CHAPTER I

INTRODUCTION

1.1 Background of the Study

Financial management is an essential element that underlies for successful operation of every industry and organization. Management of money directs, determines and enhances the health and productivity of total financial sector hence reciprocating its performance directly to the growth of economy. So financial development of country largely depends upon effective mobilization of its resources and investment upon good return. But it is often difficult to predict and realize the normal return on business investment due to the competitive market and other environmental constraints, which may serve sometime as opportunity and other times threat.

Finance mostly deals on the monetary risk and return, which is the most effective subject matter for a small individual firm to large corporations. Return is the reward for bearing risk and risk is always associated with return. In another word, risk is the fact of life, which is the product of uncertainty and its magnitude depends upon the degree of variability in uncertain cash flows. In fact, risk is an indication of opportunity of losing investment value and return is the income received in investment. There is the expectation of reasonable return in every investment which is also taken as reward of the activity. Favorable return allures the investors in business undertakings.

Financial analysis consists on the acquisition, utilization, control and administration of funds. Managerial finance and investment analysis are an exciting and dynamic area of study and its importance to long run success of today's business is unquestioned because each and every managerial decision making is based on financial and investment analysis.

In today's modern era where there are different business organizations struggling for their existence and to earn profit the financial have become key to their success. In 21st century different business organizations are existing and running smoothly, operating with other institutions. Today the business is depending not only on market and production as it was in late 1920-1950's. Today management has to force different crucial decision regarding the organizations favor. Among them decision related to

financial aspects are very vital because financial decisions affects all the prospect of the organization as the whole and any wrong decision may cause tremendous hamper on the organization. As financial sources are required in each and every steps of the organization's life management of funds, administration and optimum utilization of the funds is a must in smooth running of the institution.

Requirement of funds for business organization depends on its size and operation, generally short term, intermediate term and long term capital funds are essential for growth and expansion of organization activities. Long term funds are needed for establishments and growth of the business. These types of funds are raised from financial markets. Intermediate terms are sometimes raised from financial markets as well as from money short term funds needed for short period are raised from money market.

Today's business world is entirely different from the one in the past, changing life styles needs, designs of the people are changing day by day and to meet their needs business organizations has to produce the products meeting the requirements of the customers. Markets for products and services have developed throughout the world and competition among firms alerted their managers to foresee the future preferences of society. Innovation and development in technological changes has made easier to give many new and surprising material to the market. Organizations that do not have new technology cannot compete in the market. But technologies are very worthy, so an organization should raise enough money to get the new technologies. Business organizations are generally limited companies with many share holder or sometimes partnership firms. Partnership firms many times cannot manage funds so in modern business, public limited companies are one and only one the alternate for investing huge amount, advent of security market has successfully served the limited companies to raise funds and then invest on the business. Every shareholder has limited liability up to his ownership amount only or the amount of shares he holds. Rest of the financing may be from financial institutions like banks, finance companies etc.

1.1.1 **Commercial Banks**

The process of the development of banking system in Nepal was not satisfactory up to 2040 (1983). No bank was opened from during this period except extending the branches

and sub branches of the banks which were established in this period. From this the real form to the development of the banking system started in Nepal. The competition began to grow. The banks began to offer their valuable services to the people through new technologies. This was the great significant event. So, some banks are opened on the joint investment basis.

Security market exist in order to bring together buyers and sellers of securities, it means their mechanism are created to facilitate the exchange of financial assets. Stock market, which probably has the greatest glamour and is perhaps the least understood. Some observers consider that it has a legalize heaven for gambling and many investor consider stock market interesting as a game in which sole purpose is picking wine press. Lord Keynes was the first person to express stock market as a "game of professionals' investments". The main game to be played not for profit but also for enjoyment and sport. Stock markets provides both opportunities for the well informed peoples having better knowledge of market realities and threats for the unknown people.

To finance the company's requirement financial institution are there in financial market. Financial markets are segmented into money market and capital market. Money market instruments includes the securities with less than one year life like government Treasury Bill of 90 days, short term, liquid, low risk debt securities. Money Market Instruments are sometimes cash equivalent or just cash for short, capital market, in contrast, include longer term and riskier securities. Securities in the capital market are much diverse than those found within the money market. Capital market further can be divided into primary market and secondary market. Primary market deals with the new issue of securities. The securities previously issued in primary market. This study concerned with common stock. Common stock holders are ultimately the real owners of the companies and have a junior claim on assets so as risky too.

An investment is a commitment of money that is expected to generate additional money. Additional money received on initial investment is return. Regarding investment two terns are mostly used to interpret, they are risk and return, generally risk refers to the chance that an unfavorable event will occur. If investment risk is considered, risk can be defined as the chance that an outcome other than expected will occur whereas return is reward of present sacrifices or uncertain benefit of present sacrifices.

Every investment is made for getting some return. In the context of investment made on common stock, "the return is usually as dividend plus any change in market price of share (capital appreciation plus cash receipt). The actual returns of investment in common stock may differ substantially since both capital appreciation and cash (dividends) receipts on common stock are uncertain items. Uncertainty in return i.e. variability of returns from those that are expected is defined as risk. Risk is like pornography. It is hard to define but you know it when you see it". (Van Horn and Wachowicz: 1985, 892).

An investor is risk adverse to seek higher return for bearing higher risk. Broadly speaking an investment decision is a tradeoff between risk and return. "The tough parts of decision making is under uncertainty are deciding how much extra return should be required to accept measurable risk". (Weston and Copeland: 1990, 99)

Risk plays a center role in the analysis of investments. Investors often ask about the total risk they will be assuming in an investment and like to know if the risk premium provided is enough. But they are also concerned with many other issues. First of all it is necessary to see if the total risk associated with a single asset is relevant for them. Second, is the actual contribution of an assets` risk to portfolio risk. Risk cannot be avoided if investor is seeking higher rate of return, investor will require different rate of return demanded by the investor. Since ordinary share is more risky, investor will require highest rate of return on their investment in common stock. Preference share is more risky than debt. Therefore risk rate of return relationship for various securities are different.

Commercial banks are established under "company Act 2021" and are governed by "Commercial Bank Act 2031". Though the commercial bank is formally registered in company Registrar's office, Nepal Rastra Bank's (Central Bank) prior approval is essential.

As per Commercial Bank Act 2031 B.S. "A Commercial Bank means the bank which deals in exchanging currency, accepting deposit, giving loans and doing commercial transactions"

Commercial Banks are those banks that pool together the savings of the community and make arrangement for their productive usage. They supply the financial needs of modern business by various means. They provide working capital needs not only of trade industry

but also of agricultural sectors. In fact, the economic development of a country is only possible with a sound system of commercial banking.

A sound banking system depends partly on the control exercised by the central bank and, to a large extent, on trust of its customers or clients (the customer's trust that his deposit will be looked after in the best possible way and the funds will be available whenever he wishes to withdraw his money). The banks have a major responsibility to behave like a good citizen in a business with profitability as a major consideration.

Commercial banks collect deposit from public in various forms and lend the same as investment. Moreover they also provide technical support, administrative suggestion, cheap remittance of funds, safekeeping of valuables, collection of bills, cheque, overdraft facilities to industries and commerce. Whenever banks lend money they must remember that the source of their fund is customers' deposit. Therefore, it is of utmost importance that the subsequent lending should be of minimum risk. Banks have often been criticized for not lending more freely. But higher risk of loss is the deterring factor on granting advances despite the availability of option of charging higher interest rate.

Commercial banks in Nepal started with the inception of Nepal Bank Limited in 1994 B.S. Today 26 commercial banks are in operation. The commercial banks of Nepal can be categorized into two types; Public sector and private sector. Public sector bank includes two of the oldest bank in Nepal, Nepal Bank Limited and Rastriya Banijya Bank. Private sector comprises of other 24 banks.

With the opening of NABIL Bank (Earlier known as Nepal Arab Bank Limited) in 1985 A.D., the door for establishing commercial banks was opened to the private sector. Since the, whole lot of commercial banks had come into operation in Nepal. Today all the banks except Nepal Bank Limited and Rastriya Banijya Bank are making substantial amount of profit.

1.2 Focus of Study

The changing life style has always been challenging to the business community and has given opportunity and threats to produce thousands of types of goods and services to satisfy the changing needs of people. The societal needs have increased tremendously in quantity as well as quality. All this has induced business to gear up investments in many fields. Where investments needs huge amount, which can not cover by the past profiles

and surplus of individual investor only. And the numbers of economic society individuals and institution rarely have balanced budget. Some of them always earn more than what they consume and others earn less than what they consume. It can be understood that there is no equilibrium between income and expenditure because people undertake additional activities of investing requiring more funds that what they have. Investing activities of individuals largely depends upon the perceptions towards risk, return, enterprising ability, wealth and time.

Disequilibrium in income and expenditure of individual cranes towards risk and return. This helps to transfer and mobilize financial resources from one unit to another unit of the society. The advent of security market has successfully served this purposed to fund transfer from one to the other.

The main focus of this study is the risk and return analysis of the common stock investment of the listed commercial banks of Nepal. Common stock is comparatively risky assets than other security in the capital market. The main purpose of the study is to analyze how one can get sustainable profit by minimizing the risk. For this purpose, market return, expected return, total risk, systematic risk and unsystematic risk are analyzed to give an idea to get sustainable profit by diversifying the risk to avoid future loss of the common stock investment. Among 26 commercial banks viz SCBNL, NABIL, HBL, NIBL, BOK and Nepal SBI Bank Ltd. are selected as sample.

1.3 Statement of the Problems

Lack of information and lean knowledge is chief problem faced by individual investor who are manipulated and exploited by the financial institutions and their market intermediaries. Investors should make rational investment decision. For this purpose, knowledge for analysis of common stock is essential. The attitude and perception of investors play chief role in investment decision, which is influenced by the information, and access to the data required for analysis. Investors invest their wealth on the basis of guess and hunches because they do not have any information about the financial assets and they also lack the idea to reach to ideal investment decision. Investors purchase stock

merely looking past trend of stock prices and sometimes they have to bear heavy loss due to inadequate knowledge and information related to the stock investment.

Capital market is not developed in Nepal so the most of people do not know about shares, bond, debenture and other securities. On other hand, there are no strong commitment towards increasing public investment in policy makers and government. Stockbrokers and financial institutions have no effective programs to develop investor's knowledge. So that most of the people are unfamiliar with the stock investment. They would rather prefer to invest in land, buildings or gold.

In the context of Nepal investors are also facing the problems of lack of the institutions to provide adequate information about the investment options.

After the emergence of NEPSE in 1993 AD, these type of problems somehow has been solved, but another problem to the Nepalese people is: - they feel more risk in stock investment than as its real risk, it keeps them in dilemma, whether they should invest in stock or not and this all conditions makes them to not utilize their funds as a result investors are nor the national economy as well.

Further, theory says that the stock price in market is guided by the intrinsic value which is calculated by aid of company's result of financial performance such as dividend, required rate of return and growth. In the efficient market condition stock price is equal to the intrinsic value since the buyer and the seller are fully aware of the facts and figures of the company. Therefore one can say that market price and financial performance are correlated but condition here is totally different from that courage and faith are intermediate factor to invest in common stock because there are several questions, which may be arising in the mind of the individual investors at the time of the investment.

More specifically the research problem are:

- How can one make higher return through lower risk?
- How do they know about the magnitude of risk?
- How can investor diversify the risk?

- What are the criteria for evaluation that the common stock they are holding will give them favorable return?

Therefore, there are some burning issues that have influenced researchers to carry on these studies.

1.4 Objectives of the Study

Based on the ground of aforementioned problems being faced by Nepalese investors, the main objectives of this study is to assess the risk associated with return on common stock investment of the listed commercial banks on the basis of selective financial tools and techniques. Some objectives of this study are as follows:

- To make common stock investors able to evaluate risk, return and other relevant variables that directly affect the investment in common stock.
- To analyze the correlation among the returns of commercial banks.
- To determine whether stock of listed commercial banks in Nepal in terms of overpriced, under priced or equilibrium by analyzing the risk and return of the individual share.
- To analyze comparative risk and return position of these sectors.
- To give suggestion, ideas and materialize recommendation for investors to analysis of data.

1.5 Significance of the Study

The analysis of the risk and return is significant in investment decision as well as managerial decision. It influences risk and return of the shareholders. Consequently the risk and return analysis influences the market price of the stock. So before making an investment decision, a person must analyze the risk and return from particular stock as well as they can make a good risk-minimizing portfolio between their investments in the stock.

In the context of Nepal, there lacks wider investment opportunities, which provides good rate of return. So there have been huge amount of unutilized saving funds with general public. In the security market, MPS of joint venture commercial bank is higher than other

so it attracts the investor. Therefore they are investing their saving funds in common stock of public companies with the good expectation of higher capital gain in future. But, there seems very least consciousness about the real financial conditions of the companies and degree of risk involved in their investment.

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 investors in capital market. The study will be beneficial for all the persons who are directly or indirectly related to the Nepalese capital market.

This research has attempted to analyze the market share of samples companies with references to their financial indicators and risk in common stock investment, which may probably provide real pictures of samples companies, to both the outstanding and potential investors in order to take proper investment decision. Similarly, this piece of task may work as guide for future research and concerned persons.

Further this research will attempt to clarify concrete picture of different aspects of risk and return which will be beneficial to the investor for taking right investment decision. The study will be maximum significant for exploring and increasing stock investment. It will also provide little contribution to Nepalese stock market development.

This study is not only to fulfill MBS level course of T.U., but also to provide some knowledge about the Nepalese stock market along with providing ideas to minimize the risk on stock investment.

This study will be a matter of interest for academicians, students, researchers, teachers or persons, practicing in the field of finance.

1.6 Limitations of the Study

This study is to fulfill the requirement of Master Degree in Business Studies. It cannot cover all the dimension of the subject matter and resource. The major limitations of the study are as follows.

1. Risk and return of common stock of only SCBL, NABIL, HBL, NIBL, BOK & Nepal SBI Bank is analyzed.
2. The accuracy of data depends upon the data collected and provided by the organization. Only secondary data is collected.
3. Data from part time frame i.e. latter six years (2003/4 to 2008/9) will be used.
4. The research will be concerned with certain listed commercial banks only.
5. Time and financial constraints are also major limitation of the study.

1.7 Organization of the Study

This research has been organized in five chapters. The titles of this chapter are listed below:

Chapter-One: Introduction

This chapter is introductory and deals with subject matter of the study including general background of the study, problem of the study, objectives of the study, significance of the study, limitation of the study, organization of the study etc.

Chapter-Two: Review of Literature

This chapter contains the profound review of available literature related to the area of this study. It is directed towards the review of conceptual framework and review of major related studies. Risk and return, its relationship, determinants, measuring techniques and methods etc. are reviewed from the various available literatures.

Chapter-Three: Research Methodology

This unit presents research methodology used in the study, which includes various tools and techniques of data. It consists of research method as library research and field research, sources of data, population and sample, research design, methods of data analysis etc.

Chapter-Four: Presentation, Data Analysis and Findings

It is the main body of the research. It includes data presentation, interpretation and analysis by using various methods of statistical and financial tools, tables, pie charts etc.

In this chapter the risk and return of each selected companies is analyzed. This chapter is for summary of main findings

Chapter-Five: Summary, Conclusion and Recommendation

This chapter is associated with the summary, conclusion and recommendations.

CHAPTER II

REVIEW OF LITERATURE

It is very important to study the materials on the topic of research and that is called review of literature. Review of literature deals with the theoretical aspect of the topic on risk and return on common stock investment in more details and descriptive manner. The primary focus of the study is to analyze risk and return. The researcher reviews books, journals, magazines, previous thesis papers, or any type of studies, which are related to his field of the study. Research is a continuous process it never ends. The procedures and the findings may change but research continues. Main purpose of reviewing the literature is to develop some expertise in ones area, to see what new contributions can be made and to receive some ideas for developing a research design. Thus, the precious studies cannot be ignored because they provide the foundation and ideas to the present study.

2.1 Conceptual Framework

Investment, risk and return are the financial terms, which are heavily associated with each other. Investment simply means sacrificing current rupees considering future cash inflows. Future cash inflows are the returns. Present Investment is certain, fixed and now. But future returns are uncertain and there is no fixed time bound.

"Investment in its broad of sense means the sacrifice of dollars for future dollars. Two different attributes are generally involved time and risk. The sacrifice takes place in present and is certain. The reward comes later, if at all and the magnitude if generally uncertain."(Sharpe, 1995:1).

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

"Real investment generally involves some kind of tangible assets such as land, machinery or factories. Financial investment involves contracts written on pieces of paper such as common stock and bonds. In the primitive economies most investment is of the real variety, where as in a modern economy reach investment is of the financial variety." (Sharpe, 1995: 2).

The term risk and return is closely associated with investment. Investment simply means sacrificing current funds 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. But concerned with finance the study has focused the term investment as sacrificing current fund on financial assets like shares, debentures, warrants, convertibles etc. for the long-term return.

Investors invest their funds on the securities of certain companies for the long run future returns. The return is defined as the reward for bearing the risk. Return is the most important outcomes from an investment. It measures the investor's rate of wealth accumulation i.e., increase or decrease per period, return can be of different way, like holding period return, return from speculation or from short sell, capital gain, dividend gain, yield on investment, yield to maturity etc. these types of return are the rewards to the investors for bearing the risk. Risk is defined as the occupancies of unfavorable outcomes, which is ever harmful for the business.

Return to investors is ever followed by risk. Risk ever creates uncertainty. Some of the factors that create investment uncertainties are interest rate risk, purchasing power risk, bull-bear market risk, management risk and so on; risk can be diversifiable or undiversifiable. The level of risk depends on the condition of the market. If the market is efficient, definitely there will be higher risk. An efficient market is that market, where the security prices reflect all available information about the economy, about the financial market and about specific company involved. In efficient market, the price of stock reflects its value. The investor can invest either in primary market or in secondary market, by purchasing the securities of different companies. There are many more financial securities like common shares, preference shares, debentures, warrants, convertibles etc. for the investors to invest.

2.2 Investment of Securities

The investment environment encompasses the kinds of marketable securities exist and where and how they are bought and sold. Securities are normally the shares, debentures, preferred stocks, warrant, convertibles or any other financial certificates issued by the companies to general public.

Certificate of securities are issued at certain price called par value are transferable from one person to another. In simple way securities can be understand as the promissory

paper that the company gives to the investors after receiving certain rupees as loan or share.

“When someone borrows money from a broker he or she must leave some item of value or security. Failure to repay the loan (plus interest) means that the pawn broker can sell the pawned item to recover the amount of loan and perhaps makes profit. The term of agreement to buy a vehicle, the leader 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 cash. In this case the official certificate of title is issued by the state server as security for the loan.”(Sharpe, 1995: 2).

An investor can invest on any kind of the securities for the longer-term return. He or she 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. Before making any type of investment a rational investor must analyze risk and return. Normally almost the investors are risk averters, so risk and return analysis is very important for investment. Investments on bonds of preferred stocks are less risky because of their nature of fixed return but the investments on common shares are the most risky because of their certain investment but uncertain returns.

There are many more varieties of securities available for investment. Some of them are common stock, preferred stock, bond, warrants, convertibles, treasury-bills etc.

"Off the all forms of securities, common stocks (equity shares) appear to be the most romantic, while fixed income investment revenue may be more important to most of the investors, equity shares seem to capture their interest most. The potential rewards and penalties associated with equity shares make them an interesting even exciting proposition, no wonder equity investment is a favorite topic for conversation in parties and get-together."(Chandra: 1995, 92).

2.3 Capital Market

Capital market is the place where securities are traded which is guided by demand and supply. Capital market is the place, which bring both the financial demanders and suppliers directly or indirectly in touch. Commercial banks, financial institutions, investment companies and individual investors are the suppliers and business houses, agricultural sectors and industrial sectors are the demanders. This demand and supply is carried out in capital markets. Capital markets are the market where longer-term financial instruments like equities and bonds are raised and traded. Capital markets are one of the major components of security market. Security markets are the mechanism that allows suppliers and demanders of fund to make transactions. The market plays a key role in purchase and sales activities of investors.

Capital market is further divided into primary market and secondary market.

2.3.1 Primary Market

The primary capital market indicates the markets for the original sale of securities by underwriter to the general public. The use of the words original sale may be somewhat misleading the public several years ago (and initial have sold common stock to public company) and has now decided to issue additional shares of common stock (a secondary offering).

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 public offering.
The issue receives cash that may be than invest in the production assets or the net proceeds from the sale may be used for other business purpose. The public receives the newly issued securities for the cash invested. In primary market, stocks are traded at par value (commonly @ Rs.100 per share)

2.3.2 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 security exchanges and a specialist facilitates the transaction. The major of all capital market transactions occur in the secondary market. In Nepalese financial market, Nepal Stock Exchange (NEPSE) Ltd. is an authorized secondary market, which is non-profit organization, operating under the securities exchange act, 1983. The basic objective of NEPSE is to import free marketability and liquidity to the government bonds, corporate bonds and corporate securities.

Member of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and listed corporate securities. At present there are 23-member broker and two market makers, who operate in the trading floor as for the security exchange act. 1983 rules and laws of exchange.

2.4 Efficient Financial Market

"An efficient market exists when security prices reflects all available public information about the economy, about financial market and about the specific company involved. The implication is that market prices of individual securities adjust very rapidly to new information. As a result, security prices are said to be fluctuating randomly about their intrinsic values. New information can result in a change in the intrinsic value of security, but subsequent security prices movement will follow what is known as random walk (change in price will not follow any pattern)." (Fama, 970: 384-87).

2.5 The Risk on Common Stock

Risk is defined as the possibility of meeting danger or suffering harm or loss. Risk is term of investment means unexpected and unwanted outcomes, which are harmful for the business. In investment there is a chance of suffering loss it is the risk. Risk can also be defined as the chance that some unfavorable event will occur.

"Risk is defined in Webster's as a hazard a peril, exposure to loss or injury. Thus risk refers to the chance that some unfavorable event will occur. If you engaged in skydiving you are taking a chance with your life, sky diving is risky. If you bet on horse, you are risking your money. If you invest in speculative stocks or any stocks, you are taking a risk in hope of making an appreciable return. The greater the chance of loss or negative returns the riskier the investment." (Weston and Brigham, 1992: 113).

"Risk defined most generally, is the probability of the occurrence of unfavorable outcomes. But risk has different meanings in different context. In our context two measures developed from the probability distribution have been used an initial measures of return and risk. There are the mean and the standard deviation of the probability distribution." (Weston and Brigham, 1992: 93).

"Instead of measuring risk the probability of a number of different possible outcomes, the measures of risk should somehow estimates the extent to which two actual outcomes is likely to diverge from the expected outcome. Standard deviation is a measure that does this since it is an estimate of the likely divergence of actual return from an expected return." (Sharpe, Gordon and Bailey, 1995: 95).

2.6 Sources of Investment Risks

Every investment involves uncertainties that make future investment return risky. Consider some of the sources of uncertainty that contribute to investment risk.

Interest Rate Risk- Interest rate risk is defined as the potential variability of returns caused by changes in the market interest rates. In more general terms, if the market interest rate risk, then investments values and market price will fall and vice versa. The variability of return that results is interest rate risk. This interest rate risk affects the prices of bonds, stocks, real state, gold, contracts and other investment as will.

Purchasing power Risk- Purchasing power risk indicates the variability of return, an investor suffers because of inflation assets (such as cash, stocks, bonds) may lose their ability to command the same amount of real power of the financial assets and rate of increase investors risk.

Bull- Bear Risk- Bull Bear market arises from the variability in market returns, resulting from alternating bull bear market forces. When a security index rises constantly from a low point, called a through, for period of time the upward trend is called bull market ends when the market index reaches a peak and starts a down ward trend. The period during which the market declines to the next through is called bear market.

Default risk- It is the portion of total investment that results from changes in the financial integrity of the investment. The variability if return that investors experience as a result of changes in the credit worthiness of a firm in which they invested is their

default risk. Investor's losses from default as the financial integrity of a firm weakens the losses are anticipatory losses.

Liquidity risk- Liquidity risk is that portion of an assets' total variability of return which results from price discounts given or sales commission paid in order to sell the assets without delay. Perfectly liquidity assets are highly marketable and suffer no liquidation costs. Liquid assets are not readily marketable either price discounts must be given up by the seller in order to effect a quick sale.

Callable risk- Some bonds and preferred stocks are sold with a provision that allows the issuer to call them in for purchase. Issuer's like the provision because it allows them to buy back outstanding preferred stocks or bonds with fund from a new issue if market rates drop below the level being paid on the outstanding securities. Investors should view the call provision as a threat that may deprive them of good investment at a time when their funds can only be reinvested at a lower yield.

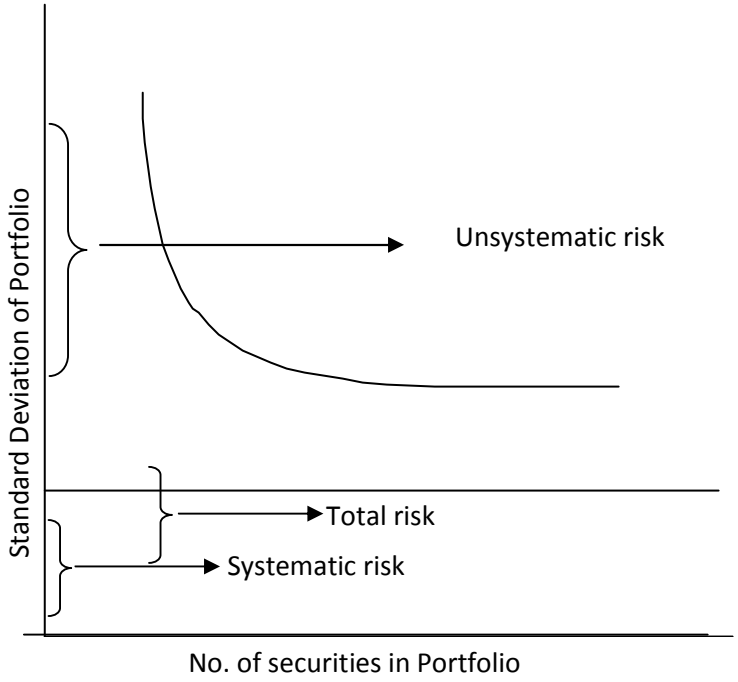
The risk is the total risk that arises in the business. Any type of business, whether that may be of large or small scale suffers risk because investment is a part of economics and the economical cycle changes frequently when the market is bullish there is low risk and when it starts declining i.e., 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 undiversifiable risk.

Diversifiable risk is also known as unsystematic risk and undiversifiable risk is the systematic risk which is neither avoidable not can be quit. The combination of these two risks is the total risk.

Systematic risk is also known as non-diversifiable risk. This risk arises due to the changes in the economic 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 rate, interest in inflation rate etc.

Diagram No. 2.1

Total Risk, Systematic Risk and Unsystematic Risk



Unsystematic risk arises due to the many more reasons, like labor strike, entry of formidable competitor in the market, log on big contract bid; companies not being able manage or obtain adequate raw materials on time etc. These types of risk are normally minor one and can be handled by the management. That is why this type of risk is called diversifiable risk. Risk can be measured by using different statistical tool. The major tools in practice are the standard deviation (S.D.)

The standard deviation (S.D.) denoted by (is known as firm's specific risk and is unsystematic risk which can be minimized or avoided totally by well diversification. But the S.D. sometimes can mislead for the proper measurement. So, coefficient of variation (C.V.) is also used to measure risk. Coefficient of variation is the unitary risk measure that predicts how much risk is to bear for earning one extra unit of return. As standard deviation is used to find out systematic of emetic risk beta is used to find out systematic

risk. Logically the systematic risk is the covariance between the return of individual assets or portfolio and the returns of market portfolio, which is represented by beta (or b).

2.7 Return on Common Stock

Return is reward to the investors for bearing certain risk. It is the main target of investment. It can be defined as the after tax increase in the value of the investment.

2.7.1 Holding Period Return

If an investor purchases a stock of any companies and holds it for certain period, the return will be received on two ways, one is increase in the value of that stock as compared to initial one. Another is direct cash payment. The increase in the 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 define one period return as;

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

Where R is the actual return when it refer to a particular times period in the past (future). D_t is the cash dividend at the end of time period t. P_t is the stock price at the time period t and P_{t-1} is the stock price at the time period of t-1. Notice that this formula can be used to determine both actual one period returns (when based on expected dividend and prices." (Van Horne and Wachowicz, 1995: 90).

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

"In financial market, many outcomes are possible. The dominant influence on financial events is the general state of the economy. For illustration regarding the annual reports of business, we will often find statements such as; the general state of the economy was depressed last year, causing out company's earning to decline.

The relationship between the expected future state of the economy and the performance of individual firms enables a relationship to be set forth between the state of the economy and the returns from investments in firms. The relationship between different levels of returns and their relative frequency is called probability distribution.

We could formulate a probability distribution for the relative frequency of firm's annual returns by analyzing its historical returns over previous years. But we know that history never repeats itself exactly. Hence after analyzing relative frequencies of historical returns for the individual company we can form a probability distribution based on historical data plus or analysis for the economy, the outlook for the firm in its industry and any other factors we doesn't reevaluate as inputs for our judgment." (Weston and Brigham, 1992: 93-94)

But this study has a limitation that it can't analyze the overall economy due to many constraints. The mean of historical returns is used for their measure.

2.7.2 Required Rate of Return on Common Stocks

Required rate of return is the minimum return that an investor expects at least not to suffer from loss. If an investor gets below the required rate he definitely suffer 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 deferred consumption. Since the investor expects to receive an increase in that real goods purchased later and assuming for the

moment zero expected inflation and risk, the required rate could equal to the real rate of return, in which case it would present the pure time value of money.

For example if an investor plan 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 the expected time of consumption. The $15 return on the investment of $500 or 3 percentages represents the pure time value of money. The real return paid to compensate the investors deferred consumption."(Cheney and Moses, 2000: 33).

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 return for an assets or portfolio of assets can be estimated using the equation for the SML suggested by the CAPM model.

2.7.3 Expected Rate of Return on Common stock

The return that an investor expects from his investment in the forth-coming future is called expected rate of return. An investor normally estimates his 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 period 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 receipts (e.g. 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 returns. Unless the real rate of return is guaranteed, most investor recognizes this possible rate of return into a single number called the expected rate of return." (Cheney and Moses, 2000: 33).

The expected rate of return or holding period rate of return is based upon the expected cash receipts over the holding period and the expected ending or selling price. Depending upon the assumption made about cash receipts and ending price a number expected rates of returns are possible. These possible rates of return 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 in order for the investor to find the investment acceptable.

2.8 Portfolio Theory

Portfolio theory is the best way of investment for rational investors. Normally almost all 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 way good way that "never keeps all the gees in a single basket." i.e. never invest your entire amount in a single asset. Investment on more than one security means diversification or minimizing risk. Therefore it is needed to extend analysis of risk and return include portfolio- a combination of two or more securities or assets is portfolio. It has following two types of objectives:

- **Primary Objectives**
  - To minimize risk.
  - To maximize return.

- **Secondary Objectives**
  - Regular Return
  - Stable Income
  - Safety of investment
  - Tax benefit
  - Appreciation of Capital

In 1952 Harry M. Markowitz proposed the concept of the portfolio theory. He gave a very new concept of investment on more than single assets to minimize risk maximize return. The portfolio theory developed by Markowitz is based on following assumption:
The expected return form an asset is the mean value of a probabilities distribution of future return over some holding period.

The risk of an individual assets or portfolio is based on the variability of returns (i.e. Standard deviation or variance)

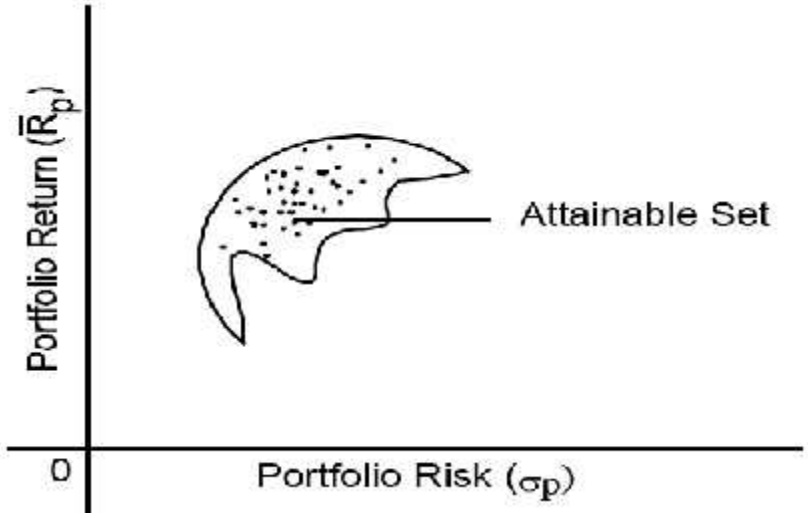
Investors adhere to the dominance principal i.e. for given level of risk investors prefer assets with a higher expected return to asset with a lower expected return. For asset with the same expected return, investor prefer lower to higher risk. (Cheney and Moses, 2000: 39)

2.9 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 expected rate of return in their risk class or the minimum risk at whatever rate of return is selected. An investor can gain higher level of return at any given 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, decrease the risk without decreasing the expected return or some combination of increased expected return and decreasing the risk by shifting to a portfolio on the efficient frontier set."(Van Horne, 1997: 60)

Diagram 2.2



2.10 Capital Asset Pricing Model (CAPM) Relating Beta with Required Return:

"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, decrease the risk without decreasing expected return or some combination of increased expected return and decreasing the risk by switching to a portfolio on the efficient frontier." (Van Horne, 1997: 60)

Capital Asset Pricing Model (CAPM)

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.

It measure systematic risk permits investors to evaluate an assets required rate of return to the systematic risk of the asset. In general, the CAPM indicates that assets required return should be related to the risk free rate of return plus a risk premium based on the beta of the asset.

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

$R_j = R_f + [E(R_m) - R_f]\ \beta_j$

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 risk premium for inflation)

$E(R_m)$= The expected rate of return on the market portfolio.

β_j = Beta coefficient of stock j.

Hence beta is the index of systematic risk. It measures the sensitivity of a stocks return to change in returns on the market portfolio. The beta of a portfolio is simply weighted average of the individual stock betas in the portfolio." (Van Horne and Wachowicz, 1995: 100)

The CAPM model uses the theory of security market line (SML) to show relationship between required return and beta.

"The SML equation shows the relationship between securities risk and rates of returns. The return required for any security j is equal to the risk free rate plus market risk premium times the securities beta." (Cheney and Moses, 95: 100).

"The CAPM is sometimes used to estimate the required rate of return for any firm with publicly traded stock. The CAPM is based on the promise that the only important risk of a firm is systematic risk, or the risk that returns from exposure to general stock market movements. The CAPM is not concerned with so called unsystematic risk. Which is specific to an individual firm, because investors can avoid that type of risk by holding diversified portfolios?" (Madure, 2001: 99-100)

2.11 Review of Journals and Articles

There are very few financial research based journals. There are very limited business magazines, which hardly publish the topic related to the risk and return. So some foreign journals are taken into consideration to review the risk and return.

The journal of finance published bimonthly by American finance Association for many decades is considered. “Local Return Factor and Turnover in Emerging Stock Markets.” By K. Greet Rouwenhast was published in 1999 is reviewed here.

“There is growing empirical evidence that multiple factors are cross-sectionally correlated with average returns than large stocks (Bang 1981. Fama France (1992/96) and Lakosnishook, Shieifer and Vishny (1994) show that value shocks with book to market (B/M), earning to price (E/P) and cash flow to price (C/P) outperform growth stocks with low B/M,E/P or C/P. Moreover, stocks with high return over the past three months to one year continue to outer form stocks with poor prior performance. The evidence that beta is also compensated for in average returns is weaker (Fama and Frence, 1992, Kothari, Shan ken and stoan, 1995).

The interpretation of the evidence is strongly debated. Some believe that premium is a compensation for pervasive risk factors; others attribute them to firm characteristics or inefficiency in the way market incorporate information into prices. Yet others average that survivorship or data snooping may bias the premiums.

This paper examines the sources of return variations in emerging stock markets. From the perspective of collecting inpendent samples, emerging market countries are particularly interesting because of their relative isolation from the capital markets of other countries. Compared to developed markets, the correlation between most emerging markets and stocks markets has historically been low (Harrey, 1995) and until recently many emerging countries restricted investment by foreign investors. Interestingly Bekaert and Harvey (1995) find that despite the recent trend toward abolition of these restriction and

the substantial flows of foreign capital markets have actually become more segmented from world capital of emerging economics are held by local investors who are likely to evaluate their portfolios in light of local market condition ” (Rouwenhast, 1999: 1439-40)

The background of articles attempts to answer to set of question.

The first set of three question concerns the existence of expected returns premiums.

- Do the factors that explain expected returns differences in developed equity markets also describes the cross-section of expected return of emerging market firms ?
- Are the return factors in emerging market primarily local or they having global component as well?

The second set of question of the paper includes,

- Is there a cross sectional relationship between liquidity and average returns in emerging markets?
- Is the return factor is emerging markets cross sectional correlated with liquidity?

Above the data Rouwenhorst stated that: as of April 1997 the emerging market database (EMDB) of the IFC contains data on more than 2200 firms 31 emerging markets, but not all are included in the sample. Eleven countries are excluded because of insufficient return histories, which leave 1705 firms in the 20 countries that the IFC tracks for at least seven years. For some firm’s monthly closing process and dividends is available dating back to 1975. starting at various points during 1980s the IFC expanded its reporting to include monthly nine series for price to book ratios, price earnings ratios, market capitalization, trading volume and the number of days per month that a stock is traded.

Total return is calculated as the sum of the dividend return and price appreciation, using prices scaled by a capital adjustment factor, which the IFC computer to correct for the effects associated with stock dividend and right issues. Many emerging markets have firms with multiple classes of shares carrying different ownership restriction. Firms with multiple classes of shares carrying different ownership restrictions. Firms with multiple

classes are traded as a value of weighted portfolio of the outstanding equity securities." (Rouwenhast, 1999: 1442-43).

"The first conclusion is that the return factors in emerging markets are qualitatively similar to these in developed markets. Small stocks outperform growth stocks and emerging market stocks exhibit momentum. There is no evidence that local markets beats are associated with average returns. The correlation between the country return factors suggests that the premiums have a strong local character. Further more global exposure cannot explain the average factor returns of emerging markets.

There is a little evidence that the correlation between the local factor portfolios have increase, which suggests that the factors responsible for the increase of emerging market country correlation are separate from those that drive the difference between expected returns with in these markets, A Bayesian analysis of premiums in developed and emerging markets show that unless one has strong prior beliefs to the country, the empirical evidence factors the hypothesis that size, momentum and value strategies are compensated for in expected returns around the worked. Finally the paper documents the relationship between expected returns and share turnover examines the turnover characteristics of local returns factor portfolio. There is no evidence of a relation between expected returns and turnover in emerging markets. However, beta, size momentum and value are positively cross-sectional correlated with turnover in emerging markets. This suggests that the return premium does not simply reflect a compensation for liquidity." (Rouwenhast, 1999: 1462)

This study has analyzed the return factors in worldwide stocks market. However, it concentrates in the various emerging stocks markets. Hence the article contributes in the area of risk and analysis in common stock investment.

Nepalese stock market is in developing stage. Therefore very few independent studies can be found in the topics of finance. Specifically, it is rare in the case of this research topic, risk and return analysis.

Research

Radhe Shyam Pradhan carried out a study in the topic of "Stock Market Behavior a small Capital Market a case in Nepal" in1993. The study was based on the data collected for seventeen enterprises from 1986 to 1990. (Pradhan, 1993: 23-49)

One of the major objectives which are related to this study was "To assess the stock market behavior in Nepal."

Mr. Pradhan has summarized the findings as follows:

- Dividend per share and market price per share was positively correlated.
- Higher the earning on stocks, large the ratio of dividends per share to market price per share.
- There are positive relationship between dividend payment and liquidity.

Another independent study by Dr. Manohar Krishna Shrestha (1995) in the title of "Shareholder's Democracy and annual General Meeting 1995" feedback was also reviewed thoroughly for the purpose of study. Dr. Shrestha prefers to consider this book as an assemblage of opinions, which he had express in different occasion of various annual general meeting. Where he has critically analyzed the situation of common stock investors and the situation that is not improving till date. The content of the book have been divided into two parts. The primary part includes views on the rights of the shareholder regarding how they can exercise them in democratic perspective. Whereas the next part consist of feedbacks and the issues raised by shareholders at different annual general meeting of the public limited companies and financial institutions.

Writer has found the overall shareholders democracy in term of the protection of their interest, is basically focused on the payment of satisfactory dividend and the maximization of shareholders wealth by appreciating the value of share they hold.

In many cases the existing authoritarian mentality of management seems to have not considered the share holders in deciding the managerial plans and policies. Top-level decision often by pass the interest of shareholders. As the management lacks serious concern about the protection of shareholders, right and expectations. The annual general meeting has become a plate form for shareholders to express their opinions and grievance in front of the management and board of directors. Many general meetings feedback reveal no serious response to the feelings of shareholders. Thus, it reflects unwillingness of the management and board of directors to change their traditionally held activities toward shareholder."(Shrestha, 1995; 9)

Expression of Dr. Manohar Krishna Shrestha to the government for not taking any initiate in formulating the separate Act. Which protects the shareholders right despite the increase in population of shareholders in Nepal and questioned the need of separate act regarding the protection of shareholders right"

Dr. Shrestha has also quoted as writing company and other relating acts relating to financial and industrial sector have provisioned right of the shareholder as:

Voting rights
Participating in general meeting
Rights of general information
Electing as a board of directors
Participation in the profit and loss of the company.
Transferring shares.
Proxy representation

The collective rights of the shareholders are:
Amend the internal by laws.
Authorize the sales of assets
Enter into merger.
Change amount of authorized capital

2.12 Review of Thesis:

Three different thesis are reviewed in this context.

Pandey (2000), The study conducted by Mrs. Pramila Pandey (2000), entitled "Risk and Return Analysis of common stock investment, with special reference to investment portfolio of insurance companies."

"On the basis of Market capitalization, size of NIC is the biggest one. Expected return on the common stock of NLGI is maximum i.e. 65.39%, this high rate of expected return is due to unrealistic annual return in 2050/51. Expected return of common stock of HGIDCI is lowest with negative value. In overall industrial sector expected return of finance and insurance sector is unexpectedly high return is over 50%. Annual realized return is unexpectedly high in the F/Y 2050/51 and then declines in the preceding years."

About risk she had concluded, "NLGI is regarded as the most risky security. As we known higher the risk higher must be the return. NLGI expected return is higher as indicated by the highest the standard deviation is not only a single measure of risk. Coefficient of variance (C.V.) also measure risk and is known as relative measure of risk. Minimum C.V. is best for investment as per minimum C.V. and its return is also quite high, more than 50%."

She further concluded as:

Administration should make themselves further efficient to check the performance of individual companies. Flow of information should be more regular. Stock market investment is a risky job. The stock market is undoubtedly risky in the short term and investors need to be prepared for it.

Normally investors think, investment on stock market is over beneficial. They think that the price of shares always increases and there is every time benefit. But in reality it is not true. The price of share may decreases due to many reasons and factors affecting the

stock market. Especially the political factors influence the price of the shares in Nepal. So before investing the fund on stocks of any companies investors must have to think about the condition of market and the economic and non-economic factors affecting the market. Besides investing the fund is single stock, it is better to invest making portfolio of more than single assets. Portfolio investment gives maximum return at very minimum risk, or increases the return keeping the risk in a constant way.

Before making an investment decision in stock market, assessment of personal risk altitude, needs and requirements will always be helpful. To make several decisions with stock broker before reaching at the decision on the basis of reliable information rather than rumor and imagination will ultimately favors the investors. Investors should make their investment decisions based on financial parameters of the company. They should not rush over the rumors.

Joshi's (2004), Another study conducted by Mr. Deepak Raj Joshi (2004), entitled "Risk and Return Analysis of common stock of five listed Commercial Banks."

Mr. Joshi concludes that the trend of the price movement is the shares of selected bank, it reveals that the share price of almost all the banks is decreasing but there is a sign of progress seen in the share price of SCBNL, NIBL and NABIL. Since their price has increased with some extent in the year 2002/03.

He also analyzed prices of stocks under the CAPM model and this fact indicates that the price of the stocks of selected companies are under priced which indicates that the investors should select these securities and implement the buy and hold strategy. With the principles of finance these stocks should show upward price movement but the actual market condition does not seem so due to the present economic and political conditions.

At last Mr. Joshi assets the following facts as the Nepalese stock market is small and growing slowly, so there is a need of efforts to be made from various sectors like government, companies and NEPSE itself. Present law and order situation has badly

happened the economy of Nepal and ultimately this has affected the Nepal stock market also, so government should make reforms in the policies related to economic development as per the need of the situation. Likewise the companies should disclose their actual financial condition so that insisted investors may analyze their performance and then only make a decision whether to invest on their stock or not.

Also NEPSE needs to make and strictly follow some standards for enlisted a company in the stock exchange so that investors may feel secure viewing that the listed companies has passed some criteria for enlisting in the NEPSE.

Theme of Joshi's study is summarized as below:

Coefficient of variation suggests the banking industry as the best one for investment. Similarly, while analyzing individual securities SCBL is with low C.V. and also with highest return, so this stock seems to be the best for investments.

Based on the findings and conclusion of the study. It is recommended the investors that if they wish to generate higher return then they should bear higher risk and invest in the shares of SCBL and if they are risk averter and they want to invest in single assets then they can invest in the shares of NIBL or HBL because these two stocks has lower risk than that of portfolio risk.

Adhikari's (2005), Another study by Mr. Ram Hari Adhikari (2005), entitled "Risk and Return analysis with reference to listed commercial banks" is very closely related with this study.

Mr. Adhikari in his study has concluded that "Most of the people considered stock market investment as a black are that they have unrealistically optimistic or pessimistic expectations about stock market investment or perhaps a fear of the unknown. This study enables investors to put the returns they can expect and the risk they may take into better perspective. We know that 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.

One of the main significance of beta is in Capital Asset Pricing Model (CAPM). CAPM is the model that describes the relationship between risk and required rate of return. Where risk free rate plus a premium based on the systematic of the security is required rate of return of that stock. Comparison between expected rate of return and required rate of return identify whether the stock is overpriced or under priced. If required rate of return is lower than expected rate of return, stock is known as under priced and if the required rate of return is greater than the expected rate of return, the stock is overpriced. This study shows that all the stocks of commercial banks, which are analyzed, are under priced. This means that their stock value will be increased in near future. All the stocks are in demand. So, investor can buy the common stock of any bank.

Diversification of fund by making a portfolio can reduce 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. The correlation between the returns of two stocks is highly positive risk reduction is not so significant. So portfolio between the C.S. of same industry cannot reduce risk properly. In this study HBL and SBI have negative correlation between their returns, which is favorable with the viewpoint of the diversification. And all other banks have positive correlation among their returns. NABIL and NIBL, SCBNL and HBL, HBL and NBBL have highly positive correlation between their return. So the portfolio construction of the common stock of these banks will not reduce any risk which is not favorable as portfolio construction is concerned.

Most of the investors invest only keeping the return in the mind but they are found unable to calculate the risk factor of the security. Most of the Nepalese private investors invest in single security. Some of the investor's use their fund is two or more securities. But it is found that they don't make any analysis of portfolio before selecting security. They

invest their fund in different securities on the bases of expectation and assumption of individual securities rather than analysis of the effect of portfolio. It seems that they don't have knowledge of the risk diversification by using portfolio of their investment."

Bhatta's (1995), Bhatta (1995) has conducted his master's thesis on *"Assessment of the Performance of Listed Companies in Nepal"*, He has taken 10 listed companies' data from 1990 to 1995.

Mr. Bhatta's research objectives are to analysis the performance of listed companies in terms of risk and return i.e. expected rate of return and company specific risk, required rate of return and internal rate of return, systematic risk and diversification of risk through portfolio context.

Mr. Bhatta made financial and statistical analysis which include MPS, ERR, SD, CV, T-test, Z-test and correlation.

Mr. Bhatta has address the following finding from his studies.

A highly significant positive correlation – ship has been address between risk and return character of the company Investors expect higher risk Nepalese capital market is not efficient one so the price does contain all the information relating to market and company itself. Neither investor's analyses the overall relevant information of the stocks nor the member of stock exchange tries to disseminate the information. So, the market return and risk both may not show high priced stocks.

Investors of Nepal have not yet practiced to invest in portfolio of securities. An analysis of the two securities portfolio shows that the risk can be totally minimizes if the correction is perfectly negative. In this situation, the risk can totally be diversified, but when there is perfectly positive correlation – ship between the returns of the two securities, the risk is not diversified.

On the basis of his findings concluded:

"An analysis of risk and return show that many companies has higher unsystematic or specified risk. There is a need of expert institution which will provide consultancy services to the investors to maximize their wealth through rational investment decision".

Lastly, Mr. Bhatta recommended the following points to improve the market efficiency.

- Developed institutions to consult investors for risk minimization.
- Establish an information channel in Nepal stock exchange and
- Make proper amendment on trading rules.

Shakya's (2001), Shakya (2001) has conducted her master's thesis in "*Risk and Return Analysis on Common Stock Investment*" with the specific objectives of study are to asses the general investors perception, attitude and awareness towards risk associated with return, to calculate risk and return of seected securities and there portfolio and to analyzed the volalitity of common stocks and other valuates. The Researchers's result reveals that 58.3 percent investor consider return, and 33.3 percent investor consider risk before investing: To invest in common stock 50 percent prefer primary market, 21.7 percent prefer secondary and 28.3 percent of total investor prefer bath market. 71.7 percent of total investors give first preference to the banking sector. 46.7 percent investors have knowledge about correlation coefficient, 48.3 percent of total investors prefer C.V and 36.7 percent prefer S.D. for measuring risk.

Miss Shaky recommended that, if negatively correlated assets are combined in portfolio, them risk can be minimized to some extent only negatively correlated assets which is favorable with view paint of diversification.

Mishra's Study (2002), Shankar Kumar Mishra (2002) in his thesis "*Risk and Return on Common Stock Investment of Commercial Banks in Nepal*" was also reviewed. He has taken the data from 2051/52 to 2056/57 of five listed commercial banks. Main objectives

of his study are to examine common stock of listed commercial banks in term of risk and return, to calculate risk and return of their portfolio to identify whether stock of selected companies are over priced, under priced and equilibrium priced and to make relevant suggestions and practical ideas on the basis of findings.

In this study, Mr. Mishra had used arithmetic mean to calculate the return, Standard Deviation, Coefficient of Variation are used to measure unsystematic risk and beta coefficient to explain sensitivity or volatility of the stock with market and correlation which is a statistical tool used to measure the relation between returns.
He concluded that expected return of common stock of BOKL is maximum and SBI bank Ltd is found to be minimum. Others having higher return is common stock of NBBL, EBL and then NGBL. Calculation of beta coefficient of NGBL and SBL's common stocks are least volatile with market and these stocks are defensive stocks. Similarly, NBBL, BOKL and EBL's common stocks are more volatile with market; therefore, these stocks are aggressive stocks. Stocks of NBBL, NGBL, BOKL and EBL are under priced whereas that of SBI is overpriced.

2.13 Justification

Risk and return is a broad topic in finance and investment. It is a continuous process of analyzing and interpreting the results that are obtained from the research. Investment is a dynamic process and investors required various information regarding the stock market and individual companies as soon as possible.

Thesis which are reviewed in this chapter also based on risk and return analysis of commercial banks and financial institutions are providing relevant information to shareholders and investors and the fact to carry out this thesis is to provide investors real accurate and updated information as soon as possible.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the systematic way of solving research problems and which ultimately refer to the overall research process. It includes all the procedures from theoretical framework to the collection and analysis of the data. As most of the data are quantitative the research is based on the specific models. It is composed of both parts of technical aspect and logical aspect, on the basis of historical data. Research is systematic and organized 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, classifying, analyzing and interpreting the data with the purpose of finding answer to the problem. Thus the entire process by which we attempt to solve problem is called research.

Primary and secondary data are the sources of research process. In this study all the data are secondary and the observed data is analyzed with using appropriate financial and statically tools. Outcomes are presented in simple way. This chapter includes research design, sources of data, analytical tools and procedures of collection and analysis of data.

3.1 Research Design

The research is based on the recent historical data, so simply it is a historical research. It covers the data from 2004/5 to 2008/9. It deals with the common stock of commercial banks on the basis of available information. For the portfolio analysis, the common stocks of the selected commercial banks are taken into account. This study is more analytical and empirical and less descriptive. Financial analysis with various statistical and financial tools and testing of hypothesis has also been used for analysis aspect.

3.2 Sources of Data

The data required for the research is collected from the secondary sources. Data related to the market prices of stocks, market capitalization, movement of NEPSE index etc. is taken from the trading report published by NEPSE and website of Nepal Stock Exchange

(i.e. www.nepalstock.com) Annual report of commercial banks and their financial statement are also collected from the respective sample banks. NEPSE periodicals, articles and precious research report etc. has also been considered.

3.3 Population and Samples

This study is based on the comparative study of risk and return on the basis of common stock investment of seven commercial banks 'listed in Nepal Stock Exchange'. Population is all the listed companies in NEPSE. Concentration of this study is listed commercial banks only. For this seven commercial banks (SCBNL, NABIL, HBL, NIBL, NBBL, EBL and Nepal SBI Bank) are selected.

3.4 Data Analysis Tools

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

3.4.1 Market Price of the Stock (MPS)

Market price of stock is one of the major data of this study. There are three types of prices high, low and closing price of each year. For the analysis, single one is needed, so average price (that of high and low) or closing price approaches can be used. Here in this study the closing price is taken as the market price of the stock which has specific time span of one year and the study has focused in annual basis. To get the real average volume and price of each transaction in the whole year are essential. It is very difficult to obtain and include all these information and average of high and low price is not reliable and representative information. The closing price is used as the market price of the stock (MPS).

3.4.2 Dividend Per Share (DPS)

Dividend is relevant during the computation of rate of return, which is a return to the shareholders for the investment. If a company declares stock dividend (Bonus Share), it is difficult to obtain the amount that really shareholders has joined. In this case they get extra numbers of shares as dividend and simultaneously price of stock declines as a result of increased number of stock. To get a real amount of dividend following model has been used throughout.

Net dividend amount = Cash dividend + Stock Dividend% * Next Year's MPS.

3.4.3 Holding Period Return (HPR)

Holding period return indicates the summation of price appreciation and dividend gain. Here price appreciation means gain on capital investment.

Symbolically,

HPR or Simple

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

Where,

R=Annual rate of return

P_t=Ending price of the stock at time 't'

D_t=Dividend receive at time 't'

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

3.4.4 Expected Rate of Return $E(R_j)$

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

$$E(R_j)=\sum_{J=1}^{n} P_j \times R_j$$

Where,

$E(R_j)$=Expected rate of Return of stock j

P_j= Probability distribution of stock j

R_j= Return on stock j

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

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

Where,

$E(R_j)$= Expected rate of Return of Stock j

R_j= Return on stock j

n= Number of observation

3.4.5 Measure of Risk

However risk is defined simply as unfavorable outcomes the investors perceive risk in many different ways. A stockholders seems risk if company's yield is below his expectation and below the required rate. A bank may suffer from risk if their investment changes to bad debt and so on. But normally in calculation a traditional approach is used to calculate risk, which is 'standard deviation'.

It is a statistical measure of the variability of a set of observations. The symbol is called (∃) sigma. It is the measure the total risk on stock investment. Standard deviation can be calculated using following formula,

If data given as time series

$$\pm_j \; X\sqrt{\frac{\bullet R_j \; Z E(R_j)^{\prime 2}}{n \, Z1}}$$

If data is probability distribution

$$\pm_j \; X\sqrt{\overset{n}{\underset{tX1}{\quad}} \bullet R_j \; Z E(R_j)^{\prime 2} \; P}$$

Where,

$\exists_j$ = Standard Deviation on of return sock j during the time period n.

P_j = Probability distribution of the observation.

R_j = Single period rate of return on stock j.

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

n = Number of years that the returns are taken.

3.4.6 Coefficient of Variation (C.V.)

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

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

Where,

C.V. = Coefficient of variation of stock.

$\exists_j$ = Standard deviation of return on stock j.

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

3.4.7 Beta Coefficient ( )

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

$$\beta_j = \frac{Cov(R_j, R_m)}{\pm_m^2}$$

Where,

β_j = Beta coefficient of stock j .

Cov (R_j, R_m) = Covariance between return on stock j and return on market .

$$= \frac{\sum R_j - E(R_j)' \cdot R_m - E(R_m)'}{n - 1}$$

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

3.4.8 Correlation Coefficient (P_{ij})

Two variables are correlated when they are related that the change in the value of one variable is accompanied by change in the value of other. Correlation may be positive or negative. If return on two securities are negatively correlated which combined in portfolio reduces the risk. If securities are positively correlated risk cannot be reduced.

Correlation coefficient is negative or positive which ranges from +1 to -1. It can be calculated as.

$$P_{ij} = \frac{Cov_{ij}}{\pm_i \pm_j}$$

where,

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

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

$\exists_i \exists_j$ = Standard deviation of returns for securities i and j.

3.4.9 Return on Market

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

$$R_m = \frac{NI_t \; Z \; NI_{tZ1}}{NI_{tZ1}}$$

Where,

R_m = Return on Market

NI_t = NEPSE index at time t

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

3.4.10 Expected Return on market, $E(R_m)$

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

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

Where,

$E(R_m)$ = Expected return on market.

R_m = Summation of market return.

N = Number of samples period.

3.4.11 Portfolio Risk and Return

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

Portfolio Return, $E(R_P)$

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

Symbolically,

$$E(R_P) = W_i\, E(R_i) + W_j\, E(R_j)$$

Where,

$E(R_P)$ = Expected return on portfolio

W_i = Proportion of wealth invested in i assets.

W_j = Proportion of wealth invested in j assets.

$E(R_i)$ = Expected return on i assets

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

Portfolio Risk

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

$$\exists_P = \sqrt{\pm_i^2 w_i^2 \Gamma \pm_j^2 w_j^2 \Gamma 2 w_i w_j \operatorname{cov}(R_j, R_j)}$$

Where,

$\exists_P$ = Standard deviation of stock i & j.

$\exists_i^2$ = Variance of assets i.

w_i = proportion of assets i.

$\exists_j^2$ = Variance of assets j.

w_j = Proportion of assets j.

Cov (R_i, R_j) = Covariance between the return of assets i & j.

3.4.12 Risk Minimizing Portfolio

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

$$W_i = \frac{\pm_j^2 Z Cov(R_i, R_j)}{\pm_i^2 \Gamma \pm_j^2 Z 2 Cov(R_i, R_j)}$$

$W_j = 1\text{-}W_i$

Where,

w_i = optimal weight to invest in stock i.

w_j = optimal weight to invest in stock j.

$\exists_j^2$ = Variance of stock j.

$\exists_i^2$ = Variance of stock i.

Cov (R_i, R_j) = Covariance of returns between stock i and j.

3.4.13 Partitioning of Total Risk

Systematic risk proportion (∂^2) = $\frac{^2_j \pm ^2_m}{\pm ^2_j}$

Unsystematic risk proportion ($1-P^2$) = $\frac{Var(e)}{\pm ^2_j}$

Where,

$\exists_j^2$ = Variance of stock j.

$\wp^2$ = Square beta of stock j.

$\exists_m^2$ = variance of market return.

Var (e) = residual variance.

3.5 Method of Analysis and Presentation

Results are presented in tabular form and clear interpretation on it is given simultaneously. All the method of analysis and presentation are applied as simple as possible. Detail calculations are presented in appendices at the end of report. To make report simple and easily understandable charts, diagrams and graphs have been used. Summary conclusion and recommendations are presented finally.

CHAPTER IV

DATA ANALYSIS AND MAJOR FINDINGS

4.1 Data Presentation and Analysis

This chapter including analysis of data collected and their presentation. In this chapter the effort has been made to analyze. “Risk and return analysis on the basis of common stock investment of commercial banks; with reference to Six commercial banks.” Detailed data of MPS and dividend of each and sector, NEPSE index of each sector and market is presented and their interpretation and analysis is done. With reference to the various readings and literature review in the previous chapter, effort is made to diagnose and analyze the recent Nepalese stock market movement with taking a special reference to listed commercial banks. Different tables and figures are drawn to make the result more simple and understandable.

The use of secondary data is much extensive which are collected through the records of annual report. The data have been collected from the published and unpublished official records of samples four commercial bonus and paper, previous studies, financial statement and annual report of the selected companies.

In this study the analysis is based on the secondary data that is presented in this way

- Expected return
- Standard deviation
- Coefficient of variation
- Analysis of Market sensitivity
- Analysis of portfolio

4.1.1 **Analysis of Individual Commercial Banks**

As the study has been taken special reference to listed commercial banks, common stock of listed commercial banks is analyzed individually. There are twenty six commercial banks and all are in operation till to date. Among them only six commercial bank are as sample of study. Each company is introduced and their common stock risk and return are analyzed and interpreted here. Name of the selected four commercial banks are as follows.

- Standard Chartered Bank Nepal Limited(SCBNL)
- Nepal Arab Bank Limited (NABIL)
- Bank of Kathmandu Limited (BOKL)
- Himalayan Bank Limited (HBL)
- Nepal SBI Bank Limited
- Nepal Investment Bank Limited (NIBL)

4.1.1.1 Standard Chartered Bank Nepal Limited (SCBNL)

This bank which is formerly Nepal Grindlays Bank was established in joint investment. It was established in 1985 as a foreign joint venture bank under the company act 1965. In 2000 the Nepal Grindlays Bank was amalgamate in standard chartered banking group and the 50% share of former was transferred to the latter by the virtue of amalgamation 33.34% of equity share capital was held by Nepal Bank Limited and remaining 16.66% share capital is held by general public investors. The bank has been providing various banking services to its customers through branches nationwide. The bank listed in the NEPSE in 2045 B.S. Its central office is at New Baneshwor, Kathmandu. Bank's Market capitalization is RS 56,011,180,640.00 and total paid-up capital is RS 931,966,400.00 with 9,319,664 numbers of Shares.

Table 4.1

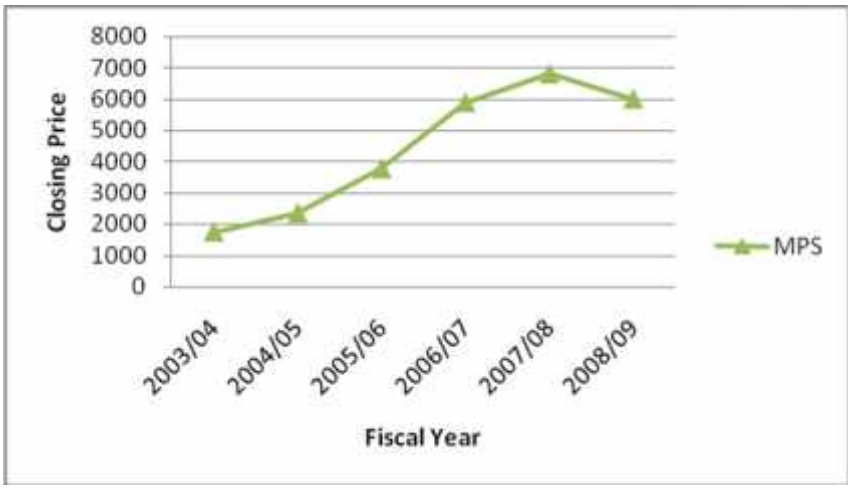
MPS and DPS of Common Stocks of SCBNL

Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	1800	1520	1745	110	-	110
2004/05	2350	1553	2345	120	-	120
2005/06	3775	2200	3775	130	10	720
2006/07	5900	3058	5900	80	50	3495
2007/08	9025	4505	6830	80	50	3085
2008/09	6050	6010	6010	50	50	2765

Source: *Appendix I*

Diagram 4.1

Year End Market Price Movement of the Common Stock of SCBNL



From the diagram 4.1, it can be concluded that movement of price of shares of SCBNL is in increasing trends from 2003/04 to 2007/2008. It was 1745 during the FY 2003/04 and reached till 6830 during the FY 2007/08. But the share price declined during the FY 2008/09 and reached 6010. It is because of global financial crisis which is being faced by all the countries

Table 4.2

Statistical Analysis of Common Stock of SCBNL

Fiscal Year	Year End Price	Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - E(R_j)$	$[R - E(R_j)]^2$
2003/04	1745	110	-	-	-
2004/05	2345	120	0.4126	-0.3441	0.1184
2005/06	3775	720	0.9168	0.1601	0.0256
2006/07	5900	3495	1.4887	0.7320	0.5359
2007/08	6830	3085	0.6805	-0.0762	0.0058
2008/09	6010	2765	0.2848	-0.4719	0.2227
Total			$\phi R = 3.7834$		$\phi [R Z E(\mathrm{Rj})]^2 = 0.9084$

Source: *Appendix II*

Here, from the table 4.2 we can see that the risk and return of SCBNL is 47.66% and 75.67% respectively. The coefficient of the variation is 0.6298, which means for earning 1 unit of return the investor has to bear 0.6298 units of risk.

4.1.1.2 Nepal Arab Bank Ltd. (NABIL)

Nepal Arab Bank Ltd (Nabil) is the first Joint venture commercial bank in Nepal which is the joint venture of Nepali promoters and Emirates Bank International (Dubai) in 1984 under the company act 1996. Now its 50% equity share is hold by Emirates Bank international, 20% equity share hold by Nepali promoters and financial institutions and remaining 30% were issued to general public of Nepal. Market Capitalization of this bank is Rs 47,311,945,530.00 and its total paid up capital is Rs 965,747,000.00 with 9,657,470 numbers of shares.

Table 4.3

MPS and DPS of Common Stocks of NABIL

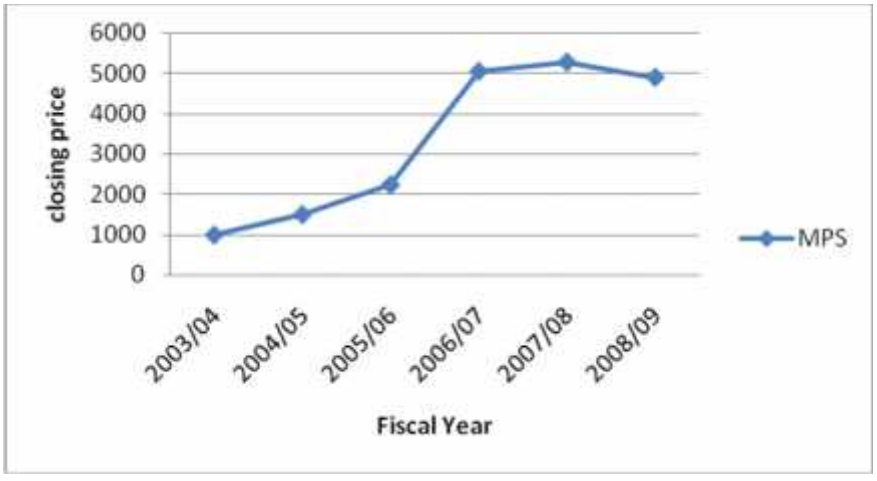
Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	1005	705	1000	65	-	65
2004/05	1515	1000	1505	70	-	70
2005/06	2300	1500	2240	85	-	85
2006/07	5050	2025	5050	100	40	2210
2007/08	6700	3410	5275	60	40	2019.60
2008/09	4920	4880	4899	35	50	2086.50

Source: *Appendix I*

The table 4.3 shows that Market price per share of NABIL is in increasing trend from FY 2003/04 till 2007/08 whereas it declined in FY 2008/09 and reached 4899. Where as total dividend paid by the bank in each year has increased since FY 2003/04 till 2008/09.

Diagram 4.2

Year End Market Price Movement of the Common Stock of NABIL



From the diagram 4.2 it is clear that the price of common stock of NABIL has increased efficiently during the FY year 2006/07 i.e. 5050 whereas during the FY 2007/08 there is

only slight increase in closing price i.e. 5275 and at the end of the FY 2008/09 the closing price started to decline and reached 4899.

Table 4.4

Statistical Analysis of Common Stock of NABIL

Fiscal Year	Year End Price	Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - E(R_j)$	$\{R - E(R_j)\}^2$
2003/04	1000	65	-	-	-
2004/05	1505	70	0.5750	-0.2509	0.0630
2005/06	2240	85	0.5449	-0.2811	0.0790
2006/07	5050	2210	2.2411	1.4151	2.0026
2007/08	5275	2019.60	0.4445	-0.3815	0.1455
2008/09	4899	2086.50	0.3243	-0.5017	0.2517
Total			$\phi R = 4.1297$		$\phi [R \, Z \, E(\mathrm{Rj})]^2 = 2.5418$

Source: *Appendix II*

Here, from table 4.4 we can see that the risk and return of NABIL is 79.71% and 82.59% respectively. The coefficient of the variation is 0.9651, which means for earning 1 unit of return the investor has to bear 0.9651 units of risk.

4.1.1.3 Bank of Kathmandu (BOKL)

Bank of Kathmandu Ltd. Was established in 1994 under joint investment of SIAM commercial Bank, Thailand and Nepali promoters. Market capitalization of this bank is Rs 14,776,963,250.00 and total paid up capital is Rs 844,397,900.00 with 8,443,979 numbers of shares.

Table 4.5

MPS and DPS of Common Stocks of BOKL

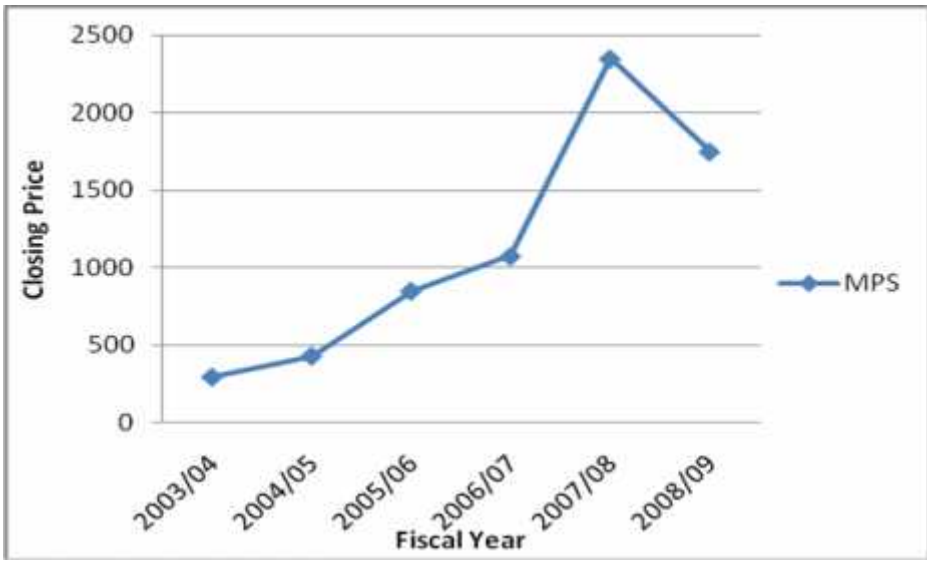
Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	310	175	295	10	-	10
2004/05	472	280	430	15	-	15
2005/06	881	422	850	18	30	340.50
2006/07	1375	691	1075	20	-	20
2007/08	2361	1200	2350	2.1053	40	702.11
2008/09	1835	1750	1750	7.37	40	611.37

Source: *Appendix I*

Table 4.5 shows that since FY 2003/04 Market price per share of BOKL is in increasing trend till 2007/08. The market price has doubled during FY 2007/08 than during FY 2006/07. Whereas during FY 2008/09 the market price declined to 1750. The total dividend distributed by the bank has also increased from FY 2003/04 till 2007/08 but decreased during FY 2008/09.

Diagram 4.3

Year End Market Price Movement of the Common Stock of BOKL



From the diagram 4.3 it is clear that the price of common stock of BOKL has increased efficiently during the FY year 2003/04 till FY 2007/08. The closing price of stock during FY 2003/04 is 295 and reached 2350 during 2007/08. Whereas the closing price at the end of the FY 2008/09 started to decline and reached 1750 which is due to global crisis all over..

Table 4.6

Statistical Analysis of Common Stock of BOKL

Fiscal Year	**Year End Price**	**Dividend**	**$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$**	**$R- E(R_j)$**	**$\{R- E(R_j)\}^2$**
2003/04	295	10	-	-	-
2004/05	430	15	0.5085	-0.3734	0.1394
2005/06	850	340.50	1.7686	0.8867	0.7863
2006/07	1075	20	0.2882	-0.5936	0.3524
2007/08	2350	702.11	1.8392	0.9573	0.9164
2008/09	1750	611.37	0.0048	-0.8770	0.7692
Total			ϕR =4.4093		$\phi [R Z E(\mathrm{Rj})]^2$ =2.9637

Source: *Appendix II*

Here, from table 4.6 we can see that the risk and return of BOKL is 86.08% and 88.19% respectively. The coefficient of the variation is 0.9761, which means for earning 1 unit of return the investor has to bear 0.9761 units of risk.

4.1.1.4 Himalayan Bank Limited (HBL)

Himalayan Bank Ltd is a joint venture bank with Habib Bank Ltd. of Pakistan established in 1992 under the company act 1964. This is the first joint venture bank managed by Nepali Chief Executive. The operation of the bank started from February 1993. Bank's Market Capitalization is Rs 21,405,384,000.00 and total paid up capital is Rs. 1,216,215,000.00 with 12162150number of shares. The main objectives of the bank is to provide modern banking facilities like tele banking to the businessmen, industrialists, other professional and to provide loans on agriculture and industrial sectors. Now its 20% equity share is hold by Habib Bank and 80% equity share is hold by Nepali promoters, financial institutions, general public and others. Following table 4.7 represents the market price and dividend purchase of HBL for the purpose of risk and return analysis.

Table 4.7

MPS and DPS of Common Stocks of HBL

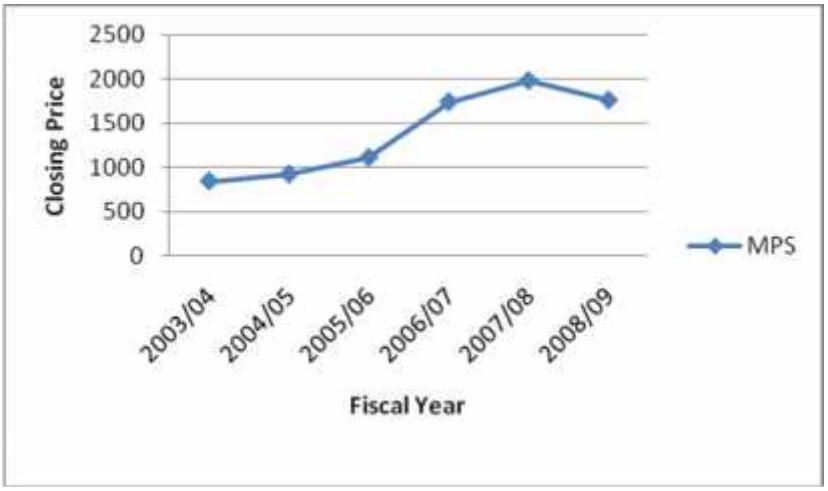
Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	1010	600	840	-	20	184
2004/05	1181	855	920	11.58	20	233.58
2005/06	1110	950	1110	30	5	117
2006/07	1740	1575	1740	15	25	510
2007/08	1980	1980	1980	25	20	377
2008/09	1887	1760	1760	12	31.56	488.56

Source: *Appendix I*

Table 4.7 shows that Market price per share of HBL has increased from FY 2003/04 till 2007/08 and started declining in FY 2008/09. This is due to global crisis all over. In FY 2006/07 HBL has distributed the highest dividend i.e. 510 and during FY 2005/06 HBL distributed least dividend i.e. 117.

Diagram 4.4

Year End Market Price Movement of the Common Stock of HBL



From the diagram 4.4 it is clear that the price of common stock of HBL has increased gradually since 2003/04 but started declining in FY 2008/09.

Table 4.8

Statistical Analysis of Common Stock of HBL

Fiscal Year	**Year End Price**	**Dividend**	**$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$**	**$R- E(R_j)$**	**$\{R- E(R_j)\}^2$**
2003/04	840	184	-	-	-
2004/05	920	233.58	0.3733	-0.0715	0.0051
2005/06	1110	117	0.3337	-0.1111	0.0124
2006/07	1740	510	1.0270	0.5822	0.3389
2007/08	1980	377	0.3546	-0.0902	0.0081
2008/09	1760	488.56	0.1356	-0.3092	0.0956
Total			ϕR =2.2242		$\phi [R \text{ Z } E(\text{Rj})]^2$ =0.4602

Source: *Appendix II*

Here, from table 4.8 we can see that the risk and return of HBL is 33.91% and 44.48% respectively. The coefficient of the variation is 0.7623, which means for earning 1 unit of return the investor has to bear 0.7623 units of risk.

4.1.1.5 Nepal SBI Bank Ltd.

Nepal SBI Bank Ltd is another joint venture of State Bank of India and Nepali promoters which was registered under the company act 1964 in 1993. The bank is managed by State Bank of India under joint venture and technical services agreement signed between them and Nepali promoters viz, employees provident fund and Agriculture Development Bank Nepal. The main objective of the bank is to carryout modern banking business in the country under commercial bank act 1974. The state bank of India is holding 50.60% equity and 49.40% equity is hold by Nepali promoters, general public investors and others. The bank's Market capitalization is Rs. 16,596,102,900.00 and total paid up capital is Rs. 873,479,100.00 with 8734791 number of shares.

Table 4.9

MPS and DPS of Common Stocks of Nepal SBI Bank

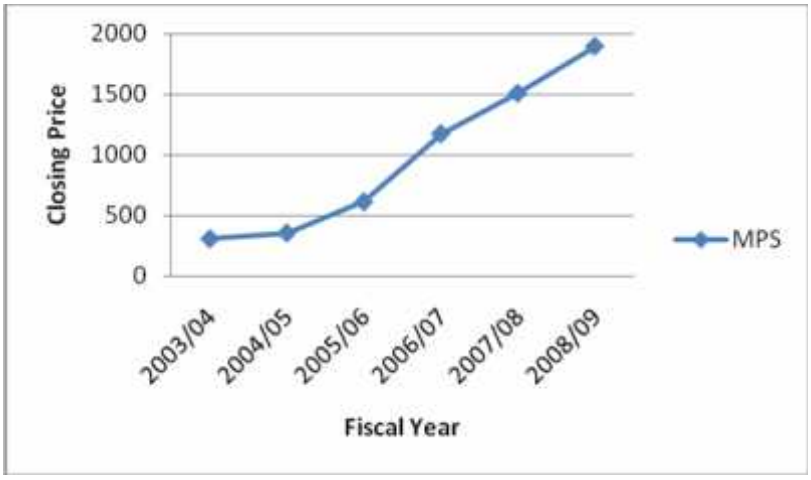
Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	307	231	307	-	-	-
2004/05	480	315	355	-	-	-
2005/06	689	335	612	5	5	63.80
2006/07	1176	505	1176	12.59	47.59	731.675
2007/08	1612	1000	1511	-	-	-
2008/09	1938	1900	1900	2.11	42.11	760.09

Source: *Appendix I*

Unlike other bank's common stock MPS and DPS of common stocks of Nepal SBI Bank is in increasing trend since 2003/04 till 2008/09. The bank has highest MPS during FY 2008/09 i.e. 1900 and least MPS during FY 2003/04 i.e. 307. During the FY 2008/09 it distributed total dividend of 760.09 to its shareholders.

Diagram 4.5

Year End Market Price Movement of the Common Stock of Nepal SBI Bank



The diagram 4.5 shows that Market price of the stock of Nepal SBI Bank has increased efficiently since FY 2003/04 till date. During FY 2003/04 the closing price of Nepal SBI Bank was 307. Since then it's price stated increasing and reached 1900 during the FY 2008/09.

Table 4.10

Statistical Analysis of Common Stock of Nepal SBI Bank

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	R- E(R_j)	{R- E(R_j)}^{2}
2003/04	307	-	-	-	-
2004/05	355	-	0.1564	-0.6881	**0.2996**
2005/06	612	63.80	0.9037	0.0592	**0.0400**
2006/07	1176	731.675	2.1171	1.2726	**1.9974**
2007/08	1511	-	0.2849	-0.5596	**0.1755**
2008/09	1900	760.09	0.7605	-0.0840	**0.0032**
Total			ϕR =4.2226		$\phi [R Z E(\mathrm{Rj})]^2$ =2.4167

Source: *Appendix II*

Here, from table 4.10 we can see that the risk and return of Nepal SBI Bank Ltd is 77.73% and 84.45% respectively. The coefficient of the variation is 0.9204, which means for earning 1 unit of return the investor has to bear 0.9204 units of risk.

4.1.1.6 Nepal Investment Bank Ltd. (NIBL)

Previous Nepal Indosuez Bank Ltd. is known as Nepal Investment Bank now. It is another joint venture bank established on 21st January 1986 under the company Act 1964. Now this bank is operating under the full ownership of Nepalese promoters and shareholders. Market capitalization of this bank is 33,410,116,332.00 and total paid up capital is 2,407,068,900.00 with 24070689 numbers of shares.

Table 4.11

MPS and DPS of Common Stocks of NIBL

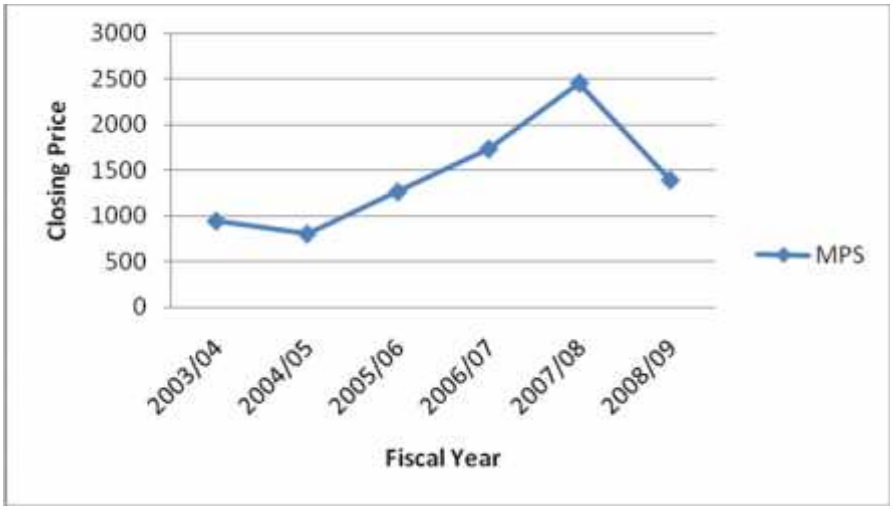
Fiscal Year	Market Price Per Share			Cash Dividend	Stock Dividend	Total Dividend
	High	Low	Closing			
2003/04	942	745	940	15	-	15
2004/05	1430	760	800	12.50	-	12.50
2005/06	1265	762	1260	20	35.46	633.103
2006/07	1729	1000	1729	5	25	617.50
2007/08	3101	1305	2450	7.5	33.33	470.12
2008/09	1406	1350	1388	20	-	20

Source: *Appendix I*

NIBL has least MPS during FY 2003/04 i.e. 940 and highest during FY 2007/08 i.e. 2450. But during FY 2008/09 Market price per share of NIBL declined to 1388. Table 4.11 shows that NIBL has distributed highest dividend to its shareholders during FY 2005/06 and distributed least dividend during FY 2004/05 i.e. 12.50.

Diagram 4.6

Year End Market Price Movement of the Common Stock of NIBL



According to year end market price of share, the market price of the shares of NIBL is high in FY 2007/08 and very low in FY 2004/05. After 2004/05 market price of NIBL increased efficiently but after 2007/08 market price started declining.

Table 4.12

Statistical Analysis of Common Stock of NIBL

Fiscal Year	**Year End Price**	**Dividend**	**$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$**	**$R- E(R_j)$**	**$\{R- E(R_j)\}^2$**
2003/04	940	15.00	-	-	-
2004/05	800	12.50	-0.1356	-0.6070	0.3684
2005/06	1260	633.103	1.3664	0.8951	0.8011
2006/07	1729	617.50	0.8623	0.3910	0.1529
2007/08	2450	470.12	0.6889	0.2176	0.0473
2008/09	1388	20.00	-0.4253	-0.8966	0.8040
Total			ϕR **=2.3566**		$\phi [R \, Z \, E(\mathrm{Rj})]^2$ **=2.1737**

Source: *Appendix II*

Here, from table 4.12 we can see that the risk and return of NIBL is 73.72% and 47.13% respectively. The coefficient of the variation is 1.5641, which means for earning 1 unit of return the investor has to bear 1.5641 units of risk.

4.2 Comparative Analysis of Obtained Results

4.2.1 Inter Bank Comparisons

The result from previous section (4.1) is presented here in a tabular, Graphic form. From the year 2003/04 to 2008/09.

Table 4.13

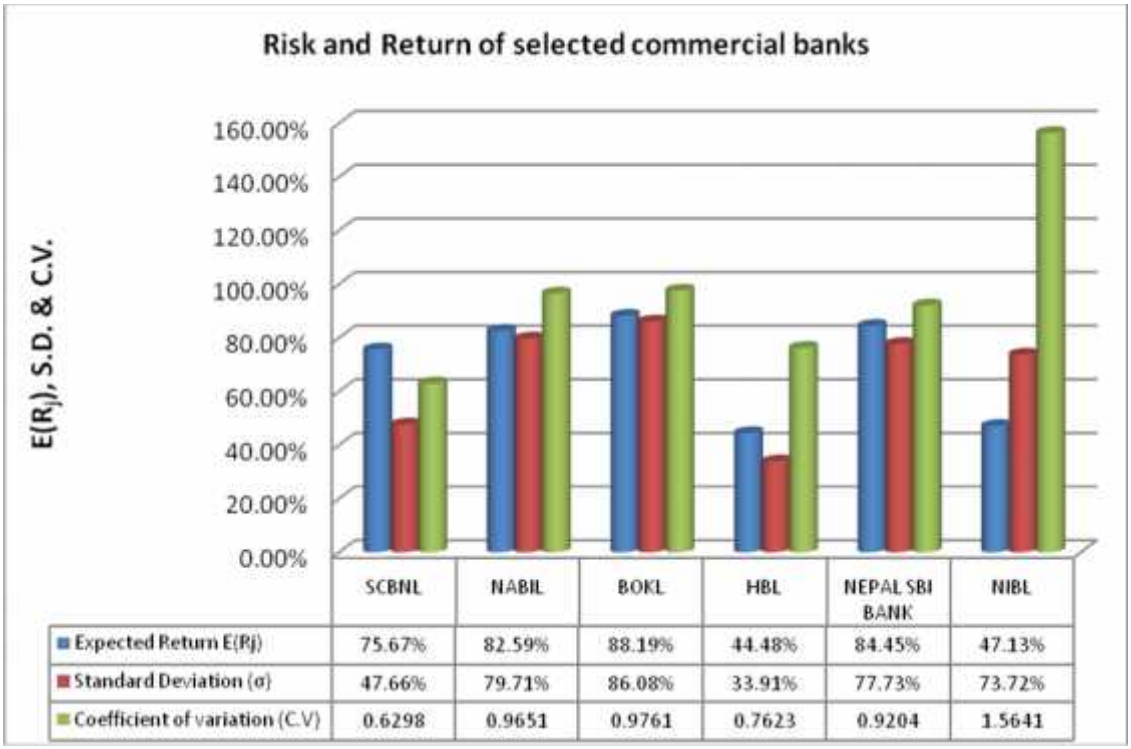
Expected Return, S.D. and Coefficient of Variation of each Bank

Banks	Expected Return $E(R_j)$	Standard Deviation (σ)	Coefficient of variation (C.V)	Remarks		
				$E(R_j)$	(σ)	(C.V)
SCBNL	75.67%	47.66%	0.6298			
NABIL	82.59%	79.71%	0.9651			
BOKL	88.19%	86.08%	0.9761	Highest	Highest	
HBL	44.48%	33.91%	0.7623	Lowest	Lowest	Lowest
NEPAL SBI BANK	84.45%	77.73%	0.9204			
NIBL	47.13%	73.72%	1.5641			highest

Source: *Appendix II*

The table 4.13 shows that investors can get the highest return for investment in common stock of Bank of Kathmandu Limited and lowest return from investment in common stock of Himalayan Bank Limited. Bank of Kathmandu has the highest and Himalayan Bank Limited has the lowest standard deviation. But coefficient of variation is best way to make investment decision is common stock when two or more investment has different return and different risk. Coefficient of variation measures the risk per unit. Nepal Investment Bank Limited has highest and Himalayan Bank Limited has lowest C.V. The comparison can easily be understandable from the diagram 4.7 presented below.

Diagram 4.7



4.2.2 Comparison of Selected Commercial Banks on the Basis of Market Capitalization

Market Capitalization is the total value at specific period of time. The market capitalization of listed securities of the six commercial banks at the end of the fiscal year 2008/09 is presented below.

Table 4.14

Market Capitalization of Selected Banks

(Rs. In Millions)

S. No.	Commercial Banks	Market Capitalization	Percentage
1	SCBNL	56011.18	29.54%
2	NABIL	47311.95	24.97%
3	BOKL	14776.96	7.80%
4	HBL	21405.38	11.30%
5	Nepal SBI Bank	16596.10	8.76%
6	NIBL	33410.12	17.63%
	TOTAL	189511.69	100

Source: *refer annual trading report 2008/09, NEPSE*

Diagram 4.8

Market Capitalization of Selected Banks

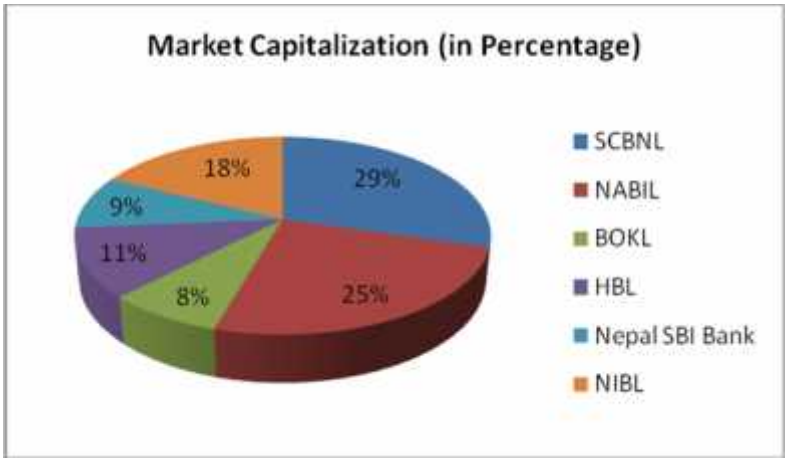


Table 4.13 shows the market capitalization of selected commercial banks at the end of the fiscal year 2008/09. The market capitalization of SCBNL is highest by 29.54% and the market capitalization of BOKL is low by 7.80%.

4.2.3 Analysis of Market Risk and Return

Nepal Stock Exchange Limited (NEPSE) is only one stock market of Nepal. Hence, NEPSE index represents the overall market movement. Market Risk and Return is determined on the basis of year-end NEPSE index.

Realized return, Expected return, standard Deviation and coefficient of the variation of Market Index are summarized below.

Table 4.15

Realized Return, Expected Return, Standard Deviation and Coefficient of Variation of Market Index

YEAR	Year-end Index	R_m	R_M-E(R_M)	$[R_M\text{-E}(R_M)]^2$
2003/04	222.04	-	-	-
2004/05	286.67	0.2911	-0.0279	0.0008
2005/06	386.83	0.3494	0.0305	0.0009
2006/07	683.95	0.7681	0.4492	0.2017
2007/08	963.36	0.4085	0.0896	0.0080
2008/09	749.10	-0.2224	-0.5413	0.2931
	Total	$E(R_m)$=1.5947		$\phi\,[Rm\ Z\,E(\text{Rm})]^2$ X0.5045

Source: *Appendix II*

The expected rate of return on overall market is 31.89% by the end of the FY 2008/09. The NEPSE index is highest in the fiscal year 2007/08 and lowest in the fiscal year 2003/04. After 2007/08 i.e. during FY 2008/09 due to decrease in share transaction NEPSE index decline to 749.10 from 963.36. This can be clear from the diagram below.

4.3 Comparison of Sample banks with Market

4.3.1 Standard Chartered Bank Nepal Limited (SCBNL)

Table 4.16

Summary of Risk and Return for SCBNL and Market

Statistics	SCBNL	Market
Expected Return, $E(R_j)$	0.7567	0.3189
Variance ($\exists^2$)	0.2271	0.1261
Standard Deviation($\exists$)	0.4766	0.3551
Coefficient of Variation (C.V)	0.6298	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.1737	-
Unsystematic risk (e^2)	0.0534	-
Beta (β)= Index of Systematic risk	1.1735	1
Alpha ($\Im$)	0.3825	-
Correlation with market (ρ)	0.8746	-
Proportion of Systematic risk (ρ^2)	0.7649	-
Proportion of Unsystematic risk($1-\rho^2$)	0.2351	-

Data Source: *Appendix II & III*

SCBNL's common stocks expected return is higher than the market return (75.67>31.89), which means SCBNL's Stock return is 2.3728 times higher than the market return. This is due to paying of higher dividend by this bank. SCBNL's common stock's standard deviation is also higher than the market standard deviation (i.e. 0.4766>0.3551).

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of SCBNL is less than coefficient of variation of market (i.e. 0.6298<1.1134) which means common stock of SCBNL has less risk per unit than the market price.

Beta coefficient of SCBNL is 1.1735 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 1.0051(β>1) means that SCBNL's return is more volatile than the market return.

The intercept is 0.3825. It shows that the SCBNL's return is 0.3825 when market return is zero. Expected return of SCBNL is 0.3825 times when the market earns nothing. If the yearly market return is expected to be 1 percent, expected yearly return of SCBNL is

$R= \Im + \beta R_m$

$= 0.3825+1.1735*0.3189$

$= 0.7567 = 75.67\%$

The correlation of SCBNL with market is 0.8746. The positive correlation indicates that if the market (NEPSE) return goes up, return of SCBNL also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.7649. It indicates the percentage of the variance of SCBNL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.2351 ($1- \rho^2$) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

4.3.2 NABIL BANK LIMITED

Table 4.17

Summary of Risk and Return for NABIL and Market

Statistics	NABIL	Market
Expected Return, $E(R_j)$	0.8259	0.3189
Variance ($\exists^2$)	0.6354	0.1261
Standard Deviation($\exists$)	0.7971	0.3551
Coefficient of Variation (C.V)	0.9651	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.3764	-
Unsystematic risk (e^2)	0.2590	-
Beta (β)= Index of Systematic risk	1.7278	1
Alpha ($\Im$)=Intercept	0.2749	-
Correlation with market (ρ)	0.7697	-
Proportion of Systematic risk (ρ^2)	0.5924	-
Proportion of Unsystematic risk($1-\rho^2$)	0.4076	-

Data Source: *Appendix II & IV*

Expected return of NABIL bank is higher than the market return which means common stock of NABIL bank's expected return is 2.5898 times higher than the market return. Standard deviation of NABIL bank is also higher than the standard deviation of market, which means total risk on return of NABIL bank is 2.2447 times riskier than the market return on common stock.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of NABIL is less than coefficient of variation of market (i.e.

0.9651<1.1134) which means common stock of NABIL has less risk per unit than the market price.

Beta coefficient of NABIL is 1.7278 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 1.7278(β>1) means that NABIL's return is more volatile than the market return.

The intercept is 0.2749. It shows the return of NABIL bank when market return is zero. Expected return of NABIL is 0.2749 times when the market earns nothing.

The correlation of NABIL with market is 0.7697. The positive correlation indicates that if the market (NEPSE) return goes up, return of NABIL also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.5924. It indicates the percentage of the variance of NABIL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.4076 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

4.3.3 BANK OF KATHMANDU LIMITED (BOKL)

Table 4.18

Summary of Risk and Return for BOKL and Market

Statistics	BOKL	Market
Expected Return, $E(R_j)$	0.8819	0.3189
Variance ($\exists^2$)	0.7409	0.1261
Standard Deviation($\exists$)	0.8608	0.3551
Coefficient of Variation (C.V)	0.9761	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.0544	-
Unsystematic risk (e^2)	0.6865	-
Beta (β)= Index of Systematic risk	0.6568	1
Alpha ($\Im$)=Intercept	0.6724	-
Correlation with market (ρ)	0.2709	-
Proportion of Systematic risk (ρ^2)	0.0734	-
Proportion of Unsystematic risk($1-\rho^2$)	0.9266	-

Data Source: *Appendix III & V*

Expected return on common stock of BOKL is higher than the market return which means BOKL's expected return is 2.7654 times higher than the market return. Standard deviation of BOKL is also higher than the standard deviation of market, which means total risk on return of BOKL is 2.4241 times riskier than the market return on common stock.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of BOKL is less than coefficient of variation of market (i.e.

0.9761<1.1134) which means common stock of BOKL has less risk per unit than the market price.

Beta coefficient of BOKL is 0.6568 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 0.6568(β<1) means that BOKL's return is less volatile than the market return.

The intercept is 0.6724. It shows the return of BOKL when market return is zero. Expected return of BOKL is 0.6724 times when the market earns nothing.

The correlation of BOKL with market is 0.2709. The positive correlation indicates that if the market (NEPSE) return goes up, return of BOKL also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.0734. It indicates the percentage of the variance of BOKL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.9266 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

4.3.4 Himalayan Bank Limited (HBL)

Table 4.19

Summary of Risk and Return for HBL and Market

Statistics	HBL	Market
Expected Return, $E(R_j)$	0.4448	0.3189
Variance ($\exists^2$)	0.1150	0.1261
Standard Deviation($\exists$)	0.3391	0.3551
Coefficient of Variation (C.V)	0.7623	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.0872	-
Unsystematic risk (e^2)	0.0278	-
Beta (β)= Index of Systematic risk	0.8315	1
Alpha ($\Im$)=Intercept	0.1796	-
Correlation with market (ρ)	0.8708	-
Proportion of Systematic risk (ρ^2)	0.7582	-
Proportion of Unsystematic risk($1-\rho^2$)	0.2418	-

Data Source: *Appendix II & VI*

Expected return on common stock of HBL is higher than the market return which means HBL's expected return is 1.3948 times higher than the market return. Standard deviation of HBL is lower than the standard deviation of market (i.e. 0.3391<0.3551), which means total risk on return of HBL's stock is less riskier than that of market return.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of HBL is less than coefficient of variation of market (i.e.

0.7623<1.1134) which means common stock of HBL has less risk per unit than the market price.

Beta coefficient of HBL is 0.8315 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 0.8315(β<1) means that HBL's return is less volatile than the market return.

The intercept is 0.1796. It shows the return of HBL when market return is zero. Expected return of HBL is 0.1796 times when the market earns nothing.

The correlation of HBL with market is 0.8708. The positive correlation indicates that if the market (NEPSE) return goes up, return of HBL also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.7582. It indicates the percentage of the variance of HBL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.2418 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

4.3.5 Nepal SBI Bank Ltd.

Table 4.20

Summary of Risk and Return for Nepal SBI Bank Ltd. and Market

Statistics	Nepal SBI Bank Ltd.	Market
Expected Return, $E(R_j)$	0.8445	0.3189
Variance ($\exists^2$)	0.6042	0.1261
Standard Deviation($\exists$)	0.7773	0.3551
Coefficient of Variation (C.V)	0.9204	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.1714	-
Unsystematic risk (e^2)	0.4328	-
Beta (β)= Index of Systematic risk	1.1657	1
Alpha ($\Im$)=Intercept	0.4728	-
Correlation with market (ρ)	0.5325	-
Proportion of Systematic risk (ρ^2)	0.2836	-
Proportion of Unsystematic risk($1-\rho^2$)	0.7164	-

Data Source: *Appendix II & VII*

Expected return on common stock of Nepal SBI Bank is higher than the market return which means Nepal SBI Bank's expected return is 1.3948 times higher than the market return. Standard deviation of Nepal SBI Bank is higher than the standard deviation of market, which means total risk of return on common stock of Nepal SBI Bank is more riskier than that of market return.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of Nepal SBI Bank is less than coefficient of variation of market

(i.e. 0.9204<1.1134) which means common stock of Nepal SBI Bank has less risk per unit than the market price.

Beta coefficient of Nepal SBI Bank is 1.1657 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 1.1657(β>1) means that Nepal SBI Bank's return is more volatile than the market return.

The intercept is 0.4728. It shows the return of Nepal SBI Bank when market return is zero. Expected return of Nepal SBI Bank is 0.4728 times when the market earns nothing.

The correlation of Nepal SBI Bank with market is 0.5325. The positive correlation indicates that if the market (NEPSE) return goes up, return of Nepal SBI Bank also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.2836. It indicates the percentage of the variance of Nepal SBI Bank's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.7164 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

4.3.6 Nepal Investment Bank Ltd. (NIBL)

Table 4.21

Summary of Risk and Return for NIBL and Market

Statistics	NIBL	Market
Expected Return, $E(R_j)$	0.4713	0.3189
Variance ($\exists^2$)	0.5434	0.1261
Standard Deviation($\exists$)	0.7372	0.3551
Coefficient of Variation (C.V)	1.5641	1.1134
Systematic risk ($\beta^2\exists_m^2$)	0.2603	-
Unsystematic risk (e^2)	0.2831	-
Beta (β)= Index of Systematic risk	1.4368	1
Alpha ($\Im$)=Intercept	0.0131	-
Correlation with market (ρ)	0.6921	-
Proportion of Systematic risk (ρ^2)	0.4790	-
Proportion of Unsystematic risk($1-\rho^2$)	0.5210	-

Data Source: *Appendix II & VIII*

Expected return on common stock of NIBL is higher than the market return which means NIBL expected return is 1.4779 times higher than the market return. Standard deviation of NIBL is higher than the standard deviation of market, which means total risk of return on common stock of NIBL is more riskier than that of market return.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of NIBL is more than coefficient of variation of market (i.e.

1.5641>1.1134) which means common stock of NIBL has more risk per unit than the market price.

Beta coefficient of NIBL is 1.4368 based on the yearly returns during FY 2003/04 to 2008/09. A beta of 1.4368(β>1) means that NIBL's return is more volatile than the market return.

The intercept is 0.0131. It shows the return of NIBL when market return is zero. Expected return of NIBL is 0.0131 times when the market earns nothing.

The correlation of NIBL with market is 0.6921. The positive correlation indicates that if the market (NEPSE) return goes up, return of NIBL also goes up or vise versa. The coefficient of determination or proportion of systematic risk is 0.4790. It indicates the percentage of the variance of NIBL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.5210 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

Table 4.22

Summary of Risk and Return for Sample

Statistic	SCBNL	NABIL	BOKL	HBL	Nepal SBI Bank	NIBL
$E(R_j)$	0.7567	0.8259	0.8819	0.4448	0.8445	0.4713
$(\exists^2)$	0.2271	0.6354	0.7409	0.1150	0.6042	0.5434
$(\exists)$	0.4766	0.7971	0.8608	0.3391	0.7773	0.7372
(C.V)	0.6298	0.9651	0.9761	0.7623	0.9204	1.5641
$(\beta^2\exists_m^2)$	0.1737	0.3764	0.0544	0.0872	0.1714	0.2603
(e^2)	0.0534	0.2590	0.6865	0.0278	0.4328	0.2831
(β)	1.1735	1.7278	0.6568	0.8315	1.1657	1.4368
$(\Im)$	0.3825	0.2749	0.6724	0.1796	0.4728	0.0131
(ρ)	0.8746	0.7697	0.2709	0.8708	0.5325	0.6921
(ρ^2)	0.7649	0.5924	0.0734	0.7582	0.2836	0.4790
$(1- \rho^2)$	0.2351	0.4076	0.9266	0.2418	0.7164	0.5210

Data Source: *Table 4.15 to Table 4.20*

4.4 Price Evaluation of Selected Banks

CAPM is model that assumes stock's required rate of return is equal to the risk free rate plus its risk premium where risk is measured by the beta coefficient. Beta coefficient play vital role in CAPM approach. If the required rate of return is less than expected rate of return, the stock is said to be underpriced and if the required rate of return is more than the expected rate of return the stock is said to be over priced. For this analysis the risk free rate of return is needed, which is taken from the interest rate of treasury bill issued by Nepal Rastra Bank. NRB issued treasury bill, 91 days and 364 days time duration.

Table 4.22 shows the required rate of return, expected rate of return and price evaluation. 91 days duration treasury bill rate is taken as risk free rate which is approximately 5.98 percent in April 2009.

Table 4.23

Calculation of Required Rate of Return (RRR), Expected Rate of Return (ERR) and Price Evaluation of each Stock by CAPM Model

Banks	Beta	(RRR) = R_f + [E(R_m)- R_f]	E(R_i)	Price Situation
SCBNL	1.1735	0.3639	0.7567	Under Priced
NABIL	1.7278	0.5075	0.8259	Under Priced
BOKL	0.6568	0.2300	0.8819	Under Priced
HBL	0.8315	0.2752	0.4448	Under Priced
Nepal SBI Bank	1.1657	0.3618	0.8445	Under Priced
NIBL	1.4368	0.4321	0.4713	Under Priced

Data Source: Table 4.21 and Appendix II

The stocks of all six commercial banks are under priced as their required rate of return is less than the expected rate of return. The chances of increase in value of under priced stock in future is high so investors should buy these stocks so that they can gain higher return in future.

4.5 Portfolio Analysis

Portfolio is a combination of more than two types of assets for the investment. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selections of securities that are to be added to a portfolio. It reduces a portfolio's total diversifiable risk to zero. In previous topic and headings the analysis 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 that the weights are equal to the proportion of total fund invested in each security. Portfolio is a group of assets compiled to minimize the risk on investment. To invest in single security is risky, but to be relatively safe if hold in a portfolio. The major objective of portfolio analysis is to suggest the assets for investment that stabilized the earnings and minimize the risk. It helps to minimize the chance of loss from the change in stock price. 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 four assets portfolio and the tools for analysis are described in the Research Methodology in chapter – 3.

To analyze the four assets portfolios among the six commercial banks, at first equal proportion of capital should be invested in common stock of each commercial bank i.e. 16.67% weight in each common stock. Here, common stock of six selected sample commercial banks are taken to construct the four assets portfolio.

4.6 Analysis of Average/Pooled Six Sample Commercial Banks

Table 4.24

Average Return of Six Commercial Banks

Banks	**Fiscal Year/Return**					**Total**
	2004/05	2005/06	2006/07	2007/08	2008/09	
SCBNL	0.4126	0.9168	1.4887	0.6805	0.2848	
NABIL	0.5750	0.5449	2.2411	0.4445	0.3243	
BOKL	0.5085	1.7686	0.2882	1.8392	0.0048	
HBL	0.3733	0.3337	1.0270	0.3546	0.1356	
Nepal SBI Bank	0.1564	0.9037	2.1171	0.2849	0.7605	
NIBL	-0.1356	1.3664	0.8623	0.6889	-0.4253	
Total	**1.8902**	**5.8341**	**8.0244**	**4.2926**	**1.0847**	
Average	**0.3150**	**0.9724**	**1.3374**	**0.7154**	**0.1808**	**3.5210**

Data source: *Appendix II*

From table 4.24 it is clear that average return of six commercial banks during the FY 2004/05 is 0.3150. The average return of six commercial banks is highest during the FY 2006/07 i.e. 1.3374 and lowest during the FY 2008/09 i.e. 0.1808.

Table 4.25

Statistical Analysis of Common Stock of Six Commercial Banks

Investment	Expected Return	Standard Deviation	Coefficient of Variation
Average of six commercial banks	70.42%	0.4739	0.6730

Data Source: *Appendix II*

Table 4.25 shows that the expected return is 70.42% , Standard Deviation is 47.39% and coefficient of Variation is 67.30% of six sample commercial banks.

4.7 Portfolio analysis among six selected commercial banks

For the six assets portfolio, let us consider A, B, C, D, E & F be the common stock of the commercial banks SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank & NIBL respectively. To calculate the six assets portfolio risk, we have to calculate covariance of six commercial banks. Thus, table 4.24 shows the calculation of covariance of assets.

Table 4.26

Calculation of Portfolio Return and Risk

Investment	Expected Return	Standard Deviation
Portfolio of six commercial banks	70.43%	34.87%

Data Source: *Appendix II*

Table 4.26 shows that portfolio return of six commercial banks is 70.43% and the risk association with it is 34.87%

Comparison of Risk and Return of Portfolio Analysis of Six Assets and Average of Six Sample Commercial Banks

The following table 4.25 shows the comparison study of expected portfolio return and expected portfolio risk of investments.

Table 4.27

Return and Risk of Investments

Investment	Expected Return	Risk %
Average of six commercial banks	0.7042	0.4739
Portfolio of Six Assets	0.7043	0.3487

Data Source: *Appendix II*

The table 4.25 clearly states that the average expected return of six commercial banks is 70.42% and risk associated with this return is 47.39%.

Whether the expected return of portfolio is 70.43% which is approximately equal with average expected return, the portfolio risk associated with this return is 34.87% which is less than the risk associated with the average expected return.

4.8 Portfolio Analysis in Each Two Assets among Selected Assets

As assuming before, proportion investment in each two assets is equal to 50% of capital to minimize the risk.

Therefore, portfolio analysis in each two assets among selected assets are shown in Table 4.28 below:

Table 4.28

Portfolio Return & Risk in each Two Assets

Assets	Portfolio Return	Portfolio Risk
A & B (SCBNL & NABIL)	79.13%	61.93%
B & C (NABIL & BOKL)	85.39%	47.85%
C & D (BOKL & HBL)	66.34%	43.00%
D & E (HBL & Nepal SBI Bank)	64.47%	53.60%
E & F (Nepal SBI Bank & NIBL)	65.79%	63.41%
F & A (NIBL & SCBNL)	61.40%	56.85%
A & C (SCBNL & BOKL)	81.93%	51.39%
A & D (SCBNL & HBL)	60.08%	39.84%
A & E (SCBNL & Nepal SBI Bank)	80.06%	60.44%
B & D (NABIL & HBL)	63.54%	56.60%
B & E (NABIL & Nepal SBI Bank)	83.52%	76.58%
B & F (NABIL & NIBL)	64.86%	63.93%
C & E (BOKL & Nepal SBI Bank)	86.32%	47.20%
C & F (BOKL & NIBL)	67.66%	73.75%
D & F (HBL & NIBL)	45.81%	46.71%

Data Source: *Appendix X to XI*

Here, the portfolio return of BOKL & Nepal SBI Bank is maximum by 86.32% and HBL & NIBL is minimum by 45.81%. Similarly, the portfolio risk of NABIL & Nepal SBI Bank is maximum by 76.58% and portfolio risk of SCBNL & HBL is minimum by 39.84%.

4.9 Major Findings

Major findings of the above calculation are presented as follows.

1. Among 26 commercial banks, 18 commercial banks are listed in NEPSE. Among the listed commercial banks, only six commercial banks i.e. SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank & NIBL are taken into consideration. The Expected return of six commercial banks is 75.67%, 82.59%, 88.19%, 44.48%, 84.45% & 47.13% respectively.

2. Standard deviation of SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank & NIBL is 47.66%, 79.71%, 86.08%, 33.91%, 77.73% & 73.72%. Standard deviation of BOKL is maximum by 86.08% and standard deviation HBL is minimum by 33.91%.

3. On the basis of coefficient of variation, the coefficient of variation of SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank & NIBL is 0.6298, 0.9651, 0.9761, 0.7623, 0.9204 & 1.5641. It is clear that investment in common stock of NIBL is highly risky whereas investment in stock of SCBNL is less risky.

4. Sector wise NEPSE index is in increasing trend from 2003/04 to 2007/09 whereas it started declining in the FY 2008/09. So, considering Market risk and return, expected return of overall market from fiscal year 2003/04 to 2008/09 is 31.89% and the risk associated with expected return is 35.51% and the coefficient of variation is 1.1134 units. Here risk is higher than return.

5. The beta coefficient of SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank and NIBL is 1.1735, 1.7278, 0.6568, 0.8315, 1.1657 and 1.4368 respectively. It proves that the common stock of Nabil bank is most aggressive and the common

stock of BOKL is least aggressive so it is better to invest in common stock of BOKL because the beta coefficient indicates systematic risk of the assets.

6. Considering market capitalization of six commercial banks the market capitalization is SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank and NIBL is 29.54%, 24.97%, 7.80%, 11.30%, 8.76% and 17.63% respectively in the year 2008/09. The market capitalization of SCBNL is maximum by 29.54% and the market capitalization of BOKL is minimum by 7.80%.

7. On the basis of required rate of return and expected rate of return the study shows RRR of SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank and NIBL is 0.3639, 0.5075, 0.23, 0.2752, 0.3618 and 0.4321 respectively. Analysis of RRR and ERR shows that the common stock of all six banks are under priced.

8. The average expected return of common stock of six sample commercial banks is 70.42% and the risk associated with this return is 47.39%. On the basis of Portfolio analysis, six assets portfolio is constructed and the portfolio return is 70.43% which is approximately equal to average expected return, but the portfolio risk associated with this return is 34.87%.

9. The portfolio return of BOKL & Nepal SBI Bank is maximum by 86.32% and HBL & NIBL is minimum by 45.81%. Similarly, the portfolio risk of NABIL & Nepal SBI Bank is maximum by 76.58% and portfolio risk of SCBNL & HBL is minimum by 39.84%.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary

Financial analysis consists of the acquisition, utilization, control and administration of funds. Managerial finance and investment analysis are an exciting and dynamic area of study and its importance to long run success of today's business is unquestioned.

Return is fundamental requirement of investment and a certain level of risk is attached with it. Saving is worthless until and unless used in productive investment. Finance mostly deals with the monetary risk and return which is the most influencing subject matter for an individual and to small and large corporations as well. Past trend shows that the field of finance is gradually improving and it has truly undergone a revolution and it is one of the leading sectors. Stock market has become a global phenomenon.

Generally, investors invest their current cash only to those areas where there is high return and low risk. And the investor looking for the common stock investment usually pays the price for the stock based on his estimation about future dividends and grown in stock price. This study occupies an important role in the development of stock market. Besides commercial bank, development banks are investing their performance in Nepalese banking sector.

Lack of information and lean knowledge is chief problem faced by individual investor who are manipulated and exploited by the financial institutions and their market intermediaries. The attitude and perception of investors play chief role in investment decision which is influenced by the information and access to the data required for analysis. Investor invests their wealth on the basis of guess and hunches because they do not have any information about the financial access and they also lack the idea to reach to ideal investment decision. Investor purchase stocks merely looking past trend of stock prices and sometimes they have to bear heavy loss due to inadequate knowledge and information related to the stock investment. Investors expect favorable return by holding stock.

Since the main objective of the study is to analyze the risk and return of common stocks in Nepalese context .The study is focused on the common stock of listed commercial banks. Thus listed six commercial banks are taken as sample to analyze the risk and return on common stock investment. While analyzing the risk and return, brief review of related studies has been performed. The analysis of risk and return is significant in investment decision as well as managerial decision. It influences risk and return of the shareholders. Consequently the risk and return analysis influences the market price of stock. So before making an investment decision, a person must analyzed the risk and return from particular stock as well as they can make a good risk minimizing portfolio between their investments in the stock. While analyzing the risk and return brief review of related studies has been performed. Scientific methods are used in data analysis and tables, graphs and diagrams are used to present the data and findings clearly. Both quantitative and qualitative analysis has been performed by using statistical tools as well as personal judgement. Secondary data re collected from the NEPSE, annual and quarterly publication of NRB, SEBON and from other individual commercial banks.

5.2 Conclusions

This study enables investors to put the returns they can expect and the risk they may take into better perspective because most of the people considered stock market investment as a black art that they have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps a far of the unknown. Nepalese stock market is in emerging stage and its development is accelerating since the political change in 2046 B.S. which is the effect of open economy and liberalization in national economy. But, Nepalese individual investors cannot analyze the securities as well as market properly because of lack of information and poor knowledge about the analysis of securities investment. Following are the major conclusion summarized.

1. The return is the income received on common stock investment, which is usually expressed in percentage. Among selected six commercial banks expected return on the common stock of BOKL is maximum (i.e. 88.19%) and expected return on the common stock of HBL is minimum by 44.48%.

2. Risk is associated with return and it is variability of returns which is measured in terms of standard deviation, common stock of BOKL is most risky, since it has the highest standard deviation i.e. 86.08% and common stock of HBL is least risky because its standard deviation is 33.91%.

3. On the other hand, coefficient of variation is more rational basis of investment decision which measures the risk per unit of variation, common stock of SCBNL is best among all selected commercial banks. SCBNL has 0.6298 unit of risk per unit of return. Whereas common stock NIBL has highest risk considering per unit return (i.e. 1.5641 units).

4. Standard deviation measures unsystematic risk which is not defined by the market. Another aspect of the risk is systematic risk which is defined by the market and measured by beta coefficient. Beta coefficient measures the sensitivity or volatility of the stock with the market.

5. Capital asset pricing model (CAPM) describes the relationship between risk and required rate of return. Summation of risk free rate (R_F) and premium based in the systematic risk of the security is required rate of return of the common stock. Comparison between required rate of return (RRR) and expected rate of return (ERR) helps to predict whether the stock is overpriced or under priced. If the required rate of return is greater than expected rate of return, the price of stock is overpriced and vice versa. The study shows that the common stocks of all selected commercial banks are underpriced. All the stocks are in demand and investors can buy the stock of all the six commercial banks.

6. It can be concluded that the diversification of fund by making a portfolio can reduce unsystematic risk of individual security significantly. If investors select the securities for investment, which has highly negative correlations of return, the risk can be reduced totally. If the correlation between the return of two stocks is highly positive, risk reduction is not too significant. So, portfolio between the common stock of same industry cannot reduce risk properly. In this study

portfolio investment has less risk (i.e. 34.87%) than average risk of six assets (i.e. 47.39%) where as the average return and portfolio return is approximately equal.

7. Among six selected commercial banks if investors invest in each two assets they will get good result in their investment.

5.3 Recommendation

The focus of the study is to assess risk associated with return on common stock considering individual and private investors. The following facts are recommended on the basis of data analysis and major findings of this research.

1. Proper analysis of individual security industry and overall market is always essential to make possible to conquer the stock market. General knowledge about economic, political as well as technological trend will be advantageous which is proved by the present political situation of Nepal, it cause a great deterioration in share price. To win in the market, sell shares when market is risking and buy when the market is declining and hold shares which will perform better than market.

2. Among the six selected commercial banks it is recommended to shareholders to invest in common of SCBNL because its coefficient of variation is minimum i.e. 0.6298 times.

3. Investors need to diversify their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss, which can be defined in terms of risk. For the portfolio construction select the stock that have higher return with low risk and stock from different industries. This study suggests that similar stock cannot diversify the risk properly and some risk can be reduced by investing in constructing rather than investing in single/individual assets. So the construction of portfolio among the common stock of six assets i.e. SCBNL, NABIL, BOKL, HBL, Nepal SBI Bank and NIBL is recommended due to more expected rate of return with less risk.

4. Analysis of personal risk attitude, needs and requirements will be helpful before making an investment decision in stock market. Investors should make several discussions with stockholders before reaching at any conclusions. Investors should make their decision on the basis of reliable information rather than the imagination and rumors.

5. Before making investment decision, it is recommended to visit and discuss with investment companies, with individual expert and researchers. In case of Nepal NCM mutual fund is worthwhile for people. So, sharing experience, idea and view of experts will provide greater help.

6. Organized bodies like SEBON & NEPSE should hold meeting and gathering about common stock investment in Nepalese financial as well as other markets. By making seminars and meetings, it is fruitful for investors to know about 'Trading System' of Nepal. NEPSE is following 'open out and cry system' of trading even in the age of modern technology. It should be modernize and needs to develop efficient and effective information channel to provide up to date data.

7. Corporate organizations must publish the financial statements, value of assets and liabilities should not be manipulated. Each and every managerial decision of organization must be made to maximize shareholders wealth.

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APPENDICES

Appendix I

Calculation of Total Dividend of Common Stock

Total Dividend = Cash Dividend + % of stock dividend * Next Year's MPS

Total Dividend of SCBNL

2005/06 - 10% of 5900+130=720

2006/07 - 50% of 6380+80 = 3495

2007/08 - 50% of 6010+80 = 3085

2008/09 - 50% of 5430+50 = 2795

Note: Expected closing price of 2009/10 is made-up Rs 4103 considering last volume taken from daily newspapers.

Total Dividend of NABIL

2006/07 - 40% of 5275+100 =2210

2007/08 - 40% of 4899+60 = 2019.60

2008/09 - 50% of 4103+35=2086.50

Note: Expected closing price of 2009/10 is made-up Rs 4103 considering last volume taken from daily newspapers.

Total Dividend of BOKL

2005/06 - 30% of 1075+18 =340.50

2007/08 - 40% of 1750+2.1053 = 702.11

2008/09 - 40% of 1510+7.37 = 611.37

Note: Expected closing price of 2009/10 is made-up Rs 1510 considering last volume taken from daily newspapers.

Total Dividend of HBL

2003/04 - 20% of 920 = 184

2004/05 - 20% of 1110+11.58 =233.58

2005/06 - 5% of 1740+30 = 117

2006/07 - 25% of 1980+15 = 510

2007/08 - 20% of 1760+25=377

2008/09 - 31.56% of 1510+12 = 488.56

Note: Expected closing price of 2009/10 is made-up Rs 1510 considering last volume taken from daily newspapers.

Total Dividend of Nepal SBI Bank

2005/06 - 5% of 1176+5 = 63.80

2006/07 - 47.59% of 1511+12.59 = 731.675

2008/09 - 42.11% of 1800+2.11 = 760.09

Note: Expected closing price of 2009/10 is made-up Rs 1800 considering last volume taken from daily newspapers.

Total dividend of NIBL

2005/06 - 35.46% of 1729+20 = 633.103

2006/07 - 25% of 2450+5=617.50

2007/08 - 33.33% of 1388+7.5=470.12

Appendix II

Statistical analysis of common stock of SCBNL

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	$R- E(R_j)$	$[R- E(R_j)]^2$
2003/04	1745	110	-	-	-
2004/05	2345	120	0.4126	-0.3441	0.1184
2005/06	3775	720	0.9168	0.1601	0.0256
2006/07	5900	3495	1.4887	0.7320	0.5359
2007/08	6830	3085	0.6805	-0.0762	0.0058
2008/09	6010	2765	0.2848	-0.4719	0.2227
Total			ϕR =3.7834		$\phi [R \text{ Z } E(\text{Rj})]^2$ =0.9084

Expected Return, $E(R_j) = \frac{\phi R}{n} \text{ X} \frac{3.7834}{5} \text{ X}0.7567 \text{ X}75.67\%$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi [R \text{ Z } E(\text{Rj})]^2}{n \text{ Z}1}} \text{ X} \sqrt{\frac{0.9084}{5 \text{ Z}1}} \text{ X} \sqrt{0.2271} \text{ X}0.4766 \text{ X}47.66\%$

Coefficient of Variation (C.V) = $\frac{\pm}{E(\text{Rj})} \text{ X} \frac{0.4766}{0.7567} \text{ X}0.6298$

Statistical analysis of common stock of NABIL

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	$R- E(R_j)$	$\{R- E(R_j)\}^2$
2003/04	1000	65	-	-	-
2004/05	1505	70	0.5750	-0.2509	0.0630
2005/06	2240	85	0.5449	-0.2811	0.0790
2006/07	5050	2210	2.2411	1.4151	2.0026
2007/08	5275	2019.60	0.4445	-0.3815	0.1455
2008/09	4899	2086.50	0.3243	-0.5017	0.2517
Total			ϕR =4.1297		$\phi [R Z E(\mathrm{Rj})]^2$ =2.5418

Expected Return, $E(R_j) = \frac{\phi R}{n} X \frac{4.1297}{5} X0.8259 X82.59\%$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi [R Z E(\mathrm{Rj})]^2}{n Z1}} X \sqrt{\frac{2.5418}{5 Z1}} X\sqrt{0.6354} X0.7971 \text{ or } 79.71\%$

Coefficient of Variation (C.V) = $\frac{\pm}{E(\mathrm{Rj})} X \frac{0.7971}{0.8259} X0.9651$

Statistical analysis of common stock of BOKL

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	$R- E(R_j)$	$\{R- E(R_j)\}^2$
2003/04	295	10	-	-	-
2004/05	430	15	0.5085	-0.3734	0.1394
2005/06	850	340.50	1.7686	0.8867	0.7863
2006/07	1075	20	0.2882	-0.5936	0.3524
2007/08	2350	702.11	1.8392	0.9573	0.9164
2008/09	1750	611.37	0.0048	-0.8770	0.7692
Total			ϕR =4.4093		$\phi [R Z E(\mathrm{Rj})]^2$ =2.9637

We have,

Expected Return, $E(R_j) = \frac{\phi R}{n} X \frac{4.4093}{5} X0.8819 X88.19\%$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi [R Z E(\mathrm{Rj})]^2}{n Z1}} X \sqrt{\frac{2.9637}{5 Z1}} X \sqrt{0.7409} X0.8608$ or 86.08%

Coefficient of Variation (C.V) = $\frac{\pm}{E(\mathrm{Rj})} X \frac{0.8608}{0.8819} X0.9761$

Statistical analysis of common stock of HBL

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	$R- E(R_j)$	$\{R- E(R_j)\}^2$
2003/04	840	184	-	-	-
2004/05	920	233.58	0.3733	-0.0715	0.0051
2005/06	1110	117	0.3337	-0.1111	0.0124
2006/07	1740	510	1.0270	0.5822	0.3389
2007/08	1980	377	0.3546	-0.0902	0.0081
2008/09	1760	488.56	0.1356	-0.3092	0.0956
Total			ϕR =2.2242		$\phi [R Z E(\mathrm{Rj})]^2$ =0.4602

We have,

Expected Return, $E(R_j) = \frac{\phi R}{n} X \frac{2.2242}{5} X 0.4448 X 44.48\%$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi [R Z E(\mathrm{Rj})]^2}{n Z 1}} X \sqrt{\frac{0.4602}{5 Z 1}} X \sqrt{0.1150}\, X 0.3391 \text{ or } 33.91\%$

Coefficient of Variation (C.V) = $\frac{\pm}{E(\mathrm{Rj})} X \frac{0.3391}{0.4448} X 0.7623$

Statistical analysis of common stock of Nepal SBI Bank

Fiscal Year	Year End Price	Dividend	$R=\frac{(P_t-P_{t-1})+D_t}{P_{t-1}}$	$R- E(R_j)$	$\{R- E(R_j)\}^2$
2003/04	307	-	-	-	-
2004/05	355	-	0.1564	-0.6881	**0.2996**
2005/06	612	63.80	0.9037	0.0592	**0.0400**
2006/07	1176	731.675	2.1171	1.2726	**1.9974**
2007/08	1511	-	0.2849	-0.5596	**0.1755**
2008/09	1900	760.09	0.7605	-0.0840	**0.0032**
Total			ϕR =4.2226		$\phi [R Z E(\mathrm{Rj})]^2$ =2.4167

We have,

Expected Return, $E(R_j) = \frac{\phi R}{n} X \frac{4.2226}{5} X0.8445 X84.45\%$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi [R Z E(\mathrm{Rj})]^2}{n Z1}} X \sqrt{\frac{2.4167}{5 Z1}} X \sqrt{0.6042}$ X0.7773 or 77.73%

Coefficient of Variation (C.V) = $\frac{\pm}{E(\mathrm{Rj})} X \frac{0.7773}{0.8445} X0.9204$

Statistical analysis of common stock of NIBL

Fiscal Year	Year End Price	Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - E(R_j)$	$\{R - E(R_j)\}^2$
2003/04	940	15.00	-	-	-
2004/05	800	12.50	-0.1356	-0.6070	0.3684
2005/06	1260	633.103	1.3664	0.8951	0.8011
2006/07	1729	617.50	0.8623	0.3910	0.1529
2007/08	2450	470.12	0.6889	0.2176	0.0473
2008/09	1388	20.00	-0.4253	-0.8966	0.8040
Total			ϕR **=2.3566**		$\phi [R \text{ Z } E(\text{Rj})]^2$ **=2.1737**

We have,

Expected Return, $E(R_j) = \frac{\phi R}{n} \text{ X} \frac{2.3566}{5} \text{ X} 0.4713 \text{ X} 47.13\%$

Standard Deviation ($\exists$) $= \sqrt{\frac{\phi [R \text{ Z } E(\text{Rj})]^2}{n \text{ Z} 1}} \text{ X} \sqrt{\frac{2.1737}{5 \text{ Z} 1}} \text{ X} \sqrt{0.5434} \text{ X} 0.7372 \text{ or } 73.72\%$

Coefficient of Variation (C.V) $= \frac{\pm}{E(\text{Rj})} \text{ X} \frac{0.7372}{0.4713} \text{ X} 1.5641$

Realized return, Expected return, standard Deviation and coefficient of the variation of Market Index

YEAR	Year-end Index	R_m	R_M-E(R_M)	$[R_M$-E(R_M)$]^2$
2003/04	222.04	-	-	-
2004/05	286.67	0.2911	-0.0279	0.0008
2005/06	386.83	0.3494	0.0305	0.0009
2006/07	683.95	0.7681	0.4492	0.2017
2007/08	963.36	0.4085	0.0896	0.0080
2008/09	749.10	-0.2224	-0.5413	0.2931
	Total	E(R_m)=1.5947		$\phi\,[Rm\;Z\,E(\mathrm{Rm})]^2$ X0.5045

We have,

Expected Return E(R_m)= $\frac{\phi(\mathrm{Rm})}{n}\,\mathrm{X}\frac{1.5947}{5}\,\mathrm{X}0.3189\,\mathrm{X}31.89\%$

Standard Deviation ($\exists_m$) = $\sqrt{\frac{\phi\,[Rm\;Z\,E(\mathrm{Rm})]^2}{n\;Z1}}\,\mathrm{X}\sqrt{\frac{0.5045}{5\;Z1}}\,\mathrm{X}\sqrt{0.1261}\,\mathrm{X}0.3551$ or 35.51%

Coefficient of Variation (C.V) = $\frac{\pm m}{E(\mathrm{Rm})}\,\mathrm{X}\frac{0.3551}{0.3189}\,\mathrm{X}1.1134$

Calculation of Required Rate of Return (RRR), Expected Rate of Return (ERR) and Price Evaluation of each stock by CAPM Model

Banks	Beta	(RRR) = R_f + [E(R_m)- R_f]	E(R_i)	Price Situation
SCBNL	1.1735	0.3639	0.7567	Under Priced
NABIL	1.7278	0.5075	0.8259	Under Priced
BOKL	0.6568	0.2300	0.8819	Under Priced
HBL	0.8315	0.2752	0.4448	Under Priced
Nepal SBI Bank	1.1657	0.3618	0.8445	Under Priced
NIBL	1.4368	0.4321	0.4713	Under Priced

Where,

$E(R_i)$ = Expected Rate of Return (from table 4.21)

R_f = Risk free rate of return (0.0598)

R_m = Market rate of return (0.3189)

β = Beta of individual sample banks (from table 4.21)

Statistical Analysis of Common Stock of Six Commercial Banks

Fiscal Year	Average Return (R)	[R-E(R)]	$[R-E(R)]^2$
2004/05	0.3150	-0.3892	0.1515
2005/06	0.9724	0.2682	0.0719
2006/07	1.3374	0.6332	0.4009
2007/08	0.7154	0.0112	0.0001
2008/09	0.1808	-0.5234	0.2739
Total	$\sum R=3.5210$		$\sum[R-E(R)]^2=0.8984$

We have,

Expected return E(R) = $\frac{\phi R}{n} X \frac{3.5210}{5} X 0.7042$

Standard Deviation ($\exists$) = $\sqrt{\frac{\phi\,[R\,Z\,E(R)]^2}{n\,Z1}} X \sqrt{\frac{0.8984}{5\,Z1}}\; X\sqrt{0.2246}\; X0.4739$

Coefficient of Variation (C.V) = $\frac{\pm}{E(R)} X \frac{0.4739}{0.7042} X 0.6730$

Calculation of Covariance of Six Assets

Assets	**COVARIANCE**
SCBNL and NABIL (A & B)	0.3358
NABIL and BOKL (B & C)	-0.2302
BOKL and HBL (C & D)	-0.0581
HBL and Nepal SBI Bank (D & E)	0.2150
Nepal SBI Bank and NIBL (E & F)	0.2304
NIBL and SCBNL (F & A)	0.2612

As assuming before, proportion investment in each six assets is equal to 16.6667 of capital to minimize the risk.

Therefore,

$W_A=W_B=W_C=W_D=W_E=W_F=16.6667\%=0.1667$

And the portfolio return will be,

$E(R_P)= W_AE(R_A)+ W_BE(R_B)+ W_CE(R_C)+ W_DE(R_D)+ W_EE(R_E)+ W_FE(R_F)$

= 0.1667*0.7567 + 0.1667*0.8259 + 0.1667*0.8819 + 0.1667*0.4448 + 0.1667*0.8445 + 0.1667*0.4713

= 0.7043 = 70.43%

Where the Portfolio Risk is,

$$\exists_P=\sqrt{w_A^2\pm_A^2\Gamma w_B^2\pm_B^2\Gamma w_C^2\pm_C^2\Gamma w_D^2\pm_D^2\Gamma w_E^2\pm_E^2\Gamma w_F^2\pm_F^2\Gamma 2w_Aw_B\mathrm{cov}(R_A,R_B)\Gamma 2w_Bw_C\mathrm{cov}(R_B,R_C)\Gamma 2w_Cw_D\mathrm{cov}(R_C,R_D)\Gamma 2w_Dw_E\mathrm{cov}(R_D,R_E)\Gamma 2w_Ew_F\mathrm{cov}(R_E,R_F)\Gamma 2w_Fw_A\mathrm{cov}(R_F,R_A)}$$

$$= \sqrt{\begin{array}{l}(0.1667)^2 0.2271 + (0.1667)^2 * 0.6354 + (0.1667)^2 * 0.7409 + (0.1667)^2 * 0.1150 + \\ (0.1667)^2 * 0.6042 + (0.1667)^2 0.5434 + 2*0.1667*0.1667*0.3358 + 2*0.1667*0.1667*(-0.2302) + \\ 2*0.1667*0.1667*(-0.0581) + 2*0.1667*0.1667*0.2150 + 2*0.1667*0.1667*0.2304 + \\ 2*0.1667*0.1667*0.2612\end{array}}$$

$= \sqrt{0.1216} = 0.3487$ i.e. 34.87%

Appendix III

Calculation of Beta Coefficient (β) and other value of SCBNL

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.3441	-0.0279	0.0096
2005/06	0.1601	0.0305	0.0049
2006/07	0.7320	0.4492	0.3288
2007/08	-0.0762	0.0896	-0.0068
2008/09	-0.4719	-0.5413	0.2554
Total			$\Sigma[Rm - E(Rm)]\ [R - E(Rj)] = 0.5919$

Data Source: Table 4.2 and 4.14

Cov (R_j, R_m)= $\frac{\bullet R\ Z E(\mathrm{Rj})' \bullet R_m\ Z E(R_m)'}{n\ Z1} = \frac{0.5919}{5\ Z1}$ X0.1480

Beta Coefficient of SCBNL (β)= $\frac{\mathrm{Cov}\ (\mathrm{Rj}, \mathrm{Rm})}{\pm_m^{\ 2}}$ X $\frac{0.1480}{0.1216}$ X1.1735

Calculation of alpha (ℑ) intercept

We have,

Expected return of SCBNL, $E(R_j) = 0.7567$

Expected return of market, $E(R_m) = 0.3189$

Now,

ℑ= $E(R_j)$- β $E(R_m)$

=0.7567-1.1735*0.3189

=0.3825

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of SCBNL ($\exists^2$) = 0.2271

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(1.1735)^2 * 0.1261$

= 0.1737

Unsystematic risk (e^2) = Total Risk – Systematic Risk

= 0.2271-0.1737

= 0.0534

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2)= $\frac{Systematic\ risk}{Total\ risk}$

$$= \frac{0.1737}{0.2271} = 0.7649 = 76.49\%$$

Correlation with market (ρ) = $\sqrt{0.7649}$ = 0.8746

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.7649

= 0.2351 = 23.51%

Appendix IV

Calculation of Beta Coefficient (β) and other value of NABIL

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.2509	-0.0279	0.0070
2005/06	-0.2811	0.0305	-0.0086
2006/07	1.4151	0.4492	0.6357
2007/08	-0.3815	0.0896	-0.0342
2008/09	-0.5017	-0.5413	0.2716
Total			$\sum[Rm - E(Rm)]\ [R - E(Rj)] = 0.8715$

Data Source: Table 4.4 and 4.14

Cov (R_j, R_m)= $\frac{\bullet R\ Z E(\mathrm{Rj})' \bullet R_m\ Z E(R_m)'}{n\ Z1} = \frac{0.8715}{5\ Z1}$ X0.2179

Beta Coefficient of NABIL (β)= $\frac{\mathrm{Cov}\,(\mathrm{Rj}, \mathrm{Rm})}{\pm_{m}^{2}}$ $\mathrm{X}\frac{0.2179}{0.1261}$ X1.7278

Calculation of alpha (ℑ) intercept

We have,

Expected return of NABIL, $E(R_j)$ = 0.8259

Expected return of market, $E(R_m)$ = 0.3189

Now,

ℑ= $E(R_j)$- β $E(R_m)$

=0.8259-1.7278*0.3189

=0.2749

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of NABIL ($\exists^2$) = 0.6354

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(1.7278)^2 * 0.1261$

= 0.3764

Unsystematic risk = Total Risk – Systematic Risk

= 0.6354-0.1261

= 0.2590

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2) = $\frac{Systematic\,risk}{Total\,risk}$

$$= \frac{0.3764}{0.6354} = 0.5924 = 59.24\%$$

Correlation with market (ρ) = $\sqrt{0.5924}$ = 0.7697

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.5924

= 0.4076= 40.76%

Appendix V

Calculation of Beta Coefficient (β) and other value of BOKL

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.3734	-0.0279	0.0104
2005/06	0.8867	0.0305	0.0270
2006/07	-0.5936	0.4492	-0.2666
2007/08	0.9573	0.0896	0.0858
2008/09	-0.877	-0.5413	0.4747
Total			$\sum[Rm - E(Rm)]\ [R - E(Rj)] = 0.3313$

Data Source: Table 4.6 and 4.14

$$\text{Cov}(R_j, R_m) = \frac{\bullet R\ Z E(\text{Rj})' \bullet R_m\ Z E(R_m)'}{n\ Z1} = \frac{0.3313}{5\ Z1}\ X0.0828$$

$$\text{Beta Coefficient of BOKL } (\beta) = \frac{\text{Cov}(\text{Rj, Rm})}{\pm_m^2}\ X \frac{0.0828}{0.1261}\ X 0.6568$$

Calculation of alpha (ℑ) intercept

We have,

Expected return of BOKL, $E(R_j) = 0.8819$

Expected return of market, $E(R_m) = 0.3189$

Now,

$\Im = E(R_j) - \beta\ E(R_m)$

$=0.8819-0.6568*0.3189$

=0.6724

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of BOKL ($\exists^2$) = 0.7409

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(0.6568)^2 * 0.1261$

= 0.0544

Unsystematic risk = Total Risk – Systematic Risk

= 0.7409-0.0544

= 0.6865

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2)= $\frac{Systematic\,risk}{Total\,risk}$

$$= \frac{0.0544}{0.7409} = 0.0734 = 7.34\%$$

Correlation with market (ρ) = $\sqrt{0.0734}$ = 0.2709

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.0734

= 0.9266 = 92.66%

Appendix VI

Calculation of Beta Coefficient (β) and other value of HBL

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.0715	-0.0279	0.0020
2005/06	-0.1111	0.0305	-0.0034
2006/07	0.5822	0.4492	0.2615
2007/08	-0.0902	0.0896	-0.0081
2008/09	-0.3092	-0.5413	0.1674
Total			$\sum[Rm - E(Rm)]\ [R - E(Rj)] = 0.4194$

Data Source: Table 4.8 and 4.14

$$\text{Cov}(R_j, R_m) = \frac{\bullet R\ Z E(\text{Rj})' \bullet R_m\ Z E(R_m)'}{n\ Z1} = \frac{0.4194}{5\ Z1}\ X0.1049$$

$$\text{Beta Coefficient of HBL } (\beta) = \frac{\text{Cov}(\text{Rj, Rm})}{\pm_m^2}\ X\frac{0.1049}{0.1261}\ X0.8315$$

Calculation of alpha (ℑ) intercept

We have,

Expected return of HBL, $E(R_j) = 0.4448$

Expected return of market, $E(R_m) = 0.3189$

Now,

$\Im = E(R_j) - \beta\ E(R_m)$

$=0.4448-0.8315*0.3189$

=0.1796

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of HBL ($\exists^2$) = 0.1150

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(0.8315)^2 * 0.1261$

= 0.0872

Unsystematic risk = Total Risk – Systematic Risk

= 0.1150-0.0872

= 0.0278

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2) = $\frac{Systematic\,risk}{Total\,risk}$

$$= \frac{0.0872}{0.1150} = 0.7582 = 75.82\%$$

Correlation with market (ρ) = $\sqrt{0.7582}$ = 0.8708

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.7582

= 0.2418 = 24.18%

Appendix VII

Calculation of Beta Coefficient (β) and other value of NEPAL SBI BANK LTD.

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.6881	-0.0279	0.0192
2005/06	0.0592	0.0305	0.0018
2006/07	1.2726	0.4492	0.5717
2007/08	-0.5596	0.0896	-0.0501
2008/09	-0.084	-0.5413	0.0455
Total			$\sum[Rm - E(Rm)]\ [R - E(Rj)] = 0.5880$

Data Source: Table 4.10 and 4.14

$$\text{Cov}(R_j, R_m) = \frac{\bullet R\ Z E(\text{Rj})' \bullet R_m\ Z E(R_m)'}{n\ Z1} = \frac{0.5880}{5\ Z1}\ \text{X}0.1470$$

$$\text{Beta Coefficient of Nepal SBI Bank LTD } (\beta) = \frac{\text{Cov}(\text{Rj, Rm})}{\pm_m^2}\ \text{X}\frac{0.1470}{0.1261}\ \text{X}1.1657$$

Calculation of alpha (ℑ) intercept

We have,

Expected return of Nepal SBI Bank LTD., $E(R_j) = 0.8445$

Expected return of market, $E(R_m) = 0.3189$

Now,

$\Im = E(R_j) - \beta\ E(R_m)$

$=0.8445-1.1657*0.3189$

=0.4728

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of Nepal SBI Bank LTD ($\exists^2$) = 0.6042

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(1.1657)^2 * 0.1261$

= 0.1714

Unsystematic risk = Total Risk – Systematic Risk

= 0.6042-0.1714

= 0.4328

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2) = $\frac{Systematic\,risk}{Total\,risk}$

$$= \frac{0.1714}{0.6042} = 0.2836 = 28.36\%$$

Correlation with market (ρ) = $\sqrt{0.2836}$ = 0.5325

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.2836

= 0.7164 = 71.64%

Appendix VIII

Calculation of Beta Coefficient (β) and other value of NIBL.

Fiscal Year	R- $E(R_j)$	R_M-$E(R_M)$	$[R_M-E(R_M)]$ $[R- E(R_j)]$
2003/04	-	-	-
2004/05	-0.607	-0.0279	0.0169
2005/06	0.8951	0.0305	0.0273
2006/07	0.391	0.4492	0.1756
2007/08	0.2176	0.0896	0.0195
2008/09	-0.8966	-0.5413	0.4853
Total			$\Sigma[Rm - E(Rm)]\ [R - E(Rj)] = 0.7247$

Data Source: Table 4.12 and 4.14

$$\text{Cov}(R_j, R_m) = \frac{\bullet R\, Z E(\text{Rj})' \bullet R_m\, Z E(R_m)'}{n\, Z1} = \frac{0.7247}{5\, Z1}\ \text{X}0.1812$$

$$\text{Beta Coefficient of NIBL } (\beta) = \frac{\text{Cov}(\text{Rj, Rm})}{\pm_m^2}\ \text{X}\frac{0.1812}{0.1261}\ \text{X}1.4368$$

Calculation of alpha (ℑ) intercept

We have,

Expected return of NIBL, $E(R_j) = 0.4713$

Expected return of market, $E(R_m) = 0.3189$

Now,

$\Im = E(R_j) - \beta\, E(R_m)$

$=0.4713-1.4368*0.3189$

=0.0131

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of NIBL ($\exists^2$) = 0.5434

Variance of market ($\exists_m^2$) = 0.1261

Total risk = Systematic risk + unsystematic risk

$\exists^2 = \beta^2 \exists_m^2 + e^2$

Systematic Risk = $(1.4368)^2 * 0.1261$

= 0.2603

Unsystematic risk = Total Risk – Systematic Risk

= 0.5434-0.2603

= 0.2831

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1- \rho^2$)

We have,

Proportion of systematic risk (ρ^2) = $\frac{Systematic\,risk}{Total\,risk}$

$$= \frac{0.2603}{0.5434} = 0.4790 = 47.90\%$$

Correlation with market (ρ) = $\sqrt{0.4790}$ = 0.6921

Proportion of unsystematic risk ($1- \rho^2$) = 1-0.4790

= 0.5210 = 52.10%

Appendix IX

Calculation of Required Rate of Return

Required Rate of Return(RRR) = $R_f + [E(R_m)-R_f]\wp$

RRR of SCBNL = 0.0598 + (0.2658-0.0598)* 1.1735

= 0.3015

RRR of NABIL = 0.0598 + (0.2658-0.0598)* 1.7278

= 0.4157

RRR of BOKL = 0.0598 + (0.2658-0.0598)* 0.6568

= 0.1951

RRR of HBL = 0.0598 + (0.2658-0.0598)* 0.8315

= 0.2311

RRR of Nepal SBI Bank Ltd. = 0.0598 + (0.2658-0.0598)* 1.1657

= 0.2999

RRR of NIBL = 0.0598 + (0.2658-0.0598)* 1.4368

= 0.3558

Appendix X

a) Calculation of Covariance of Asset of SCBNL(A) and NABIL(B)

Fiscal Year	$R_A \; Z E(R_A)$	$R_B \; Z E(R_B)$	$\bullet R_A \; Z E(R_A)' \; \bullet R_B \; Z E(R_B)'$
2004/05	-0.3441	-0.2509	0.0863
2005/06	0.1601	-0.2811	-0.0450
2006/07	0.7320	1.4151	1.0359
2007/08	-0.0762	-0.3815	0.0291
2008/09	-0.4719	-0.5017	0.2368
		TOTAL	$\bullet R_A \; Z E(R_A)' \bullet R_B \; Z E(R_B)'$ =1.3430

Now,

$$\text{Cov}\,(R_A, R_B) = \frac{\bullet R_A \; Z E(R_A)' \bullet R_B \; Z E(R_B)'}{n \; Z1} = \frac{1.3430}{5 \; Z1} \; X0.3358$$

b) Calculation of Covariance of Asset of NABIL(B) and BOKL(C)

Fiscal Year	$R_B \; Z E(R_B)$	$R_C \; Z E(R_C)$	$\bullet R_B \; Z E(R_B)' \; \bullet R_C \; Z E(R_C)'$
2004/05	-0.2509	-0.3734	0.0937
2005/06	-0.2811	0.8867	-0.2493
2006/07	1.4151	-0.5936	-0.8400
2007/08	-0.3815	0.9573	-0.3652
2008/09	-0.5017	-0.8770	0.4400
		TOTAL	$\bullet R_B \; Z E(R_B)' \bullet R_C \; Z E(R_C)'$ =-0.9208

Now,

$$\text{Cov}(R_B, R_C) = \frac{\bullet R_B \; Z E(R_B)' \bullet R_C \; Z E(R_C)'}{n \, Z1} = \frac{Z0.9208}{5 \, Z1} \; XZ0.2302$$

c) Calculation of Covariance of Asset of BOKL(C) and HBL (D)

Fiscal Year	$R_C \; Z E(R_C)$	$R_D \; Z E(R_D)$	$\bullet R_C \; Z E(R_C)' \; \bullet R_D \; Z E(R_D)'$
2004/05	-0.3734	-0.0715	0.0267
2005/06	0.8867	-0.1111	-0.0985
2006/07	-0.5936	0.5822	-0.3456
2007/08	0.9573	-0.0902	-0.0863
2008/09	-0.8770	-0.3092	0.2712
		TOTAL	$\bullet R_C \; Z E(R_C)' \bullet R_D \; Z E(R_D)'$=-0.2326

Now,

$$\text{Cov}(R_C, R_D) = \frac{\bullet R_C \; Z E(R_C)' \bullet R_D \; Z E(R_D)'}{n \, Z1} = \frac{Z0.2326}{5 \, Z1} \; XZ0.0581$$

d) Calculation of Covariance of Asset of HBL (D) and Nepal SBI Bank (E)

Fiscal Year	$R_D \; ZE(R_D)$	$R_E \; ZE(R_E)$	$\bullet R_D \; ZE(R_D)' \; \bullet R_E \; ZE(R_E)'$
2004/05	-0.0715	-0.6881	0.0492
2005/06	-0.1111	0.0592	-0.0066
2006/07	0.5822	1.2726	0.7409
2007/08	-0.0902	-0.5596	0.0505
2008/09	-0.3092	-0.0840	0.0260
		TOTAL	$\bullet R_D \; ZE(R_D)' \bullet R_E \; ZE(R_E)'$=0.8600

Now,

$$\text{Cov } (R_D, R_E) = \frac{\bullet R_D \; ZE(R_D)' \bullet R_E \; ZE(R_E)'}{n \; Z1} = \frac{0.8600}{5 \; Z1} \; X0.2150$$

e) Calculation of Covariance of Asset of Nepal SBI Bank (E) NIBL (F)

Fiscal Year	$R_E \; ZE(R_E)$	$R_F \; ZE(R_F)$	$\bullet R_E \; ZE(R_E)' \; \bullet R_F \; ZE(R_F)'$
2004/05	-0.6881	-0.6070	0.4177
2005/06	0.0592	0.8951	0.0530
2006/07	1.2726	0.3910	0.4976
2007/08	-0.5596	0.2176	-0.1218
2008/09	-0.0840	-0.8966	0.0753
		TOTAL	$\bullet R_E \; ZE(R_E)' \bullet R_F \; ZE(R_F)'$=0.9218

Now,

$$\text{Cov}(R_E, R_F) = \frac{\sum R_E \; ZE(R_E)' \sum R_F \; ZE(R_F)'}{n \; Z1} = \frac{0.9218}{5 \; Z1} \; X0.2304$$

f) Calculation of Covariance of Asset of NIBL (F) and SCBNL (A)

Fiscal Year	$R_F \; ZE(R_F)$	$R_A \; ZE(R_A)$	$\sum R_F \; ZE(R_F)' \sum R_A \; ZE(R_A)'$
2004/05	-0.6070	-0.3441	0.2089
2005/06	0.8951	0.1601	0.1433
2006/07	0.3910	0.7320	0.2862
2007/08	0.2176	-0.0762	-0.0166
2008/09	-0.8966	-0.4719	0.4231
		TOTAL	$\sum R_E \; ZE(R_E)' \sum R_F \; ZE(R_F)' = 1.0449$

Now,

$$\text{Cov}(R_F, R_A) = \frac{\sum R_F \; ZE(R_F)' \sum R_A \; ZE(R_A)'}{n \; Z1} = \frac{1.0449}{5 \; Z1} \; X0.2612$$

g) Calculation of Covariance of Asset of SCBNL (A) and BOKL (C)

Fiscal Year	R_A Z$E(R_A)$	R_C Z$E(R_C)$	•R_A Z$E(R_A)'$ •R_C Z$E(R_C)'$
2004/05	-0.3441	-0.3734	0.1285
2005/06	0.1601	0.8867	0.1420
2006/07	0.7320	-0.5936	-0.4345
2007/08	-0.0762	0.9573	-0.0729
2008/09	-0.4719	-0.8770	0.4139
		TOTAL	•R_A Z$E(R_A)'$•R_C Z$E(R_C)'$=0.1768

Now,

$$\text{Cov}(R_A, R_C) = \frac{\bullet R_A \, Z E(R_A)' \bullet R_C \, Z E(R_C)'}{n \, Z1} = \frac{0.1768}{5 \, Z1} \text{ X}0.0442$$

h) Calculation of Covariance of Asset of SCBNL (A) and HBL (D)

Fiscal Year	R_A Z$E(R_A)$	R_D Z$E(R_D)$	•R_A Z$E(R_A)'$ •R_D Z$E(R_D)'$
2004/05	-0.3441	-0.0715	0.0246
2005/06	0.1601	-0.1111	-0.0178
2006/07	0.7320	0.5822	0.4262
2007/08	-0.0762	-0.0902	0.0069
2008/09	-0.4719	-0.3092	0.1459
		TOTAL	•R_A Z$E(R_A)'$•R_D Z$E(R_D)'$=0.5858

Now,

$$\text{Cov}(R_A, R_D) = \frac{\bullet R_A \; Z E(R_A)' \bullet R_D \; Z E(R_D)'}{n \; Z1} = \frac{0.5858}{5 \; Z1} \; X0.1464$$

i) Calculation of Covariance of Asset of SCBNL (A) and Nepal SBI Bank (E)

Fiscal Year	$R_A \; Z E(R_A)$	$R_E \; Z E(R_E)$	$\bullet R_A \; Z E(R_A)' \; R_E \; Z E(R_E)$
2004/05	-0.3441	-0.6881	0.2368
2005/06	0.1601	0.0592	0.0095
2006/07	0.7320	1.2726	0.9315
2007/08	-0.0762	-0.5596	0.0426
2008/09	-0.4719	-0.0840	0.0396
		TOTAL	$\bullet R_A \; Z E(R_A)' \bullet R_E \; Z E(R_E)' = 1.2601$

Now,

$$\text{Cov}(R_A, R_E) = \frac{\bullet R_A \; Z E(R_A)' \bullet R_E \; Z E(R_E)'}{n \; Z1} = \frac{1.2601}{5 \; Z1} \; X0.3150$$

j) Calculation of Covariance of Asset of NABIL (B) and HBL (D)

Fiscal Year	R_B Z$E(R_B)$	R_D Z$E(R_D)$	•R_B Z$E(R_B)$′ R_D Z$E(R_D)$
2004/05	-0.2509	-0.0715	0.0179
2005/06	-0.2811	-0.1111	0.0312
2006/07	1.4151	0.5822	0.8239
2007/08	-0.3815	-0.0902	0.0344
2008/09	-0.5017	-0.3092	0.1551
		TOTAL	•R_B Z$E(R_B)$′•R_D Z$E(R_D)$′=1.0626

Now,

$$\text{Cov}(R_B, R_D) = \frac{\bullet R_B \, Z E(R_B)' \bullet R_D \, Z E(R_D)'}{n \, Z1} = \frac{1.0626}{5 \, Z1} \text{ X}0.2656$$

k) Calculation of Covariance of Asset of NABIL (B) and Nepal SBI Bank (E)

Fiscal Year	R_B Z$E(R_B)$	R_E Z$E(R_E)$	•R_B Z$E(R_B)$′ R_E Z$E(R_E)$
2004/05	-0.2509	-0.6881	0.1726
2005/06	-0.2811	0.0592	-0.0166
2006/07	1.4151	1.2726	1.8009
2007/08	-0.3815	-0.5596	0.2135
2008/09	-0.5017	-0.084	0.0421
		TOTAL	•R_B Z$E(R_B)$′•R_E Z$E(R_E)$′=2.2125

Now,

$$\text{Cov}(R_B, R_E) = \frac{\bullet R_B \; Z E(R_B)' \bullet R_E \; Z E(R_E)'}{n \; Z1} = \frac{2.2125}{5 \; Z1} \; X0.5531$$

l) Calculation of Covariance of Asset of NABIL (B) and NIBL (F)

Fiscal Year	$R_B \; Z E(R_B)$	$R_F \; Z E(R_F)$	$\bullet R_B \; Z E(R_B)' \; R_F \; Z E(R_F)$
2004/05	-0.2509	-0.607	0.1523
2005/06	-0.2811	0.8951	-0.2516
2006/07	1.4151	0.391	0.5533
2007/08	-0.3815	0.2176	-0.0830
2008/09	-0.5017	-0.8966	0.4498
		TOTAL	$\bullet R_B \; Z E(R_B)' \bullet R_F \; Z E(R_F)' = 0.8208$

Now,

$$\text{Cov}(R_B, R_F) = \frac{\bullet R_B \; Z E(R_B)' \bullet R_F \; Z E(R_F)'}{n \; Z1} = \frac{0.8208}{5 \; Z1} \; X0.2052$$

m) Calculation of Covariance of Asset of BOKL (C) and Nepal SBI Bank (E)

Fiscal Year	R_C Z$E(R_C)$	R_E Z$E(R_E)$	•R_C Z$E(R_C)'$ •R_E Z$E(R_E)'$
2004/05	-0.3734	-0.6881	0.2569
2005/06	0.8867	0.0592	0.0525
2006/07	-0.5936	1.2726	-0.7554
2007/08	0.9573	-0.5596	-0.5357
2008/09	-0.877	-0.084	0.0737
		TOTAL	•R_C Z$E(R_C)'$•R_E Z$E(R_E)'$=-0.9080

Now,

$$\text{Cov}(R_C, R_E) = \frac{\bullet R_C \; Z E(R_C)' \bullet R_E \; Z E(R_E)'}{n \, Z1} = \frac{Z0.9080}{5 \, Z1} \; XZ0.2270$$

n) Calculation of Covariance of Asset of BOKL (C) and NIBL (F)

Fiscal Year	R_C Z$E(R_C)$	R_F Z$E(R_F)$	•R_C Z$E(R_C)'$ •R_F Z$E(R_F)'$
2004/05	-0.3734	-0.607	0.2267
2005/06	0.8867	0.8951	0.7937
2006/07	-0.5936	0.391	-0.2321
2007/08	0.9573	0.2176	0.2083
2008/09	-0.877	-0.8966	0.7863
		TOTAL	•R_C Z$E(R_C)'$•R_F Z$E(R_F)'$=1.7829

Now,

$$\text{Cov}(R_C, R_F) = \frac{\bullet R_C \; \text{Z}E(R_C)' \bullet R_F \; \text{Z}E(R_F)'}{n \, \text{Z}1} = \frac{1.7829}{5 \, \text{Z}1} \; \text{X}0.4457$$

o) Calculation of Covariance of Asset of HBL (D) and NIBL (F)

Fiscal Year	$R_D \; \text{Z}E(R_D)$	$R_F \; \text{Z}E(R_F)$	$\bullet R_D \; \text{Z}E(R_D)' \bullet R_F \; \text{Z}E(R_F)'$
2004/05	-0.0715	-0.607	0.0434
2005/06	-0.1111	0.8951	-0.0994
2006/07	0.5822	0.391	0.2276
2007/08	-0.0902	0.2176	-0.0196
2008/09	-0.3092	-0.8966	0.2772
		TOTAL	$\bullet R_D \; \text{Z}E(R_D)' \bullet R_F \; \text{Z}E(R_F)'$ =0.4292

Now,

$$\text{Cov}(R_D, R_F) = \frac{\bullet R_D \; \text{Z}E(R_D)' \bullet R_F \; \text{Z}E(R_F)'}{n \, \text{Z}1} = \frac{0.4292}{5 \, \text{Z}1} \; \text{X}0.1073$$

Appendix XI

Calculation of Portfolio Analysis in Each Two Assets among the Selected Assets.

a) Assets A & B i.e. SCBNL & NABIL

$W_A=W_B=50\%$

And the portfolio return will be,

$E(R_P)= W_AE(R_A)+ W_BE(R_B)$

$=0.50*0.7567+0.50*0.8259$

$=0.7913$

Portfolio Risk is,

$\exists_P=\sqrt{w_A{}^2\pm_A{}^2\ \Gamma\ w_B{}^2\pm_B{}^2\ \Gamma\ 2w_Aw_B\ \mathrm{cov}(R_A,R_B)}$

$=\sqrt{(0.50)^2*0.2271\Gamma(0.50)^2 0.6354\ \Gamma\ 2*0.50*0.50*0.3358}$

$=\sqrt{(}0.3835=0.6193=61.93\%$

b) Assets B & C i.e. NABIL & BOKL

$W_B=W_C=50\%$

And the portfolio return will be,

$E(R_P)= W_BE(R_B)+ W_CE(R_C)$

$=0.50*0.8259+0.50*0.8819$

$=0.8539$

Portfolio Risk is,

$\exists_P=\sqrt{w_B{}^2\pm_B{}^2\ \Gamma\ w_C{}^2\pm_C{}^2\ \Gamma\ 2w_Bw_C\ \mathrm{cov}(R_B,R_C)}$

$= \sqrt{(0.50)^2 * 0.6354 \Gamma (0.50)^2 0.7409 \Gamma 2 * 0.50 * 0.50 * Z0.2302}$

$= \sqrt{(}0.2290 = 0.4785 = 47.85\%$

c) Assets C & D i.e. BOKL & HBL

$W_C = W_D = 50\%$

And the portfolio return will be,

$E(R_P) = W_C E(R_C) + W_D E(R_D)$

$= 0.50 * 0.8819 + 0.50 * 0.4448$

$= 0.6634$

Portfolio Risk is,

$\exists_P = \sqrt{w_C{}^2 \pm_C{}^2 \Gamma w_D{}^2 \pm_D{}^2 \Gamma 2 w_C w_D \operatorname{cov}(R_C, R_D)}$

$= \sqrt{(0.50)^2 * 0.7409 \Gamma (0.50)^2 0.1150 \Gamma 2 * 0.50 * 0.50 * Z0.0581}$

$= \sqrt{\ } 0.1849 = 0.43 = 43\%$

d) Assets D & E i.e. HBL & Nepal SBI Bank

$W_D = W_E = 50\%$

And the portfolio return will be,

$E(R_P) = W_D E(R_D) + W_E E(R_E)$

$= 0.50 * 0.4448 + 0.50 * 0.8445$

$= 0.6447$

Portfolio Risk is,

$\exists_P = \sqrt{w_D{}^2 \pm_D{}^2 \Gamma w_E{}^2 \pm_E{}^2 \Gamma 2 w_D w_E \operatorname{cov}(R_D, R_E)}$

$= \sqrt{(0.50)^2 * 0.1150 \Gamma (0.50)^2 0.6042 \Gamma 2 * 0.50 * 0.50 * 0.2150}$

$= \sqrt{} 0.2873 = 0.5360 = 53.60\%$

e) Assets E & F i.e. Nepal SBI Bank & NIBL

$W_E = W_F = 50\%$

And the portfolio return will be,

$E(R_P) = W_E E(R_E) + W_F E(R_F)$

$= 0.50 * 0.8445 + 0.50 * 0.4713$

$= 0.6579$

Portfolio Risk is,

$\exists_P = \sqrt{w_E{}^2 \pm_E{}^2 \Gamma w_F{}^2 \pm_F{}^2 \Gamma 2 w_E w_F \operatorname{cov}(R_E, R_F)}$

$= \sqrt{(0.50)^2 * 0.6042 \Gamma (0.50)^2 * 0.5434 \Gamma 2 * 0.50 * 0.50 * 0.2304}$

$= \sqrt{} 0.4021 = 0.6341 = 63.41\%$

f) Assets F & A i.e. NIBL & SCBNL

$W_F = W_A = 50\%$

And the portfolio return will be,

$E(R_P) = W_F E(R_F) + W_A E(R_A)$

$= 0.50 * 0.4713 + 0.50 * 0.7567$

$= 0.6140$

Portfolio Risk is,

$$\exists_P = \sqrt{w_F^{\,2} \pm_F^{\,2} \Gamma w_A^{\,2} \pm_A^{\,2} \Gamma 2 w_F w_A \operatorname{cov}(R_F, R_A)}$$

$$= \sqrt{(0.50)^2 * 0.5434 \Gamma (0.50)^2 * 0.2271 \Gamma 2 * 0.50 * 0.50 * 0.2612}$$

$$= \sqrt{} 0.3232 = 0.5685 = 56.85\%$$

g) Assets A & C i.e. SCBNL & BOKL

$W_A = W_C = 50\%$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_C E(R_C)$

$= 0.50 * 0.7567 + 0.50 * 0.8819$

$= 0.8193$

Portfolio Risk is,

$$\exists_P = \sqrt{w_A^{\,2} \pm_A^{\,2} \Gamma w_C^{\,2} \pm_C^{\,2} \Gamma 2 w_A w_C \operatorname{cov}(R_A, R_C)}$$

$$= \sqrt{(0.50)^2 * 0.2271 \Gamma (0.50)^2 * 0.7409 \Gamma 2 * 0.50 * 0.50 * 0.0442}$$

$$= \sqrt{} 0.2641 = 0.5139 = 51.39\%$$

h) Assets A & D i.e. SCBNL & HBL

$W_A = W_D = 50\%$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_D E(R_D)$

$= 0.50 * 0.7567 + 0.50 * 0.4448 = 0.6008$

Portfolio Risk is,

$\exists_P = \sqrt{w_A^2 \pm_A^2 \Gamma w_D^2 \pm_D^2 \Gamma 2 w_A w_D \operatorname{cov}(R_A, R_D)}$

$= \sqrt{(0.50)^2 * 0.2271 \Gamma (0.50)^2 * 0.1150 \Gamma 2 * 0.50 * 0.50 * 0.1464}$

$= \sqrt{} 0.1587 = 0.3984 = 39.84\%$

i) Assets A & E i.e. SCBNL & Nepal SBI Bank

$W_A = W_E = 50\%$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_E E(R_E)$

$= 0.50 * 0.7567 + 0.50 * 0.8445$

$= 0.8006$

Portfolio Risk is,

$\exists_P = \sqrt{w_A^2 \pm_A^2 \Gamma w_E^2 \pm_E^2 \Gamma 2 w_A w_E \operatorname{cov}(R_A, R_E)}$

$= \sqrt{(0.50)^2 * 0.2271 \Gamma (0.50)^2 * 0.6042 \Gamma 2 * 0.50 * 0.50 * 0.3150}$

$= \sqrt{} 0.3653 = 0.6044 = 60.44\%$

j) Assets B & D i.e. NABIL & HBL

$W_B = W_D = 50\%$

And the portfolio return will be,

$E(R_P) = W_B E(R_B) + W_D E(R_D)$

$= 0.50 * 0.8259 + 0.50 * 0.4448$

=0.6354

Portfolio Risk is,

$\exists_P = \sqrt{w_B^2 \pm_B^2 \Gamma w_D^2 \pm_D^2 \Gamma 2 w_B w_D \operatorname{cov}(R_B, R_D)}$

$= \sqrt{(0.50)^2 * 0.6354 \Gamma (0.50)^2 * 0.1150 \Gamma 2 * 0.50 * 0.50 * 0.2656}$

$= \sqrt{} 0.3204 = 0.5660 = 56.60\%$

k) Assets B & E i.e. NABIL & Nepal SBI Bank

$W_B = W_E = 50\%$

And the portfolio return will be,

$E(R_P) = W_B E(R_B) + W_E E(R_E)$

=0.50*0.8259+0.50*0.8445

=0.8352

Portfolio Risk is,

$\exists_P = \sqrt{w_B^2 \pm_B^2 \Gamma w_E^2 \pm_E^2 \Gamma 2 w_B w_E \operatorname{cov}(R_B, R_E)}$

$= \sqrt{(0.50)^2 * 0.6354 \Gamma (0.50)^2 * 0.6042 \Gamma 2 * 0.50 * 0.50 * 0.5531}$

$= \sqrt{} 0.5865 = 0.7658 = 76.58\%$

l) Assets B & F i.e. NABIL & NIBL

$W_B = W_F = 50\%$

And the portfolio return will be,

$E(R_P) = W_B E(R_B) + W_F E(R_F)$

=0.50*0.8259+0.50*0.4713

=0.6486

Portfolio Risk is,

$\exists_P = \sqrt{w_B{}^2 \pm_B{}^2 \Gamma w_F{}^2 \pm_F{}^2 \Gamma 2 w_B w_F \operatorname{cov}(R_B, R_F)}$

$= \sqrt{(0.50)^2 * 0.6354 \Gamma (0.50)^2 * 0.5434 \Gamma 2 * 0.50 * 0.50 * 0.2052}$

$= \sqrt{} 0.3973 = 0.6303 = 63.03\%$

m) Assets C & E i.e. BOKL & Nepal SBI Bank

$W_C = W_E = 50\%$

And the portfolio return will be,

$E(R_P) = W_C E(R_C) + W_E E(R_E)$

=0.50*0.8819+0.50*0.8445

=0.8632

Portfolio Risk is,

$\exists_P = \sqrt{w_C{}^2 \pm_C{}^2 \Gamma w_E{}^2 \pm_E{}^2 \Gamma 2 w_C w_E \operatorname{cov}(R_C, R_E)}$

$= \sqrt{(0.50)^2 * 0.7409 \Gamma (0.50)^2 * 0.6042 \Gamma 2 * 0.50 * 0.50 * Z0.2270}$

$= \sqrt{} 0.2228 = 0.4720 = 47.20\%$

n) Assets C & F i.e. BOKL & NIBL

$W_C = W_F = 50\%$

And the portfolio return will be,

$E(R_P)= W_C E(R_C)+ W_F E(R_F)$

$=0.50*0.8819+0.50*0.4713$

$=0.6766$

Portfolio Risk is,

$\exists_P = \sqrt{w_C{}^2 \pm_C{}^2 \Gamma w_F{}^2 \pm_F{}^2 \Gamma 2 w_C w_F \operatorname{cov}(R_C, R_F)}$

$= \sqrt{(0.50)^2 * 0.7409 \Gamma (0.50)^2 * 0.5434 \Gamma 2 * 0.50 * 0.50 * 0.4457}$

$= \sqrt{} 0.5439 = 0.7375 = 73.75\%$

o) Assets D & F i.e. HBL & NIBL

$W_D = W_F = 50\%$

And the portfolio return will be,

$E(R_P)= W_D E(R_D)+ W_F E(R_F)$

$=0.50*0.4448+0.50*0.4713$

$=0.4581$

Portfolio Risk is,

$\exists_P = \sqrt{w_D{}^2 \pm_D{}^2 \Gamma w_F{}^2 \pm_F{}^2 \Gamma 2 w_D w_F \operatorname{cov}(R_D, R_F)}$

$= \sqrt{(0.50)^2 * 0.1150 \Gamma (0.50)^2 * 0.5434 \Gamma 2 * 0.50 * 0.50 * 0.1073}$

$= \sqrt{} 0.2182 = 0.4671 = 46.71\%$