Chapter 1
INTRODUCTION

1.1 Background of the Study

The concept of financial institution in Nepal was introduced when the first commercial bank, Nepal Bank Limited, was established in 1937. It was established under special Banking Act 1936 having elementary functions of commercial bank. Later in 1955, the forst central bank, named as Nepal Rastra Bank was established with an objective of supervising, protecting and directing the functions of commercial banking activities. Another commercial bank fully owned by Government napal, named as Rastriya Banijya Bank got established, in 1996. The establishment of joint venture banks gave a new horizon to the financial sector of the country, since 12984.Joint venture banks were established in different times with company acft and their shares were listed in Nepal Stock Exchange Limited. The focus of the study is those commercial banks whose share is listed in NEPSE.

Banking sector is the most dynamic part of economy, which collect unused funds and moblize it in needed areas. It is the heart of trade, commercial and industry. In Nepalese context, commercial banks have comparatively good performance among the public limited companies. Because most of the banks are counted within the top five position among the listed companies on the basis of amont traded , number of transations, market capitalization, etc. Most of the banks are established with collaboration of foreigh well – known banks. As a public limited company, Nepal Bank Limited (NBL) is only one Nepalese commercial Bank which is listed in NEPSE. Beside these, a government bank, Rastriya Banijya Bank also plays a vital role in banking sector.

A Bank is an insitution, which deals in money, receiving it on deposit from customers; honoring customer's drawing against such deposits on demand, collecting cheques for customers and leading or investing surplus deposits until they are required for payment. In the present days, various types of Banks are established for instance, industrial bank, commercial banks, agricultural bank, joint stock bank,

cooperative bank and development bank. Modern banks are more advanced than the ancient ones. This is because of the growth, population change occurred in the industrial field and trade, the beginning of the competitive age and change in the people's ideology and due to the dependence on each other.(Bhandari,2003:1)

Capital formation and its proper utilization play a leading role for rapid economic development. Investment portfolio is one such tool that helps for proper utilization of resources. The proper mobilization and utilization of resources of domestic countries aspiring for a sustainable economic development. Similarly integrated and specialty development of the country is possible only when personal and institution investments in different for reach nook and corners the country. So, investment plays vital role in the economic development of the country. Successful formulation or effective implementation of investment policy is the prime requisite for the successful performance of an individual and the institutions. A good investment policy has positive impact on economic development of the nation and investors too.

Every investor has a wide area of Investment Avenue such as common stock, preferred stock, debt, securities, derivative securities, hybrid securities, real assets, mutual fund etc. But the study is why light is thrown on it. Common stock represents ownership position in a corporation. It has a residual claim, means after payments of creditors and preference shareholders and all other claims only then the common stockholder get the value. In bankruptcy, common stockholders are, in principle, entitled to assets remaining after all prior claimants have been satisfied. The risk is highest with common stock investment when investors buy common stock they receive certificate of ownership in the company. The certificate states the number of shares purchased and their par value. In Nepal, as per the provision of Nepal Company Act 2053 no common stocks are allowed to issue without par value. Its par value must be either Rs. 10 or Rs. 100. Common stock has one important investment characteristics. Their investment value and average market price then to increase regularly but persistently over the decades as their net worth builds thorough the reinvestment of undistributed earning. However, most of the time, common stock are

subject irritations and excessive price fluctuation in both directions as most people speculative or gamble.

A portfolio is a bundle of combination of individual assets or securities.[6]. If investor hold a well diversified portfolio, then his concern should be the expected return and risk of the portfolio return theory provides normative approach to the investor' decision to investment in assets or securities under risk. The objectives of portfolio analysis is to develop a portfolio that has the maximum return at what ever level of risk the investor deems appropriate. If analysis different individual assets and delineate efficient portfolio. So the study will focus on portfolio analysis of Nepalese selected listed companies with reference to the common stock investment.

1.2 Statement of Problem

There are many individual and institutional investors involved to assist the process of economic development of country. The main problem of most under developed countries like Nepal is capital formation and proper utilization. In such countries institutional as well as individual investors have more responsibilities to avoid above problem and they have to contribute to the national economy. In the present situation Nepalese investors, they may be individual or institutional, do not seem to be capable to invest their funds in more profitable sectors where there is risk. They are found to more interested in investment in less risky and liquid sectors only. Nepalese investors have formulated their investment policy in an organized manner. They do not consider portfolio optimization. They do not have their own clear vision towards investment portfolio. So the study will be focused on the following problem related to the subject chosen.

- What are the positions of common stock of different companies?
- Are the investors considering risk minimization and return maximization?
- What are the values of stocks in the market?

1.3 Objectives of the Study

The main objective of the study is Portfolio Analysis of Nepalese Listed Companies. The specific objective of the study is mentioned below:

a) To evaluate common stock investment in terms of risks and return.
b) To analysis portfolio risk and return.
c) To analyze whether the shares are over priced or under priced.
d) To provide feedback about the effect of portfolio risk and return on the stock market in Nepal.

1.4 Significance of the Study

Nepalese investors, they may be individual or institutional do not have clear view towards effective investment. They follow traditional and ineffective investment policy. Similarly they do not seem to invest in capable sector. They are found to bt more interested in investment in less risky. Even there are various ways to minimize risk; they do not take any attention towards portfolio analysis. Hence the main significance of this study will be to analyze to minimize risk on common stock investment and minimize return through portfolio analysis. The study will fulfill the need in this aspect. The study may also help for interested researchers in this area. Besides this, it will be matter of interest for academicians and students.

1.5 Limitations of the Study:

Basically, this study is to be done for the partial fulfillment of MBS level of T.U. The study is based on secondary data. Similarly the study covers a period of five years that is from 2002/2003 to 2007/08 Therefore there some limitations of this study which are as follows:

a) The study covers a period of five years that is from 2002/2003 to 2007/2008.
b) Due to wide range of data deficiencies simple techniques have been used for the analysis of data.
c) Keeping in view, the limited time and resources, this study does not examine the factors affecting risk and return on investment in different sectors as well as limited factors are selected to examine portfolio behave.
d) Only NEPSE is taken as basic source of data.The truth of the research is based upon the available data from the NEPSE and other related sources.
e) The study covers only a five companies(Banks) for data,

1.6 Organization of the Study:

The study has been organized under five chapters. The **First Chapter** deals with, objectives of study, need and significance of study, limitation of study & organization of the Study.

The **Second Chapter** has been termed as review of literature. It contains introduction of the study, statement of problem, conceptual review and review of other related studies.

The **Third Chapter** described research methodology. It consist research design, population and sampling, sampling procedures, sources of data, data collection techniques, data presentation and analysis etc.

The **Fourth Chapter** contains main body of the study description of the study, presentation and data analysis. This chapter has highlighted objective wise description. Major findings have also been presented in this chapter.

The **Fifth Chapter** contains summary, conclusion and recommendations. The objective of this chapter is to summarize findings of the previous chapters, derive conclusions from the study and recommend the finding of the study.

Bibliography and appendixes have been presented at the end of the study.

Chapter II
LITERATURE REVIEW

This chapter consists of research studies or other relevant proposition in the related area of the study. It helps to identify the deficiencies of past study. The topic portfolio analysis is very important matter for investor to choose optimum investment opportunity. Every possible effort has been made to grasp knowledge and information that are available.

2.1 Conceptual Review :

"Don't put all your eggs in one basket ". Modern portfolio theory reconfirms it. Spreading the foune across a number of assets will eliminate source but not all, of the risk. This is known as priciple of diversification too. Portfolio means the collection of securities or investment vehicles.

'Portfolio doesn't include only the securities but also other investment like . gold, land etc. study of common stock investment is not enough to decide whether to include or delete it from a portfolio.An investor should evaluate the effect on expected risk and return of the portfolio by the inclusion or exclusion of an individiual asset in the portfolir" (Dahal; 2003)

Investment is the employment of funds with the aim of achieving addition income of growth in value. It involves the commitment of resources that have been saved or put away from current consumption, for the future. Investment involves long term commitment and waiting for a reward. An investor involves the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and certain, while the reward comes later and is uncertain. The investor can invest the fund in two types of assets. They are real assets and financial assets. Real assets investment involves some kind of tangible assets such as land, building, machinery, automobiles etc. Financial investment is pieces of paper representing and indirect claim to real assets real assets held by someone else. These pieces of paper are Common stock, Bond, Debenture etc. which represent as the liquid assets.

In the words of Gitman and Joehnk "investment is any vehicle into which funds can be increase in value and expectation that will preserve or positive increase in value and generated positive return".(Gitman and Joehnk; 1990:4)

Frank and Reilly defines " An investment is the current commitment of funds for a period of time to derive a future flow of funds that will compensates the investing unit for the time funds are committed, for the expected rate of inflation an also for the uncertainty involves in the future flow of the funds." [3]

Dr. Preeti Singh "Investment is the employment of funds with the aim of achieving additional income or growth."(Singh;2003) [4]

Every investment involves uncertainties that make future investment return risky. Some sources of uncertainty that contribute to investment risk are interest rate risk , market risk, default risk, liquidity risk, call ability risk, convertibility risk. Political risk and industry risk. [5]

2.1.1 Timing of Investment Decision

As we have seen earlier, the timing of investment is crucial. An invest has to view the problem of investment as one of buying and selling over a long period during which sometimes the markets are in bull phase, i.e. the prices are rising consistently and sometimes in a bear phase i.e. the price are falling consistently, and a other times stagnant, i.e. there is not significant trend of rise or fall in prices. Thus, if an investment manager wishes to make the most profitable use of the investment opportunities, he will have to make sales and purchase of investment at proper times.

Investments are to be purchased at a time when prices are low and sold at a time when prices are high. As we have seen earlier, this requires swimming against the general current in the market. Hence there must be an in bull system of timing the purchase of sale of investments so that psychological factors are ignored and purchases are made when prices are high and are just entering the bull phase where sales are made when prices are high and are just entering the bear phase. This requires identification of bullions and bearish trends in the prices of stock exchange market.

2.1.2 Factors to be considered before investing securities:

Several procedures and facts need to be taken into account before buying and selling of securities: they are

1. **Placement of orders:** The investors must submit written buy and sale orders to the brokers to conduct the trading of proposed securities in prescribed formats.

2. **Points to be included in order:** The buy and sale orders the investors must consist the name of securities, its type, quantity price (i.e. fixed/ maximum/minimum or as deemed appropriate by the brokers) and the validity of the order in prescribed formats. If the tenure is not specified in the orders it will be valid for 15 days only.

3. **Obtaining receipts for the registration of orders:** The investors must obtain receipt against the deposit of orders in which the broker members must state date, time and registration number.

4. **To obtain notification for the purchase and sale of securities:** After the transaction as per the order is done the broker must acknowledge the clients either on the name or next day in prescribed format.

5. **To submit either purchase value or certificates:** The investors after getting the notification from the brokers must submit total amount required. Incase of purchase and certificate of securities. Incase of sale within five working days from the date of transactions.

   In case of sale, the concerned seller must handover to the broker the share certificate along with the signed documents (i.e. transfer deeds, bond deeds) and the buying, investors must submit the total required amount. Both the brokers have to submit those documents to the stock exchange. It is the duty of stock exchange to cross verifies the certificate deposited with the certificate deposited with the amount.

6. **To Range Commission:** The commission for his/her service range from 1 to 1.5 percent based on volume of trading.

7. **To receive the amount or Share Certificate:** The brokers have to submit the amount the share certificate within five working days from the date of transaction and they will be eligible to got payment and certificate on the 8^{th} days. On the 6^{th} days stock exchange will do the crossing of documents and prepares bill and makes payments to the brokers on 7^{th} day.

   If both the amount and number of share and the company matched with each other the amount will be transferred to the selling brokers account and the certificates along with documents will be handover to the buying brokers. It is investors who have to make decision whether to send those documents to the concerned company for the name transfer or to register it as bank transfer for resale purpose.

   It is investors who have to make decision whether to send those documents to the concerned company for the name transfer or to register it as blank transfer for resale purpose.

8. **The tenure for the Bank Transfer:** the decision of the investor need to be executed through the brokers. If this makes decision to register the purchased securities as blank transfer it will be wise to continue this decision before the closure of fiscal year or before the book closure whichever is earlier.

   In order to send to the concerned company the investors must fill all the required forms which are signed by the selling brokers and need to handover to the concerned brokers. The investors himself cannot send those documents for transfer.

9. **Receiving and making payments through Cheques:** the investors must make payments or receive payments from brokers either by bank or through cheques.

10. **Trading of the shares of the same company can take place at different Prices:** The investor must be aware that the shares of the same company can be treated at different prices or the buying and selling price of the shares of the same company can be different from one transaction to another transaction.

11. **To be careful in risks involved in Securities Transactions:** Investing in securities is not gambling. Certain principles are there and the investors must aware of the existing risk involved in trading and investing in securities. So before making investment decision the investors must consult financial statement of the concerned company and price study. The speculators may create rumors in the market and if investors run after that it will be his/her fault but not of the brokers. The fund is as well as the investment decision will be productive and also supportive to the market.

12. **Compensation from deposit of the Brokers:** Each and every broker has to submit the bank guarantee and each deposit in stock exchange. The stock exchange will make payments if stock exchanges identify any fraud committed by brokers and also incase of default of the brokers or in any other case of like nature. If the deposited amount becomes short the investors himself/herself recover the balanced from the brokers.

13. **My world is my bond:** The service of the brokers on the principles “My world is my bond” The brokers should not be deviated form the principles. The investors must support the principles of the brokers. If any unseen able events take place the broker must notify the stock exchange and reserve the transaction either by buy or sale according to the nature of transactions. If the investors suffer any loss that should be bone by the investor himself or herself.

14. **Transaction based on Mutual Faith and Trust:** It is the mutual faiths and trusts between the brokers and investors whether to do transactions without getting certificates or amount in advance. But as short sale and forward trading are not permitted once the transaction are done according to the orders the document and amount need to be deposited in any case.

    But if the client is new to the broker they can ask certain amount in advance or also can ask the share certificates along with signed verified order in advance.

15. **Investors, if have any doubt can contact to the concern authority for finding the Reality:** The investors if have any doubt the purchase and sale of securities, their quantity, price and any other facts related with particular transaction or transactions, can contact the concerned authority of the stock exchange and clarify the doubt at any time after transaction is over.

16. **To have knowledge about trading settlements and clearing procedures:** The investors must have through knowledge about trading, clearing and settlement procedures. If they have through idea about these procedurals aspects different confusion, conflict and dilemma may take place. So it is the right of the investors to obtain detail information about these procedures either with the brokers or from published material by stock exchange.

2.1.3 Securities 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 establishment 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.

Process to obtain membership of Stock Exchange:

Corporate bodies wishing to be member shall have to submit application in prescribed format within specified time along with certificate of incorporation, tax certificate, Memorandum of Association , Articles of Association and concerned Act, rules and regulations in the case of corporate body other than company after the incorporation and the projected B/S and PL A/C for the next three years, last three years audited financial statement, if the year of incorporation is less than three years, the B/S and A/C of investment in shares of subsidiary company or investment made in its parent company's share capital, details of share investment in any other company other than subsidiary, the name, address, number of shares subscribed and the amount invested by shareholders having more than 5% of the share capital need to be submitted.

A) Board of Directors:

The Board of Directors of NEPSE consists 9 (Nine) directors in accordance with Securities Exchange Act, 1983. Six directors are nominated by Government Nepal

and different institutional investors. Two from the licensed members and the General Manager of the NEPSE is the Ex-Officio Director of the Board.

B) Capital Structure:

The authorized and issued capital of the exchange is Rs.50 million. Of this Rs.30.41 millions is subscribed by Government Nepal, Nepal Rastra Bank, Nepal Industrial Development Corporation and licensed members.

C) Members:

Members of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and listed corporate securities. At present, there are 23 member brokers and 2 market makers, who operate on the trading floor as per the Securities Exchange Act, 1983, rules and bye-laws.

Besides this, NEPSE has also granted membership to issue and sales manager securities trader (Dealer). Issue and sales manager works as manager to the issue and underwriter for public issue of securities whereas securities trader (Dealer) works as individual portfolio manager.

D) Tenure of Membership:

The tenure of the membership is one year. The license should be renewed within 3 months after the closure of the fiscal year. If not, it can be done within another three months by paying 25% penalty.

E) Listing:

Trading on the floor of the NEPSE is restricted to listed corporate securities and government bonds. At present, 110 companies have listed their securities to make

them eligible for trading. Besides this, NCM Mutual Fund enlisted its units to make them eligible to trade in the floor.

F) Listing Fee:

The listing fee and the annual fee to be paid by the listed company are based on the capital of the company.

G) Trading System:

NEPSE has adopted an "Open Out-Cry" system. It means transactions of securities are conducted on the open auction principle on the trading floor. The buying broker with the highest bid will post the price and his code number on the buying column, while the selling broker with the lowest offer will post the price and code number on the selling column on the quotation board. The market maker quotes their bid and offer price on their own board before the floor starts. Once the bid and offer price match, contracts between the buying and selling brokers or between the brokers and market makers are concluded on the floor.

H) Trading Days & Hours:

NEPSE has fixed the trading days and hours during which the members are allowed to enter the floor to make the transactions.

Types of Trading	Days	Trading Time
Regular	Monday to Friday	11:00 AM to 1 : 00 PM
Odd lot trading	Monday to Friday	2:00 PM to 3:00 PM

I) Board Lot:

NEPSE has fixed the board lot of 10 shares if the face value is Rs.100 or 100 shares if the face value is Rs.10. The transactions on regular trading should be done on at least one board lot. The transactions of less than 10 shares are permitted only on odd lot trading hours

J) Settlement

NEPSE has adopted a T+3 systems, which mean that settlement of transactions, should be done within 5 working days following the transactions day. Settlement will be carried out on the basis of paper verses payment.

K) Brokerage:

The rate of brokerage on equity transactions ranges from 1 percent to 1.5 percent depending on the traded amount.

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 establishment of Securities Exchange Center Ltd. in 1976 were other significant development relating to capital markets

Documents and statements to be submitted along with listing application

a. A copy of the certificate of company registration.
b. A copy of the certificate of tax registration.
c. A copy of the certificate of business commencement.
d. A copy of the Memorandum & Articles of Association, if registered under special acts the said Act, Rules or By - laws.
e. Name and address, educational qualification and professional experiences of the Executive Chief and Directors of the Corporate body, and the details of the securities held by them.

f. Details of shareholdings of Directors, Chief Executive, Company Secretary, Auditors and other shareholder's holding more than 5 percent shares in the corporate body.

g. In case the Executive Chief or any Director of the Corporate body is also a Director of any other Corporate body, the name and address of such Corporate body.

h. A copy of the agreement or understanding relating to technology transfer, management, loan or share investment signed, if any, by the Corporate body with any Local or Foreign Bank, Financial Institutions or any other Corporate body .

i. In case the Corporate body has invested more than five percent of its paid-up capital in the share capital of any other Corporate body, the name and address of such Corporate body, and the number of such shares and the amount thereof.

j. A copy of the prospectus or announcement letter published at the time of issuing securities, or any other notice or information published for the same purpose and their details.

k. A copy of the latest names and addresses of security-holders and the number and the amount of the securities held by them.

l. Details of corporate body's current transactions and management's working plan and saying with regard to future transactions.

m. A copy of the decision of the Board of Directors regarding listing of securities.

n. Specimen certificate of the securities to be listed.

o. Copies of the audited Balance Sheets, Profit and Loss Accounts, Auditors' report and transactions' details of the last three years and in case the corporate body is newly established the projected Balance Sheets, Profit and Loss Accounts and transactions' details for three years.

p. In case the Corporate Body has made share investment of 50 percent or more in any other Corporate Body or Company, the audited statements of income and expenditure, the balance sheets and the auditor's reports of the past three years of such Corporate Body, and is case such Corporate Body, is a newly -

established one, its projected profit and loss accounts, balance sheets and related documents for the next three years.

q. Details of share - ownership:

(1) Promoters:

a. Local

b. Foreign

(2) Institutions (Pvt. Sector)

(3) Government & Government's Institution.

(4) General Public.

r. In the case of manufacturing corporate body the following details also should be submitted:

1. Licensed Capacity
2. Installed Capacity
3. Utilities Capacity
4. Major Product
5. Other Products
6. Major raw materials
7. Other raw materials
8. Sources of raw materials

Local Import (In percent)

(a) Major raw materials

(b) Other raw materials

s. For listing of securities issued under saving scheme such as unit saving schemes or mutual saving schemes.

1. A copy of the certificate of management of saving schemes issued by Securities Board.

2. Copies of the rules, bye- laws or other matters approved by the concerned agency in connection with the operation and management of the unit saving scheme or the mutual saving scheme.
3. A copy of the Feasibility Study report prepared in connection with the operation of the unit saving scheme or the mutual saving scheme.
4. Details of investment of funds received from the unit saving scheme or the mutual saving scheme.
5. Names and addresses of the members of the management committee or sub - committee of the unit saving scheme or mutual saving scheme.
6. Details of investment in the share capital of any Corporate Body made if any, by any member of management committee or sub –

committee of the unit saving scheme or mutual saving scheme, if any.

7. Details of investment in the unit saving scheme or mutual saving scheme made if any, by any member of the management committee or sub committee of the unit saving scheme or mutual saving scheme, if any.

2.1.4 Risk

Risk is defined as the variability of the returns of a period. The one-period rate of return is the basic random variable used in measuring an investment's risk. All the investor knows higher the risk higher the return. Interest rate risk, purchasing power risk, default risk, liquidity risk, political risk etc. are treated as risk involved in the securities.

2.1.5 Return

Return is reward for bearing risk. Return is depending upon nature of risk. All the investor knows higher the risk higher the return.

2.1.6 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; n.d: 591)

Objectives of Portfolio Management

a) **Stability of income:** The main objectives of portfolio management is to provide stability or consumption of income
b) **Safety of the principle :** Security not only involves keeping the principles amount and the stability of the income, but also to make continuous growth in the capital which may be achieved through reinvesting of funds in growth securities or through purchase of growth securities.
c) **Liquidity on the investment:** The main objective of the portfolio management is to provide surety to the investor about the liquidity of the investment so that in the worst period, he does not goes worry about its realization.

d) **Favorable tax status:** The investment must be made keeping in view of the tax status regarding the periodic return and capital gain. So investment to be made in such security so that the tax burden will be minimum.

2.1.7 Portfolio Risk

Expected risk on a portfolio is a function of the proportions invested in the components, the riskiness of the components and collection of returns on the component securities. It is measured by standard deviation and calculated by using this formula.

$$\pm_p = \sqrt{x_i^2 \pm_i^2 + x_j^2 \pm_j^2 + 2x_i x_{j\circ ij\pm i\pm i}}$$

2.1.8 Portfolio Return

The expected return n a portfolio, $E(r_p)$, is simply the weighted average of the expected returns on the individual assets in the portfolio with the weights being the fraction of the total portfolio invested in each assets. It can be calculated by using following formula:

$R_p = X_{A\times}E(r_A)+X_{B\times}E(r_B)$

2.1.9 Models of Portfolio

a) Markowitz Diversification

Markowitz Diversification may be defined as combining assets which are less than perfectly positively correlated in order to reduce portfolio risk without sacrificing portfolio return. It can sometimes reduce portfolio risk without sacrificing portfolio return. It can sometimes reduce risk below the un-diversifiable level. Markowitz diversification is more analytical and simple diversification and considers assets correlations. The lower correlation between assets, the more than Markowitz Diversification will be able to reduce the portfolio's risk.

Portfolio analysis under Markowitz Diversification

Markowitz Diversification can lower risk below the un-diversifiable level of the securities analyst can find securities whose rates of return have low enough correlations, unfortunately, there are only a precious few securities that have low correlations. Therefore using Markowitz Diversification requires a data bank of financial statistics for many securities, a computer and some econometric analysis.

Applying Markowitz Diversification to a collection of potential investment assets with a computer is called Markowitz portfolio analysis. It is a scientific way to manage a portfolio and its results are quite interesting. Since Markowitz portfolio analysis considers both the risk and return of dozens or hundreds or thousand of different securities. Simultaneously, it is more powerful method of analytical portfolio than using intuition or selecting investments by committee. A person's mind can't simultaneously evaluate hundreds of different investment opportunities and balance the risk and return of them.

b) The Single Index Model

William Sharpe, who among others has tried to simplify the process of data inputs, data tabulation, and reaching a solution, has developed a simplified variant of the Markowitz model that reduces substantially its data and computational requirements.

First simplified models assume that fluctuations in the value of a stock relative to that another do not depend primarily upon the characteristics of those two securities. The two securities are more apt to reflect a broader influence that might be describes general business conditions. Relationships between securities occur only through individual relationship with some index or indexes of business activity. The reduced number of covariance estimates needed eases considerably the job security and the portfolio-analysis computation."(Fisher & Jordan; 2000:575)

"Sharpe assumed that. For the sake of simplicity, the return on a security could be

regarded as being linearly related to a single index like the market index. Theoretically, the average can be treated as surrogate for the market index. Acceptance of the idea of a market index, Sharpe argued, would obviate the need for calculation thousands of covariance between individual securities, because any movements in securities could be attributed to movements in the single underlying factor being measured by the market index. The simplification of the Markowitz model has come to be known as the marker Model or single Index Model (SIM)".
(Bhalla; 2001:526)

"Sharpe suggested that a satisfactory simplification would be to abandon the covariance of each security with each other security and to substitute information on the relationship of each security to the market. In this term, it is possible to consider the return for each security to be represented by the following equation:" (Fisher & Jordon; 2000:577)

$$R_i = \sim_i = \quad_i + e_i$$

Where,

R_i = Expected return on security i.

$\sim_i$ = Intercept of a straight line or alpha co-efficient

$_i$ = Slope of straight line or beta coefficient

I = Expected return on index (market)

e_i = Error return with a mean of zero and a standard deviation which is a constant.

c) Capital – Assets pricing Model (CAPM):

"It is the model that describes the relationship/trade-of between risk and expected return. It explains the behavior of security investment on investor's overall portfolio risk and return. The CAPM provides a framework for basis risk-return trade offs in portfolio management. It enables drawing certain implication about risk and the size of risk premium necessary to compensate for bearing risk" (Khan & Jain; 1999:2.23-2.25)

"The most important aspect of risk is the overall risk of the firm as viewed by investors in market place. Overall risk significantly affects investment opportunities and even more important the owners' wealth. The basis theory that links together risk and return for a assets is commonly called the Capital Assets Pricing Model (CAPM)." (Gitman; 1999:221)

Assumptions:

"The CAPM is based on the following assumption:

1. Individuals are risk reverse.
2. Individuals seek to maximize the expected utility of their portfolios over a single period planning horizon.
3. Individuals have homogenous expectations-they have identical subjective estimates of the means, variances, and covariance among returns.
4. Individuals can borrow and lend freely at a risk less rate of interest.
5. The market is perfect there are no taxes; there are no transaction costs; securities are completely divisible; the market is competitive.
6. The quantity of risky securities in the market is give." (Chand; 2002:166)

Using beta as our index of non diversifiable risk, the CAPM model is given in the equation below:

$$Rj=Rf + (Rm – Rf)bj$$

Where,

Rj = The required or expected rate or return of stock j

Rf = Risk free rate of return.

Rm = The required rate of return on the market portfolio.

Bj = The beta coefficient for assets j.

provided a new more general multifactor model (1976) called Arbitrage Pricing Theory (APT), with flexibility to account for any number of relevant contributing factors.

The APT is said to be more realistic on the ground that it is more general than CAPM assumes that the rate of return on a security is influenced by only one factor, that is, the average market performance. Unlike CAPM, the APT assumes that the rate of return on a marketable security is a linear function of the movement of a set of economic factors common to all securities. The random rate of return under APT model is a linear function of k factors as follow." (Pradhan; 2000:356)

$$Rj = Rj + b_{j1}F_1 + b_{j2}F_2 + \ldots\ldots\ldots\ldots\ldots\ bjkFk + ej$$

Where,

Rj = Random rate of return stock j

Rj = Expected rate of return on stock j

Bjk = Sensivity of stock J's return to ktm factor

FK = Mean zero ktm factor common to the returns of all assets.

ej = random error indicating the unique effect on return.

2.2 Review of Related Studies

2.2.1 Review of Articles:

Mr. Chandra Thapa, has published an article entitled " Managing Banking Risk" in the Kathmandu Post on March 09 2003, Banking and financial services are among the fastest growing industries in the developed world and are also emerging as corner stones for other developing and underdeveloped nation as well.

According to Mr. Thapa, Bank's primary function is to trade risk. Risk cannot be avoided by the banks but can be managed. There exist different types of risks.

Interest Rate Risk: This is one of the most common risks the banks face owing volatility of the interest rate in the market. In Nepal, just a decade ago, the interest saving and time deposit were at the height of around 8 percent and 12 percent respectively, but today they have dwindling economic scenario (Domestic international)

Trading /Market Risk: Banks productively manage their liquidity (Cans flow) by investing in various securities, in foreign currencies and in other assets for instance swaps, option etc. In Nepal, the investment in currencies has always propped up lucrative return since our money ahs continuously devaluated in terms of all foreign currency all other investments depends on market movement and information.

Credit Risk: Presently, the non-performing loan of the commercial banks in Nepal is around 16.5 percent of the total lending and the international standard in the regard percent. Their present economic scenario is not conductive enough to recover all the lending and as in other nations, we do not have any asset management companies can productively take care of these bas assets. In banking terms, such non payment promised cash flows and in extreme cases, default on principal is called credit risk such risk is one of the most significant risks which the banks face and particularly undeveloped country like Nepal because ours is a bank based financial system. Hence, its' key that the bankers manage such risk prudently since it not only hampers particular bank in concern but also badly affects the growth prospects of the entire economy. Credit risks are of two types: diversifiable and un-diversifiable risk.

Off Balance Sheet Risk: Banks often create contingent liabilities. And since the materialize until the happening of the specified event or after the expiry of the date they are just not shown in the balance sheets. Such risks are managed by the

analysis of the bank officials materializing such contingent contracts. The capacity professionalism in most of the Nepalese banks dealing with such liabilities is not up to the mark.

Technology/Operational Risk: Nepal Rastra Bank or Rastriya Banijya Bank are providing Tele banking services whereas private commercial banks cash as Nabil Bank standard Chartered Bank, the Himalayan Bank, The Kumari Bank are using Tele banking services, on-line account statement and net banking. As a result, these letter banks are among the best in terms of services, profitability and image as well. Yes this is a very small example where the government owned banks have failed, as compared to technological up gradation of other commercial bank.

Liquidity Risk: in order to avoid risks, the central banks have initiated the regulation, whereby the banks need to maintain reserve (hard cash) in their vault and a certain specified percentage of the total deposit with central bank (NRB). Such problems of maintaining liquidity position usually arise and are managed in Nepal during the peak season when most of the purchases are made i.e. during Dashain and Tihar festivals. Sometime there may be unexpected need of huge cash. Thus, it is a matter of great concern for the banks to maintain sufficient liquidity in the form of hard cash or marketable securities, which can be converted into hard cash in no time.

He concludes with risk management of the banks is not only crucial for optimum trade off between risk and profitability but is also one of economy. Managing such risks not only need sheet professional level but an appropriate environment also needs to be developed. Some of the major environmental problems of Nepalese banking sector is undue government intervention (In the state owned banks) relatively weak regulatory frame, although significant improvement has been made in the last five year but still not competitive enough when we consider the international standard meager corporate governance and the biggest of all is lack of

professionalism especially commitment). The only to mitigate the banking risk to develop the badly needed commitment, eradication of corrupt environment, especially in disbursement of lending and to formulate prudent and conductive regulatory framework.

Mr. L. D. Mahat, 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 situat3ion 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.

Mr. Shiva Raj Shrestha, 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" Mr. Shrestha has highlighted the following issues in the articles.

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

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

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

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

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

In the context, Mr. 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. He 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' confidence.

2.2.2 Review of Thesis:

Until now there is not much thesis/Project report or articles availiable like other topics of common stock investment. Some thesis related to the topic “Portfolio Analysis of Commercial Bank” has been conducted for the fulfillment of master’s degrees in T.U which are reviewed here.

Study of Min Bahadur Ranabhat

Ranabhat Min Bahadur, 1997, “An analysis of Financial Performance of Finance Companies in Nepal.” In this research the researcher found following results:

1. Study Cleary shows that the uses of fund towards the hire purchase loan are gradually decreasing.
2. The use of fund towards housing loan is gradually increasing
3. the use of find towards the term loan is gradually increasing
4. The fund used by finance companies is gradually increasing towards leasing with the increasing rate.
5. There are increasing uses of funds rewards government securities.

Study of Gopal Pd. Bhatta

The study performed by Mr. Bhatta is based on 10 listed companies’ data, using five years data from 1990 to 1995. Among different objectives, the one is “to analyze the performance of listed companies in terms of risk and return i.e. expected rate of return and company specific risk, required rate of return and internal rate of return, systematic risk and diversification of risk through portfolio context. It is related to this study.

In this aspect Mr. Bhatta has summarized the findings as, “A highly significant positive correlation has been addressed between risk and return character of the company. Investors expected higher returns for those stocks, which associates higher risk, Nepalese capital market is not sufficient one. So, the stock prices do not contain all the information relating market and company itself. Neither investor analyzes the overall relevant information of the stocks nor the member of exchange try to disseminate the information. So, the market return and risk both may not represent reality. However, the analysis based on the available information shows that high prices stocks has higher beta risk than other.

Investors in Nepal have not yet practiced to invest in portfolio of securities. An analysis of two securities portfolio shows that the risk can totally minimized the correlation is perfectly negative. In this is situation, the risk can be totally diversified but when there is perfectly positive correlation between the returns of the two securities. The risk is un-diversifiable. The analysis shows some correlation has negative and some has positive negative correlation between securities returns is preferred for diversification of risk.

He has conducted that the analysis of risk and return shows may companies with higher unsystematic or specific risk. He has realized the need of expert institution to provide consultancy service to the investors to maximize their wealth through national investment decision. Mr. Bhatta’s study is mainly focused on companies and stock market rather than investors. However this study has helped for the research of researcher topic.

Study of Mr. Jeet Bahadur Sapkota

Study conduced by Mr. Sapkota is somehow related to this study. He 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%[29]

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.

Study of Mrs. Pramina Pandey (Sijapati)

The study conducted by Mrs. Pramina Pandy also related with this research study, the main objectives of the study was identify the risk and return situation of the insurance companies common stock which concluded that

1. Poor education and lack of adequate sources of information are the major constraint for the development of stock market in Nepal.
2. Among all securities common stock is known to be the most risky security.
3. When risk and return compared to different industries, finance and insurance is best per highest return with higher degree of risk where as trading industry has minimum return and risk.
4. There is no significant difference between the portfolio return of insurance companies stock and overall market portfolio.
5. Market sensitivity is measured by beta co-efficient which cannot be reduced by diversification.
6. General public invest their funds in different securities on the basis of

expectation and assumption rather than analysis.

7. The proper selection of portfolio approach is better way to get success in stock market.

Study of Mr. Roopak Joshi

The main objective of this study was to identify the investors' problems in choice of optimum portfolio of stock in NEPSE which concluded that portfolio management is a new concept for Nepalese investor. Due to lack o sufficient information proper investment is not possible. Proper investment needs huge information internal as well as external. The stock market of Neal is also in growing stage only. The only one stock exchange located in Kathmandu. Traditional try system for trading stock. Limited number of security broke, lack of opportunity of investment and many other reasons are there, which is acting as barrier of development of NEPSE.

Due to lack of financial tools only three stock portfolios were constructed and analyzed. Investor does not know in which stock to invest. How to formulate the portfolio? Even many stock brokers don't give the information to the investor. **Investors are purchasing and selling their stock mostly on the pressure of broker** difficult. It needs special knowledge as well as adequate skills to analyze portfolio.

Study of Mr. Jagdis Basnet

The main objective of the study was to survey the efficiency of management of portfolio of joint venture banks in Nepal which concluded that the investment portfolio of joint venture banks assets basically allocation of funds into investment portfolio of joint venture banks assets basically allocation of funds into different component of banking assets have different degree of risk and varied rate of texture should be verified in such as way that would balance the conflicting goal between minimum yield and minimum risk. This study shows that banks who manager

portfolio properly has achieved better result.

From above study the researcher found the gap that research of portfolio management of listed finance companies has not been held yet in Nepalese context. So to fulfill this gap, this study has undertaken by the researcher.

Bhandari, Ramesh Kumar (2003) "Risk Return Analysis in common stock investment of listed companies in Nepal" MBS Thesis, T.U., Kathmandu:

His study was related with various types of organization but resulted derived some relevant organization is as follow:

Bank	Expected Return	Standard Deviation	Co-efficient of variation
HBL	58.64	0.7112	1.213
SCBL	57.84	0.7201	1.245

Mr. Deepak Adhikari

He conducted the study on common stock investment by using nine years from 1992/93 to 2000/2001. There were various objectives of the study, among them one to evaluate common stock of listed commercial banks in terms of risk and return and to perform sector wise comparison on the basis of market capitalization" is related to this only. Expected return of HBL is minimum (i.e. 13.3%) only. HBL's expected rate of return is lower than market return. (i.e. 13.3% < 23.85) The risk of CV of SCBNL has 0.9689 risks Pe 1 return but HBL has highest risk 1% of return (i.e 2.9268) market beta of bank of Kathmandu Ltd is most volatile (i.e. B = 1.9656) and SCBNL CS is less volatile (i.e. B = 0.2218). All bank common stocks are under priced.

Mr. Riddi Prakash Sitaula

"Risk Analysis of Joint venture Bank Nepal 2003" conducted his study between NABIL, HBL and SBI. He created the portfolio of two assets case, His findings are summarized below:

Bank	Expected Return	Standard Deviation	Co-efficient of variation

NABIL	46.05%	50.30	1.1789
SBL	45.09	44.05	0.9768
HBL	34.77	34.90	1.0038

At the time of the study expected rate of return of market was 22.86 that is very high as compared to return of TB 2003, 2.98%

Shakya Nabina, 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.

Radhe Shyam Pradhan carried out study on topic stock market behavior on small capital market: a case study in 1993. 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.

Portfolio management is not totally new concept. Many researchers have done research on this aspect. Beside it is the subject matter for an in-depth study. Since previous researcher did not cover all the matter, in this study researcher tries to find out about portfolio risk, return and market prices of stock of different companies. Especially researcher is going to take 7 companies stock as a sample.

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)

3.1.1 Population and Sample

There are 146 companies are listed in NEPSE. These companies are considered as population. Out of those companies only seven companies are selected for the study and these seven selected companies are known as sample.

3.2 Sampling Procedure

There are various types of sampling procedure in the research. In case of this study Judgmental and Simple Random Sampling techniques are used.

3.3 Sources of Data

This study is based on the primary and secondary data. Basically most of sources are secondary but some case primary data is also used. In primary source data are collected using the questionnaire method, interview and discussion with the concerned officer at concerned bank. The backbone of this study is the data collected from the secondary sources. Most of all data used in the analysis are the secondary data. Hence, the justification of this analysis fully depends upon the reliability of those secondary data.

The major sources of secondary data are as follows:

- Websites of Nepal Stock Exchange
- Previous study thesis and reports
- Finance websites
- Websites of concerned banks.
- Others

3.4 Data Collection Technique

All required data are collected through primary and secondary data collection technique. Questionnaire, personal interviews, and observation technique are used to collect primary data. Annual Report and other published financial report are used to gather required secondary data. Some unpublished data (in general) provided by bank also used as secondary data. The data provided was not authenticated regarding its reliability since most of them include the propriety data. However, what ever data was provided, as per the bank would give some brief picture. Data being propriety nature the concerned bank does not hold any liability regarding its reliability and it was provided for mere academic purpose only upon the request of the student.

3.5 Tools to Analyze

For the analysis of data various financial and statistical tools will be used. i.e. holding period return, expected rate of return, standard deviation, co-efficient of variation, beta co-efficient, portfolio risk and return , correlation co-efficient, etc.

3.6 Methods of Data Presentation and Analysis

As stated earlier, the basic structure of this study is descriptive plus empirical and analytical as well. In order to make the study more precise, the data are presented in the tabular form. Charts and diagrams are used to clarify and verify the data presented. Various statistical tools and financial tools are used to analyze the collected data.

3.6.1 Financial Tools

To measure the risk standard deviation is used, to measured risk mean MPS and HPR are used to choose lesser variable stock. Co-efficient of variation and indifference curve are used.

3.6.1.1 Holding Period Return :

Holding Period Return (HPR) is defined as

$$\text{HPR} = \frac{p_t - p_{t-1} - CD}{p_{t-1}}$$

Where,

P_t = ending price of stock

P_t-1 = beginning price of stock

CD = cash discount

3.6.1.2 Portfolio Expected Return

"The expected return of a portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportion of the investor's wealth invested in each asset." (Cheney & Moss, n.d:652)

$R_p=W_1K_2+\ldots\ldots\ldots\ldots..+ W_nK_n$

Where,

R_p= Portfolio Expected Return

W_1= Weight for Stock 1

K_1= Expected Return foe Stock 1

W_2= Weight for Stock 2

K_2= Expected Return for Stock 2

3.6.1.3 Portfolio Risk

The calculation of a **Portfolio risk** is not as straightforward as the calculated of a portfolio's expected return. In order to calculate the risk of a portfolio, considering must be given not only to the risk of the individual assets in the portfolio and their relative weights but also to the extent to which assets' return move together. We measure the risk of an individual asset by the variances of returns or its square root, the standard deviation. The degree to which the assets' returns move together is measured by the **covariance** or **correlation coefficient**. By combining the measures of individual assets risk (Variance or standard deviation), relative asset weights, and the co- movement of assets' returns (Covariance or standard deviation). The risk of the portfolio can be estimated." (Chiney & Moses, n.d:653)

For the portfolio consisting of two assets A and B:

$$\sigma_p = \sqrt{w_A{}^2 \pm_A{}^2 + w_B{}^2 \pm_B{}^2 + 2w_A \pm_B + 2w_A \pm_B \operatorname{cov}_{AB}}$$

Where

$\sigma_{p=}$ Standard deviation of portfolios rate of return

σ_A = Standard deviation of stock A

σ_B = Standard deviation of stock B

W_A= Weight for stock A

W_B= Weight for stock B

COV_{AB}= Covariance of returns between A and B

3.6.1.4 Minimum Risk Portfolio

It is the portfolio with the lowest level of risk in the efficient frontier. It is also called risk minimizing weight or optimal weight. In two stock portfolios, the optimal weight to invest in stock A and stock B are calculated as follows (Thapa; 2001:32)

$$W_A = \frac{\pm^2_B - Cov(R_A R_B)}{\pm 2_A \pm^2_B - 2Cov(R_A R_B)}$$

Where,

W_A = Optimal weight to invest in stock A

W_B = Optimal weight to invest in stock B

3.6.1.5 Portfolio Performance Measure

i) Sharpe's Performance Measure

"When considering a portfolio's performance, it is important to consider both return and risk. One performance measure that has been developed to evaluate a portfolio's performance considering both returns and risk simultaneously is the Sharpe Index of Portfolio Performance. It is defined by equation below: (Clark, 2000:301)

$$S_P = \frac{Risk\,\Pr emium}{TotalRisk} = \frac{\overline{r_p} - R_f}{\pm_p}$$

Where, S_p = Sharp's Index of portfolio performance for portfolio P

$\overline{r_p}$ = Average return for portfolio p

$\pm_p$ = Standard deviation of return for portfolio P

R_f = Risk less rate of interest

ii) Trenyor's Performance Measure

"Another index of portfolio performance that is similar to the Sharpe index is the Treynor Performance index. The Treynor index however is concerned with systematic risk while the Sharpe's index is concerned with total risk s measured by portfolio's standard deviation of return. The Treynor's index is defined as follows:" Clark, 2000:301)

Performance index

$$T_p = \frac{Risk\,\Pr emium}{Portfolio's Beta Coefficient} = \frac{\overline{r_p} - R_f}{b_p}$$

Where,Tp= Trenyor's index of performance for portfolio p

$\overline{r_p}$ = Average return for portfolio p

b_p = The beta for the portfolio

R_f = Risk less rate of interest

ii) Jenson's Performance Measure:

"Michael Jenson has also developed a method for evaluating a portfolio's of asset's performance. The Jenson's measure is computed with regression equation "Clark; 2000: 301)

$$\sim = (\overline{r_p} - r_f + (r_m - r_f)b_p$$

Where,

$\pm_p$ =Jenson's alpha of portfolio or Jenson's performance measure

$\overline{r_p}$ = Average realized return from portfolio

$\overline{r_p}$ = Risk free rate of return

b_P=beta of portfolio

Higher the resulting index, the better is portfolio performance.

3.6.2 Statistical Tools

The following statistical tools have been while making analysis of data.

3.6.2.1 Expected Return (Arithmetic Mean)

Expected return is the arithmetic average of the historical returns forecasted for next period. It is obtained by dividing the sum total of the return by the number of the observation. In probability distribution, the expected return is obtained as the weighted average of the probability and the forecasted return.

$$\sum(\overline{R_m}) = \frac{\sum R_m}{N}$$

3.6.2.2 Standard Deviation

Standard deviation (S.D.) is defined as the positive square root of the mean of the square of the deviations taken from the arithmetic mean. It is denoted by σ. It is said to be the best measure of dispersion as it satisfies most of the requisites of a good measure of dispersion. Standard deviation is an estimate of the likely divergence of an actual return from an expected return. It measures the risk of the return. The higher the standard deviation, the more risk will be in the assets.

$$\sigma_m = \sqrt{\frac{\sum(R_m - \overline{R}_m)^2}{N-1}}$$

Where,

σ_m= Standard Deviation of Market

$R_{m=}$ Risk of Market

$R_{m=}$ Expected Return of Market

N= No of observation

3.6.2.3 Variance

Variance is the square of standard deviation. IT is denoted by sigma squared (σ^2). It is the sum of the squared deviation from mean divided by number of observations in case of historical returns. In case of probabilities distribution, it is the sum of the squared deviations multiplied by the probabilities.

$$\sigma^2 = \frac{\sum(R_m - \overline{R}_m)^2}{N-1}$$

Where,

$\sigma^2_=$ Variance

R_m= Risk of Market

R_m= Expected Return of Market

N= no of observation

3.6.2.4 Coefficient of Variation (CV)

Coefficient of variation is the standardization measure of risk per unit of return It is calculated as the standard deviation divided by the expected return. It provides a more meaningful basis for a comparison when two or more than two investments of different expected return and standard deviation are to be compared. Other things held constant, the lower the CV, if E® is the arithmetic mean and the standard deviation distribution, then the C.V. is defined by

$$\text{C.V.} = \frac{\pm}{r}$$

Where,

σ= Standard Deviation

$\sum(r)$= Expected Return

3.7 Total Risk

The total risk of return of an asset or portfolio is measured by variance and standard deviation. The total risk can be divided into two parts: diversifiable and un-diversifiable risk.

Therefore,

Total risk= diversifiable risk+ Un-diversifiable risk.

$$\sigma^2_{j+} = \text{Var(e)} + B^2_{jm}\sigma^2_m$$

3.7.1 Diversifiable Risk/ Unsystematic Risk

Diversifiable risk is also known as the unsystematic risk. This type of risk is unique to and organizations and can be largely eliminated by holding a diversified portfolios of investment. It is caused through the events like, labor, strikes, management errors adverting campaigns etc. It can be stated as

Unsystematic risk= total risk- systematic risk

$$\text{Var(e)} = \sigma^2_j - \beta^2_j\sigma^2_m$$

3.7.2 Un-diversifiable Risk/ Systematic Risk

Un-diversifiable risk is also known as the systematic risk .This is risk is that portion of variability in return caused by market factors (also called market risk) that simultaneously affect the price of all the securities. Un-diversifiable risk crated positive to the changes in the macroeconomics factors like interest rate, inflation, investors' expectation, GDP etc. This risk is that part of total risk cannot eliminate by allocating capital to a diversified portfolio of investments. It can be stated as (Bhattarai; 2004, 121-123)

Systematic risk=Total risk- Unsystematic risk

$$\beta^2_j\sigma^2_{j=}\sigma^2_{j-}\text{Var (e)}$$

$$\text{Proportion of systematic risk} = \frac{systematic risk}{total risk}\times 100$$

Proportion of percentage of systematic risk is also measured by coefficient determination. Coefficient of determined is the square of correlation. It can be stated as:

$$\text{Coefficient of determination } (\sigma^2_{jm}) = \frac{\text{Systematic Risk}}{\text{Total Risk}}$$

$$= \frac{\beta^2_j \sigma^2_m}{\sigma^2_m}$$

3.8 Covariance

Covariance is a statistical measure of the relationship between two random variables. This is a measure of how two random variables, such as the returns on securities I and "move together". A positive value for covariance indicates that the securities' returns tend to move in the same direction. A negative covariance indicates a tendency for the returns to offset one another. A relatively small or zero value for the covariance indicates that there is little or no relationship between return for two securities.

$$\text{Cov}(r_j\, r_m) = \frac{\sum(R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1}$$

Where,

$\text{Cov}(r_j\, r_m)$ = covariance of stock I and Market.

3.9 Correlation

Correlation is a statistical concept measuring the extent to which two variables tend to move together.

Where, P_{ij} (the Greek letter rhea) denotes the correlation coefficient between the return on security I and the return on security j. The correlation coefficient rescales the covariance to facilities compassion with corresponding values for other pairs of random covariance to facilitate compassion with corresponding values for other pairs of random variables. Correlation coefficient always lies between –1 and _1. A value of –1 represents perfect negative correlation, and a value of -1 represents

perfect positive correlation. Most cases lie between these two extremes values. When the two variables have no relationship, they are uncorrelated, and the correlation coefficient is zero. If the two assets have perfectly negative correlation, the minimum risk of the portfolio of these assets is zero meaning it is possible to create a risk less portfolio by perfectly negatively correlated assets. If the assets are perfectly positively correlated, no risk can be reduced by making the portfolio of such assets. If the correlation is less than 1, risk rd\education is possible by making the portfolio."(Dahal; 2003)

Correlation coefficient between two assets returns can be calculated as below:

$$Cor(r_i r_m) = \frac{\text{cov}(r_r r_m)}{\pm_i \pm_m}$$

$Cor(r_i r_m)$ = correlation of stock I and market

$\text{cov}(r_r r_m)$ = covariance of stock i and market

3.10 Beta Coefficient

The **beta coefficient, b** is used to measure non-diversifiable risk. It is an index of the degree of movement of an asset's return in response to a change in the market return. The beta coefficient for an asset can be found by examining asset's historical returns relative to the returns for the market. The **market return** is the return on the market portfolio of all the traded securities."(Gitman;1988:230)

Using the beta coefficient, to measure non- diversifiable risk, the capital asset pricing model (CAPM) is given:

$$\beta_j = \frac{\text{Cov}(r_j\, r_{m})}{\sigma^2_m}$$

Where,

β_j= Beta coefficient of stock j.

$\text{Cov}(r_{j,}\, r_m)$ = Covariance of return foe Asset "i" asset with the market

$\text{Var}(r_m) = \sigma^2_{m\,=}$ Variance of return for market portfolio or individual assets.

Chapter 4

Data Presentation and Analysis

Introduction

It is truly said that "A report can be worthless if interpretation is faulty, even if valid and reliable data have been collected." (Pant;1998:23))

"Data analysis is the relationship or differences supporting or conflicting with original or new hypothesis should be subjected to statistical test of significance to determine with what validity data can be served to indicate and conclude." (Kothari; 1990:10)

Hence Data presentation and analysis is the crucial part of any research. The main purpose of data presentation is to organize the collected data so that it can be used for interpretation whereas analysis of the data is to change it from an unprocessed form to an understandable presentation. The presentation of the data and its analysis help us to draw valid conclusion. Hence this part of the thesis mainly focuses on the presentation of data and its analysis.

4.1 Analysis and Interpretation of Data

The presentation of data is the basic organization and classification of the data for analysis. After data collection is completed, the data will be in the raw form. It has to be arranged so that it makes some sense. Different types of data require different methods of summary and presentation. There are a number of methods which can be used to simplify the data. The easiest way to understand data is by examining it in charts, graphs and tables. The first and foremost part of presentation is to rearrange the data.

Almost all possible data are collected from **NEPSE** and **SEBON**. However, some of the data are also collected from concerned sources. The data were in unorganized form which was one of the grey areas of present study. However, they are simplified for the analysis purpose.

Fiscal year	SCBL	NABIL	HBL	EBL	NBBL	NEPSE Index
2002/2003	1640	735	836	445	361	204.86
2003/2004	1745	1000	840	680	290	222.04
2004/2005	2345	1505	920	870	265	286.67
2005/2006	3775	2240	1040	918	264	386.85
2006/2007	5900	5050	1760	2430	550	683.95
2007/2008	6830	5275	1980	3132	1001	963.36
Average						457.95

Table No (1).: Closing Price of Equity

(Sources: Annual report of Banks and SEBON)

Above table shows that SCNBL has highest closing price Rs.6830 in 2007/2008 and lowest closing price Rs.1640 in 2002-2003. Nabil has highest closing price 5275 in 2007/2008 and lowest closing price 735 in 2002-2003. HBL has highest closing price Rs.1980 in 2007-2008 and lowest closing price Rs.836 in 2002/2003.EBL has highest closing price Rs. 3132 in 2007-2008 and lowest closing price Rs.445 in 2002-2003. NBBL has highest closing price Rs.1001 in 2000/2001 and lowest closing price Rs.264 in 2005-2006. From the above Table, all companies except NBBL ,stock price is higher than NEPSE average price of stock. Therefore these four companies are called reputed company for investing purpose. Only closing price of NBBL is less than average NEPSE Index in 2002 to 06-07 and higher than NEPSE average price in 2007/2008.

Figure (1): Closing Price Movements

Above table and chart shows that the closing price of different bank in different fiscal year and their movement or trend. According to the table highest closing price is Rs 6830 that of Standard Chartered Bank and lowest closing price is 264 of NBBL. Considering individual bank SCNBL has 6830/1640 Nabil 5275/735 HBL 1980/836 EBL 3132/445, NBBL 1001/264 highest and lowest price respectively, which shows the price of stock is fluctuating during different fiscal year. The above graph also represents the trend of share price in the figure.

Table No. 2 Calculation of $\overline{R}$, SD and C.V. of overall market

Fiscal year	**NEPSE Index**	**R_m**	$R_m - \overline{R_m}$	$(R_m - \overline{R_m})^2$
2002/2003	204.86			
2003/2004	222.04	0.0838	-0.2964	0.0878
2004/2005	286.67	0.2914	-0.0891	0.0794
2005/2006	386.85	0.3495	0.0307	0.0094
2006/2007	683.95	0.7680	0.3878	0.1503
2007/2008	963.36	0.4085	-0.0283	0.0080
Total		$\sum R_m$ =**1.9009**	$\sum \left(R_m - \overline{R_m}\right)^2$ **=0.3349**	
Expected Return $(\overline{R_m})$		**0.3802**		
Standard Deviation($\pm_m$)		0.2893		
Co-efficient of variation C.V.)		0.7609		

(Sources: SEBON and Appendix no.6)

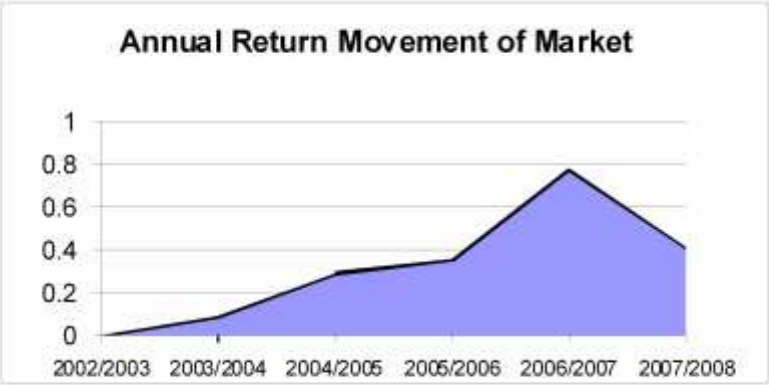


Figure (2) Annual Return movement of Market

From above calculation the expected return of market is 38.02%, standard deviation is 28.93% and co-efficient of variation is 76.09.

4.1.1 Analysis of Individual Bank

A. Standard Chartered Nepal Bank Limited (SCNBL)

Nepal Grindlays Bank Limited was established in 1985 as a 2nd foreign joint venture bank under the company act 1964. ANZ Grindlays Bank PLC is the foreign joint venture partner with 50 percent equity investment. ANZ Grindlays Bank

Now from the date July 2001, it is named as Standard Chartered Bank Nepal Ltd. after takeover by standard charter.

Capital Structure of Standard Chartered Bank Ltd.:

Standard Chartered Bank Ltd.	50%
Nepal Bank Ltd.	33%
Nepalese Public	17%
	100%

This bank has been provided following services:

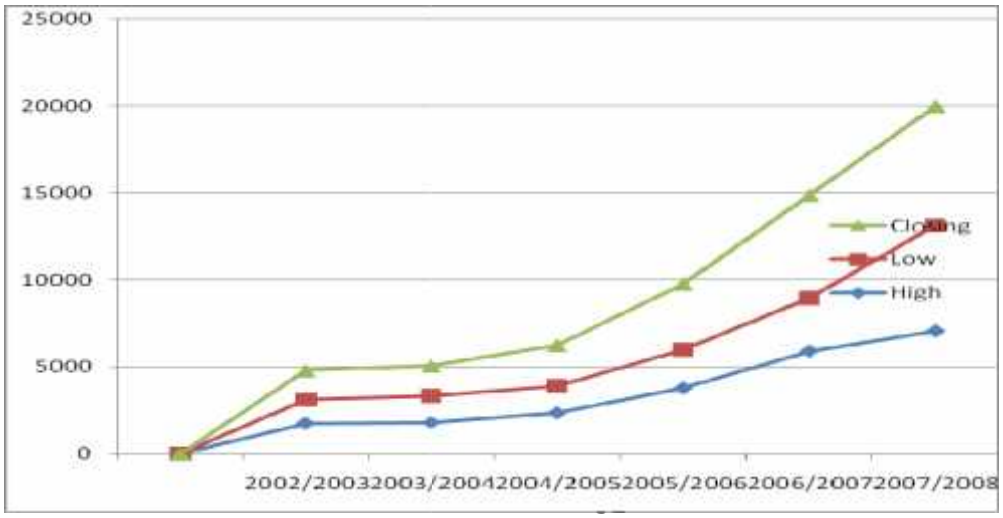
- Current, Saving and term deposit accounts in Local foreign Currency
- Fund Transfer Services –Loan International
- Credit Card Services – Local International
- 24 Hour ATM Services
- Safe Deposit Lockers
- Foreign Exchange Services
- Xtra Bank -365 days banking system
- Branch Banking

Table No. (3): MPS and DPS of SCNBL

Fiscal Year	Market Price Per Share			Total Dividend		
	High	Low	Closing	Cash	Stock	Total
2002/2003	1760	1380	1640	110	10	110+10%×2105=320.5
2003/2004	1800	1520	1745	100		100
2004/2005	2350	1553	2345	65		65
2005/2006	3775	2200	3775	70		70
2006/2007	5900	3058	5900	130	10	130+10%*7050=835
2007/2008	7050	6100	6830	80		80

(Source: Calculated on the basis of Data extracted from NEPSE)

Figure No.:(3) Trend of Closing Price of SCNBL



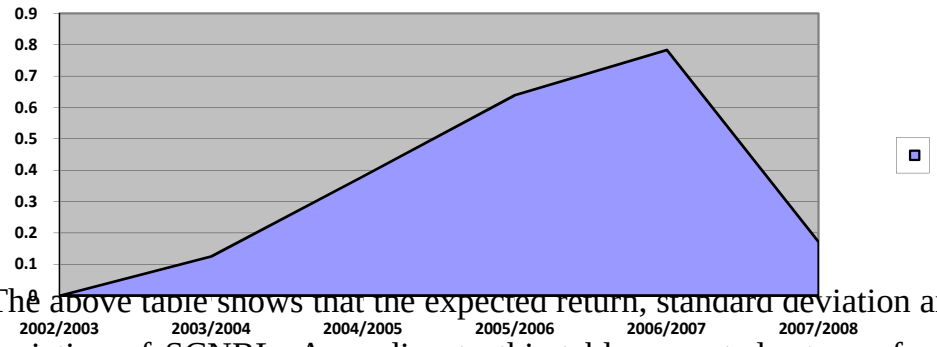
From above table and figure closing price is increasing trend from F/Y2002/ 2008. During the years the highest closing price is Rs.6830 in F/Y 2007/08 and the lowest closing price is Rs.1640 in F/Y 2002/2003. It shows the fluctuation in price.

Table No.(4) Calculation of Expected return, standard deviation co-efficient of variation of SCNBL

Fiscal year	MPS(Pt)	Total Dividend	R1 = $\frac{P_t - P_{t-1} + D_1}{P_{t-1}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$
2002/2003	1640	-	-	-	
2003/2004	1745	100	0.125	-0.2951	0.0871
2004/2005	2345	65	0.3810	-0.0391	0.0015
2005/2006	3775	70	0.6396	0.2195	0.0481
2006/2007	5900	835	0.7841	0.364	0.1324
2007/2008	6830	80	0.1711	-0.249	0.062
Total			2.1008		0.3311
			Mean		0.4201
			Standard deviation		0.2877
			Coefficient of variation		0.6848

(Sources: SEBON & Appendix no. 1)

Figure No. (4) Annual return movement of SCNBL



The above table shows that the expected return, standard deviation and co-efficient of variation of SCNBL. According to this table expected return of market is 42.01%,

standard deviation is 28.77 % and co-efficient of variation is 0.6848. Which indicates the

Table No.: (5) Calculation of Covariance, Beta coefficient of SCNBL

Fiscal year	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})\ (R_m - \overline{R_m})$
2002/2003	-	-	-	-	-
2003/2004	-0.2951	0.0871	-0.2964	0.0878	0.0874
2004/2005	-0.0391	0.0015	-0.0891	0.0079	0.0034
2005/2006	0.2195	0.0481	0.0307	0.0009	0.0067
2006/2007	0.364	0.1324	0.3878	0.1504	0.1411
2007/2008	-0.249	0.062	-0.0283	0.0008	0.0070
Total		0.3311		0.2478	0.2456
				Co-variance	0.0614
				Beta	0.9911

(Sources: Appendix no.1)

From the above table the co-variance of SCNBL is 0.0614 and its beta is 0.9911 The beta 0.9911 is less than market beta 1, so, it is defensive.

B. Nabil Bank

Nepal Arab Bank Ltd., the first joint venture commercial bank, was incorporated in 1984. Dubai Bank Ltd. was the initial foreign joint venture partner with 50 percent equity investment. The shares owned by Dubai Bank by virtue of its transferred to Emirates Bank International Limited , Dubai by virtue of its annexation with the later. Later on, Emirates Bank International Ltd., Dubai sold its entire 50 percent equity holding to National Bank Ltd. Bangladesh. National Bank Ltd. Bangladesh is managing the bank in accordance with the technical services. Agreement signed between it (NBL) and the bank on June 1995.

Capital Structure of Nabil Bank Ltd.

National Bank Ltd., Bangladesh 50%

Nepal Industrial Development Corporation	10%
Rastriya Beema Sansthan	9.66%
Nepal Stock Exchange (NEPSE)	.34%
Nepalese Public	30%
	100%

The Bank has oppened nine new branches spanning the entire length of Nepal , from Mechi to Mahakali after building 'New Nepal'. The Bank has expanded its banking services toward the different regional and parts of the country by expanding its branches. Besides banking, the other farcicalities provided are,

- Credit Cards
- International Trade and Bank Guarantee
- Tele Banking
- Safe Deposit Locker
- Western Union Money Transfer
- Society for Worldwide Inter Bank Financial Telecommunication (SWIFT)
- 24 hours ATM (Automated Teller Machine) Services
- VISA Card
- SMS Banking

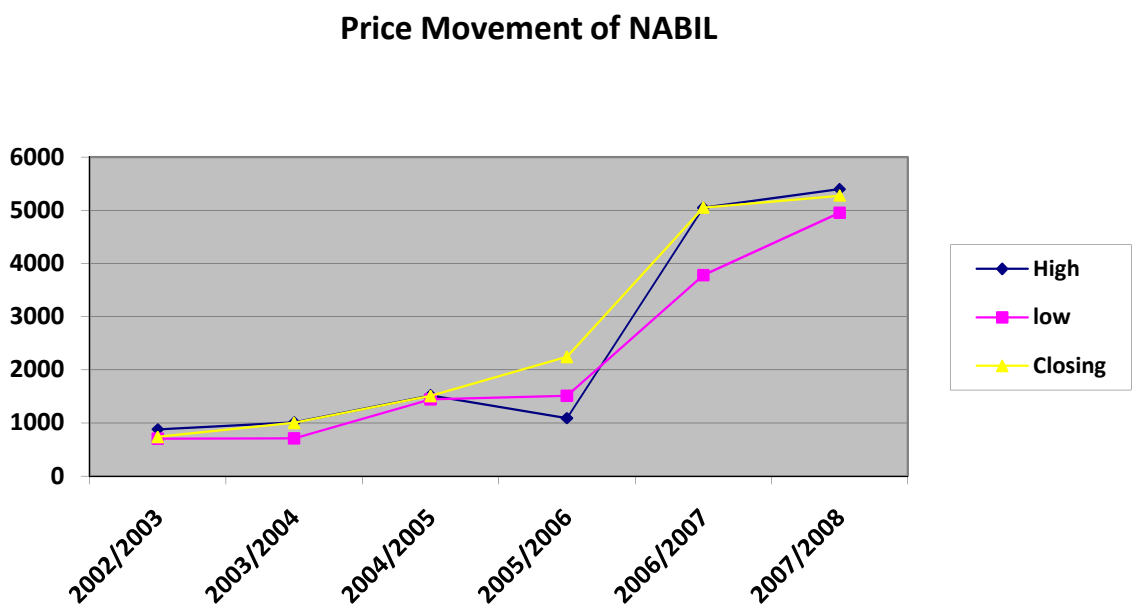
Table No.: (6) Calculation of Mean, Standard Deviation & C.V. of Nabil Bank

Fiscal Year	Market Price Per Share			Total Dividend		
	High	Low	Closing	Cash	Stock	Total
2002/2003	875	700	735			
02003/2004	1005	705	1000	50		50
2004/2005	1515	1440	1505	65		65
2005/2006	1085	1505	2240	70		70
2006/2007	5050	3775	5050	85		85
2007/2008	5400	4950	5275	100		100

(Source: Calculated on the basis of Data extracted from NEPSE)

The bank has not announced stock dividend at all. So the dividend amount gained by shareholders are same as cash dividend .MPS at 2006/2007 and 2007/2008 seems surprisingly very high.

Figure No.: (5) Price Movement of NABIL



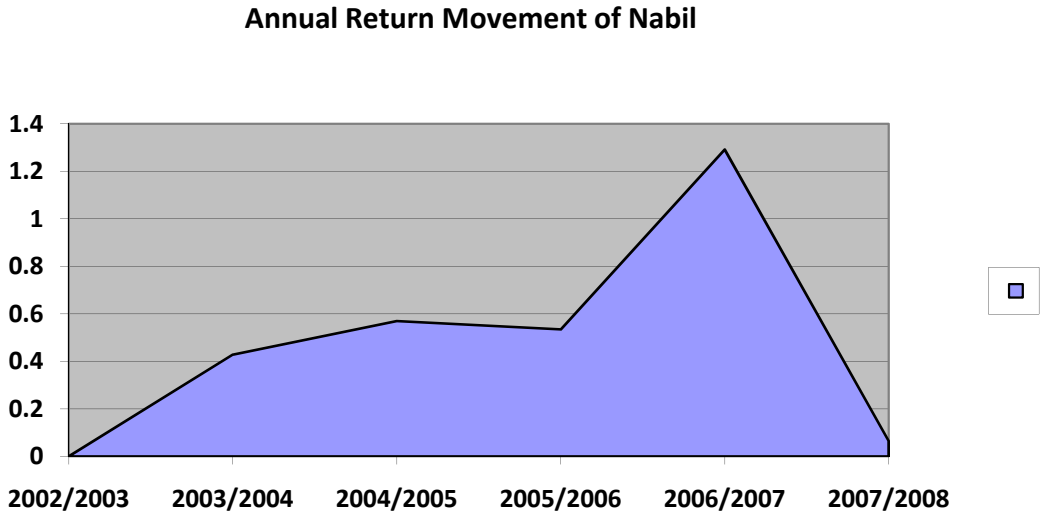
From above table and figure, we can conclude that the closing price is in increasing trend from F/Y2002/ 03 to 2005/06. Then it is also increasing trend. During the years the highest closing price is Rs.5275 in F/Y 2007/08 and the lowest closing price is Rs.735 in F/Y 2002/2003.

Table no.: (7) Calculation of Expected return, Standard Deviation Co-efficient of Variation of Nabil.

Fiscal year	MPS(Pt)	Total Dividend	R2 = $\frac{P_t - P_{t-1} + D_1}{P_{t-1}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$
2002/2003	735	-	-	-	-
2003/2004	1000	50	0.4285	-0.1495	0.0223
2004/2005	1505	65	0.57	-0.008	.000006
2005/2006	2240	70	0.5349	-0.0431	0.0018
2006/2007	5050	85	1.2924	0.7144	0.5103
2007/2008	5275	100	0.0643	-0.5137	0.2638
Total			2.8901		0.7983
			Mean		0.5780
			Standard Deviation		0.4467
			Coefficient of variation		0.7728

(Sources: SEBON & Appendix no.2)

Figure No.:(6) Annual Return Movement of NABIL



From above calculation the expected return of market is 57.80%, standard deviation is 44.67 % and co-efficient of variation is 0.7728

Table no. (8) Calculation of Covariance, Beta coefficient of Nabil

Fiscal year	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})\ (R_m - \overline{R_m})$
2002/2003	-	-	-	-	
2003/2004	-0.1495	0.0223	-0.2964	0.0878	0.0443
2004/2005	-0.008	.000006	-0.0891	0.0079	0.00007
2005/2006	-0.0431	0.0018	0.0307	0.0009	-0.0013
2006/2007	0.7144	0.5103	0.3878	0.1504	0.2770
2007/2008	-0.5137	0.2638	-0.0283	0.0008	0.0145
		0.7983		0.2478	0.33457
				Co-variance	0.0836
				Beta	1.3495

(Sources: Appendix no. 2)

From the above table the co-variance of Nabil is 0.0836 and its beta is 1.3495. The beta 1.3495 is high than market beta 1, so, it is aggressive.

C. Himalayan Bank Limited (HBL)

Himalayan Bank Ltd. is a joint venture bank with Habib Bank Ltd. of Pakistan, was established in 1992 under the company act 1964. This is the first Joint Venture bank managed by Nepalese Chief Executive. The operation of the bank started from 1993 February.

The main objectives of the bank is to provide modern banking facilities like Tele Banking to the businessmen, industrialist and other professionals and to provide loans on agriculture, commerce and industrial sectors.

Capital Structure of Himalayan Bank Ltd.:

Promoters shareholders	51%
Habib Bank Ltd.	20%
Employee Provident Fund	14%
Nepalese Public	15%
	100%

Besides banking facilities, the bank provided following facilities:

- Credit Cards
- Brach banking
- ATM Service
- Tele Banking
- VISA Card
- 365days Banking service
- 24 Hours Banking Services (New Road Branch)

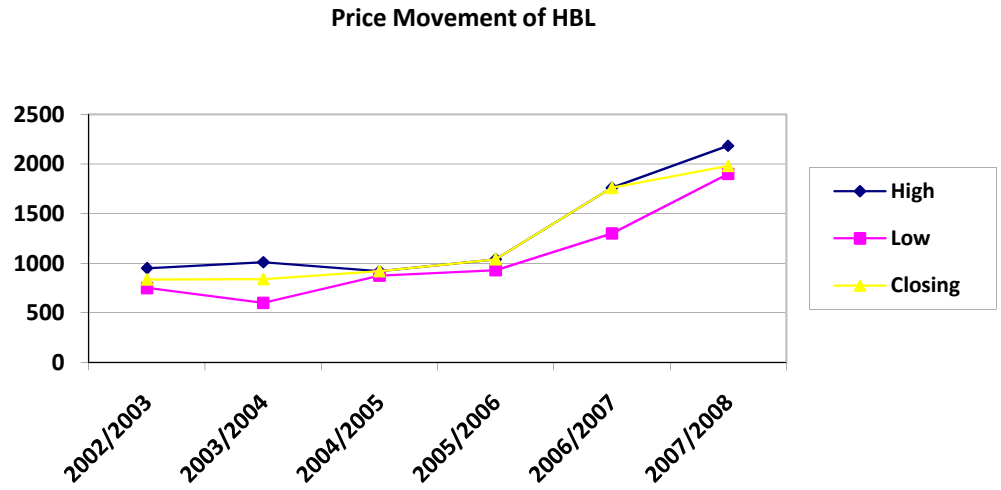
Table No.: (9) MPS and DPS of HBL

Fiscal Year	Market Price Per Share			Total Dividend		
	High	Low	Closing	Cash	Stock	Total
2002/2003	950	750	836			
2003/2004	1010	600	840	20		20
2004/2005	920	875	920	20		-
2005/2006	1040	930	1040	11.5	20%	11.5+20%×1760=363.5
2006/2007	1760	1300	1760	30	5%	30+5%x2184=139.2
2007/2008	2184	1900	1980	15		15

(Source: Calculated on the basis of Data extracted from NEPSE)

HBL has declared Cash dividend through out the review period and stock dividend was declared at the end of F/Y 2005/06 and 2006/07 . (ie,20% and 5% respectively).

Figure No.: (7) Price movement of HBL



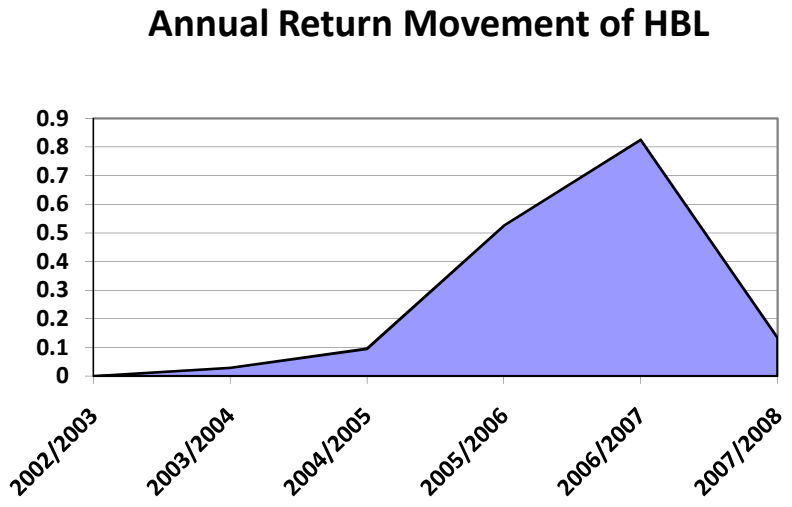
The above table and figure show that the closing price is in increasing trend from F/Y2002/ 03 to 2007/08. During the years the highest closing price is Rs.1980 in F/Y 2007/08 and the lowest closing price is Rs.836 in F/Y 2002/03.

Table No. (10): Calculation of Expected return, standard deviation co-efficient of variation of HBL

Fiscal year	MPS(Pt)	Total Dividend	R3 = $\frac{P_t - P_{t-1} + D_1}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$
2002/2003	836	-	-	-	-
2003/2004	840	20	0.0287	-0.2931	0.0860
2004/2005	920	-	0.0952	-0.2266	0.0513
2005/2006	1040	363.5	0.5255	0.2037	0.0414
2006/2007	1760	139.2	0.8261	0.5043	0.2543
2007/2008	1980	15	0.1335	-0.1883	0.0354
			1.609		0.4684
Mean			**0.3218**		
Standard deviation			**0.3422**		
Coefficient of variation			**1.0633**		

(Source: SEBON & Appendix no.3)

Figure No.: (8) Annual Return Movement of HBL



From above calculation the expected return of market is 32.18%, standard deviation is 34.22 % and co-efficient of variation is 1.0633

Table No. (11) Calculation of Covariance, Beta coefficient of HBL

Fiscal year	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})\ (R_m - \overline{R_m})$
2002/2003	-		-	-	-
2003/2004	-0.2931	0.0860	-0.2964	0.0878	0.0868
2004/2005	-0.2266	0.0513	-0.0891	0.0079	0.0202
2005/2006	0.2037	0.0414	0.0307	0.0009	0.0062
2006/2007	0.5043	0.2543	0.3878	0.1504	0.1955
2007/2008	-0.1883	0.0354	-0.0283	0.0008	0.0053
				0.2478	0.314
				Covariance	**0.0785**
				Beta	**1.2671**

(Sources:Appendix no.3)

From the above table the co-variance of HBL is 0.0785 and its beta is 1.2671. The beta 1.2671 is high than market beta 1, so, it is aggressive.

D. Everest Bank Limited (EBL)

Everest Bank Limited (EBL) was established in 1994 and started its operations with a view and objective of extending professional i zed and efficient banking services to various segments of the society. EBL joined hands with Punjab National Bank (PNB), India as its joint venture partner in 1997. PNB is the largest Public Sector Bank of India having 113 years of banking history with more than 4500 offices allover India and is known for its strong systems and procedures and a distinct work culture

The Bank's Paid-Up Capital has increased to 455 million against the Authorized Capital of 750 million whereas the Core Capital of the Bank is around 2178 million.

CAPITAL STRUCTURES OF EBL

Local Promoters	50%
Joint Venture Partner PNB	20%
Public	30%
	100%

Services provided by EBL

- Branch Network
- Foreign Service
- Remittance
- Representative Office
- Debit Card
- 365 days Banking
- Progress report
- Newsletter
- Loan Payment calculator
- ABBS Facility

Table No. (12) MPS and DPS of EBL

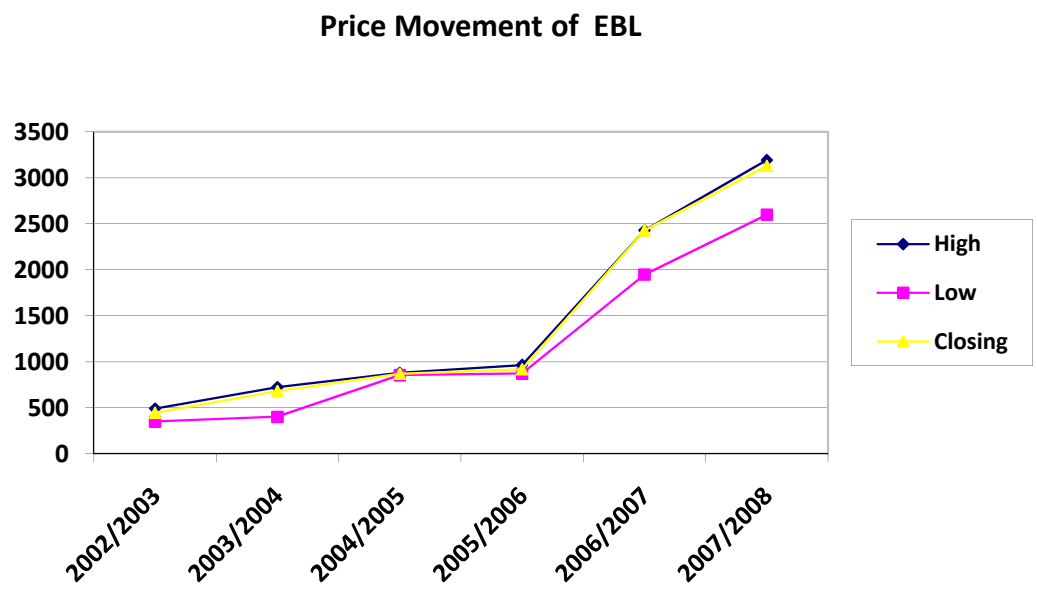
Fiscal	Market Price Per Share	Total Dividend

Year						
	High	Low	Closing	Cash	Stock	Total
2002/2003	490	349	445			
2003/2004	723	400	680	20		20
2004/2005	880	855	870	20		20
2005/2006	965	871	918		20	20%x2430=486
2006/2007	2430	1950	2430	25		25
2007/2008	3195	2600	3132	30		30

(Source: Calculated on the basis of Data extracted from NEPSE)

EBL has declared cash dividend all in review period except 2005/2006.Stock dividend was declared at the end of F/Y 2005/2006.ie.20%

Figure No:(9) Price movement of EBL



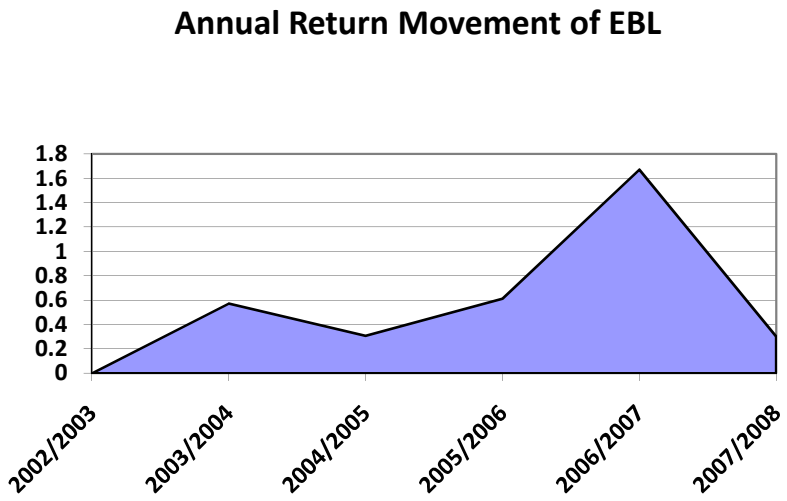
From above table and figure the closing price movement is fluctuating. During the years the highest closing price is Rs.3132 in F/Y 2007/08 and the lowest closing price is Rs.445 in F/Y 2002/2003.

Table No: (13) Calculation of Expected return, standard deviation co-efficient of variation of EBL

Fiscal year	MPS(Pt)	Total Dividend	R3 = P_{t-1}	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$
2002/2003	445		-	-	-
2003/2004	680	20	0.5730	-0.1212	0.0146
2004/2005	870	20	0.3088	-0.3854	0.1485
2005/2006	918	486	0.6137	-0.0805	0.0065
2006/2007	2430	25	1.6743	0.9801	0.9606
2007/2008	3132	30	0.3012	-0.3930	0.1545
			3.471		1.2847
Mean					**0.6942**
Standard deviation					**0.5667**
Co-efficient of variation					**0.8163**

(Sources:SEBON & Appendix No.4)

Figure No: (10) Annual return movement of EBL



From above calculation the expected return of market is 69.42%, standard deviation is 56.67 % and co-efficient of variation is 0.8163

Table No.(14) Calculation of Covariance, Beta coefficient of EBL

Fiscal year	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})\ (R_m - \overline{R_m})$
2002/2003	-	-	-	-	-
2003/2004	-0.1212	0.0146	-0.2964	0.0878	0.0359
2004/2005	-0.3854	0.1485	-0.0891	0.0079	0.0343
2005/2006	-0.0805	0.0065	0.0307	0.0009	0.0007
2006/2007	0.9801	0.9606	0.3878	0.1504	0.3801
2007/2008	-0.3930	0.1545	-0.0283	0.0008	0.0111
		1.2847		0.2478	0.4621
				Covariance	**0.1155**
				Beta	**1.8644**

(Sources: Appendix No.4)

From the above table the co-variance of EBL is 0.1155 and its beta is 1.8644. The beta 1.8644 is greater than market beta 1, so, it is aggressive.

E. Nepal Bangladesh Bank (NBBL)

Nepal Bangladesh Bank Ltd. a joint venture bank with I.F.I.C. Bank Ltd. of Bangladesh was established in 1993 under the company act 1964. The main objectives of the bank is to carry out commercial banking activities under the commercial bank act 1974, the bank is managed by IFIC Bank Ltd. Bangladesh in accordance with the Joint –Venture and Technical services agreement between it and Nepali promoters.

Capital Structure of Nepal Bangladesh Bank Ltd.:

IFIC Bank Ltd.	50%
Local Promoters	20%
General Public	30%
	100%

Services provided by NBBL:

- Trade Finance
- Letter of Credit
- Bills Purchase

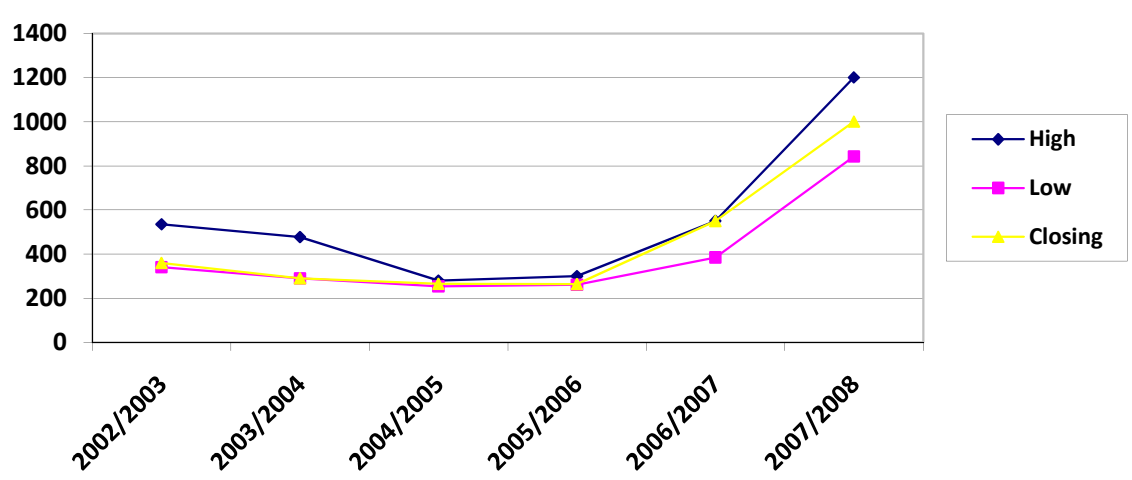
- Remittance Services all over the world
- Locker Facility
- Tele Baking
- ATM Services
- Branch Banking
- SMS banking
- Bearer Certificate of Deposit (BCD) Facility Consortium Finance
- Working Capital Loan
- ABBS(Any Branch Banking Service) facility.

Table No: (15) MPS and DPS of NBBL

Fiscal Year	Market Price Per Share			Total Dividend		
	High	Low	Closing	Cash	Stock	Total
2002/2003	535	341	360	-		-
2003/2004	477	290	290			-
2004/2005	280	254	265			-
2005/2006	300	261	264	15		15
2006/2007	550	385	550			-
2007/2008	1201	843	1001			-

(Source: Calculated on the basis of Data extracted from NEPSE)

Figure No.:(11) Price movement of NBBL



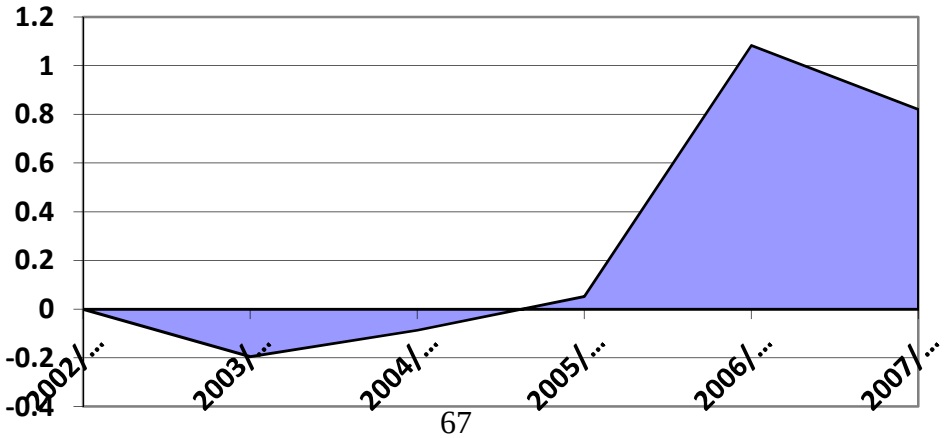
From above table and figure the closing price movement is in decreasing trend form F/Y 2002/03 to 2005/06. Then it is increasing from 2006/07. During the years the highest closing price is Rs.1001 in F/Y 2007/08 and the lowest closing price is Rs.264 in F/Y 2005/06.

Table No.:(16) Calculation of Expected return, standard deviation co-efficient of Variation of NBBL

Fiscal year	MPS(Pt)	Total Dividend	R3 = P_{t-1}	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$
2002/2003	360	-	-	-	-
2003/2004	290	-	-0.1944	-0.5295	0.2803
2004/2005	265	-	-0.0862	-0.4213	0.1775
2005/2006	264	15	0.0528	-0.2823	0.0796
2006/2007	550	-	1.0833	0.7482	0.5598
2007/2008	1001	-	0.8200	0.4849	0.2351
			1.6755		1.3323
Mean			**0.3351**		
Standard Deviation			**0.5771**		
Co-efficient of variation			**1.7222**		

(Sources: SEBON & Appendix no.5)

Figure No (12): Annual return movement of NBBL



From above calculation the expected return of market is 33.51 %, standard deviation is 57.71% and co-efficient of variation is 1.7222

Table No.(17) Calculation of Covariance, Beta coefficient of NBBL

Fiscal year	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - R_m)$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})\ (R_m - R_m)$
2002/2003	-	-	-	-	-
2003/2004	-0.5295	0.2803	-0.2964	0.0878	0.1569
2004/2005	-0.4213	0.1775	-0.0891	0.0079	0.0375
2005/2006	-0.2823	0.0796	0.0307	0.0009	0.0087
2006/2007	0.7482	0.5598	0.3878	0.1504	0.2901
2007/2008	0.4849	0.2351	-0.0283	0.0008	-0.0283
				0.2478	0.4649
				Covariance	0.1162
				Beta	1.8757

(Sources: Appendix No. 5)

From the above table the co-variance of NBBL is 0.1162 and its beta is 1.8757.The beta 1.8757 is high than market beta 1, so, it is aggressive.

4. 2 Inter Bank Comparison

In this section Expected return, standard deviation, co-efficient of variation of each banks from the year 2002/03 to 2007/08 are presented in the following table for the purpose of comparative analysis.

Table No. :(18) Calculation of Expected Returns, S. D., C.Vof different Banks

Banks	Expected Returns	Standard Deviation	Coefficient of Variation (C.V)
Standard Chartered Bank Ltd.	0.4201	0.2877	0.6848
Nabil Bank Ltd.	0.5780	0.4467	0.7728
Himalayan Bank Ltd.	0.3218	0.3422	1.4555
Everest Bank Ltd.	0.6942	0.5667	0.8163
Nepal Bangladesh Bank Ltd.	0.3351	0.5771	1.7222
Mean	0.46984	0.44408	1.09032

(Sources: Appendix no. 1,2,3,4,5)

Above table shows the expected return, standard deviation , coefficient of variation and mean of different bank. According to this table Everest Bank has greatest expected return in comparison to other banks. Similarly in case of risk Everest Bank has highest risk in stock among above banks. But Nepal Bangladesh Bank Ltd. has more variability that is 1.7222. This shows the higher the gain higher the risk.

Analysis of Correlation between market returns and return on common stock

Table No.:(19)

Banks	Correlation
Standard Chartered Bank Ltd.	+ 0.8574
Nabil Bank Ltd.	+ 0.7512
Himalayan Bank Ltd.	+ 0.8188
Everest Bank Ltd.	+ 0.9216
Nepal Bangladesh Bank Ltd.	+ 0.8089

(Sources: Appendix no 1,2,3,4,5)

Above table shows the correlation between market return and individual expected return. All banks have positive correlation with market return. But Everest bank is highly positively correlated with market return. It means if market return increases all security's return also increases whereas the decrease in the market price decreases expected return .

4.3 Inter bank Beta Coefficient

Market sensitivity of stock can be defined by terms beta co-efficient. If beta co-efficient is higher that indicates the greater the sensitivity to the movement of market. Beta is a systematic risk that cannot be eliminated through diversification as unsystematic risk.

A systematic risk of an individual stock can be evaluated with the help of the market beta. Beta of individual can be less than, equal to or more than 1. The beta of one

reflects average market risk and commands the averages market risk premium. The beta less than one implies that the stock is less volatile than market or said to be a defensive stock.. Beta greater than 1 implies that the stock is more volatile than market of said to be aggressive stock. If the beta is positive it moves with the market that means stock return will rise when market return rises and vice versa.

Table No.(20) Beta Coefficient of each bank

Banks	Beta
Standard Chartered Bank Ltd.	0.9911
Nabil Bank Ltd.	1.3495
Himalayan Bank Ltd.	1.2671
Everest Bank Ltd.	1.8644
Nepal Bangladesh Bank Ltd.	1.8757

(Sources: Appendix no. 1,2,3,4,5)

Above table shows the Beta co-efficient of different banks. According to this table beta coefficient of Standard Chartered Bank is less than 1. It means those stocks are less volatile than others stock. Beta coefficient of Nabil and Himalayan banks is more than 1 which means those stocks are more volatile. But beta coefficient of Everest Bank and Nepal Bangladesh Bank is 1.8644 and 1.8757 which is very close to 2 means which they are very highly volatile with market risk. It also can be considerd as aggressive stock. The investor who is risk seeker those can invest in this type of stock. Standard Chartered 's stocks are defensive stock. The investor who don't like to bear risk can invest in this type of stock.

Table No.(21) Analysis of Systematic and Unsystematic Risk

Banks	Total Risk	Systematic Risk	Unsystematic Risk
SCNBL	0.08277	0.06085	0.02192

Nabil	0.19954	0.11282	0.08672
HBL.	0.11710	0.0996	0.01764
EBL	0.32114	0.21534	0.1058
NBBL.	0.33304	0.21795	0.11509

(Source: (Appendix No. 1,2,3,4,5)

Total risk is the composed of systematic risk and unsystematic risk. Among them NBBL's stock is highly risky because it has highest total risk. SCNBL's stock is less risky because it has lowest total risk. But if investor consider systematic risk as a decision factor NBBL is highly risky stock among other stocks.

4.4 The Security Market Line

"The CML, defines the relationship between total risk and expected return for portfolios consisting of the risk free and the total market portfolio. How is the relationship between the individual assets defined in a capital market that is in equilibrium? The capital asset pricing model identifies security return net of the risk free rate as proportional to the expected net market return where beta serves as the constant of proportionality. As a consequence of this relationship all securities in equilibrium plot along a straight line called the securities market line (SML). Since unsystematic risk tends to be diversified away by the construction of an efficient portfolio, it is desirable to develop an alternative to CML, which uses beta as the independent variable and will accommodate both portfolio and individual assets. Such a line is called the security Market Line.

There is a linear relationship between their expected return and their covariance with the market portfolio. This relationship, called the security market line (SML), is as follow:

$$R_i = R_f + (R_m - R_f)_{\ i}$$

Where, R_i = Expected return on security i

R_f = Risk free return

R_m = Expected Return on market portfolio

i = Beta Co-efficient of security I

Table No.:(22)

Required rate of return, expected return and stock price situation of each bank

Banks	Expected return	Risk-Free Rate	Beta	Market Return	RRR Rf+(Rm-Rf)	Remarks
SCBL	42.01%	24.89%	0.9911	38.02%	37.90	**Under priced**
Nabil	57.80%	24.89%	1.3495	38.02%	42.60	Under priced
HBL	32.18%	24.89%	1.2671	38.02%	41.52	Over priced
EBL	69.42%	24.89%	1.8644	38.02%	49.36	Under priced
NBBL	33.51%	24.89%	1.8757	38.02%	49.51	Over priced

(Source:Appendix 7)

Above table shows the required rate of return, expected rate of return and price situation of stock of different banks. According to this table EBL has highest expected return. For decision expected rate of return and required rate of return is considered and according to this SCBL, NABIL & EBL's required rate of return is less than their expected return that's why these security are under priced. In such situation investor should buy the stock. On the other hand, stock of HBL and NBBL are over priced because their expected return is less than the required rate of return. In such situation investor should sell the stock.

4.5 Portfolio Analysis

A portfolio is a combination of different investment assets. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. It reduces a portfolio's total diversifiable risk to zero. Previous analysis to risk and return is based on the investment in single security. The expected return of portfolio is simply a weighted average of the expected return of the securities comprising that portfolio the weights are equal to the proportion of total fund invested in each security. The sum of weight must be 100%. Analysis have shown that many Nepalese private investor placed their entire wealth

in single asset or investment .if they construct a portfolio or group or investment in such kind of assets, which are negatively correlated. They can reduce unsystematic risk dramatically without loosing their return. Therefore, we need to extend our analysis of risk and return to portfolio context.

Here, we are going to analyze the portfolio. The analysis is based on two assets portfolio and the tools for analysis are described in the chapter –3, research Methodology.

4.5.1 Portfolio between SCNBL & NABIL

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

Table No.23 : Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	
2003/2004	-0.2951	-0.1495	0.0441
2004/2005	-0.0391	-0.008	0.0003
2005/2006	0.2195	-0.0431	-0.0095
2006/2007	0.364	0.7144	0.2600
2007/2008	-0.249	-0.5137	0.1279
			0.4228

(Source: Appendix no.1,2, 7)

SCBNL

Mean	0.4201
Standard deviation	0.2877
Coefficient of variation	0.6848

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.7728

Cov(rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.4228/4 = 0.1057

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

Wa = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

== $(0.4467^2$-0.1057)/[0.2877^2 +0.4467^2-2*0.1057]

= 1.3233

W_B = 1-1.3233 = -0.3233

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ = 0.1057/ 0.2877*0.4467 = 0.8224

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (1.3233)(0.4201)+(-0.3233)(0.5780)

= 0.5559-0.1313=0.3691

= 36.91%

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

=√ $(1.3233)^2$ $0.2877)^2$+$(-0.3233)^2$ $(0.4467)^2$+2*(1.3233)(-0.3233)(0.1057)

= 0.07535

Since WA= 1.3233, and WB = -0.3233, this result indicates that if the investor wants to minimize risk, he/she would have to invest132.33% of his/her capital in stock A i.e. common stock of SCNBL and the lower part 32.33% in stock B i.e. common stock of NABIL.

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

4.5.2 Portfolio between NABIL& EBL

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

Table No 24 Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	-
2003/2004	-0.1495	-0.1212	0.01811
2004/2005	-0.008	-0.3854	0.0031
2005/2006	-0.0431	-0.0805	0.0035
2006/2007	0.7144	0.9801	0.7002
2007/2008	-0.5137	-0.3930	0.2019
			0.9268

(Sources: Appendix no.2,4, 7)

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.7728

EBL

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

Cov(rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.9268/4 =0.2317

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

WA = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.5667^2$-0.9268)/[0.4467^2 +0.5667^2-2*0.9268]

= 0.4543

W_B = 1-0.4543 =0.5457

Correlation

$Cor(r_i r_m)$ = $\frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ = 0.2317/ 0.4467*0.5667 =0 .9153

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (0.4543)(0.5780)+(0.5457)(0.6942)

= 0.6414

= 64.14%

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

= √ $(0.4543)^2$ $(0.4467)^2$+$(0.5457)^2$ $(0.5667)^2$+2*(0.4543)(0.5457)(0.2317)

= 0.2517=25.17%

Since WA= 0.4543, and WB = 0.5457, this result indicates that if the investor wants to minimize risk, he/she would have to invest 54.57% of his/her capital in stock B i.e. common stock of EBL and the lower part 45.43% in stock A i.e. common stock of NABIL.

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

4.5.3 HBL & EBL

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

Table No.:25 Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	
2003/2004	-0.2931	-0.1212	0.0355
2004/2005	-0.2266	-0.3854	0.0873
2005/2006	0.2037	-0.0805	-0.0164
2006/2007	0.5043	0.9801	0.4942
2007/2008	-0.1883	-0.3930	0.0740
			0.6746
HBL Mean			**0.3218**
Standard deviation			**0.3422**
Coefficient of variation			**1.4555**

EBL

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

(Sources: Appendix no.3,4,7)

Cov (rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.6746/4 = 0.1686

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

Wa = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.5667^2 - 0.1686)/[0.3422^2 + 0.5667^2 - 2*0.1686]$

= 0.1967

WB = 1-0.1967

=0.8033

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ =0.1686/ 0.3422×0.5667 = 0.8694

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = 0.1967×0.3218+0.8033×0.6942

= 0.6209

=62.09

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

=√ $(0.1967)^2 (0.3422)^2 + (0.8033)^2 (0.5667)^2 + 2*(0.1967)(0.8033)(0.1686)$

=√0.0045+0.2072+0.0532

=0.5146

=51.46%

Since WA= 0.1967, and WB = 0.8033, this result indicates that if the investor wants to minimize risk, he/she would have to invest 80.33% of his/her capital in stock B i.e. common stock of EBL and the lower part 19.67% in stock A i.e. common stock of HBL.

The correlation between the return of the two securities plays a significant role in the risk reduction by portfolio construction. If the correlation is perfectly positive or 1 then the portfolio cannot reduce any level of risk. And if the correlation is perfectly

negative or –1, then the proper combination of the two securities can reduce unsystematic risk even up to zero. It means the positive correlation between securities is not so beneficial and vice-versa. Here, in case of portfolio of HBL common stock and EBL's common stock, the correlation is positive correlated that's why the portfolio construction between these two stocks is not beneficial.

4.5.4 EBL & SCNBL

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

EBL

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

SCBNL

Mean	0.4201
Standard deviation	0.2877
Coefficient of variation	0.6848

Table No 26 Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	-
2003/2004	-0.1212	-0.2951	0.0358
2004/2005	-0.3854	-0.0391	0.0151

2005/2006	-0.0805	0.2195	-0.0177
2006/2007	0.9801	0.364	0.3567
2007/2008	-0.3930	-0.249	0.0978
			0.5231

(Sources: Appendix no.1,4,7)

Cov(rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ = 0.5231/5-1 = 0.1307

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

Wa = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.2877^2+0.1307)/[0.5667^2 +0.2877^2 - 2*0.1307]$

= -0.3361

W_B = 1-(-0.3361)=1.3361

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ = 0.1307/ 0.5667*0.2877 = 0.8016

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (-0.3361)(0.6942)+(1.3361)(0.4201)

= 0.3279

=32.79%

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

=√ $(-0.3361)^2 (0.5667)^2+(1.3361)^2 (0.2877)^2+2*(-0.3361)(1.3361)(0.1307)$

=√0.0362+0.1477-0.1173

=0.2509

=25.09%

Since WA= -0.3361, and WB = 1.3361, this result indicates that if the investor wants to minimize risk, he/she would have to invest 133.61% of his/her capital in stock B i.e. common stock of SCNBL and the lower part 33.61% in stock A i.e. common stock of EBL

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

4.5.5 NBBL & SCNBL

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

Table No.:27 Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	-
2003/2004	-0.5295	-0.2951	0.15625
2004/2005	-0.4213	-0.0391	0.01647

2005/2006	-0.2823	0.2195	-0.06196
2006/2007	0.7482	0.364	0.2723
2007/2008	0.4849	-0.249	-0.1207
			0.26236

(Source: Appendix no.3,4,7)

NBBL

Mean	0.3351
Standard Deviation	0.5771
Co-efficient of variation	1.7222

SCBNL

Mean	0.4201
Standard deviation	0.2877
Coefficient of variation	0.6848

Cov(rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.2623/(5-1)=0.0655

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

Wa = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.2877^2 - 0.0655)/[0.5771^2 + 0.2877^2 - 2*0.0655]$

= 0.06036

W_B = 1-0.06036 = 0.9396

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ = 0.0655/(0.5771*0.2877) =0.3950

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (0.06036)(0.3351)+(0.9396)(0.4201)

= 0.4149

=41.49%

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

$=\sqrt{(0.0605)^2 (0.5771)^2 + (0.9396)^2 (0.2877)^2 + 2*(0.0603)(0.9396)(0.0655)}$

$= \sqrt{0.0012+0.0730+0.0074}$

$=0.2856$

28.56%

Since WA= 0.0655, and WB = 0.9396 this result indicates that if the investor wants to minimize risk, he/she would have to invest 93.96% of his/her capital in stock B i.e. common stock of SCNBL and the lower part6.036% in stock A i.e. common stock of NBBL.

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

4.5.6 Nabil & NBBL

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

Table No.;28 Cov(RA,RB), Correlation (rAB) and Weights of Stock A and Stock B

Year	(RA- $\overline{R}$ A)	(RB- $\overline{R}$ B)	(RA- $\overline{R}$ A)(RB- $\overline{R}$ B)
2002/2003	-	-	-
2003/2004	-0.1495	-0.5295	0.0792
2004/2005	-0.008	-0.4213	0.0037
2005/2006	-0.0431	-0.2823	0.0122
2006/2007	0.7144	0.7482	0.5345
2007/2008	-0.5137	0.4849	-0.2491
			0.3803

(Source: Appendix no.2,5,7)

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.728

NBBL

Mean	0.3351
Standard Deviation	0.5771
Co-efficient of variation	1.7222

Cov(rj rm) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.3803/(5-1)=0.0951

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

Wa = $\frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.5771^2 - 0.0951)/[0.4467^2 + 0.5771^2 - 2*0.0951]$

= 0.6950

W_B = 1-0.6950=0.3049

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ =0.0951/ 0.4467*0.5771 = 0.3689

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (0.6950)(0.5780)+(0.3049)(0.3351)

=0.5038

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

$=\sqrt{(0.6950)^2 (0.4467)^2 + (0.3049)^2 (0.5771)^2 + 2*(0.6950)(0.3049)(0.0951)}$

$=\sqrt{0.0963+0.03096+0.0403}$

=0.4094

=40.94%

Since WA= 0.6950, and WB = 0.3049, this result indicates that if the investor wants to minimize risk, he/she would have to invest in stock A i.e. common stock of NABIL.

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

4.2 Major Findings

Expected Return:

The expected return of SCNBL, NABIL, HBL, EBL& NBBL are 42.01 %, 57.80%, 32.18%, 69.42% and 33.51% respectively. EBL has highest expected return and HBL has lowest expected return.

Standard Deviation:

The standard deviation of SCNBL, NABIL, HBL, EBL& NBBL are 28.77%, 44.67%, 34.22%, 56.67% and 57.71% respectively. NBBL has highest standard deviation SCNBL has lowest standard deviation.

Coefficient of Variance:

The coefficient of variance of SCNBL, NABIL, HBL, EBL & NBBL are are 0.6848, 0.7728, 1.0633, 0.8163 and 1.7222 respectively. NBBL has highest coefficient of variance SCNBL has lowest coefficient of variance

Co-relation Co-efficient:

The co-relation co-efficient of SCNBL, NABIL, HBL, EBL& NBBL are 0.8574, 0.7512, 0.8188, 0.9216 and 0.8089 respectively. Among them EBL is highly positively correlated with market returns.

Beta Coefficient

The beta coefficient of SCNBL, NABIL, HBL, EBL& NBBL are 0.9911, 1.3495, 1.2671, 1.8644 and 1.8757 respectively. NBBL has highest beta coefficient SCNBL has lowest beta coefficient

Portfolio Return:

The portfolio returns between SCNBL & NABIL, NABIL & EBL, 36.91% and 64.41%,NABIL & EBL has highest portfolio return and SCNBL & NABIL has lowest portfolio return.

Portfolio Risk:

The portfolio risk between SCNBL & NABIL, NABIL & EBL, 45.72% and 50.17% ,NABIL & EBL has highest portfolio risk and SCNBL & NABIL has lowest portfolio risk.

Chapter 5

Summary, Conclusion and Recommendation

This chapter summarizes the whole study. It draws the conclusion from the study and forwards recommendation to erase the weakness of common stock of concern banks, observed on the basis of major finding.

5.1 Summary and Conclusion

Investment portfolio is one such tool that helps for proper utilization of resources. The proper mobilization and utilization of resources of domestic countries is needed for a sustainable economic development. A good investment policy has positive impact on economic development of the nation and investors too. Capital formation and its pr+oper utilization play a leading role for rapid economic development.

Investment is the employment of funds with the aim of achieving addition income of growth in value. Investment involves long term commitment and waiting for a reward. An investor involves the sacrifice of current rupees for future rupees. Real assets investment involves some kind of tangible assets such as land, building, machinery, automobiles etc. Financial investment is pieces of paper representing and indirect claim to real assets real assets held by someone else. These pieces of paper are Common stock, Bond, Debenture etc. which represent as the liquid assets.

Every investment involves uncertainties that make future investment return risky. Some the sources of uncertainty that contribute to investment risk are interest rate risk, market risk, default risk, liquidity risk, call ability risk, convertibility risk. Political risk and industry risk. As an investor, every one has a wide area of investment avenues available such as common stock, preferred stock, debt, securities, derivative securities, hybrid securities, real assets, mutual fund etc. Among them this study is concerned with equity shares and investment on common stock of banking sector. Common stock represents ownership position in

a corporation. The risk is highest with common stock investment when investors buy common stock they receive certificate of ownership in the company. The certificate states the number of shares purchased and their par value.

In Nepal, as per the provision of Nepal Company Act 2053 no common stocks are allowed to issue without par value. Its par value must be either Rs.10 or Rs.100.

This study is concerned with portfolio analysis. Here, a portfolio is a bundle of combination of individual assets or securities. If investor hold a well diversified portfolio, then his concern should be the expected return and risk of the portfolio return theory provides normative approach to the investor' decision to investment in assets or securities under risk. If analysis different individual assets and delineate efficient portfolio. So the study will focus on portfolio analysis of Nepalese selected listed companies with reference to the common stock investment.

For this study, five commercial banks has taken, which are listed in NEPSE. An analysis of portfolio in common stocks of these banks are made in this study. They are SCNBL, NABIL, HBL, EBL and NBBL While analyzing the portfolio a brief review of literature has been conducted. Financial tools, statistical tools as well as personal judgment are used. The data gathered for this purpose are presented in tables, graphs and figures and analysis is made by using appropriate financial and statistical tools.

Mainly secondary data are used in this study, which are collected from the NEPSE and SEBO/N and other selected finance companies. Other subjective type information are collected through personal contact with private investors, personnel of the companies and official of SEBO/N and NEPSE.

From the analysis of that following facts are found:
The expected return of SCNBL, NABIL, HBL, EBL& NBBL are 42.01 %, 57.80%, 32.18%, 69.42% and 33.51% respectively. EBL has highest expected return and HBL

has lowest expected return. So, as per expected return stocks of EBL is preferable to invest.

The standard deviation of SCNBL, NABIL, HBL, EBL& NBBL are 28.77%, 44.67%, 34.22%, 56.67% and 57.71% respectively. NBBL has highest standard deviation SCNBL has lowest standard deviation. It means the high risk is associated with the return of stock of NBBL.

Coefficient of variance measures the risk per unit. The coefficient of variance of SCNBL, NABIL, HBL, EBL & NBBL are 0.6848, 0.7728, 1.0633, 0.8163 and 1.7222 respectively. NBBL has coefficient of variance SCNBL has lowest coefficient of variance. As per C.V. the stock of NBBL has more risk per unit than others. If the investor is risk seeker, he can choose the stock of NBBL if not he can choose the stock of SCNBL for investment

The co-relation co-efficient of SCNBL, NABIL, HBL, EBL& NBBL are 0.8574,0.7512,0.8188 ,0.9216 and 0.8089 respectively. Among them NABIL is highly positively correlated with market returns.

The beta coefficient of SCNBL, NABIL, HBL, EBL & NBBL are 0.9911, 1.3495,1.2671,1.8644 and 1.8757 respectively. NBBL has highest beta coefficient SCNBL has lowest beta coefficient. It means the stock of NBBL is more aggressive than others.

Portfolio Return

The portfolio returns between SCNBL & NABIL, NABIL & EBL, 36.91% and 64.41%,NABIL & EBL has highest portfolio return and SCNBL & NABIL has lowest portfolio return. So, as per expected return stocks of NABIL & EBL is preferable to invest.

Portfolio Risk

The portfolio risk between SCNBL & NABIL, NABIL & EBL, 45.72% and 50.17% ,NABIL & EBL has highest portfolio risk and SCNBL & NABIL has lowest portfolio risk. It means the high risk is associated with the portfolio risk NBBL & EBL.

5.2 Recommendation

On the basis of the analysis and findings of this study, following recommendations are suggested to overcome the weakness and inefficiency and to improve the present situation of the concern.

- Investors need to diversify their fund to reduce risk. Efficient portfolio depends on market movement. For the portfolio construction investor should select the stocks that have higher return and negative correlation or moderate positive correlation between stocks of different companies and sectors. Similar stocks cannot diversify risk properly.

- Investors should follow the following guidelines: focus on fundamentals but keep an eye on technical, diversify moderately and periodically review and revise the portfolio.

- To provide different type of securities at the same place to investor's, NEPSE should manage the trading of government securities. It will increase the opportunities for well diversification of funds to investors and it will also increase the private investor's participation in government securities.

- NEPSE needs to modernize the trading system and effective information channel. It needs to develop different programs for private investors. These programs will contribute to increase investor's rationality as well as market efficiency.

- The listed companies should operate their activity smoothly. They should publish their annual reports and information timely and correctly which will help to the investors to take the investment decision on their common stocks.

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APPENDICES

APPENDIX 1

ANALYSIS OF INDIVIDUAL BANK

Analysis of Standard Chartered Bank Ltd. t

Capital Structure of Standard Chartered Bank Ltd.

Standard Chartered Bank Ltd.	50%
Nepal Bank Ltd.	33%
Nepalese Public	17%

This bank has been provided following services :

- Current, Saving and term deposit accounts in Local foreign Currency
- Fund Transfer Services –Loan International
- Credit Card Services – Local International
- 24 Hour ATM Services
- Safe Deposit Lockers
- Foreign Exchange Services
- Xtra Bank -365 days banking system

F.Y.	MPS	Total Div	$R_1 = \frac{P_1 - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})$ $(R_m - \overline{R_m})$
2002/2003	1640	-						
2003/2004	1745	100	0.0.125	-0.2951	0.0871	-0.2964	0.0878	0.08745
2004/2005	2345	65	0.3810	-0.0391	0.0015	-0.0891	0.0079	0.0035
2005/2006	3775	70	0.6396	0.2195	0.0481	-0.0307	0.0009	0.0067
2006/2007	5900	835	0.7841	0.3640	0.1324	0.3878	0.1504	0.1411
2007/2008	6830	80	0.1711	-0.2490	0.0620	0.0283	0.0008	0.0070
			2.1008		0.3311		0.2478	0.2456

$\overline{R} = \frac{\sum R_1}{n}$ =2.1008/5 = 0.4201

Var $(\pm^2_1)$ = $\frac{\sum(R_1 - \overline{R}_1)^2}{N-1}$ = 0.3311/4 = 0.0827 Bj = Cov(r_j r_m)/

S.D. $(\pm_2)$ = $\sqrt{Variance}$ = 0.2877

C.V.= $\frac{\pm}{r}$ = 0.2877/0.4201 = 0.6848

Cov(r_j r_m) = $\frac{\sum(R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1}$ = 0.2456/4= 0.0614

$Cor(r_i r_m)$ = $\frac{\text{cov}(r_r r_m)}{\pm_i \pm_m}$ =0.0614/(0.2877x0.2489) =0.8574

APPENDIX 2

Analysis of Nabil Bank Ltd.

Capital Structure of Nabil Bank Ltd.

National Bank Ltd., Bangladesh	50%
Nepal Industrial Development Corporation	10%
Rastriya Beema Sansthan	9.66%
Nepal Stock Exchange (NEPSE)	.34%
Nepalese Public	30%

The Bank expanded its banking services toward the different regional and parts of the country by expanding its branches. Besides banking, the other facilities provided are,

- Credit Cards
- International Trade and Bank Guarantee
- Tele Banking
- Safe Deposit Locker
- Western Union Money Transfer
- Society for Worldwide Inter Bank Financial Telecommunication (SWIFT)
- 24 hours ATM (Automated Teller Machine) Services
- VISA Card
- Trade Finance
- E- Banking

F.Y.	MPS	Total Div	$R_1 = \frac{P_1 - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})$ $(R_m - \overline{R_m})$
2002/2003	735	30	-	-	-	-	-	-
2003/2004	1000	50	0.4285	-0.1495	0.0223	-0.2964	0.0878	0.0443
2004/2005	1505	65	0.5700	-0.0080	0.00006	-0.0891	0.0079	-0.0007
2005/2006	2240	70	0.5349	-0.0431	0.0018	-0.0307	0.0009	-0.0013
2006/2007	5050	85	1.2924	0.7144	0.5103	0.3878	0.1504	0.2770
2007/2008	5275	100	0.0643	-0.5137	0.2638	0.0283	0.0008	0.0145
			2.8901		0.7983		0.2478	0.3345

$$\overline{R} = \frac{\sum R_1}{n} = 2.8901/5 = 0.5780$$

$$\text{Var}\ (\pm_2^1) = \frac{\sum (R_1 - \overline{R}_1)^2}{N-1} = 0.7983/4 = 0.1995$$

$$\text{S.D.}\ (\pm_2) = \sqrt{Variance} = 0.4467$$

$$\text{Cov}(r_j\, r_m) = \frac{\sum (R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1} = 0.3345/4 = 0.0836$$

$$Cor(r_i r_m) = \frac{\text{cov}(r_r r_m)}{\pm_i \pm_m} = 0.0836/(0.4467 \times 0.2489) = 0.7519$$

APPENDIX 3

Analysis of Himalayan Bank Ltd.

Capital Structure of Himalayan Bank Ltd.

Promoters Shareholders.	51%
Habib Bank Ltd.	20%
Employee Provident Fund	14%
Nepalese Public	15%

Besides Banking facilities, the bank provided following facilities :

- Credit Cards
- Brach banking
- ATM Service
- Tele Banking
- VISA Card
- 365days Banking service
- 24 Hours Banking Services (New Road Branch)

F.Y.	MPS	Total Div	$R_1 = \frac{P_1 - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})(R_m - \overline{R_m})$
2002/2003	836	211.32	-	-	-	-	-	-
2003/2004	840	20	0.0287	-0.2931	0.0860	-0.2964	0.0878	0.0868
2004/2005	920	-	0.0952	-0.2266	0.0513	-0.0891	0.0079	0.0202
2005/2006	1040	363.5	0.5255	0.2037	0.0414	-0.0307	0.0009	0.0062
2006/2007	1760	139.20	0.8261	0.5043	0.2543	0.3878	0.1504	0.1955
2007/2008	1980	15	0.1335	-0.1883	0.0354	0.0283	0.0008	0.0053
			1.6090		0.4684		0.2478	0.3140

$$\overline{R} = \frac{\sum R_1}{n} = 1.609/5 = 0.3218$$

$$\text{Var } (\pm^1_2) = \frac{\sum (R_1 - \overline{R}_1)^2}{N-1} = 0.4684/4 = 0.1171$$

$$\text{S.D. } (\pm_2) = \sqrt{Variance} = 0.3422$$

$$\text{C.V.} = \frac{\pm}{r} = 0.3422/0.3218 = 1.0633$$

$$\text{Cov}(r_j\, r_m) = \frac{\sum (R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1} = 0.3140/4 = 0.0785$$

$$Cor(r_i r_m) = \frac{\text{cov}(r_r r_m)}{\pm_i \pm_m} = 0.0785/(0.3422\times0.2489) = 0.9216$$

APPENDIX 4

Analysis of Everest Bank Ltd.

Everest Bank Limited (EBL) was established in 1994 and started its operations with a view and objective of extending professional i zed and efficient banking services to various segments of the society. EBL joined hands with Punjab National Bank (PNB), India as its joint venture partner in 1997. PNB is the largest Public Sector Bank of India having 113 years of banking history with more than 4500 offices allover India and is known for its strong systems and procedures and a distinct work culture

The Bank's Paid-Up Capital has increased to 455 million against the Authorized Capital of 750 million whereas the Core Capital of the Bank is around 2178 million.

CAPITAL STRUCTURES OF EBL

Local Promoters 50%
Joint Venture Partner PNB = 20%
Public = 30%

- Branch Network
- Foreign Service
- Remittance
- Representative Office
- Debit Card
- 365 days Banking
- Progress report
- Loan Payment calculator
- ABBS Facility
- ATM Service

F.Y.	MPS	Total Div	$R_1 = \frac{P_1 - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})(R_m - \overline{R_m})$
2002/2003	445	20	-	-	-	-	-	-
2003/2004	680	20	0.5730	-0.1212	0.0146	-0.2964	0.0878	0.0359
2004/2005	870	20	0.3088	-0.3854	0.1485	-0.0891	0.0079	0.0343
2005/2006	918	486	0.6137	0.0805	0.0065	-0.0307	0.0009	0.0007
2006/2007	2430	25	1.6743	0.9801	0.9606	0.3878	0.1504	0.3801
2007/2008	3132	30	0.3012	-0.3930	0.1545	0.0283	0.0008	0.1111
			3.4710		1.2847		0.2478	0.4621

$$\overline{R} = \frac{\sum R_1}{n} = 3.4710/5=0.6942$$

Var $(\pm_2^1)$ = $\frac{\sum(R_1 - \overline{R}_1)^2}{N-1}$ = 1.2847/4 = 0.3212

S.D. $(\pm_2)$ = $\sqrt{Variance}$ = 0.5667

C.V.= $\frac{\pm}{r}$ =0.5667/0.6942 =0.8163

Cov(r_j r_m) = $\frac{\sum(R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1}$ = 0.4621/4 = 0.1155

$Cor(r_i r_m)$ = $\frac{\text{cov}(r_r r_m)}{\pm_i \pm_m}$ = 0.1155/(0.5667×0.2489) = 0.8188

APPENDIX 5

Analysis of Nepal Bangladesh Bank Ltd.

IFIC Bank Ltd.	50%
Local Promoters	20%
General Public	30%

Capital Structure of Nepal Bangladesh Bank Ltd.

- Trade Finance
- Letter of Credit
- Bills Purchase
- Remittance Services all over the world
- Locker Facility
- Tele Baking
- ATM Services
- Branch Banking
- SMS banking
- Bearer Certificate of Deposit (BCD) Facility
- Consortium Finance

F.Y.	MPS	Total Div	$R_1 = \frac{P_1 - P_{t-1} + D_t}{P_{t-1}}$	$(R_1 - \overline{R_1})$	$(R_1 - \overline{R_1})^2$	$(R_m - \overline{R_m})$	$(R_m - \overline{R}_m)^2$	$(R_1 - \overline{R_1})$ $(R_m - \overline{R_m})$
2002/2003	360	-	.			-	-	-
2003/2004	290	-	-0.1944	-05295	0.2803	-0.2964	0.0878	0.1569
2004/2005	265	-	-0.0862	-4213	0.1775	-0.0891	0.0079	0.0375
2005/2006	264	15	0.0528	-.2823	0.0796	-0.0307	0.0009	0.0087
2006/2007	550	-	1.0833	0.7482	0.5598	0.3878	0.1504	0.2901
2007/2008	1001	-	0.8200	0.0833	0.2351	0.0283	0.0008	0.0283
			1.6755	**0.4849**	**1.3323**		**0.2478**	**0.4649**

$\overline{R} = \frac{\sum R_1}{n}$ = 1.6755/5 =0.3351

Var $(\pm_2^1)$ = $\frac{\sum (R_1 - \overline{R}_1)^2}{N-1}$ =1.3323/4 =0.3331

S.D. $(\pm_2)$ = $\sqrt{Variance}$ =0 .5771

C.V.= $\frac{\pm}{r}$ = 0.5771/0.3351 =1.7221

Cov(r_j r_m) = $\frac{\sum (R_i - \overline{R_i})(R_m - \overline{R_m})}{N-1}$ = 0.4649/4=0.1162

$Cor(r_i r_m)$ = $\frac{\text{cov}(r_r r_m)}{\pm_i \pm_m}$ = 0.1162//(0.57711×0.2489)= 0.8091

APPENDIX 6

Analysis of Market

F.Y.	MPS	R_m	$(R_m - \overline{R_m})$	$(R_m - \overline{R_m})^2$
2002/2003	204.86	-	-	-
2003/2004	222.04	0.0838	-0.2964	0.0879
2004/2005	286.67	0.2911	-0.0891	0.0079
2005/2006	386.85	0.3495	-0.0307	0.0009
2006/2007	683.95	0.7680	0.3878	0.1504
2007/2008	963.36	0.4085	0.0283	0.0008
		1.9009		**0.2478**

$$\overline{R_m} = \frac{\sum R_m}{n} = 1.9009/5 = 0.3802$$

$$\text{Var}_m = \frac{\sum (R_1 - \overline{R}_1)^2}{N-1} = 0.2478/4 = 0.06195$$

$$\pm_m = \sqrt{Var} = 0.2489$$

APPENDIX 7

Expected Return of Banking Industry ($\overline{R_{BI}}$) = $\frac{\sum R_{BI}}{n}$

Standard Deviation ($\pm_{BI}$) = $\sqrt{\frac{\sum (R_{BI} - \overline{R_{BI}})}{n-1}}$

Variance ($\pm_{BI}^{2}$)

We have, Averrage Beta Coefficient

Standard deviation of beta, S

Estimated standard deviation of population

Portfolio

Year	(R_A- $\overline{R}_A$)	(R_B- $\overline{R}_B$)	(R_A- $\overline{R}_A$)(R_B- $\overline{R}_B$)
2002/2003			
2003/2004	-0.2951	-0.1495	0.0441
2004/2005	-0.0391	-0.008	0.0003
2005/2006	0.2195	-0.0431	-0.0095
2006/2007	0.364	0.7144	0.2600
2007/2008	-0.249	-0.5137	0.1279
			0.4228

SCBNL

Mean	0.4201
Standard deviation	0.2877
Coefficient of variation	0.6848

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.7728

$\text{Cov}(r_j\ r_m) = \frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.4228/5-1 = 0.1057

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

$$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$$

$= (0.4467^2\text{-}0.1057)/[0.2877^2 + 0.4467^2\text{-}2*0.1057]$

$= 1.3233$

$W_B = 1\text{-}1.3233 = \text{-}0.3233$

Correlation

$$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B} = 0.1057/\ 0.2877*0.4467 = 0.8224$$

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ $= (1.3233)(0.4201)+(\text{-}0.3233)(0.5780)$

$= 0.5559\text{-}0.1313=0.3691$

$= 36.91\%$

Where the portfolio risk is given as,

$$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$$

$=\sqrt{}\ (1.3233)^2\ 0.2877)^2+(\text{-}0.3233)^2\ (0.4467)^2+2*(1.3233)(\text{-}0.3233)(0.1057)$

$= 0.07535$

Nabil with EBL

Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2002/2003			
2003/2004	-0.1495	-0.1212	0.01811
2004/2005	-0.008	-0.3854	0.0031
2005/2006	-0.0431	-0.0805	0.0035
2006/2007	0.7144	0.9801	0.7002
2007/2008	-0.5137	-0.3930	0.2019
			0.9268

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.7728

EBL :

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

$$\text{Cov}(r_j\, r_m) = \frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1} = 0.9268/4 = 0.2317$$

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

$$W_A = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$$

$$= (0.5667^2 - 0.9268)/[0.4467^2 + 0.5667^2 - 2*0.9268]$$

$$= 0.4543$$

$W_B = 1-0.4543 = 0.5457$

Correlation

$$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B} = 0.2317/\ 0.4467*0.5667 = 0\ .9153$$

$$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B} = (0.4543)(0.5780)+(0.5457)(0.6942)$$

$= 0.6414$

$= 64.14\%$

Where the portfolio risk is given as,

$$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$$

$= \sqrt{}\ (0.4543)^2 (0.4467)^2 + (0.5457)^2 (0.5667)^2 + 2*(0.4543)(0.5457)(0.2317)$

$= 0.2517 = 25.17\%$

HBL & EBL

Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2002/2003			
2003/2004	-0.2931	-0.1212	0.0355
2004/2005	-0.2266	-0.3854	0.0873
2005/2006	0.2037	-0.0805	-0.0164
2006/2007	0.5043	0.9801	0.4942
2007/2008	-0.1883	-0.3930	0.0740
			0.6746

HBL Mean	0.3218
Standard deviation	0.3422
Coefficient of variation	1.4555

EBL :

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

Cov (r_j r_m) = $\frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.6746/4 = 0.1686

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

$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.5667^2$-0.1686)/[0.3422^2 +0.5667^2-2*0.1686]

= 0.1967

W_B = 1-0.1967=0.8033

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ = 0.1686/ 0.3422×0.5667 = 0.8694

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = 0.1967×0.3218+0.8033×0.6942

= 0.6209

=62.09

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

=√ $(0.1967)^2$ $(0.3422)^2$+$(0.8033)^2$ $(0.5667)^2$+2*(0.1967)(0.8033)(0.1686)

= 51.46%

EBL & SCNBL

EBL :

Mean	0.6942
Standard deviation	0.5667
Co-efficient of variation	0.8163

SCBNL

Mean	0.4201

Standard deviation	0.2877
Coefficient of variation	0.6848

Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2002/2003			
2003/2004	-0.1212	-0.2951	0.0358
2004/2005	-0.3854	-0.0391	0.0151
2005/2006	-0.0805	0.2195	-0.0177
2006/2007	0.9801	0.364	0.3567
2007/2008	-0.3930	-0.249	0.0978
			0.5231

$$\text{Cov}(r_j\, r_m) = \frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1} = 0.5231/(5\text{-}1) = 0.1307$$

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

$$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$$

$$= (0.2877^2 + 0.1307)/[0.5667^2 + 0.2877^2 - 2*0.1307\ ]$$

$$= -0.3361$$

$$W_B = 1-(-0.3361) = 1.3361$$

Correlation

$$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B} = 0.1307/\ 0.5667*0.2877 = 0.8016$$

$$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B} = (-0.3361)(0.6942)+(1.3361)(0.4201)$$

$$= 0.3279$$

$$=32.79\%$$

Where the portfolio risk is given as,

$$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$$

$=\sqrt{(-0.3361)^2(0.5667)^2+(1.3361)^2(0.2877)^2+2*(-0.3361)(1.3361)(0.1307)}$

$=\sqrt{0.0362+0.1477-0.1173}$

$=0.2509$

$=25.09\%$

NBBL & SCNBL

Year	$(R_A-\overline{R}_A)$	$(R_B-\overline{R}_B)$	$(R_A-\overline{R}_A)(R_B-\overline{R}_B)$
2002/2003			
2003/2004	-0.5295	-0.2951	0.15625
2004/2005	-0.4213	-0.0391	0.01647
2005/2006	-0.2823	0.2195	-0.06196
2006/2007	0.7482	0.364	0.2723
2007/2008	0.4849	-0.249	-0.1207
			0.26236

NBBL

Mean	0.3351
Standard Deviation	0.5771
Co-efficient of variation	1.7222

SCBNL

Mean	0.4201
Standard deviation	0.2877
Coefficient of variation	0.6848

$\text{Cov}(r_j\ r_m) = \frac{\sum(R_A-\overline{R_A})(R_B-\overline{R_B})}{N-1}$ $=0.2623/(5-1)=0.0655$

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

$$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$$

$= (0.2877^2-0.0655)/[0.5771^2+0.2877^2-2*0.0655]$

$= 0.06036$

$W_B = 1-0.06036 = -0.9396$

Correlation

$$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B} = 0.0655/(0.5771*0.2877) = 0.3950$$

$$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B} = (0.06036)(0.3351)+(0.9396)(0.4201)$$

$$= 0.4149$$

$$=41.49\%$$

Where the portfolio risk is given as,

$$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$$

$$=\sqrt{(0.0603)^2 (0.5771)^2+(0.9396)^2 (0.2877)^2+2*(0.0603)(0.9396)(0.0655)}$$

$$= \sqrt{0.0012+0.0730+0.0074}$$

$$=0.2856$$

28.56%

Nabil & NBBL

Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2002/2003			
2003/2004	-0.1495	-0.5295	0.0792
2004/2005	-0.008	-0.4213	0.0037
2005/2006	-0.0431	-0.2823	0.0122
2006/2007	0.7144	0.7482	0.5345
2007/2008	-0.5137	0.4849	-0.2491
			0.3803

Nabil

Mean	0.5780
Standard Deviation	0.4467
Coefficient of variation	0.728

NBBL

Mean	0.3351
Standard Deviation	0.5771

Co-efficient of variation	1.7222

$\text{Cov}(r_j\ r_m) = \frac{\sum(R_A - \overline{R_A})(R_B - \overline{R_B})}{N-1}$ =0.3803/(5-1)=0.0951

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

$W_a = \frac{\pm_B^2 - Cov(R_A R_B)}{\pm_A^2 + \pm_B^2 - 2Cov(R_A R_B)}$

= $(0.5771^2$-0.0951)/[0.4467^2 +0.5771^2-2*0.0951]

= 0.6950

W_B = 1-0.6950=0.3049

Correlation

$Cor(r_i r_m) = \frac{\text{cov}(R_A R_B)}{\pm_A \pm_B}$ =0.0951/ 0.4467*0.5771 = 0.3689

$\overline{R_p} = W_A \overline{R_A} + W_B \overline{R_B}$ = (0.6950)(0.5780)+(0.3049)(0.3351)

=0.5038

Where the portfolio risk is given as,

$\pm_p = \sqrt{W_A^2 \pm_A^2 + W_B^2 \pm_B^2 + 2W_A W_B Cov(R_A R_B)}$

=√ $(0.6950)^2 (0.4467)^2$+$(0.3049)^2$ $(0.5771)^2$+2*(0.6950)(0.3049)(0.0951)

=√0.0963+0.03096+0.0403

=0.4094

=40.94%