RISK AND RETURN ANALYSIS OF COMMERCIAL BANKS IN NEPAL

(With Reference to BOK, SBI and SCBNL)

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Risk and Return Analysis of Commercial Banks in Nepal
(With Reference to BOK, SBI and SCBNL)

has been prepared as approved by this department in the prescribed format of faculty of management. This thesis is forwarded for evaluation.

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VIVA-VOCE SHEET

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DECLARATION

I hereby proclaim that the thesis work entitled 'Risk and Return Analysis of Commercial Banks in Nepal' submitted to Birendra Multiple Campus, faculty of Management, Tribhuvan University is my original work for the partial fulfillment of the requirement for the Master's Degree of Business Studies (MBS) under the supervision of Sudip Wagle, lecture of Birendra Multiple Campus, Bharatpur, Chitwan.

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ABBREVIATIONS

%	-	Percent
&	-	And
AD	-	Anno-Domini
AGM	-	Annual General Meeting
BOK	-	Bank of Kathmandu Limited
CAPM	-	Capital Assets Pricing Model
CBs	-	Commercial Banks
Co.	-	Company
COV	-	Covariance
CS	-	Common Stock
CV	-	Coefficient of Variation
DPS	-	Dividend
EPS	-	Earning Per Share
FY	-	Fiscal Year
i.e.	-	That is
LTD	-	Limited
NEPSE	-	Nepal Stock Exchange
NI	-	NEPSE Index
NRB	-	Nepal Rastra Bank
Pvt.	-	Private
RFR	-	Real-Risk Free Rate
SBI	-	Nepal SBI Bank Limited
SCBNL	-	Standard Chartered Bank Nepal Ltd.
SD	-	Standard Deviation
SEBON	-	Security Board of Nepal
SML	-	Security Market Line
TU	-	Tribhuvan University

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Risk is defined as the possibility of meeting danger or suffering harm of loss. Risk in terms of investment means unexpected and unwanted outcome, which are harmful for the business. Investment risk is related to the probability of earning a return less than the expected return. Uncertainty is a major risk to investors in stock market investment. A stock reflects the uncertanity about future returns, such that the actual return may be less than the expected return. The main sources of uncertainty are the price at which the stock will be sold at the same time reduces the amount of earnings reinvested by the firm, which limits its potential growth. The risk of a stock can be measured by its price volatility. Types of securities as treasury bills, long term government bonds, long-term corporate bonds, common stocks etc. Among these securities this study concern with common stocks. Common stock represents a commitment on the part of a corporation to pay periodically whatever its board of directors deems appropriate as a cash dividend. Common stock is known as a risky security. Common stock holders of a company are its ultimate owners. Investors invest in common stock expecting higher return. But their expected return may not change into realities. This uncertainty is a major risk to investors in stock market investment. There are different risks involved in business that arises from internal and external factors. Such as business risks and financial risks. The risk associated with uncertainity of future market demand or the cost of inputs are of business risk type and the risk associated with market

interest rate, exchange rates, stock prices and commodity price are of financial risk type.

Return is the main objectives of investment and a certain degree of risk is also associated with it. Finance mostly deals on monetary risk and return, which is the most affecting subject matter for an individual to large corporations. Return is the income received in investment. People invest their belonging with an expectation of getting some recovered for leaving its liquidity. The only invest in those opportunities where they can get higher retury. Hence; investor wants favorable return from their investment and goes for those, which yield more. Banking sector is the most dynamic part of economy, which collects unused funds and mobilizes it in needs sectors. It is the heart of trade, commerce, and industry. In Nepalese context, commercial banks have comparatively good performance among the public limited companies. In Nepal foreign joints venture banks perform better than Nepalese ones because of their management efficiency and capacity of proper risk management. Specially, Nepalese have a high degree of internal (firm-specific) risk. The concept of banking system was introduced in Nepal with the establishment of Nepal Bank ltd in year 1937.Later in 1955, the first central bank, and names as Nepal Rastra Bank was established with the objectives of supervising, protecting, and directing the functions of commercial banking activities. Rastra Banijya Bank, the commercial bank fully owned by HMG was established in 1966 B.C.

1.2 Statement of the Problem

Commercial banks collect lots of deposits whereas in the other hand investment opportunities are comparatively very low. Such condition may cause the highly liquid market and can impact the condition of whole country negatively. Due to high competition of financial environment,

banks seem to be ready to grant much more loan, advance, and other facilities against their client's insufficient deposit. If the funds are wrongly invested without thinking any financial risk, business risk and related fact, the bank cannot obtain profitable return as well as it should sometimes lose its principle. The main research problem for this study will be risk and return analysis of commercial banks. Other some research problem has been are as follows:

i. What are the position of risk and return of sample banks?
ii. What are the sensitive of the stock price of sample banks?
iii. What are the effects of risk and return decision to the total earnings of sample banks?

1.3 Objectives of the Study

The main objectives of this study will be analyze the risk and return of the Sample commercial banks. The specific objectives of the study will be as follows:

i. To examine the position of risk and return of the sample commercial banks.
ii. To examine sensitive of the stock price of commercial banks.
iii. To assess the total earnings, and risk and return policy of sample banks.

1.4 Importance of the Study

In the context of Nepal, the capital market is growing very slowly. The market is not efficient, there are few magazines or article related to capital knowledge and information. This study will give information about Nepalese capital market by analyzing risk and return and will definitely contribute to increase the analytical power of the investor in

capital market. The study will be beneficial for all the persons who are directly related to the Nepalese capital market. Investor's feeling towards risk and return is on the surface level only. They feel more risky than that exist. As a result, there are fair of laps of investment in common stocks. So, the study will be more significant for exploring and increasing stock investment. It will also provide little contribution to Nepalese stock market development.

The analysis of risk and return is a significant managerial decision from the viewpoint of investors. It influences the shareholder's risk and return. Consequently the risk and return analysis influences the market price of the stock, by making it at appropriate level. This study will be a matter of interest for academics students, researchers, teachers, or persons prating in the field of finance.

1.5 Limitation of the Study

As every researcher has its own limitation, this study is not free from it. So it has some limitations which are as follows:

i. The study covers the relevant data and information only for five years i.e. fiscal year 2009/10 to 2013/14.

ii. Variation in data published from different sources (Figure Published by NEPSE and company differ to some degree).

iii. Analysis is based on the secondary data.

iv. The study is based on three commercial banks only.

v. The study is basically concerned only with the risk and return of the sample commercial banks i.e. other aspects of the bank have not been taken under consideration.

1.6 Organization of the Study

The study has been divided into five main chapters. They are as follows;

The first chapter of the study deals with the subject matter like background of the study, statements of the problem, objective of the study and significance or importance of the study, limitations and organization of the study.

The second chapter of the study comprises of review of literature on risk and return of sample commercial banks of Nepal. The review of literature is done from various sources like books, bulletins, journals, websites etc.

The third chapter describes the research methodology adopted for carrying out the study. This chapter deals with methods and techniques used in the research study.

The fourth chapter explains how the data for the study are presented and analyzed. The primary data are pesented using different statistical tools and analyzed with the findings.

Lastly the fifth chapter deals with summary, conclusion and recommendation of the study.

At the end Bibliography and appendix are submitted.

CHAPTER TWO

REVIEW OF LITERATURE

The previous studies cannot be ignored because they provide the foundation to the present study. In other word, there has to be continuity in research. This continuity in research is ensured by linking the present study with past research studies. In this chapter relevant and recent literature, which are related to the topic risk and return is reviewed. Topics from basic academic courses, books and different studies published in magazine, thesis of senior, websites and journals related to the study will be reviewed.Review of literature is the chapter where a researcher reviews the book, journal, magazine or any other type of studies, which are related to his/her fields of the study. Research is a continuous process, it never ends. The procedure and the finding may change but research continuous. So for analyzing the data and to find something's new a researcher must review and know if there are any studies ahead or not. The purpose of reviewing the literature is to develop some expertise in once area, to see what new contributions can be made, and to receive some ideas for developing a research design. The continuity in research is ensured by linking the present study with past research studies.

2.1 Conceptual Framework

In the ancient times there were traces of banking activities in the Temple of Jerusalem as stated in the New Testament. In Greece, the famous temple of Delphi and Olympia served as the depositories for people having surplus funds and also served the money landing transactions. The modern proper banking system started with the establishment of Casa de San Giorgio bank in Genoa in the year 1148 A.D. The Bank of Venice

was set up in 1157 A.D. the Bank of Barcelona was established in Barcelona. In fact, modern bank started to take rapid speed in forming and functioning from 17^{Th} century. During this period, Bank of Milan, Bank of Florence, and Bank of St, George were established in Genoa. In 1609 A.D. the Bank of Amsterdam was established in Holland. Afterwards in 1610 A.D. Bank of Hamburg was established in Germany and Bank of England in England. The Bank of Venice and the Bank of Genoa continued to operate until the end of eighteenth century and the expansion of commercial banking activities took place in Northern Europe. There sprang a number of private banking houses in Europe and slowly it spread throughout the world.

Investment, in its broadest sense, means the sacrifice of current dollars for future dollars. Two different attributes are generally involved: time and risk. The sacrifice takes place in the present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain.(Sharpe, Alexander, 2008)

After establishment of Nepal Rastra Bank, many other financial institutions were established in 1957 A.D., Industrial Development Bank was established to promote the industrialization in Nepal, which was later converted into Nepal Industrial Development Corporation (NIDC) in 1959 A.D. Then, Rastriya Banijya Bank was established in 1965 A.D. as the second commercial bank of Nepal. In 1968 A.D., separate Agricultural Development Bank was established. For more than two decades, no more banks have been established in the country. After the declaring free economy and privatization policy, HMG encouraged the foreign banks for joint venture in Nepal. As a result, many modern banks with latest banking technology are established. In the canted of Nepal we

can say that banking sector is the leading institution of Nepalese economy.

Commercial bank deals with other people's money. They have to find ways of keeping their assets liquid so that they could meet the demand of their customer. In their anxiety to make profit, the bank can't afford to lock up their funds in assets, which are not easily realizable. The depositor's confidence could be secured only if the bank is able to meet demand for cash promptly and fully (Commercial Bank Act, 2031 B.S.)

Nepal Rastra Bank is the head of bank and bank of government where as commercial bank is bank of public.

The main function of commercial bank is accumulation of the temporarily idle money of general people for trade and commerce. Its main function are accepting deposits and grants loan, purchase and discount bill for promissory notes, exchange foreign currency, agency function, overseas trading service, gold transaction, information, and other service as customer need. Commercial banks earn profit by proper mobilization of their resource. Many commercial banks have been established to provide a suitable service, according to their customer. Since financial sector in Nepal is small it is fast growing at present among 30 commercial banks. Two banks (Nepal Bank Limited and Rastriya Banijya Bank.) are controlled by government rest joint venture. Nepal Arab Bank Limited (NABIL) is the first joint venture bank operates in Nepal.

A bank should not lay all its eggs on the same basket. This is very important to bank and it should be always careful not to grant loan in only one sector to minimize risk, a bank must diversify its investment on different sectors. Diversification of loan helps to sustain loss according to law of average, if a security of a company is deprived of there may be an

appreciation in the securities of other companies. In this way, the loss can recover by commercial banks. (Bhattarai, 2006)

The study has presented the systematic presentation of the following financial elements:

2.1.1 Investment

Analyzing risk and return shows the relation or tradeoff between risk and return on my kind of Investment. Investment, risk, and return are the financial terms, which are heavily associated with each other. Investment simply means sacrificing current funds for future case inflows. Here the future case inflows are the "Returns." The future is uncertain and uncertainty obviously points out risk.

Investment in its broadest sense means the sacrifice of dollars for future dollars. Two different attributes are generally involved times and risk. The sacrifice takes place in present and is certain. The reward comes later. If at all and the magnitude is generally uncertain (Vanhorne, 2008)

Investment can be made or real financials assets. Investment or real assets is known as real investment and on financial assets is known as financial investment. Real investment means investment on real assets like land, buildings, factory etc. Financial investment means the investment on financial assets like shares, debentures, warrants, convertibles etc.

Real investment generally involves some kind of tangible assets such as land, machinery, or factories. A financial investment involves contracts written on pieces of paper such as common stocks and bonds. In the primitive economics most investments is the real variety, where as in a modern economy much investments is of the financial variety.

The term risk and return is closely associated with investments. An investment simply means sacrificing current for future returns, bearing

certain risk. The investment may be on fixed assets like land, buildings, vehicles etc or on precious metals and collectibles or something else's. But concerned with finance the study has focused the term investment as sacrificing currents fund on financial assets like shares, debentures, warrants, convertibles etc, for the long term return. Investors invest their fund on the securities or certain companies for the long run future returns. The return is defined as the reward for beating the risk. Return is the most important outcome on investment. It measures the investors rate of wealth accumulation i.e. increase or decrease per period. Return can be different way, like holding period return, return from speculation or from short sell, fanatical gain, dividend gain, yield on investment, yield to maturity etc.These all type of return are the rewards to the investors for bearing the risk. Risk is defined as the occurrence of unfavourable outcomes, which is every harmful for the business.

Return to investors is every followed by risk. Risk ever creates uncertainty, some of the factors that create investments uncertainties are interest rate risk, bull-bear market risk, management risk and so on, and risk can be diversifiable or undiversifable. The level of risk depends on the condition of the market. If the market is efficient there is low risk, but if it is inefficient, definitely there will be higher risk. An efficient market is that market, where the securities prices reflect all available information.

The investors can invest either in primary or in secondary market, by purchasing the securities of different companies. There are many more financial securities like a common share, preference shares, debenture, warrants, convertibles etc for the investors to invent. But in our country, common shares, preference share, debenture, and convertibles (only by Shree Ram sugar mills) are in practice.

i) Investments on Securities

The investment environment encompasses the kinds or marketable securities that exist and where and how they are bought and sold. Securities are normally the shares, debenture, preferred stocks, warrant, convertibles, or any either financial certificates issued by the compares to general public. There certificates are issued at certain price called par value and are transferable from one person to another. In simple way securities can be understand as the promissory paper that company gives to the investors after receives certain rupees as long or shares. When someone borrows money from pawnbroker he or she must leave some item of value as security. Failure to repay the loan (plus interest) means that the pawnbroker can sell the pawned item to recover the amount of loan and perhaps make a profit. The terms of the agreement to buy a car. The lender usually holds formal title to the car until the loan is repaid.

In the event of default, the lender can repossess the car and sell it to recover his/her costs. In this case the official certificates of little are issued by the state serves as securities for the loan. Hershel can make investment on shares, debentures or any other financial assets. But a rational investor must think about the risk and return on his/her investment. Normally almost the investors are risk and return. Normally almost the investors are risk averters so risk returns analysis is very important for investment. Investments on bonds of preferred stock are few risky because of their nature of fixed investment and fixed return, but the investment on common shares are the most risky because of their certain investment but uncertain returns.

ii) Capital Market

In any market, there are both the demanders and suppliers. Capital market is the place, which bring both the financial demanders and suppliers

directly and indirectly in touch. Commercial banks, financial institutation, investment companies and industrials sectors are the demander's . This demand and supply is carried in capital market.

Capital market is the market where long-term financial instruments like equities and bond are raised and traded. Capital market plays a key role in purchase and sale of securities. According to the nature of capital market it can be classified into primary and secondary market.

iii) Primary Market

The primary capital market denotes the markets for the original sale of securities by underwriting to publish. The use of the words original sale may be somewhat misleading the public several years ago and had now decided to issue additional shares of common stock, these additional shares will be sold in the market, and once the sale is completed. The new shares will be indistinguishable from the shares sold in the initial publics offering.

iv) Secondary Market

After securities have been purchased from the primary market, they can be traded in the secondary market. The secondary market comprises the organized securities exchanges and a specialist facilities the transaction. The major of all capital market transactions occur in the secondary markets. The proceeds from sale of securities in the secondary markets do not go to the organization issuer instead to the initial owners (sellers) of the securities.

Different factors in secondary markets are explained as follows:

A. Trading of Stocks

In Nepalese practice, the trading of securities of the government bonds and listed corporate securities is done through Nepal stock exchange ltd

(NEPSE) which is nonprofit organization, operating under the securities act, 1983. The basic objectives of NEPSE is to impart free marketability liquidity to the government bonds and corporate securities. By facilitating transactions in its trading floor through market intermediaries such as broker, market makers. Member of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and listed corporate securities.

B. Primary Market Dealer and Secondary Market Dealer

Primary market dealer operates as a manager and underwriter regarding the issue while the security market dealer operates as a profit manager. A corporate firm has to fulfill certain to list securities in the NEPSE for stock trading.

v) Efficient Financial Market

Efficient market is that market where the market price of securities represents the markets consensus estimate of the value of securities. An efficient market exists when securities prices reflects all available public information about the economy, about financial market and about the specific company involved. The implication is that market price of individual securities adjust very rapidly to new information. As a result, securities prices are said to be fluctuating randomly about their intrinsic values. New information can result in a change in the intrinsic value of securities, but subsequent securities prices movement will follow.

2.1.2 Risk

i) Risk Defined

Risk is defined as the possibility of meeting danger or suffering harm of loss. Risk in terms of investment means unexpected and unwanted outcome, which are harmful for the business .In investment there is a

change of suffering loss it is the risk. Risk is also defined as the chance that some unfavorable event will occur. Investment risk is related to the probability of earning a return less than the expected return.

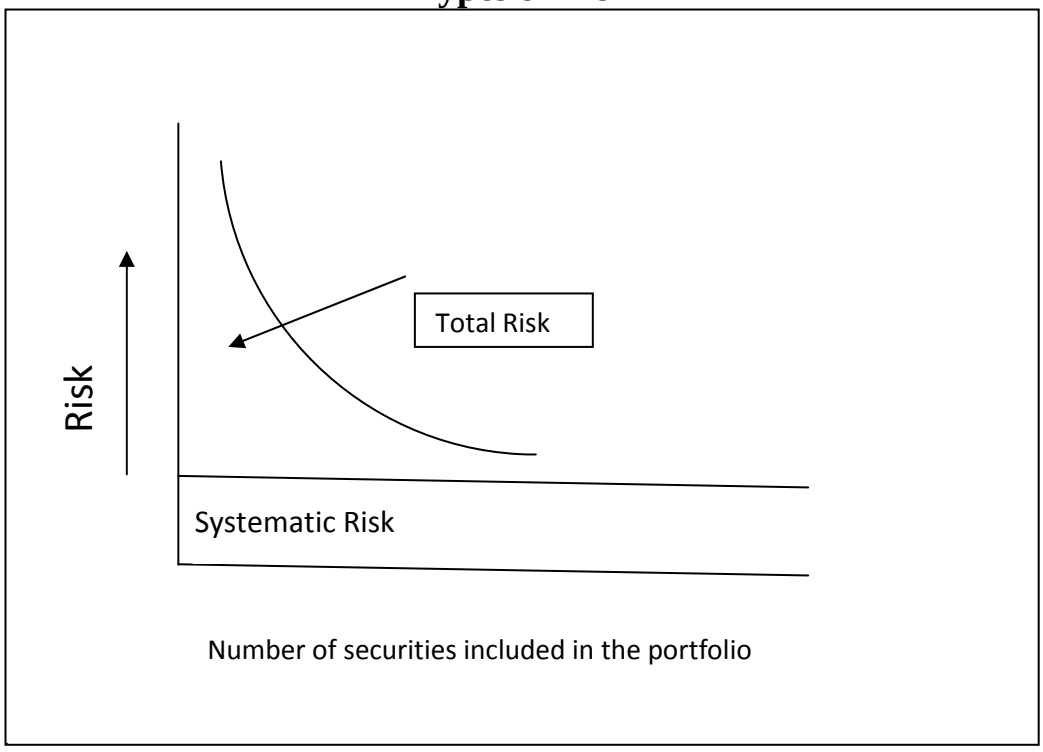
ii) Types or Sources of Investment Risk

The risk is the total risk that arises in the business. Any type of business, whether that may be of large or small scale suffers risk because investment is a part of economic and the economic cycle changes frequently. When the market is bullish there is low risk and when it starts declining i.e. bearish there may be high risk. The risk that is talked may be systematic risk or unsystematic risk associated with investment. Hence the risk can be classified as diversifiable and undiversifable risk.

The combination of these two risks is total risk. Diversifiable risk is firm-specific risk which is not related to the general market, it canbe eliminated by a well-diversified portfolio.

Figure: 2.1

Types of Risk



(Sources: Bhattarai; 2008)

Systematic risk is also known as non diversifiable risk. This risk is arises due to the changes in the economics state or due to the change made by government in fiscal or monetary policies. Some examples of systematic risk are change in interest rate policy by government, increase in corporate tax, increase in inflation rate etc.

Unsystematic risk arises due to many more reasons, like labor strike, entry of formidable competitor in the market, loss, or big contract bid, company not being able or manage or obtain adequate raw materials on time etc.

These types of risk are normally minor one can be handled by the government. That's why this type is called diversifiable risk. Risk can be measured by using different tools. The most tools in practice are the standard deviation (SD).

The standard deviation denoted by σ is known as firms risk and is unsystematic risk.Wich can be minimized totally by well diversification. But the S.D. sometimes can mislead for the proper measurement. So coefficient of variance (CV) is also used to measure risk. Coefficient of variance is the unitary risk measure that predicts how much risk is to bear for earning 1 extra unit or return. As S.D. is used to find out unsystematic risk, beta is used for the analysis of systematic risk. Logically the systematic risk is the covariance between the return of individual assets or portfolio and the return of market portfolio, which is represented by beta.

2.1.3 Return

Return is the reward to the investors for bearing certain risk. It is main target of invesment. It can be defined as the tax increases in the value of the investments. Return is the main objectives of investment and a certain

degree of risk is also associated with it. Finance mostly deals on monetary risk and return.

i) Holding Period Return (HPR)

If an investor purchase a stock of any companies holds it for certain period, he/she can get return in two ways. 0ne is increase in the value of stock as compared to initial one. Another is direct cash payment. The increase in value is called capital gain and direct cash payment is called dividend gain. The return from holding an investment over some period is simply a cash payment received due to ownership plus the change in market price, derived by the beginning price. For common stock we can defined on e period return.

$$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$$

Where R is the actual return when it refers to a particular times period in the past (future).

D_1 is the cash dividend at the end of time period t.

P_t is the stock prices at the time period t, and P_{t-1}

Notice that this formula can be used to determine both actual one period returns (when based on historical figures) as well as expected one period returns (when based on expected dividend and prices).

Above explanation is based on the ex-post (historical) data to predict the future result. The return can also be defined on the basis of probability distribution.

The relationship between the expected future state of the economy and the performance of individual firms enable a relationship to be set forth between the state of different levels of returns and their relative frequently is called probability distribution. We could formula a

probability distribution for the relative frequently of a firm's annual return by analyzing its historical returns over previous year. But we know that history never repeats itself exactly. Hence, after analyzing relative frequently of historical returns for the individual company we can form a probability distribution based on historical data plus our analysis for the economy, the outlook for the firm in its industry and any others factors we deem relevant as inputs for our judgment.

ii) Required Rate of Return

Required rate of return is the minimum return that an investor expects at least not to suffer from loss. If an investor gets below required rate he/she definitely suffers from loss. While suffering from loss of return an investor must consider the real rate of return, expected inflation, and risk. Because consumption is forgone today, the investor is entitled to a rate of return that compensates for this differed consumption. Since the investor expect to receive an increase in that real goods purchased later and assuming for the moment zero to receive inflation and risk. The required rate could be equal the real rate of return, in which case it would represent the pure time value of money. For example if an investor plans to lend $500 today in exchange for consumption at some later date (assuming no inflation and risk), then the lender may expect to receive $515 at expected time of consumption. The $15 return on the investment of $500 or 3 percent represents the pure time value of money. The real return paid to compensate the investor deferred consumption.

The required rate of return is the function of real rate of return and risk. It is the minimum rate of return an investor will accept. The required rate of the return for an assets or portfolio of assets can be estimated using the equation for the SML suggested by the CAPM model.

iii) Expected Rate of Return

The return an investor expects from his/her investment in the forthcoming future is called expected rate of return. An investor normally estimates his/her expected rate of return by analysis the trend of return of previous period (years). If an investment is to be made, the expected rate of return or the expected holding return should be equal or greater than the required rate of return for that investment.

The expected rate of return is based upon the expected cash receipt (eg.dividend or interest) over the holding period and the expected ending or selling price. The expected rate of return is an ex-ante or unknown future return. Unless the real rate of return is guaranteed, most investors recognize this possible rate of return into a single number called the expected rate of return.

The expected rate of return or holding period rate of return is based upon expected cash receipt over the holding period and the expected ending or selling price. Depending upon the assumption made about cash receipts and ending prices a number of expected rates of return are possible. These possible rates estimated by the investors are summarized in an expected rate of return. The expected rate of return must be greater or equal to the rate of return on order for the investor. Normally almost the investors are risk averse. They need high or satisfactory level of return bearing risk as low as possible, Portfolio theory gives the concept of investment in a very good way that "never keeps all the eggs in a single basket. Never invest your entire amount in single assets. Investment on more than one assets diversification to minimizing risk.

In 1952 Harry M. Markowitz proposed the concept of the portfolio theory. He gave a very new concept on investment on more than single assets to minimize risk and maximize return.

The portfolio theory developed by Markowitz is based on following assumption:

a. The expected return from assets is the mean value of a probability distribution of future returns over some holding period.
b. The risk of an individual assets or portfolio is based on the variability of returns (i.e. standard deviation or variance)

2.1.4 Markowitz Efficient Frontier

The efficient frontier is the combination of all portfolios called the attainable set of investment opportunities. The efficient frontier is the locus of investment graphed in risk return space which has the maximum rate of return in their risk or the minimum risk at whatever rate of return is selected. An investor can give gain higher level of at any given of risk. According to Markowitz an investor should seek a portfolio of securities that lies on the efficient frontier set.

A portfolio is not efficient if there is another portfolio with a higher expected return and the same standard deviation. If your portfolio is not efficient you can increase the expected return without increasing the risk, decreasing the risk without decreasing the expected return or some combination of increased expected return, and decreasing the risk by switching to a portfolio on the efficient frontier.

2.1.5 CAPM Relating Beta with Required Return

As portfolio deals with the selection of optimal portfolio, capital market theory deals with an equilibrium model of assets prices, especially capital market theory postulates the ex-ante risk return relationship of individual assets as well as portfolio under equilibrium conditions.

The measure of systematic risk permits investors to evaluate an assets required rate of return to the systematic risk of the assect.In general, the

CAPM indicates that assets required should be related to the risk free rate of return plus a risk premium based on the beta of the assets.

CAPM is a model that describes the relationship between risk and required return. In this model a securities expected return is the risk free rate plus a premium based on the systematic risk on the systematic risk of the securities.

The model is:

$$R_j = R_f + (R_m - R_f)\beta_j$$

Where,

R_j = Required rate of return on stock j

R_f = The nominal risk free rate of return (the real risk free rate of return plus premium for inflation)

R_m = The expected rate of return on the market portfolio

β_j = Beta coefficient of risk j

Here beta is the index of systematic risk. It measures the securities the sensitivity of a stock return to change in return on the market portfolio. The beta of portfolio is simply a weighted average of the individual stock beta in the portfolio. The CAPM model uses the theory of securities market line (SML) to show the relationship between required return and beta. The SML equation shows the relationship between securities risk and rate of return**.**

2.2 Review of Journal and Articles

Shrestha (2009) in his article Commercial Banks Comparative Performance Evaluation concluded that the Joint Venture Banks are new operationally more efficient having superior performance while comparing with local banks that are operating in Nepal. Bettre performance of joint venture banks is due to their sophisticated technology, modere banking method and skill. Their better performance is also due to the government's branching policy in rural areas. Local banks are efficient and expertise in rural sectors but having number of deficiencies. Thus, local banks are facing growing constraints of socio-economic, political system on one hand spectrum and that of the issues and challenges of joint venture banks commanding significant banking business on other spectrum.

Poudel (2010) has published article Investing in Shares of Commercial Banks in Nepal: An assessment of Risk and Return Elements.

The key objective of the study is to examine whether the shares of commercial banks in Nepal are correctly priced and to trace their future prices movements when striving toward equability. He has conducted that shares here are not in equilibrium with most of shares being less risky than the market. While all the shares examined appear to be attractive to the potential investors since they produced higher rates up return than that of the average stocks the various shares have degrees of risk with some shares being unable to general minimum rate of return.

Chopra (2012) in his article The Role of Foreign Banks in Nepal concludes that the joint venture banks are already playing a dynamic and vital role in the economic development of the country and this will undoubtedly increase with time.

Shrestha (2012) has given a short forecaste on the Portfolio Management in Commercial Banks: An assessment of Risk and Return Elements. Shrestha has highlighted the following issues in his article.

The portfolio management becomes very important for both individual as well as institutional investors. Investors would like to select a best mix of investment assests subject to the following aspects:

i. Higher return which comparable with alternative opportunity available according to the risk class of investors.
ii. Good liquidity with adequate safety of investment.
iii. Certain capital gain.
iv. Maximum tax consession.
v. Flexible investment.
vi. Economic, efficient and effective investment mix.

In view of above aspects,following stratigies are adopted:

i. Do not hold any single security i.e. try to have a portfolio of different security.
ii. Do not put all the eggs in one basket i.e. to have a diversification investment .
iii. Choose such a portfolio of securities, which ensures maximum return with minimum risk or lower return but added objectives of wealth maximization.

In this study, Shrestha has presented two type of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any securities such as equity, debenture bond and other money and capital market instruments. He has further suggested that the banks having international network can also offer assess to global financial market. He has also point out the required skilled work force research and analysis

and proper management information system in any type of commercial banks to get success in portfolio management and consumer's confidence, An assessment of Risk and Return Elements.

2.3 Review of Unpublished Thesis

However, risk and return is not a new concept for financial analysts, in context of Nepal and it's very slow growing capital market, very little studies are made regarding this topic. Some studies are as a thesis for the partial fulfillment master degree in T.U. which is reviewed here.

Tiwari (2009) conducted a research in 2009, on the title of "Risk and Return Analysis of selected Finance companies listed in Nepal." on the specifies objects to analysis the risk and return associated with the common stock of six finance companies.

They are Kathmandu finance co. Ltd, samjana finance co. Ltd, and National finance company ltd. citizen investment trust, Ace finance co. Ltd, and people finance co. ltd. His research has been an source. Nepal stock exchange (NEPSE) ltd, is the main organization which provides most of the data required for the study from year 2003/04 to 2007/08.

The major finding of his study was as follows:

All the finance companies have positive expected return as must of the finance company have the return near to the average. All the investment involved certain amount of risk (i.e., standard deviation) as well masts of the finance company have the risk less then the average .The value of best suggests majority is less than the market volatility and they are defensive stock. Some finance companies securities have highest have of CV is less then the average companies CV is less than the average CV but not in acceptable level. In comparison of market portfolio and average return of selected companies shows that there is no different significantly. The total paid of value of the all sector expects trading is lively to decreasing

in trends. The annual turn over of the all sector is increasing trends. Likewise the market capitalization of sector expected trading is likely to increasing trends.

Pradhan (2010), has conducted a study on "Portfolio Analysis of Common Stock Investment of Listed Companies". The key objectives of the study revolve around the subject of finding out risk minimizing tools and techniques in relation to certain financial as well as other constraints. The main and basic objective of her study is to estimate an optimal portfolio among CS investment of different companies. However, the objectives are as below:

i. To evaluate common stock of different companies in terms of risk and return.

ii. To analyze an optimal portfolio among Common Stock investment of different companies.

iii. To indicate whether the shares of different companies in Nepal are overpriced or under priced by analyzing the risk and return characteristics of the individual shares

iv. To evaluate the systematic and unsystematic risk associated with security under study.

To analyze the current portfolio situation of companies in Nepal. Majors findings of her study are given below:

i. Among the 7 banks, the different shares have different rate of returns within the range of -5.07 to 49.22. On the basis of average rate of return, the share of DCBL seems to be the best for investment.

ii. Observing the standard deviation of returns of the companies, Salt trading Corporation has the lowest standard deviation i.e.

2% and Soltee Hotel Limited has the highest i.e. 61.44%. SCBL, KFL, EICL, BNL and DCBL have standard deviation of 26.76%, 44.80%, 16.91%, 15.36% and 47.35% respectively. Salt trading Corporation has the lowest risk among all.

iii. The common stocks of Salt trading Corporation Limited seem attractive among all with CV of 0.27 and Bottlers Nepal Limited offers the highest risk per unit of return with CV of 4.17. So investors retaining the stocks of BNL should assume more risk than any others.

iv. Average rate of return of market is only 27.85% with the standard deviation of 32.62%. Coefficient of variation, which measures the risk per unit of return, is 1.17.

v. The beta coefficient of HS and DCBL is 1.69 and 1.26 respectively and are aggressive stock which indicates that the sticks are riskier and volatile than market.

vi. The stock of SCBL, KFL, EICL, SH, BNL, STCL and DCBL have the systematic risk of 6.31%, 4.97%, 0%, 30.39%, 0.03%, 0%, and 16.89% respectively.

vii. The Sharpe index of portfolio performance measure of, SCBL, KFL, EICL, HS, BNL, STCL and DCBL are 1.54, 0.34, 0.23, 0.18, -0.56, 1.97, and 0.97 respectively.

viii. Based on the comparison of excess return to beta ratios with cutoff rate, only 2 securities i.e. STCL and SCBL have been selected for an optimum portfolio form available alternatives. The optimum weights are 18% and 82% respectively. The Portfolio Expected Return from the two securities is 38.18% and the variance is 4.83%.

Poudel, (2011) conduct a study on "A study on Portfolio Analysis of Commercial Banks in Nepal" with the objective of

i. To examine the existing situation of portfolio management of Nepalese commercial bank.

ii. To evaluate financial performance of commercial banks of Nepal.

iii. To analyze risk and return of commercial banks. To analyze the investment and loans and advance portfolio of commercial banks.

iv. To show the present position trend of loan and advance and investment to total deposit and forecast it.

Using common financial tools like ratios, portfolio returns, portfolio risk, systematic and unsystematic risks, and researcher tried to give up the insights of financial performance.

Major Findings:

i. Total deposit is 21.86%. The only EBL has a greater ratio above industrial mean ratio i.e. 24.77>21.8. But other banks have lower investment to total deposit ratio than industrial mean ratio. It shows that EBL has effective mobilization its deposit on investment to generate the return.

ii. Among four commercial banks HBL has invested its more funds on government securities (i.e. risk free assets) and lesser fund on share and debenture (i.e. risky assets). All banks have invested more than83% amount in government securities.

iii. BOKL stock has the highest expected return i.e. 8.34% and HBL has the lowest expected return i.e. -8.82%. NIBL has also

negative return i.e. -7.71%. The market expected return is -6.47%. The risk of BOKL is the highest i.e. 57.14% and HBL has the lower risk i.e. 15.26%.

iv. Total risk of BOKL stock is highest and total risk of HBL stock is lowest among four commercial banks.

v. HBL has the highest portfolio return i.e. 4.85%, NIBL stock has lowest (i.e. negative -1.19%) portfolio return and it has the highest portfolio risk i.e. 8.46%. It means NIBL invest its amount in risky assets so it become in loss.

Poudel, (2013) conduct a study on "Risk and Return on Common Stock of Commercial Banks in Nepal" with the objective of:

1. To analyze return associated with common stock investment in banking sector.
2. To examine the common stock price in terms of overpriced, under priced or equilibrium by analyzing the risk and return of individual shares.
3. To examine the risk and return of individual shares in sample commercial banks.
4. To examine that how the investor diversify the risk.

Major Findings:

a. Expected return of NABIL is highest i.e. 55.38% and HBL has lowest expected rate of return i.e. 6.35%.

b. SCBNL has 24.84% expected rate of return and 28.89% as standard deviation. NABIL also has maximum standard deviation of 77.67%.

c. Expected rate of return and standard deviation cannot give the appropriate comparison. So, we have to consider Coefficient of Variation.

d. Coefficient of variation of NBBL is highest i.e. 645.48 concludes as most risky assets. Similarly HBL has also CV of 446.77 and resulted as risky assets.

e. Expected rate of return of market 3.6% and standard deviation is 55.38% with C.V. of 187.77. Standard deviation is the segregate the total risk and here NBBL has variance of 0.6033 where systematic risk is 0.2103 and unsystematic portion is 0.1709. Similarly, NABIL has second large portion of total risk where systematic risk is 0.2103 and unsystematic risk is 0.0667. As we know that unsystematic risk is diversifiable risk and could be eliminated through diversification.

2.4 Research Gap

In Nepalese stock market, there are so many researches that have been undertaken in the field of risk and return analysis of common stock of Nepalese commercial and finance companies. Though the stock of these companies are traded heavily in the stock market, only few studies in a regular interval in order to assess the risk and return associated with the common stock investment. In this aspect, this study will provide up to date insights regarding the risk and return characteristics of the common stock of Nepalese commercial banks. This study is different and new from previous studies which will provide updated information regarding the risk and return & included new data i.e. 2009/10 to 2013/14 on common stock.

CHAPTER THREE

RESEARCH METHODOLOGY

The research methodology is the systematic way of solving research problems. Research methodology refers to the overall research process, which a researcher conducts during his/her study. It includes all the procedures from theoretical foundation to the collection and analysis of data. As most of the data are quantitative the research is based on the scientific models. It is composed of both parts of technical aspects and logical aspects, on the basis of historical data. Research is systematic and organization effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well thought out activities of gathering, recording, analyzing and interpreting the data with the purpose of finding answer to the problem. Hence,the entire process by which we attempt to solve the problem is called research.

3.1 Research Design

This study has been based on the data extracted from the annual reports of sample banks. The descriptive research design has been used for this study. Secondary data is used the research design that are taken from their sources. Research can be conducted on the basis of primary and secondary data. In this study, all the data are secondary and those data are analyzed using appropriate financial as well as statistical tools. Outcomes are presented in simple way in this study on the research design, data collection procedure and analysis are described serially. The study is important because it provides micro level information which can be useful to anybody. In order to achieve this objective it is necessary to adopt a methodology.

3.2 Population and Sample

There are 30 commercial banks till date July 2015. Out of which, only three commercial banks are taken as a sample for this study. So the risk and return analysis has been done through convenience sampling method. The sample banks are Standard Chartered Bank Nepal Limited, SBI Bank Limited and Bank of Kathmandu Limited.

3.2.1 Brief Introduction of Sample Banks

i) Bank of Kathmandu Limited (BOK)

BOK was established in 2050 B.S. in collaboration with the SIAM commercial banks, PCC and Thailand under the company act with the objectives to simulate the Nepalese economy and taken it to new height, out of 50% of the share holding. The SIAM commercial banks diluted its 25% if holding to the Nepalese citizen in 1998.Now there are 50 branches in all over the country. Which authorized capital is Rs. 200,00,00,000 and issued/paid- up capital is Rs.192,02,12,300.

ii) SBI Bank Limited (SBI)

Nepal SBI Bank ltd is another joint venture bank established under company act of Nepal. The bank incorporated in 1993 A.D. It is managed by the state bank of India under joint venture and technical service agreement signed between it and Nepalese promoters. State Bank of India is holding its 50% of equity shares. This bank was listed on NEPSE in 1994. There are 56 branches in all over the country now. Which paid-up capital is Rs 265,02,06,000.

iii) Standard Chartered Bank Nepal Limited (SCBNL)

Standard Chartered Bank Limited Nepal (SCBNL)was established in 1987 A.D. Today the bank is an integral part of standard chartered group who has 75% ownership in the company with 25% shares owned by the

Nepalese public. This bank was listed in NEPSE in B.S.03/21/2045. Its central office is in new Baneshwor, Kathmandu. There is 16 branches and 17 ATMs in all over the country now.

3.3 Data Collection Procedure

Most of the necessary data for the research is collected from the secondary sources.However,during the study information opinion survey has also been taken with the individual investors, bank officials, Security Board of Nepal, Nepal Stock Exchange Ltd staffs and other related personalities.

Data related to the market price of stocks, market capitalization, movement of NEPSE index etc. is taken from the trading report published by NEPSE.Financial statements of commercial banks and their annual reports are also collected.

The collection procedure is summarized below:

i. Financial documents provided by the companies.
ii. Trading report published by NEPSE.
iii. Related website, Telephone requires.
iv. Material published in papers and magazines.
v. Other related books and booklets.
vi. Other primary data also help for the research that are taken from direct visited the different banks and can take data from their staff mouthing.

3.4 Method of Analysis and Presentation

All the method of analysis and presentation are applied as simple as possible. Proper financial and statistical tools are used and result are presented in tables and also shown in diagram. Interpretation is made in very simple way. Details of calculation, which cannot be shown in the

main body part, are presented in Appendices, at the end. Summary, conclusion, and recommendation are presented finally.

3.5 Data Analysis Tools

After calculating the data from secondary sources, they were analyzed and separate into its concerned topics. Financial as well as statistical tools are used to analyzed the collected data to assess the risk and return.

3.5.1 Financial Tools

i) Market Price of Stock (P)

There are three price records available. High, low and closing price. So, two approaches either price of high and low or closing price can be used. Closing price is used as market price of stock which has specific time span of one year and the study has focused in annual basis while average price represents the price of whole year. Hence, it is very difficult to get reliable and representative information.

ii) Dividend (D)

Dividend is relevant during the computation of rate of return, which is a reward to the shareholder for their investment. If a company declares only the cash dividend, there is no problem to take the dividend amount, but if the company declares stock dividend (Bonus Share), it is difficult to obtain the amount that really shareholders has gained. In this case they get extra number of shares as dividend and simultaneously price of stock declines as a result of increased number of stocks. In case of stock dividend the formula for total dividend amount is considered as follows:

The model is:

Total dividend = cash dividend + stock dividend % x next year's MPS.

Where, MPS = Market Price per Share.

iii) Earning Per Share (EPS)

Earning refers to the net income after tax of the company. Earning Per Share (EPS) is the results of net income after tax dividend by the outstanding number of common shares. It can express as:

$$EPS = \frac{Net\ Income\ After\ Tax}{No.of\ Equity\ Shares}$$

Where,

EPS = Earning Per Share

iv) Price Earning Ratio (P/E)

This ratio is closely related to the earning to the yield/earning price ratio. This is computed by dividing the market price of share by the EPS.

$$P/E\ Ratio = \frac{MPS}{EPS}$$

Where,

MPS = Market Price Per Share

EPS = Earning Per Share

v) Holding Period Return (HPR)

Common way to measure security return is the Holding Period Return (HPR). It measures the return from an investment over a specific period of time. The formula for finding the HPR on investment j during the period t is defined as follows:

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

Where,

R_j = Holding Period Return of Common Stock j.

D_t = Cash Dividend received at time t.

P_t = Price of Stock at time t.

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

3.5.2 Statistical Tools

i) Mean Rate of Return

Mean rate of return is obtained by comuting the arithmetic mean of the return.

Symbolically,

$$\bar{R_j} = \frac{\sum Rj}{N}$$

Where,

$\bar{R_j}$ = Expected rate of return of stock j.

N = Number of years that the return is taken.

$\sum$ = Sign of summation.

Rj = Return on stock j

ii) Standard Deviation

It is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the returns. S.D. is the measure of the total risk of the assets i.e. it means the dispersion of returns around the mean return. It is a tools which is widely used to measure the total risk of the assets. The standard deviation can be denotaded by,

$$\sigma_j = \sqrt{\frac{\sum(Rj-\bar{R}j)^2}{N-1}}$$

Where,

σ_j = S.D. of returns of stock j during the time period n.

When the probability distribution is given,

$$\text{S.D. } (\sigma_j) = \sqrt{\sum Pj(Rj - \bar{R}j)^2}$$

Where,

Pj = probability distribution of the observation [return]

Rj = holding period returns on stock j

$\bar{R}_j$ = expected return on stock j

iii) Co-efficient of Variation (CV)

It is applicable to calculate the risk per unit of the expected return. It is the ratio of standard deviation of returns to the mean of that distribution. It is the measure of relative risk. The formula to calculate coefficient of variation is,

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

Where,

$C.V._j$ = coefficient of variation of stock j.

C.V. is the unitary risk measure. It is the result regarding the unit of risk to bear for earning 1 unit of return.

iv) Beta Co-efficient (β)

Market sensitivity of stock is explained in terms of beta coefficient. Higher the beta, greater the sensitivity and they are reacted to the market movement. The measure of systematic risk is represented by beta. It an index of systematic risk, which cannot be eliminated through the means of diversification. The formula for the calculation of beta is given by

$$\beta_j = \frac{COV(RjRm)^2}{\sigma^2 m}$$

Where,

β_j = beta coefficient of stock j.

σ^2m = Variance of market return.

v) Co-variance

Co-variance is a measure that combines the volatility of stock's returns with the tendency of those returns to move up or down at the same time stocks returns move up or down.

$$COV\ (R_j\ R_m) = \frac{(Rj - \bar{Rj})(Rm - \bar{Rm})}{n-1}$$

Where,

COV (R_j R_m) = Co-variance between stock j and market m.

vi) Correlation Co-efficient (P_{jm})

Correlation co-efficient calculates the relationship between two shares. The range of correlation co-efficient is from -1 to +1.

Symbolically,

$$P_{ij} = \frac{COVij}{\sigma_i\ \sigma_j}$$

Where,

σ_i And σ_j are the standard deviations of returns for assets i and j and P_{ij} is the correlation coefficient for assets i and j.

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

a. Perfectly positive correlation (P_{ij}= +1)

Return on two perfectly positive correlated stocks would move up and down together and a portfolio of two such stocks would be exactly at

risky as the individual stocks. Thus diversification cannot reduce risk if the portfolio consists of perfectly correlated stocks.

b. Perfectly negative correlation (P_{ij}= -1)

Returns on two perfectly negative correlated stocks would move perfectly together and a portfolio of two such stocks would be exactly at risky as the individual stocks. Thus diversification cannot reduce risk if the portfolio consists of perfectly positive correlated stocks.

c. No relation between returns (P_{ij}= 0)

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

d. Intermediate risk (P_{ij}= +0.5)

Most of the stocks are positively correlated but no 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 portfolio reduces risk but not eliminated it completely.

vii) Portfolio Risk and Return

A portfolio is a collection of investment securities. Portfolio theory deals with the selection of optimal portfolios,i.e. portfolio that provide the highest possible returns for any specified degree of risk or the lowest risk for any specified rate of return. Calculating and analyzing portfolio risk is not straight forward as calculating portfolios expected returns. We have to follow the long process for its calculation and analysis;

a) Portfolio Risk:

It is the measure of combined standard deviation of stocks held in the portfolio, with reference to individual stocks corresponding correlation

contribution. The formula for the calculation of portfolio risk for two assets case is given by,

$$\sigma_p = \sqrt{\sigma_A^2 W_A^2 + \sigma_B^2 W_B^2 - 2W_A W_B \text{ COV (A, B)}}$$

Where,

σ_p = Standard deviation of portfolio A and B.

σ_A^2 = Variance of assets A, i.e. risk of assets A.

σ_B^2 = Variance of assets B, i.e. risk of assets B.

W_A = Weight of assets A.

W_B = Weight of assets B.

COV (A,B) = Covariance between the returns of assets A and B.

The formula for n-assets case is given by,

$$\sigma_p^2 = \sum_{i=1}^{n} \sum \sum_{j=1}^{n} W_i W_j \sigma_{ij}$$

b) Portfolio Return:

While the portfolio expected return is straightforward weighted average of return on the individual securities, the portfolio standard deviation is not the weighted average of individual securities' standard deviation. To take a weighted average of individual security standard deviation would be to ignore the relationship or correlation between the returns of the two securities. This correlation however as no effect on the portfolios expected returns. Correlation between securities returns complicates our calculation of portfolio standard deviation by forcing us to calculate the covariance between returns for every possible pair wise combination of securities in the portfolio. But his dark could of mathematic complication contain a silver lining-correlation between securities provides for the possible of eliminating some risk without reducing potential returns.

Portfolio is the combination of two or more securities or assets and portfolio return is simply a weighted average of individual stocks return. The returns on the portfolio, in case of only two assets portfolio is given by,

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

Where,

$\bar{R_p}$ = Expected returns on portfolio of stocks A and B.

W_A = Weight of investment on stock A.

W_B = Weight of investment on stock B.

$W_A + W_B$ = 1(100%) Always.

c) Risk minimizing portfolio:

It is the proportion of stock that minimizes the possible (unsystematic) risk.

Symbolically,

$$W_A = \frac{\sigma_B^2 - COV(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2COV(R_A R_B)}$$

Where,

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

σ_A = Standard deviation of stock A.

σ_B = Standard deviation of stock B.

COV ($R_A R_B$) = Covariance of return between stocks A & B.

d) Market Returns (R_m)

Market return is the return is overall market portfolio, which can be obtained by the taking difference between the market indexes (i.e. NEPSE index). Here market dividend is ignored.

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

Where,

R_M = Return on market.

NI_t = NEPSE index at time t.

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

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter included presentation of data and their analysis. In this chapter the effort has been made to analyzed "Risk and Return on Common stock Investment of Commercial Banks." Details data MPS and dividend of each bank, NEPSE index of each sector and market is presented and their interpretation and analysis is done. With reference to the various regarding and literature review in the proceeding chapter, effort is made to analyze and diagnose the recent Nepalese common stock market movement, with a special reference to the sample commercial banks. The analysis of data consists of organization, tabulating and assessing financial and statistical result. Different tables and diagrams are drawn to make the result more simple and understandable.

4.1 Financial Analysis

As the study has taken a special reference to sample commercial banks, common stock of sample commercial banks is analyzed here separately. There are only 30 commercial banks on till 2015. Among them this study has focused on the three commercial banks only. Although data coverage for banks is less than five years, each bank is introduced and their common stocks risk and return are analyze here.

4.1.1 Bank of Kathmandu Limited (BOK)

Market price, dividend records, realized returns (R), standard deviation (α), expected returns (R_J), year-end price and dividend are used to calculate realized rate of return for each. Table 4.1 shows the calculation of yearly realized return, expected return, and standard deviation of return.

4.1.1.1 Analysis of Total Dividend

Table: 4.1

MPS, Dividend, EPS, and P/E Ratio of BOK

Years	Closing Market Price (Rs)	Cash Dividend (%)	Stock Dividend (%)	Total Dividend (Rs)	Earnings per share (Rs)	P/E Ratio (Times)
2009/10	840	15	15	100.5	43.08	19.50
2010/11	570	16.75	18	129.79	44.51	12.81
2011/12	628	21.32	5	48.97	37.88	16.58
2012/13	553	0.74	14	79.7	36.64	15.09
2013/14	564	0.56	10		13.25	42.56

Sources:Annual Report of BOK FY 2009/10 to 2013/14

The calculation of Total Dividend is Annex I.

According to table 4.1, BOK is paying cash dividend and stock dividend every year except 2013/14. Highest total dividend is paid in the 2010/11 i.e. 129.79.

P/E ratio of BOK is maximum in the year 2013/14 i.e. 42.56 and minimum in the year 2010/11 i.e. 12.81.

Note: Total dividend of 2013/14 is not calculated because Closing Market Price of the bank for 2014/15 is not available.

Table:4.2

Expected Return, S.D. and Coefficient of Variation of BOK

Years	Closing Market price	Cash Dividend	Holding Period Return	$(R-R_j)$	$(R-R_j)^2$
2009/10	840	15	-	-	-
2010/11	570	16.75	(0.301488)	(0.236569)	0.055965
2011/12	628	21.32	0.139157	0.204076	0.041647
2012/13	553	0.74	(0.118248)	(0.053329)	0.002844
2013/14	564	0.56	0.020904	0.085823	0.007366
Total			**(0.259675)**		**0.107822**

Table 4.2 shows the market price and total dividend (including cash and stock) of BOK for the several years. Market price of BOK is higher in year 2009/10 i.e. Rs 840.

Where,

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

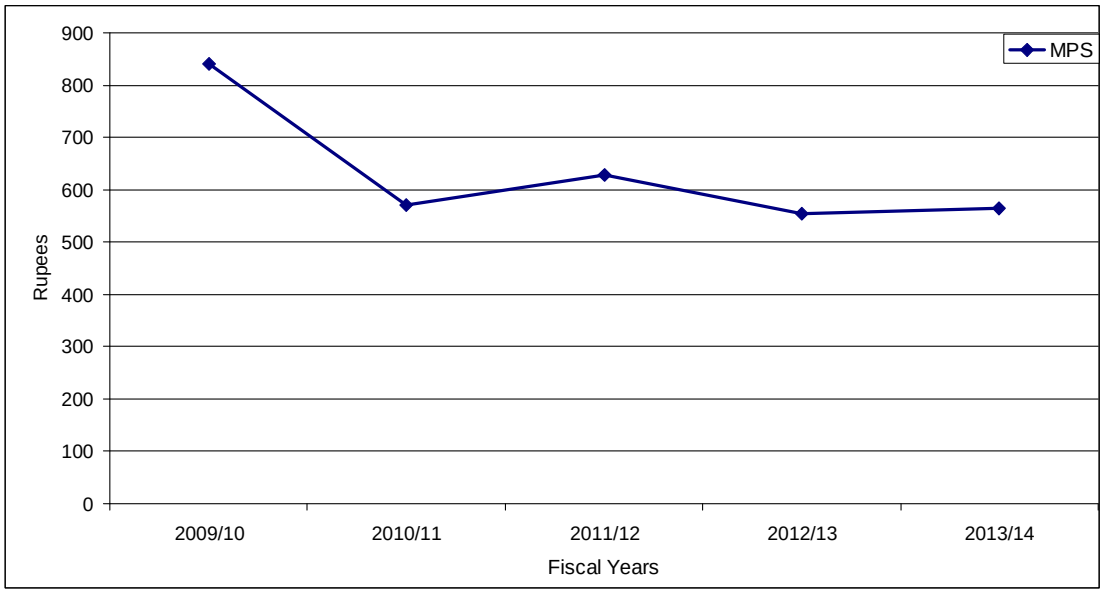
$$R_j = \frac{\sum R}{N} = \frac{(0.259675)}{4} = (0.064919)$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R-Rj)^2}{N-1}} = \sqrt{\frac{0.107822}{3}} = 0.18958$$

$$\text{C.V} = \frac{\sigma}{Rj} = \frac{0.18958}{(0.064919)} = (2.92)$$

Figure : 4.1

Year-End Price Movement of the Common Stock of BOK



The figure 4.1 shows the trend line of market price in several years of BOK. It can be seen that there is fluctuation of market price from the year 2009/10 till 2013/14. There is maximum price in the year 2009/10 i.e.Rs 840 and minimum price in the year 2012/13 i.e. Rs 553.

Figure:4.2

Holding Period Return of BOK

Figure 4.2 shows that the annual rate of return of BOK for the several years. The rate of return is negative in the year 2010/11 and 2012/13. The rate of return is positive in the year, 2011/12 and 2013/14. There is highest return in the year 2011/12 i.e.0.1392 and negative in the year 2010/11 i.e. -0.301891.

4.1.2 Nepal SBI Bank Limited (SBI)

Market price, dividend records, realized returns[R], standard deviation [α], expected returns [$\bar{R}_J$], year-end price and dividend are used to calculate realized rate of return for each. Table 4.4 shows the calculation of yearly realized return, expected return, and standard deviation of return.

Table: 4.3

MPS, Dividend, EPS, and P/E Ratio of SBI

Years	Closing Market price(Rs)	Cash Dividend (%)	Stock Dividend (%)	Total Dividend (Rs)	EPS (Rs)	P/E Ratio (Times)
2009/10	741	5	12.5	75.63	23.69	31.29
2010/11	565	5	12.5	84.38	24.85	22.73
2011/12	635	5	12.5	111.25	22.93	27.69
2012/13	850	7.50	12.5	167.5	32.75	25.95
2013/14	1280	7.0237	15.0508	-	34.83	36.75

Sources:Annual Report of SBI FY 2009/10 to 2013/14

The calculation of total dividend is Annex II

According to table 4.3, SBI is paying cash dividend and stock dividend every year except 2013/14. Highest total dividend is paid in the 2012/13 i.e. 167.5.

P/E ratio of SBI is maximum in the year 2013/14 i.e. 36.75 and minimum in the year 2010/11 i.e. 22.73.

Note: Total dividend of 2013/14 is not calculated because closing market price of the bank for 2014/15 is not available.

Table 4.4

Expected Return, S.D.and Coefficient of Variation of SBI

Years	Closing Market pricec	Cash Dividend	Holding Period Return	$(R-R_J)$	$(R-R_J)^2$
2009/10	741	5	-	-	-
2010/11	565	5	(0.230769)	(0.039141)	0.001532
2011/12	635	5	0.132743	(0.052257)	0.002730
2012/13	850	7.50	0.350393	0.158793	0.025215
2013/14	1280	7.0237	0.514145	0.322545	0.104035
Total			**0.766512**		**0.133512**

Table 4.4 shows the market price and total dividend (including cash and stock) of SBI for the several years. Market price of SBI is higher in year 2013/14 i.e. Rs 1280.

Where,

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

$$R_j = \frac{\sum R}{N} = \frac{0.766512}{4} = 0.1916$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - Rj)^2}{N-1}} = \sqrt{\frac{0.133512}{3}} = 0.2109$$

$$\text{C.V} = \frac{\sigma}{Rj} = \frac{0.21}{0.1916} = 1.09$$

Figure: 4.3

Year-End Price Movement of SBI

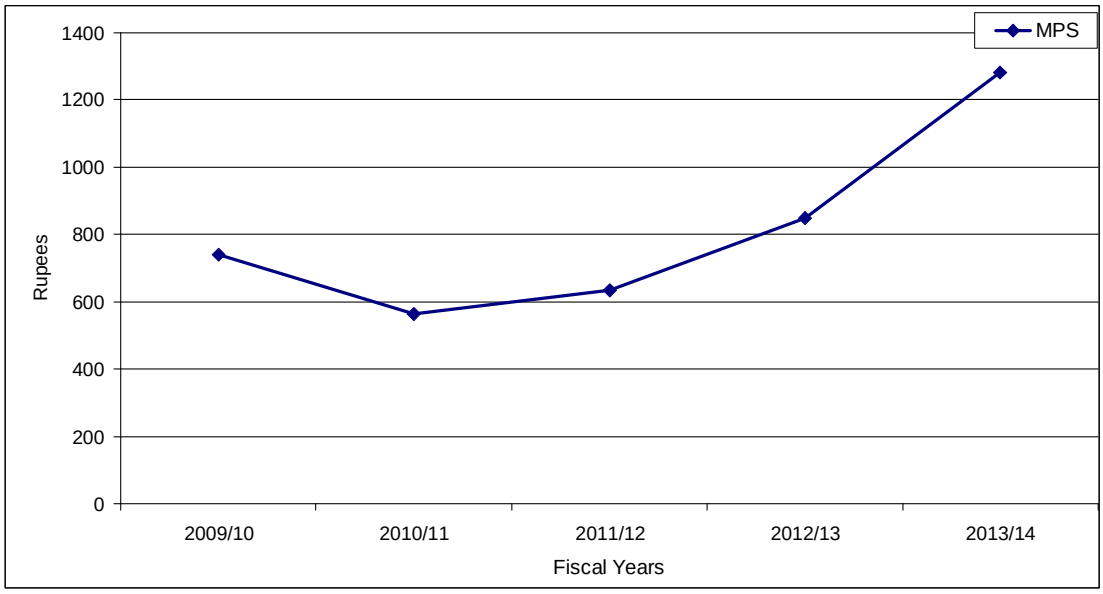
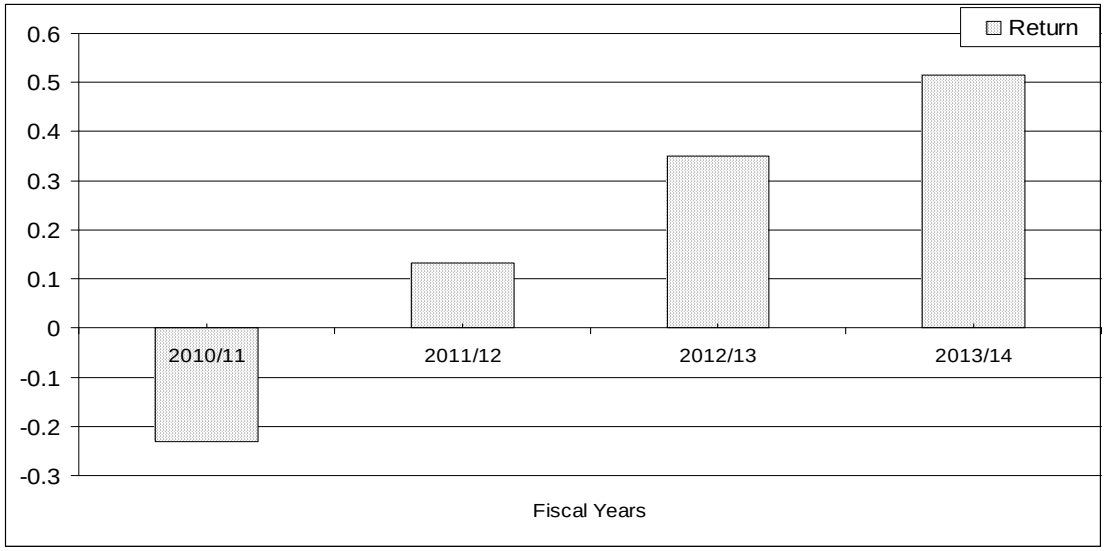


Figure 4.3 shows the trend line of market price in several years of SBI. It can be seen that there is fluctuation of market price from the year 2009/10 till 2013/14. The trend line shows the market price decreases from 2009/10 and rapid growth from the year 2010/11. There is maximum price in the year 2013/14 i.e. Rs 1280 and minimum price in the year 2010/11 i.e. Rs 565.

Figure: 4.4

Holding Period Return of SBI



The figure 4.4 shows that the annual rate of return of SBI for the several years. The rate of return is negative in the year 2010/11. The rate of return is positive in the year 2011/12, 2012/13 and 2013/14. There is highest return in the year 2013/14 i.e.0.514145 and negative in the year 2010/11 i.e. -0.232743.

4.1.3 Standard Chartered Bank Nepal Limited (SCBNL)

Market price, dividend records, realized returns[R], standard deviation [α], expected returns [$\bar{R}_J$], year-end price and dividend are used to calculate realized rate of return for each. Table 4.5 shows the calculation of yearly realized return, expected return, and standard deviation of return.

Table: 4.5

MPS, Dividend, EPS, and P/E Ratio of SCBNL

Years	Closing Market price(Rs)	Cash Dividend (%)	Stock Dividend (%)	Total Dividend (Rs)	EPS (Rs)	P/E Ratio (Times)
2009/10	3279	55	15	325	77.65	42.23
2010/11	1800	50	-	50	69.51	25.90
2011/12	1799	45	15	318	72.60	24.78
2012/13	1820	40	10	320	65.70	27.70
2013/14	2799	41.50	10	-	65.47	42.75

Sources:Annual Report of SCBNL FY 2009/10 to 2013/2014

The calculation of total dividend is Annex III

According to table 4.5, SCBNL is paying cash dividend every year and stock dividend every year except 2010/11. Highest total dividend is paid in the 2009/10 i.e. 325.P/E ratio of SCBNL is maximum in the year 2013/14 i.e. 42.75 and minimum in the year 2011/12 i.e. 24.78.

Note: Total dividend of 2013/14 is not calculated because Closing Market Price of the bank for 2014/15 is not available

Table 4.6

Expected Return, S.D. and Coefficient of Variation of SCBNL

Years	Closing Market pricec	Cash Dividend	Holding Period Return	$(R-R_J)$	$(R-R_J)^2$
2009/10	3279	55	-	-	-
2010/11	1800	50	(0.43580)	(0.48162)	0.23196
2011/12	1799	45	0.02445	(0.02137)	0.00046
2012/13	1820	40	0.03390	(0.01191)	0.00014
2013/14	2799	41.50	0.56071	0.51492	0.26512
Total			**0.18326**		**0.49768**

Table 4.6 shows the market price and total dividend (including cash and stock) of SCBNL for the several years. Market price of SCBNL is higher in year 2009/10 i.e. Rs 3279.

Where,

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

$$R_j = \frac{\sum R}{N} = \frac{0.18326}{4} = 0.04582$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - Rj)^2}{N-1}} = \sqrt{\frac{0.49768}{3}} = 0.4073$$

$$\text{C.V} = \frac{\sigma}{Rj} = \frac{0.40}{0.0458} = 8.73$$

Figure:4.5

Year-End Price Movement of SCBNL

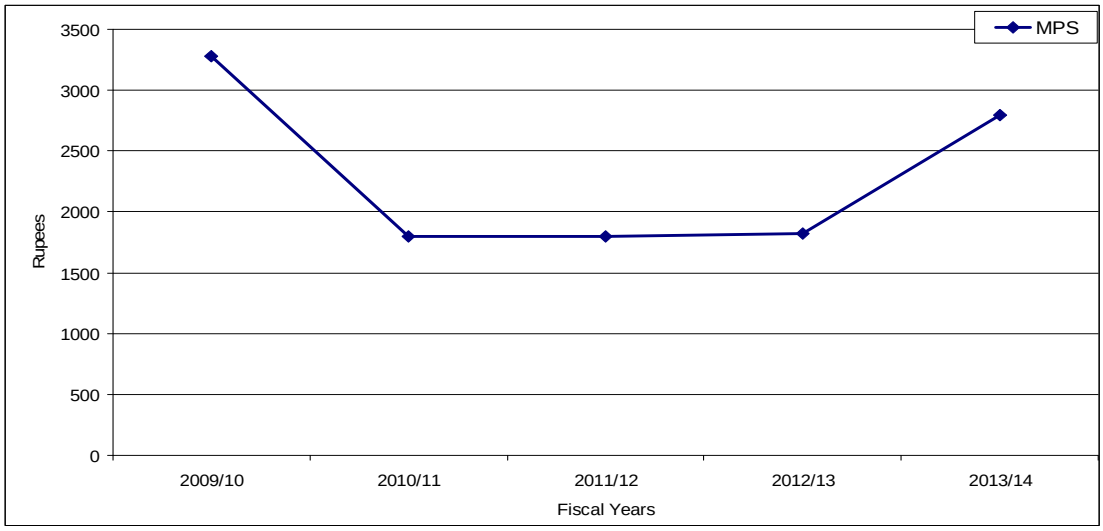
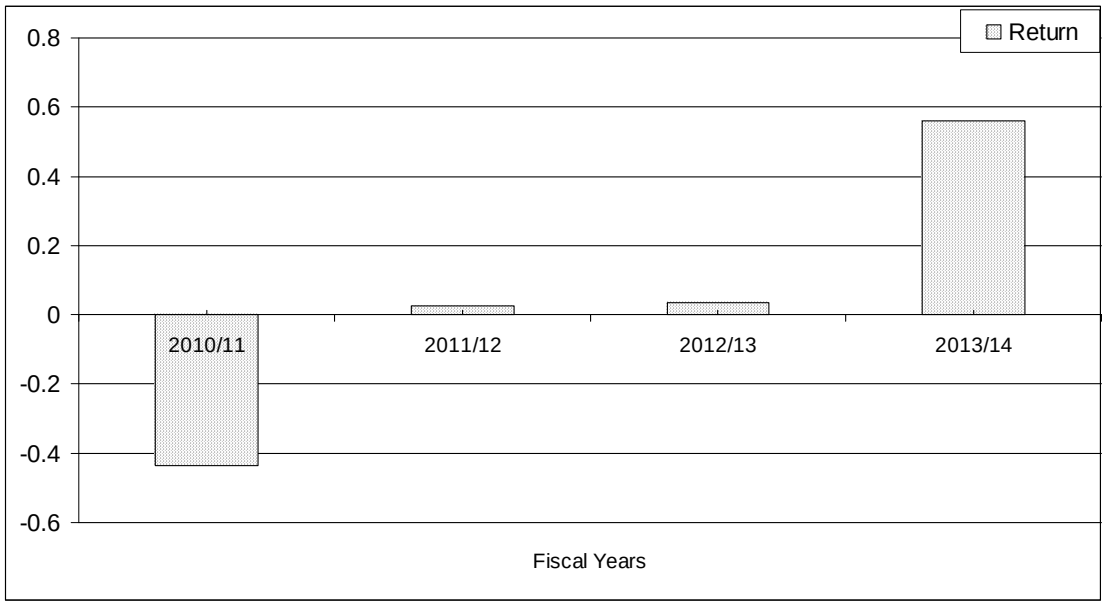


Figure 4.5 shows the trend line of market price in several years of SCBNL. It can be seen that there is fluctuation of market price from the year 2009/10 to 2013/14. The trend line shows the market price decreases from 2009/10 and rapid growth from the year 2012/13. There is maximum price in the year 2009/10 i.e. Rs 3279 and minimum price in the year 2011/12 i.e. Rs 1799.

Figure: 4.6

Holding Period Return of SCBNL



The figure 4.6 shows that the annual rate of return of SCBNL for the several years. The rate of return is negative in the year 2010/11. The rate of return is positive in the year 2011/12, 2012/13 and 2013/14. There is highest return in the year 2013/14 i.e. 0.56071 and negative in the year 2010/11 i.e. -0.43580.

4.2 Inter-Bank Comparison

According to the result from the section 4.1, a comparitive analysis of risk and return performed here. Expected risk and return performed here. Expected return, standard deviation of returns, coefficient of variation of each bank for the bank of the year 2009/10 to 2013/14 are given below.

Table:4.7

Expected Return, S.D.and Coefficient of Variation of Sample Bank

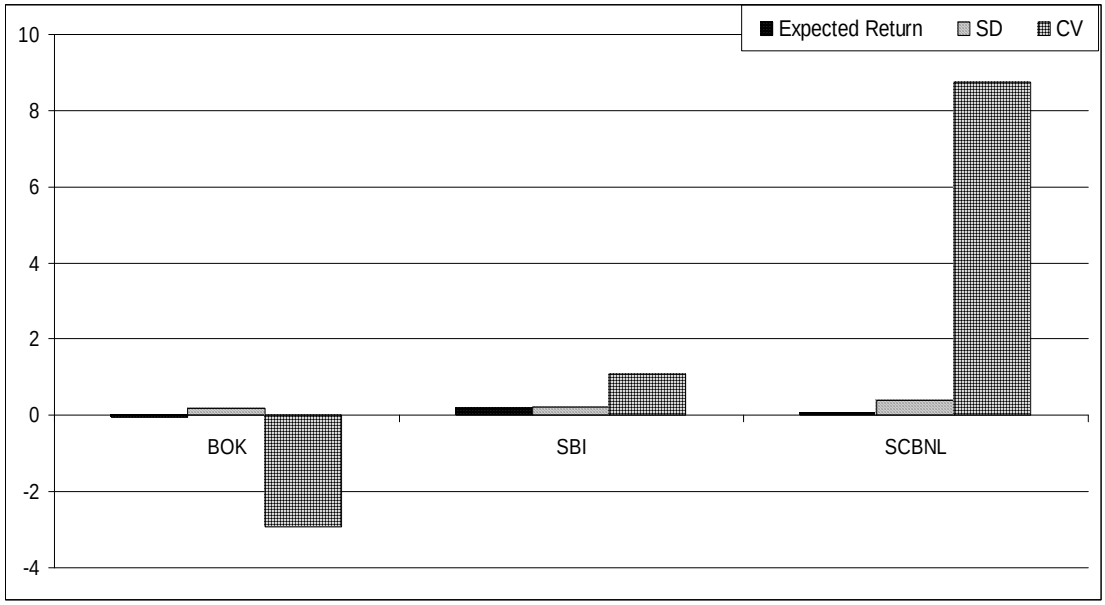
Banks	Expected Return	SD	CV	Remarks
BOK	-0.0649	0.18	-2.92	Lower return, Lower S.D.
SBI	0.1916	0.21	1.09	Higher Return
SCBNL	0.0458	0.40	8.73	Higher S.D.

Sources: Table 4.2, 4.4 and 4.6

Investor can get higher return from invest in the common stock of SBI and lower return from investment in the common stock of BOK. SCBNL has a higher S.D. and BOK has lowest S.D. On the risk per unit return (i.e. C.V.) of SCBNL is more profitable than BOK and SBI.

Figure:4.7

Risk, Return and CV of Sample Commercial Banks



By observing the figure 4.7, the comparison of the sample bank in the terms of risk and return can be clearly seen. It clarifies the expected returns, standard deviation and coefficient of variation of each individual banks.

4.3 Market Capitalization of the Sampled Commercial Banks

Table:4.8

Market Capitalization of Sample Commercial Banks at July 2015

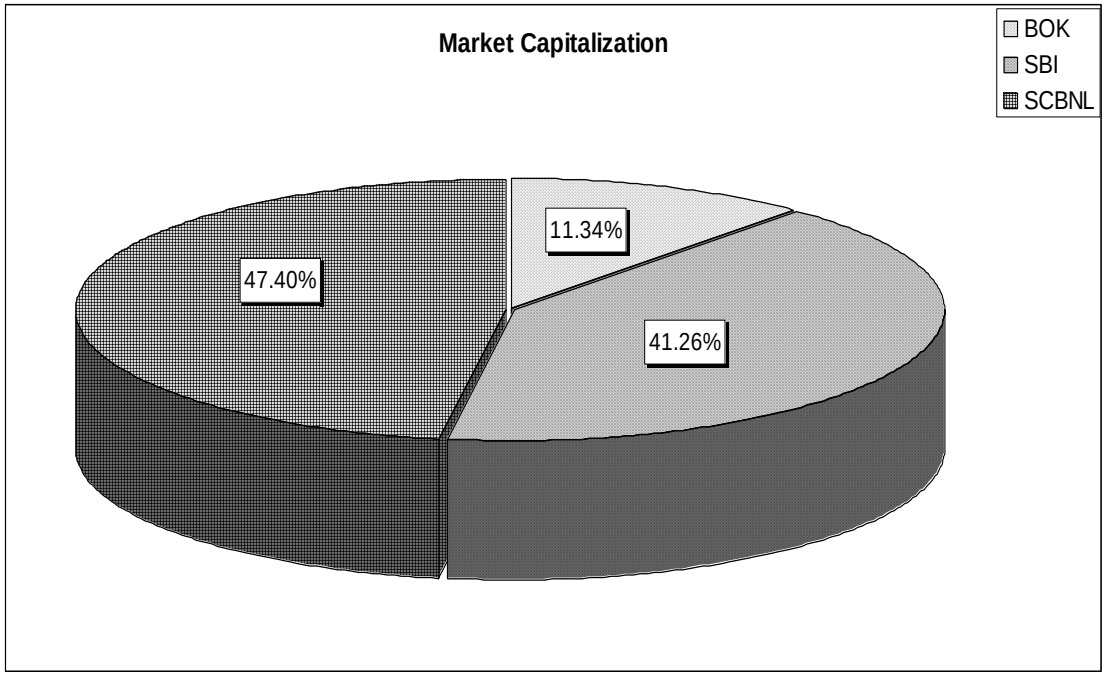
Banks	Market Capitalization	Percentage (%)
BOK	8306427077	11.34211
SBI	30213622920	41.25557
SCBNL	34715222080	47.40232
Total	**73235272077**	**100**

Sources: www.nepse.com (July 26, 2015)

Table 4.8 shows the total market capitalization covered by the sampled commercial banks. SCBNL covered 47% market share out of three sampled banks and BOK covered by only 11%.

Figure:4.8

Market Capitalization Pie Chart



Above figure shows the market capitalization sectors for the three commercial banks where SCBNL covers 47.40% market capitalization and BOK consist only 11.34% among the three commercial banks.

4.4 Inter Industry Comparison

We can observe that commercial banking industry have majority value of total market shares i.e. 53% as compared to other sectors.

Table:4.9

Sector Wise Market Capitalization

(Rs. In Millions)

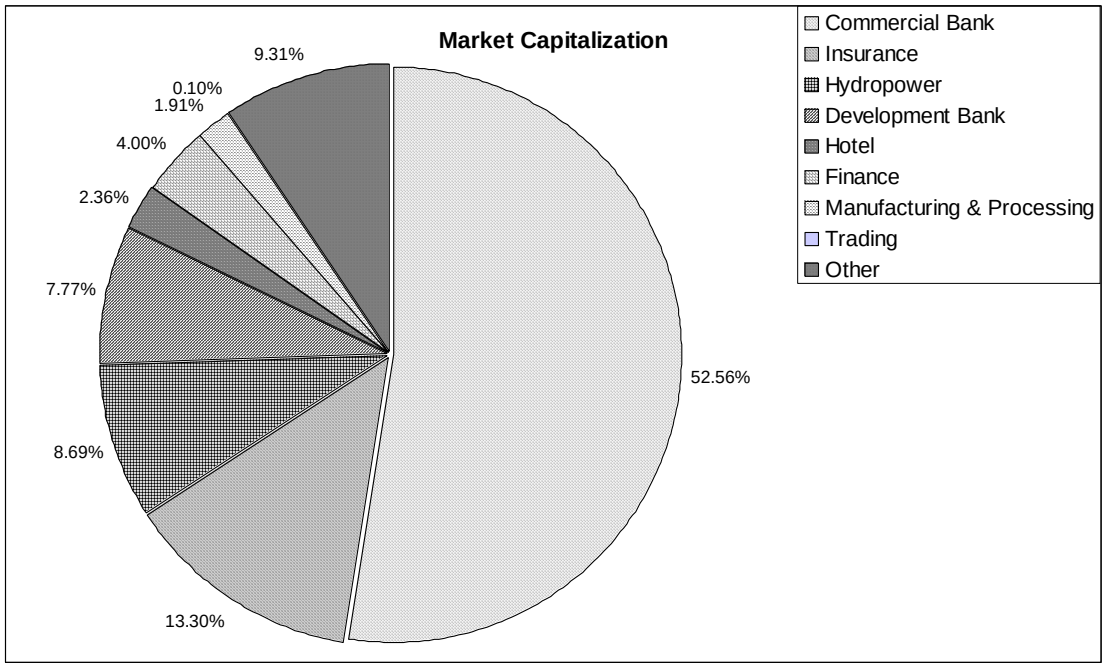
Industries	**Market Capitalization**	**Percentage**
Commercial Bank	555609.39	52.56
Insurance	140643.22	13.30
Hydropower	91824.7	8.69
Development Bank	82159.83	7.77
Hotel	24983.34	2.36
Finance	42238.7	4.00
Manufacturing & Processing	20196.16	1.91
Trading	1096.66	0.10
Other	98417.34	9.31
Total	**1057169.34**	**100**

Sources: www.nepse.com (July 26, 2015)

Above table shows the market capitaliztion of different parts of business sector. Out of 100% market capital banking and finance sector covered 78% as a whole market. It shows that more than 50% of Nepalese business market covered by banking sectors. That effect of whole economy of country and there are only few 0.10% covered by trading sectors.

Figure:4.9

Total Market Capitalization of Business Sectors



Following figure shows market capitalization is mostly covered by banking sectors. That means banking industries has majority value of total market share.

4.5 Comparison With Market

4.5.1 Market Risk and Return

In Nepal there is only one stock market, NEPSE. Overall market movement is represented by market index (i.e. NEPSE Index). The market return,its S.D. and C.V. is calculated here

Table:4.10

Market Expected Return, S.D and C.V of Market Index

Year	Closing Price NEPSE	Market Return(R_m)	(R_m-$\bar{R_m}$)	(R_m-$\bar{R_m}$)^2
2009/10	376.87	-	-	-
2010/11	323.48	(0.1417)	(0.5036)	0.2536
2011/12	368.26	0.1384	(0.2235)	0.0499
2012/13	514.49	0.3970	0.0351	0.0012
2013/14	1057.16	1.054	0.6921	0.4790
Total		**1.4477**		**0.7837**

Sources: NEPSE Annual Report of FY 2009/10 to 2013/14

Table 4.10 shows the year end price of NEPSE in different year where the market price is higher in the year 2013/14 i.e. 1057.16 and lowest market price in the year 2010/11 i.e. 323.48.

Where,

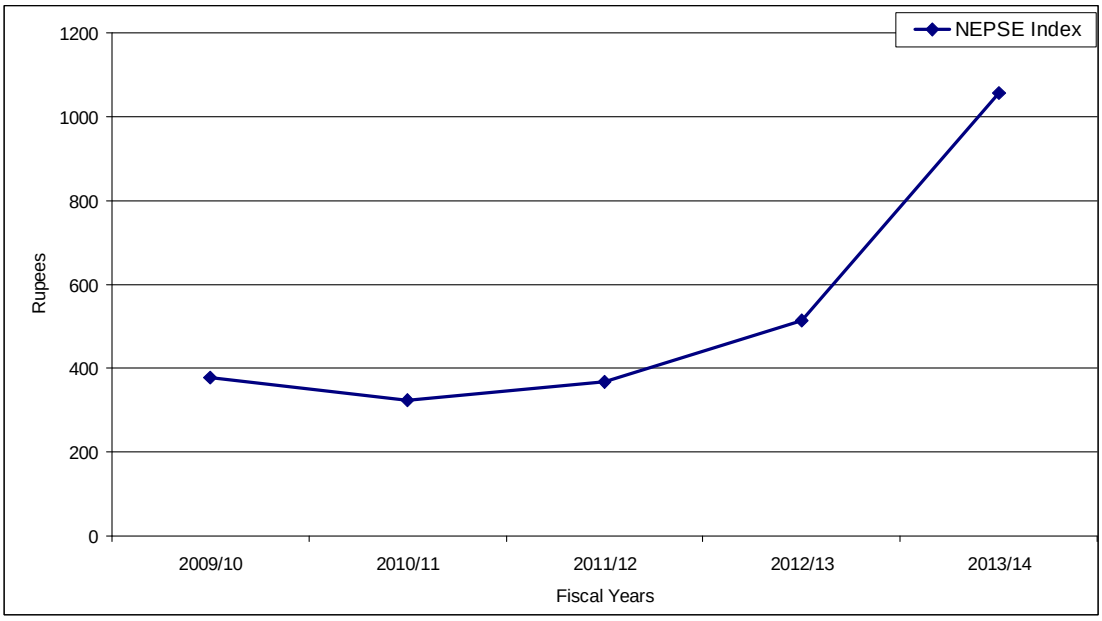
$$\bar{R_m} = \frac{\sum Rm}{N} = \frac{1.4477}{4} = 0.3619$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (Rm - \bar{R}m)^2}{N-1}} = \sqrt{\frac{0.7837}{3}} = 0.51$$

$$\text{C.V} = \frac{\sigma}{Rj} = \frac{0.51}{0.3619} = 1.409$$

Figure 4.10

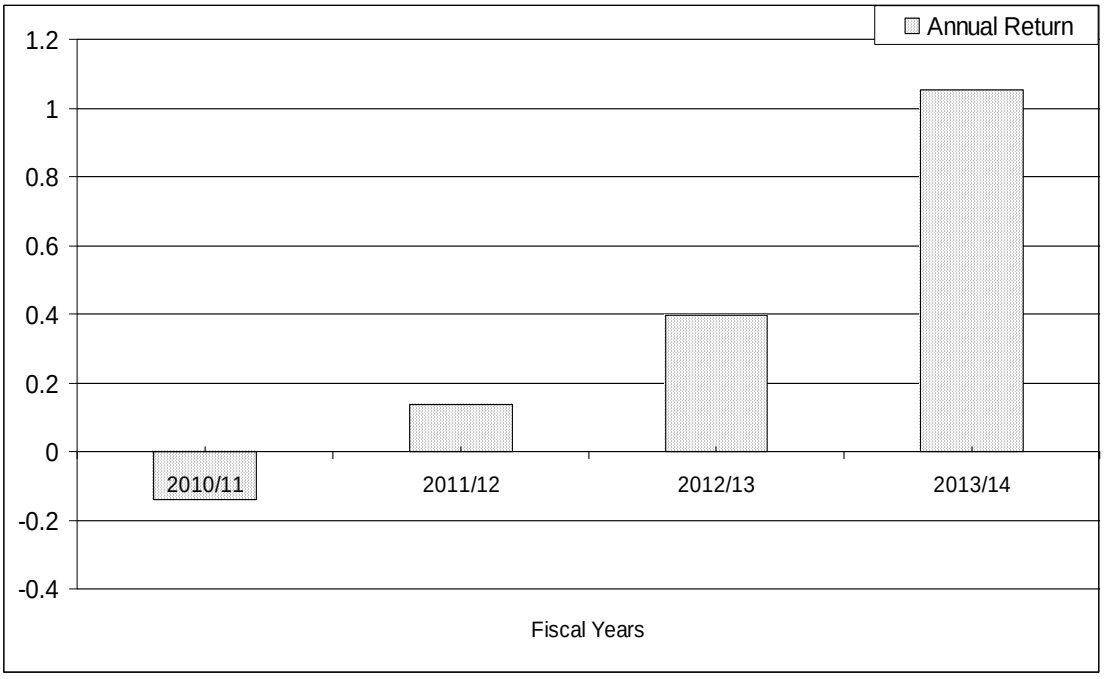
NEPSE Index Movement



The above diagram shows that the movement of NEPSE index is in decreasing from year 2009/10 to 2010/11 but rapidly growth from year 2009/10 to 2013/14. That means at this time the market is boom up.

Figure:4.11

Market Returns Movement of NEPSE



The diagram shows that the market return is negative in year 2010/11 and positive in year 2011/12 to 2013/14.The market return is rapidly increasing from the year 2011/12 to 2013/14. The maximum market return is in fiscal year 2013/14 i.e. 1.054.

4.5.2 Sensitivity of NEPSE

The sensitivity of NEPSE and stock price of selected commercial banks are bellow

Table 4.11

Beta Portfolio of Sample Commercial Banks

Sample Banks	Beta Portfolio (β)	Remarks
BOK	0.01	Lower Beta
SBI	0.33	
SCBNL	0.77	Higher Beta

Sources:Calculate from Annex IV, V and VI

Systematic risk is measure by the market that measured by beta coefficient. Table 4.11 shows the clear picture of beta. Where, beta of SCBNL is higher than other selected banks that are higher risk and the beta of BOK is lower than other selected banks that are lower risk.

4.6 Major Finding of the Study

This study enables investors to keep the returns they can expect and the risk they may take into better perspective. Nepalese stock market is in effect of openness and liberalization in national economy. But Nepalese individual investors cannot analyze the securities as well as market properly because of the lack of information and poor knowledge about the analysis of securities for investment.

The major finding of the study is as follows:

i. The expected return of BOK is -6.49% and the expected return of SBI and SCBNL is 19.16% and 4.58% respectively. So that, on the basis of expected SBI bank is the perfect bank because it has higher expected return.

ii. The standard deviation of BOK is 18.95% and the standard deviation of SBI and SCBNL is 21.09% and 40.73% respectively. So that, on the basis of standard deviation SBI bank is the perfect bank because it has lower standard deviation.

iii. The Co-efficient variation of BOK is -2.92 and the Co-efficient variation of SBI and SCBNL is 1.09 and 8.73 respectively. So that, on the basis of C.V. SCBNL is the perfect bank because it has higher C.V.

iv. The beta of BOK is 0.01 and the beta of SBI and SCBNL is 0.33 and 0.77 respectively. So that, on the basis of beta SCBNL is the best bank because it has higher beta.

v. Risk is the variability of returns which is measured in terms of standard deviation. On the basis of standard deviation, common stock of SCBNL is most risky since it has high S.D. i.e. 40%.Common stock of BOK has least risk because of its low S.D. i.e. 18%.

vi. The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on common stock of SBI is maximum i.e.19%. Similarly expected return of SCBNL is 4% but the expected return of BOK is negative i.e. -6%.

vii. On the other hand we know that C.V. is more rational basis of investment decision, which measures the risk per unit of return. On

the basis of C.V, common stock of SCBNL is best among all other selected banks. SCBNL has 8.73 unit of risk per 1 unit of return.

viii. The beta coefficient of SCBNL has higher i.e. 0.77 that means the beta measured that risk with the market and the beta coefficient of SBI is 0.33. The beta coefficient of BOK has lower i.e. 0.01.

CHAPTER FIVE

SUMMARY,CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Risk and return is getting considerable attention in financial management. Central focis of finance is tradeoff between risk and return and major part stock market had greatest glamour, not only for the professional or institutional investors but also for the individual or private investors. Development in the field of finance has led to the application of many new concepts models to deal with various issues related to financial management.

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risky and their demand for compensation. Hence, risk plays a central role in the analysis of investment. Investors often ask about an investment like to know if the risk will command higher premium and the tradeoff between the two assumes a linear relationship between risk and premium.

Common stock is the most risky security and life blood of stock market. Because of higher expected return an investment in common stock of a corporate firm neither ensures an annual return nor ensures the return of principal. Therefore investment in the common stock is very sensitive on the ground of risk. Dividend to common stock holders are paid only if the firm makes an operative profit after tax and preference dividend. Common stock has attracted more investors in Nepal. Rush in the primary market during the primary issue is one of the examples. Private C.S. holders are the passive owners of the company. But private investor plays

a vital role in economic development of the nation by mobilizing the dispersed capital indiffernt form in the society.

The main objective of the study is to analyze the risk and return in common stock investment of Nepalese stock market. The study is focused on the common stock of sampled commercial banks. Hence, sampled banks are taken as reference to analyze the risk and return in common stock investment. While analyzing the risk and return, brief review of related studies has been performed. Scientific methods are used in data analysis, Tables, graphs and diagram are used to present the data and results more clearly. Both quantiative and qualitative analysis has performed by using statistical tools as well as personal judgement. Secondary data are collected from the NEPSE, NRB, SEBON and other related banks. Other subjective types of information are collected through the decision with private investors, financial executives companies and offecials of NRB, SEBON and NEPSE. Finding and analysis are summarized and conclusion are drawn as follows.

5.2 Conclusion

This study enables investors to put the return they can expect and the risks they may take into better persepective. We know that Nepalese stock market is in effect of openness and liberelization in national economy. But Nepalese individual investors cannot analyze the securities as well as market properly because of the lack of information and knoweledge about the analysis of securities for investment.

Risk is the variability of return. Which is measured in the terms of standard deviation. Standard deviation is only the measures of unsystematic risk, which is not defined by the market. On the basis of SD common stock of SCBNL most risky since it has high SD and CV of BOK is least risky because of its lowest SD on the other hand, we know

that of CV is more rational basis of investment decision. Which measures the risk per unit of return. On the basis of CV common stock of SCBNL is the best among all banks and BOK has lowest risky per return.

Diversification of fund by making a portfolio can reduced unsystematic risk of individual security significantly. If investors select the securities for investment, which have highly negative correlation of returns, the risk can be reduced totally. If the correlation between the returns of two stocks is highly positive risk reduction is not so significant. So, portfolio between the CV of same industry cannot reduced risk properly. The portfolio construction of the common stock of these banks will not reduce any risk, which is not favourable as portfolio construction is concerned.

5.3 Recommendation

From the avobe analysis of the various risk and return analysis of sample commercial banks, following recommendations are made to these banks in respect to different risk and return analysis:

i. SCBNL have higher risk than other banks and the expected return is higher of SBI bank than other banks.
ii. Investor have to focus their mind both on risk and return before investing their fund.
iii. Investor should diversify their fund to reduce with the help of different analytical tools. That is do not put all your eggs in one basket.
iv. The stock price of all sample commercial banks are changeable. It is affected by the risk factor, information of stock price etc.
v. It would be better to shareholder analyze their risk attitude, needs and requirements before making investment secision in the stock.
vi. Common stock of SBI is the best investment opportunity for the investors.

vii. Stock market investment is risky job. It should really invest money only in the stock market. The stock market is undoubtedly risky in the short term and investor needs to be prepared for it.

viii. NEPSE needs to initiate to develope different programs for private investors such as investor's meeting and seminars in different subject matters like " Trading Rules and Regulation" etc.

ix. Proper training should be given to staff for minimizing operation risk.

x. Government needs to amend the rules and a regulation regarding stock market in time and to make the policy that protects the individual investor's rights.

xi. The political environment of country must be silent for the growing up industrial sector. Investors can invest freely with their wishes and their growing market for business.

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Annex-I

Calculation of Total Dividend of BOK

Total Dividend = Cash Dividend+% Stock Dividend x Next Year MPS

2009/10	=	15	+	15	*	570	=	100.5
2010/11	=	16.75	+	18	*	628	=	129.79
2011/12	=	21.32	+	5	*	553	=	48.97
2012/13	=	0.74	+	14	*	564	=	79.7

Annex-II

Calculation of Total Dividend of SBI

Total Dividend = Cash Dividend + % Stock Dividend X Next Year MPS

2009/10	=	5	+	12.5	*	565	=	75.62
2010/11	=	5	+	12.5	*	635	=	84.37
2011/12	=	5	+	12.5	*	850	=	111.25
2012/13	=	7.5	+	12.5	*	1280	=	167.5

Annex-III

Calculation of Total Dividend of SCBNL

Total Dividend = Cash Dividend + % Stock Dividend X Next Year MPS

2009/10	=	55	+	15	*	1800	=	325
2010/11	=	50	+	0	*	1799	=	50
2011/12	=	45	+	15	*	1820	=	318
2012/13	=	40	+	10	*	2799	=	320

Annex-IV

Calculation of Beta Coefficient of the Common Stock of BOK

Year	$(R_j-\bar{R}j)$	$(R_m-\bar{R}_m)$	$(R_j-\bar{R}j)(R_m-\bar{R}_m)$
2010/11	-0.23657	-0.5036	0.11914
2011/12	0.20408	-0.2235	-0.04561
2012/13	-0.05333	0.0351	-0.00187
2013/14	-0.08582	0.6921	-0.05939
Total			0.01227

We have,

$$\text{COV}(R_J\text{-}R_m) = \frac{(Rj-\bar{Rj})(Rm-\bar{Rm})}{n-1} = \frac{0.01227}{4-1} = -0.00409$$

$$\text{Beta}(\beta) = \frac{\text{COV}(Rj-Rm)}{\sigma^2 m} = \frac{0.00409}{0.2601} = 0.015$$

Where,

n = number of observation

σ^2m = variance of market return, $(0.51)^2$

R_j = return of stock of BOK

Annex-V

Calculation of Beta Coefficient of the Common Stock of SBI

Year	$(R_j-\bar{Rj})$	$(R_m-\bar{R_m})$	$(R_j-\bar{Rj})(R_m-\bar{R_m})$
2010/11	-0.03914	-0.5036	0.01971
2011/12	-0.05226	-0.2235	0.01168
2012/13	0.15879	0.0351	0.00557
2013/14	0.32254	0.6921	0.22322
Total			0.26018

We have,

$$\text{COV}(R_J\text{-}R_m) = \frac{(Rj-\bar{Rj})(Rm-\bar{Rm})}{n-1} = \frac{0.26018}{4-1} = 0.08673$$

$$\text{Beta}(\beta) = \frac{\text{COV}(Rj-Rm)}{\sigma^2 m} = \frac{0.08673}{0.2601} = 0.33$$

Where,

n = number of observation

σ^2m = variance of market return, $(0.51)^2$

R_j = return of stock of SBI

Annex-VI

Calculation of Beta Coefficient of the Common Stock of SCBNL

Year	$(R_j-\bar{R}j)$	$(R_m-\bar{R}_m)$	$(R_j-\bar{R}j)(R_m-\bar{R}_m)$
2010/11	-0.48162	-0.5036	0.24254
2011/12	-0.02137	-0.2235	0.00478
2012/13	-0.01191	0.0351	-0.00042
2013/14	0.51492	0.6921	0.35638
Total			**0.60328**

We have,

$$\text{COV}(R_J-R_m) = \frac{(Rj-\bar{Rj})(Rm-\bar{Rm})}{n-1} = \frac{0.60328}{4-1} = 0.20109$$

$$\text{Beta}(\beta) = \frac{\text{COV}(Rj-Rm)}{\sigma^2 m} = \frac{0.20109}{0.2601} = 0.77$$

Where,

n = number of observation

σ^2m = variance of market return, $(0.51)^2$

R_j = return of stock of SCBNL

Annex–VII

Calculation of Weighted Average Beta

Banks	Beta(β_j)	Market Capitaliation	Weight(W_j)	W_j x β_j
BOK	0.01	8306427077	0.1135	0.00114
SBI	0.33	30213622920	0.4125	0.13613
SCBNL	0.77	73235272077	0.4740	0.36498
				0.50225

Weighted average beta = $\beta_j = \sum W_j \text{ x } \beta_j = 0.50225$

Hence, the weighted average beta of the shares of selected banks is 0.50225.