CHAPTER - I
INTRODUCTION

1.1 Background of the Study

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

Investment in its simplest from means employing money to generate more money in future. It is the sacrifice of current rupees for the future return there is always some degree of risk. Investment is not gambling rather than it should be systematic and scientific way of investment for the expected return. Each investor spends most of his/her life for capital formation, which is invested later on. That's why each should be rational for investing their surplus. But in replace concern, most of the investor run after the market trend without being leads them to run in the future beside good return. So, in this study we decide for where to invest one of among the various of banking assets.

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

"Stock market is a financial market which probably has the greatest glamour and is perhaps the least under stood. Some observes consider it as a legalized heaven for purpose is pocking winners" *(Loric, Dodd and Kempton; 1985:109).*

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

Saving alone does nothing until and unless it is converted into profitable investment. Individual or institutional investors need rational investing activities, for their economics well being. Nepal is a country where most of the people do not know where and how to invest. Investment activities is narrowly confined to the buying and selling of real assets but these activities for financial assets are not in the level, which should have been in the scenarios of modern capital market.

Security market is an important part of capital market. To enhance the situation of capital market needs to improve the condition of security market. In Nepalese context, institutional set up of security market began along with the establishment of security exchange center in 1977 A.D. potential investors must be motivated toward investing activities and it is possible only if they are provide knowledge of risk and return behavior of securities and other information regarding securities and its market. These all, ultimately, help investor to be confident and improve investment in financial assets accompanying with efficiency and effectiveness.

Risk refers to the chance that unfavorable event will occur. If return from any investment can be estimated quite precisely, then the investment is defined as being risk-free. If danger of earning a return less than expected were high, the investment would be described as being relatively risky.

Investment risk, thus, is the likelihood of earning return less than the expected. Greater the chance of low or negative return, the riskier the investment is said to be risk measures the variability of return.

Return, on the other, is income received from an investment, which is mainly two types – one, is cash flow (revenue) receipts and other is income earned by appreciation of investment. These aforesaid terms should be quantified and examined the thoroughly to help investors achieve there investment goal. Risk and return, portfolio selection, portfolio performance evaluation, efficient and frontier set, capital assets pricing model etc. are the most important dimensions of investment and without these aspects we cannot assume investment.

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

1.2 History of Banking Development

History tells us that it was the merchant who first evolved the system of banking by trading in commodities than money. Reviewing the history we can find that present day

banker has three ancestors of particular note. One the merchant and two other were lender and the goldsmith medieval Italy. The bank of Venice, founded in 1157 A.D. was the first public banking institution. Subsequently bank of Barcelona 1401 and bank of Genoa 1407 were established. The Lombard migrated to England and other parts of Europe from Italy are regarded for the merchant goldsmith and expansion of the modern banking. Though bank of England was establish in 1694 as a joint stock bank and later on it became the first bank in the world in 1844, the growth of bank accelerated only after the introduction of banking act 1833 in united kingdom as it allows to open joint stock commercial banking system development in the lending countries of the world. Though the modern banking system is a very recent origin in Nepal to compare to other developing nation, some operations alike to banking were known and have been practiced even in ancient times. Prior to the establishment of the Nepal Bank Limited there was no organized financial institution in Nepal. During the prime minister ship of Ranoddip Singh around 1877 AD a number of economic and financial reform were introduced. The established of the "tejarath adda" fully subscribed by the government in the Kathmandu valley was one of them. In the overall development of the banking system in Nepal "tejarath adda" may be regarded as the father of modern banking institution and for quite a long time it tended a good service to government servants as well as to the general public. However the installation of "kausi tosha khana" as a banking agency during the regime of king prithvi narayan shah could also claim to be regarded as the first step towards initiating banking development in Nepal.

The inception of Nepal Bank Limited in 1937 AD was a landmark in the field of banking and financial sector in Nepal. It was established under the field of banking act 1936AD having elementary function of commercial bank as a semi government organization, without existence of a central bank in the country. After the founding of Nepal Bank Limited the organized expansion of banking was apprehended. Nepal Rastra Bank, the central bank was established on 26th April 1956 with an authorized capital of Rs.10 million subscribed by the HMG/N under Nepal Rastra Bank act of 1955. The main purpose is to help the government in formulating monetary polices with an objectives of supervising, protecting and directing the functions of commercial banking activities. It has acted as a government's agent and has contributes in the financial growth of

country's economy. In order to facilitate the people all over the country government established the second commercial banks named Rastriya Banijya Bank in 2022 B.S. which is fully owned and controlled by Nepalese government. With the view to promote the development and modernization of the agriculture development bank act 2024. And security exchange center was also set up to enhance capital market. The successful establishment of Nabil Bank Limited as the first joint venture bank and the liberal economic policy adopted by the successive government, more commercial banks come in to existence. Till now 26 commercial banks are in Nepal out 26 banks 6 are joint venture banks (*Annual Report of SEBON; 2065/66).*

During the mid 80s the adopted the policy of liberalization which attracted the foreign banks to come to Nepal. In 1984 NABIL Bank Ltd. was established as the first joint venture bank. After the restoration of democracy in 1990, Nepal adopted democratic constitution that was lauded as the best social-legal document in the world. Further the economic liberalized with a view of enhancing private sector participation in various spheres. As consequences as in the most to the countries, Nepalese financial sector is largely dominated by the banking sector. Under the commercial banking sphere, majority occupied by large number of joint venture banks.

NABIL Bank, Nepal Indosuez Bank Ltd. (Nepal investment bank) Nepal Grindlays Bank Ltd. (now Standard Chartered Bank Ltd.) Himalayan Bank Ltd. Nepal SBI Bank Ltd. Nepal Bangladesh Bank Ltd, Everest Bank Ltd, Bank of Ceylon (now Nepal Credit and Commerce Bank Ltd.) was established as a joint venture bank. Out of which Nepal Indosuez Bank was take over by Nepalese investors like wise Bank of Ceylon. Now only NABIL, SCBL, NBBL, SBI, EBL and HBL are in existence as joint venture bank.

Quantitative operative commercial banks although are giving some choosing right of banking service but overall competitive environment have not been created yet. NRB and NBL have lost their faith to public. Which are now in reconstruction process through privatization (management contract). In urban areas standard chartered bank, Himalayan bank ltd, NABIL bank ltd, Nepal investment bank ltd, has been dominating the segment of commercial banking. On the other hand there are some banks from other country

whose domestic banking system is not properly supervised by their home country Central's banks. In regard of other Nepalese private commercial bank some of them are not far from the critics. But it is not the time to evaluate the performance of some recent originated young commercial banking financial activities (*Business Law Journal*, 2003: 15-18).

1.3 Statement of the Problems

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

- Dose the Risk and return of investment in selected banks stocks are suitable?
- What is the comparative analysis of selected bank based on risk and return of investment in common stock?
- Which bank is better than other for investment in common stock?
- Which bank can be selected based on risk and return?
- Which bank is better for investor to select?
- How to create an optimal portfolio using selected banking assets?

1.4 Objectives of the Study

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

The main objectives of the study are as follow:

- To analyze risk and return of investment in common stock of commercial bank.
- To determine relation of each bank with the industry index.
- To explain portion of systematic risk and unsystematic risk from the total risk.
- To evaluate common stock's price under CAPM method.
- To analyze how to create optimal portfolio combination using selected commercial banks.
- To shows the current market movement, banking index movement and selected sample banks price movement in trend line.

1.5 Focus of the Study

Investment decision depends upon two factors i.e. risk and return. The return is defined as the reward for bearing the risk. Return is the most important outcome from an investment. Return from stock can be of holding period return, return from speculation or from short sell, capital gain and dividend gain etc. But return to investor is ever followed by risk, which is known as the occurrence of unfavorable outcomes and is ever harmful for the business. Many times, investor blindly invest their money with the hope of getting good return in their investment able funds but due to the many reasons they lose their hard earning while investment made without analyzing the risk and return involved in the stocks. Other hand the increasing number of the bank and financial institution has created a competitive environment in financial sectors. Those, to get the maximum return from a minimum level of risk, the investor should diversify its investment by the means of portfolio creation with analysis the risk and return. So, our main focus of the study is to Measure and analysis the financial performance of commercial Banks, their risk & return, and portfolio creation etc. to make sound investment decision.

1.6 Significant of the Study

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

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

1.7 Limitation of the Study

Every work has its own limitation due to lack of time, resources and knowledge. The work has been completed within the .This study has been based on secondary sources of data i.e. annual reports of banks, Nepal Rastra Bank, SEBON, NEPSE, government publications, other related journals, news papers, and interest.

- This study covers only fixed time of periods must be latest which information is received from the bank and sources of available.
- The study covers risk and return analysis of bank and idea about create optimal portfolio creation.

- Standard normal measurement is not available, so interpretations of result are based upon judgement and common sense.
- Among the various commercial banks in Nepal the study is only concerned on six commercial banks.
- The study covers a period of five fiscal years which will be processed for drawing conclusion.
- The study concentrates only on those factors which are related with common stock and available in the form required for analyzing the different issues.

1.8 Organization of the Study

On this study ate carried out in different stage and procedures, as it needed. As wells as study organized on following chapters in order to make the study easy to understand.

We divided different part o the proposal. Introduction part deals with the introduction that includes back ground of earning, statement of problem, objective of the study, limitation of the study and organization of the study. Second chapter ; review of literature provides information about different authors view logics and conclusions, Third chapter deals about research methodology includes, introduction , research design, nature and source of data, sampling, data gathering procedure etc. Fourth chapter is data presentation and interpretation. This chapter is the main body of the study, it deals about the presentation, tabulation, interpretation, analysis of data and major finding of the study, fifth and last chapter is concerned with summary, conclusion major finding and recommendation an extensive references and bibliography are presented at the end.

CHAPTER - II
REVIEW OF LITERATURE

This chapter deals with the study of past research studies and relevant materials. It is an Advancement of existing knowledge and in-depth study of subject matters. It starts with a search of a suitable topic and continuous throughout the volumes of similar or related subjects. This chapter with about review of literature; deals with the review of the financial system and investment opportunity. The more details are in descriptive manner, for this study, various books, journal and articles as well as the past thesis review were taken into consideration. During the review of this research, in depth study and theoretical investigation regarding portfolio's aspects and their present application and potentialities also are made.

The simplest meaning of the investment is sacrificing the present worth to generate more value of worth in certain future. It is concern with the sacrifice of the current rupee for the expectation of future money. It maximizes the wealth position. Investment, in its broadest sense, means the sacrifice of the current 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 magnitude is generally uncertain" *(Francis; 1998:38).*

There are only few special books and research work related to this topic has been published in Nepal. On other hand, Nepalese stock market is still in creeping stage. So, there are not sufficient materials that provided basic guidelines for this study. Some master degree thesis that is available in TU which are related with this thesis have been reviewed. In additional, some independent studies carried out by well-known financial exports are taken in to consideration

2.1 Conceptual Review

Return is the motivating force in the investment process, that is, it is the reward for undertaking the investment. Therefore it has crucial importance to investors. It is the only

relation way (after allowing for risk) for corporation to compare alternative investments that differ in what they offer. Risk and returns go together in investment and finance. It is not sensible to talk about returns without talking about risk because investment decision involves a risk return trade off. Risk is defined as the chance that the actual outcome from an investment will differ from the expected outcome.

The investment return is defined as the after tax increase in the total value of the initial investment. The increase in the value can come from two sources: a direct cash payment to the investor (i.e. dividend or interest) or an increase in the market value of the investment relative to original purchase price (capital gain).Risk represents the variability of possible future returns from an investment. Return tends to increase as one looks farther into the future. Investors are generally risk averse. This implies that risky investment must offer higher expected return than that offered by less risky investment in order to make people buy and hold them.

2.1.1 Concept of Capital Market

Capital market is also called security market as well as financial market. Capital Market is the mechanism designed to facilitate the exchange the financial assets or Securities by bringing buyer and seller of securities together. Precisely speaking, Security market allows suppliers and demanders of funds to make transactions. It Can be various types and forms classified as different bases capital market and Money market, share and debenture market. For our research concern, capital Markets-the market defined as any body of the individuals, whether incorporated Or not, constituted for the purpose of regulating controlling the business of selling Or dealing securities *(Alexander, Bailey & William; 2003: 117-118).*

Intermediate term refers those financial assets having the maturity periods equal to five years and more than five years. Capital market consists of the security market and non security market implies mobilization of the funds through issuance of Securities like share, debenture, and other derivative securities. These securities traded in the markets are generally negotiable and hence can be traded in secondary market. Non security

market refers to the mobilization of the no financial resources. Basically capital market can be divided into two parts:

1. Primary Market
2. Secondary Market

Primary Market

Primary market is the market is the market through which the funds are transferred from saver to demander. Hence, the transaction of securities issued first times takes place in primary markets. The primary for securities is new issue market, which brings together the supply and demand or source and use for new capital? Funds. In this market, the principal source of fund is domestic saving of individuals and firm, other suppliers include foreign investors and government. In highly developed capital market, the largest proportion of saving reaches the new issue market indirectly via a financial intermediary. For example, investment bankers other similar nature of institutions. In contrast most of the investors are unfamiliar with issue markets and its institutions such as underwriting and selling syndicates which serve middlemen between the corporate demanders of funds and the individual investors.

Secondary Market

The secondary market, also known as the aftermarket, is the financial market where previously issued securities and financial instruments such as stock, bonds, options, and futures are bought and sold. The term "secondary market" is also used to refer to the market for any used goods or assets, or an alternative use for an existing product or asset where the customer base is the second market (for example, corn has been traditionally used primarily for food production and feedstock, but a "second" or "third" market has developed for use in ethanol production). Another commonly referred to usage of secondary market term is to refer to loans which are sold by a mortgage bank to investors.

With primary issuances of securities or financial instruments, or the primary market, investors purchase these securities directly from issuers such as corporations issuing shares in an IPO or private placement, or directly from the federal government in the case

of treasuries . After the initial issuance, investors can purchase from other investors in the secondary market.

The secondary market for a variety of assets can vary from loan to stocks, from fragmented to centralized, and from illiquid to very liquid. The major stock exchanges are the most visible example of liquid secondary markets - in this case, for stocks of publicly traded companies. Exchanges such as the New York Stock Exchange, Nasdaq, and the American Stock Exchange provide a centralized, liquid secondary market for the investors who own stocks that trade on those exchanges. Most bonds and structured products trade “over the counter,” or by phoning the bond desk of one’s broker-dealer. Loans sometimes trade online using a Loan Exchange.

Secondary marketing is vital to an efficient and modern capital market. In the secondary market, securities are sold by and transferred from one investor or speculator to another. It is therefore important that the secondary market be highly liquid (originally, the only way to create this liquidity was for investors and speculators to meet at a fixed place regularly; this is how stock exchanges originated, see History of the Stock Exchange). As a general rule, the greater the number of investors that participate in a given marketplace, and the greater the centralization of that marketplace, the more liquid the market. Fundamentally, secondary markets mesh the investor's preference for liquidity (i.e., the investor's desire not to tie up his or her money for a long period of time, in case the investor needs it to deal with unforeseen circumstances) with the capital user's preference to be able to use the capital for an extended period of time. Accurate share price allocates scarce capital more efficiently when new projects are financed through a new primary market offering, but accuracy may also matter in the secondary market because: 1) price accuracy can reduce the agency costs of management, and make hostile takeover a less risky proposition and thus move capital into the hands of better managers, and 2) accurate share price aids the efficient allocation of debt finance whether debt offerings or institutional borrowing ***(****Durnev et al.; 2003: 331).*

Secondary Market in Nepal

The history of securities market began with the floatation of shares by Biratnagar Jute Mills Ltd. and Nepal Bank Ltd. in 1937. Introduction of the Company Act in 1964, the first issuance of Government Bond in 1964 and the establishments of Securities Exchange Centre Ltd. in 1976 were other significant development relating to capital markets. Securities Exchange Centre was established with an objective of facilitating and Promoting the growth of capital markets. Before conversion into stock exchange it was the only capital markets institution undertaking the job of brokering, underwriting, managing public issue, market making for government bonds and other financial services.

Nepal Government, under a programmed initiated to reform capital markets converted Securities Exchange Centre into Nepal Stock Exchange in 1993. Nepal Stock Exchange, in short NEPSE, is a non-profit organization, operating under Securities Exchange Act, 1983. The basic objective of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through member, market intermediaries, such as broker, market makers etc. NEPSE opened its trading floor on 13th January 1994.

Government of Nepal, Nepal Rastra Bank, Nepal Industrial Development Corporation and members are the shareholders of the NEPSE. Once the have been issued in the primary market, investor may seller trade them in the secondary market called secondary capital market. It deals with previously issued share mainly traded through the stock exchange *(Annual Reports of NEPSE; 2009).*

2.1.2 Common Stock

Common stock is a form of corporate equity ownership, a type of security. It is called "Common" to distinguish it from preferred stock. In the event of bankruptcy, common stock investors receive their funds after preferred stock holders, bondholders, creditors, etc. On the other hand, common shares on average perform better than preferred shares or bonds over time. Common stock is usually voting shares, though not always. Holders of common stock are able to influence the corporation through votes on establishing

corporate objectives and policy, stock splits, and electing the company's board of directors. Some holders of common stock also receive preemptive rights, which enable them to retain their proportional ownership in a company should it issue another stock offering. Additional benefits from common stock include earning dividends and capital appreciation. Common stock is recipient of the residual income of the corporation. Through the rights to vote, holders of common stock have legal control of the corporation. An element of high risk is involved with common stock investment due to its low priority of claims at liquidation. When investors buy common stock they receive certificate of ownership as a proof to their being part of the company. The certificate states the number of shares purchased and their value per share" *(Sharpe; 2006: 203).*

2.1.3 Relation between Risk and Return

The expected return from any investment proposal will be linked in fundamental relationship to the degree of proposed risk. In order to be acceptable a higher risk proposal must offer a higher forecast return than lower risk proposal *(Hampton; 1996:341).*

"The observe difference in both the levels and variability of the rate of return across securities are indicative of the underlying risk and return in the market" Generally, there is a positive relationship between rate or return and risk. It means an investor can usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a riskier asset will pay a higher average rate of return, it is usually in practice. The reason is that investors are risk averse. As a result, high-risk assets must offer investors" high return to induce them to make the riskier investment normally; Investors are likely to prefer more return and less risk. It means investors will not choose an investment that guarantee less return when investments promising higher returns in the same level of risk class are readily available *(Loric, Dodd and Kempton; 1985:1029).*

2.1.4 Meaning of Return

The meaning of return has different meaning to different investors. The rate of return from capital investment is a concept that has different meaning to different investors.

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

They are as follows:

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

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

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

Total return = capital gain+ regular gain (ordinary gain)
Capital gain =ending price-beginning price
Regular gain= dividend or interest *(Bhattarai; 2008:102)*

2.1.4.1 Single Period Rate of Return

The rate of return is the speed at which the investor's wealth increases or decreases. This rate of return depends upon the future cash flows that include cash receipt (dividend) and capital gains. And the investors make investment for high rate of return at minimum risk. Thus, the investor's single period rate of return can be defined as the total return that the investor receives during the holding period of the shares as a percentage of the purchase price at the beginning of the holding period. The rate of return over the holding period is called holding period rate of return (HPR).

This can be calculated as;

$$Kt = \frac{Pt - Pt - 1 + Ct}{Pt - 1}$$

Where,

Kt = actual or expected or realized rate of return

Pt = price or value of asset at time (t) or beginning price

Pt-1 = price or value of assets at time t-1 or ending price

Ct = cash flows received from the investment in the time period t-1 to t *(Bhattarai; 2008:104)*

2.1.4.2 Required Rate of Return

When setting the required rate of return on an investment an investor must consider the real rate of return, expected inflation and risk. Because consumption is foregone today, investor is entitled to a rate of return that compensate for differ consumption in future. Required rate of return is the rate of return demanded by an investor forgoing the present utility and satisfaction. If investors postponed his satisfaction for uncertain future, investment should compensate his satisfaction. The compensation, e demand on behalf of future uncertainty over the risk free risk, is required rate of return. The capital market determines required rate. The required rate of return is the minimum rate of return that an investor expects from his investment. It is function of real rate of return and risk *(Weston & Brigham; 1982:177).*

2.1.4.3 Expected Rate of Return

Expected rate of return is the return one expects by his/her investment. Suppose one invested Rs 100 in security of Nepal Bank Limited and he/she thinks that it will generate year-end dividend of Rs 5 with ending price of Rs 110 then its total return will be Rs 15 and expected return will be 15%. The expected rate of return should be higher than required rate of return. Expected return is the hypothetical rate of return. The expected rate of return based upon the expected cash receipt over the holding period and expected year-end selling price of the securities. Of course, an investor has expected return must be reasonable. Most expectation based on history. Reasonable conclusions about future returns could be reached by looking at the past, tempered with the understanding that these returns. Even if your expectations are reasonable, however, there are the possibilities that your investment's actual return will be different from the expectation. This is risk, we must take as an investor and it includes the possibility of losing original investment. Risk is greater when the variation is greater in return *(Bhattarai; 2008:113).*

2.1.4.4 Expected Rate of Return Based on Historical Data

During this research, it is assumed that history repeats itself. The future cash flows will base on the historical cash flow. The expected rate of return will be the average of historical rate of returns. In term of holding period return, the expected rate of return for any specific securities is the expected rate of return taken from its historical return. However, the simple arithmetic averaging ignores the compounding effects that result if the first period returns reinvested. In addition, the result of the arithmetic average, return distorted if there are large differences in the rate of return across period. Large difference in the periodic rates of return over longer investment horizons will; because the arithmetic rate of return to be misleading. The geometric rate of return does not suffer from this defect. The geometric mean rate of return HPR defined as the rate of return that would make the initial investment equal to the ending investment value *(Weston & Brigham; 1982:178).*

2.1.5 Risk

Risk is the potential variability in future cash flows. Therefore, it is defined as variability of returns in a period. The wider the range of possible events that can occur, the greater

the risk, that means higher the variability higher the risk and vice versa. Risk and uncertainty are the integral part of investment. Risk is a situation where the possible consequences of the decision are known. However, uncertainty is a situation sphere the probabilities cannot be eliminated. However, risk and uncertainty are used interchangeably.

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

"Although there is difference in the specific definitions of risk and uncertainty, for our purposes and in most financial literature the two terms are used interchangeably. In fact, one way to define risk is the uncertainty of future outcomes. And alternative definitions might be the probability of an adverse outcome. Subsequently, in our discussion of portfolio theory, we will consider several measures of risk that are used when developing the theory *(Relly and Brown; 2004: 210-211).*

Types of Risk

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

i. Systematic Risk
ii. Unsystematic Risk

Hence,

Total Risk = Systematic Risk + Unsystematic Risk

Systematic Risk

It refers to that portion of the variability of an individual security's return caused by factors affecting the market as a whole as such it can be thought of being nondiversifiable.It is because of this that it is also called market risk or relevant risk. The systematic risk is market related. In other words, it arises from the changes in the

economy and market condition. For example, high inflation, recession, impact of political factors, wars, depression, long term changes etc which are beyond the control of company management. It affects all the firms in the market. The systematic risk is rewarded in the form of risk premium, sometimes; systematic risk is called market risk. systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at a small number of assets. The principle of diversification has an important implication to a diversified investor, only systematic risk matters. Systematic risk accounts for 25% to 50% of the total risk of any security *(Fisher & Jordan; 2000: 167).* Some of the sources of systematic risk include.

a. Interest rate changes.
b. Changes in purchasing power.
c. Changes in investor's expectation about the overall performance of the economy. Because diversification cannot eliminate systematic risk, this type of risk is the predominant determinant of the individual security risk premium. This risk is also called beta risk *(Weston and Brigham; 1982:89).*

Unsystematic Risk

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

a. Management capability and decisions.
b. The availability of the raw materials.
c. Strikes.
d. The unique effects of government regulations such as pollution control.
e. The effect of foreign competition.
f. The particular levels of financial and operating leverage of the firm employees *(Weston and Brigham; 1982:89).*

2.1.6 The Range

"The range (maximum return-minimum return) is known as one of the traditional way of measuring risk. It simply shows the difference between the best possible return and the worst possible return but does not provide information about the distribution of the rates of return between the extremes" *(Cheney and Moses; 1992: 41).* The range is one of the traditional methods of measuring risk, which simply communicates the difference between the best possible returns and the worst possible return; it does not provide information about distribution of the rates of return between the extremes.

The Range = Best possible Rates of return-worst possible rate of return.

The degree of risk of an underlying security is reflected in the magnitude of the differences. The smaller the difference the lower will be degree of risk *(Pokharel; 2004:11).*

Another measure risk is the range of returns. It is assumed that a larger range of expected returns, from the lowest to the highest return, means greater uncertainty and risk regarding future expected returns *(Relly and Brown; 2004: 211).*

2.1.7 Measurement of Risk and Return

2.1.7.1 Standard Deviation (SD)

Standard deviation measures the risk as variability of return. "Standard deviation is a statistical measure of the variability of a set of observations. It is the measure of total risk. Smaller the variance, lower the risky of the stock and vice- versa. The risk or standard deviation is denoted by the symbol sigma (σ). The square root of the variance of the rate of return is called the standard deviation (σ) of the rate of return" *(Thapa, Bhattarai and Basnet; 2006: 121-122).*

2.1.7.2 Coefficient of Variation (CV)

Standard deviation is obsolete measure of return where as coefficient of variation is relative measure of return. Risk is measured by standard deviation. And risk per unit of expected return is measured by coefficient of variation is denoted by CV. Greater the CV

the greater relative risk of the investment. Coefficient of variation is calculated to compare the variability in returns of two alternative investments. Hence, it is useful to compare the investments having different expected return and different level of risk *(Horne and Wachowicz; 2001:94).*

2.1.7.3 Beta coefficient

This is a mathematical value that measures the risk of one asset in term of its effect on the risk of group of assets called portfolio. It is concerned solely with market related risk as would be the concern for the investor holding stocks and bonds. It is derived mathematically so that a high beta indicates a high level of risk and low beta represents a low level of risk *(Weston& Brigham;1982:192).*

2.1.8 Sources of Risk

An investment is commitment of money that is expected to generate addition money. Every investment entails some degree of risks. A major objective of financial institution is to increase the returns for its owner by taking minimum risk. The effective management of the risk is central to its performance. Indeed, it can be argued that the main business function of financial institution is managing these risks through the consumption of maximum time and efforts in understanding and managing the various source and kinds of risks factors with its different natures and complexities. The primary risks factors that create investment uncertainties are as follows:

Interest Rate Risk

Asset transformation function is the key functions of financial institution. It involves buying primary securities or assets and issuing secondary securities or liabilities to fund assets purchase. The primary security purchased by financial institutions often has maturity and liquidity characteristics which are different from those of secondary security that financial institutions sell. In mismatching the maturities of asserts and liabilities as part of their asset transformation function.

Financial institutions potentially expose themselves the interest rate risks. Suppose when interest rate increases and maturity period of assets is greater than the maturity period of

liabilities. At that time, if interest rate increases it decreases the market value of assets in comparison of its liabilities. So, interest rate is defined as the potential variability of return caused potential variability of return caused by the changes in its market rate interest rate. Interest rate can be variable. If we consider the single period return formula for the bond and stock. In interest rate risk, if market interest rate raises the investment values and market prices falls and vice-versa. The variability of return results interest risk. The interest rate risk affects the prices of bonds, stocks, real estate, gold and other derivatives securities *(Bhattarai; 2008:107).*

Bull-Bear Market Risks

Market risk is risk incurred in the trading of assets and liabilities due to changes in market forces like interest rates, exchange rates. Furthermore, market risk is the risk related to uncertainty on the earning on its trading portfolios caused by changes in the market condition.

Saunders and Cornett in 10th addition have outlined two comments on market risk.
These are as follows:
Comment 1: market risk is value at risk (VAR) which is related to uncertainty.
Comment 2: market risk is caused due to four major market forces. These are price of assets, interest rate, market volatility, market liquidity.

Market risk can be also cleared in Bull-Bear approach. This approach advocates that risk can rise from the variability of the market return resulting from the alternating bull and bear market forces. Bull market creates when security index arises fairly and consisting from also point called trough for a period of time, the bull market ends when the market index reaches a peak and starts downward trend. The period during which the market declines to the next trough is called a bear risk *(Bhattarai; 2008:108).*

Credit Risk

It is also called default risk. Default risk is probability that the borrower is unable to fulfill the term promised under the loan agreement. Saunders and Cornett have outlined three principles as follows:

Principle 1: It is the risk losing principal and interest amount.

Principle 2: When financial institution makes loans or buys securities with longer maturities. There is chance of higher credit risk where principal plus interest earned may not recover adequate in full amount.

Principle 3: Credit risk can be firm specific and systematic risk. (Bhattarai; 2008:108)

Liquidity Risk

Liquidity risk is sudden surges in liability with drawl may leave as financial institution in a position of having to liquidate assets in a very short period of time and at low prices. Liquidity risks arises when on its liability holders such as depositor or insurance policy maker etc. demand immediate cash for the financial claim they hold with financial institution or when holders of loan commitment or credit line suddenly exercise their right to borrow or draw down their right their loan commitments. At that situation the financial institutions must either borrow additional funds or sells assets to meet the demands for the withdrawal of funds. In most cases financial institution has to face the liquidity crisis at the time when liability holder demands higher cash consequently. In other sense, liquidity risk is that position of an assets total variability of return which results from the prices discount given on sales. Commission paid in order to sale with out delay. Perfectly liquid assets are highly marketable either price discounts must be given or these cost must be incurred by seller, in order to find a new investor for an assets is the larger the prices discount and /or commission which must be given up by the seller in order to affect a quick sale *(Bhattarai; 2008:107).*

Callability Risk

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. Issuer like the call provision because it allows them to buyback outstanding preferred stock and /on bond with funds from a newer issue if market interest rate drop below the level being paid on the outstanding Securities. There is chance of creating callability risk. That portion of a security's total variability of returns which derives from the possibility that the issue may be called is the callability risk. Callability risk commands a risk premium that comes in the form of a slightly higher average rate of

return. This additional return should increase as the risk that the issue will be called increase *(Bhattarai; 2008:108).*

Convertibility Risk

Call ability risk and convertibility risks are in two aspects. First both are contractual stipulations that included in the term of original security issue. Second, both of these provisions alter the variability of return from the affected security. Convertibility risk is that portion of the variability of return from a convertible bond of convertible preferred stocks. That reflects the possibility that the investment may be converted into the issuer's common stocks at a time or under terms harmful to the investor's best interest. (Bhattarai; 2008:108)

Industrial Risk

An industry may be viewed as a group of companies that compete with each other to market homogenous products. Industry risk is that portion of risk that can be an investment variability of return caused by events that affects the product and firms that make up of an industry. The stage of industry cycle, international tariffs and/of quotas on the product produced by an industry related taxes, industry wide labor union problems, environmental restriction, raw materials acts and affect all the firms in the industry simultaneously. As a result of these commonalities, the prices of the securities issued by competing firms tend to rise and fall together *(Bhattarai; 2008:108).*

Political Risk

Political risk arises from the exploitation of a politically weak group for the benefits of politically strong group, with the efforts of various groups to improve their relative positions increasing the variability return from the affected assets. Regardless of whether the changes that cause political or by economic interests, the resulting variability of return is called political risk if it is accomplished through legislative, judicial or administrative branches of government. Political risk can be classified as international political risk and domestic political risk *(Bhattarai; 2008:109).*

Other Risks

Besides these above mentioned risks, there are other risks like off balance sheet risk, technological and operational risk, country and sovereign risk, insolvency risk etc *(Bhattarai; 2008:109).*

2.1.9 Portfolio Management

Portfolio management means investing money in a number of securities and also of different types rather than one and changing over the mix as per the economic environment so that the investor can get the maximum return with the minimum investment also playing with the least risk. Portfolio management refers to the selection of securities and their continuous shifting in the portfolio to optimize return to suit the objectives of an investor. The idea is catching on with the boom in the capital market and an increasing number of people are inclined to make profit out of their hard earned savings.

"A portfolio is collection of investment securities. Portfolio theory deals with the selection of optimal portfolios, that is, portfolios that provides the highest possible return or the lowest possible risk for any specified rate of return" (*Western & Copland; 1992:302).*

“Portfolio Management is the art of handling a pool of funds so that it not only preserves its original worth but also over time appreciates in value and yields an adequate return consistent with the level of risk assumed” *(Cohen, Zinbarg & Zeinkal; 1997: 591).*

One of the safest ways an investment portfolio generates money is through fixed income investments. These are usually in the form of bonds issued by corporations or governments or from dividends paid to shareholders by a corporation. Issues effecting fixed income are the credit worthiness, or default risk, of the issuer, and the yield earned by the bondholder. Safer lenders, such as those of governments or blue-chip companies, typically pay a lower yield--at times, so low that the real return after inflation is at or below zero! On the other hand, a company or government that goes bankrupt will be unable to pay its high dividends or service its debt. Yields between 3% and 7% are

generally considered safe. When an investor sells something for more than they paid for it, they're said to have realized a capital gain. This sort of buying low and selling high is, of course, the goal of most investors. To do this successfully, however, requires patience, discipline and a deep knowledge of macroeconomic trends. In an environment when an economy is growing, most assets will tend to rise in value, making capital gains relatively easy to come by. Asset allocation is much more difficult and crucial in a period of stagnant or contracting growth. During these times, investors will have to monitor capital flows to know which assets can maintain their value or appreciate while others decline. Capital gains can be realized over a very long period of time, which is recommended for most novice investors, or over a very short period of time, as little as a few minutes or hours for risk-taking day traders.

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

Primary Objective

- To maximize return.
- To minimize risk.

Secondary objectives

- Regular return.
- Safety or security of an investment.

- Appreciation of capital.
- Liquidity.
- Marketability.
- Tax planning – capital gain tax, income tax and wealth tax *(Western & Copland; 1992:304).*

Step of Optimal Portfolio Creation

This study also gives an idea for how to create an optimum portfolio which gives knowledge about portfolio.

Step1

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

Step 2

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

Step 3

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

Step 4

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

Step 5

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

Defensive Portfolio

Step 1

Cash & Money Market Accounts: A defensive portfolio generally requires a certain portion of the investment to be kept in the form of cash or cash equivalents such as a money market account. These accounts earn a small return but are considered to be one of the safest forms of investments, similar to a saving account.

Step 2

U.S. treasuries: Investments in T-bills provides a virtually risk free opportunity that will generate a guaranteed return. These investments provide minimal return so treasuries should only make up a portion of the portfolio. The percent of your portfolio that will be made up by T-bills should be determined by your individual risk tolerance. Increasing the percentage of a portfolio invested in T-bills effectively reduces the risk of the overall portfolio.

Step 3

Treasury Inflation-Protected Securities: Inflation can significantly erode the value of a fixed income investment portfolio. Treasury Inflation-Protected Securities or TIPS provide a hedge against inflation. The price of these securities will be adjusted to ensure that your investment keeps pace with inflation.

Step 4

Municipal Bonds: Investments in bonds issued by city and county governments provides another relatively safe investment that provides a guaranteed return over time. Some municipal bonds offer tax advantages as well.

Step 5

Corporate Bonds: A fixed income can be generated by purchasing debt issued by corporations. These bonds will provide a higher return than T-bills or Municipal bonds due to their higher levels of risk. Corporate bonds can be combined with safer investments to increase returns on investment while still maintaining a low risk portfolio. Corporate bonds vary widely in their risk level as well as the return they provide. Carefully research the credit ratings of companies before purchasing their debt. Buying bonds from many companies in a variety of industries reduces the risk level of the portfolio.

Step 6

Purchase well established equities: Stocks with low volatility and high dividends can be added to a fixed income portfolio. These types of stocks further increase returns on investment (and risk) while still providing an income. Stocks in discount retailers such as

Wal-Mart, Costco and McDonald's are often purchased as part of a defensive portfolio. These businesses generally do well in a recession when consumers are looking to save money. Equities should comprise a small percentage of a defensive portfolio as these types of investments contain higher levels of risk *(www.investopedia.com).*

2.1.10 Capital Assets Pricing Model

CAPM is a model that describes the relationship between risk and expected return in this model, a security's expected return is the risk free rate plus a premium based on the systematic risk of the security. The SML equation as suggested for the computation of expected rate of return on common stock.

This model is a under:

$$Kr = Rf + [E(Rm) - Rf]\ \beta j$$

Where,

Kr = required rate of Return or Equilibrium rate of return for stock j.

Rf = Risk free rate of return

E (Rm) = Expected Return for the Market Portfolio

βj = An index of systematic risk of stock j

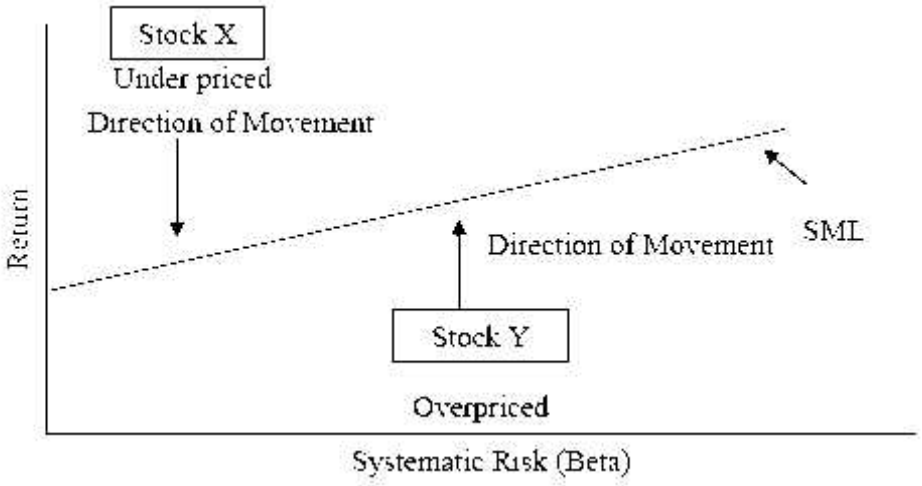
It means the sensitivity of stock's returns. It changes in returns on the market portfolio. The beta of portfolio is simply a weighted average of the individual stock beta in the portfolio.

If beta is 1 (one) then required return is simply the average return for all situations that is the return on market portfolio: otherwise, the higher the beta, higher the premium and the total return required. A relatively high beta does not however, guarantee a relatively high return. The actual return depends partly on the behavior of the market, when acts as a proxy for general economic factors.

Premium is the amount of return that investors demand for holding a risky security such as stock. A financial economist, William Sharp is one of the creators of the "Capital Assets Pricing Model ", a theory which began a quest to identify the tendency portfolio. In fact of the CAPM as it called is very useful tool. It has been taken as a prescription for

the investment portfolio, as well as a tool for estimating an expected rate of return. Comparisons between the expected rates of return and require rate of return can analyze the stock to be under priced and over priced. And when these two returns are equal than it is said to be market equilibrium i.e. all stocks lie on the security market line (SML). The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return. The security market line clearly shows that return A is the increasing function risk. Furthermore it is only market risk that affects return. The investor receives no added return for bearing diversifiable risk.

Stocks that are overpriced lie below the SML and if the stocks are under priced then it lies above the SML.*(Weston & Copeland;1992:403)*



2.2 Review of General Studies

Although, there are very less articles published about the risk and return analysis of Nepalese commercial banks, some of the related articles published in national and international newspapers and journals are extracted below.

Ravenscraft, (1999) in *"The performance of hedge funds: risk and return, and incentive"* journal of finance have examined that Hedge funds may be enhancing returns by taking on extra risk. Many hedge funds use tools designed to reduce systematic rather than total risk. Though this is obviously true for short sellers and market neutral funds techniques

such as short sales are employed by most hedge funds. Combination of incentives alignment and investment flexibility gives hedge funds a clear performance advantage over funds. Incentives funds are the most important and significant determinants of risk adjusted return using 2, 4,6and 8 year sample all ending in December 1995 with 547,272,150 and 79 hedge funds observations, main finding of this study are the average hedge fund sharp ratio is higher than comparable mutual funds sharp ratio and this performance advantage increase when we match fund by reign hedge funds achieve this sharp ratio superiority despite their higher total risk. In this study, the average total risk is higher for hedge funds. Thus, some of the characteristics that enhance hedge fund performance may not be appropriate for mutual funds that attract undiversified, risk averse clients.

The hedge fund conclude that the flexible investment options employed by hedge funds make it difficult to classify hedge funds identify the correct benchmarks and thus measure relative performance standard deviation of returns measure of total risk may not fully capture the complex risk taking from hedge funds dynamic highly levered strategies monthly incentive fees, therefore contain an unknown reporting bias that may be as important as depreciation and transfer pricing issues in accounting profits.

"There is growing empirical evidence that multiple factors are cross-sectionally correlated with average returns in the United States. Measured over a long time, stocks of small firms earn higher average returns than that of the bigger firms. Fama French (1992, 1996) and Lakonishock, Shleifer and Vishny (1994) show that value/stocks with high book-to-market, earning to price, on cash-flow to price outperform growth stocks with low book-to-market, earning-to-price , on cash-flow to price. Moreover, stocks with high return over the year continue to outperform stocks with poor prior performance. The evidence that beta is also compensated for average returns is weaker.

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

perspective of collecting independent samples, emerging market countries are particularly interesting because of their relative isolation from the capital markets of other countries. Compared to the developed markets, the correlation between most emerging markets and other stock markets has historically been low (Harvey, 1995) and until recently many emerging countries restricted investment by foreign investors.

Interestingly, Bekaert and Harvey found that despite the recent trend toward abolition of these restrictions and the substantial inflows of foreign capital, some emerging equity markets have actually become more segmented from world capital markets. A large portion of the equity capital of emerging economies is held by local investors who are likely to evaluate their portfolios in light of local economies and market condition. *(Rouwenhorst, 1999:1439-40).*

Shrestha, (2055:67) Deputy Chief Officer of Nepal Rastra Bank, Banking operation department, has given a short glimpse on the *"Portfolio Management in Commercial Bank, theory and practice"*. Shrestha has highlighted the following issues in the articles. The portfolio Management becomes very important both for individuals as well as institutional investors. Investors would like to select a best mix of investment assets subject to the following aspects:

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

- Chose such a portfolio of securities, which ensures maximum return with minimum risk or lower of return but with added objectives of maximization.

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

- To find out the invisible assets (generally securities) having scope for the returns depending upon individual characteristics like age, health, disposition, liquidity, tax liability.
- To find out the risk of securities depending upon the attitude of investor toward risk.
- To develop alternative investment strategies for selecting a better portfolio, this will ensure a trade off between risk and return. So as to attach primary objective of wealth maximization at lowest risk.
- To identify securities for investment to refuse volatility of return and risk. In the context, Shrestha has presented two types of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any securities such as equity debentures or bond and other money and capital market instruments.

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

Shrestha, **(**2057**)** in his artical "*Commercial Banks Comparative Performance Evaluation"* concluded that the Joint Venture Banks are new operationally more efficient, having superior performance while comparing with local banks that are operating in Nepal. Better performance of joint venture banks is due to their sophisticated technology, modern banking method and skill. Their better performance is also due to the government's branching policy in rural areas. Local banks are efficient and expertise in rural sectors but having number of deficiencies. Thus, local banks are facing growing constraints of socio-economic, political system on one hand spectrum and that of the

issues and challenge of joint venture banks commanding significant banking business on other spectrum.

A study on "*How theories of Financial Intermediation of Corporate Risk-Management Influence Bank Risk-Taking Behavior*". This paper has based on the relation for the risk taking and risk management behavior from a both corporate finance and banking perspective. That data set covers the period from 1986-94, 1986-90 and 1991-94 but overall time of the study is 9 year period. In this study, the research scholar has used mathematical tools that are the model beta, standard deviation, total risk (systematic and unsystematic risk), and interest rate risk. The main objective of the study is to examine the relation for risk taking and risk management behavior for both corporate financial and a banking perspective. After combining the theoretical insights from the corporate finance and banking literatures related to hedging and risk taking the paper reviewed empirical tests based on these theories to determine which of these theories are best supportive by the data *(Pegano, 2001:277-323).*

Management incentives appear to be must consistently supported rational for the describing how bank manage risk. In particular, moderate/high levels of equity ownership reduce bank risk while positive amount of stock option grants increase bank risk-taking behavior. The empirical tests of theory of corporate risk management need to consider individual subcomponents of total risk and the bank ability to trade these risks in a component financial market.

Various researchers have analyzed the class of stochastic volatility diffusions for assets returns to encompass poison jumps of time varying intensity. Any reasonably descriptive continuous – time index returns must allow for discrete jumps as well as stochastic volatility with a pronounced negative relationship between return and volatility innovations. They also tend that dominant empirical characteristics of the return process appear to be priced by the option market. Their analysis indicates a general correspondence between the evidence extracted from daily equity and the stylized features of the corresponding options market prices. They conclude that much assets and derivative pricing theory is based on diffusions models for primary securities. Yet, there

are very few estimates of satisfactory continuous time models for equity returns. The objectives of the paper is to identify a class of jump - diffusions that are successful in approximating the S&P 500 returns dynamics and therefore should constitute an adequate basis for continuous tine assets pricing applications. They also explore alternative models both within and outside of the popular fine class. Estimation is performed by careful implementation of the EMM that provides powerful model diagnostic and specification tests. Finally, they explore the relationship between their estimated models and option prices. They contrast those of their parameter estimated that are invariant to adjustments for volatility a hump risk to those reported in the option literature, and provide a qualitative comparison of the pricing implications of their estimate system and the stylized evidence from actual option data. They find that every variant of their stochastic volatility diffusions without jumps fails to jointly accommodate the prominent characteristics of the daily S&P 500 returns. Further, ever specification that does not incorporate a strong negative correlation between return innovations and diffusions volatility fails as well. In contrast, two versions of our SVJDS that incorporate discrete jumps and stochastic volatility, with return innovations and diffusion volatility strongly and negatively correlated, accommodate the main features of the daily S&P 500 returns. This is true not only of the models estimated union sub samples. The models therefore appear to get structurally stable. Finally, they find that those parameter estimates that ate invariant to adjust mints for volatility and jump risk generally are similar to those reported in the option literature and they documented that small risk premium suffice to produce pronounced patterns in Black and Scholes option implied volatilities markets. Thus, the main characteristics of the stock price process by option data independently identified as highly significant components of the underlying S and P 500 returns dynamics *(Anderson, Benzoni and Lund; 2002:211).*

Mahat, (2004:6) has published an article regarding *"Efficient Banking"* in the Kathmandu Post Daily" on April 28 2004. He writes, after the restoration of democracy, Nepal has adopted more liberal and open economic policies. The open and liberal policy of the government in the financial sector has helped in establishing many banks and financial institution in the country. These banks have contributed towards introduction new technology, new banking systems and efficient service delivery in the country.

Banking industry was booming until recent past. But, the recent economic slowdown they started affecting the performance of commercial banks. the principle of survival of the fittest will hold good under such a scenario. Therefore, a bank has to increase efficiency to win the competition.The efficiency of banks can be measured using different parameters. The concept of productivity and profitability can be applied while evaluating efficiency of banks. The term productivity refers to the relationship between the quantity of inputs and outputs. If more output can produced from the same inputs or the same outputs can be produced from fewer inputs, it is said that productivity has increased. As the government banks are at distress, these banks are left out for evaluation. Similarly, Siddhartha bank, Laxmi Bank and Kumari Bank are late entrants in the industry and are in the process or increasing business volume to achieve economics of therefore, figures of these banks also may lead to misinterpretation. SCBL and HBL are well ahead in terms of other income to interest income ratio. On the other had LUBL, MBL, NCCB and NSBI have poor other income to interest income ratio. Banks with higher ratio can be considered efficient, but also vulnerable in the sense that a reduction in other income will hit the profitability. Interest expenses to interest income ratio reflects the efficiency in the use of funds. SCBL could be considered the most efficient bank under this parameter while LUBL is the most efficient bank. LUBL and MBL stand efficient as they have higher operating profit to total income ratio. The operating profit to total income ratio helps in assessing whether banks are doing the right internally.

The analysis of operational efficiency of banks will help to understand the extent of vulnerability of banks under the changed scenario and in deciding whom to bank upon. This may also help the inefficient banks to upgrade their efficiency and be winner in the situation developing due to slowdown in the economy. The regulars should also be concerned on the fact that the banks with unfavorable ratios may bring catastrophe in the banking industry.

Akhigbe & Whyte (2004) in their research paper, *"The Gram-Leach-Billey Act"* of 1999: Risk implications for the Financial Service Industry have focused on risk implication of banking and private sectors. The research paper has included many other studies some of

the stufies find that banj expansion into banking activities can affect of events that permitted only limited entry by banks into nonbanking activities. The study is conducted on systematic, unsystematic and total risk, such risk are calculated by using statistical tools i.e. variance and standard deviation, T-statistical and signed rank which is recently by Aminud, Delong and Saunder in 2002. The study has included 340 banks for the sample size than they partition two sub- samples: 46 large banks and 294 small banks. The major finding of the study is that evidence of a significant decline in systematic risk for the banks securities firmand insurance companies but a significant increase in total and unsystematic risk for the banks and insurance companies. The study has included five years period data. The study also found that bank and insurance companies are less risk than other securities business. If security wants to decline in risk, security firm can be explained by their ability to diversify into less risky banking and insurance activities. The research paper result suggests that regulators should carefully monitor and supervise banking activities in new era of financial modernization to migigate adverse effects from the increase in risk.

2.3 Review of Thesis

Pradhan, (1993) carried out study on "*Stock market behavior on small capital market"* a case study. The study was based on data collection for seventeen enterprises from 1983 through 1990. One of the major objectives which are related to this study was too access the stock market behavior in Nepal.

Summary:

- Dividend per share and MPS was positively correlated.
- Higher the earning on study the ratio of dividend per share to MPS.

Shrestha, (1999) in his study "*Portfolio Management in Commercial Banks: Theory and Practice"* revealed the portfolio management becomes very important both for individual as well as institutional investors. Investors would like to select a best mix of investment assets subject to the following aspects.

- Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- Good liquidity with adequate safety of investment

- Certain capital gains.
- Maximum tax concessions.
- Flexible investment.
- Economic, efficient and effective investment mix.

In view of above aspect Shrestha stated that the investors try to hold a well diversified portfolio that helps to achieve those benefits. Investors want to increase their return by making investment in different sectors with certainty.

However, shrestha presented approaches to find out the risk of securities depending upon the attitude of investor toward risk, to develop alternative investment strategies for selecting a better portfolio, which will ensure a trade off between risk and return so as to attach the primary objective of wealth maximization at lowest risk and finally to identify securities for investment to refuse volatility of return and risk.

He further stated that the commercial banks need competent manpower for continuous research and analysis and proper management information system to get success in portfolio management and customers confidence regarding the portfolio management in Nepalese joint venture banks, he concludes that the portfolio management activities of Nepalese commercial banks at present are in nascent stage due to less developed capital market, unavailability of sufficient financial instrument in financial market ,lack of proper techniques to run portfolio management activities in the best and successful manner, its have constrained the portfolio management of most of the joint venture bank.

Upadhaya, (2001) his study *"Risk and return investment of commercial banks in Nepal."* Concluded that most people see stock market investment as a black art that they know little about. Many people have unrealistically optimistic a pessimistic expectations about stock market investment or perhaps a fear of the unknown. As overall economy. Nepalese stock market is in emerging state. Its development accelerating since the political change in 1990 in effect of openers and liberalization in national economy. But, due to lack of information and poor knowledge. Nepalese individual investors cannot analyze the security as well as market properly.

In addition, Upadhaya added that proper analysis of individual security, industry and overall market is always needed general knowledge about economic, political and technological trend will be advantageous. To win market share should be held when the market is raising and safer investment when it is falling.
Through the study conducted by the Upadhaya did not focus on the relationship between closing MPS and EPS and this study does not also focus on the view point of individual investors as well as the company.

Shakya, (2004) *"Analysis of Risk & Return and application of SML on common stock commercial bank in Nepal."* In this study she has taken three banks as a sample size from listed commercial banks of NEPSE The main objective of the study is to analyze the risk, return and other relevant variable that help in making decision about investment on securities of the commercial bank.

The specific objectives of the study are:

- To analyze and awareness of individual investors regarding common stock investment.
- To solve the SML (Security Market line) and to analyze whether the stock is under priced or overpriced
- To show the security characteristics line (SCL) of individual stock.

Major Findings

1. 30.12% respectively, Return is an income received by investors for bearing risk within the stock. Expected return on common stock of NBB has the highest with 0.4705 i.e. 47.05%, SCBL and NABIL bank has the expected return of 39.02%.
2. Where there is return, there will be risk also. Common stock of NBB is most risky with standard deviation of 0.5542 whereas NABIL bank has standard deviation of 0.6162.

3. C.V. Measures the risk in unitary basis that means it shows how many unit of risk should be bear to gain one unit if return. In terms of C.V. SCBL has lowest C.V. i.e. 1.4203 and highest in NABIL bank with 0.0458.
4. Among the three stock, NBB's stock is more volatile having beta of 2.1785 and least volatile stock is SCBL's stock with 1.2142 beta co-efficient. In fact all of them are volatile than the market portfolio or aggressive stock having beta greater than 1.
5. All three stock are under priced having greater s. D. i.e. 0.5045 and lowest S.D. in trading sector with 0.0833.
6. Among the sectors, banking sector is more volatile with market having highest beta with 1.0728 and the stock of trading sector is defensive having lowest beta with 0.0372. After banking sector, other sector has the maximum beta with 0.7201
7. Nepalese stock market is in the emerging stage in our country. Nepalese investors are not able to analyze the securities as well as market properly due to lack of information and poor knowledge on common stock.

Khadka (2004) in his study "*Analysis of Risk and Return on Selected Nepalese Commercial Banks listed in NEPSE*" with special reference to 7 listed commercial banks is also relevant to this study. The main objective of the study is to analyze the risk, return and other relevant variables that help in making decision about investment on securities of the listed commercial banks. This study will also target to determined whether the share of commercial banks are correctly priced or not by analyzing the required rate of return using the CAPM. Khadka addressed the following findings in risk return behavior from the analysis of different stock.

The share of Bangladesh Bank offered highest realized rate or return. Amongst them NABIL bank is the lowest having 5.23% which is less than required rate or return. NBL, which is hard hit by the events (Return = -0.8809), the ranking of the bank is placed as the highest return earner. The study showed that the realized rate or returns of the samples banks do not have the same features being within the range of 5.23% to 16.12%. Return on the average tock is 5.51% over the period. All the shares under review generated higher rate of return than the market portfolio except NABIL Bank Ltd. The price of shares of banks under review except NABIL Bank Ltd. are under priced. The

unsystematic risk of NBL is the highest one amongst the shares under review which is 95.59% and SCB of Nepal has the lowest one being 45.14%. The negative correlation coefficient of NBL (-0.21) revealed that the return on the bank goes down if the market goes up. The rest of the shares moved in the direction the market moves. B y observing the individual shares beta coefficient, most of the shares appear to be defensive as beta coefficient are less than one. However, beta of the stocks NB bank SCB are greater than one indicating that the shares are more riskier than the market..

On the basis of finding, Khadka concluded that in Nepalese capital market, the contribution of real sector is negligible. Though the shares of commercial Banks of Nepal are heavily traded in NEPSE, none of the share NABIL Bank will have positive trend towards the equilibrium.

He outlined following Recommendations:

- Adoption of comprehensive and Advance Regulatory framework.
- Awareness campaign for the investor.
- Regular publication of financial information.
- Improvement in the infrastructure facilities.
- Effective use of banking system.
- Deregulation of foreign exchange.

Sapkota, (2004) has performed an analysis of risk and return on common stock investment with special reference to banking sector. *"The main objective of this study is to analyze the risk and return of the common stock of commercial banks."* In his findings, Banking Industry is the biggest one in terms of market capitalization and turnover. Expected return on common stocks of Nepal Bank Ltd is found minimum. In this regard, common stock of Nepal Bank Ltd is more risky and common stock of SBI Bank Ltd is least risky. In the context of industries expected return of finance and insurance industry is found highest. Expected return of banking industry is 60.83% the portfolio standard deviation is less than each individual stock's standard deviation. Hence the portfolio approach of investment is better way to win stock market.

Joshi, **(**2008**)** has conducted a study entitled *"Risk and Return Analysis of Common Stock of Five Listed Commercial Banks."* The major objectives of the study are to calculate and analyze the risk and return of banking sector, to evaluate common stock of listed commercial banks and to analyze whether the common stock of commercial banks are correctly priced or not etc.

The major findings of his study are summarized below:

- Regarding the market capitalization of selected companies, SCBL has the maximum market capitalization and NBBL has the minimum market capitalization.
- Regarding the market capitalization of the inter industry, Banking sector has 65%, Insurance & Finance has 14%, Manufacturing & Processing sector has 13%, Hotel sector has 7%, Trading sector has 1% and Other sector has negotiable proportion of share in over all market capitalization.

Joshi further concludes that the considering return, the return of SCBL is maximum (i.e.73.30%) but its risk also maximum but if risk is taken into account for consideration, NIBL has the minimum risk of 43.82%. In industry wise analysis, the expected return of finance and insurance has a maximum expected return (i.e. 27.70%), while other sector has a minimum expected return (i.e.16.61%). If the risk is assessed in term of C.V., Banking sector has minimum C.V. like 1.66, which indicates that it is better to invest on the shares of banking sector.

Theme of Joshi's study is summarized as below:

- As analyzing the Coefficient of variation, he suggests that the banking industry is the best one for investment. Similarly, while analyzing individual securities, SCBL is the best for investment due to highest return and lowest C.V.
- Based on the findings and conclusion of the study, it is recommended to the investor that if they wish to generate higher return, then they should bear higher risk and invest in the shares of SCBL. But if they are risk averters and they want to

invest in single assets, then they can invest in the share of NIBL or HBL because these two stocks have lower risk than that of portfolio risk.

- Portfolio analysis shows that the portfolio investment can reduce risk significantly. Thus, portfolio investment is recommended to receive high return at minimum risk.

Pokharel**, (**2008**)** has under taken a study entitled *"Risk & Return on Common Stock Investment of Commercial Banks, With Reference to Six Commercial Banks."* Among various objectives of his study, some majors basic objectives of his research are to analyze, whether the common stock of commercial banks are correctly priced or not, by analyzing the required rate of return and to study systematic and unsystematic risk associated with securities of the commercials banks.

Majors finding of his study are given below:

- Among the six commercials banks, NABIL bank has highest expected rate of return on common stock (i.e.14.03%) and NIB bank has negative expected rate of return o common stock (i.e.-3.9698%). Similarly, The common stock of BOKL is most risky asset, which has highest standard deviation (i.e.52.15%) and HBL's stock is less risky due to lowest standard deviation (i.e.19.49%).
- Regarding the market capitalization of six selected companies, SCBNL has the maximum market capitalization (i.e.31.36%) and the market capitalization of BOKL is low by 7.11%.
- Considering the different investment sectors, the expected return of other sector is maximum by 34.53% and the processing sector has very low expected return (-12.076%). Similarly, considering coefficient of variation of different sectors, the trading sector has maximum by 18.49 units, which indicate that to earn 1 unit of return, the investor has to bear 10.49 units of risk. The coefficient of variation on manufacturing & processing is – 3.1349 and –3.28 (negative) respectively.
- On the basis of required rate of return and expected rate of return, the study shows that RRR of NIBL, NABIL, SCBNL, HBL, EBL & BOKL is 0.0175, -0.0677, -0.0174, 0.0099, -0.0526, and –0.0903 respectively. The ERR of NIBL, NABIL, SCBNL, HBL, and BOKL is –0.0396, 0.1403, 0.2264, 0.1158, 0.1312 and 0.0021

respectively. As his study shows that the common stock of NIBL is overpriced and rest of all's common stocks are under priced. At the end of study, Pokharel recommended that before making investment decision, the investor should visit and discussion with investment Companies, with export and researchers because sharing experience, idea and view of export will provide grater help. also advice that the investors need to diversify their investment to reduce risk. Proper construction of portfolio never takes any considerable loss.

Mainali, (2009) has performed another study entitled "*Risk and Return Analysis on common stock investment*". In this study performed an analysis of risk and return on common stock investment with special reference to banking industry. In this study, his writs, the main objective of the study is to determine whether the shares of selected commercial banks are over-priced, under-priced or correctly valued by analyzing the risk and return. others objectives of the study are evaluate the common stock, to analyze the risk and return and to provide relevant suggestion to concerned authority based on analysis of data. His major findings on his study are given below in details:

- Among the selected commercials banks, he writs that the SCBNL has highest (i.e.32%) market capitalization which indicates that the size of the stock market of SCBNL is grater one.
- Regarding the expected rate of return among the selected commercial banks, the highest expected rate of return of SBI is 19.9% and lowest expected return on common stock of NBBL is –27.99%. So, it indicates that the investment in SBI will earn best return.
- Among the selected banks, the highest C.V. on common stock of NABIL is 12.23 and lowest C.V. common stock of SCBNL is 3.0191. It indicates NABIL stock is more risky and SCBNL stock is less risky than other. Similarly, bet coefficient of SBI is highest (i.e.3.30) and the NIBL has lowest beta coefficient (i.e.0.5831). So, it means C.S. of SBI is most aggressive stock and C.S. of NIBL is most defensive stock than other.

- At the last, he writes at major finding of his study that the correlation between NIBL and SBI is in negative. It indicates making portfolio investment in these two stocks will

Budhathoki, (2009) in this study *"Risk and Return Analysis on Common Stock Investment"* (an analysis of listed commercial banks) concluded that majority of the stock investment has been taking place without base the logical financial evaluation, for most of the investors it is the blind game. Many people have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps the fear of the unknown. This study enables investors to put the return they can expect and the risks they may take into better perspective.

Nepalese stock market is in emerging stage and very new phenomenon to majority of the people though in recent years they have shown participation in stock investment due to growing commercial banks in the country. Our stock market is not sensitive to international stock markets. Its development is getting acceleration after multiparty system in country, since 2046 B.S. It takes place after economic liberalization in national economy since 1992. But due to the lack of proper information and poor knowledge, Nepalese individual investors cannot analyze the securities as well as market properly. This study may helps to have some understanding about stock investment, returns and associated risk there on.

Shakya, (2009) on *"Risk and Return Analysis of the Commercial Banks"* has made conclusion that the expected return of EBL and NABIL are highest among the sampled banks i.e. 56.7% and 52.79% respectively. however, SCBL has lowest expected rate of return which is 28.26% followed by HBL with 29.52% expected rate of return. Analyzing the standard deviation of the sampled banks, SCBL is in the best position with standard deviation of 0.33. NABIL is in the worst position with standard deviation as high as 0.91. The coefficient of variance is worst for BOK which is 1.941. All the sampled joint-venture commercial banks have positive expected rate of return. However, the commercial banking sectors have positive return together with market sector.

Research Gap

To find out the condition of "*Risk and Return and Portfolio Creation*". The research is done in 6 banks among the 23 commercial banks, which are listed in Nepal Stock Exchange. In the study of few thesis on same topic of several commercial banks, companies and hotels by previous researcher. There is found a poor analysis of risk and return. The previous researcher used the Nepse index, but this study finds out conclusion using industry index i.e. banking index which is a sub index. Banking index calculated based on listed commercial banks.

The main gap of this thesis is that gives an idea about how to create an optimal portfolio. Past researcher only analyzes about portfolio. They don't give any suggestion for creation of optimal portfolio and also present market movement in trend line figure. So, this study gives more reliable and accurate conclusion than past research. The study takes five year from 2004/05 to 2008/09 which is not included by the past researcher.

CHAPTER - III

RESEARCH METHODOLOGY

A research is systematic and in-depth study or search of any particular topic by formulating hypothesis, collecting information, analyzing and interpreting them through the valid results. It is also called a creative inquiry (investigation) to search new insight to phenomena." Research is essentially a systematic inquiry seeking facts through objectives verifiable methods in order to discover the relationship among them and to deduce them broad principles or laws" *(Joshi; 2002:3).*

Research methodology is a technique used for conducting research. It provides various methods for the collection, presentation, interpretation and analysis of data. For this, various financial and statistical tools are used to analyze the data and Conclude to the finding.

3.1 Research Design

A research design is a plan or blue print of investigation for the collection and Analysis of data. It helps the researcher in the right direction in order to achieve the goal. This is an empirical study on investor's problem regarding selection of most profitable stock of

NEPSE. The research can also be taken as developmental Approach as it finds out the optimum portfolios which are listed in Nepal stock Exchange (NEPSE). This study is more analytical, empirical and less descriptive. Analytical in the sense that all the available data are analyzed by using various statistical tools and techniques, such as, return, standard deviation, coefficient of variation, correlation of coefficient etc. All the data used in this study have been taken from related sources. The study is purely empirical due to purely historically data. The Risk, return and portfolio are main subjects of the study that follow the numerical data. For Explanation of result description has been also followed.

3.2 Population and Sample

There are 159 companies are listed in NEPSE. Out of those companies 21 commercial banks are listed in Nepse. Population of the study consists of all listed commercial banks of Nepal. (Annual report of Security borad of Nepal, 2065/66). These banks are considered as population. But for this study listed commercial banks have been conducted as samples i.e. six listed commercial banks. Now, 27 commercial banks are operating in Nepal; only 23 commercial banks are listed in NEPSE.

Name of sample banks are as follows:

1. Standard Chartered Bank Nepal Limited (SCBNL)
2. Nabil Bank Limited (NABIL)
3. Everest Bank Limited (EBL)
4. Bank Of Kathmandu (BOK)
5. Nepal SBI Bank (SBI)
6. NIC Bank (NIC)

3.3 Sources of Data

This study is based on the secondary data. Secondary data have totally been used in the study. The secondary sources of data are as follows.

- Annual Report and Other publications of selected commercial banks.
- News paper, Journal, Magazines.
- Websites of related Banks and Nepal Rastra Bank.

- Financial statement of listed Banks published by Security Board of Nepal.(SEBON)
- Publication of Nepal Rastra Bank & Nepal Government Offices.
- International related websites.

3.4 Data Collection Techniques

Almost the data, which are necessary for the research is, collected from secondary sources. However, during the study period, informal opening survey has also been taken with the individual investor, related bank officials, SEBON (Security Board of Nepal) and NEPSE (Nepal Stock Exchange) staffs. The information has also been collected by financial documents provided by commercial banks, NRB (Nepal Rastra Bank), trading manual published by NEPSE, NEPSE periodical articles, related Websites and previous research reports.

3.5 Tools for Analysis

The collected data are analyzed by using various financial tools.

3.5.1 Financial Tools

3.5.1.1 Market Price of Stock (P)

One of the major data of this study is market price of the stock. market price of stock for a particular year should have represented the average price of the year but for the sake of simplicity prices of the stock in the closing data of the fiscal years are taken as the market price of the stocks for the particular years and these data are taken from the annual reports of the respective banks. Here in this study, each year closing price is taken as the market price of stock which has specific time period of one year and the study has focused in annual basis. To get the real average volume and price of each transaction in the whole year are essential which is tedious and impossible too, considering the data availability and maintenance. Market value in the secondary market is determined by the supply and demand factors and reflects the opinion of investors and trader concerning the values of the stock. Closing price is used as market price of obtain and include these all information and average of reliable and representative information. There are three price records available. High, low and closing price. So two approaches either average price (of

high and low) or closing price can be used. Closing price is used as market price of stock for this study.

3.5.1.2 Dividend

Dividend per share (including Bonus) provided under the major indicator section of the respective banks have been used for the study. Dividend is the part of earning that is distributed to the shareholders as a part of their investment. Dividend is return to equity capital that consist price of time and price of risk taking by the investors. The total amount of dividend out of earning available to the shareholder if distributed, the common stock's portion is said Dividend per share (DPS).

Symbolically DPS can be expressed as follows:

$$DPS = \frac{\text{Total Amount of Dividend Paid}}{\text{No. of Common Shares Outstanding}}$$

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

Total Dividend Amount = Cash Dividend + Stock Dividend % X Next year MPS

3.5.1.3 Return on Common Stock Investment (R)

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

Symbolically,

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

Where;

R = Actual rate of return on common stock at time t.

Dt = Cash dividend received at time t.

Pt = Price of a stock at time t.

Pt-1= Price of stock at time (t-1)

3.5.1.4 Expected Return of Common Stock (R)

One of the main aims of the study is to determine the expected return on the investment in the common stock. Generally, this rate is obtained by arithmetic mean of the past Year's return.

Symbolically,

$$E|R_j| = \overline{R_j} = \frac{\phi R_j}{n}$$

Where,

$E|R_j| = \overline{R_j}$ = Expected rate of return on stock j

N = Number of years that the return in taken.

ϕ = Sing of Summation |

3.5.1.5 Standard Deviation

It is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the variance and measure the unsystematic risk on stock investment. It is widely used to measure risk from holding a single asset. It is also a statistical measure of the variability of a set of observations. The standard deviation represents a large dispersion of return and is a high risk and vice versa. The symbol is called (σ) sigma. It is the measure the total risk on stock investment.

$$\text{Standard Deviation } (\exists_j) = \sqrt{\frac{(Rj - \overline{Rj})^2}{n - 1}}$$

Where,

σj = standard deviation of returns on stock j during the time period n.

Rj = Probability distribution of the observation

R j = Expected rate of return on stock j.

n = Number of years that the returns are taken

(Alexander, G.J., Sharpe (2002:132)

3.5.1.6 Coefficient of Variance (CV)

It is the ratio of standard deviation of returns to the mean of that distribution. It is a measure of relative risk and 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.

Symbolically,

$$CV = \frac{\exists_j}{R_j}$$

Where,

C.V. = Coefficient of variation of stock

σ j = standard deviation of returns on stock j.

R = Expected rate of return on stock j.

3.5.1.7 Beta (ß)

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio. Higher the beta, higher the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less that equal or more than 1, but the beta for market will be always 1.

Symbolically,

$$\beta_j = \frac{COV\ (_{j.\ M})}{\exists_{M}^{2}}$$

Where,

βJ = the beta value of security J

$\exists_{M}^{2}$ = variance of market

COV (J, M) = covariance between security J and market. It can be calculate as follows,

$$\text{Covariance of } (R_j, \overline{R_M}) = \frac{\phi[R_j - \overline{R_j}] \times [R_M - \overline{R_M}]}{N-1}$$

3.5.1.8 Correlation Coefficient

Correlation coefficient is the relationship between two variables where one variable is independent and other variables are dependent. Correlation coefficient always lies in the range of +1 to -1. Karl Pearson's method is used to calculate correlation coefficient. A positive correlation coefficient indicates that the returns from two securities generally move in the same direction or vice-versa. Correlation is used to test the significant relationship between risk and expected return. The following formula can be used to calculate the correlation.

$$\text{Correlation coefficient between security 'J' and market 'M' } (r_{jm}) = \frac{\text{COV } (_{j,m})}{\exists_j \exists_m}$$

Where, $\sigma\ i$ and $\sigma\ j$ are the standard deviations of returns for assets I and j and pij is Correlation of coefficient for asset I and j

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 investments is called portfolio.

) Portfolio Return

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 asset.

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

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. It can be written as:

$$\sigma_p = \sqrt{\sigma_i^2 w_i^2 + \sigma_j^2 w_j^2 + 2 w_i w_j \operatorname{cov}(R_i, R_j)}$$

Where,

σ_p = Standard deviation of stock i & J

W_i =Proportion of asset i

W_j =Proportion of assets j

σ_i^2 =Variance of assets i

σ_j^2 = Variance of assets j

$\operatorname{cov}(R_i, R_j)$ = Covariance between the return of assets i & j

3.5.1.9 Minimum Variance Portfolio

The minimum variance portfolio gives an suggestion about what is the best combination of two assets. A port folio that has the lowest level of variance (risk) id referred to the optimal portfolio. A risk-averse investor will have a trade off between risk and return. We can use the following formula for estimating optimal weights of securities A and B.

It is the ratio of two assets, which minimize risk (∃p):

Formula:

$$W_A = \frac{\exists_B^2 - \text{Cov}(R_A, R_B)}{\exists_A^2 + \exists_B^2 - 2\text{Cov}(R_A, R_B)}$$

Where,

W_A = weighted of stock A that minimize the portfolio risk of stock A & B.

$\exists_\gamma$ = Standard deviation of stock A.

$\exists_B$ = Standard deviation of stock B.

3.6 Methods of Analysis and Presentation

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

CHAPTER - IV
PRESENTATION AND ANALYSIS OF DATA

This chapter includes analysis of data collected and their presentation. In this chapter the attempt has been made to analysis "Risk and return of sampled commercial banks and gives an idea about create optimal portfolio". Detail data of MPS, EPS, PIE ratio and total dividend of each bank and their interpretation and Analysis is done with reference to the various reading and Literature review in the preceding chapter. Efforts are made to analyze and diagnose the recent banking index movement. This is sub-index of NEPSE, with a special reference to the listed commercial banks. Presentation and data analysis chapter divided into nine parts. First part description about market movement i.e. Nepse index. Second part deals with industry analysis third part analyze the individual banks return and risk fourth part deals with comparative analysis the market sensitivity, sixth part deals systematic and unsystematic risk of sampled commercial bank, seven part analyzed about price of common stock under CAPM method and Eight part descriptive about create an optimal portfolio and last part gives major findings of the study.

Index

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

4.1 Analysis of Market Movement

NEPSE Index is calculated by considering all listed share including that of promoter share of all listed companies at NEPSE. Although NEPSE Index was in decreasing trend most of the time during the F/Y 2065/066, It has slightly increased at the end. In compare with previous quarter (Chaitra end), It has increase by 87.83 points and reached to 749.10. During the quarter, NEPSE Index at 640.16, point on Baishak 14 recorded the minimum and the closing index of 749.10 points of Aashar 31, is the highest during the

current fiscal year the highest NEPSE Index point is 1175.85 on 15 Bhadra 2065 and the lowest is recorded at Magh-9,2065 of 600.46 point, In total NEPSE Index has dropped by 23.73 percent from the opening Index point for the FY 2065/66 of 982.12. In this time the NEPSE Index dropped less than 500 points and struggled to countries situation and rules and Regulation of Nepal (*Source: Nepse News Market Statistics and Review;2066:11)*

Table : 4.1

NEPSE Index Movement

Fiscal Year	Index (in point)
2003/04	222.04
2004/05	286.67
2005/06	386.83
2006/07	683.95
2007/08	963.10
2008/09	749.10
11-march-2010	489.61

(Source: www.nepse.com.np)

Figure : 4.1

Movement of NEPSE Index

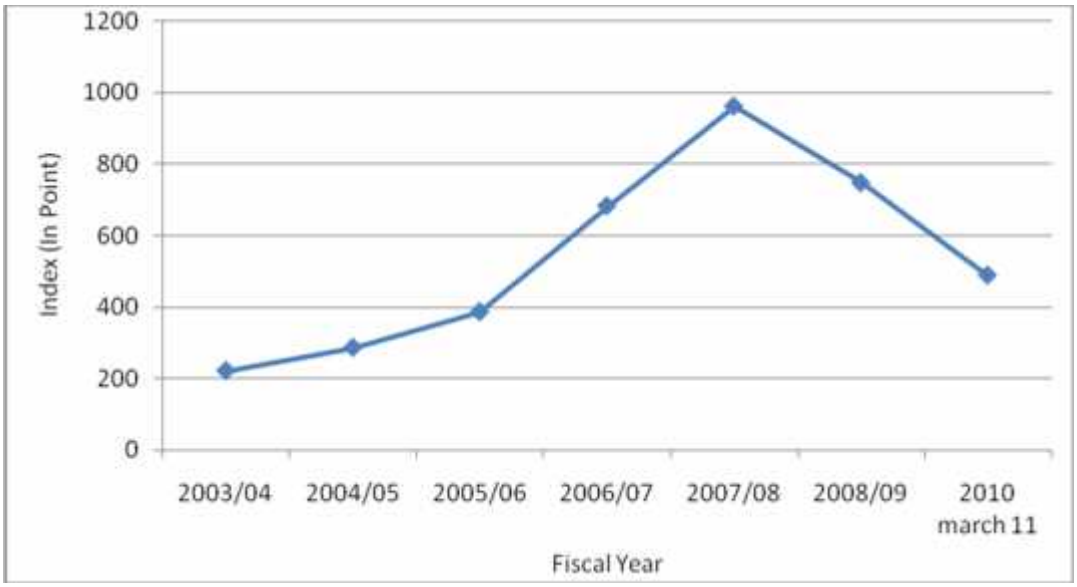


Figure 4.1 shows the trend line of NEPSE index movement from 2003/04 to current date 11 march, 2010. This show the increasing upwards NEPSE index from F/Y2003/04 to

2007/08 but than after the market downward movement and NEPSE index falls less than 500 point in current days.

4.2 Movement of Industry Index

Commercial Banking Index is a sub index of NEPSE, which is calculated based on only Banking sector, the number of listed commercial bank operating in Nepal Increase to 23, mid July 2009. The study take sample six commercial bank for analyze. Banking Index represent the banking sector: That is mirror of Banking sector Development and growth. This impact investment environment in banking assets.

Table : 4.2

Commercial Banking Index Movement

Fiscal Year	Index (in point)	Annual Return From Banking sector (R)
2003/04	232.97	-
2004/05	304.64	0.3076
2005/06	437.49	0.4361
2006/07	639.93	0.4627
2007/08	1143.62	0.7871
2008/09	772.7	-0.3246
11-march-2010	446.25	-

Source: www.nepse.com.np and Annex-1

Figure : 4.2

Movement of Commercial Banking Index

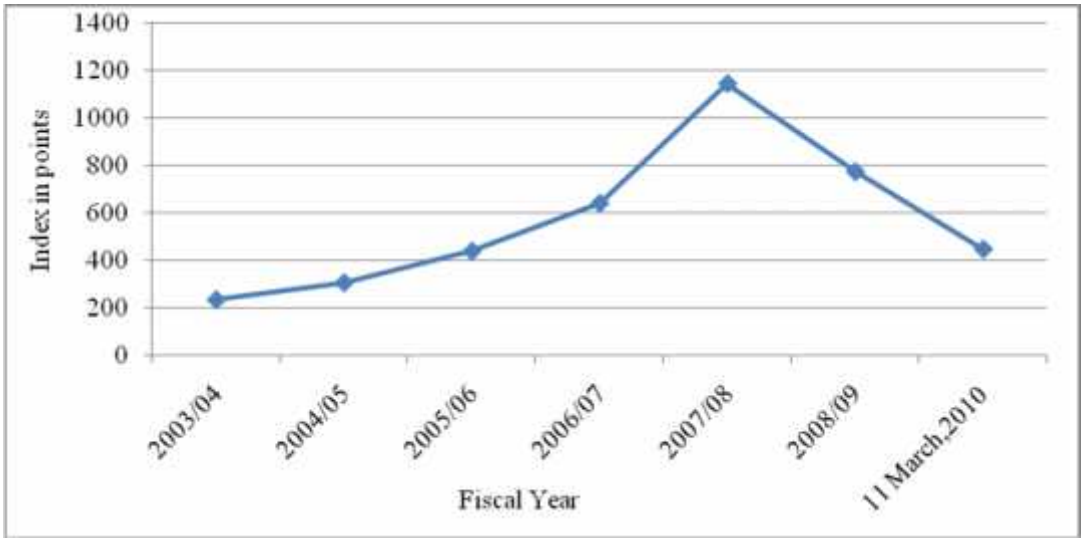


Figure 4.2 shows the Industry Movement or Commercial Banking Index Movement in several years, it can be seen that there is fluctuation at Index from 2003/04 till 11, March 2010 (Today). There is maximum Index touch at point 1143.62. While NEPSE Index at Boom point but then after when NEPSE Index falls downward that affected all sub-Index current stock market situations is very critical, NEPSE Index is struggled at 500 point and Banking Index is struggled at 446.25 point.

Figure : 4.3

Annual Realized Rate at Return from Banking Index

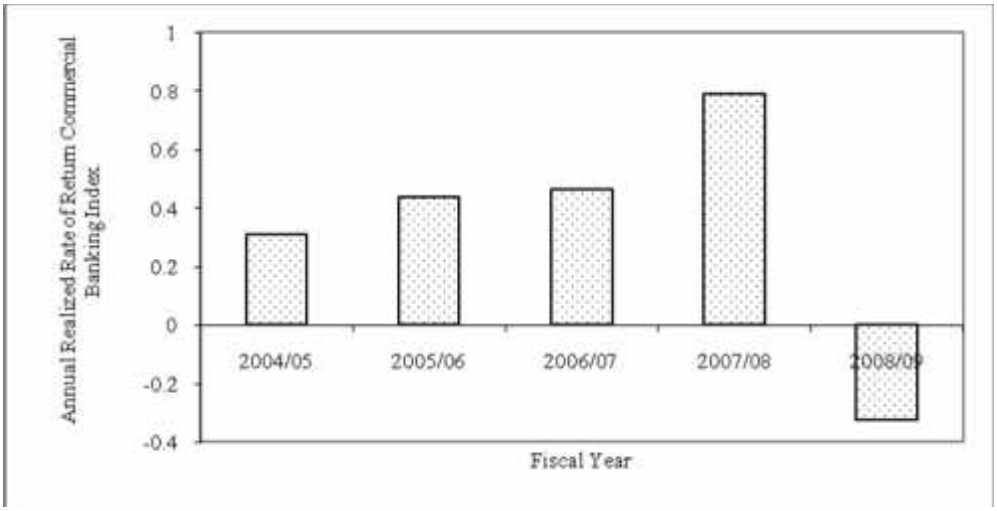


Figure 4.3 shows that annual Realized Rate of Return of commercial Banking Sector, the highest RRR of Banking Sector is in the 2007/08 i.e. 0.7871 which shows that in this year investor are Received profit from Commercial Banking Sector's Common stock but In 2008/09 the RRR of Banking Sector is Negative. In this year Investor Lose from Banking Investment.

Table : 4.3

Tabulation of Results of Banking Sectors

Expected rate of return ($\overline{R}$)	0.3338
Standard Deviation (∃)	0.4082
Coefficient of Variation (CV)	1.2229

Source: Annex-1

Table 4.3 shows that The Expected rate of return of banking sector is 0.3338 with the Standard deviation of 0.4082 and coefficient of variation of banking index is 1.2229. This denotes that to get per unit return 1.2229 risk must be bearded.

4.3 Risk and Return Analysis of Individual Bank

One hundred fifty nine companies were listed in NEPSE in the fiscal year 2008/09, Including 26 commercial Banks. Among 23, listed commercial Banks six banks are taken as sample in the research which is as follows:

1. Nepal SBI Bank Ltd.
2. NABIL Bank Ltd.
3. Bank of Kathmandu.
4. Nepal Industrial and Commerce Bank.
5. Everest Bank Limited
6. Standard Charted Bank.

4.3.1 Nepal SBI Bank Limited

SBI Bank was established on April 28, 1993. A public limited company Incorporated with the office of company Registrar (OCR), Kathmandu, Nepal on April 28,1993 under Regd. No. 17-049/50 and Licensed by Nepal Rastra Bank on July 6, 1993 under License No. NRB/L/Pa/7/ 2049/50 and classified as 'A' Class Licensed institution on April 26, 2006 under License No. NRB/I. pra.Ka.7/062/063. 55% of share at SBI Bank holding by state Bank of India, 15% Employees provident fund and 30% the general public.

The bank provides a complete range of personal commercial and corporate banking and related financial services through its 32 branches and 35 ATM in various place of the country. Authorized Capital, Issue Capital and paid-up Capital at the end of Ashad, 2066 (15, July 2009) were 2,000,000,000, 877,500,000 and 874527840 respectively.

Table : 4.4
Analysis of Total Dividend

MPS, EPS, Total Dividend and P/E Ratio

Fiscal Year	MPS in (Rs)	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs)	Annual Return (R)	EPS (in Rs.)	P/E Ratio (times)
2003/04	307	-	-	-	-	14.26	21.54
2004/05	335	-	-	-	0.0912	13.29	25.21
2005/06	612	5		5	0.8418	18.27	33.49
2006/07	1176	12.29	35	541.44	1.8062	39.35	29.89
2007/08	1511	-	-	-	0.2849	28.33	53.34
2008/09	1900	2.11	40	545	0.6181	36.18	52.52

Source: AGM Report of SBI Bank (2008/09) & Annex 2 & 3

According to table 4.4 SBI is paying Cash Dividend in Year 2005/06, 2006/07 and 2008/09 and stock Dividend in year 2006/07 and 2008/09, Highest total Dividend is paid in the year 2008/09 i.e. Rs 545, P/E Ratio of SBI is maximum in the year 2007/08 i.e. 53.34 and minimum in the year 2003/04 i.e. 21.54. The closing MPS of SBI is maximum Rs. 1900 in the year 2008/09 and minimum of Rs. 307 in the year 2003/04.

Figure : 4.4

Year and Price Movement of Common Stock of SBI

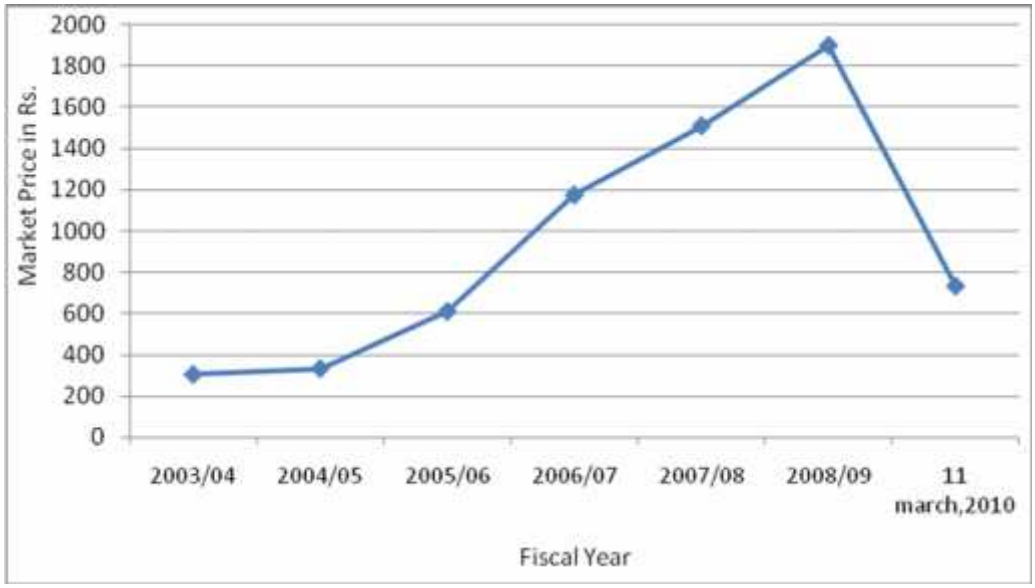


Figure 4.4 shows the Trend Line of Market price in several years of SBI. It can be seen that there is fluctuation of Market price from year 2003/04 till 4 march 2010 (Today) there is maximum price in the year 2008/09 i.e. Rs. 1900 and minimum price in the year 2004/04 i.e. Rs. 307.

Figure : 4.5

Realized Rate of Return per share of the SBI in the various years of Study

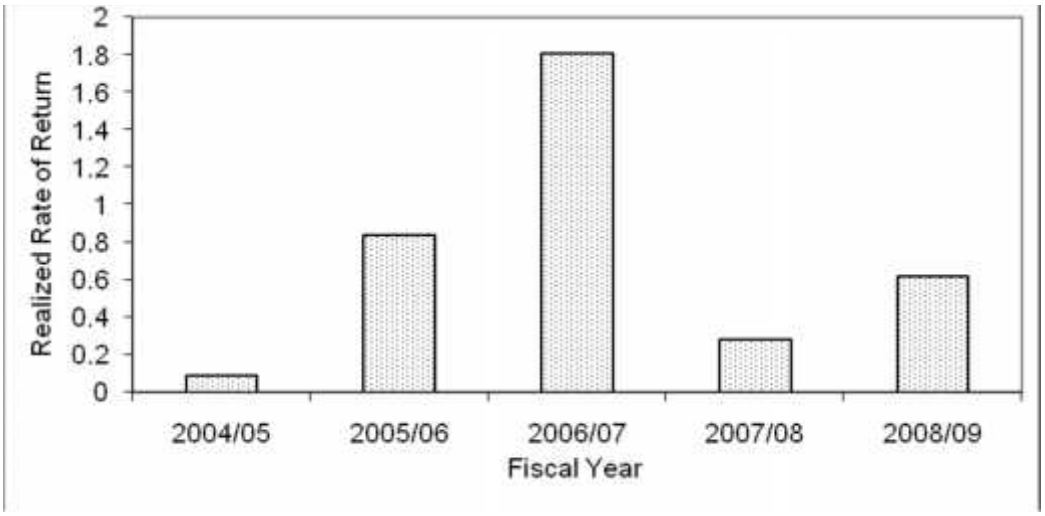


Figure 4.5 shows that the Annual Realized Rate of Return of SBI Bank in study period. The rate of return is maximum on 2006/07 i.e. 1.8062 That shows in this year investor of SBI Banks common stock earned highest profit and minimum rate of return on 2004/05 i.e. 0.0912.

Table : 4.5

Tabulation of Calculated Expected Return, Standard Deviation and CV of SBI

Expected rate of return ($\bar{R}$)	0.7284
Standard Deviation (∃)	0.6689
Coefficient of Variation (CV)	0.9183

Source: Annex-3 & 4

According to table 4.5, The Expected rate of return of SBI is 0.7284 with the Standard deviation of 0.6689 and coefficient of variation of SBI is 0.9183. This denotes that to get per unit return 0.9183 risk must be bearded.

Table : 4.6

Tabulation of all results of SBI

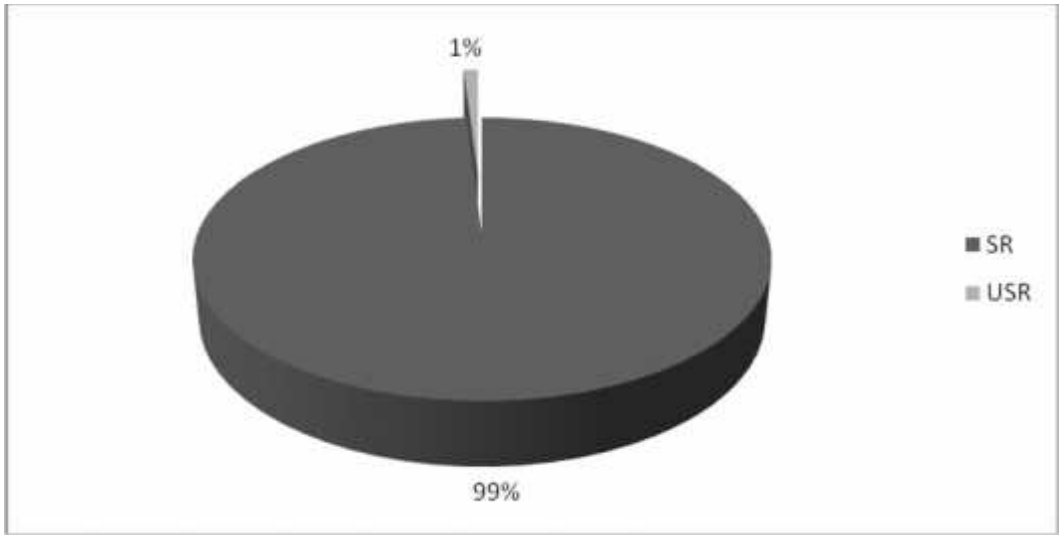
Correlation of Coefficient (r)	0.0355
Beta Coefficient (β)	0.0582
Variance (σ^2)	0.4475
Systematic Risk (SR)	0.00056
Unsystematic Risk (USR)	0.4469
Proportion of SR in total risk	0.125%
Proportion of USR total risk	99.87%

Source: Annex 6, 7 & 8

According to table 4.6, Beta coefficient of SBI is found 0.0582 that is lower than the one (1). Therefore, this is defensive types of assets. That means stock of SBI is less volatile than the industry. Beta is an indicator of systematic risk and that is found to be minimum, so, this is defensive types of asset and found to be less risky. Correlation coefficient between industry and SBI is 0.0355. This shows positive relationship between industry and SBI's stock.

Figure : 4.6

Presentation of Partition of SR and USR



According to figure 4.6 SBI has lowest Systematic risk and 99.87% Unsystematic risk, which can be diversifiable.

4.3.2 NABIL Bank Limited

Nabil Bank Limited [while Nepal Arab Bank Limited] was established on July 12, 1984 under a technical service agreement with Dubai Bank limited. Dubai, which was later merged with Emirates Bank Limited, Dubai 50% of the total share of Nabil Bank Limited is owned by N.B. International limited, 20% by Local financial Institution and 30 % by the Nepal Public.

The bank provides a complete range at personal, commercial and corporate banking and financial related service. Authorized capital, issued capital and paid up capital mid July 2009 were 16,000,000,000, 965,747,000 and 965747,000 respectively. Ownership of the Nabil bank 70% share hold by promoter and 30% by general public.

Table : 4.7

Analysis of Total Dividend

MPS, EPS, Total Dividend and P/E Ratio

Fiscal year	MPS (Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend (Rs)	Annual Return (R)	EPS (Rs)	P/E Ratio (Times)
2003/04	1000	-	-	-	-	92.61	10.80
2004/05	1505	70	-	70	0.575	105.49	14.27
2005/06	2240	85	-	85	0.5449	129.21	17.34
2006/07	5050	100	40	2210	2.2411	137.08	36.84
2007/08	5275	60	40	2020	0.4446	108.31	48.70
2008/09	4899	35	40	1435	0.2008	106.76	45.89

Source: AGM Report of NABIL Bank (2008/09) and Annex 2 & 3

According to the table 4.7, NABIL is paying Cash Dividend Every year but Stock Dividend only in year 2006/07, 2007/08 and 2008/09. Highest Total Dividend is paid in the year 2006/07 i.e. Rs. 2210. P/E Ratio of NABIL is maximum in the year 2007/08 i.e. 36.84 and minimum in the year 2003/04 i.e. 10.80. The closing MPS of NABIL is maximum Rs. 5275 in the year 2007/08 and minimum of Rs. 1000 in 2003/04.

Figure : 4.7

Year and Price Movement of the Common Stock of NABIL

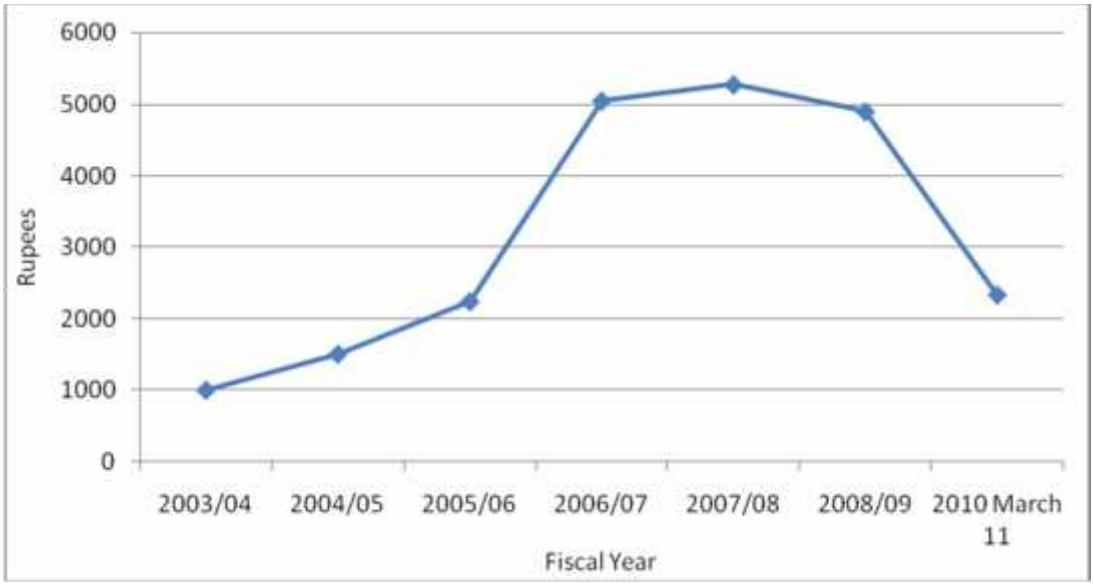


Figure 4.7 shows the trend line of Market price in several years of NABIL. It can be seen that there is fluctuation of market price from year 2003/04 till 11 march, 2010 (today) and the trend line shows the rapid growth from year 2003/04 to 2007/08 and decrease the market price of the NABIL. There is minimum price in the year 2003/04 i.e. Rs. 1000 and maximum price in the year 2007/08 i.e. Rs. 5275. The trend line shows the current market price of NABIL is Rs. 2334.

Figure : 4.8

Realized Rate of Return Per Share of NABIL in the Various Years of Study

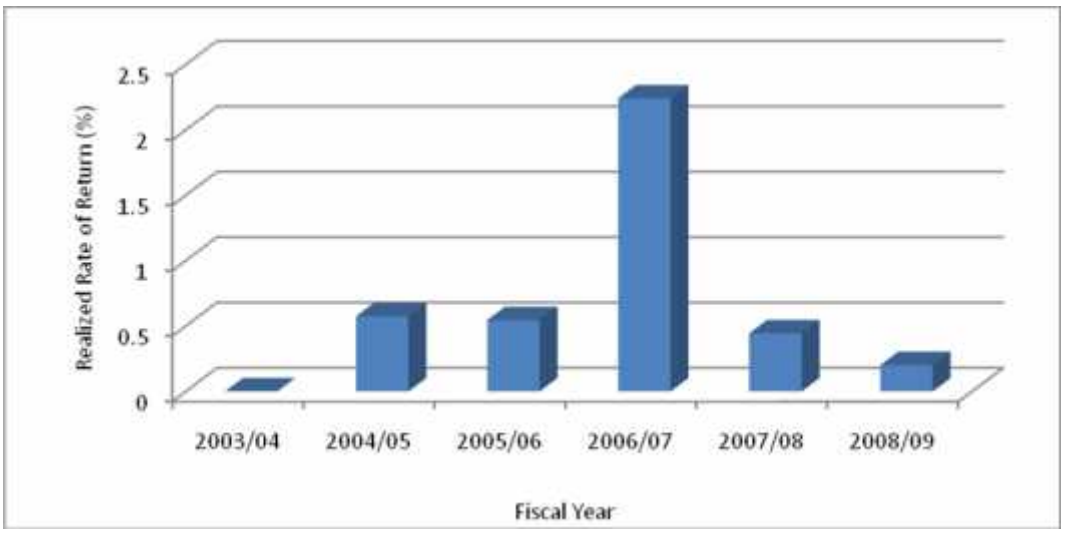


Figure 4.8 Shows that the annual rate of return of common stock of NABIL in several years. The rate of return is maximum on 2006/07 i.e. 2.2411 which shows highest return profitable while the return is lowest in the year 2008/09 i.e. 0.2008.

Table : 4.8

Tabulation of Calculated Expected Return, Standard Deviation and CV of NABIL

Expected rate of return ($\bar{R}$)	0.8013
Standard Deviation (∃)	0.8182
Coefficient of Variation (CV)	1.02

Source: Annex- 3 & 4

According to table 4.8, The Expected rate of return of NABIL is 0.8013 with the Standard deviation of 0.8182 and coefficient of variation of NABIL is 1.02. This denotes that to get per unit return 1.02 risk must be bearded.

Table : 4.9

Tabulation of all results of NABIL

Correlation of Coefficient (r)	0.2985
Beta Coefficient (β)	0.5983
Variance (σ^2)	0.6695
Systematic Risk(SR)	0.0596
Unsystematic Risk(USR)	0.6099
Proportion of SR in total risk	8.90%
Proportion of USR total risk	91.90%

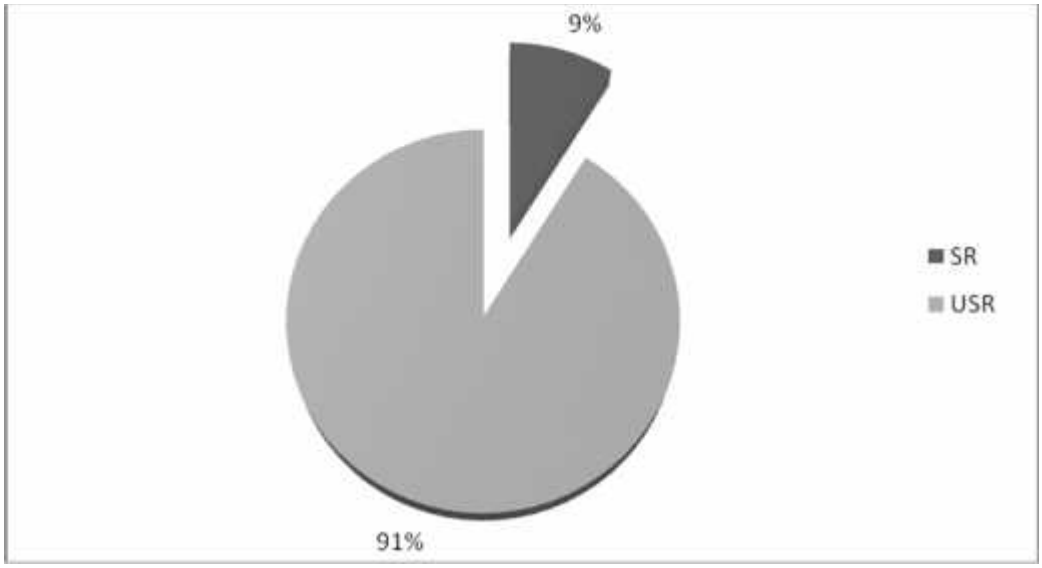
Source: Annex-6, 7 & 8

According to table 4.9, Beta coefficient of NABIL is found 0.5983 that is lower than one (1). Therefore, this is defensive types of assets that mean stock of NABIL is less volatile than the industry. Beta is an index of systematic risk and that is found to be minimum. So, this is defensive types of asset and found to be less risky.

Correlation of coefficient between Industry and NABIL is 0.2985 which shows the positive relation between NABIL's stock and Banking index. From the above table shows that Nabil has 0.0596 Systematic Risk which is undiversifiable but unsystematic risk at Nabil is 0.6099 from the total risk which can be diversifiable.

Figure : 4.9

Presentation of Figure Partition of SR & USR



According to the figure 4.9 Nabil has 8.90% systematic Risk which can not be diversified but Unsystematic Risk of Nabil is 91.10% which can be minimize and diversifiable.

4.3.3 Bank of Kathmandu

Bank of Kathmandu Limited was established in March, 1995, in collaboration with the SIAM commercial Bank PCC, Thailand under the company Act with the objective to

stimulate the Nepalese economy and take it to newer heights. Out of 50% share holding the SIAM commercial Bank diluted its 25% of holding to the Nepalese citizen in 1998. Current shareholding pattern of the bank constitutes of promoter holding 41.81% while 58.19% is held by general public. The authorized capital, Issued capital and paid-up capital at the end of fiscal year 2008/09 were 1,000000000, 844397900 and 844397900 respectively. BOK aims to facilitate the nation's economy and to become more competitive globally. To, achieve these; BOK has been focusing on its set objectives right from the beginning.

Table : 4.10

Analysis of Total Dividend

MPS, EPS, Total Dividend and P/E Ratio

Fiscal Year	MPS (Rs)	Cash Dividend (Rs)	Stock Dividend (Rs)	Total Dividend (Rs)	Annual Return (R)	EPS (Rs)	P/E Ratio (in Times)
2003/04	295	-	-	-	-	27.50	7.20
2004/05	430	15	-	15	0.5085	30.10	14.29
2005/06	850	18	30	430.50	1.9779	43.67	19.26
2006/07	1375	20	-	20	0.6412	43.50	31.61
2007/08	2350	2.11	40	732.11	1.2415	59.94	39.21
2008/09	1825	7.37	40	528.97	0.0017	54.68	33.87

Source: AGM Report of Bank of Kathmandu and Annex 2 & 3

According to table 4.10, BOK is paying cash Dividend every year and stock Dividend in year 2005/06, 2007/08 and 2008/09. Highest total Dividend is paid in the year 2007/08 i.e. Rs. 732.11, P/E Ratio of BOK is maximum in the year 2007/08 i.e. 39.21 and minimum in the year 2003/04 i.e. 7.20. The closing MPS of BOK is maximum Rs. 2350 and minimum of Rs. 0.295 in the year 2003/04.

Figure : 4.10

Year and Price Movement of the Common Stock of BOK

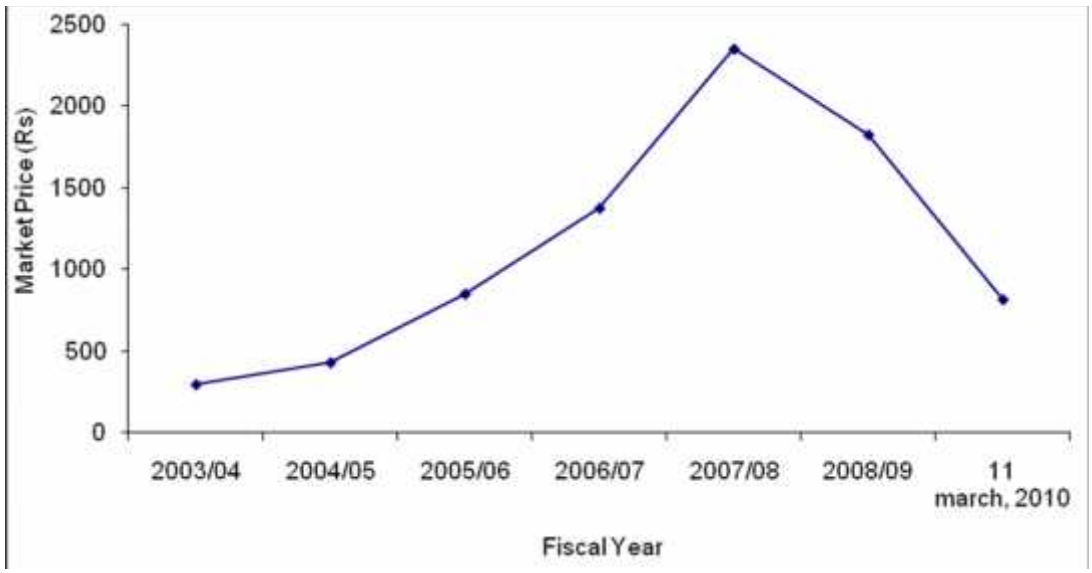


Figure 4.10 shows the trend line of Market price in several years of BOK. It can be seen that there is fluctuation of Market price from year 2003/04 till 11 march, 2010 (Today) and the trend line shows the rapid growth from year 2003/04 to 2007/08 and than after decreased the market price. There is maximum price in the year 2007/08 i.e 2350 and minimum of Rs. 295 in 2003/04. Current market price of BOK is Rs. 815.

Figure : 4.11

Realized Rate of Return Per Share of BOK in the Various Years of Study

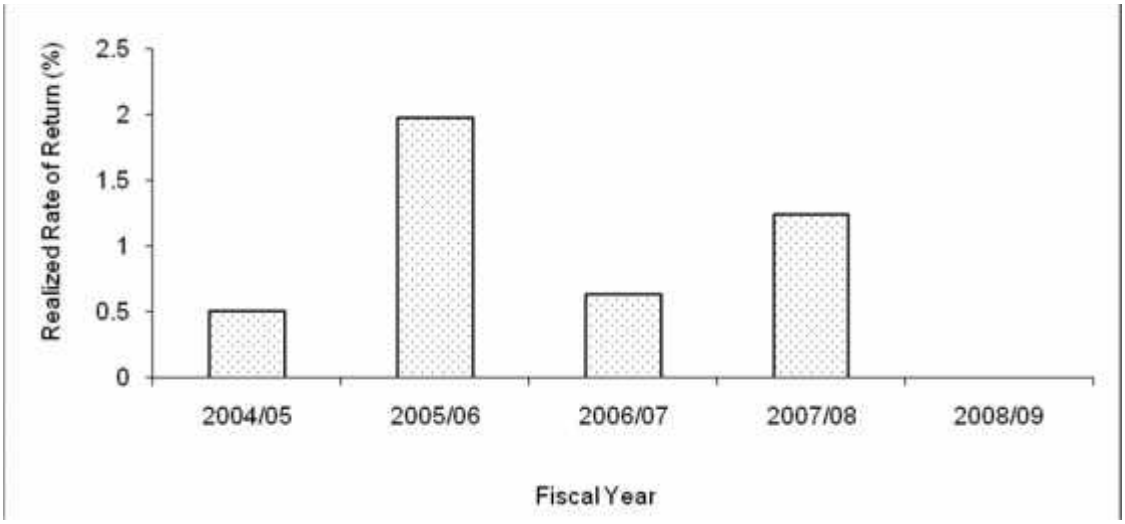


Figure 4.11 Shows that the annual rate of return of common stock of BOK in several years. The rate return is maximum on 2005/06, i.e. 1.9779 and second highest in the year

2007/08 where Investor earned profit who are invested in common stock of BOK, while the return is lowest in the year 2008/09 i.e. 0.0017.

Table : 4.11

Tabulation of Calculated Expected Return, Standard Deviation and CV of BOK

Expected rate of return ($\bar{R}$)	0.8742
Standard Deviation (∃)	0.7587
Coefficient of Variation (CV)	0.8679

Source: Annex 3 & 4

According to table 4.11, The Expected rate of return of BOK is 0.8742 with the Standard deviation of 0.7587 and coefficient of variation of BOK is 0.8679.This denotes that to get per unit return 0.8679 risk must be bearded.

Table : 4.12

Tabulation of Calculated Results of BOK

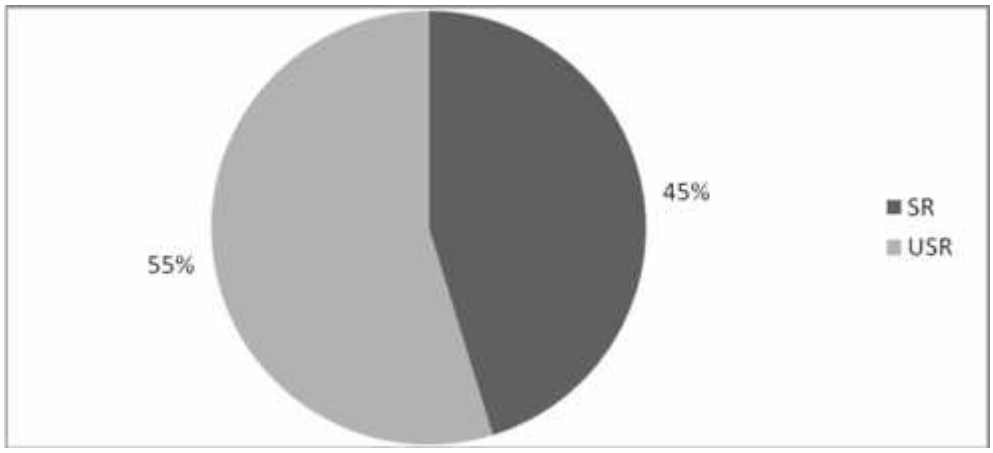
Correlation of Coefficient (r)	0.6726
Beta Coefficient (β)	1.25
Variance (σ^2)	0.5756
Systematic Risk(SR)	0.2604
Unsystematic Risk(USR)	0.3152
Proportion of SR in total risk	45.24%
Proportion of USR total risk	54.76%

Source: Annex 6,7 & 8

According to table 4.12, Beta coefficient of BOK is found 1.25 that beta is greater than one (1). Therefore this is an aggressive type of asset. That means stock of BOK is more volatile than the Industry. Beta is an indicator at systematic risk and that is found to be maximum. So, this is aggressive type of assets and found to be more risky. Correlation of coefficient between Industry and BOK is 0.6726 which shows the positive relationship between Industry and BOK's stock. BOK has 0.2604 systematic risk and 0.3152 unsystematic Risk.

Figure : 4.12

Presentation of Figure Partition of SR & USR



From the above figure shows that SR of BOK has 45.24% which can not be minimize but unsystematic risk of BOK is 54.76% which risk can be minimize.

4.3.4 NIC Bank

Nepal Industrial and commercial Bank limited (NIC) Bank Commenced its operation on 21 July, 1998 from Biratnagar. The Bank was promoted by some to the prominent business houses of the country. The current shareholding pattern at the bank constitutes of promoter holding 51% of the share while 49% is held by general public. NIC Bank is one of the most widely-held Banking companies in Nepal, with over 50000 shareholder the number of share 11404800 at the mid July 2009, with in 12 years at commencing business, the bank has grown rapidly with 20 branches throughout the country. The bank provides a complete services related Banking and financial sector. Authorized Capital, Issue Capital and paid-up capital at the end of fiscal year 2008/09 were 16000,000,000 1140480000 and 1140480000 respectively.

Table : 4.13
Analysis of Total Dividend

MPS, EPS, Total Dividend and P/E Ratio

Fiscal year	MPS (Rs)	Cash Dividend (Rs)	Stock Dividend (Rs)	Total Dividend (Rs)	Annual Return (R)	EPS (Rs)	P/E Ratio (in Times)
2003/04	218	-	-	-	-	-	-
2004/05	366	10	20	109.2	1.1798	22.75	16.09
2005/06	496	0.53	10	95.53	0.6162	16.10	30.81

2006/07	950	1.05	20	258.65	1.4368	24.01	39.56
2007/08	1284	1.05	20	226.25	0.5897	25.75	49.86
2008/09	1126	0.75	15.04	148	-0.0078	27.83	40.46

Source: AGM Report of NIC (2008/09) and Annex 2 & 3

According to table 4.13, NIC is paying Cash Dividend every year (Study period) and also paying Stock Dividend every year. Highest total dividend is paid in the year 2006/07 i.e. Rs. 258.65, P/E Ratio of NIC is Maximum in the year 2007/08 i.e. 49.86 and minimum in the year 2004/05 i.e. 16.09. The closing mps of NIC is Maximum Rs 1284 in the year 2007/08 and the minimum of Rs. 366 in the year 2004/05.

Figure : 4.13

Year and Price Movement of the Common Stock of NIC

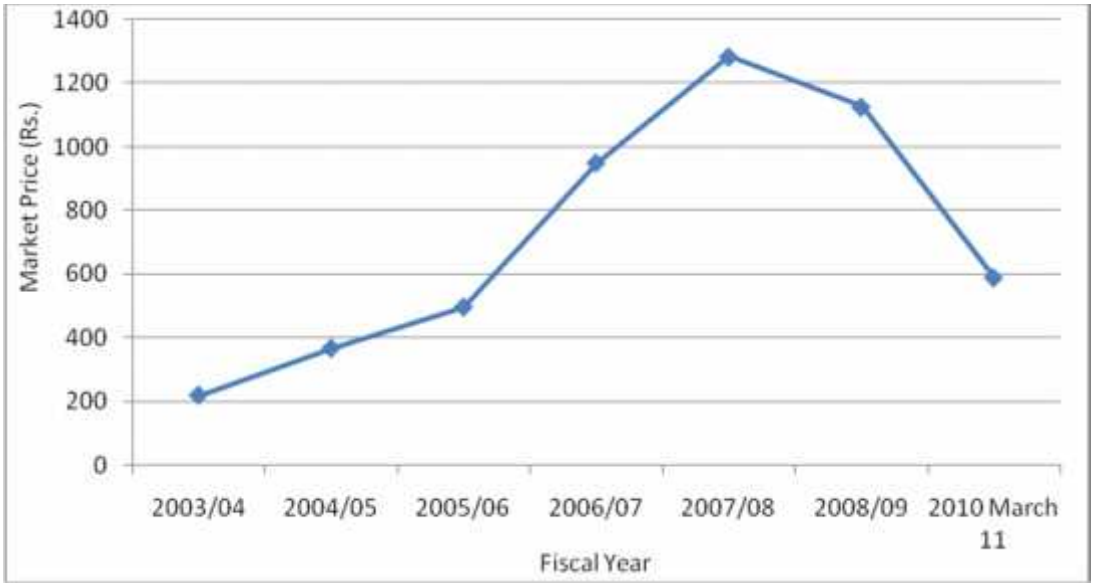


Figure 4.13 Show the trend line of closing market price of NIC Bank. It can be seen that there is slowly Increase the mps 2003/04 to 2005/06 than after rapid growth till 2007/08 than after MPS decrease rapidly. 11 March 2010 (Today) the MPS of the NIC Bank is Rs. 588.

Figure : 4.14

Realized Rate of Return per share of the NIC in the various years of Study

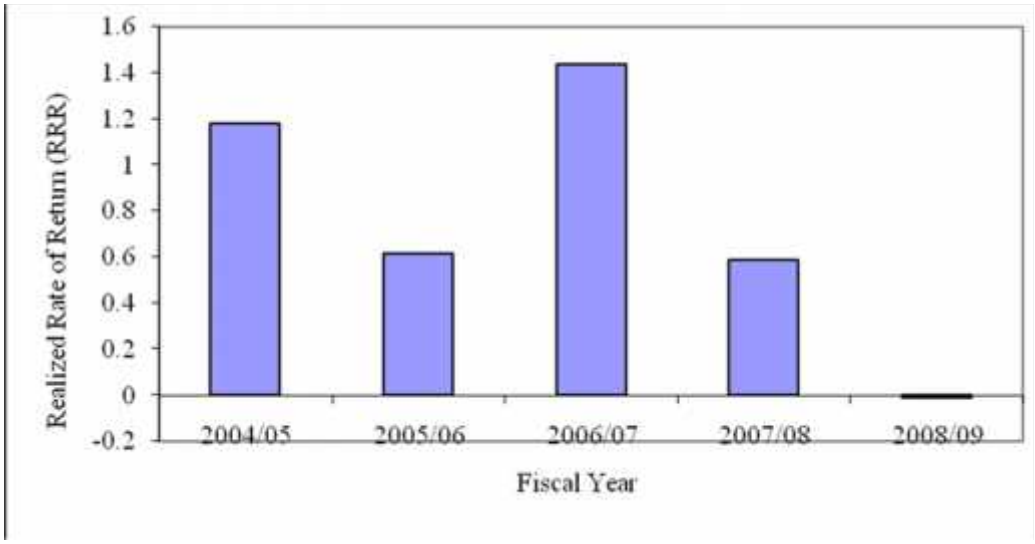


Figure 4.14 shows the annual realized rate of return of NIC in the study period. The realized rate of return is Maximum on 2006/07 i.e. 1.4368 and second highest in the year 2004/05, In these year who Investing in common stock of NIC Bank they earned profit. But in the year 2008/09 the realized rate of return of NIC bank is Negative which shows this year Investor loose their investment by 0.0078.

Table : 4.14

Tabulation of Calculated Expected Return, Standard Deviation and CV of NIC

Expected rate of return ($\overline{R}$)	0.7629
Standard Deviation (∃)	0.5642
Coefficient of Variation (CV)	0.7395

Source: Annex 3 & 4

According to table 4.14, The Expected rate of return of NIC is 0.7629 with the Standard deviation of 0.5642 and coefficient of variation of NIC is 0.7395. This denotes that to get per unit return 0.7395 risk must be bearded.

Table : 4.15

Tabulation of Calculated Results of NIC

Correlation of Coefficient (r)	0.5315

Beta Coefficient (β)	0.7346
Variance (σ^2)	0.3183
Systematic Risk(SR)	0.09
Unsystematic Risk(USR)	0.2283
Proportion of SR in total risk	28.27%
Proportion of USR total risk	71.73%

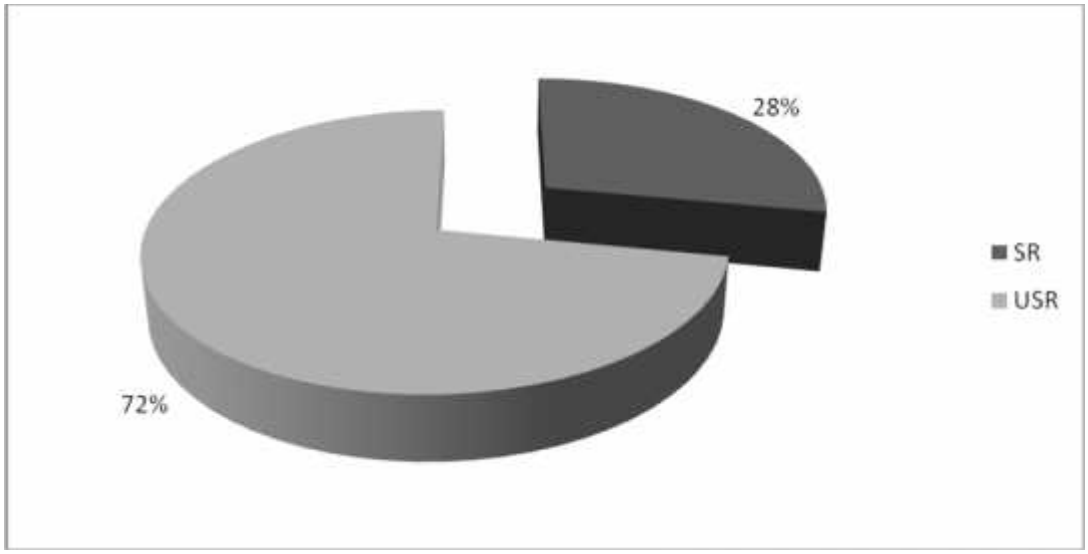
Source: Annex 6, 7& 8

According to table 4.15, Beta Coefficient of NIC is found 0.7346 that is lower than one (1). Therefore, this is a defensive asset. That means stock of NIC is less volatile than the Industry. Beta is an Indicator at systematic risk and that is found to be minimum So, this is defensive type of asset and found to be less risky.

Correlation coefficient between Industry and NIC is 0.5315 which is positive that shows the positive relation between industry index and common stock of NIC Bank. NIC has 0.090 systematic Risk at the total risk and 0.2283 unsystematic risk.

Figure : 4.15

Presentation of SR and USR in Figure



From the above figure 4.15 shows that systematic risk of NIC Bank is 28.27% in total risk which risk cannot be diversifiable but remaining unsystematic risk can be diversifiable.

4.3.5 Everest Bank Limited (EBL)

EBL started it's operation in 1994 Joint venture with Punjab National Bank (PNB) holding 20% equity in the bank, is the largest nationalized bank in India with its presence virtually in all the Important centers at in did. The bank is providing customer Friendly services through its 35 Branch and 30 ATM's. All the branches of the bank are connected through anywhere Branch Banking System (ABBS), EBL was one of the first banks to introduce ABBS in Nepal. The current Shareholding pattern of the bank constitutes of promoter holding 50% of the share 30% general public and 20% Panjab National Bank.

Authorized Capital, Issue Capital and paid-up Capital at the end of fiscal year 2008/09 were 1,000,000,000, 840620,000 and 838821,000 respectively.

Table : 4.16

Analysis of Total Dividend MPS, EPS, Total Dividend and P/E Ratio

Fiscal Year	MPS (Rs)	Cash Dividend (Rs)	Stock Dividend (Rs)	Total Dividend (Rs)	Annual Return (R)	EPS (Rs)	P/E Ratio (in Times)
2003/04	680	-	-	-	-	-	-
2004/05	870	-	20	275.80	0.685	54.22	16.04
2005/06	1379	25	-	25	0.6138	62.78	21.97
2006/07	2430	10	30	323.20	0.9965	78.42	30.99
2007/08	3132	20	30	756.50	0.60	91.82	34.11
2008/09	2455	30	30	597	-0.0255	99.99	24.55

Source: AGM Report of EBL (2008/09) & Annex 2 & 3

According to table 4.16, EBL is paying Cash dividend in year 2005/06, 2006/07 2007/08 and 2008/09 and stock dividing paying in year 2004/05, 2006/07, 2007/08 and 2008/09, The Highest total dividend is paid in the year 2007/08 i.e. Rs. 756.50, P/E Ratio at EBL is maximum in the year 2007/08 and minimum in the year 16.04. The closing MPS at EBL is highest in the year 2007/08 i.e. Rs. 3132 and minimum in the year 2004/05 i.e Rs. 870, (EPS of EBL is maximum in the year 2008/09 i.e. Rs. 99.99)

Figure : 4.16

Year and price Movement of the Common Stock of EBL

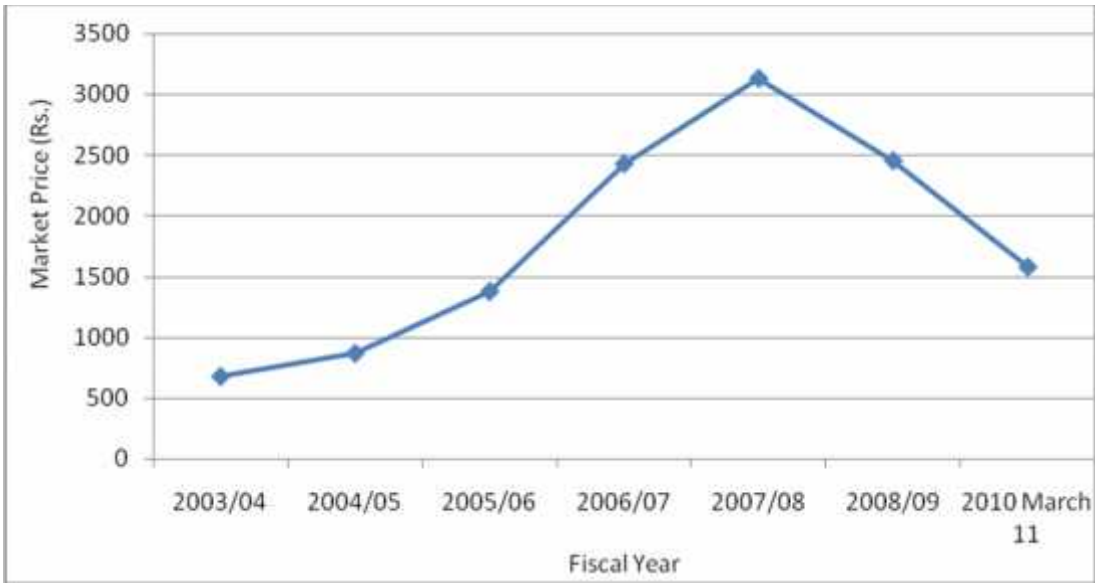


Figure 4.16 shows the trend line of Closing market price of EBL, It can be seen there that rapidly growth MPS from 2003/04 to 2007/08 but than after the MPS decrease rapidly, 11 March, 2010 (Today) The Market price at EBL Bank is Rs. 1581.

Figure : 4.17

Realized Rate of Return per share of the EBL in the various years of Study

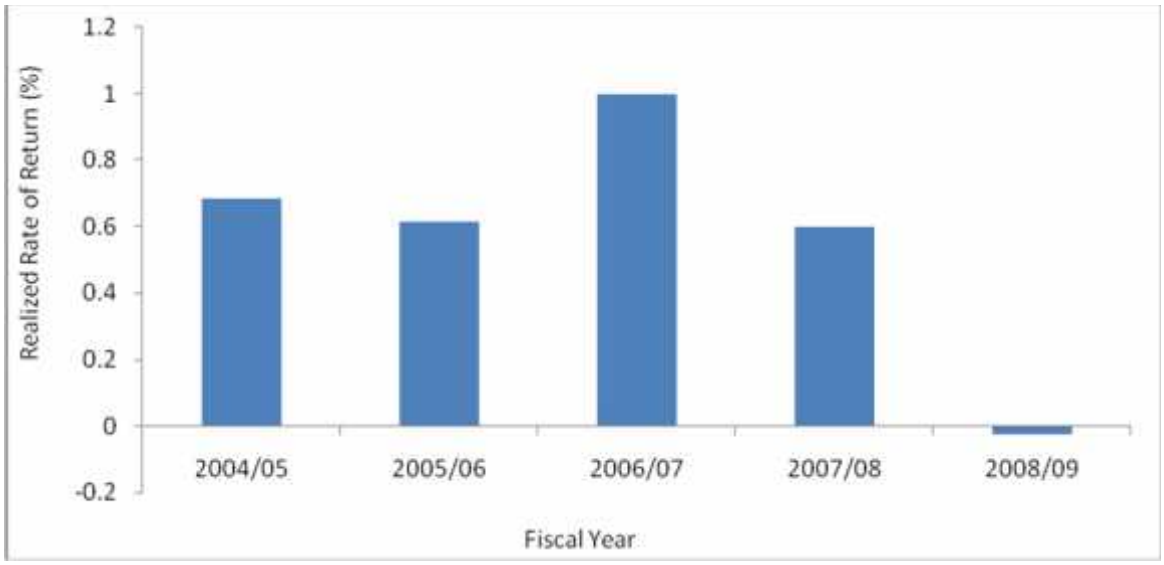


Figure 4.17 shows the annual RRR of EBL in the study period. The RRR is highest in the year 2006/07 i.e. 0.9965 and negative in the year 2008/09 i.e. -0.0255. The RRR shows the Investor's annual Return who invested in the common Stock of EBL.

Table : 4.17

Tabulation of Calculated Expected Return, Standard Deviation and CV of EBL

Expected rate of return ($\overline{R}$)	0.5740
Standard Deviation (∃)	0.3717
Coefficient of Variation (CV)	0.6476

Source: Annex 3 & 4

According to table 4.17, The Expected rate of return of EBL is 0.5740 with the Standard deviation of 0.3717 and coefficient of variation of EBL is 0.6476. This denotes that to get per unit return 0.6476 risk must be bearded.

Table : 4.18

Tabulation of Calculated Results of EBL

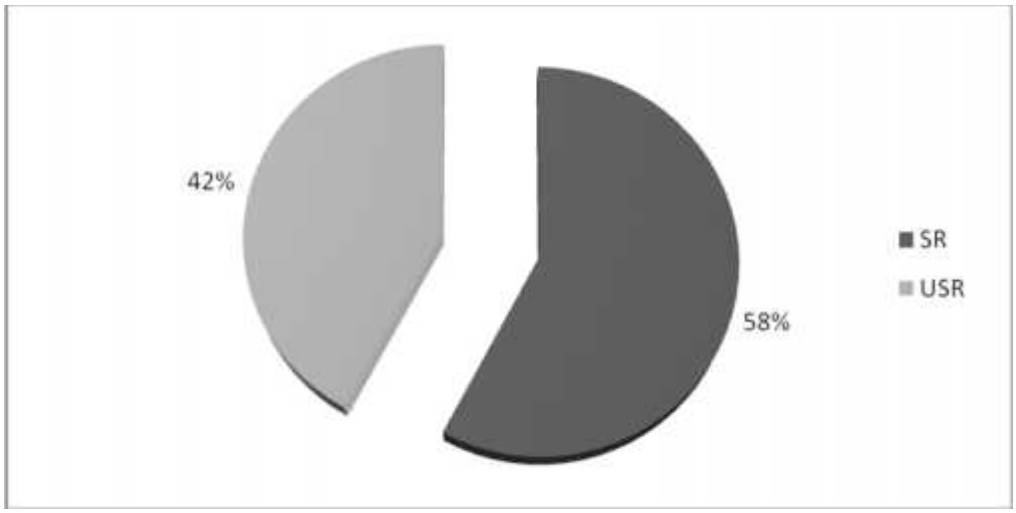
Correlation of Coefficient (r)	0.7612
Beta Coefficient (β)	0.6932
Variance (σ^2)	0.1382
Systematic Risk(SR)	0.08
Unsystematic Risk(USR)	0.0582
Proportion of SR in total risk	57.90%
Proportion of USR total risk	42.10%

Source: Annex 6, 7 & 8

According to table 4.18, Beta Coefficient of EBL is found 0.6932 that is lower than one (1). Therefore, this is a defensive asset. That means stock of EBL is less volatile than the Industry. Beta is an Indicator of systematic risk and that is found to be lower than one (1). So, this is defensive type of assets and found to be less risky. Correlation of coefficient between industry and EBL is 0.6932, which is positive this shows the positive relation between industry and EBL's stock .EBL has 0.08 systematic Risk from the total risk and 0.0582 unsystematic risks.

Figure 4.18

Presentation in Figure the Partition of SR and USR



According to figure 4.18, EBL has 57.90% systematic risk. This can not be diversifiable and 42.10% unsystematic risk which can be diversifiable.

4.3.6 Standard Chartered Bank Limited (SCBL)

Standard Chartered Bank Limited was incorporated in 1985 as a second foreign joint venture Bank in the name at Nepal Grind lays Bank limited. The bank was formally under the management at ANZ Grind lays Bank as per the joint venture the technical agreement signed between it and the Nepalese promoters. The Authorized capital, Issued capital and paid - up capital of the bank at the end of fiscal year 2008/09 were 1,000000000, 1,00,00,00,000 and 931966400, current Shareholder pattern at the bank constitutes of promoter holding 75% of the share while 25% is held by general public.

SCBL offers a full range of banking products and services in customer banking, online banking, SMS banking and all related service to banking and financial sectors.

Table : 4.19

Analysis of Total Dividend

MPS, EPS, Total Dividend and P/E Ratio

Fiscal Year	MPS (Rs)	Cash Dividend (Rs)	Stock Dividend (Rs)	Total Dividend (Rs)	Annual Return (R)	EPS (Rs)	P/E Ratio (in Times)
2003/04	1745	-	-	-	-	-	-
2004/05	2345	120	-	120	0.4126	143.14	16.38

2005/06	3775	130	10	720	0.9168	175.84	21.47
2006/07	5900	80	50	3495	1.4887	167.37	35.25
2007/08	6830	80	50	3085	0.6805	131.92	51.77
2008/09	6010	80	50	2053.50	0.1806	109.99	54.64

Source: AGM Report of SCBL (2008/09) and Annex 2 & 3

According to table 4.18, SCBL is paying cash dividend every year (study period) and stock dividend paid from 2005/06 to 2008/09. Highest total dividend is paid in the year 2006/07 i.e. Rs. 3495, P/E Ratio of SCBL is highest in the year 2008/09 i.e. 54.64 and lowest in the year 2004/05 i.e. 16.38. The closing MPS of SCBL is maximum in the year 2007/08 i.e. 6830 and the earning per share at SCBL is in the year 2005/06 i.e. 175.84.

Figure : 4.19

Year and Price Movement of the Common Stock of SCBL

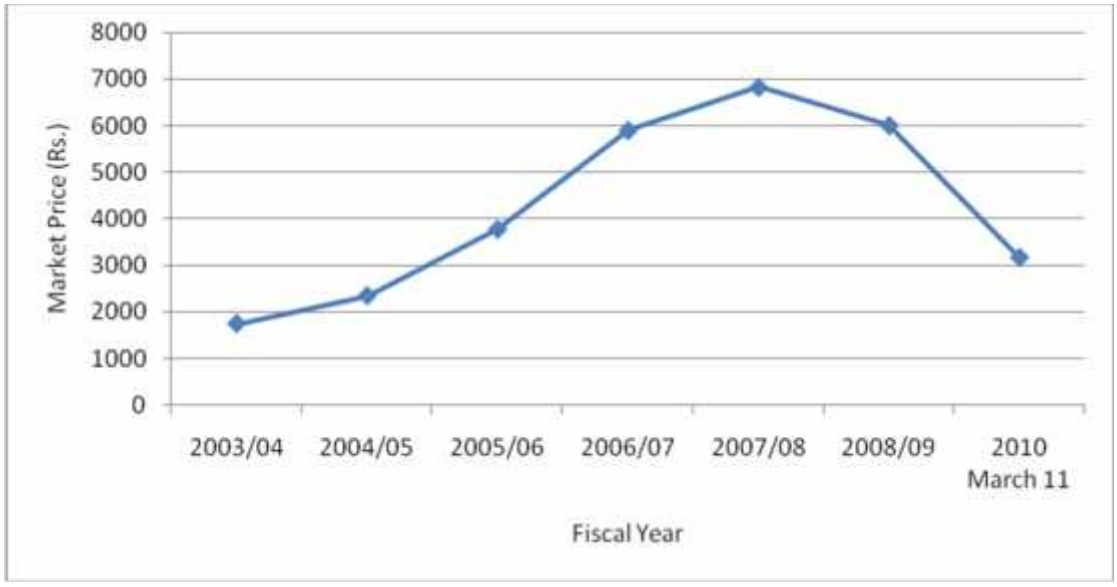


Figure 4.19 shows the trend line closing MPS of SCBL. It can be seen there that rapidly growth MPS from 2004/05 to 2007/08 than after the MPS of SCBL rapidly falls downward current market price of SCBL is Rs. 3169 (Today 11March 2010). This shows all Banks market price falls in to decreasing trend.

Figure : 4.20

Realized Rate of Return per share of the SCBL in the various years of Study

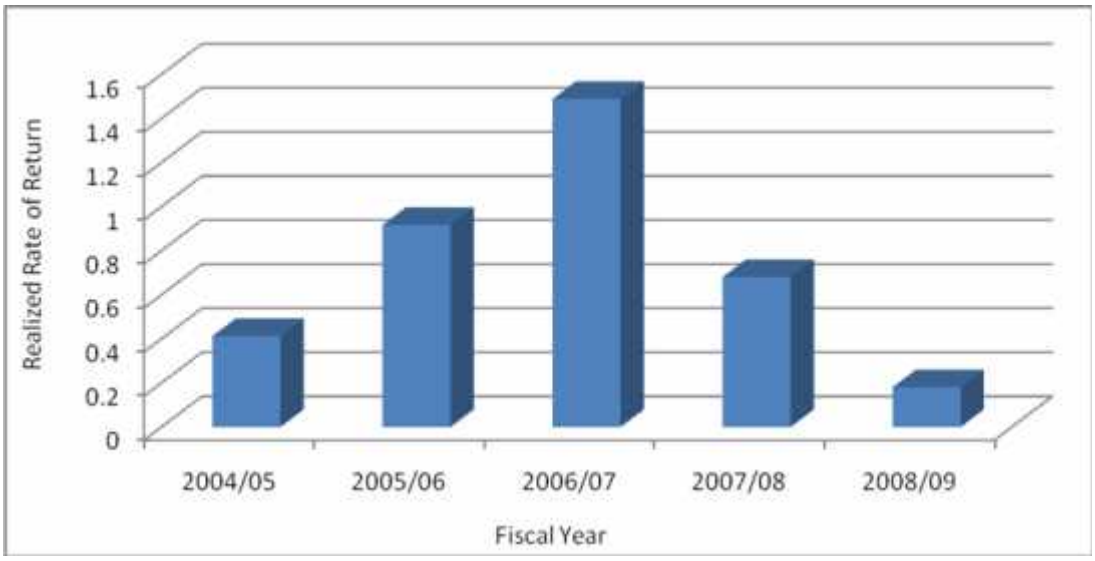


Figure 4.20 shows the Annual RRR of SCBL in the study period. The RRR is highest in the year 1.4887 and lowest in the year 0.1806 which show the Investors Annual Return who invested in the common stock of SCBL.

Table : 4.20

Tabulation of Calculated Expected Return, Standard Deviation and CV of SCBL

Expected rate of return ($\bar{R}$)	0.7358
Standard Deviation (∃)	0.5038
Coefficient of Variation (CV)	0.6847

Source: Annex 3 & 4

According to table 4.20, The Expected rate of return of SCBL is 0.7358 with the Standard deviation of 0.5038 and coefficient of variation of SCBL is 0.6847. This denotes that to get per unit return 0.6847 risk must be bearded.

Table : 4.21

Tabulation of Calculated Results of SCBL

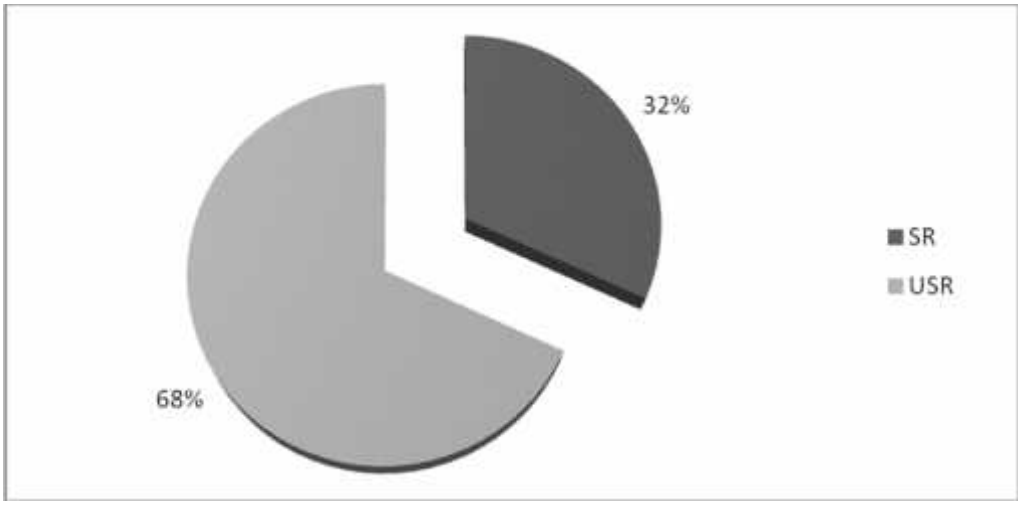
Correlation of Coefficient (r)	0.5645
Beta Coefficient (β)	0.6968
Variance (σ^2)	0.2538
Systematic Risk(SR)	0.0809
Unsystematic Risk(USR)	0.1729
Proportion of SR in total risk	31.87%
Proportion of USR total risk	68.13%

Source: Annex 6, 7& 8

According to table 4.21, Beat coefficient of SCBL is found 0.6968 that is less than one (1). Therefore, this is a defensive type of assets. That means stock of SCBL is less volatile than the Industry Index. Beta is an indicator of systematic risk and that is found to be minimum. So, this is defensive types of asset and found to be less risky. Correlation of Coefficient between Industry and SCBL is 0.5645. Which is positive that shows the relationship between Industry Index and common stock of SCBL? There is positive relationship between SCBL and Industry. SCBL has 0.0809 systematic Risk of the total risk and 0.1729 unsystematic risk.

Figure : 4.21

Presentation in Figure the Partition of SR and USR



According to figure 4.21, The SCBL has 31.87% systematic risk. Which cannot be diversifiable remaining unsystematic risk can be diversifiable.

4.4 Comparative Analysis of Sample Commercial Bank based on Risk and Return

From the above calculation and presentation we have expected return, Standard deviation, coefficient of variation in this topic we presented all result in tabulation and descriptive all of these.

4.4.1 Comparative Analysis of Sample Bank Based on Expected Rate of Return

Expected Rate of Return indicates summation at annual return of taking period and divided by the number of observation. That means which investors invest in this common stock they have returned if they holding this security taking sample period.

Table : 4.22

Expected Rate of Return

S.N	Banks	Expected Return($\overline{R}$)
1	SBI	0.7284
2	NABIL	0.8013
3	BOK	0.8742
4	NIC	0.7629
5	EBL	0.5740
6	SCBL	0.7358

Source: Annex 3

Figure : 4.22

Presentation of Expected Rate of Return

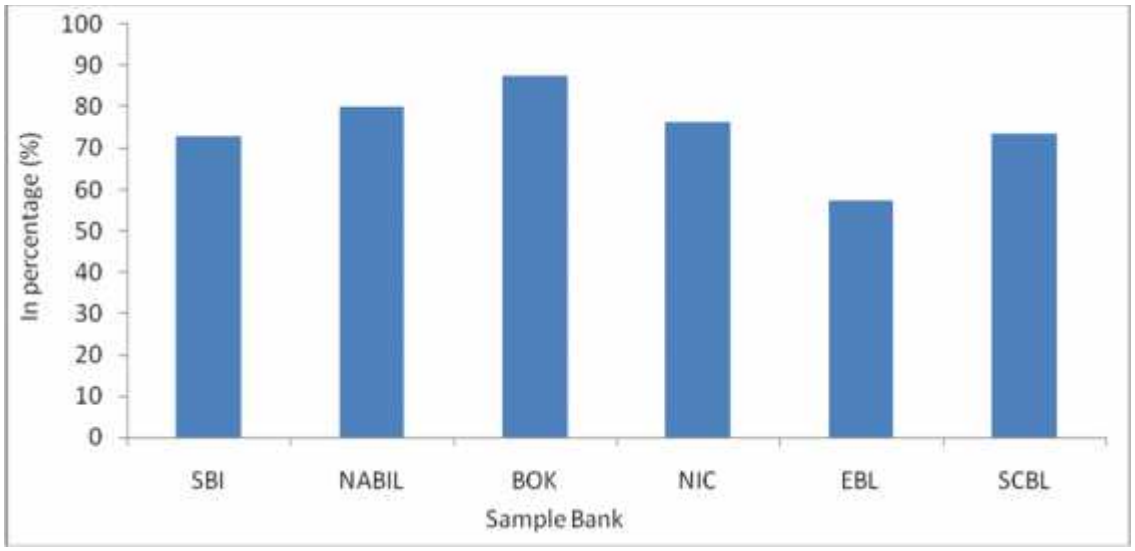


Figure 4.22 shows Expected rate of return of all sampled bank, which shows BOK has 87.42% expected return, who investor invest in BOK's stock for the period 2004/05 to 2008/09 they earned 87.42% expected return And lowest expected return has EBL i.e.57.40%, overall, all investor get profit from banking assets.

The following table shows the expected returns standard deviation and coefficient of variation of the sampled banks in various years under studied.

Table : 4.23

Expected Return, Standard Deviation and Coefficient of Variation of the Sampled Banks

S.N	Banks	Expected Return($\bar{R}$)	Standard deviation (∃)	Coefficient of Variation (C.V)	Remarks
1	SBI	0.7284	0.6689	0.9183	Return-Highest Risk- Moderate
2	NABIL	0.8013	0.8182	1.02	Return-Highest Risk - Highest
3	BOK	0.8742	0.8742	0.8679	Return-Moderate Risk-Moderate
4	NIC	0.7629	0.5642	0.7395	Return-Moderate Risk-Moderate
5	EBL	0.5740	0.3717	0.6476	Return-Moderate Risk-Moderate
6	SCBL	0.7358	0.5038	0.6847	Return-Moderate Risk-Moderate

Source: Annex 3, 4 & 5

Table 4.23, shows that Comparison of Expected Returns, Standard Deviation and the coefficient of variation between the Sampled Banks. The Statistical results Imply that over the study period, BOK and NABIL have highest expected return, The lowest expected return is 0.5740, which is observed in EBL. Based on Standard deviation (risk) securities of sample banks. The standard deviation of the return on the shares of EBL is the lowest one. Looking at the coefficient of variation, the share of the EBL has the lowest risk per unit of return; the highest being is at NABIL. Investment in EBL is desirable because for 1 unit of return Investor beard only 0.6476 unit of risk.

4.5 Market Sensitivity (Beta Coefficient Analysis)

Market sensitivity of the stock is explained by its beta coefficient. Beta coefficient (B) measures how much systematic risk on the assets has. It measure the responsiveness of a security to movement in the market, Beta coefficient shows the volatility of stock which cannot diversifiable. Beta coefficient of Market is always equal to 1.

Table: 4.24
Beta Coefficient of Six Commercial Banks

S.N.	Sample Bank	Beta (β)	Types of Stock
1	SBI	0.0582	Defensive
2	NABIL	0.5983	Defensive
3	BOK	1.25	Aggressive
4	NIC	0.7346	Defensive
5	EBL	0.6932	Defensive
6	SCBL	0.6968	Defensive

Source: Annex 6

According to table 4.24 the beta of BOK 1.25, this is greater than 1. Its stock is highly sensitive with Industry as the beta is positive it moves with banking sector. It means if the banking sector return rises, the stock return of BOK will also rise. If the banking return arises by 1% then the stock return of BOK will rise by about 1.25% and vice-versa. BOK has highest beta coefficient with the banking sector. That means its stock are move sensitive than other sample banks beta. The stock of SBI has lowest beta coefficient with banking sector which means that its stocks are less sensitive than others.

Thus, comparing the beta coefficient of six commercial banks stock, we can say that the stock of BOK is more risky and the stock of SBI is less risky than the Banking sector.

4.6 Analysis of Systematic Risk and Unsystematic Risk of Sampled Commercial Bank

Total risk or total variability of returns of an asset is measured by variance and standard deviation. The total risk can be dividend into two parts: diversifiable and undiversifiable risks,

Hence,

Total risk	=	Undiversifiable risk	+	Diversifiable risk.
		⇩		⇩
		Systematic risk	+	Unsystematic risk
		⇩		⇩
		Market risk	+	unique risk
		⇩		⇩
		Related to macro economic factors	+	Related to micro economic factors.

Diversifiable Risk: Diversifiable risk is also known as unsystematic risk. This type of risk is unique to an organization and can be largely eliminated by holding a diversified portfolio of investment, Diversifiable risk occurs through the events like, Labour strikes, management errors, Inventions, advertising campaigns, availability or raw material etc. More precisely, the unsystematic risk is unique to each firm; an efficiently diversified portfolio of securities can successfully eliminate most of the unsystematic risk Inherent in individual securities.

Undiversifiable Risk: Undiversifiable risk is also known as systematic risk. This risk is that portion of total variability in return caused by market factors (also called market risk) that simultaneously affect the prices of all securities. undiversifiable risk occurs due to the changes in the macro-economic factors like, Interest rate, Inflation, Investors' expectation, GDP etc. Undiversifiable risk is that part of the total risk that cannot be eliminated by allocating capital to a diversified portfolio of Investments**.**

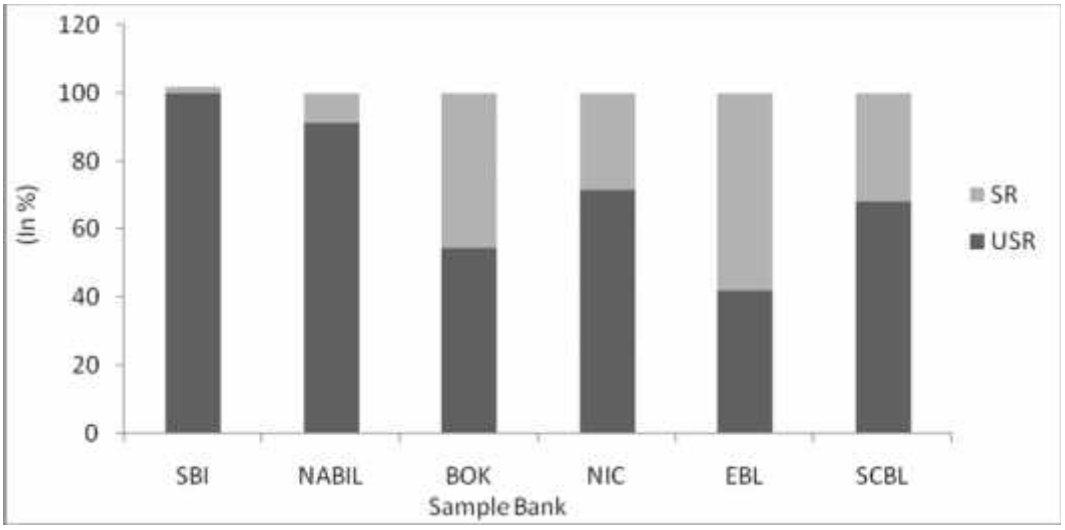
Table : 4.25
Partition of SR and USR in Total Risk

SN	Bank	Portion of SR (%)	Portion of USR (%)
1	SBI	0.12	99.87
2	NABIL	8.90	91.1
3	BOK	45.24	54.76
4	NIC	28.27	71.73
5	EBL	57.90	42.10
6	SCBL	31.87	68.13

Source: Annex 8

Table 4.25 shows that selected sampled fives banks have greater USR than SR. but EBL has greater SR than USR. The unsystematic risk can be eliminating from portfolio creation at investment but systematic risk can not be diversifiable. SBI's stock has lowest SR and greater USR but EBL Bank's stock has greater SR (i.e. 57.90) lowest USR (i.e.42.10).

Figure: 4.23
Portion of Systematic Risk and Unsystematic Risk in Total Risk



According to figure 4.23 shows that partition of Total risk in to two part i.e. systematic risk and unsystematic risk, SBI stock has lowest SR and more portion of USR which shows poor management capability because unsystematic risk arises from Internal factor

which can be eliminate all bank of sampled has more USR than SR. The table shows clearly which Banks has how much systematic risk and unsystematic risk.

4.7 Analysis of Common Stock's Price

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

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

In the above equation, the risk free rate of return (R_f) is needed to determine required rate of return. The discount rate of Treasury bill (T-bill) issued by Nepal Ratra Bank is taken as risk free rate (R_f). In Nepal, NRB issued two types of T-bill i.e. 91 days and 365 days but according to the suggestion of T-bill section of NRB. It is better to take 365 days's weighted average discount rate as risk free rate. T-bill rate will be differs in various issues but in the study it is taken weighted average discount rate of 365 days T-bill of mid July (2009) fiscal year (2008/09). As provided by the T-bill section T-bill rate for fiscal year 2008/09 is 6.06%.

Table : 4.26

Analysis of Common Stock's Price Based on RRR and ERR

S.N.	Bank	Beta (β)	Equilibrium Return $\bar{K}_j$ XRf Γ $\bar{R}_{BI}$ ZRf β_i	Expected Return($\bar{R}$)	Price Evaluation
1	SBI	0.0582	0.0765	0.7284	Underpriced
2	NABIL	0.5983	0.2241	0.8013	Underpriced
3	BOK	1.25	0.4021	0.8742	Underpriced
4	NIC	0.7346	0.2613	0.7649	Underpriced
5	EBL	0.6932	0.25	0.5740	Underpriced
6	SCBL	0.6968	0.2510	0.7358	Underpriced

Where,

R_f = Risk free rate of return = 0.0606 i.e. 6.06% *(Source Current Macroeconomic Situation, NRB, 2009/10)*

R_{BI} = Average return of banking sector for the year 2004/05 to 2008/09 = 0.3338 i.e. 33.38%

$\bar{K}$ = Equilibrium rate of return of CAPM

β_j = Beta coefficient of each banking assets.

From the above table 4.26 it is observed that the pricing of common stock of all sampled banks under study are under priced. Thus, under pricing situation of common stock of the banks indicates that all the sample banks stock demands are very good investment opportunity. The investors can gain from buying the under priced stocks. It is recommended to purchase under priced stock but rational and efficient investment decision-maker need to analyze other dimensions as well as invest from the investment point of view.

4.8 Analysis about Create Optimal Portfolio

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

The study take two bank for create portfolio these banks are NABIL and SCBL.

Table: 4.27

Tabulation of Portfolio Risk and Return Different Weight Invested in Common Stock of SCBL and NABIL

Investment proportion in common stock of NABIL (W_A)	Investment proportion in common stock of SCBL (W_B)	Return portfolio $\bar{R}_P$	Standard deviation portfolio ($\exists_P$)
1	0	0.8013	0.8182
0.75	0.25	0.7849	0.7277
0.50	0.50	0.7686	0.6433
0.25	0.75	0.7522	0.5674
0	1	0.7358	0.5038

Source: Annex 10

According to table 4.27 we get return portfolio and standard deviation portfolio from investing different proportion in common stock of NABIL and SCBL. The maximum return portfolio is 80.13%. If all investment made into common stock of NABIL and minimum standard deviation is 50.38% If all Investment made into common stock at SCBL. Once we know which securities are to be included in the optimal portfolio. We must calculate the present invested in each security.

For optimal portfolio the percentage invested in each security is calculated by using the following formula,

$$W_A \, X \frac{\sigma_B^2 \, Z\text{cov}\, R_A, R_B}{\sigma_A^2 \, \Gamma \sigma_B^2 \, Z2\text{cov}\, R_A, R_B}$$

and,

$W_B = 1 - W_A$

Where,

W_A = Weighted of Stock A that minimize the portfolio risk of stock A & B

W_B = Weighted of Stock B.

$\exists_A$ = Standard deviation of stock A.

$\exists_B$ = Standard deviation at stock B.

Cov (R_A, $R_{B)}$ = Covariance between stock A and B.

Table: 4.28

Investment Proportion and Portfolio Risk and Return at Optimal Point

Weight of NABIL	Weight of SCBL	Return portfolio $\bar{R}_P$	Standard deviation ($\exists_P$)
-0.5867	1.5867	0.6974	0.4336

Source: Annex 11

Table 4.28 Shows that Return portfolio and standard deviation portfolio if investment in common stock of SCBL 1.5867, proportion of total investment and borrowing from NABIL 0.5867. The return portfolio is 69.74% and this point the risk or S.D is minimum that also called minimum variance portfolio point.

Table: 4.29

Tabulation of Major Findings

Name at Bank / Result	SBI	NABIL	BOK	NIC	EBL	SCBL
Expected rate of return $\bar{R}$ (%)	72.84	80.13	87.42	76.29	57.40	73.58
Standard Deviation (∃) (%)	66.89	81.82	75.87	56.42	37.17	50.38
C.V	0.9183	1.02	0.8679	0.7395	0.6476	0.6847
Correlation of Coefficient (r_{jm})	0.0355	0.2985	0.6726	0.5315	0.7612	0.5645
Beta coefficient (℘)	0.0582	0.5983	1.25	0.7346	0.6932	0.6968
Proportion of SR in Total risk (%)	0.125	8.90	45.24	28.27	57.90	31.87
Proportion of USR in Total risk (%)	99.87	91.10	54.76	71.73	42.10	68.13
Types of stock (Under CAPM method)	Underpriced	Underpriced	Underpriced	Underpriced	Underpriced	Underpriced
Beta coefficient (℘)	Defensive	Defensive	Aggressive	Defensive	Defensive	Defensive

4.9 Major Finding of the Study

On the basis of the above analysis and presentation the major findings of the study are as follows.

- BOK's Common Stock is yielding the highest Expected rate of return with 87.42%. Whereas it is the Lowest 57.40% in case of EBL. The other banks rates of return are 80.13%, 76.29%, 73.58% and 72.84% of NABIL, NIC, SCBL and SBI respectively.

- NABIL's Common Stock consists of the highest 81.82% risk, whereas EBL's Stock is least risky as is consist of only 37.17% risk and BOK, SBI, NIC and SCBL risk is 75.87%, 66.89%, 56.42% and 50.38% of respectively.

- Coefficient of Variation Analysis it is resulted that there is highest risk beard by investor in NABIL where for per unit return, risk is 1.02 whereas it is the lowest for EBL.

- All Bank relation with Banking Index shows positive EBL has maximum positive relation and SBI has lowest positive relation with industry index.

- All Banks have Unsystematic risk which Risk can be diversifiable. The highest USR 99.87% at total risk Common Stock of SBI Bank, whereas the lowest USR for EBL i.e. 42.10.

- EBL Common Stock consists of 57.90% of SR from the total risk whereas it's lowest for SBI i.e. 0.125%

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

- Under CAPM analysis all Banks Common Stocks are showing under priced.

- The portfolio return between SCBL and NABIL has 80.13% and 81.82% at risk. If all invest able found Invested into NABIL stock whereas for Lowest S.D i.e. 50.38 all investment made into SCBL's common stock.

- Optimal portfolio return is 69.74% where portfolio S.D is minimum i.e. 43.36% that is minimum variance portfolio combination, this study create optimal portfolio using two assets i.e. NABIL and SCBL.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Investment is related with two factors these are risk and return. Central focus of finance is trade-off between risk and return. And its major part stock market has greatest glamour, not only for the professional or institutional investors, but for the individual or private too. Risk and return is getting highlight in financial management. Financial ratios have been used for centuries as a rule of thumb to aid in understanding trade-off between risk and return. Development in the field of finance has led to the application of many new concepts and models to deal with various issue related to corporate financial management. Investors have varying perception towards risk and enterprising activity.

Investors would want their investment to yield favorable return. Hence they invest in those an opportunity which has certain degree of risk is associate with it. Finance mostly deals on the monetary risk and return, which is the most affecting matter for an individual to a large corporation. Investors sacrifice their current cash in securities in anticipation of higher future benefits than in risk of free sector. An investor seeking common stock investment usually pays the price for the stock based on his estimation about future dividends and growth in stock price. However, in case of imperfect capital market so many financial and non – financial factors play a great role in price determination. It can be said that the rate of return on investment is a function of many factors including the real cost of money, inflation, risk etc. the investors willingly offer more capital at higher rate of return, whereas users of capital always show their readiness to use more capital at lower rate.

Common stock is a source of capital, which is considered to be riskier, and lifeblood of stock market. Therefore investment in common stock is very sensitive regarding risk. Dividends to common stock holders are only paid if the firm makes an operating profit after tax and preference shareholders dividend. The company can return the principal in case of its liquidation only to the extent of the residual assets after satisfying to all of its

preference shareholders. Beside this the investors have to sacrifice the return on their investment in common stock, which would be earned investing elsewhere. The main objectives of the study are to analyze the risk and return of common stocks in Nepalese context that's why is focused on the common stock of listed commercial banks of Nepal and gives an idea about how to create a optimal portfolio. The study has taken a sample of listed six commercial banks as reference to analyze the risk and return in common stock investment, while analyzing the risk and return, brief reviews of related studies has been performed. Tables, graphs and diagrams are used to present the results of the analysis.

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

The study has adopted historical and analytical research design. The data utilized are mostly secondary in nature. Various financial tools are applied to used for analyze and present for the data. Among the 26 commercial banks listed in the NEPSE, six banks are taken as sample for the study. Data of the last five years are used for the study. Market price per share and dividend per share of the banks are used to analyze the risk and returns of the banks together with the commercial banking index. And portfolio creates using two sample banks. SCBL and NABIL banks used for create minimum variance portfolio.

This study divided into five chapters. First chapter is introduction chapter, introduction chapter include background of the study, history of banking development, statement of the problem, objectives of the study, focus of the study, significance of the study, limitation of the study, and organization of the study. Second chapter is review of literature. This chapter includes conceptual review, concept of capital market, primary market and secondary market, review of journal and article, review of related articals and related unpublished thesis. Third chapter is research design. This chapter include population and sample, sources of data, data collection technique and analysis tools.

Fourth chapter is presentation and analysis of data, this chapter shows related table, figure and describes of the study. Fifth and last chapter is summary, conclusion and recommendation and bibliography, annexed presented at the end of the study.

5.2 Conclusion

From the analysis of various financial indicators of all the sample banks, the following conclusion can be found: The return is defined as income received on common stock investment, which is usually expressed in percentage. BOK has the highest rate of return i.e. 87.42% and EBL has the lowest rate of return i.e.57.40%. EBL stock is the less risky assets and NABIL stock is the most risky assets. EBL is the best security measuring then in terms of CV.

Stock of BOK is most aggressive and the stock of SBI is the most defensive stock than other due to the lowest beta coefficient. Considering the banking sectors risk and return, expected return of overall banking index is 33.38% which is the lowest than the expected return of all sampled banks .The standard deviation found in banking index is 40.82%, which represent the sensitivity on investment in the banking sectors. The stock of SBI bank has more USR i.e., 99.87% of total risk which can be diversifiable and EBL bank has lowest USR i.e. 42.10% of total risk.

Comparing the expected rate of return and equilibrium rate of return there is found common stock of SBI, NABIL, BOK, NIC, EBL and SCBL are under priced. Correlation co-efficient between EBL and banking index shows the more positively is the highest one that is 0.7612 and correlation co-efficient between SBI & banking index is the lowest that is only 0.0355, which means common stock of SBI banks is less correlated. The study found that none of banks share price is rightly determined as all the banks average rate of return is more than the required rate of return for the investor. This brings the difference of market prices from the intrinsic value.

Standard deviation of SCBL is 50.38% and NABIL is 81.82% if we invest only single assets but when we create optimal portfolio using minimum variance portfolio formula

than the risk of portfolio of these two assets is 43.36% which is minimum variance portfolio combination of these two assets but this we browning 58.67% investable fund from NABIL and invested in to SCBL's common stock 158.67%. In this point we have minimum variance and considerable return then other combination of NABIL and SCBL assets.

5.3 Recommendation

Every study has any result oriented on the basis major findings of this study might be useful for those who are concerned with the investment in common stock in commercial bank directly or indirectly. On the basis of the analysis and major findings of this study, the following recommendations are presented separately for investors and institution to overcome the weakness and inefficiency as well as to improve present stock performance.

1. At first make to investment in common stock. All investor recommended that two analyses must be important these are technical analysis and fundamental analysis. Technical analysis gives result from market trend and price movement of common stock and fundamental analysis gives result from companies internal and external all information and also recommend that must be knowledge about rules and regulation of countries which are impact directly and indirectly the market price of common stock where investor going to invest.
2. Expected return recommends that banking sectors common stocks are the best options for the investment as they are providing attractive rate of return.
3. Risk and return play vital role on common stock investment of banking sector. Therefore, it is suggested to analyze risk and return with sincerely before Invest in this sector. According to the analysis of individual common stock of Bank, Investors should invest their money in common stock of EBL due to the lowest C.V. (i.e. 0.6476), medium expected return (i.e. 57.40 %) and defensive type of stock. C.V. measures the risk unit for per unit return. EBL stock has lowest C.V. that means for one (1) unit return investor beard 0.6476 unit of risk which is lowest than other sampled banks.

4. Analysis of the market sensitivity of common stock guides in investing on stock market. It is better to invest on such common stock, which has less beta i.e. defensive stock for that investor who does not eager to take high risk but higher return cannot obtain in such investment. Thus, investor should buy the under priced stocks when market is rising and sell the over-priced securities when market performance is falling. Similarly, the investors should hold that securities which are performing better than the market. This study recommends purchasing the common stock of SBI,NABIL,EBL SCBL and NIC based on beta coefficient which banks have beta lowest than 1.but on the based on CAPM analysis all stock are under priced. CAPM analysis recommended that purchase all sample banks common stock.
5. Investors must concern with the portion of systematic risk in the total risk if portion of which is arises form external factors which can not be diversifiable but Unsystematic risk can be diversifiable risk this type risk arises from internal factor. Common stock of EBL has 57.90% systematic risk from the total risk so EBL's common stock recommended and common stock of SBI bank has lowest systematic risk but high unsystematic risk that shows weakness in management to deal with internal factors which are caused of unsystematic risk.
6. Analysis of personal risk, attitude, needs and requirements will be helpful before making an investment in stock market. Investors should make several discussions with stock holder before reaching at the decision. Investors should make their decision on the basis of reliable information rather than the imagination and rumors.
7. Broker firms are good way to exchange and share investment ideas. Mutual fund is worth while for people with little interest in investment. Investors are recommended to share experience, ideas and take view of expert before investing in stocks of individual banks.
8. Investors need to diversify their fund to reduce the risk. Proper construction of portfolio will reduce considerable potential loss, which can be defined in term of the risk but portfolio construction is dynamic and difficult job. Thus, investor should be selected the stocks that have higher return and negative correlation or near to zero correlation between different banks and sector. The portfolio revision is also necessary at certain interval time to get best return at lower risk. According to

the study, Created portfolio gives investor lower risk and considerable return the portfolio. In this study we create an optimum portfolio using two assets between SCBL & NABIL. Investor should apply this before making investment Strategy. Optimal portfolio gives minimum risk and considerable return.

9. Government should amend the rules and a regulation regarding to the stock market in time-to-time that ensures the protection of an individual investor's right. Such amendment is essential to make the act effectiveness with the pace of time and need to follow the implementation and supervision of rules and regulation to make sure the objective is achieved.
10. Before making an investment decision in common stock, it is recommended to visit and discuss with investment companies, with individual export and researchers. Investor should make their investment decision because of reliable information or financial parameters of the related bank rather than imagination.
11. The financial institutions and companies should provide the real financial statements. The data provided by NEPSE and the company itself are different in some cases. It creates confusion to potential investors about the actual financial condition of the company. They should publish their annual statements. The data provided by NEPSE and the company itself are different in some cases. It creates confusion to potential investors about the actual financial condition of the company. They should publish their annual.
12. It is recommended that for future student they can prepare new thesis based on this study and they can increase sample size and study period for advance result
13. It is recommended not follow the general trend of buying the securities when it is going up and sell those securities which is going down that is risky strategy. It will be to make decision based on fact and figures rather use intuition and go blindly.
14. It is recommended that Forces actual financial statement submitted in to SEBON. Which are required for making investment strategy.
15. Government's rules and regulation directly impact the market. So, every investor suggested that they analysis about the rules and regulation of government which effect the market movement.
16. Other investment alternative availability also effect the capital market i.e. commodity market, real estate and gold are the investment alternatives also IPO

effect the secondary market. So, all investors recommended that analyses about all alternative investment which is affect the market return.

17. It is further recommended not to fully based on these studies as it's only provides inferences based on five years data of selected commercial banks and only represent the small proportion of the market. It's only provided the basis for logical judgment.

BIBILOGRAPHY

Books

Alexander, J.G., Sharpe, W.F. & Bailey, J. (2003). *Fundamental of Investment. (3rd Edition).* Singapur: Prentice Hall.

Bajracharya, S. & Bhattarai, R. (2005). *Corporate Financial Management. (2nd edition).* Kathmandu: Buddha Academic Publisher and Distributor.

Bhalla, V.K. (2001). *Investment Management*. *(8th Edition).* New Delhi: S. Chanda and Company Limited.

Bhattrai, R. (2004). *Investment Theory and Practice*. *(1st edition).* Kathmandu: Buddha Academic Publisher and Distributor.

Brealey, R.A. & Stewart, M. (1991). *Principles of Corporate Finance.* New Delhi: Tata McGraw Hill.

Cheney, J.M. & Edward, A.M. (1992). *Fundamentals of Investment.* West Publishing Company.

Eugene, F.F. & Kenneth, R.F. (2002). *The Journal of Finance*. Vol. 57.

Fisher, D.E. & Jordan, R.J. (2000). *Security Analysis and Portfolio Management. (6th Edition).* New Delhi: Hall of India Pvt. Ltd.

Francis, J.C. (1995). *Investment of Management Finance.* New York: Prentice Hall.

Francis, J.C. (1997). *Investment Analysis and Management.* New York: McGraw Hill Publication.

Frank, K.R. & Keith, C.B. (2004*). Investment Analysis Portfolio Management. (7th Edition)*. City Thomson south- Western

Hampton, J. (1998). *Financial Decision Making*. New Delhi: Prentice Hall of India Pvt. Ltd.

Loric, J.D. and Kempton (1985). *The Stock Market Theories and Evidence* . Prentice Hall of India Pvt. Ltd.

Rounwenhost, K.G. (1999). *Local Return Factors and The Turnover in Emerging Markets*. The Journal of Finance.

Sharpe, W.F., Gordon, J.A. & Bailey, J.V. (1995). *Investment. (5th Edition).* New York: Prentice Hall Inc.

Sharpe, W.F., Gordon, J.A. & Jeffery, V.B. (1998). *Investment.* New Delhi: Prentice Hall of India Pvt. Ltd.

Thapa, K. Bhattarai, R. & Basnet, D. (2006). *Investment Theory and Solution. (1st Edition).* Kathmandu: Asmita Books and Publishers.

Western, J.F. & Thomos, E.C. (1990). *Managerial Finance*. *(9th Edition).* Dolan of Florida: The Dryden Press.

Journal and Articles

Nepal Rastra Bank (2009).*"Banking and Financial Statistic"*. Vol. No.53

Nepal Rastra Bank (2010*). "Current Macroeconomic Situation"*.

Nepal stock exchange (2009). "*NEPSE News Market Statistics and Review*".

Pegano, M.D. (2006). "*How Theories of Financial Investment of Corporate Risk Taking Management Influence Bank Risk-Taking Behavior"*. Journal of Finance Market 10.no.5:277-323. April

Pradhan, R.S. (1993). *"Stock Market Behavior in a Small Capital Market:* a *case of Nepal"*, The Nepalese Management Review. Vol.10 No.1

Shrestha, Dr. M.K. (2000), "*Commercial Banks Comparative Performance Evaluation"*, Kathmandu, Karmachari Sanchaya Kosh.Vol 27:65

Shrestha, S.R. (2055). *" Portfolio Management in Commercial Bank, Theory and Practice"*, Nepal Bank Patrika Baishakh Masanta, NBL Vol 28:67

Thesis

Bhudhathoki, S. (2009). *Risk and Return Analysis of the Commercial Banks.* An Unpublished Master Degree Thesis, Shanker Dev Campus.

Joshi, D. R. (2008). *Risk and Return Analysis of common stock of five listed Commercial Banks,* An Unpublished Master Degree Thesis, Central Department of Management, Tribhuvan University, Kathmandu.

Khanal, R.R. (2009). *Risk and Return on Listed Commercial Bank of Nepal.* An Unpublished Master Degree Thesis, Shanker Dev Campus.

Mainali, U.P. (2009). *Risk and Return Analysis on Common Stock Investment,* An Unpublished Master Degree Thesis, Central Department of Management, Tribhuvan University, Kathmandu.

Pokharel, K. R. (2008). *Risk & Return on Common Stock Investment of Commercial Banks*, An Unpublished Master Degree Thesis, Central Department of Management, Tribhuvan University, Kathmandu.

Poudyal, B. (2006). *Portfolio Analysis of Commercial Banks of Nepal.* An Unpublished Master's Degree Thesis, Shanker Dev Campus, Tribhuvan University.

Sapkota, J.B. (2004). *Risk and Return Analysis in Common Stock Investment.* An Unpublished Master Thesis, Central Department of Management, T.U., Kathmandu.

Shakya, A. (2009). *Risk and Return Analysis of the Commercial Banks.* An Unpublished Master Degree Thesis, Shanker Dev Campus.

Upadhaya, S. (2001). *Risk and Return Analysis on Common Stock Investment of Commercial Bank in Nepal.* An Unpublished Master Degree Thesis, Central Department of Management, Tribhuvan University.

Websites:

www. investopedia.com.np

www. onlineliabrary.com.np

www.bok.com.np Web site of Bank of Kathmandu

www.everestbankltd.com Web site of Everest Bank Limited

www.nabilbank.com Web site of Nabil Bank Limited

www.nepalstock.com Web site of Nepal Stock Exchange

www.nicbank.com.np, Website of Nepal Industrial & Commercial Bank Limited

www.nrb.org.np, Web site of Nepal Rastra Bank

www.nsbl.com.np, Web site of Nepal SBI Bank Limited

www.scbl.com.np, Web site of Standard Chartered Bank Limited

ANNEXURE

Annex – 1

Calculation of Annual Return of Banking Sector

Fiscal Year	Banking Index	Annual Return (R)
2003/04	232.97	
2004/05	304.64	0.3076
2005/06	437.49	0.4361
2006/07	639.93	0.4627
2007/08	1143.62	0.7871
2008/09	772.70	-0.3246
		R = 1.6689
Expected rate of return ($\bar{R}$) = $\frac{R}{N} = \frac{1.6689}{5}$ = 0.3338 i.e. 33.38%		

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

$$R = \frac{BI_t - BI_{t-1}}{BI_{t-1}}$$

F/Y

$$2004/05 = \frac{304.64 - 232.97}{232.97} = 0.3076$$

$$2005/06 = \frac{437.49 - 304.64}{304.64} = 0.4361$$

$$2006/07 = \frac{639.93 - 437.49}{437.49} = 0.4627$$

$$2007/08 = \frac{1143.62 - 639.93}{639.93} = 0.7871$$

$$2008/09 = \frac{772.70 - 1143.62}{1143.62} = -0.32453$$

Calculation of $(R-\bar{R})^2$ of Banking Sector

Year	R	$(R-\bar{R})$	$(R-\bar{R})^2$
2003/04	0.3076	-0.0262	0.0007
2004/05	0.4361	0.1023	0.0105
2005/06	0.4627	0.1289	0.0166
2006/07	0.7871	0.4533	0.2055
2007/08	-0.3243	-0.6581	0.4331
			$\sum(R-\bar{R})^2 = 0.6664$
Standard Deviation ($\exists$) = $\sqrt{\frac{R Z \bar{R}^2}{N Z 1}} = \sqrt{\frac{0.6664}{5 Z 1}}$ = 0.4082 i.e. 40.82%			

Coefficient of variation of Banking Index

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.4082}{0.3338} = 1.2229$

Annex – 2

Calculation of Total Dividend

(Calculation of Total Dividend) Total Dividend in (Rs.) = Cash Dividend + % of stock Dividend ⏐ Next year MPS

Nepal SBI Bank Ltd. (SBI)

F/Y	MPS	Cash Dividend (Rs)	Stock Dividend(%)	Total Dividend(Rs)
2004/05	335	-	-	-
2005/06	612	5	-	5+0% ⏐1176 = 5
2006/07	1176	12.59	35	12.59+35% ⏐1511 = 541.44
2007/08	1511	-	-	-
2008/09	1900	2.11	40	2.11+40% ⏐ 1357* = 545

NABIL Bank

F/Y	MPS(Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend(Rs) = Cash Dividend + % of Stock Dividend ⏐ Next year MPS
2004/05	1505	70	-	15+0% ⏐ 2240 = Rs. 70
2005/06	2240	85	-	85+0% ⏐ 5050 = Rs. 85
2006/07	5050	100	40	100+40% ⏐ 5257 = Rs. 2210
2007/08	5275	60	40	60+40% ⏐ 4899 = Rs. 2020
2008/09	4899	35	40	35+40% ⏐ 3499*= Rs. 1435

Bank of Kathmandu (BOK)

F/Y	MPS(Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend(Rs) = Cash Dividend + % of Stock Dividend ⏐ Next year MPS
2004/05	430	15	-	15+0% ⏐ 850 = Rs. 15
2005/06	850	18	30	18+30% ⏐ 1375 = Rs. -430.5
2006/07	1375	20	-	20+0% ⏐ 2350 = Rs. 20
2007/08	2350	2.11	40	2.11+40% ⏐ 1825 = Rs. 732.11
2008/09	1825	7.37	40	7.37+40% ⏐ 1304* = Rs. 528.97

Nepal Industrial & Commerce Bank (NIC)

F/Y	MPS(Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend(Rs) = Cash Dividend + % of Stock Dividend ⏐ Next year MPS
2004/05	366	10	20	10+20% ⏐496 = Rs. 109.2
2005/06	496	0.53	10	0.53+10% ⏐ 950 = Rs. 95.53
2006/07	950	1.05	20	1.05+20% ⏐ 1284 = Rs. 258.65
2007/08	1284	1.05	20	1.05+20% ⏐ 1126 = Rs. 226.25
2008/09	1126	0.75	15.04	0.75+15.04% ⏐ 979* = Rs. 148

Everest Bank Limited (EBL)

F/Y	MPS(Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend(Rs) = Cash Dividend + % of Stock Dividend ⏐ Next year MPS
2004/05	870	-	20	0+20% ⏐1379 = Rs. 275.8
2005/06	1379	25	-	25+10% ⏐ 2430 = Rs. 25
2006/07	2430	10	30	10+30% ⏐ 3132 = Rs. 323.20
2007/08	3132	20	30	20+30% ⏐ 2455 = Rs. 756.5
2008/09	2455	30	30	30+30% ⏐ 1888 * = Rs. 597

Standard Chartered Bank Limited (SCBL)

F/Y	MPS(Rs)	Cash Dividend (Rs)	Stock Dividend (%)	Total Dividend(Rs) = Cash Dividend + % of Stock Dividend ⏐ Next year MPS
2003/04	2345	120	-	120+0% ⏐3775 = Rs. 120
2004/05	3775	130	10	130+10% ⏐ 5900 = Rs. 720
2005/06	5900	80	50	80+50% ⏐ 6830 = Rs. 3495
2006/07	6830	80	50	80+50% ⏐ 6010 = Rs. 3085
2007/08	6010	80	50	50+50% ⏐ 4007* = Rs. 2053.5

Source: *Calculated on the basis of the Data Extracted from NEPSE and Annual Report of Sampled Banks*

*MPS After Stock Dividend

Annex - 3

Detail Calculation R for each fiscal year of Nepal SBI Bank

F/Y	MPS	Total Dividend (Rs)	Return (R)	Remarks
2003/04	307	-	-	
2004/05	335	-	0.0912	
2005/06	612	5	0.8418	
2006/07	1176	541.44	1.8062	
2007/08	1511	-	0.2849	
2008/09	1900	545	0.6181	
			R = 3.6422	
Expected rate of Return ($\bar{R}$) = $\frac{R}{N}$ = $\frac{3.6422}{5}$ = 0.7284 i.e. 72.84%				

Where,

Annual Return is Calculated with the use of following Formula,

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

The Detail calculation of R for each fiscal year.

F/Y 2004/05 = $\frac{0 + 335 - 307}{307}$ = 0.0912

2005/06 = $\frac{5 + 612 - 335}{335}$ = 0.8418

2006/07 = $\frac{541.44 + 1176 - 612}{612}$ = 1.8062

2007/08 = $\frac{0 + 1511 - 1176}{1176}$ = 0.2849

2008/09 = $\frac{545 + 1900 - 1511}{1511}$ = 0.6181

Detail Calculation R for each fiscal year of NABIL Bank

F/Y	MPS(Rs)	Total Dividend (Rs)	Return (R)	Remarks
2003/04	1000	-	-	
2004/05	1505	70	0.575	
2005/06	2240	80	0.5449	
2006/07	5050	2210	2.2411	
2007/08	5275	2020	0.4446	
2008/09	4899	1435	0.2008	
			R = 4.0064	
Expected rate of Return ($\bar{R}$) = $\frac{R}{N}$ = $\frac{4.0064}{5}$ = 0.8013 i.e. 80.13%				

The detail Calculation of R for each fiscal year,

F/Y 2004/05 = $\frac{70 + (1505 - 1000)}{1000}$ = 0.575

2005/06 = $\frac{85 + (2240 - 1505)}{1505}$ = 0.5449

2006/07 = $\frac{2210 + (5050 - 2240)}{2240}$ = 2.2411

2007/08 = $\frac{2020 + (5275 - 5050)}{5050}$ = 0.4446

2008/09 = $\frac{1435 + (4899 - 5275)}{5275}$ = 0.2008

Detail Calculation R for each fiscal year of Bank of Kathmandu (BOK)

F/Y	MPS(Rs)	Total Dividend (Rs)	Return (R)	Remarks
2003/04	295	-	-	
2004/05	430	15	0.5085	
2005/06	850	430.50	1.9779	
2006/07	1375	20	0.6412	
2007/08	2350	732.11	1.2415	
2008/09	1825	528.97	0.0017	
			R = 4.3708	
Expected rate of return ($\bar{R}$)= $\frac{R}{N}$ = $\frac{4.3708}{5}$ = 0.8742 i.e. 87.42%				

The detail Calculation of R for each fiscal year,

F/Y 2004/05 = $\frac{15 + (430 - 295)}{295}$ = 0.5085

2005/06 = $\frac{430.50 + (850 - 430)}{430}$ = 1.9779

2006/07 = $\frac{20 + (1375 - 850)}{850}$ = 0.6412

2007/08 = $\frac{732.11 + (2350 - 1375)}{1375}$ = 1.2415

2008/09 = $\frac{528.97 + (1825 - 2350)}{2350}$ = 0.0017

Detail Calculation R for each fiscal year of NIC Bank

F/Y	MPS(Rs)	Total Dividend (Rs)	Return (R)	Remarks
2003/04	218	-	-	
2004/05	366	109.2	1.1798	
2005/06	496	95.53	0.6162	
2006/07	950	258.65	1.4368	
2007/08	1284	226.25	0.5897	
2008/09	1126	148	-0.0078	
			R = 3.8147	

Expected rate of return ($\bar{R}$) = $\frac{R}{N}$ = $\frac{3.8147}{5}$ = 0.7629 i.e. 76.29%

The detail Calculation of R for each fiscal year,

F/Y 2004/05 = $\frac{109.2 + (366 - 218)}{218}$ = 1.1798

2005/06 = $\frac{95.53 + (496 - 366)}{366}$ = 0.6162

2006/07 = $\frac{258.64 + (950 - 496)}{496}$ = 1.4368

2007/08 = $\frac{226.25 + (1284 - 950)}{950}$ = 0.5897

2008/09 = $\frac{148 + (1126 - 1284)}{1284}$ = -0.0078

Detail Calculation R for each fiscal year of Everest Bank Limited (EBL)

F/Y	MPS(Rs)	Total Dividend (Rs)	Return (R)	Remarks
2003/04	680	-	-	
2004/05	870	275.80	0.685	
2005/06	1379	25	0.6138	
2006/07	2430	323.20	0.9965	
2007/08	3132	756.50	0.60	
2008/09	2455	597	-0.0255	
			R = 2.8698	
Expected rate of return ($\bar{R}$) = $\frac{R}{N} = \frac{2.8698}{5}$ = 0.5740 i.e. 57.40%				

The detail Calculation of R for each fiscal year,

F/Y 2004/05 = $\frac{275.80 + (870 - 680)}{680} = 0.6850$

2005/06 = $\frac{25 + (1379 - 870)}{870} = 0.6138$

2006/07 = $\frac{323.20 + (2430 - 1379)}{1379} = 0.9965$

2007/08 = $\frac{756.50 + (3132 - 2430)}{2430} = 0.60$

2008/09 = $\frac{597 + (2455 - 3132)}{3132} = -0.0255$

Detail Calculation R for each fiscal year Standard Charted Bank Limited (SCBL)

F/Y	MPS(Rs)	Total Dividend (Rs)	Return (R)	Remarks
2003/04	1745	-	-	
2004/05	2345	120	0.4126	
2005/06	3775	720	0.9168	
2006/07	5900	3495	1.4887	
2007/08	6830	3085	0.6805	
2008/09	6010	2053.5	0.1806	
			R = 3.6792	
Expected rate of return ($\bar{R}$) = $\frac{R}{N}$ = $\frac{3.6792}{5}$ = 0.7358 i.e. 73.58%				

The detail Calculation of R for each fiscal year,

F/Y 2004/05 = $\frac{120 + (2345 - 1745)}{1745} = 0.4126$

2005/06 = $\frac{720 + (3775 - 2345)}{2345} = 0.9168$

2006/07 = $\frac{3495 + (5900 - 3775)}{3775} = 1.4887$

2007/08 = $\frac{3085 + (6830 - 5900)}{5900} = 0.6805$

2008/09 = $\frac{2053.5 + (6010 - 6830)}{6830} = 0.1806$

Annex-4

Calculation of $(R-\bar{R})^2$ of Sample Banks

SBI Bank

Fiscal Year	R	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	0.0912	-0.6372	0.1060
2005/06	0.8418	0.1134	0.0129
2006/07	1.8062	1.0778	1.1617
2007/08	0.2849	-0.4435	0.1967
2008/09	0.6181	-0.1103	0.0122
			$(R-\bar{R})^2 = 2.6777$
Standard Deviation ($\exists$) = $\sqrt{\frac{R Z \bar{R}^2}{N Z 1}} = \sqrt{\frac{1.7895}{5 Z 1}}$ = 0.6689			

Nabil Bank

Fiscal Year	Return (R)	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	0.575	-0.2263	0.0512
2005/06	0.5449	-0.2564	0.0657
2006/07	2.2411	1.4398	2.073
2007/08	0.4446	-0.3567	0.1272
2008/09	0.2008	-0.6005	0.3606
			$(R-\bar{R})^2 = 2.6777$
Standard Deviation ($\exists$) = $\sqrt{\frac{R Z \bar{R}^2}{N Z 1}} = \sqrt{\frac{2.6777}{5 Z 1}}$ = 0.8182			

Bank of Kathmandu (BOK)

Fiscal Year	Return (R)	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	0.5085	-0.3657	0.1337
2005/06	1.9779	1.1037	1.2182
2006/07	0.6412	-0.233	0.0543
2007/08	1.2415	0.3673	0.1349
2008/09	0.0017	-0.8725	0.7613
			$(R-\bar{R})^2 = 2.3024$

Standard Deviation (∃) $= \sqrt{\frac{R Z \bar{R}^{2}}{N Z 1}} = \sqrt{\frac{2.3024}{5 Z 1}} = 0.7587$ i.e. 75.87%

NIC Bank

Fiscal Year	Return (R)	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	1.1798	0.4169	0.1738
2005/06	0.6162	-0.1467	0.0215
2006/07	1.4368	0.6739	0.4541
2007/08	0.5897	-0.1732	0.0300
2008/09	-0.0078	-0.7707	0.5940
			$(R-\bar{R})^2 = 1.2734$

Standard Deviation (∃) $= \sqrt{\frac{R Z \bar{R}^{2}}{N Z 1}} = \sqrt{\frac{1.2734}{5 Z 1}} = 0.5642$ i.e. 56.42%

Everest Bank Limited (EBL)

Fiscal Year	Return (R)	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	0.685	0.111	0.0123
2005/06	0.6138	0.0398	0.0016
2006/07	0.9965	0.4225	0.1785
2007/08	0.60	0.026	0.0007
2008/09	-0.0255	-0.5995	0.3594
			$(R-\bar{R})^2 = 0.5525$
Standard Deviation (∃) = $\sqrt{\frac{R Z \bar{R}^{2}}{N Z 1}} = \sqrt{\frac{0.5525}{5 Z 1}}$ = 0.3717 i.e. 37.17%			

Standard Charted Bank Limited (SCBL)

Fiscal Year	Return (R)	$(R-\bar{R})$	$(R-\bar{R})^2$
2004/05	0.4126	-0.3232	0.1045
2005/06	0.9168	0.181	0.0328
2006/07	1.4887	0.7529	0.5669
2007/08	0.6805	-0.0553	0.003
2008/09	0.1806	-0.5552	0.3082
			$(R-\bar{R})^2 = 1.0154$
Standard Deviation (∃)= $\sqrt{\frac{R Z \bar{R}^{2}}{N Z 1}} = \sqrt{\frac{1.0154}{5 Z 1}}$ = 0.5038 i.e. 50.38%			

Annex -5
Coefficient of Variation of Sampled Banks

SBI Bank

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.6689}{0.7284} = 0.9183$

Nabil Bank

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.8182}{0.8013} = 1.02$

BOK

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.7587}{0.8742} = 0.8679$

NIC Bank

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.5642}{0.7629} = 0.7395$

EBL

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.3717}{0.5740} = 0.6476$

SCBL

Coefficient of Variation (CV) $= \frac{\sigma}{\bar{R}} = \frac{0.5038}{0.7358} = 0.6847$

Annex -6

Calculation Covariance between Sampled Banks with Banking Sector

SBI and BI

Fiscal Year	$R_{SBI} - \bar{R}_{SBI}$	$R_{BI} - \bar{R}_{BI}$	$(R_{SBI} - \bar{R}_{SBI})(R_{BI} - \bar{R}_{BI})$
2004/05	0.4126	-0.3232	0.1045
2005/06	0.9168	0.181	0.0328
2006/07	1.4887	0.7529	0.5669
2007/08	0.6805	-0.0553	0.003
2008/09	0.1806	-0.5552	0.3082
			$\sum(R_{SBI} - \bar{R}_{SBI})(R_{BI} - \bar{R}_{BI})$ = 0.0388

$$\text{Cov}_{SBI\ \&\ BI} = \frac{\sum(R_{SBI} - \bar{R}_{SBI})(R_{BI} - \bar{R}_{BI})}{N-1}$$

$$= \frac{0.0388}{5-1}$$

$$= 0.0097$$

Calculation of Correlation coefficient and Beta coefficient of SBI Bank with industry index.

$$r_{SBI,BI} = \frac{\text{cov}(SBI, BI)}{\sigma_{SBI}, \sigma_{BI}} = \frac{0.0097}{0.6689 \mid 0.4082} = 0.0355$$

$$\text{Beta Coefficient } (\beta_{SBI}) = \frac{\text{cov}(SBI, BI)}{\sigma^2_{BI}} = \frac{0.0097}{(0.4082)^2} = 0.0582$$

Nabil and BI

Fiscal Year	$R_{NI} Z\bar{R}_N$	$R_{BI} Z\bar{R}_{BI}$	$R_N Z\bar{R}_N \quad R_{BI} Z\bar{R}_{BI}$
2004/05	-0.2263	-0.0262	0.0059
2005/06	-0.2564	0.1023	-0.0262
2006/07	1.4398	0.1289	0.1856
2007/08	-0.3567	0.4533	-0.1617
2008/09	-0.6005	-0.6581	0.3952
			$R_N Z\bar{R}_N \quad R_{BI} Z\bar{R}_{BI}$ = 0.3988

$$\text{Cov}_{\text{NABIL \& BI}} = \frac{R_N Z\bar{R}_N \quad R_{BI} Z\bar{R}_{BI}}{N Z1} = \frac{0.3988}{5 Z1} = 0.0997$$

Calculation of Correlation Coefficient and Beta Coefficient of NABIL Bank with Industry Index

$$r_{\text{Nabil, BI}} = \frac{\text{cov}\{\text{NABIL, BI}\}}{\sigma_{\text{NABIL}}, \sigma_{\text{BI}}} = \frac{0.0997}{0.8182 \mid 0.4082} = 0.2985$$

$$\text{Beta Coefficient } (\beta_{\text{Nabil}}) = \frac{\text{cov}\{\text{NABIL, BI}\}}{\sigma^2_{\text{BI}}} = \frac{0.0997}{\{0.4082\}^2} = 0.05983$$

BOK and BI

Fiscal Year	$R_{BOK}\ Z\bar{R}_{BOK}$	$R_{BI}\ Z\bar{R}_{BI}$	$R_{BOK}\ Z\bar{R}_{BOK}\quad R_{BI}\ Z\bar{R}_{BI}$
2004/05	-0.3657	-0.0262	0.0096
2005/06	1.1037	0.1023	0.1129
2006/07	-1.2330	0.1289	-0.03
2007/08	0.3673	0.4533	0.1665
2008/09	-0.8725	-0.6581	0.5742
			$R_{BOK}\ Z\bar{R}_{BOK}\quad R_{BI}\ Z\bar{R}_{BI}$ = 0.8330

$$\text{Cov}_{\text{BOK \& BI}} = \frac{R_{BOK}\ Z\bar{R}_{BOK}\quad R_{BI}\ Z\bar{R}_{BI}}{N\,Z1} = \frac{0.8330}{5\,Z1} = 0.2083$$

Calculation of Correlation Coefficient and Beta coefficient of BOK with market industry.

$$\text{Correlation Coefficient } (r_{\text{Bok, BI}}) = \frac{\text{cov}\{BOK,BI\}}{\sigma_{BOK},\sigma_{BI}} = \frac{0.2083}{0.7587 \mid 0.4082} = 0.6726$$

$$\text{Beta Coefficient } (\beta_{BOK}) = \frac{\text{cov}\{BOK,BI\}}{\sigma^2_{BI}} = \frac{0.2083}{\{0.4082\}^2} = 1.25$$

NIC and BI

Fiscal Year	$R_{NIC}\ Z\bar{R}_{NIC}$	$R_{BI}\ Z\bar{R}_{BI}$	$R_{NIC}\ Z\bar{R}_{NIC}\quad R_{BI}\ Z\bar{R}_{BI}$
2004/05	0.4169	-0.0262	-0.0109
2005/06	-0.1467	0.1023	-0.015
2006/07	0.6739	0.1289	0.0869
2007/08	-0.1732	0.4533	-0.0785
2008/09	-0.7707	-0.6581	0.5072
			$R_{NIC}\ Z\bar{R}_{NIC}\quad R_{BI}\ Z\bar{R}_{BI}$ = 0.4897

$$\text{Cov}_{\text{NIC \& BI}} = \frac{R_{NIC}\ Z\bar{R}_{NIC}\quad R_{BI}\ Z\bar{R}_{BI}}{N\,Z1} = \frac{0.4897}{5\,Z1} = 0.1224$$

Calculation of coefficient Correlation. And Beta coefficient of NIC Bank with Banking Index.

$$r_{NIC,BI} = \frac{\text{cov}(NIC,BI)}{\sigma_{NIC},\sigma_{BI}} = \frac{0.1224}{0.5642 \mid 0.4082} = 0.5315$$

$$\text{Beta Coefficient } (\beta_{NIC}) = \frac{\text{cov}(NIC,BI)}{\sigma^2_{BI}} = \frac{0.1224}{(0.4082)^2} = 0.7346$$

EBL and BI

Fiscal Year	$R_{EBL} - \bar{R}_{EBL}$	$R_{BI} - \bar{R}_{BI}$	$(R_{EBL} - \bar{R}_{EBL})(R_{BI} - \bar{R}_{BI})$
2004/05	0.111	-0.0262	-0.0029
2005/06	0.0398	0.1023	0.0041
2006/07	0.4225	0.1289	0.0545
2007/08	0.026	0.4533	0.0118
2008/09	-0.5995	-0.6581	0.3945
			$\sum (R_{EBL} - \bar{R}_{EBL})(R_{BI} - \bar{R}_{BI}) = 0.462$

$$\text{Cov}_{\text{EBL \& BI}} = \frac{\sum (R_{EBL} - \bar{R}_{EBL})(R_{BI} - \bar{R}_{BI})}{N - 1} = \frac{0.462}{5 - 1} = 0.1155$$

Calculation of Correlation Coefficient and Beta coefficient of EBL with Banking Index.

$$r_{EBL,BI} = \frac{\text{cov}(EBL, BI)}{\sigma_{EBL} \cdot \sigma_{BI}} = \frac{0.1155}{0.3717 \times 0.4082} = 0.7612$$

$$\text{Beta Coefficient } (\beta_{EBL}) = \frac{\text{cov}(EBL, BI)}{\sigma^2_{BI}} = \frac{0.1155}{(0.4082)^2} = 0.6932$$

SCBL and BI

Fiscal Year	$R_{SCBL}\ Z\bar{R}_{SCBL}$	$R_{BI}\ Z\bar{R}_{BI}$	$R_{SCBL}\ Z\bar{R}_{SCBL}\quad R_{BI}\ Z\bar{R}_{BI}$
2004/05	-0.3232	-0.0262	0.0085
2005/06	0.181	0.1023	0.0185
2006/07	0.7529	0.1289	0.097
2007/08	-0.0553	0.4533	-0.0251
2008/09	-0.5552	-0.6581	0.3654
			$R_{SCBL}\ Z\bar{R}_{SCBL}\quad R_{BI}\ Z\bar{R}_{BI}$ = 0.4643

$$\text{Cov}_{\text{SCBL \& BI}} = \frac{R_{SCBL}\ Z\bar{R}_{SCBL}\quad R_{BI}\ Z\bar{R}_{BI}}{N\,Z1} = \frac{0.4643}{5\,Z1} = 0.1161$$

Calculation at Correlation of Coefficient and Beta coefficient of SCBL with Banking Index.

$$r_{EBL,BI} = \frac{\text{cov}\{SCBL,BI\}}{\sigma_{SCBL},\sigma_{BI}}$$

$$= \frac{0.1161}{0.5038 \mid 0.4082}$$

$$= 0.5645$$

$$\text{Beta Coefficient } (\beta_{SCBL}) = \frac{\text{cov}\{SCBL,BI\}}{\sigma^2_{BI}}$$

$$= \frac{0.1161}{\{0.4082\}^2}$$

$$= 0.6968$$

Annex – 7

Calculation of Systematic Risk and Unsystematic Risk

SBI Bank

Calculation Systematic Risk and Unsystematic risk of SBI.

SR = $\beta^2_{SBI}\,\sigma^2_{BI}$ = $(0.0582)^2 \mid (0.4082)^2$ = 0.00056

USR = $\exists^{2}_{SBI}$ - SR = $(0.6689)^2 - (0.00056)^2$ = 0.4469

SBI Bank has 0.00056 systematic risks and 0.4469 unsystematic risks

NABIL Bank

Calculation of Systematic Risk and Unsystematic Risk of Nabil

SR = $\beta^2_{Nabil}\,\sigma^2_{BI}$ = $(0.0593)^2 \mid (0.4082)^2$ = 0.0596

USR = $\pm^{2}_{Nabil}$ - SR = $(0.8182)^2 - (0.0596)^2$ = 0.6099

BOK

Calculation at Systematic Risk and Unsystematic Risk of BOK.

SR = $\beta^2_{BOK}\,\sigma^2_{BI}$ = $(1.25)^2 \mid (0.4082)^2$ = 0.2604

USR = $\pm^{2}_{BOK}$ - SR = $(0.7587)^2 - 0.2604$ = 0.3152

NIC Bank

Calculation of systematic risk and unsystematic risk of NIC.

SR = $\beta^2_{NIC}\,\sigma^2_{BI}$ = $(0.7346)^2 \mid (0.4082)^2$ = 0.090

USR = $\pm^{2}_{NIC}$ - SR = $(0.5642)^2 - 0.090$ = 0.2283

EBL

Calculation of systematic risk and unsystematic risk of EBL.

$SR = \beta^2_{EBL}\,\sigma^2_{BI} = (0.6932)^2 \mid (0.4082)^2 = 0.08$

$USR = \pm^2_{EBL} - SR = (0.3717)^2 - 0.08 = 0.0582$

SCBL

Calculation of Systematic risk and Unsystematic risk of SCBL.

$SR = \beta^2_{SCBL}\,\sigma^2_{BI} = (0.6968)^2 \mid (0.4082)^2 = 0.0809$

$USR = \pm^2_{SCBL} - SR = (0.5038)^2 - 0.0809 = 0.1729$

Annex -8

Calculation of Proportion of Systematic Risk and Unsystematic Risk

SBI Bank

Proportion of SR from the total risk.

$$= \frac{SR}{\sigma^2_{SBI}} = \frac{0.00056}{0.6689^2} = \quad 0.00125 \text{ i.e. } 0.125\%$$

Proportion of USR = 1-Proportion of SR

= 1 - 0.00125

= 0.9987 i.e. 99.87%

Nabil Bank

Proportion of SR in the total risk

$$= \frac{SR}{\sigma^2_{Nabil}} = \frac{0.0596}{0.8182^2} = \quad 0.0890 \text{ i.e. } 8.90\%$$

Proportion of USR = 1- Proportion of SR

= 1 - 0.0890

= 0.911 i.e. 91.1

BOK

Proportion of SR in Total Risk

$$= \frac{SR}{\sigma^2_{BOK}} = \frac{0.2604}{0.7587^2} = 0.4524 \text{ i.e. } 45.24\%$$

Proportion of USR

= 1 - proportion of SR = 1 - 0.4524 = 0.5476 i.e 54.76%

NIC Bank

Proportion of SR in total risk.

$$= \frac{SR}{\sigma^2_{NIC}} = \frac{0.090}{0.5642^2} = 0.2827 \text{ i.e. } 28.27\%$$

Proportion of USR = 1 - proportion of SR

= 1 - 0.2827

= 0.7173 i.e. 71.73%

EBL

Proportion of SR from the total risk.

$$= \frac{SR}{\sigma^2_{EBL}} = \frac{0.08}{0.3717^2} = 0.5790 \text{ i.e. } 57.90\%$$

Proportion of USR in total risk = 1 - proportion of SR

= 1 - 0.5790

= 0.4210 i.e. 42.10%

SCBL

Proportion of SR in total risk.

$$= \frac{SR}{\sigma^2_{SCBL}} = \frac{0.0809}{0.5038^2} = 0.3187 \text{ i.e. } 31.87\%$$

Proportion of USR in total risk = 1 - proportion of SR

= 1 - 0.3187

= 0.6813 i.e. 68.13%

Annex -9

Calculation of Covariance between SCBL and NABIL

NABIL and SCBL

Fiscal Year	$R_N \, Z\bar{R}_N$	$R_{SCBL} \, Z\bar{R}_{SCBL}$	$R_N \, Z\bar{R}_N \quad R_{SCBL} \, Z\bar{R}_{SCBL}$
2004/05	-0.2263	-0.3232	0.0731
2005/06	-0.2564	0.181	-0.0464
2006/07	1.4398	0.7529	1.084
2007/08	-0.3567	-0.0553	0.0197
2008/09	-0.6005	-0.5552	0.3334
			$R_N \, Z\bar{R}_N \quad R_{SCBL} \, Z\bar{R}_{SCBL} = 1.4638$

$$\text{Cov}_{\text{Nabil \& SCBL}} = \frac{R_N \, Z\bar{R}_N \quad R_{SCBL} \, Z\bar{R}_{SCBL}}{N \, Z1}$$

$$= \frac{1.4638}{5 \, Z1}$$

$$= 0.3660$$

Annex - 10

Calculation of Return and Risk Portfolio of NABIL and SCBL Bank

Let,

NABIL = A and SCBL = B

We know that

Return portfolio (R_P) = $W_A \bar{R}_A + W_B \bar{R}_B$

and

S.D portfolio ($\exists_P$) = $\sqrt{w_A^2 \sigma_A^2 \Gamma w_B^2 \sigma_B^2 \Gamma 2 cov_{AB} W_A W_B}$

If $W_A = 1$ and $W_B = 0$

$\bar{R}_P = 1 \mid 0.8013 + 0 \mid 0.7358 = 0.8013$

($\exists_P$) = $\sqrt{1 \mid 0.8182 \Gamma 0 \mid 0.5038 \Gamma 2 \mid 0.366 \mid 1 \mid 0}$

= 0.8182

If $W_A = 0.75$ and $W_B = 0.25$

$\bar{R}_P = 0.75 \mid 0.8013 + 0.25 \mid 0.7358 = 0.7849$

($\exists_P$) = $\sqrt{0.75 \mid 0.8182 \Gamma 0.25 \mid 0.5038 \Gamma 2 \mid 0.366 \mid 0.75 \mid 0.25}$

= 0.7277

If $W_A = 0.50$ and $W_B = 0.50$

$\bar{R}_P = 0.50 \mid 0.8013 + 0.25 \mid 0.7358 = 0.7686$

($\exists_P$) = $\sqrt{0.50 \mid 0.8182 \Gamma 0.50 \mid 0.5038 \Gamma 2 \mid 0.366 \mid 0.75 \mid 0.25}$

= 0.6433

If $W_A = 0.25$ and $W_B = 0.75$

$\bar{R}_P = 0.25 \mid 0.8013 + 0.75 \mid 0.7358 = 0.7522$

$(\exists_P) = \sqrt{\int 0.25 \int 0.8182 \Gamma \int 0.75 \mid \int 0.5038 \Gamma 2 \mid 0.366 \mid 0.25 \mid 0.75}$

$= 0.5674$

If $W_A = 0$ and $W_B = 1$

$\bar{R}_P = 0 \mid 0.8013 + 1 \mid 0.7358 = 0.7358$

$(\exists_P) = \sqrt{\int 0 \int 0.8182 \Gamma \int 1 \mid \int 0.5038 \Gamma 2 \mid 0.366 \mid 0 \mid 1}$

$= 0.5038$

Annex - 11

Calculation of Proportion of Investment in Common Stock of NABIL and SCBL for Optimal Portfolio

$$W_A X \frac{\sigma_B^2 Z \text{cov } R_A, R_B}{\sigma_A^2 \Gamma \sigma_B^2 Z 2 \text{cov } R_A, R_B}$$

$W_B = 1 - W_A$

Where,

W_A = Weight of NABIL

W_B = Weight of SCBL

$\exists_B$ = S.D of SCBL

$\exists_A$ = S.D of NABIL

Cov (R_A, R_B) = Covariance between NABIL and SCBL

Now,

$$W_A = \frac{\int 0.5038^2 Z 0.366}{\int 0.8182^2 \Gamma \int 0.5038^2 Z 2 | 0.366}$$

$$= -0.5867$$

$W_B = 1- (W_A)$

$= 1 - (-0.5867)$

$= 1.5867$

Now, Calculation of Return and S.D portfolio

$\overline{R}_P X \overline{R}_A W_A \Gamma \overline{R}_B W_B$

$= 0.8013 | (-0.5867) + 0.7358 | 1.5867$

$= 0.6974$

$$(\exists_P) = \sqrt{\int 05867^2 \int 0.8182^2 \Gamma \int 1.5867^2 | \int 0.5038^2 \Gamma 2 | 0.366 | \int 0.5867 | 1.5867}$$

= 0.4336