \bar{R})$	$\sum(R - \bar{R})^2$
2003/04	156.95			
2004/05	160.58	0.0231	0.0051	0.000626
2005/06	123.99	-0.2279	-0.2459	0.0604
2006/07	123.74	-0.0020	-0.02	0.0004
2007/08	115.55	-0.0662	-0.0842	0.007
2008/09	102.2	-0.1155	-0.1335	0.018
2009/10	208.14	-0.0748	-0.0928	0.0086
2010/11	95.01	0.0048	-0.0132	0.00017
2011/12	123.20	0.2967	0.2781	0.077
Total		-0.1618		0.1722

Source: Nepal Stock Exchange, 2003-2012

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{-0.1618}{9} = -0.018$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum(R - \bar{R})^2}{n - 1}} = \sqrt{\frac{0.1722}{9 - 1}} = \sqrt{0.021} = 0.1467$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.1467}{-0.018} = -8.15$$

Where

TI_0 = Starting Trading sector's Index

TI_1 = Ending Trading sector's Index

APPENDIX E

Realized return, Standard Deviation and expected return and Coefficient of variance of Finance and Insurance sector

Year	Year End Price (P)	$R=\frac{FI_1 - FI_0}{FI_0}$	$\int R - \bar{R}$	$\int R - \bar{R}$
2003/04	172.18			
2004/05	176.32	0.0240	-0.0250	0.0006
2005/06	195.68	0.1098	0.0608	0.00369
2006/07	305.98	0.5637	0.5147	0.2649
2007/08	318.67	0.0415	-0.0075	0.00005
2008/09	288.75	-0.0939	-0.1429	0.0204
2009/10	224.39	-0.2229	-0.2719	0.0739
2010/11	216.8	-0.0338	-0.0828	0.0068
2011/12	228.39	0.053	0.004	0.00001
Total		0.4418		0.3703

Source: Nepal Stock Exchange, 2002-2011

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{0.4418}{9} = 0.049$$

$$\text{S.D. } (\exists) = \sqrt{\frac{\int R - \bar{R}}{n - 1}} = \sqrt{\frac{0.3703}{9 - 1}} = \sqrt{0.046} = 0.2151$$

$$\text{C.V.} = \frac{\exists}{\bar{R}} = \frac{0.2151}{0.049} = 4.39$$

Where

FI_0 = Starting Finance and Insurance sector's Index

FI_1 = Ending Finance and Insurance sector's Index

APPENDIX F

Realized return, Standard Deviation and expected return and Coefficient of variance of other sector

Year	Year End Price (P)	$R=\frac{OI_1 - OI_0}{OI_0}$	$\sum(R - \bar{R})$	$\sum(R - \bar{R})^2$
2003/04	228.26			
2004/05	221.59	-0.0292	-0.2992	0.089
2005/06	376.1	0.6973	0.4273	0.1825
2006/07	308.46	-0.1798	-0.4498	0.2023
2007/08	190.9	-0.3811	-0.0511	0.4239
2008/09	77.34	-0.5949	-0.8649	0.7480
2009/10	246.72	-0.3721	-0.6421	0.4122
2010/11	142.65	1.9376	1.6676	2.78
2011/12	347.65	1.43	1.16	1.3456
Total		2.51		6.18

Source: Nepal Stock Exchange, 2003-2012

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{2.51}{9} = 0.27$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum(R - \bar{R})^2}{n - 1}} = \sqrt{\frac{6.18}{9 - 1}} = \sqrt{0.7729} = 0.8791$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.8791}{0.27} = 3.25$$

Where

OI_0 = Starting other sector's Index

OI_1 = Ending other sector's Index

APPENDIX G

Realized return, Standard Deviation and expected return and Coefficient of variance of Market

Year	Year End Price (P)	$R=\frac{OI_1 - OI_0}{OI_0}$	$(R - \bar{R})^2$	$(R - \bar{R})^2$
2003/04	204.86			
2004/05	222.04	0.08	(0.05)	0.00
2005/06	286.67	0.29	0.15	0.02
2006/07	386.86	0.35	0.21	0.04
2007/08	683.95	0.77	0.63	0.40
2008/09	963.36	0.41	0.27	0.07
2009/10	749.1	(0.22)	(0.36)	0.13
2010/11	477.73	(0.36)	(0.50)	0.25
2011/12	373.2	(0.22)	(0.36)	0.13
Total				

Source: Economic Survey 2011/12

We have,

$$\text{Expected Return } (\bar{R}_m) = \frac{R_m}{n} = \frac{1.1}{8} = 0.1375$$

$$\text{S.D. } (\sigma_m) = \sqrt{\frac{(R_m - \bar{R}_m)^2}{n - 1}} = \sqrt{\frac{1.05}{8 - 1}} = \sqrt{0.15} = 0.3873$$

$$\text{C.V.}_m = \frac{\sigma_m}{\bar{R}_m} = \frac{0.3873}{0.1375} = 2.82$$

APPENDIX H

Beta Coefficient (b_j) of the common stock of NBBL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.84	(0.05)	-0.2125
2005/06	0.35	0.15	0.2997
2006/07	(0.20)	0.21	-0.040
2007/08	2.11	0.63	0.0744
2008/09	1.03	0.27	0.3714
2009/10	(0.74)	(0.36)	-0.0739
2010/11	(0.08)	(0.50)	-0.006
2011/12	(0.30)	(0.36)	-0.0743
Total			0.4992

We have

$$\text{Cov}(R_j,R_m) = \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{0.4992}{9 - 1} = 0.0624$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.0624}{0.086} = 0.7255$$

APPENDIX I

Beta Coefficient (b_j) of the common stock of NABIL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.29	(0.05)	0.0539
2005/06	0.70	0.15	0.1165
2006/07	0.65	0.21	0.4754
2007/08	1.52	0.63	0.0186
2008/09	0.14	0.27	0.2359
2009/10	0.00	(0.36)	0.0986
2010/11	(0.02)	(0.50)	-0.011
2011/12	(0.16)	(0.36)	0.0643
Total			1.052

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{1.052}{9 - 1} = 0.1315$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.1315}{0.086} = 1.529$$

APPENDIX J

Beta Coefficient (b_j) of the common stock of SBI

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.33	(0.05)	-0.0327
2005/06	0.31	0.15	0.0380
2006/07	1.03	0.21	0.5498
2007/08	1.14	0.63	0.0186
2008/09	0.41	0.27	0.0524
2009/10	0.38	(0.36)	-0.1840
2010/11	-0.29	(0.50)	0.1450
2011/12	-0.49	(0.36)	0.1764
Total			0.7985

We have

$$\text{Cov}(R_j,R_m) = \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{0.7985}{9 - 1} = 0.0998$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.0998}{0.086} = 1.1607$$

APPENDIX K

Beta Coefficient (b_j) of the common stock of HBL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.31	(0.05)	-0.0392
2005/06	0.99	0.15	0.0666
2006/07	0.31	0.21	0.3665
2007/08	0.75	0.63	0.0260
2008/09	0.24	0.27	0.0917
2009/10	-0.04	(0.36)	0.0891
2010/11	-0.14	(0.50)	0.0005
2011/12	-0.37	(0.36)	0.004
Total			0.5972

We have

$$\text{Cov}(R_j,R_m) = \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{0.5972}{9 - 1} = 0.07465$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.07465}{0.086} = 0.8680$$

APPENDIX L

Beta Coefficient (b_j) of the common stock of SCB

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.24	(0.05)	-0.0441
2005/06	0.21	0.15	0.07137
2006/07	0.79	0.21	0.3494
2007/08	0.73	0.63	0.0062
2008/09	0.27	0.27	0.0874
2009/10	-0.05	(0.36)	0.058
2010/11	0.82	(0.50)	-0.0003
2011/12	-0.63	(0.36)	0.0442
Total			0.5727

We have

$$\text{Cov}(R_j,R_m) = \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{0.5727}{9 - 1} = 0.0715$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.0715}{0.086} = 0.8325$$

APPENDIX M

Beta Coefficient (b_j) of the common stock of EBL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2003/04			
2004/05	0.19	(0.05)	-0.0997
2005/06	0.34	0.15	0.1855
2006/07	0.76	0.21	0.5613
2007/08	0.96	0.63	0.0818
2008/09	0.42	0.27	0.3758
2009/10	-0.16	(0.36)	0.0758
2010/11	-0.05	(0.50)	-0.0008
2011/12	-0.11	(0.36)	0.0261
Total			1.1536

We have

$$\text{Cov}(R_j,R_m) = \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1} = \frac{1.1536}{9 - 1} = 0.1442$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.1442}{0.086} = 1.67$$