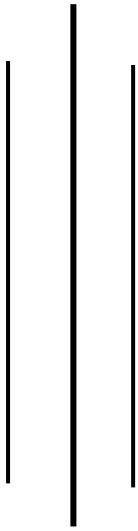
THE ANALYSIS ON THE INVESTMENT IN SHARES OF COMMERCIAL BANKS



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DECLARATION

I hereby declare that the work reported in this thesis entitled **"The Analysis on the Investment in Shares of Commercial Banks"** submitted to Golden Gate International College, Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment for the requirement of Master's Degree in Business Studies (MBS) under the supervision of respected Mr. Uday Niraula Lecturer of Golden Gate International College.

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I hope the possible errors would be covered by the subsequent studies in this field in the future.

Researcher

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TABLE OF CONTENTS

Recommendation

Vivo Voce Sheet

Declaration

Acknowledgement

Table of Contents

List of Figures

Abbreviation

Page no.

CHAPTER I

INTRODUCTION.....1

1.1 Background of the Study..... 1

1.1.1 Commercial Banks and Investment Portfolio 2

1.1.2 Profiles of Bank Under Study 4

1.2 Focus of the Study..... 8

1.3 Statement of Problem..... 9

1.4 Objective of the Study:..... 11

1.5 Significance of the Study 11

1.6 Organization of the Study 12

1.7 Limitation of Study 13

CHAPTER II

LITERATURE REVIEW 14

2.1 Theoretical Review 14

2.1.1 Investment..... 14

2.1.2 Risk 15

2.1.3 Return 17
2.1.4 Relationship Between Risk and Return 18
2.1.5 Measure of Return 20
2.1.5.1 Computing Historical Rate of Return: 20
2.1.5.2 Computing Mean Historical Return: 21
2.1.5.3 Calculating Expected Rates of Return: 22
2.1.6 Measuring the Risk: 22
2.1.6.1 Variance 22
2.1.6.2 Standard Deviation: 23
2.1.6.3 A Relative Measure of Risk (Coefficient of Variation): 23
2.1.7 Portfolio Management 24
2.1.7.1 Markowitz Portfolio Theory 24
2.1.7.1.1 Expected Rate of Return 26
2.1.7.1.2 Covariance of Return 26
2.1.7.1.3 Correlation Coefficient of Return: 26
2.1.7.1.4 Portfolio Standard Deviation 27
2.1.7.1.5 Beta Coefficient 28
2.1.7.2 Efficient Frontier 28
2.1.8 Capital Market Theory 29
2.1.8.1 The Capital Assets Pricing Model 30
2.1.8.1.1 The CML and the Separation Theorem 31
2.1.8.1.2 The Security Market Line (SML) 33
2.1.8.1.3 Empirical Test of the CAPM 34
2.2 Review of Related Studies 35
2.2.1 Review of Journals 35
2.2.2 Review from Thesis 37

2.3 Research Gap 40

CHAPTER III

RESEARCH METHODOLOGY 42

3.1 Introduction 42

3.2 Research Design 42

3.3 Population and Sample 42

3.4 Nature and Source of Data 43

3.5 Methods of Data Analysis 43

3.5.1 Annual Rate of Return 43

3.5.2 Average Rate of Return 44

3.5.3 Portfolio Return 44

3.5.4 Covariance of Return 45

3.5.5 Correlation Coefficient of Return: 45

3.5.6 Variance 46

3.5.7 Standard Deviation 46

3.5.8 Coefficient of Variation: 47

3.5.9 Beta Coefficient 47

3.5.10 Total Risk 47

3.5.11 Portfolio Risk 48

3.5.12 Minimum Risk Portfolio 48

3.5.13 CAPM Model 49

CHAPTER IV

DATA PRESENTATION, ANALYSIS AND INTERPRETATION 50

4.1 Analysis of Market Risk and Return 50

4.2 Analysis of Individual Commercial Banks 52

4.2.1 Nabil Bank Ltd 53
4.2.2 Nepal Investment Bank Ltd. 57
4.2.3 Standard Chartered Bank Nepal Ltd 60
4.2.4 Himalayan Bank Limited 64
4.2.5 Bank of Kathmandu 67
4.3 Inter Bank Comparison 71
4.4 Market Capitalization of Sampled Banks 72
4.5 Beta Coefficient, Correlation Coefficient and the Total Risk of the Banks 74
4.6 Capital Asset Pricing Model 76
4.7 Combined Pooled Selected Commercial Banks 78
4.8 Findings of the Study 84

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION 87

5.1 Summary 87
5.2 Conclusion 89
5.3 Recommendation 90

Bibliography

Annexure

LIST OF TABLES

Table No. and Title **Page no.**

Table 4.1 Closing Price of Equity 50

Table 4.2 Expected Return, Standard Deviation and Coefficient of NEPSE Index 51

Table 4.3 List of Commercial Banks in NEPSE 53

Table 4.4 MPS and Dividend Data of NABIL 53

Table 4.5 Expected Return, Standard Deviation and Coefficient of Variation of NABIL Bank 54

Table 4.6 Calculation of Covariance and Beta Coefficient 56

Table 4.7 MPS and Dividend Data of NIBL 57

Table 4.8 Expected Return, Standard Deviation and Coefficient of Variation of NIBL 58

Table 4.9 Calculation of Covariance and Beta Coefficient 59

Table 4.10 MPS and Dividend Data of SCBNL Bank 61

Table 4.11 Expected Return, Standard Deviation and Coefficient of Variation of SCBNL 62

Table 4.12 Calculation of Covariance and Beta Coefficient 63

Table 4.13 MPS and Dividend Data of HBL 64

Table 4.14 Expected Return, Standard Deviation and Coefficient of Variation of HBL 65

Table 4.15 Calculation of Covariance and Beta Coefficient 67

Table 4.16 MPS and Dividend Data of BOK 68

Table 4.17 Expected Return, Standard Deviation and Coefficient of Variation of BOK 69

Table 4.18 Calculation of Covariance and Beta Coefficient 70

Table 4.19 Comparative Analysis of Expected Return, Standard Deviation and Coefficient of variation 71

Table 4.20 Market Capitalization of Sampled Bank at Fiscal Year 2067/68 73

Table 4.21 Beta Coefficient of Each Bank 75

Table 4.22 Required Rate of Return and Stock Price Situation of Each Bank 77

Table 4.23 Average Return of Pooled Commercial Banks 78

Table 4.24 Expected Return and Standard Deviation of Pooled Commercial Bank 78

Table 4.25 Analysis of Two-Asset Portfolio 79

Table 4.26 Analysis of Two-Asset Portfolio 80

Table 4.27 Analysis of Two-Asset Portfolio 81

Table 4.28 Analysis of Two-Asset Portfolio 82

Table 4.29 Analysis of Two-Asset Portfolio 83

LIST OF FIGURES

Figure no and Title **Page no.**

Figure 4.1 Market Price Movement of NABIL Bank 53

Figure 4.2 Market Price Movement of NIBL 57

Figure 4.3 Market Price Movement of SCBNL 61

Figure 4.4 Market Price Movement of HBL 64

Figure 4.5 Market Price Movement of BOK 68

Figure 4.6 Expected Return of Sampled Commercial Bank 72

Figure 4.7 Market Capitalization of Sampled Bank 74

ABBREVIATION

ADB	:	Asian Development Bank
MPS	:	Market Price per Share
NIBL	:	Nepal Investment Bank Limited
SCBNL	:	Standard Chartered Bank Nepal limited
HBL	:	Himalayan Bank Limited
BOK	:	Bank of Kathmandu
SD	:	Standard Deviation
CV	:	Coefficient of Variation
COV	:	Covariance
NEPSE	:	Nepal Stock Exchange
SEBO	:	Security Exchange Board of Nepal
F/Y	:	Fiscal Year
AGM	:	Annual General Meeting
i.e.	:	That is
NRB	:	Nepal Rastra Bank
SML	:	Security Market Line
HPR	:	Holding Period Return
AM	:	Arithmetic Mean
CML	:	Capital Market Line

CHAPTER I

INTRODUCTION

1.1 Background of the Study

For the sustainable economic development effective mobilization and effective utilization of domestic resources is the most. Similarly Integrated and speedy development is possible only when competitive banking and financial services reaches every nooks and corner of the country. Bank and other financial institutions are playing vital role in the economic development of the country. Successful formulation and effective implementation of the investment policy is the prime requisite for the successful performance of banks and other financial institutions. Good Investment police has positive impact on economic development of the country and vice versa.

Investment policy is the one facet of overall spectrum of policies that guide's Investment operation. A healthy development of the banks depends heavily upon its investment policy. A good investment policy attracts both borrower and lender which help to increase the volume and quality of deposit, loan and investment. Investment management of bank is guided by investment policy adopted by the bank. The investment policy of the banks helps the investment operation of the bank to be efficient and profitable by minimizing inherent risk.

The development of any country largely depends upon its economic development. Thus the primary goal of any nation is rapid economic development to promote the welfare of the people and the nation as well. Nepal being listed among the least developed country is trying to embark upon the path of economic development by economic growth rate and developing all sectors of economy. Even though the process of economic development depends upon various factors,

economists are now convinced the capital formation and its proper utilization plays a paramount role for rapid economic development of resources.

The network of a well organized financial system of the country has great bearing of capital formation. It collects scattered financial resources from the masses and invests them among those engaged in commercial and economic activities of the country. It has been well established that the economic development of any country can be hardly be carried forward without the assistance and support of financial institution. Financial institution have catalyst role in the process of economic development. Commercial banks are major financial institutions that provide capital for the development of industry, trade, business and other resource deficit sectors by investing the saving collected as deposits. All the economic activities of each and every country are greatly influenced by commercial banking business of the country. Thus commercial banks have become heart of financial system. A key factor in the development of the country is the mobilization of domestic resources and their investment for productive polices which help maximize quality and quantity of investment and eventually contribute to the economic growth of a country.

1.1.1 Commercial Banks and Investment Portfolio

"Commercial Banks are one of the major financial intermediaries whose primary function is the transfer of monetary resources form the savers to the users" (Shrestha & Bhandari, 2007).Those financial institutions which deal in accepting deposits of persons and institutions and giving loans against securities are called commercial banks. They are the ones that provide working capital needs from trade industry to agricultural sectors. Moreover commercial banks also provides technical and administrative assistance to industries, trade and business enterprises. Commercial banks pull together the saving of the community and arrange them for the

productive use. In addition to above; the main purpose is to uplift the backward sector of economy.

Commercial banks are considered as the vital part of the financial system. In other words commercial banks are the heart of the financial system. They make fund available through their lending and investing activities to borrowers, individuals, business firms and services for producers to customers and financial activities of the government, so commercial banks in those financial institution which collects loan against proper securities for their productive purpose. Commercial banks must mobilize its deposits and their funds to profitable, secured, stable and marketable sector. As a result, it can earn a handsome profit as well as it should be secured and can be converted into cash whenever needed. Investment policy provides the bank several inputs through which ultimately lead the banks to the path of success. Thus, investment is the most important function of commercial banks. It is the long term commitment of bank in the uncertain and risky environment. It is very challenging task for commercial banks. So, a bank has to be very cautious while investing their funds in various sectors i.e. investments portfolio. The success of a bank heavily depends upon the proper management of its investable funds.

Investment portfolio is the one in which the income or profit of the bank depends upon directly. Hence, the bank should never invest its fund in those securities which are subject to much depreciation and fluctuation because a little difference may cause a great loss. It must not invest its fund into speculative businessman who may be bankrupt at once and who may earn million in a minute, the bank should accept that type of securities which are commercial, durable, marketable, stable, transferable and high market prices. Commercial banks can maximize its volume of wealth through maximization of return on their investment and lending. So they must invest their funds where they gain maximum profit. The profit of CBs mainly depends on the

interest rate, volume, period of loan and nature of investment in different securities. While investing excess funds in different securities of at the lending period, the bank should keep in mind that people deposit money at the bank in different account with confidence that the bank will repay their money when they need. Similarly a bank should not lay all its eggs in the same basket i.e. to minimize risk; a bank must diversify its investment to different sectors. Diversification of loan or investment helps to sustain loss according to the low of average because if securities of company deprived, there may be appreciation in the securities of other companies.

Commercial banks should follow the rules and regulations as well as different direction issued by central bank, ministry of finance, ministry of law and other while mobilizing its funds. So, the bank should invest its funds in legal securities only. The loan provided by commercial banks is guided by several principles such as length of time, their purpose, profitability, safety etc. these fundamental principles of commercial bank's investment are fully considers while making investment portfolio. The investment portfolio should be carefully analyzed so that the investment should ensure minimum risk and maximum profit. So, CBs Should incorporate several elements such as regulatory environment, the availability of funds, the selection of risk, investment portfolio balance term structure of the liabilities etc. while making investment decision.

1.1.2 Profiles of Bank Under Study

In this section general introduction of the banks under study is being attempted to furnish the easy reference of the research.

i. Nabil Bank Ltd:

Nabil bank ltd is the first joint venture commercial bank in Nepal which was established in 1984 under the company act 1964, Dubai bank ltd (DBL) was the initial foreign joint venture partner with 50% equity investment. The shares owned by DBL were transferred to Emirates Bank International Ltd (EBIL), Dubai. Later on EBIL sold its entire stock to NB International, Ireland (NBI) an out of another 50% shares, other entities have taken 20% and remaining 30% were issued to general public in Nepal.

NBI is managing the bank is accordance with the technical service agreement signed between NBI Bank on June 1995. Kat present, 47 branches of the bank are operating in different parts of the country. Authorized capital and paid up capital of Nabil bank Ltd on 2067/68 was 2100 million and 2029.769 million respectively, while the traded amount of the bank was 315.46 million. In the same year, the highest share value of the bank was Rs 2337 and the lowest was Rs 790.

ii. Standard Chartered Bank Nepal Ltd:

Standard Chartered Bank Nepal Ltd was incorporated in 1985 as a second foreign joint venture bank under the company act 1964. Initially, ANZ, Grindlays Banks PLC London was the foreign joint venture partner with 50% equity investment. Now the bank has its partner, Standard Chartered, UK by the virtue of annexation of ANZ Grindlays Banks by Standard Chartered group. The bank had 15 branches all over the country. Hence SCBNL has 25% domestic ownership and 75% foreign ownership. Foreign ownership includes 50% share of Standards Chartered Grindlays Ltd, Sydney, Australia and 25% of Standard Chartered Bank London, UK.

Authorized capital and paid up capital of Standard Chartered Bank Nepal Ltd are Rs 2000 million and 1610.168 million respectively. The main objective of the bank is to collect deposits

and provide loans to agricultural, commercial, industrial sectors and to provide modern banking services to the people.

The bank was listed in the NEPSE on 04 July 1988. Per value per shares of the bank is Rs 100. Market capitalization of the bank in the year2067/68 is 16775.4 million and traded amount of the bank is Rs 601.005 million. In the same year, the highest share value of the bank was Rs 3214 and the lowest was Rs 1280.

iii. Nepal Investment Bank Ltd:

Nepal Investment Bank Ltd (Nepal Indosuez Bank Ltd) was established on 21st Jan. 1986 as a third joint venture bank between Nepalese and French partner . The French partner was Agricole Indosuez a subsidiary of one of the largest banking group in the world. Fifty percent of the shares of Nepal Indosuez Bank Ltd held by Credit Agricole Indosuez were sold to the Nepalese promoters on April, 2002 as per the transaction record of NEPSE. After the investment of shares by Nepalese owner the name of the company was changed Nepal investment Bank ltd. 50% shares held by a group of companies, 15% by commercial banks, another 15% by Insurance Company and remaining 20% by general public. Authorized capital of NIBL is Rs 4000 million and issued and paid up capital are Rs 2409.10 million.

NIBL was listed in NEPSE on 20 November 1985. Par value per shares of the bank is Rs 100. Market capitalization of the bank in the year 2067/68 is Rs 12396.4 million traded amount of the bank is 159.939 million. In the same year, the highest share value of the bank was Rs 745 and the lowest was Rs 365.

iv. Himalayan Bank Ltd:

Himalayan Bank Ltd was established in 1992 by a few distinguished business personalities of Nepal in partnership with Employees Provident Fund and Habib Bank Ltd, Pakistan. The bank commenced its operation from January 1993. At present the bank has 41 branches in various parts of country. The bank also operated a counter in the premises of the Royal Palace. It is the first commercial bank f Nepal with maximum shares holding by the Nepalese private sector. Besides commercial activities, the bank also offers industrial and merchant banking. Authorized capital of HBL is Rs 3000 million and issue and paid up capital are Rs 2000 million.

The bank was listed in NEPSE on 05 July 1993. Par value per share of the bank is Rs100. Market capitalization of the bank in the year 2067/68 is Rs 6993.24 million and the traded amount of the bank is Rs 60.388 million. In the same year, the highest share value of the bank was Rs 855 and the lowest was Rs 380.

v. Bank of Kathmandu:

Bank of Kathmandu Ltd is the latest joint venture bank listed in BWPSE. It was established in 1993 in collaboration with the SIAM Commercial bank, Thailand under the company act. The major objective of the bank was to operate commercial banking activities throughout the country with the approval of NRB. The SIAM Commercial Bank diluted its holding to the Nepalese citizens in 1998. So the bank now has 100% domestic investment in it. Hence, Nepalese public hold 92.43% of the equity shares of the BOKL and remaining 7.57% shares are hold by other institution. Authorized capital and paid up capital of Bank of Kathmandu Ltd are Rs 1000 million and Rs 463.58 million respectively. The bank has 47 branches located in the various cities.

The bank was listed in NEPSE on 17 July 1997. Par value per share of the bank is Rs 100. Market capitalization of the bank in the year 2067/68 is Rs 4813.07 million and traded amount of the bank is Rs 488.83 million. In the same year, the highest share value of the bank was Rs 886 and the lowest was Rs 363.

1.2 Focus of the Study

Making an investment decision is very difficult for general people. Where there is investment there exists risk, therefore before doing any investment decision investor should always calculate return and risk. Investing in shares is more risky so return would be comparatively high since it is known higher the risk higher the return. In Nepalese context, stock market has been dragging the attention of everybody. Though stock market is familiar term but not popular in the society. People think investment in commercial banks shares is ever winning game without having any proper knowledge about risk and return involved with investment. Investment in share is risky, so investor must think about the risk and return before making investment decision.

The portfolio analysis begins where the security analysis end this fact has important consequences for investors. Therefore this study is focused in the analysis of risk and return how an investor should take investment decision in shares of commercial bank in Nepal. Among the listed commercial banks five commercial banks are as sample, which are 'A' graded listed organized institutions by SEBO (Annual Report, 2062/63). Analysis has focused price movement of share of single stock, risk and returns associated with them, risk and return in portfolio and movement of market.

To conclude, this study is focused in analyzing the risk and return attributed of the investment in shares of the commercial bank.

1.3 Statement of Problem

Stock market is one of the very volatile sectors of the financial system. Any fluctuation in the stock market has a significant bearing to the financial system as a whole. The Nepal Stock Exchange (NEPSE) has been performing dismal nowadays. The dismal of stock market has been extreme. And the causes are both domestic as well as international, due to which the NEPSE index, investor's confidence and secondary market indicator has fallen drastically. On the domestic front various new directives issued by the central bank introducing more stringent providing forcing banks, finance companies and even the co-operatives to greater provision for loan there by resulting in downsizing net profits have put caused the investors' confidence to wane (World Bank,2002).

Commercial bank's shares are highly traded in Nepal stock exchange ltd. The commercial banks occupy a lion's shares of the stock trading any fluctuation in their price is directly reflected in the index. Like that, increasing number of listed companies investors are interested to participate in share market as well. But small invest their valuable resources with the hope of getting good return. But to many reasons they lose their expected return as well as capital. Most of the investors invest in bank's share as a speculative motive. They have not made and investment policy. It is difficult to get expected return without any pre-planned and good managed investment process.

Investment decision in common stock is a long-term investment. Investors investing there hardly earned money in shares. Due to many internal or external factors share market has been some times bearish and sometimes bullish. In the time of bullish investors would be happy and bearish time they become afraid. For that reason, at the time of selling they hold shares and vice-versa.

Most of the investors are least familiar with the financial activities, investment policy; making portfolio etc is very little. Most of the investors having neither theoretical knowledge of risk and return nor they take services of expert which has made the securities market unbalanced and unfair. If any bank is financial institution issues primary shares, there becomes huge demand rather than necessity. Rational decision making to invest in common stock is not being due to lack of analytical knowledge and studies in this field.

Although there are SEBO, merchant banks and other institutions, their effectiveness in disseminating information required by investors are very poor and unsatisfactory. Government policy is less encouraging in promoting common stock investment. The Nepalese stock market is characterized by an absence of professional brokers, early stage of growth, limited movement of shares prices and limited information available to investors.

Under such situation, thus, the present study will try to analyze investment of commercial banks, portfolio management of CBs in their investment, return in various types of investment, portfolio risk and return and performance towards investment. Therefore, this study will deal with the following issues:

1) Does the risk and return of the commercial bank vary significantly?
2) What are the factors affecting riskiness of the securities?
3) To what extent there is systematic risk and unsystematic risk associated with security of commercial bank?
4) Are the common stocks of commercial banks overpriced or underpriced?
5) How can investor diversify the risk within commercial banks?

1.4 Objective of the Study:

Looking at the volatile market condition investment decision is very crucial. Investment decision is one of the major decision functions of financial management. Under the prevailing competitive environment in financial sectors, the CBs face so many duplicities to mobilize their deposit funds on the profit making investment. Taking this regards, the main objectives if the study is to analyze, examine and interpret portfolio technique followed by CBs on their deposit funds on the profit making investment. Taking this regards, the main objectives of the study is to analyze, examine and interpret portfolio technique followed by CBs is their investment in various sectors. This study focuses whether the CBs properly followed portfolio concept to take investment decision or not. Hence, the main objectives of the study are given below:

1) To evaluate common stock of commercial banks in terms of risk and return and to perform comparison on the basis of market capitalization.
2) To determine whether the shares of commercial bank are overpriced or under prices by analyzing the risk and return characteristic of the individual shares.
3) To study systematic and unsystematic risk associated with security and its diversification.

1.5 Significance of the Study

Investment decision is not an easy task. So the significance of the study is to point out the risk and return position of investment in shares of commercial banks in Nepal. It is helpful to the investors as well as managers with the help of portfolio analysis to determine future risks and return in holding various blends of individual securities. It also provides proper guidelines for making choices of stocks alternative on the basis if risk and return. This study will also help securities exchange board as well as Nepal Stock Exchange (NEPSE) to improve and regulate

the share market. This study also provides guidelines to formulated strategies plans in achieving the organizational objectives for the concerned authorities. It is also helpful for the persons who are interested to know about share market.

Very few studied have been made in relation to investment decision making of commercial banks shares regarding risk and return elements. So, this study is significant in this regard.

1.6 Organization of the Study

The whole study has been organized into five different chapters. They are as follows:

The first chapter is introductory chapter which contains general background of the study, statement of the problem, focus of the study, significance of the study, objective of the study and the limitation of the study.

Second chapter deals with the review of available literature in the field of the study being conducted. This includes theoretical review of the concerned topic, review of supportive text, review of books, review of various empirical studies conducted inside and outside the country, review of related articles and review of legislation related to commercials bank.

Third chapter explains the research methodology employed to conduct the study and tools and techniques used in analysis of the data as well. This chapter includes research design, population and sample, source of data, method of data analysis, various financial and statistical tools.

Fourth chapter is derived to the presentation, analysis, interpretation and scoring the empirical findings out of the study through definite course of research methodology. In this study,

investment operations of CBs, Risk and Return on investment and test of portfolio performance and mentioned. This chapter also contains major findings of the study.

Fifth and last chapter is conclusive and suggestive chapter. It includes summary of the study, conclusion of the main finding and recommendation for the improvement.

Besides these, bibliography and appendices are also presented at the end of the thesis. Similarly, acknowledgement, table of contents, list of tables, list of diagram, abbreviations are included in the front part of the thesis report.

1.7 Limitation of Study

This research explains and analyses the subject matter with the help of portfolio of well known or already established analytical method and techniques, therefore as a conclusion oriented research. This study simply is a partial for the fulfillment of MBS degree, which has to be finished within limited period. Hence, this study is not far from several limitations of its own kind which is the heart of the study. This study is limited to the investment in shares of commercial banks in Nepal.

Some of such limitations are as follows:

1) Requirement of the only five years of observation will be analyzed.
2) This study will be mainly based on published secondary data.
3) This study concerns only with the risk return and portfolio of commercial banks
4) Secondary data gathered from related sources are used.
5) The study has been conducted to fulfill the requirement of the MBS program for a prescribed time, not for generalization purpose.
6) Due to time and resources constraint, only commercial banks are selected for the study.

CHAPTER II

LITERATURE REVIEW

The review of literature is a crucial aspect of planning of the study. This chapter provides some glimpses of literature that is available in the topic. This Chapter highlights upon the existing comprehensive review of the published and unpublished work by academician and scholars. The purpose of the literature review is to ensure that no important variable is ignored has been found or repeated. This chapter is divided into three sections.

2.1 Theoretical Review

Theoretical review, the first section of this chapter is devoted mainly to describe theoretically the risk and return characteristic of the investment.

2.1.1 Investment

"Investment in its broadest sense means the sacrifice of current dollar for future dollars. Two different attributes are generally involves time and risk. The sacrifice takes place in the present and is certain. The reward comes later, if all, and the magnitude is generally uncertain. In some case time predominates and in some cases risk is the dominant attributes. Yet time and risk are important (Alexander et al, 2002).

For most of our life, we will earn and spending money. Rarely, though, will our current money once exactly balance with our consumption desired, sometimes, we may have more than we want to spend at other times, we may want to purpose more than we can afford. When current income exceeds current consumption desires, people tend to save the access. Another possibility is that

they can give up the immediate possession of these saving for a further larger amount of money that will be available for future consumption. This trade off of present consumption for a higher level of future consumption is the reason for saving. What we do with the saving to make them increase over time is investment (Reilly & Brown, 2002).

Specially, an investment is the current commitment of dollar of a period of time in order to derive future payment that will compensate the investor for 1) the time the funds are committed, 2) the expected rate of inflation and 3) the uncertainty of the future payment (Reilly & Brown, 2002). The "investor can be individual, a government, a pension fund, or a corporation." Similarly, investment can be: investment by corporation in plant and equipment and investments by individuals in stock, bonds, commodities, or real estate.

Thus, the investors is trading a known certain amount for some expected future stream of payment that will be greater than the current outlay. Investment is about taking risk and expected return from it.

2.1.2 Risk

The oxford English dictionary defines risk as the "chance or possibility of a danger, loss or injury". For investment purpose, this has been translated to the "chance that the actual outcome from an investment will digger forms the expected outcome. Here "differ" does not just mean differ negatively, it also, means positively. In other words, an investment can turn out to be better than expected and still be defining as risky.

This is because of the way that risk is qualified for investment purposes. Risk is almost always defined as the price volatility of the investment in question (Philip, 2002). An investment whose price has historically been violated bounces around a lot but it bounce up as well as down.

However, the statistical formulae that are used to measure risk cannot distinguish between upward moves and downward moves. All they can do is qualify the degree of movement from an average and conclude that a lot of movement, whichever way, equals lots of risk; little movement equals too little risk.

Risk is the flipside of return. Risk is the uncertainty that an investor will earn its expected rate of return. No one likes risk and the higher and investments' expected return the higher will be the risk. Most investors require higher rates of return in investments if they perceive that there is any uncertainty about the expected rate of return. The increase in the required rate of return over the nominal risk free rate is the risk premium. Although the required risk premium represents all uncertainty, the most fundamental sources of uncertainties are:

a) Business Risk: Business risk is the uncertainty of income flows caused by the nature of a firm's business. The less certain the income of the firm, the less certain the income flows toe the investor. Therefore, the investor will demand the risk premium that is based on the uncertainty caused by the business of the firm. As an example, a retail food company would typically experience stable sales and earnings growth over time and would low business risk compared to a firm in the auto industry where sales and earning fluctuate substantially over the business cycle, implying high business risk (Reilly & Brown, 2002).

b) Financial Risk: Financial Risk is the uncertainty introduces by the methods by which the firm finance its investments. If a firm uses only common stock to finance investments, it incurs only business risk of a firm borrows money to finance investments, it must pay fix financing charge 9 in the firm of interest to creditor prior to providing income to the

common stock holders, so the uncertainty of returns to the equity investor increases. This increase in uncertainty because of fixed-cost financing is called financial risk or financial leverage and causes an increase in the stock's risk premium.

c) Liquidity risk: Liquidity risk is the uncertainty introduces by the secondary market for an investment. When an investor acquires assets, he or she expected that the investment will mature or that is saleable to someone else. The investor expects to be able to convert the security into cash and use the proceeds for current consumption or other investment. The more difficult is to make this conversion, the greater the liquidity risk.

d) Exchange rate risk: Exchange rate risk is the uncertainty of return to an investor who acquires securities denominated in a currency different from his or her own. The likelihood of incurring this risk is becoming greater as investors buy as sells assets around the world, as opposed to only assets within their own countries. The more volatile the exchange rates between two countries, the greater the exchange rate risk.

e) Country Risk: Country Risk, also called political risk, is the uncertainty of returns caused by the possibility of a major change in the political or economical environment of country. The analysis of country risk is much more subjective and must be based on the history and current environment of the country.

2.1.3 Return

"The return is the total gain or loss experienced on an investment over a given period of time. It is commonly measured as the chance in value plus any cash distributions during the period, expressed as a percentage of the beginning of period investment value." (Gitman, 2000)

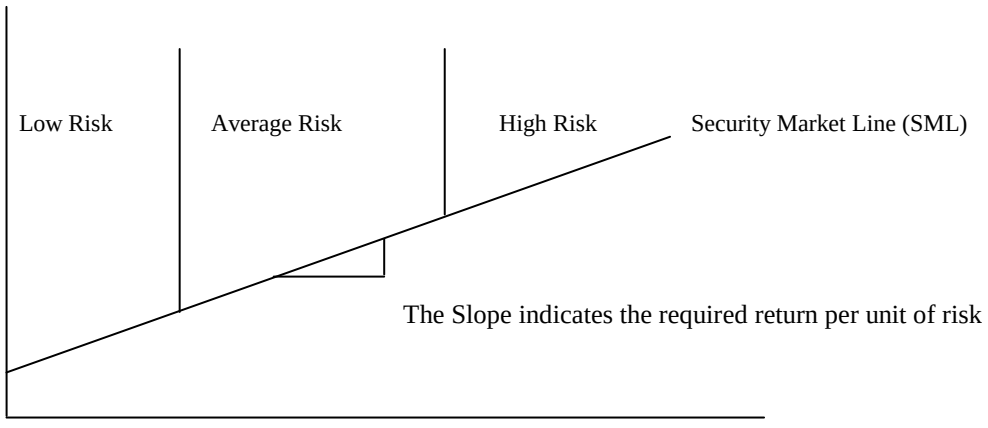
Return can be defining as the gain or loss for a security in a particular period, consisting of income plus capital gain relative to investment; it is usually quoted as percentage. The general rule is more risk investor takes the greater the potential for higher return (Philip, 2002).

Here question arises on why people invest and what is their expectation from investments. The answer is they invested to earn form saving due to their deferred consumption. Thus, return is the reward or compensation to the investors for the time, the expected rate of inflation and the uncertainty of the return.

2.1.4 Relationship Between Risk and Return

The risk-reward concept states that the higher the risk of a particular investment, the higher the possible return. But it is hard to determine the level of risk the individual stock or portfolio to bear. Anytime investors invest money into something there is risk, whether large or small that investments may be. Return on the other hand is the compensation or reward for bearing this risk. In theory, the higher the risk, the more investors should receive for holding the investment, and he lower the risk, less he or she should receives.

Relation Between Risk and Return



Source: Reilly & Brown, "Investment *Analysis and Portfolio Management"*

The above figure shows the expected relationship between risk and return. It shows that investors increase their required rates of return as perceived risk (uncertainty) increases. The line that reflects the combination of risk and return available on alternative investments is referred to as there security market line (SML). The SML reflects the risk-return combinations available for all risky assets in the capital markets at a given time. Investors would select investments that are consistent with their risk preferences; some would consider only low-risk investments, whereas others welcome high-risk investments.

Beginning with an initial SML, three changes can occur. First, individual investments can change positions on the SML because in the perceives risk of the investments, second, the slope of SML can change because of the change in the attitudes of investors towards risk; that is, investors can change there turns they require per unit of risk. Thus, the SML indicated the return per unit of risk required by all investors.

Investors place alternative investments somewhere along the SML based on their perceptions of he risk investment. Obviously, if an investment's risk changes due to a change in one of its risk sources (Business risk and such) it will move along the SML. For example, if a firm increases its financial risk by selling a large bond issue that increases its financial leverage, investors will perceive its common stock as riskier and the stock will move up the SML to a higher risk position. Investors will require a higher rate of return, as the common stock become riskier; it changes its position on the SML. Any changed in an asset that affects its fundamental risk factors or its market risk (that is, its bets) will cause the asset to move along the SML (Reilly & Brown, 2002)

2.1.5 Measure of Return

Investors should choose among alternative investment assets. The selection process requires a estimation and evaluation of he expected risk-return trade-off the alternative investments available (Charles, 1988)

The first measure is the historical rate of return on an individual investment over the time period the investment is held (that is, its holding period). Next, investors could consider measurement of average historical rate of return for an individual investment over a number of time periods. Then, in another way investors can estimate the expected rate of return for an investment.

2.1.5.1 Computing Historical Rate of Return:

When investor are evaluating investments for inclusion in his/her portfolio, it will require comparing investments with widely different prices or alive. As an example, investors want to compare a stock with low price that pays no dividend to a stock selling at high price that pays a dividend.

When we talk about a return on an investment, we concerned with the change in wealth resulting from that investment. This change in wealth can be either sue to cash inflow, such as interest or dividends, or caused by change in the price of the assets (positive or negative). The period during which investors own an investment is called its holding period, and the return for that period is the holding period return (HPR)

$$\text{HPR} = \frac{\text{Ending Value of investment}}{\text{Begining Value of investment}}$$

2.1.5.2 Computing Mean Historical Return:

Over a number of year, a single investment is likely give high rate of return during some years and low rates of return, or possibly negative rates or return, during other investors' analysis should consider each of these returns, but he. She also wants to summary figure that indicates this investment's typical experience. In turn, computing the mean annual return investors can get the expected rate of return if he/she owned the investment over an extended period of time.

Given a set annual rate of return (HPR) for an individual investment, there are two measures of return performance. The first is the air thematic mean return, the second the geometric mean return

To find the Arithmetic mean (AM), the sum of annual HPR is divided by the number of years (n) as follows:

$$AM = \frac{\sum HPR}{n}$$

An alternative computation, the Geometric Mean (GM), is the nth root of the product of the HPRs for n years.

$$GM = [\pi HPR]^{1/n} - 1$$

Where,

π = the product of the annual holding period returns as follows:

$(HPR_1)*(HPR_2)\ldots\ldots\ldots (HPR_n)$

2.1.5.3 Calculating Expected Rates of Return:

An investor who is evaluating a future investment alternative expects or anticipates a certain rate of return. An investor determines how certain the expected rate of return on an investment is by analyzing estimates of expected return. To do this, the investor as assigns probability values to all possible return. These probability values range from zero, which means no chance of return, to one, which indicates completed certainty that the investment will provide the specified rate of return. These probabilities are typically subjective estimates based on the historical performance of the investment or similar investments modified by the investor's expectations for the future.

The expected return an investment is defined as:

$$\text{Expected Retrun} = \sum_{t=1}^{n} (\text{Probability of Return}) * (\text{Possible Retrun})$$

$$E(R_1) = [(P_1)(R_1) + (P_2)(R_2) + (P_3)(R_3) + \ldots\ldots\ldots\ldots + (P_n)(R_n)$$

$$E(R_i) = \sum_{t=1}^{n} (P_i)(R_i)$$

2.1.6 Measuring the Risk:

Investors can quantify the risk (uncertainty) by using statistical measures. Two possible measure of risk have receives support in theoretical work on portfolio theory: variance and the standard deviation of the estimated distribution of expected returns.

2.1.6.1 Variance

Variance is defined as average of mean squared error terms. Larger the variance for expected rate of return, the grater the dispersion of expected return and greater the uncertainty, or risk, of the investment.

Variance, $\sigma_1^2 = \sum_{t-1}^{n} (\text{Probability x Possible Return} - \text{Expected Return})^2$

$$= \sum_{t-1}^{n} (P_i)\,[(R_i) - E(R_i)]^2$$

Variance, $\sigma_1^2 = \frac{\sum(R_i - \bar{R}_i)}{N-1}$

Where,

σ_1^2 = Standard deviation of return on stock 'I' during the time period n

R_i =Realized rate of return on stock 'I' at time 'n'

$\bar{R}_i$ = Expected Rate of return on Stock 'I'

2.1.6.2 Standard Deviation:

The standard deviation is defined as the positive square root of average sum of square of deviation from the arithmetic mean of distribution. Simply, the standard deviation is the square root of the variance:

Standard Deviation, $\sigma_1 = \sum_{t-1}^{n} \left(\sqrt{[(P_i[R_i - E(R_i)]}\right)^2$

Or, Standard Deviation, $\sigma_1 = \sqrt{\frac{\sum(R_i - \bar{R}_i)^2}{N-1}}$

2.1.6.3 A Relative Measure of Risk (Coefficient of Variation):

Coefficient of variation relates risk to return and measures risk in terms of pr unit of return.

In some case, unadjusted variance or standard deviation can be misleading. If condition for two or more investment alternatives is not similar that is, if there are major differences in the

expected rates of return- it is necessary to use a measure of relative variability to indicate risk per unit of expected return (Reilly & Brown, 2002).

$$\text{Coefficient of Variation (C.V)} = \frac{\text{Standard Deviation Return}}{\text{Expected Rated Return}}$$

$$= \frac{\sigma_i}{E(R_i)}$$

It is used by financial analyst to compare alternative investments.

2.1.7 Portfolio Management

Securities available in the market for investment have uncertain outcome and are thus risky. So the basic problem facing by each investor is to determine which particular risky securities to invest in or own. Because a portfolio is a collection of securities, this problem is equivalent to the investors selecting the optimal portfolio from a set of possible portfolios. In other words, the creation of an optimum investment portfolio is not simply a matter of combining a lot of unique individual securities that have desirable risk-return characteristics. Hence, a good portfolio is not simply a collection of individually good investments. The recognition of what is important is creating a portfolio was demonstrated in the derivation of portfolio theory.

2.1.7.1 Markowitz Portfolio Theory

The portfolio model was developed by Harry Markowitz, who derived the expected rate of return for a portfolio of assets and an expected risk measure. Markowitz showed that the variance of the rate of return was a meaningful measure of portfolio risk under a reasonable set of assumptions, and he derived the formula for computing the variance of a portfolio. This portfolio variance formula indicated the importance of diversifying the investments to reduce the total risk of portfolio but also showed to effectively diversify. Markowitz showed that the expected rate of

return of a portfolio is the weighted average of expected return for the individual investments in the portfolio. The standard deviation of a portfolio is a function not only of the standard deviations for the individual investments but also of the covariance between rates of return for all pair of assets in the portfolio. The Markowitz model is based on several assumptions regarding investing behavior.

1) Investors consider each investment alternative as being represented by a probability distribution of expected return over some holding period.
2) Investors maximize one-period expected utility, and their utility curves demonstrate diminishing marginal utility of wealth.
3) Investors estimate the risk of the portfolio on the basis of the variability of expected return.
4) Investors base decisions solely on expected return and risk, so their utility curves are a function of expected return and the expected variance (or standard deviation) of the return only.
5) For a given risk level, investors prefer return to lower return. Similarly, for a given level of expected return, investor prefer less risk to more risk.

Under these assumptions, a single assets or portfolio of assets is considered to be efficient if no other asset or portfolio of assets offer higher expected return with the same (or lower risk) or lower risk with the same (or higher) expected return.

2.1.7.1.1 Expected Rate of Return

The expected rate of return for a portfolio of investment is simply the weighted average of the expected rate of return for the individual investment in the portfolio. The weights are the proportion of total values for the investment.

$$E(P_P) = W_i.E(R_i) + W_j.E(R_j)$$

Where,

P_P = Expected Return on portfolio of stock i and j

W_i = Weight of wealth invested in stock i

W_j = Weight of wealth invested in stock j

2.1.7.1.2 Covariance of Return

Covariance of measure of the degree to which two variables "move together" relative to their individual for two mean values over time. A positive covariance means that the rate of return form two investments tend to move in the same direction relative to their individual means during the same time period. In contrast, a negative covariance indicates that the rates of return form two investments (Reilly & Brown, 2002), tend to move in different directions relative to their means during specified time intervals over time.

For a two assets, I and j, the covariance of rates of return is defined as:

$$Cov_{ij} = E\{[R_i - E(R_i)][R_i - E(R_j)]\}$$

2.1.7.1.3 Correlation Coefficient of Return:

Correlation coefficient measures the degree of relationship with which two securities move together. It refers to the techniques used in measuring the relationship between two variables.

Standardizing the covariance by the individual standard deviation yields correlation coefficient, which can vary only -1 to +1 a value of +1 indicates the return of the stock move together in completely linear manner. A value of -1 indicates a perfect negative relationship between the two return series. The formula of correlation for efficient is,

$$\rho_{ij} = \frac{Cov_{ij}}{\sigma_i \, \sigma_j}$$

Where,

ρ_{ij} = Correlation coefficient of return of stock i & j

Cov_{ij} = Covariance of the rate of return of stock i & j

σ_i = The standard deviation of the return of stock i.

σ_j = The standard deviation of the return of stock j.

2.1.7.1.4 Portfolio Standard Deviation

The standard deviation of return for a portfolio of assets is the measure of risk for a portfolio. Harry Markowitz derived the formula form computing the standard deviation of a portfolio of assets. The formula indicates that the standard deviation for portfolio assets is s function of the weighted average of the individual variance (where the weight is squared, plus the weighted covariance between all the assets in the portfolio). The standard deviation for a portfolio of assets encompasses not only the variance of the portfolio. The general formula derived by Markowitz for the standard deviation is as follows.

$$\sigma_{port} = \sqrt{\sum_{t-1}^{n} w_i^2 \, \sigma_j^2 + \sum_{i=1}^{n} w_i w_j \, Cov_{ij}}$$

$i \neq j$

Where,

σ_{port} = Standard deviation of the portfolio

W_i = The weight of the individuals assets in the portfolio, in which weight are determined by the proportion of the value in the portfolio.

σ_1^2 = The variance of rates of return for assets i.

Cov_{ij} = The covariance between the rates of return for assets i and j.

Where, $Cov_{ij} = r_{ij}\,\sigma_i\sigma_j$

$$\sigma_p = \sqrt{\{w_i^2.\sigma_i^2 + w_j^2\sigma_j^2 + 2Cov_{ij}.w_i.\sigma_j\}}$$

2.1.7.1.5 Beta Coefficient

Beta coefficient is the standardized measure of systematic risk which is the covariance of an asset with portfolio divided by the variance of the market portfolio.

Thus,

Beta Coefficient (β) = $\frac{Cov\,[R_i R_m]}{\sigma_m^2} = \frac{Cov_{im}}{\sigma_m^2}$

If beta coefficient is exactly one the stock is classified as average stock and the degree of risk is equally as the market. If the beta coefficient is greater than one the stock is classified as aggressive stock and the degree of risk is more than the market. And if beta coefficient is less than one the stock is classified as defensive stock and the degree of risk is less than the market.

2.1.7.2 Efficient Frontier

Efficient frontier is the line or chart which marks out the best combination of risk and return available to investors in a particular market. Specifically, the efficient frontier represents that set

of portfolio that was maximum rate or return for every given level of risk, or the maximum risk for every level of return. The theory is that rational investors would buy assets which lie of the efficient frontier. Such assets are said to "dominate" all other, which either have less return or carry more risk. Plotting the efficient frontier therefore becomes a key aim of portfolio theory, as originally formalized by Harry Markowitz in the 1990's, the efficient frontier is arc shaped because. At the margins, investors could seek extra return only by assuming disproportionate amounts of risk or sacrifice marginal return as the price of shedding risk (Philip, 2002).

2.1.8 Capital Market Theory

Capital Market Theory extends portfolio theory and develops a model for pricing all risky assets. The final products, the capital assets pricing model (CAPM), allow investors to determine the required rate of return for any risk assets. The main assumptions that underline the development of capital market theory are:

1) All investors are Markowitz efficient investors who want to target point on the efficient frontier. The exact location on the efficient frontier and, therefore the specific portfolio selected will depend on the individual investor's risk-return utility function.

2) Investors can borrow or lend any amount of money at the risk-free rate of return (RFR).

3) All investors have homogeneous expectations; that is, they estimate identical probability distributions for future rates of return.

4) All investors are infinitely divisible, which means that it is possible to buy or sell fractional shares of any assets or portfolio.

5) All investors are infinitely divisible, which means that it is possible to buy or sell fractional shares of any assets or portfolio.

6) There are no taxes or transaction costs involved in buying or selling assets.

7) There is no inflation or any change in interest rates, or inflation in fully anticipated.

8) Capital Markets are in equilibrium. This means that investors begin with all investments properly priced in the line with risk levels.

The concept of risk-free assets is the major factors that allowed portfolio theory to develop into capital market theory. Following the development of Markowitz portfolio model several authors consider the implications of assuming the existence of risk-free asset that is an asset with zero variance. The assumption allows us to derive a generalized theory of capital assets pricing under conditions of uncertainty from the Markowitz theory. This achievement is generally attributed to William Sharpe, for which he received the Nobel Prize.

2.1.8.1 The Capital Assets Pricing Model

The Capital Pricing (CAPM), allow investors to determine the required rate of return for risk assets. CAPM is an influential formula for modeling the theoretically correct price of assets and portfolios. It is elegant theory which possesses important questions about the extent to which investors can generate above-average return from most investment selection techniques (Fisher & Jordan, 2000).

Basically, CAPM is the model which suggest us to determine the require rate of return for the pricing of capital assets by considering the level of systematic risk because investors are not compensated by extra return for bearing unsystematic risk. Unsystematic risk should be reduced

to zero. So for the pricing of securities we should focus on systematic risk only. Here CAPM says that the return from an investment will equal the risk-free rate of return plus the excess over the risk-free rate offered by the particular market in which the investment traders, in turn geared up the sensitivity of the investment to market return. The CAPM model indicates what should be the expected or required rates of return on risk assets. This transition is important because it helps investors to value assets by providing an appropriate discount rate to use in any valuation model. Alternatively, if investors have already estimate the rate of return he/she thinks will earn on an investment, he/she can compare this estimate rate of the required return implied by the CAPM and determine whether the asset is undervalued, overvalued or properly valued. The capital market line, separation theorem and security market line are the important features of the CAPM model.

2.1.8.1.1 The CML and the Separation Theorem

The CML is the graphical of the tradeoff between the risk and return for an efficient portfolio. In other words, it is a chart line which shows how much extra return investors would expect for taking on extra risk.

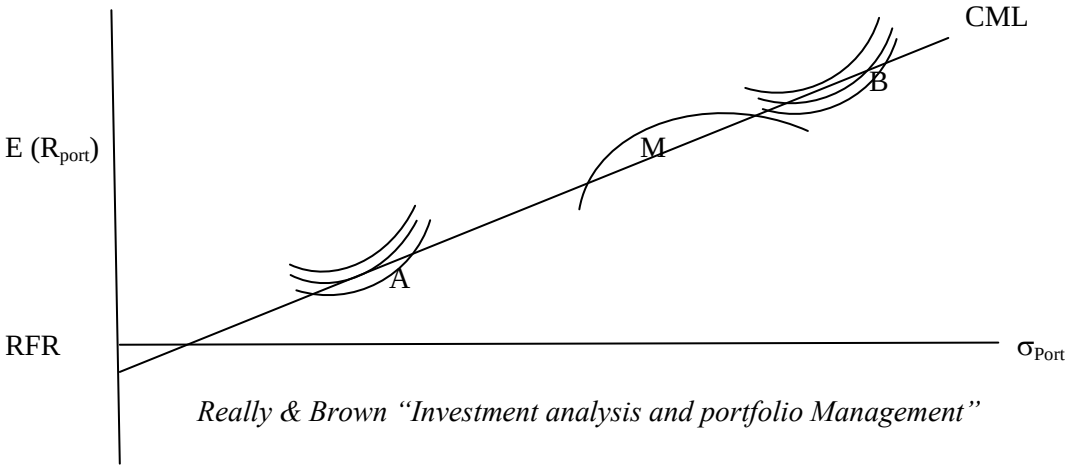
Prospectively, the chart line must slope upward because investors would not assume extra risk if the through they were not going to get extra, although actual return shows that it can slope downwards for a while. This means that in the real world investors are not always rewarded for taking or higher risks (Philip, 2002).

The existence of the risk-free asset resulted in the derivation of capital market line (CML) that became the relevant efficient frontier. If there are no opportunities to borrow or lend at the risk

free rate, the efficient set would be the curve and many combinations of risky securities would be efficient. All inventors want to be the CML (Reilly & Brown, 2002).

All investors face the same efficient set, the only reason they will choose dissimilar portfolios is that they have different indifference curves, resulting in distinct preferences toward risk and return. This means that each investor will spread his/her funds among risky securities in the same relative proportions', adding risk-free borrowing or lending in order to achieve a personally preferred overall combination of risk and return. This feature of the CAPM is referred to separation theorem. In other words, the division of the investment decision from the financing decision is the separation theorem (Reilly & Brown, 2002).

Choice of Optimal Portfolio Combination on the CML



Really & Brown "Investment analysis and portfolio Management"

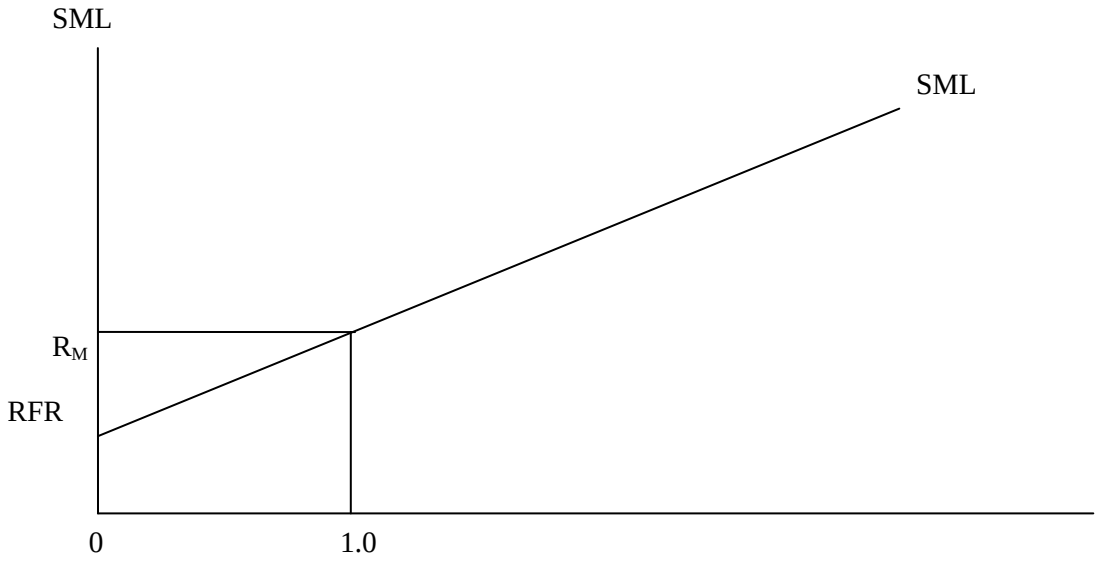
The CML leads all investors to invest in the same risk assets portfolio, the M portfolio. Individual investors should only differ regarding their position on the CML, which depends on the risk preferences. In turn, how they get to a point on the CML is based on their financing decision. In case of relatively risk averse investors, he/she will lend some part of portfolio at the RFR by buying come risk-free securities and investing the remainder in the market portfolio of

the risk assets. For example, he/she might invest in the portfolio combination at point A. In contrast if investors prefer more risk he might borrow funds at point B. This financing decision provides more risk but greater returns than the market portfolio because portfolios on the portfolios and investors decide where they want to be along this efficient frontier. This process is attributed by the separation theorem.

2.1.8.1.2 The Security Market Line (SML)

SML is the chart line that illustrates the ides those investors is rewarded only for the risks they take in relation to overall market risk (Systematic risk) as such; it is the linear representation of the Capital Assets Pricing Model (Philip, 2002).

SML with Normalized Systematic Risk



Source: Reilly & Brown, "Investment Analysis and portfolio management"

The figure reveals that the expected rate of return for a risky asset is determines by RFR plus s risk premium for the individual asset. In turn, the risk premium is determined by the systematic risk of assets (B_i) and the prevailing market risk premium (Rm - Rf). And this expected or

required rate of return can be compared with the estimated rate of return of the investment to determine if the investment is undervalued or overvalued.

This relationship can be stated in the equation form:

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

Here, Beta is a standardized measure of systematic risk. The covariance of any asset I with the market portfolio (Cop vim) is the relevant risk measure. Beta is standardized measure of risk because it relates this covariance to the variances of the market portfolio. As a result, the market portfolio has a beta 1. Therefore, if the β_I for assets is above 1.0, the asset has higher normalized systematic risk than the market, which means that it is more volatile than the overall market portfolio.

2.1.8.1.3 Empirical Test of the CAPM

CAPM model is based in certain assumption. However theory should not be judged on the basis of assumption, but how will it explains the relationships that in the real worlds. When testing the CAPM, there are two major questions. First, how stable is the measure of systematic risk (beta)? Second, is there a positive linear relationship as hypothesized between beta and the rate of return on risky asset?

Numerous studies have examines the stability of beta ends generally concluded that he risk measure was not stable for individual stocks but the stability of the beta for portfolio of stocks increased dramatically. Another factor that affects testability of beta is how many months are used to estimate the original beta and the test beta. Empirical studies have indicated stable portfolio betas, especially when enough observations were used to derive the betas and there was adequate volume. There was mixed support form a positive linear relationship between rated of

return and systematic risk for portfolio of stock, with some recent evidence indicating the need to consider additional risk variable.

The Fame-French study considered most of the variable suggested and concluded that beta was not related to average return on stocks when included with other variables or when considered alone. Fama and French contended that during the period 1963-1990, beta was not relevant. In their study, the most significant variables were book-to-market value (BE/ME) and size. Subsequent studies both supported their findings and differed with them because some more recent authors have found a significant relationship between beta and rates of return on stock.

Another problem has been raised by Roll, who contends that is not possible empirically derived a true portfolio, so it is not possible to trust the CAPM model properly or to use model to evaluate performance. A study by Reily and Aktar provided empirical support for this contention by demonstrating significant differences in betas, AMLs, and expected return with alternative benchmarks.

To conclude, however, there is a mixed result in the empirical testing of the CAPM, the relevancy of this model is beyond doubt. Markowitz portfolio their and the assets pricing model (CAPM), collectively represent the foundation for understanding the connection between risk and expected return in financial markets.

2.2 Review of Related Studies

2.2.1 Review of Journals

Some of the available articles and journals are reviewed in this section.

Ghimire (2001) published an article in business age magazine entitled “Nepal share market and investor’s prospect” in which he has pointed out some important trends of Nepal capital market. He has mentioned many unbalanced factors like political instability, terrorism as the main cause of decreasing trend of share price. He has observed fluctuation in NEPSE index is due to banking sector and declaration of bonus and dividend is the main cause of price change of stock. He has defined Nepalese capital market as lame, weak and perhaps works for vested interest.

K.C (2004) in the article entitled “Development of stock market and economic growth in Nepal” concluded to improve the situation of the country in order for investor to be eager to invest more confidently. He points out that the investors have lost their confidence on the secondary market not only because the existing few listed companies are not performing well but also due to fear of internal unrest that could further deteriorate the economic conditions of the country. He recommended increasing opportunities to invest in the secondary market.

Thapa (2003) in his article “Managing Banking Risk” published in the Kathmandu Post dated March 9,2003, mentioned that risk management of the banks is not only crucial for optimum tradeoff between risk and profitability, but is also one of the deciding factors for the overall business investment leading to growth of the economy. Managing such risks not only needs sheer professionalism at the organizational level but an appropriate environment also needs to be developed. Some of the major environmental problem of Nepalese baking sector is undue government intervention in the state-owned banks, relatively weak regulatory frame, bad corporate governance and lack of professionalism. The only solution to mitigate the banking risk is to develop the badly needed commitment, eradication of corrupt environment especially in the disbursement of lending and to formulate prudent and conductive regulatory framework.

Poudel (2002) in his study "Investing in Shares of Commercial Banks in Nepal: An assessment of Risk and Return Elements" have come up with the conclusion that the risk-return characteristic so not seem to be same for the shares review.

He further added the shares with larger standard deviations seem to produce higher rates of return. The portion of unsystematic risk is very high with the shares having negative beta coefficient. The risk per unit return, as measured by the coefficient of variance, is less than that of the market as a whole for all the individual shares. Most of the shares fall under the category often defensive stocks, (having beta coefficient less than 1).

Timilsina (2001) in his study "Capital Market Development and Stock price behavior in Nepal" has come up with the conclusion that the market price of shares depend on EPS as well as on DPS, but DPS is more price sensitive and it will have direct and immediate response in the market. However, market values of shares computed on the basis of EPS are near to be observed market price of equity share reveal that the stock market is not inconsistent.

2.2.2 Review from Thesis

Prior to this study, several research works have been done by various students regarding the various aspects of risk and return underlying the capital asset pricing model, especially on the common shares of commercial banks. In this study only relevant subject matters are reviewed, which are as follows:

Mishra (2002) has tried to examine the risk and return character of common stock of only five listed commercial banks, including BOKL and SCBNL in his thesis paper. Risk and Return on Common Stock Investment of Commercial Bank in Nepal. In this study, Mr. Mishra has used

data over a period of five years from FY 2052/53 to FY 2056/57 in order to calculate risk and return and identify whether their stock is over-priced, under-priced or equilibrium priced.

In the study, Mr. Mishra had concluded that the required rate of return for BIKL and SCBNL is 0.2444 and 0.1525 respectively. As their RRR is less than other selected companies' ERR, therefore stock of BOKL and SCBNL are said to be under-priced and it is worth to purchase them as they realize greater rate of return than needed. Similarly, he has concluded that common stock of BOKL is more volatile with market since its beta coefficient is 1.81 which is greater than one whereas common stock SCBNL is less volatile as its beta coefficient is 0.8916.

To measure and analyze the risk and return associated with the common stock of listed finance companies and determine the effect of portfolio on risk and return, Poudel (2003) did a study of **Risk and Return on Commercial Stock Investment of Finance Companies in Nepal** where he found out that "all finance companies have positive expected return majority number of finance companies have the expected return and risk less than their average.

Similarly, the study relationship between expected return and risk revealed that "there is a positive relationship between return and risk….although the relationship is weak but it is consistent as the CAPM suggest". Furthermore, he concluded that "the overall effect of portfolio on risk and return show mixed result. It means the portfolio helps to increase the return in some case but in some cases it has also decrease the level of risk up to negative level. But in other hand, nearly in all cases it has helped to decrease the level of risk up to some extent".

Similarly, with objectives of finding out the relationship between the return on individual shares and return on market as well as determining whether the shares of commercial banks in Nepal are correctly priced or not, Bhatta (2003) did a study on **Investment in Shares of Commercial**

Banks in Nepal: An Assignment of Risk and Return Element. He used the data of eight commercial banks; listed in NEPSE over the period from FY 1996/97 to 2000/01.

In his study, he found out that, "…risk and return characterizes do not seem to be the same for all the shares reviewed and the portion of unsystematic risk is very high shares having negative bet coefficient". Similarly, his findings and conclusion stated that most of the shares fall under the category of aggressive stock (Having beta coefficient more than one), while some under the defensive stock (having beta coefficient less than one). Likewise, his study showed that all the banks share are under prices all the individual shares return are positively correlated to the market return.

As already there are no studies performed in this specific topic. However, some studies have been conducted as a thesis for the partial fulfillment of master degree in T.U., which are to some extent related to the purpose study. In this context, some relevant thesis is reviewed here.

Bhatta (2000) in his thesis paper, **"Assessment often Performance of Listed Companies in Nepal"** concludes that: A highly significant positive correlation-ship has been addressed between risk and return character of the company. Investors expect higher returns from that stock, which associates higher risk. Nepalese capital market is not efficient one. So, neither the stock are nor the member of stock exchange tries to disseminate the information. So the market return and risk both may not show high prices stocks.

In addition, Mr. Bhatta further addressed that "Investors of Nepal have not yet practiced to invest in portfolio of securities. An analysis of the two securities portfolio shows that the risk can be totally minimized if the correlation is perfectly negative, in this situation, the risk can totally be

diversified, but when there is perfectly positive correlation-ship between the return of the two securities, the risk is not diversified.

To some extend Mr. Bhatta focused in the analysis of Risk and Return in common stock investment. But, due to many other aspect of analysis, investor cannot easily assess the result. Indeed, study does not focus the viewpoint of investors rather it concentrates the companies and stock market. However, this study also explores some dimension for the further research in topic.

Bajracharya (2007): in his thesis paper, **An Analysis of Investors Investment of Shares in Commercial Banks**. Concluded that, "Investing in shares of commercial banks is risky in the sense that its return varies depending in how the company prospers. Though lots of investors are attracted in trading these stocks and shares of banking sector has a key role in fluctuation of stock exchange index. The result of the study shows investment in common stock of commercial bank has less risk and more return when compared with the market risk and return.

In addition Bajracharya add that due to the regular disclosure of the declaration of dividend which encourages the investors to buy the shares of commercial banks.

2.3 Research Gap

The past study shows that the general investment pattern of the past investment trend. Different studies try to justify the investment analysis by analyzing return and risk factor of the past data up to the period of 2005/06. But in this study researcher has tried to present the return and risk pattern of the recent past data.

The analysis of past data shows the respective period investment procedure. But in this study the study is focused to analyze the recent pattern of banking sector investment with reference to top

ranking bank specified in the sample chosen. The study aims to explore the investors in the recent environment of investment patterns. Even though almost all the tools were as before the study tries to bring recent development in the field of investment analysis.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology describes the methods and process applied in the entire aspect of the study. In other words research methodology is the systematic method of finding solution to a problem i.e. systematic collection, recording, analysis, interpretation and reporting of information. This chapter deals about the research methodology by which the collected data are analyzed to get the result.

3.2 Research Design

A research design is a plan, structure and strategy to obtain the objective of the study. This study is carried out to get the empirical result of the investment on shares of the commercial banks from risk and return perspective. Analytical and descriptive research approach is adopted in this study for the readily available historical data.

3.3 Population and Sample

All the commercial banks listed in NEPSE till date (31) are considered to be the total population of the study. Out of them five listed commercial banks were considered as the sample of the study, namely, Nabil Bank Ltd, Standard Chartered Bank Ltd, Nepal investment Bank Ltd., Himalayan Bank Ltd and Bank of Kathmandu Ltd.

3.4 Nature and Source of Data

For the research market price per share and dividend were taken into consideration. All the data used in report are secondary data and these are collected from report of NEPSE and the annual report of respective banks since FY 2062/63.

3.5 Methods of Data Analysis

This study is based on the data collected from different sources. In analyzing and processing of the data classification and tabulation of data was carried out. The data analyzed to test the defined objectives. To analyze the data, following descriptive and analytical tools are used.

3.5.1 Annual Rate of Return

For a one-year holding, the problem includes the dividend paid during the year and capital gain realized at the end of the year. The prevailing tax rate and inflation rate do affected the annual rate of return of the investment. In these study, both the tax and inflation rate are not taken into consideration in the computation of the rate of return. Also the effects of the right issue by the company on the rate of return of the investment are included due to impracticability on the calculation part. Thus,

$$R = \frac{D+(EP-BP)}{BP}$$

Where,

R =Annual Rate

D = Total Dividend

EP = Ending Price

BP = Beginning Price

Here, total dividend is equal to cash dividend + stock dividend. Total dividend is calculated as follows:

Cash Dividend % + Stock Dividend %* Next year ending Price

3.5.2 Average Rate of Return

Over a number of years, a single investment will likely give high rate of return during some years and low rate of return, or possibly negative rate of return, during others. In turn, computing the average rate of return investors can get the expected rate or return if he/she owned the investment over an extended period of time. To find the average rate of return, the sum of rate of return is divided by the number of year (n) as follows.

$$\overline{R_j} = \frac{\sum R_j}{n}$$

Where,

$\overline{R_j}$ = Average Rate of return of Security j

$\sum R_j$ = The Sum of annual rate of return.

3.5.3 Portfolio Return

The expected rate of return for a portfolio of investment is simply the weighted average of the average or expected rate of return for the individual investment in the portfolio. The weights are the proportion of total value for the investment. Thus,

$$E(R_p) = W_i . E(R_i) + W_j . E(R_j)$$

Where,

$E(R_p)$ = Expected Return on portfolio stock i and j.

W_i = Weight of wealth invested in stock i

W_j = Weight of wealth invested in stock j

3.5.4 Covariance of Return

Covariance is a measure of the degree of which two variables "move together" relative to their individual mean values over time. A positive covariance means that he rate for two invested tend to move in the same direction relative to their individual means during the same time-period and vice versa. For a two assets, i and j, the covariance of rate of return is define as:

$$Cov_{ij} = \frac{\Sigma(R_i - R_j)(R_i - R_j)}{n-1}$$

3.5.5 Correlation Coefficient of Return:

Correlation analysis refers to the techniques used in measuring the relationship between two variables. The value of correlation coefficient varies only in range of -1 to +1. A value of +1 indicates the return of the stock move together in a completely linear manner. A value of -1 indicates that perfect negative relationships between the two return. The formula of correlation coefficient is,

$$\rho_{ij} = \frac{Cov_{ij}}{\sigma_i \sigma_j}$$

Where,

ρ_{ij} = Correlation coefficient of return of stock 1 and j.

Cov_{ij} = Covarianc3e of the rate of return of stock i and j.

σ_i = The standard deviation of the return of the stock i.

σ_j = The standard deviation of the return of the stock j.

3.5.6 Variance

The most commonly used measure of risk is variance or its square root is the standard deviation. The symbol is σ^2, pronounced "sigma square". It is the measure of total risk. Smaller, the variance, lower the risk of the stock and vice-versa.

Using Ex-Post (past) data:

$$\text{Var (r)} = \sum_{t=1}^{n} [\, rt - \sum(r)]^2$$

$$= \frac{[r_1 - \sum(r)]^2 + [\, r_2 - \sum(r)]^2 + \ldots\ldots\ldots [r_n - \sum(r)]^2}{n}$$

Where,

Var (r) = variance of return

r_1 = Single period return at time t

$\sum$(r) = Expected return over the period

n = number of observation

Alternatively,

Var (r) or σ^2 = Square of Standard deviation

3.5.7 Standard Deviation

It is quantities measure of total risk of Assets. It provides more information about the risk of the assets. The standard deviation of a distribution is the square root of the variation of return around the mean. The following is applied to calculate the standard deviation, using historical return:

Or,

Standard Deviation, $\sigma_I = \sqrt{\frac{\sum(R_i - \overline{R_i})}{N-1}}$

Where,

R_i = Annual Rate of Return of Security i

$\overline{R_i}$ = Average rate of security i

n = number of years.

3.5.8 Coefficient of Variation:

The risk per unit of the return can be measured by coefficient of the variation, which is computed as follows.

Coefficient of Variation (C.V) = $\frac{Standard\ Deviation\ of\ Return}{Expected\ Rate\ of\ Return}$

$= \frac{\sigma_i}{E(R_i)}$

3.5.9 Beta Coefficient

Beta Coefficient is the standardized measure of systematic risk, which is the covariance of an asset with the market portfolio divided by the variance of the market portfolio. Thus,

Beta Coefficient (β) = $\frac{Cov[R_i R_m]}{\sigma_m^2} = \frac{Cov_{im}}{\sigma_m^2}$

3.5.10 Total Risk

The total risk is taken as the systematic risk plus unsystematic risk. Systematic risk has its source factors that all marketable risky assets and cannot be diversified. The unsystematic risk also called or specific risk can be reduced or eliminated through diversification. The total risk is calculated as follows:

Total (TR) = Systematic Risk (SR) + Unsystematic Risk (UR)

$$\sigma_i^2 = \beta_I^2 \sigma_m^{\ 2} Var\ (e_0)$$

3.5.11 Portfolio Risk

The standard deviation of return for a portfolio of assets is the measure of risk for a portfolio. The general formula derived by Markowitz for the

$$\sigma_{port} = \sqrt{\sum_{i-1}^{n} w_i^2 \sigma_i^2 + \sum_{i-1}^{n} \sum_{i-1}^{n} w_i w_j Cov_{ij}}$$

$i \neq j$

Where,

σ_{port} = Standard deviation of the portfolio

W_i = The weight of the individuals assets in the portfolio, where weight are determined by the proportion of the value in the portfolio.

σ_i^2 = The variance of rates of return for assets i

Cov_{ij} = The Covariance between the rates of return for assets i and j

3.5.12 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)

$$WA = \frac{\sigma_B^{\ 2} - Cov(R_A R_B)}{\sigma_A^{\ 2} \sigma_B^{\ 2} - Cov(R_A R_B)}$$

WB= 1-WA

Where,

WA= Optimal weight to invest in stock A

WB= Optimal weight to invest in stock B

3.5.13 CAPM Model

The Capital Assets Pricing Model (CAPM) allow investor top determine the required rate of return for any risky assets. The CAPM model indicated what should be the expected or required rate of return on risky assets. Basically, the CAPM says that return from an investment will equal the risk-free rate of return plus the excess return over the risk-free rate by the particular market in which the investment traders, in turn geared up the sensitivity of the investment to market returns.

Total risk (TR) = Systematic Risk (SR) + Unsystematic Risk (UR)

$$\sigma_i^2 = \beta_l^2 \sigma_m^2 \, Var\,(e_0)$$

CHAPTER IV

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

In this chapter effort has been made to analyze risk return and portfolio behavior of commercials banks of Nepal. The analysis of data consists of organizing, tabulating and assessing financial and statistical result. This chapter also describes the detail data of MPS and dividend of each bank and NEPSE index. Tables and diagrams are listed to make the result more simple and understandable with reference to the various readings and reviews of literature in the proceeding chapter.

4.1 Analysis of Market Risk and Return

According to securities trading report published by NEPSE on 2067/68, the yearly closing price of stock and yearly market index are given in the following table

Table 4.1 Closing Price of Equity

Fiscal year	NABIL	NIBL	SCBNL	HBL	BOK	NEPSE Index
2062/63	2240	1260	3775	1100	850	386.83
2063/64	5050	1729	5900	1760	1375	683.95
2064/65	5275	2450	6830	1980	2350	963.36
2065/66	4899	1388	6010	1760	1750	749.1
2066/67	2384	705	3279	816	840	477.73
2067/68	1252	515	1800	575	570	362.85

Source: NEPSE Annual Trading Report from F/Y 2062/63 to 2067/68

The above table shows that in the fiscal year 2067/68 closing price of all the commercial banks have decreased in comparison to previous year. But still Nabil bank and Standard Chartered had closing price above three digits. According to the above table all the banks had a period of boom during the fiscal year 2064/65. Among all these banks Nepal Investment Bank has the lowest closing price of Rs 515 in the fiscal year 2067/68. Bank of Kathmandu had second lowest closing price of Rs 570 and Himalayan Bank had closing price of Rs 575 during the fiscal year 2067/68.

Table 4.2 Expected Return, Standard Deviation and Coefficient of NEPSE Index

Fiscal Year	**NEPSE Index**	**R_m**	**$(R_m - \bar{R}_m)$**	**$(R_m - \bar{R}_m)^2$**
2062/63	386.8300	-	-	-
2063/64	683.9500	0.7681	0.6978	0.4869
2064/65	963.3600	0.4085	0.3382	0.1144
2065/66	749.1000	-0.2224	-0.2927	0.0857
2066/67	477.7300	-0.3623	-0.4326	0.1871
2067/68	362.8500	-0.2405	-0.3108	0.0966
Total	NEPSE Index	$\Sigma(R_m) = 0.3515$		$\Sigma(R_m - \bar{R}_m)^2 = 0.9707$

Source: NEPSE Annual Trading Report

$$\text{Expected Return } (\bar{R}_m) = \frac{\Sigma (R_m)}{N}$$

$$= \frac{0.3515}{5}$$

$$= 0.0703$$

$$\text{Standard Deviation } (\sigma_m) = \sqrt{\frac{\Sigma(R_m - \bar{R}_m)^2}{N-1}}$$

$$= \sqrt{\frac{0.9707}{5-1}}$$

$$= 0.4926$$

$$\text{Co-efficient of Variation} = \frac{\sigma_m}{\bar{R}_m}$$

$$= \frac{0.4926}{0.0703}$$

$$= 7.007$$

The market return was positive in the year 2063/64 and 2064/65. Then market return decreased and was negative from 2065/66 onwards. In the year 2063/64 the return was highest and in the year 2066/67 the return was lowest. Above table shows expected return 0.0703, Standard deviation 0.4926 and coefficient of variation 7.007

4.2 Analysis of Individual Commercial Banks

As the study has taken a special reference to commercial banks, common stock of each listed commercial banks are analyzed here separately. All five commercial banks are operating in Nepal and all are listed in NEPSE index. The five commercial banks are mentioned below

Table 4.3 List of Commercial Banks in NEPSE

S.N	Name of Bank	Operation date (A.D.)	Listing Date in NEPSE	NEPSE Code	NEPSE Code no
1	Nabil Rank Ltd.	7/16/1984	23/12/1985	NABIL	102
2	Nepal Investment Bank Ltd	2/27/1986	20/11/1985	NIB	103
3	Standard Chartered Bank Ltd	1/30/1987	4/07/1988	SCB	104
4	Himalayan Bank Ltd	1/18/1993	5/07/1993	HBL	105
5	Bank of Kathmandu	3/12/1995	17/06/1997	BOK	109

4.2.1 Nabil Bank Ltd

Nabil bank ltd is the first joint venture commercial bank of Nepal. It was established in 1984. 50% equity shares is owned by local and 50% has foreign investment. Authorized capital and paid up capital of Nabil bank ltd on the fiscal year 2067/68 was 2100 million and 2029.769 million respectively.

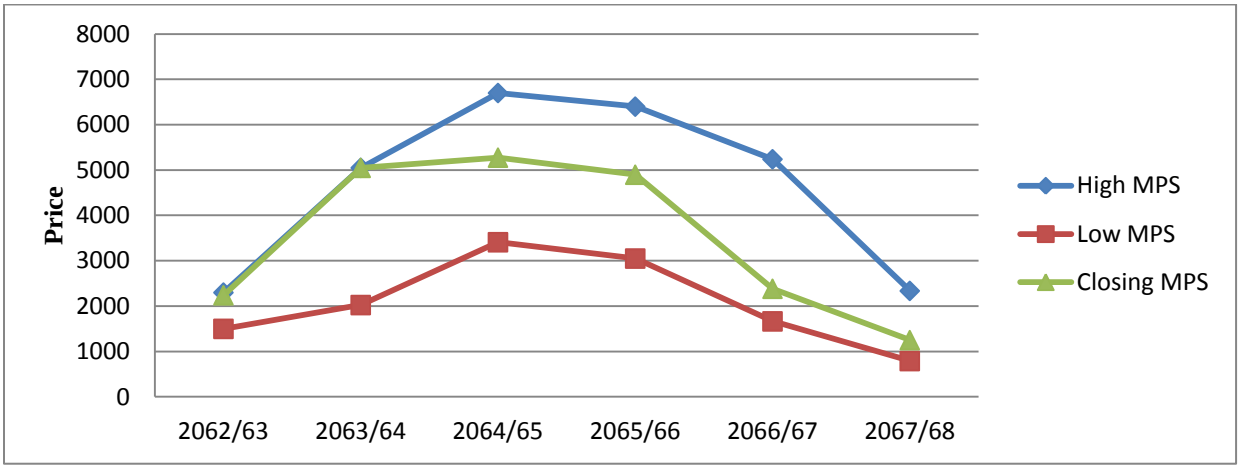
The table below shows the Market Price per share and dividend value of Nabil Bank.

Table 4.4 MPS and Dividend Data of NABIL

Fiscal year	High MPS	Low MPS	Closing MPS	Cash Dividend	Stock Dividend	Total Dividend
2062/63	2300	1500	2240	85	0	85
2063/64	5050	2025	5050	100	40%	2210
2064/65	6700	3410	5275	60	40%	2019.6
2065/66	6400	3050	4899	35	50%	1227
2066/67	5240	1665	2384	30	40%	530.8
2067/68	2337	790	1252	30	0	30

Source: NEPSE and NABIL Annual Trading Report.

Figure 4.1 Market Price Movement of NABIL Bank



From the above figure and table, closing MPS of the bank was in increasing order and was maximum in the F/Y 2064/65 and started decreasing then onwards. The MPS was lowest on the year 2067/68. The MPS ranges between RS 1252 and Rs 5275. Cash dividend has been declared every year from 2063/64 to2067/68 where as stock dividend has not been declared on the year 2067/68

Table 4.5 Expected Return, Standard Deviation and Coefficient of Variation of NABIL Bank

Fiscal year	Closing MPS	Total Dividend	R_N	$(R_N - \bar{R}_N)$	$(R_N - \bar{R}_N)^2$
2062/63	2240	85	-	-	-
2063/64	5050	2210	2.2411	1.8452	3.4046
2064/65	5275	2019.6	0.4445	0.0486	0.0024
2065/66	4899	1227	0.1613	-0.2346	0.0550
2066/67	2384	530.8	-0.4050	-0.8009	0.6415
2067/68	1252	30	-0.4622	-0.8582	0.7365
Total			$\Sigma(R_N)$ =1.9796		$\Sigma(R_N - \bar{R}_N)^2$ =4.8399

Expected Return ($\bar{R}_N$) = $\frac{\Sigma (R_N)}{N}$

= $\frac{1.9796}{5}$

= 0.3959

Standard Deviation (σ_N) = $\sqrt{\frac{\Sigma(R_N - \bar{R}_N)^2}{N-1}}$

$\sigma_N = \sqrt{\frac{4.8399}{5-1}}$

= 1.1

Co-efficient of Variation = $\frac{\sigma_N}{\bar{R}_N}$

= $\frac{1.1}{0.3959}$

= 2.78

The table shows that the banks realized rate of return has decreasing trend. It had positive realized rate of return in year 2063/64 to 2065/66 and the realized rate of return was negative in the year 2066/67 and 2067/68. Expected return of bank is 0.3959, standard deviation is 1.1. Similarly coefficient of variation of the bank is 2.78.

Table 4.6 Calculation of Covariance and Beta Coefficient

Fiscal Year	**$(R_N - \bar{R}_N)$**	**$(R_m - \bar{R}_m)$**	**$(R_N - \bar{R}_N)(R_m - \bar{R}_m)$**
2062/63			
2063/64	1.8452	0.6513	1.2018
2064/65	0.0486	0.2917	0.0142
2065/66	-0.2346	-0.3392	0.0796
2066/67	-0.8009	-0.4791	0.3837
2067/68	-0.8582	-0.3573	0.3066
Total			$\Sigma(R_N - \bar{R}_N)(R_m - \bar{R}_m)$ = 1.9895

Covariance, Cov (R_N , R_m)= $\dfrac{\Sigma(R_N - \bar{R}_N)(R_m - \bar{R}_m)}{N-1}$

$= \dfrac{1.9859}{5-1}$

$= 0.4965$

Beta Coefficient (β_i) = $\dfrac{Cov(ri, rm)}{\sigma_m^2}$

$= \dfrac{0.5965}{(0.4926)^2}$

$= 2.0214$

From above table, it is clear that the Beta coefficient of Nabil Bank is 2.0214 Beta more than 1 show that the stock of Nabil Bank is more volatile than the market and the stock seems to be aggressive.

4.2.2 Nepal Investment Bank Ltd.

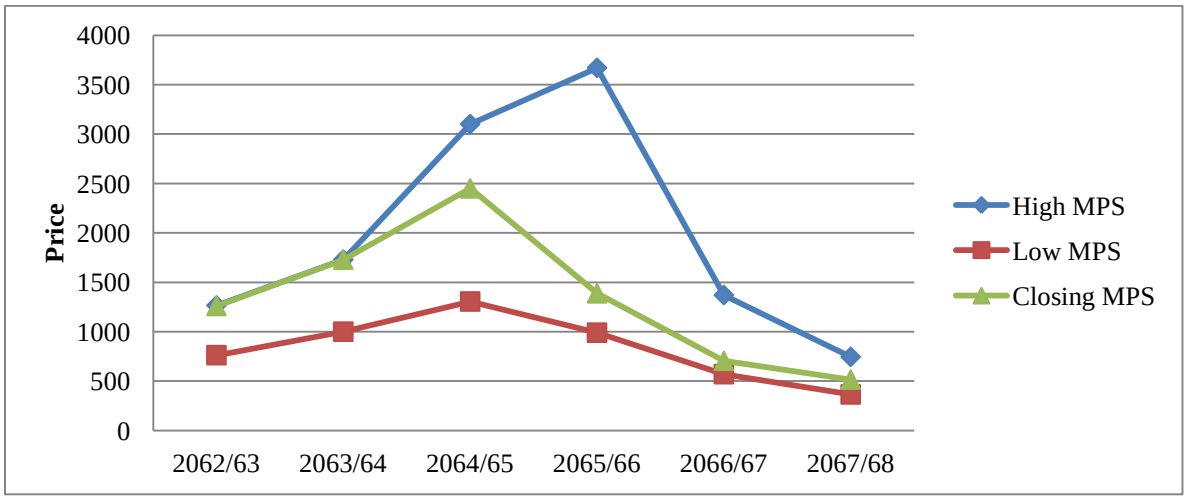
Nepal Investment Bank Ltd was established on January 21st 1986 as a third joint venture bank. Banks 80% shares are owned by the promoters and remaining 20% by general public. The authorized capital of NIBL is Rs 4000million and issued and paid up capital are Rs 2409.10 million. The table below shows the value of Market price of share and dividend of Nepal Investment Bank Ltd.

Table 4.7 MPS and Dividend Data of NIBL

Fiscal Year	High MPS	Low MPS	Closing MPS	Cash Dividend	Stock Dividend	Total Dividend
2062/63	1265	762	1260	54.46	0	54.46
2063/64	1729	1000	1729	5	25%	617.5
2064/65	3101	1305	2450	7.5	33.33%	470.1204
2065/66	3670	990	1388	20	0	20
2066/67	1370	570	705	25	0	25
2067/68	745	365	515	25	25%	25

Source: NEPSE and NIBL Annual Report

Figure 4.2 Market Price Movement of NIBL



From the figure and the table, we can clearly conclude that the closing MPS of NIBL was in the increasing order and was maximum in F/Y 2064/65 and started decreasing then onwards. The MPS was lowest on the year 2067/68 with closing MPS of Rs 515. The MPS ranges between Rs 515 to Rs 2450. Cash dividend has been declared every year from 2062/63 to 2067/68 whereas stock dividend has not been declared on year 2065/66 and 2066/67.

Table 4.8 Expected Return, Standard Deviation and Coefficient of Variation of NIBL

Fiscal Year	**Closing MPS**	**Total Dividend**	$\mathbf{R_{Ni}}$	$\mathbf{(R_{Ni} - \bar{R}_{Ni})}$	$\mathbf{(R_{Ni} - \bar{R}_{Ni})^2}$
2062/63	1260	54.46	-	-	-
2063/64	1729	617.5	0.8623	0.7787	0.6064
2064/65	2450	470.1204	0.6889	0.6053	0.3664
2065/66	1388	20	-0.4253	-0.5089	0.2589
2066/67	705	25	-0.4741	-0.5576	0.3109
2067/68	515	25	-0.2340	-0.3176	0.1009
Total			$\Sigma(R_{Ni})$ =0.4178		$\Sigma(R_{Ni} - \bar{R}_{Ni})^2$ =1.6436

Expected Return $(\bar{R}_{Ni}) = \frac{\Sigma (R_{Ni})}{N}$

$= \frac{0.4178}{5}$

$= 0.0836$

Standard Deviation $(\sigma_{Ni}) = \sqrt{\frac{\Sigma(R_{Ni} - \bar{R}_{Ni})^2}{N-1}}$

$$= \sqrt{\frac{1.6436}{5-1}}$$

$$= 0.6410$$

Co-efficient of Variation $= \frac{\sigma_{Ni}}{\bar{R}_{Ni}}$

$$= \frac{0.6410}{0.0836}$$

$$= 7.6675$$

The table shows that the bank realized rate of return has decreasing trend. It had a positive realized rate of return from year 2063/64and 2064/65 and the realized rate of return was negative from the year 2065/66 onwards with slightly improvement in the year 2067/68 . Expected rate of return is 0.0836, standard deviation is 0.6410 and similarly coefficient of variation of the bank is 7.6675

Table 4.9 Calculation of Covariance and Beta Coefficient

Fiscal Year	**$(R_{Ni} - \bar{R}_{Ni})$**	**$(R_m - \bar{R}_m)$**	**$(R_{Ni} - \bar{R}_{Ni})(R_m - \bar{R}_m)$**
2063/64	0.7787	0.6513	0.5072
2064/65	0.6053	0.2917	0.1766
2065/66	-0.5089	(0.3392)	0.1726
2066/67	-0.5576	(0.4791)	0.2671
2067/68	-0.3176	(0.3573)	0.1135
Total			$\Sigma(R_{Ni} - \bar{R}_{Ni})(R_m - \bar{R}_m) = 1.2370$

Covariance, $Cov(R_{Ni}, R_m) = \frac{\Sigma(R_{Ni} - \bar{R}_{Ni})(R_m - \bar{R}_m)}{N-1}$

$= \frac{1.2370}{5-1}$

$= 0.3093$

Beta Coefficient $(\beta_{Ni}) = \frac{Cov(R_{Ni}, R_m)}{\sigma_m^2}$

$= \frac{0\ 3093}{(0.4926)^2}$

$= 1.2747$

From the table and calculation, beta coefficient of NIBL is 1.2747which is greater than 1. Beta greater than 1 show that the stock of the NIBL is more volatile than the market and stock seems to be an aggressive one.

4.2.3 Standard Chartered Bank Nepal Ltd

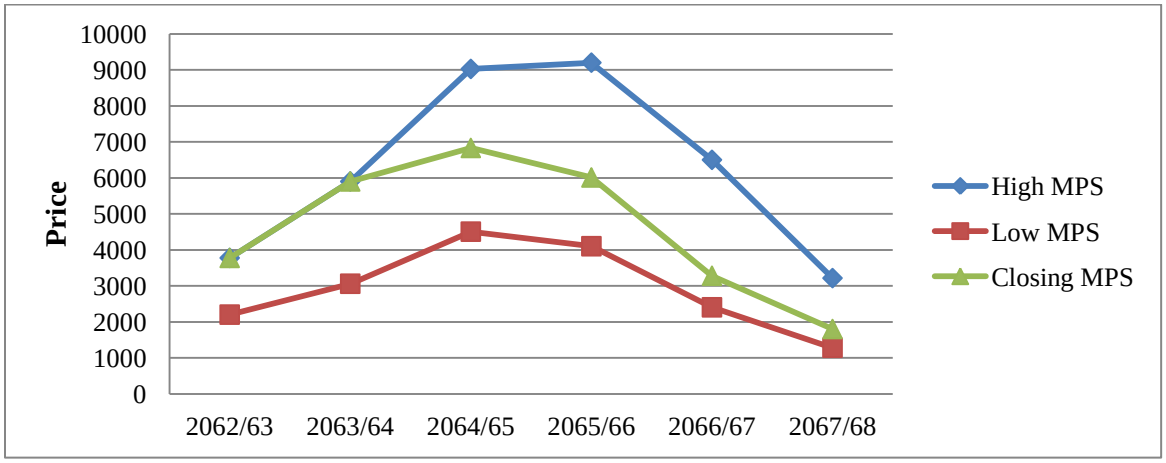
Standard Chartered Bank Nepal limited has been in operation in Nepal since 1987 as a second foreign joint venture bank. According to the fiscal year 2067/68 Standard Chartered Group has 75% ownership and general public has 25% ownership. It has authorized capital of Rs 2000 million and paid up capital of 1610.168 million. The table below shows the value of Market price of share and dividend of Standard Chartered bank Nepal limited.

Table 4.10 MPS and Dividend Data of SCBNL Bank

Fiscal Year	High MPS	Low MPS	Closing MPS	Cash Dividend	Stock Dividend	Total Dividend
2062/63	3775	2200	3775	130	10%	720
2063/64	5900	3058	5900	80	50%	3495
2064/65	9025	4505	6830	80	50%	3085
2065/66	9200	4100	6010	50	50%	1689.5
2066/67	6500	2403	3279	55	15%	325
2067/68	3214	1280	1800	50	0	50

Source: NEPSE and SCBNL Annual Report

Figure 4.3 Market Price Movement of SCBNL



From the figure and the table, we can see that the closing MPS was in increasing order and was maximum in the F/Y 2064/65 and started decreasing then onwards. It was lowest in the year 2067/68 .The MPS ranges between Rs 1800 and Rs 6830. The bank has declared cash dividend every year from 2063/64 to 2067/68 while stock dividend was not declared in the year 2067/68.

Table 4.11 Expected Return, Standard Deviation and Coefficient of Variation of SCBNL

Fiscal Year	Closing MPS	Total Dividend	R_S	$(R_S - \bar{R}_S)$	$(R_S - \bar{R}_S)^2$
2062/63	3775	720	-	-	-
2063/64	5900	3495	1.4887	1.1967	1.4320
2064/65	6830	3085	0.6805	0.3884	0.1509
2065/66	6010	1689.5	0.1273	-0.1648	0.0272
2066/67	3279	325	-0.4003	-0.6924	0.4794
2067/68	1800	50	-0.4358	-0.7279	0.5298
Total			$\Sigma(R_S)$ =1.4604		$\Sigma(R_S - \bar{R}_S)^2$ =2.6193

Expected Return $(\bar{R}_S) = \frac{\Sigma (R_S)}{N}$

$= \frac{1.4604}{5}$

$= 0.2921$

Standard Deviation $(\sigma_S) = \sqrt{\frac{\Sigma(R_S - \bar{R}_S)^2}{N-1}}$

$= \sqrt{\frac{2.6193}{5-1}}$

$= 0.8092$

Co-efficient of Variation (C.V) $= \frac{\sigma_S}{\bar{R}_S}$

$= \frac{0.8092}{}$

$$= \frac{0.2921}{}$$

$$= 2.7703$$

The table shows that the banks realized rate of return has decreasing trend. It has positive realized rate of return from 2063/64 to 2065/66 and the realized rate of return is negative from the year onwards. Expected rate of return is 0.2921, standard deviation is 0.8092 and coefficient of variation of bank is 2.7703.

Table 4.12 Calculation of Covariance and Beta Coefficient

Fiscal Year	**$(R_S - \bar{R}_S)$**	**$(R_m - \bar{R}_m)$**	**$(R_S - \bar{R}_S)(R_m - \bar{R}_m)$**
2063/64	1.1967	0.6513	0.7794
2064/65	0.3884	0.2917	0.1133
2065/66	-0.1648	(0.3392)	0.0559
2066/67	-0.6924	(0.4791)	0.3317
2067/68	-0.7279	(0.3573)	0.2601
Total			$\Sigma(R_S - \bar{R}_S)(R_m - \bar{R}_m) = 1.5404$

$$\text{Covariance, } Cov(R_S, R_m) = \frac{\Sigma(R_S - \bar{R}_S)(R_m - \bar{R}_m)}{N - 1}$$

$$= \frac{1.5404}{5-1}$$

$$= 0.3851$$

$$\text{Beta Coefficient } (\beta_S) = \frac{Cov(R_S, R_m)}{\sigma_m^2}$$

$$= \frac{0.3851}{(0.4926)^2}$$

$$= 1.5870$$

From above table and calculation, beta coefficient of Standard Chartered Bank is 1.5870 which is greater than 1. This shows that the stock of SCBNL is more volatile than the market and the stock seems to b aggressive. High-beta stocks pose high risk but also high returns.

4.2.4 Himalayan Bank Limited

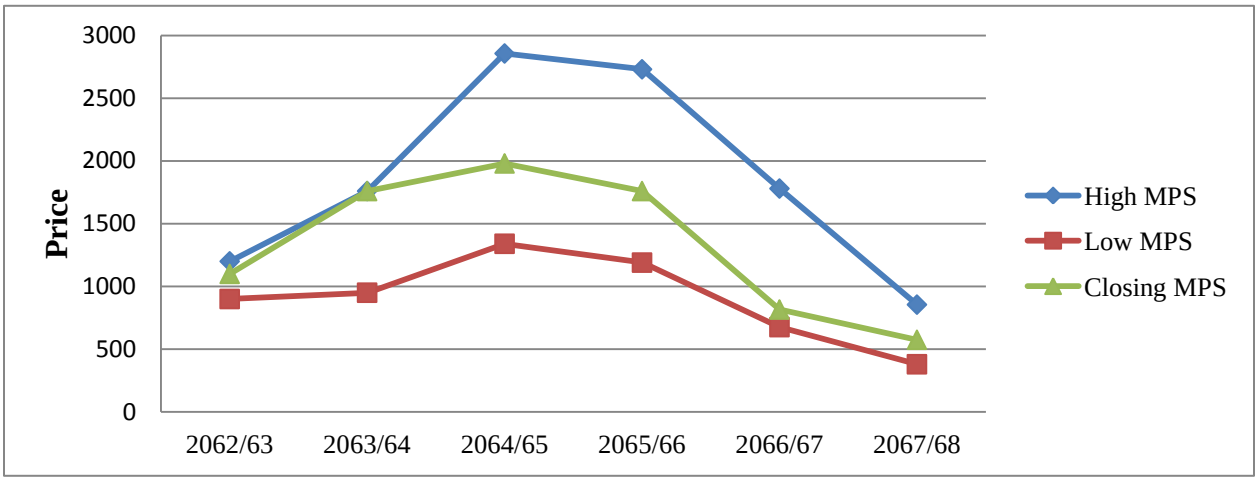
Himalayan Bank Limited was incorporated in 1992 by few distinguished business personality of Nepal in partnership with Employees Provident Fund and Habib Bank Ltd. Pakistan. It has 80% domestic ownership and 20% Share has foreign investment. It has authorized capital of 3000 million and paid up capital of 2000 million in the fiscal year 2067/68. The table below shows the Market Price of share and the dividend value of Himalayan Bank Ltd.

Table 4.13 MPS and Dividend Data of HBL

Fiscal Year	High MPS	Low MPS	Closing MPS	Cash Dividend	Stock Dividend	Total Dividend
2062/63	1200	900	1100	30	5%	118
2063/64	1760	950	1760	15	25%	510
2064/65	2856	1340	1980	25	20%	377
2065/66	2730	1190	1760	12	31.56%	269.5296
2066/67	1780	676	816	11.84	25%	155.59
2067/68	855	380	575	16.84	20%	16.84

Source: NEPSE and HBLL Annual Report

Figure 4.4 Market Price Movement of HBL



From the above figure and the table, we can see that the closing MPS is in an increasing order and was maximum in the fiscal year 2064/65and started decreasing then onwards. The closing MPS was lowest in the year 2067/68. The closing MPS ranges between Rs 575 to Rs 1980. The bank has declared cash dividend and stock dividend every year from F/Y 2063/64 to 2067/68.

Table 4.14 Expected Return, Standard Deviation and Coefficient of Variation of HBL

Fiscal Year	**Closing MPS**	**Total Dividend**	**R_H**	**$(R_H - \bar{R}_H)$**	**$(R_H - \bar{R}_H)^2$**
2062/63	1100	118			
2063/64	1760	510	1.0636	0.9226	0.8512
2064/65	1980	377	0.3392	0.1982	0.0393
2065/66	1760	269.5296	0.0250	-0.1160	0.0135
2066/67	816	155.59	-0.4480	-0.5890	0.3469
2067/68	575	16.84	-0.2747	-0.4157	0.1728
Total			$\Sigma(R_H)$ =0.7052		$\Sigma(R_H - \bar{R}_H)^2$ =1.4237

Expected Return $(\bar{R}_H) = \underline{\Sigma (R_H)}$

$$= \frac{0.7052}{5}$$

$$= 0.1410$$

$$\text{Standard Deviation } (\sigma_H) = \sqrt{\frac{\Sigma(R_H - \bar{R}_H)^2}{N-1}}$$

$$\sigma_H = \sqrt{\frac{1.4237}{5-1}}$$

$$= 0.5966$$

$$\text{Co-efficient of Variation} = \frac{\sigma_H}{\bar{R}_H}$$

$$= \frac{0.5966}{0.1410}$$

$$= 4.23$$

The table shows that the bank realized rate has decreasing trend. It had positive realized rate of return from 2063/64 to 2065/66 and the realized rate of return was negative in the year 2066/67 and 2067/68. Expected rate of return is 0.1410, standard deviation is 0.5966 and coefficient of variation is 4.23.

Table 4.15 Calculation of Covariance and Beta Coefficient

Fiscal Year	$(R_H - \bar{R}_H)$	$(R_m - \bar{R}_m)$	$(R_H - \bar{R}_H)(R_m - \bar{R}_m)$
2063/64	0.9226	0.6513	0.6009
2064/65	0.1982	0.2917	0.0578
2065/66	-0.116	(0.3392)	0.0393
2066/67	-0.589	(0.4791)	0.2822
2067/68	-0.4157	(0.3573)	0.1485
Total			$\Sigma(R_H - \bar{R}_H)(R_m - \bar{R}_m) = 1.1288$

Covariance, $Cov(R_H, R_m) = \frac{\Sigma(R_H - \bar{R}_H)(R_m - \bar{R}_m)}{N-1}$

$= \frac{1.1288}{5-1}$

$= 0.2822$

Beta coefficient $(\beta_H) = \frac{Cov(R_H, R_m)}{\sigma_m^2}$

$= \frac{0.2822}{(0.4926)^2}$

$= 1.1630$

The Beta coefficient of Himalayan bank is 1.1630 which is greater than 1. This shows that the stock of bank is Himalayan bank more volatile than the market and the stock seems to be aggressive.

4.2.5 Bank of Kathmandu

Bank of Kathmandu was incorporated in 12th March1995. It was established in collaboration with the SIAM Commercial bank Pcc, Thailand. The SIAM Commercial Bank diluted its

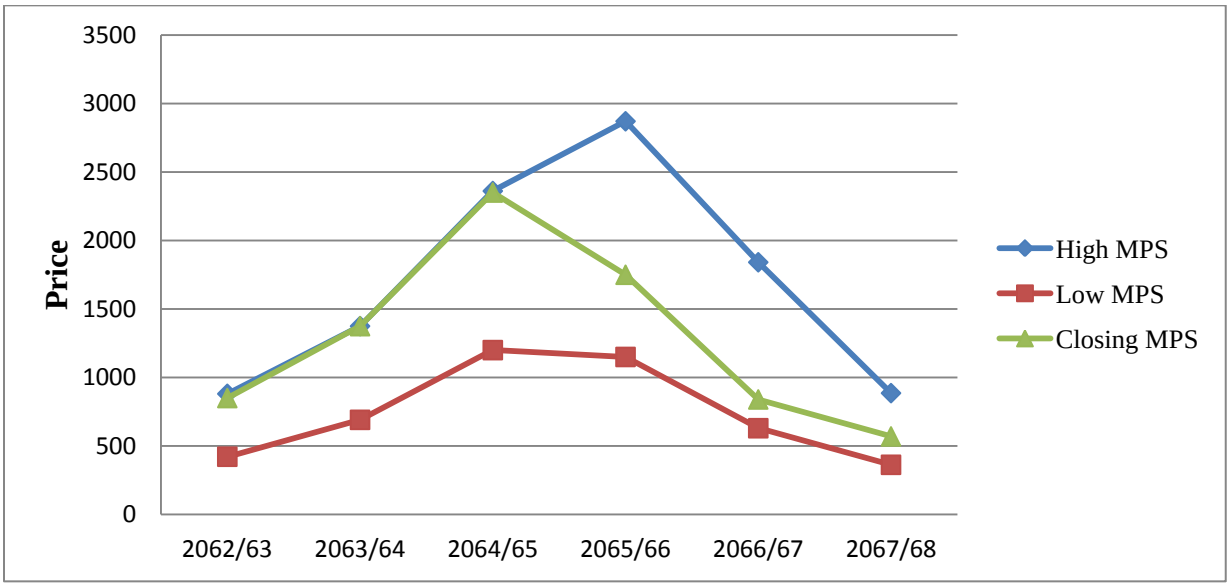
holding to the Nepalese citizens in 1998. Hence it has 100% local investment. In the F/Y 2067/68 Nepalese public hold 92.43% equity shares of the BOKL and remaining 7.57% shares are hold by other institutions. It has authorized capital of Rs 2000 million and paid up capital of Rs 1359.48 million. The table below shows the Market Price per share and Dividend value of Bank of Kathmandu Limited.

Table 4.16 MPS and Dividend Data of BOK

Fiscal Year	High MPS	Low MPS	Closing MPS	Cash Dividend	Stock Dividend	Total Dividend
2062/63	881	422	850	18	30%	430.5
2063/64	1375	691	1375	20	0	20
2064/65	2361	1200	2350	2.11	40%	702.11
2065/66	2870	1150	1750	7.37	40%	343.37
2066/67	1841	630	840	15	15%	100.5
2067/68	886	363	570	16.75	18%	16.75

Source: NEPSE and BOK Annual Report

Figure 4.5 Market Price Movement of BOK



From the above figure and the table, we can see that the closing MPS is in increasing trend and was maximum in the F/Y 2064/65 and started decreasing then onwards. The Closing MPS is seen in a decreasing trend from 2064/65.The lowest MPS is in the year 2067/68.The MPS ranges between Rs 570 to Rs 2350. The bank has declared cash dividend every year. And for the stock dividend it has not been declared in the F/Y 2067/68.

Table 4.17 Expected Return, Standard Deviation and Coefficient of Variation of BOK

Fiscal Year	**Closing MPS**	**Total Dividend**	**R_B**	**$(R_B - \bar{R}_B)$**	**$(R_B - \bar{R}_B)^2$**
2062/63	422	430.5			
2063/64	691	20	0.6848	0.3008	0.0905
2064/65	1200	702.11	1.7527	1.3687	1.8733
2065/66	1150	343.37	0.2445	-0.1395	0.0195
2066/67	630	100.5	-0.3648	-0.7488	0.5607
2067/68	363	16.75	-0.3972	-0.7812	0.6103
Total			$\Sigma(R_B)$ =1.92		$\Sigma(R_B - \bar{R}_B)^2$ =3.1543

Expected Return $(\bar{R}_B) = \frac{\Sigma (R_B)}{N}$

$= \frac{1.9200}{5}$

$= 0.3840$

Standard Deviation $(\sigma_B) = \sqrt{\frac{\Sigma(R_B - \bar{R}_B)^2}{N-1}}$

$$\sigma_B = \sqrt{\frac{3.1543}{5-1}}$$

$$= 0.8880$$

$$\text{Co-efficient of Variation} = \frac{\sigma_B}{\bar{R}_B}$$

$$= \frac{0.8880}{0.3840}$$

$$= 2.3125$$

The table shows that the bank realized rate of return increased a little in the beginning but started to decrease later on. After increasing a little it started its decreasing trend. It had positive realized rate of return from F/Y 2063/64 to F/Y 2065/65 and has a negative rate of return on fiscal year 2066/67 and 2067/68. Expected rate of return is 0.3840, standard deviation is 0.8880 and coefficient of variation is 2.3125

Table 4.18 Calculation of Covariance and Beta Coefficient

Fiscal Year	$(R_B - \bar{R}_B)$	$(R_m - \bar{R}_m)$	$(R_B - \bar{R}_B)(R_m - \bar{R}_m)$
2063/64	0.3008	0.6513	0.1959
2064/65	1.3687	0.2917	0.3992
2065/66	-0.1395	(0.3392)	0.0473
2066/67	-0.7488	(0.4791)	0.3588
2067/68	-0.7812	(0.3573)	0.2791
Total			$\Sigma(R_B - \bar{R}_B)(R_m - \bar{R}_m) = 1.2804$

Covariance, $Cov(R_B, R_m) = \frac{\Sigma(R_B - \bar{R}_B)(R_m - \bar{R}_m)}{N-1}$

$= \frac{1.2804}{5-1}$

$= 0.3201$

Beta Coefficient (β_B) $= \frac{Cov(R_B, R_m)}{\sigma_m^2}$

$= \frac{0.3201}{(0.4926)^2}$

$= 1.3192$

From the above table and calculation, beta coefficient of Bank of Kathmandu is 1.3192. The beta coefficient greater than 1 show that the stock is more volatile than the market and the stock seems to be aggressive. High-beta stocks pose high risk but also high returns.

4.3 Inter Bank Comparison

According to the result from table no 4.1 to 4.18, a comparative analysis of expected return, standard deviation and coefficient of variation are performed in table no 4.19.

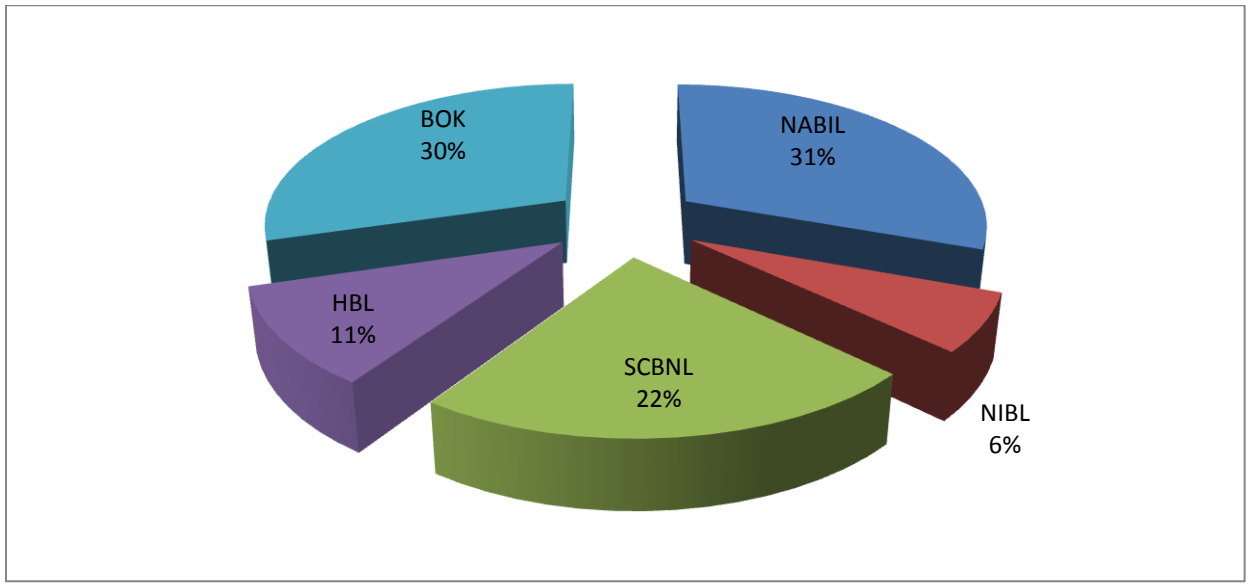
Table 4.19 Comparative Analysis of Expected Return, Standard Deviation and Coefficient of Variation

Banks	Expected Return (%)	Standard Deviation (%)	coefficient of Variation	Return	S.D	C.V	Rank based on C.V
NABIL	39.59	110.00	2.78	Highest	Highest		3
NIBL	8.36	64.10	7.67	Lowest		Highest	5
SCBNL	29.21	80.92	2.77				2
HBL	14.10	59.66	4.23		Lowest		4
BOK	38.40	88.80	2.31			Lowest	1

Source: Self calculated

From the above table 4.19 we can see that BOK has lowest coefficient of variation, suggesting that it is the less risky stock than others. Similarly the investor would get the highest return by investing in the stock of Nabil bank. It has an expected return of 0.3959. However for this return, the investor should also bear a higher risk which is 1.1. After the Nabil the return of BOK is highest; similarly the return of NIBL is the lowest among the selected banks. And for the Coefficient of Variation, which measure the per unit risk, is highest for NIBL. It means that investing in the stock of Nepal Investment Bank Ltd is more risky than investing in other stocks.

Figure 4.6 Expected Return of Sampled Commercial Bank



4.4 Market Capitalization of Sampled Banks

Inter Bank comparison of selected banks are made according to their respective market capitalization at the end of the Fiscal Year 2067/68 and their calculated risk and return market Capitalization indicated the present value of the investment or the total value of the company at specific time period. It means the value of market Capitalization is related with market price of the share. The value of market Capitalization changes due to the changing sentiments of Capital

market. If the market condition is favorable, the market value of assets increases substantially, so that the value of the company is increased and vice versa. The increased market value further suggests the good performance of the concerned companies. So, the investors are highly interested to such companies. So the investors are highly interested to such companies. The market capitalization of the sampled banks at Fiscal year 2067/68 is shown in following table and figure.

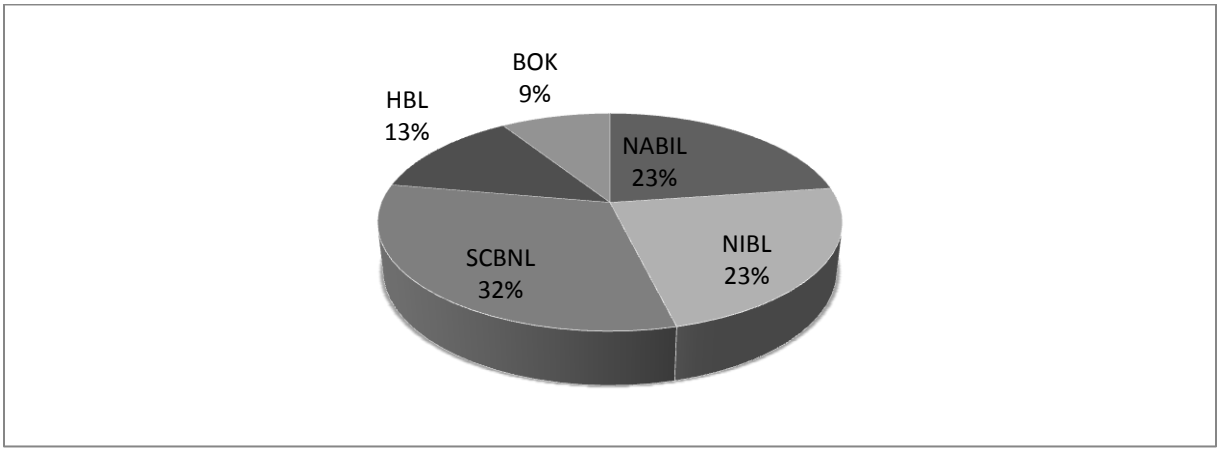
Table 4.20 Market Capitalization of Sampled Bank at Fiscal Year 2067/68

Banks	**Market Capitalization (Million)**	**%**	**Rank**
NABIL	12091.15	22.78	3
NIBL	12396.4	23.36	2
SCBNL	16775.4	31.61	1
HBL	6993.24	13.18	4
BOK	4813.07	9.07	5
Total	53069.26	100.00	

Source: NEPSE Annual Trading Report

The table implies that the market capitalization of sampled banks stock at the fiscal year 2067/68. The Standard Chartered Bank Nepal has highest Market Capitalization (31.61) and Bank of Kathmandu has lowest market Capitalization (9.07). It is noteworthy to mention that investors are highly interested to companies which have high or increased market capitalization. Ranking is made among the companies based on market capitalization to find the best one. So, in terms of market capitalization the ranking of the sampled bank from highest to lowest are SCBNL, NIBL, NABIL, HBL and BOK.

Figure 4.7 Market Capitalization of Sampled Bank



4.5 Beta Coefficient, Correlation Coefficient and the Total Risk of the Banks

In the following table, beta coefficient systematic risk and unsystematic risk of each selected banks are presented.

Standard deviation measures the total risk of an investment and the coefficient of variation measures the risk per unit of return. But the beta coefficient measures the market sensitivity or systematic risk of an investment. The beta coefficient of an individual stock provides the clear picture about the stock with market. It measure the stock volatility relative to that of the average stock.

A systematic risk of an individual stock can be evaluated by the help of a beta coefficient. Beta of a stock can be equal, less than or higher than 1. If beta is 1, it shows average market risk and commands average market risk premium. If beta is less than 1, it implies that stock is less volatile than market and it is said to be a defensive stock. If beta is more than 1, it implies stock is more volatile than that of market and it is said to be an 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 4.21 Beta Coefficient of Each Bank

Banks	Beta	Correlation Coefficient	Systematic Risk	Unsystematic Risk
NABIL	2.0214	0.9163	0.1837	0.0921
NIBL	1.2747	0.9796	0.6279	0.0131
SCBNL	1.587	0.9661	0.7818	0.1766
HBL	1.163	0.9602	0.5729	0.0237
BOK	1.3192	0.7318	0.6498	0.2382

Source: Self Calculated see detail calculation in ANNEXE VI

As depicted in the table, Nabil Bank Ltd. has the highest beta value at 2.0214. After that, Standard Chartered Bank has the highest beta at 1.5870. The lowest beta value is that of Himalayan bank Ltd at 1.1630. A positive value of Beta shows that the stock value moves with the market. For e.g., for Nabil Bank Ltd. if the market return rises by 1%, the value of Nabil Bank stock rises by 2.0214% and vice versa. It also shows that the stock is 2.0214 times risky than an average stock having beta 1. By analyzing the above table all the banks have beta coefficient more than one, which shows that they are much more sensitive to the market in comparison to the average stock in the market. Therefore, the stocks of listed commercial banks are much more risky as compared to the average stock in the market.

Similarly all the banks stocks return are positively correlated with the return of the market, which explains the positive nature of the beta coefficient. However, the correlation coefficient of NABIL, NIBL, SCBNL and HBL is almost about +1, which implies that the diversification of the stock does not reduce risk significantly. Moreover, the correlation coefficient of BOK lies below +0.75 implying that diversification will reduce risk associated with stock.

The table shows all the shares of the sampled banks have more systematic risk than unsystematic risk, which reveal that total risk in the sampled individual bank is due to macroeconomic factors. Thus, the investors should use portfolio diversification strategy to eliminate or minimize the risk.

4.6 Capital Asset Pricing Model

The capital asset pricing model identifies security return net of risk free rate as proportional to the expected net market return, where beta serves as the constant of proportionality. As a consequences of this relationship, all securities in equilibrium, plot along a straight line called the security market line (SML). Since the unsystematic risk tends to be diversified away by the construction of an efficient portfolio, it is desirable an alternative to CML, which will use beta as the independent variable and will accommodate both portfolios and individual assets. Such a line is called Security Market Line (SML)." (Bhalla, 2001)

There is a linear relationship between their expected return and their covariance with the market portfolio. This relationship, called the Security Market Line (SML). This relationship can be expressed in the form of an equation as follows

$$R_j = R_f + (R_m - R_f) b_j$$

Where,

R_j =the required rate of return for stock j

R_f = risk free rate of return

R_m = the required rate of return on the market portfolio

b_j = the beta coefficient for asset j

The required rate of return and the stock price situation of each joint venture bank are mentioned in the table below:

Table 4.22 Required Rate of Return and Stock Price Situation of Each Bank

Banks	Beta (bj)	Rj=Rf+(Rm-Rf)bj	Expected Return	Remarks
NABIL	2.0214	0.0783	0.3959	Underpriced
NIBL	1.2747	0.0724	0.0836	Underpriced
SCBNL	1.587	0.0749	0.2921	Underpriced
HBL	1.163	0.0716	0.141	Underpriced
BOK	1.3192	0.0728	0.384	Underpriced

Where R_f = risk free rate of return= 0.0625

Average of 5 years weighted average return of T-bill, 364 days

(Source: NRB, economic bulletin, mid-July 2011)

Return on Market (R_m) = 0.0703

The above table shows that the stock of all the selected banks NABIL Bank, Nepal Investment Bank, Standard Chartered Bank Nepal, Himalayan Bank Ltd and Bank of Kathmandu has underpriced stocks. For an investor point of view, the underpriced shares should be purchased so that when its price rises, the investor can sell the shares and earn profit. Therefore, from CAPM model, the investor should invest on stocks of NABIL bank, Nepal Investment Bank, Standard Chartered Bank Nepal, Himalayan Bank Ltd and Everest Bank of Kathmandu.

4.7 Combined Pooled Selected Commercial Banks

The return of the common stock of combined/pooled commercial banks is given in the following table

Table 4.23 Average Return of Pooled Commercial Banks

Fiscal year	NABIL	NIBL	SCBNL	HBL	BOK	Sum	Average
2063/64	2.2411	0.8623	1.4887	1.0636	0.685	6.341	1.2681
2064/65	0.4445	0.6889	0.6805	0.3392	1.753	3.906	0.78116
2065/66	0.1613	-0.4253	0.1273	0.025	0.245	0.133	0.02656
2066/67	-0.405	-0.4741	-0.4003	-0.448	-0.365	-2.092	-0.41844
2067/68	-0.4622	-0.234	-0.4358	-0.2747	-0.397	-1.804	-0.36078

Source: Self Calculated

The calculation of Expected Return, Standard Deviation of pooled commercial banks is as follows

Table 4.24 Expected Return and Standard Deviation of Pooled Commercial Bank

Fiscal year	Sum(R_B)	$(R_B - \bar{R}_B)$	$(R_B - \bar{R}_B)^2$
2063/64	1.2681	1.0088	1.0176
2064/65	0.78116	0.5218	0.2723
2065/66	0.02656	-0.2328	0.0542
2066/67	-0.41844	-0.6778	0.4594
2067/68	-0.36078	-0.6201	0.3845
Total	$\Sigma(R_B)$ =1.2966		$\Sigma(R_B - \bar{R}_B)^2$ =2.1880

Expected Return ($\bar{R}_B$) = $\frac{\Sigma (R_B)}{N}$

= $\frac{1.2966}{5}$

= 0.2593

Standard Deviation (σ_B) = $\sqrt{\frac{\Sigma(R_B - \bar{R}_B)^2}{N-1}}$

$\sigma_B = \sqrt{\frac{2.1880}{5-1}}$

= 0.7396

1. For two assets portfolio, here the portfolio of common stock of NABIL Bank (let's suppose stock A) and common stock of combined/ pooled selected five commercial banks (let's suppose stock B) is analyzed. The following table shows the financial and statistical analysis of the newly formed two asset portfolio.

Table 4.25 Analysis of Two-Asset Portfolio

Covariance	0.7541
Correlation	0.9269
Weight of stock A	-0.83
Weight of stock B	1.83
Portfolio return	0.1459
Portfolio risk	0.5983

(See detail calculation on ANNEXE I)

Here, in case of portfolio of NABIL Bank and pooled four commercial bank's common stock, the correlation is positive correlation. That's why the portfolio construction between these two stocks is not so beneficial.

The proportion of stock A and stock B which minimizes the risk in portfolio is -83% in stock A and 183% in stock B.

Using diversification we can reduce the risk. Standard deviation of NABIL was 1.1. However, after portfolio construction, the risk came down to 0.5983 which is lower than the risk before diversification. The return from the portfolio constructed is 0.1459.

2. For two assets portfolio, here the portfolio of common stock of Nepal Investment Bank Ltd.(let's suppose stock A) and common stock of combined/ pooled selected five commercial banks (let's suppose stock B) is analyzed. The following table shows the financial and statistical analysis of the newly formed two asset portfolio.

Table 4.26 Analysis of Two-Asset Portfolio

Covariance	1.7984
Correlation	0.9465
Weight of stock A	1.62
Weight of stock B	-0.62
Portfolio return	-0.0253
Portfolio risk	0.6223

(See detail calculation on ANNEXE II)

Here, in case of portfolio of Nepal Investment Bank and pooled four commercial bank's common stock, the correlation is 0.9465 which is positive correlation. That's why the portfolio construction between these two stocks is not so beneficial.

The proportion of stock A and stock B which minimizes the risk in portfolio is 162% in stock A and -62% in stock B.

Using diversification we can reduce the risk. Standard deviation of Nepal Investment Bank was 0.6410. However, after portfolio construction, the risk came down to 0.6223 which is lower than the risk before diversification. The return from the newly formed portfolio is -0.0253.

3. For two assets portfolio, here the portfolio of common stock of Standard Chartered Bank Nepal (let's suppose stock A) and common stock of combined/ pooled selected five commercial banks (let's suppose stock B) is analyzed. The following table shows the financial and statistical analysis of the newly formed two asset portfolio.

Table 4.27 Analysis of Two-Asset Portfolio

Covariance	0.5922
Correlation	0.9895
Weight of stock A	-2.6
Weight of stock B	3.6
Portfolio return	0.1740
Portfolio risk	0.6555

(See detail calculation on ANNEXE III)

Here, in case of portfolio of Standard Chartered Bank Nepal Ltd and pooled four commercial bank's common stock, the correlation is positive correlation. That's why the portfolio construction between these two stocks is not so beneficial.

The proportion of stock A and stock B which minimizes the risk in portfolio is -260% in stock A and 360% in stock B.

Using diversification we can reduce the risk. Standard deviation of Standard Chartered Bank was 0.8092. However, after portfolio construction, the risk came down to 0.6555 which is lower than the risk before diversification. The return from the newly formed portfolio is 0.1740.

4. For two assets portfolio, here the portfolio of common stock of Himalayan Bank (let's suppose stock A) and common stock of combined/ pooled selected five commercial banks (let's suppose stock B) is analyzed. The following table shows the financial and statistical analysis of the newly formed two asset portfolio.

Table 4.28 Analysis of Two-Asset Portfolio

Covariance	0.4295
Correlation	0.9734
Weight of stock A	2.68
Weight of stock B	-1.68
Portfolio return	-0.0577
Portfolio risk	0.4824

(See detail calculation on ANNEXE IV)

Here, in case of portfolio of Himalayan Bank Ltd. and pooled four commercial bank's common stock, the correlation is positive correlation. That's why the portfolio construction between these two stocks is not so beneficial.

The proportion of stock A and stock B which minimizes the risk in portfolio is 268% in stock A and 168% in stock B.

Standard deviation of Nepal SBI Bank was 0.5966. However, after portfolio construction, the risk came down to 0.4824 which is lower than the risk before diversification. The return from newly formed portfolio is -0.0577

5. For two assets portfolio, here the portfolio of common stock of Bank of Kathmandu (let's suppose stock A) and common stock of combined pooled selected five commercial banks (let's suppose stock B) is analyzed. The following table shows the financial and statistical analysis of the newly formed two asset portfolio.

Table 4.29 Analysis of Two-Asset Portfolio

Covariance	0.5105
Correlation	0.7773
Weight of stock A	0.12
Weight of stock B	0.88
Portfolio return	0.2451
Portfolio risk	0.7368

(See detail calculation on ANNEXE V)

Here, in case of portfolio of Bank of Kathmandu and pooled four commercial bank's common stock, the correlation is positive correlation. That's why the portfolio construction between these two stocks is not so beneficial.

The proportion of stock A and stock B which minimizes the risk in portfolio is 12% in stock A and 88% in stock B

Diversification reduces risks. Standard deviation of Bank of Kathmandu was 0.8880. However, after portfolio construction, the risk became 0.7368 which is lower than the risk before diversification. The return from newly formed portfolio is 0.2451.

4.8 Findings of the Study

Based on the analysis of data and their interpretation, the major findings of the study in relation to the objective set could be summarized as follows.

- Though NEPSE was established in 1993, its foundation was already installed in 1976 with the establishment of security market center, which was later changed into SEC in 1984 after the securities exchange act was promulgated. Between 1984 to1993 the capital market was not fully developed as expected but after the economic liberalization in the 90's, a true capital market was evolved. In this backdrop, Nepalese stock market is regarded as an emerging market in LDC's. However, the capital market in Nepal has witnessed high growth in those periods. The market capitalization in the F/Y 2067/68 was recorded at 323484.34 million while the total amount of securities traded in this F/Y was Rs 6665.33 million.

- Though the percentage of listed commercial bank in NEPSE is only 11.11%, the major scripts being bought and sold at the NEPSE is mainly that of the private commercial

banks and major transaction at the NEPSE determining the daily up or down is governed by the transactions in shares of the private commercial banks. Because of this, the market capitalization of NEPSE is predominantly dominated by commercial banks.

- The number of companies listed in NEPSE increased to 207 in F/Y 2067/68 from 176 in the preceding year. Stock market activities in terms of total amount of listed shares and total market capitalization increased in the F/Y along with increase in no of transaction.

- Comparing the statistics of reviewed F/Y 2067/68 with preceding F/Y, the commercial banks contribution to total annual turnover increased from 42% to 52.31%

- The common stock of NABIL is yielding the highest average rate of return of 39.59% and lowest is 8.36% in the case of NIBL. Regarding the total risk, common stock of NIBL consists of highest of 7.67 which is riskiest among the sampled where as the stock of BOK is found least risky as it has only 2.31 of total risk.

- Looking at the coefficient of variation, it is found that there is highest per unit of risk of return for the stock of NIBL and lowest of BOK. Stock of NABIL and SCBNL has less per unit of risk than HBL.

- From the analysis it is found that all the individual sampled banks have more average rate of return than market. And the relative measure of risk, C.V discloses that all the sampled banks have less per unit of risk return except NIBL than overall market. Further, it was found that the risk of common stock of all the sampled banks is more than market.

- Return on all the shares of the sampled commercial banks has positive correlation of less than +1 with the return on market. This implies that the return on individual shares moves

little less than the proportionate movement of the returns on market portfolio consisting all shares.

- The stocks of all sampled banks are more aggressive to market changes since their respective beta coefficient is higher than that of average market.
- The stocks of sampled banks have systematic risk more than unsystematic.
- The CAPM model suggests that all the shares of individual banks average rate of return is greater than required rate of return and are underpriced.
- Although the overall objective is to study about investment in shares of commercial bank in Nepal from perspective of general investors, it is mainly concentrated on the risk and return elements. Of the stocks, since it is the two most important factors for investment. The capital market for Nepal has grown significantly, so investor's investment opportunity has also been increased.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter deals with the findings and conclusion derived from the study of risk and return of the common stock of five sampled commercial banks. This chapter is divided into three sections: first section provides a brief summary of the research study; second section provides the conclusion of study based only secondary data, and finally the third section of this chapter proposes suggestion and recommendation based on the findings of the study.

5.1 Summary

The growth of economy is tied with the growth of capital market in the country. Capital market facilitates the allocation of funds between saver and borrower. An efficient capital market is an essential prerequisite of economic development by which investment will be channeled quickly and accurately where it will do the community most good. Evidence shows that capital market development of a nation directly affects its economic growth.

In the Nepalese context, there is lack of wider investment opportunities that provide good return. Furthermore Nepal stock market has not developed remarkable due to various market imperfections like limited number of investors, stringent government policies, limited development of corporate sector etc. So investors must be familiar with the return and risks of the various securities and assets that are available. The study was conducted with the main objective of analyzing the risk and return attributes of investment in share of commercial bank. The study was conducted with the main objective of analyzing the risk and return attributes of

investment in shares of commercial bank. The study was also focused on analyzing whether shares of sampled banks are correctly priced and constructing an optimal portfolio. As a whole the study aimed to enhance the analytical power of the investors in capital market

The total population of the study was all the commercial banks listed in NEPSE till date (31) and out of them only five listed commercial banks were considered as the sample of the study. To conduct the study analytically and descriptive research approach was adopted for the readily available historical data which was collected from annual report of NEPSE and SEBON and the respective sampled banks. The study covered the relevant data of only 5 years.

The study covered by different academicians and scholars to build the conceptual framework. The major development in investment theory and important investment models and principles are reviewed in literature review chapter. In addition methods and tools used to analyze the defined objectives. Then the collected data was tabulated, analyzed, interpreted and presented in next chapter to meet the objective of the research.

Regarding the total risk it was found the common stock of NABIL was riskiest and HBL least risky. The highest return was of common stock of NABIL and lowest of NIBL. The common stock of BOK had lowest per unit risk of return and highest was of NIBL from the analysis it was found that all the common stock of sampled banks had higher average rate of return and lesser per unit of risks of return than market return and risk. In addition the return on shares of sampled commercial banks was positively correlated with the market return.

The common stock of all the sampled banks are found not to be fairly priced and are under priced**.**

5.2 Conclusion

The shares of commercial banks of Nepal are heavily traded in the stock market and therefore, these shares play a key role in determination of stock exchange indicators. This study tries getting the empirical result of the investment on shares of the commercial bank from risk and return objectives.

All the shares of sampled banks produced higher rate of return and has less per unit of risk of return than market portfolio. The common stock investment of BOK is best because of the lowest relative dispersion and of NIBL lowest due to highest relative dispersion among sampled banks. Standard Deviation shows that NABIL returns is most fluctuated and HBL least fluctuated.

The empirical results shows that return on shares of the sampled banks are positively correlated with the returns on individual shares move little less than +1. It implies that the return on individual share moves little less than the proportionate movement of the returns on market and risk reductions is possible by making the portfolio.

The shares of the sampled banks has systematic risk more than unsystematic risk out of the total risk

The common stock of all the sampled banks has beta coefficient more than 1 which implies that stock of all sampled banks are more aggressive to market changes since their respective beta coefficient are higher than that of average market.

In comparison made among the banks based on the market capitalization to find out the best one. In terms of market capitalization the ranking of the sampled banks from highest to the lowest is SCBNL, NIBL, NABIL, HBL and BOK.

From the analysis it appears that none of the shares are fairly priced, all the shares have average rate of return greater than required rate of return and underpriced. So all the shares of commercial banks are attractive for investment also there is possibility of positive long term price trend because theoretically the market price of an underpriced shares will rise.

Investment in portfolio helps to reduce the risk of an investor. Portfolio should be constructed in such a way that it gives highest return to investor with least risk. The study shows that the highest return is obtained by construction a portfolio where there is 12% investment in stock of Bank of Kathmandu and remaining 88% investment in stock of pooled commercial banks. It gives a return of 0.2451 however; it also included highest risk of 0.7368.

The concluding remark is that investors often like the investing sectors which are more secure and gives the return soon. So considering the above points the banking sector is the most attractive investing sector. It is also because banking sector has been able to assure the investors regarding the investment by being transparent about their financial position expansion, growth and continual declaration of dividend. The result of the study also shows investment in common stock of commercial bank are less risky and have more return when compared with the market risk and return.

5.3 Recommendation

The recommendation is made on the empirical findings of the study and observation of the Nepal Stock market. The following recommendation is made;

Before making any investment decision investors are recommended to make market assessment, consider personal risk attitude and preparation on acquiring the essential methods and skills of

investment. Reliable information rather than rumor and imagination will ultimately favor the investors.

The investors are recommended to determine a value of share based on the fundamental earnings, dividend position and risks inherent in company.

All the stocks of the sampled banks are underpriced. So investors are recommended to buy those securities. It is recommended to make portfolio investment for diversifying and therefore, reducing the risk based on development portfolio construction model.

The regulatory bodies are recommended to make effective control mechanism to stop excessive price fluctuation in the stock market.

To enhance growth and development of capital market of the country it is recommended to continue the research study on risk and return characteristics of common stock investment.

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ANNEXURE I

Covariance, Correlation and Weights of Stock A and NABIL

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2063/64	1.8452	1.0088	1.8614
2064/65	0.0486	0.5218	0.0254
2065/66	-0.2346	-0.2328	0.0546
2066/67	-0.8009	-0.6778	0.5429
2067/68	-0.8582	-0.6201	0.5322
			3.0164

$$\text{Covariance, Cov } (r_i, r_m) = \frac{\Sigma(R_A - \bar{R}_A)(R_B - \bar{R}_B)}{N-1}$$

$$= \frac{3.0164}{5-1}$$

$$= 0.7541$$

The proportion of stock A which minimizes the risk in portfolio

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

$$= \frac{(0.7396)^2 - 0.7541}{(1.1)^2 + (0.7396)^2 - 2\,(0.7541)}$$

$$= -0.83$$

Proportion of stock B $(W_B) = 1 - W_A = 1 - (-0.83) = 1.83$

$$\text{Correlation } (r_{AB}) = \frac{\text{Cov}(R_A, R_B)}{\sigma_A}$$

$$= \frac{0.7541}{(1.1)\,(0.7396)}$$

$$= 0.9269$$

Portfolio return $(R_P) = W_A R_A + W_B R_B$

$$= (-0.83)\,(0.3959) + (1.83)\,(0.2593)$$

$$= 0.1459$$

Portfolio risk $(\sigma_p) = \sqrt{W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_AW_B\text{Cov}(R_AR_B)}$

$$= \sqrt{(-0.83)^2 (1.1)^2 + (1.83)^2 (0.7396)^2 + 2 (-0.83) (1.83) (0.7541)}$$

$$= 0.5983$$

ANNEXURE II

Covariance, correlation and weights of stock A and NIBL

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2063/64	0.7787	1.0088	0.7856
2064/65	0.6053	0.5218	0.3158
2065/66	-0.5089	-0.2328	0.1185
2066/67	-0.5576	-0.6778	0.3779
2067/68	-0.3176	-0.6201	0.1969
			1.7948

$$\text{Covariance, Cov } (r_A, r_B) = \frac{\Sigma(R_A - \bar{R}_A)(R_B - \bar{R}_B)}{N-1}$$

$$= \frac{1.7948}{5-1}$$

$$= 0.4487$$

The proportion of stock A which minimizes the risk in portfolio

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

$$= \frac{(0.7396)^2 - 0.4487}{(0.6410)^2 + (0.7396)^2 - 2\,(0.4487)}$$

$$= 1.62$$

Proportion of Stock B (W_B)= 1- W_A = 1- 1.62 = -0.62

$$\text{Correlation } (r_{AB}) = \frac{\text{Cov}(R_A, R_B)}{\sigma_A \cdot \sigma_B}$$

$$= \frac{0.4487}{(0.6410)\,(0.7396)}$$

$$= 0.9465$$

Portfolio return (R_P) = $W_A R_A + W_B R_B$

= (1.62) (0.0836) + (-0.62) (0.2593)

= -0.0253

Portfolio risk (σ_p) = $\sqrt{W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_AB_B + 2W_AW_BCov(R_AR_B)}$

$=\sqrt{(1.62)^2 (0.6410)^2 + (-0.62)^2 (0.7396)^2 + 2 (1.62) (-0.62) (0.4487)}$

= 0.6223

ANNEXURE III

Covariance, correlation and weights of stock A and SCBNL

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2063/64	1.1967	1.0088	1.2072
2064/65	0.3884	0.5218	0.2027
2065/66	-0.1648	-0.2328	0.0384
2066/67	-0.6924	-0.6778	0.4693
2067/68	-0.7279	-0.6201	0.4514
			2.3689

Covariance, Cov (r_i , r_m)= $\frac{\Sigma(R_A - \bar{R}_A)(R_B - \bar{R}_B)}{N-1}$

= $\frac{2.3689}{5-1}$

= 0.5922

The proportion of stock A which minimizes the risk in portfolio

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

$= \frac{(0.7396)^2 - 0.5922}{(0.8092)^2 + (0.7396)^{-2} - 2\,(0.5922)}$

= -2.6

Weight of Stock B (W_B) = 1- W_A = 1- (-2.6) = 3.6

Correlation (r_{AB}) = $\frac{Cov(R_A, R_B)}{\sigma_A \cdot \sigma_B}$

= $\frac{0.5922}{}$

(0.8092) (0.7396)

= 0.9895

Portfolio return (R_P) = $W_A R_A + W_B R_B$

= (-2.6) (0.2921) + (3.6) (0.2593)

= 0.2214

Portfolio risk (σ_p) = $\sqrt{W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_AB_B + 2W_AW_BCov(R_AR_B)}$

$=\sqrt{(-2.6)^2 (0.8092)^2 + (3.6)^2 (0.7396)^2 + 2 (-2.6) (3.6) (0.5922)}$

= 0.6555

ANNEXURE IV

Covariance, correlation and weights of stock A and HBL

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2063/64	0.9226	1.0088	0.9307
2064/65	0.1982	0.5218	0.1034
2065/66	-0.116	-0.2328	0.0270
2066/67	-0.589	-0.6778	0.3992
2067/68	-0.4157	-0.6201	0.2578
			1.7181

Covariance, Cov (r_i , r_m) = $\frac{\Sigma(R_A - \bar{R}_A)(R_B - \bar{R}_B)}{N-1}$

= $\frac{1.7181}{5-1}$

= 0.4295

The proportion of stock A which minimizes the risk in portfolio

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

$= \frac{(0.7396)^2 - 0.4295}{(0.5966)^2 + (0.7396)^2 - 2\,(0.4295)}$

= 2.68

Proportion of Stock B (W_B) = 1- W_A = 1- 2.68 = -1.68

Correlation (r_{AB}) = $\frac{Cov(R_A, R_B)}{\sigma_A . \sigma_B}$

$= \frac{0.4295}{(0.5966)(0.7396)}$

$= 0.9734$

Portfolio return (R_P) $= W_A R_A + W_B R_B$

$= (2.68)(0.1410) + (-1.68)(0.2593)$

$= -0.0577$

Portfolio risk (σ_p) = $\sqrt{W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_AB_B + 2W_AW_BCov(R_AR_B)}$

$= \sqrt{(2.68)^2(0.5966)^2 + (-1.68)^2(0.7396)^2 + 2(2.68)(-1.68)(0.4295)}$

$= 0.4824$

ANNEXURE V

Covariance, correlation and weights of stock A and BOK

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2063/64	0.3008	1.0088	0.3034
2064/65	1.3687	0.5218	0.7142
2065/66	-0.1395	-0.2328	0.0325
2066/67	-0.7488	-0.6778	0.5075
2067/68	-0.7812	-0.6201	0.4844
			2.0421

Covariance, Cov (r_i , r_m) = $\frac{\Sigma(R_A - \bar{R}_A)(R_B - \bar{R}_B)}{N-1}$

$= \frac{2.0421}{5-1}$

$= 0.5150$

The proportion of stock A which minimizes the risk in portfolio

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

$= \frac{(0.7396)^2 - 0.5105}{}$

$(0.8880)^2 + (0.7396)^2 - 2\ (0.5105)$

$= 0.12$

Weight of stock B (W_B) = 1- W_A = 1- 0.12 = 0.88

Correlation (r_{AB}) = $\frac{Cov\ (R_A, R_B)}{\sigma_A \cdot \sigma_B}$

$= \frac{0.5105}{(0.8880)\ (0.7396)}$

$= 0.7773$

Portfolio return (R_P) = $W_A R_A + W_B R_B$

= (0.12) (0.1410) + (0.88) (0.2593)

= 0.2451

Portfolio risk (σ_p) = $\sqrt{W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_AB_B + 2W_AW_BCov(R_AR_B)}$

$= \sqrt{(0.12)^2\ (0.8880)^2 + (0.88)^2\ (0.7396)^2 + 2\ (0,12)\ (0.88)\ (0.5105)}$

= 0.7368

ANNEXURE VI

Correlation coefficient between return of Nabil Bank Ltd and Market Return is given by

$$\rho_{Nm} = \frac{Cov(R_N, R_m)}{\sigma_N \sigma_m}$$

$$= \frac{0.4965}{1.1 \times 0.4926}$$

$$= 0.9163$$

Hence,

Systematic Risk of Nabil Bank Ltd.

$= \sigma_N \times \rho_{Nm}$

$=1.1 \times 0.9163$

$= 0.1837$

Unsystematic Risk of Nabil Bank Ltd.

$= \sigma_N \times (1 - \rho_{Nm})$

$=1.1 \times (1 - 0.9163)$

$=0.0921$

Correlation Coefficient between return of Nepal Investment Bank Ltd and Market Return is given by

$$\rho_{Ni,m} = \frac{Cov(R_{Ni}, R_m)}{\sigma_{Ni}\sigma_m}$$

$$= \frac{0.3093}{0.6410 \times 0.4926}$$

$=0.9796$

Systematic Risk of NIBL

$= \sigma_{Ni} \times \rho_{Ni,m}$

$=0.6410 \times 0.9796$

$= 0.6279$

Unsystematic Risk of NIBL

$= \sigma_{Ni} \times (1 - \rho_{Ni,m})$

$=0.6410 \times (1 - 0.9796)$

$=0.0131$

Correlation coefficient between return of SCBNL and market return is given by

$$\rho_{S,m} = \frac{Cov(R_S, R_m)}{\sigma_S \sigma_m}$$

$$= \frac{0.3851}{0.8092 \times 0.4926}$$

=0.9661

Systematic Risk of SCBNL

$$= \sigma_S \times \rho_{Sm}$$

=0.8092× 0.9661

=0.7818

Unsystematic Risk of SCBNL

$$= \sigma_S \times (1 - \rho_{Sm})$$

$$=0.8092 \times (1 - 0.7818)$$

= 0.1766

Correlation Coefficient between return of Himalayan Bank Ltd and Market return is given by

$$\rho_{H,m} = \frac{Cov(R_H, R_m)}{\sigma_H \sigma_m}$$

$$= \frac{0.2822}{0.5966 \times 0.4926}$$

=0.9602

Systematic Risk of HBL

$$=\sigma_H \times \rho_{H,m}$$

=0.5966× 0.9602

=0.5729

Unsystematic Risk of HBL

$=\sigma_H \times (1 - \rho_{H,m})$

$=0.5966 \times (1 - 0.9602)$

$=0.0237$

Correlation Coefficient between return of Bank of Kathmandu Ltd and market return is given by

$$\rho_{B,m} = \frac{Cov(R_B, R_m)}{\sigma_B \sigma_m}$$

$$= \frac{0.3201}{0.8880 \times 0.4926}$$

$=0.7318$

Systematic Risk of BOK

$=\sigma_B \times \rho_{B,m}$

$=0.8880 \times 0.7318$

$=0.6498$

Unsystematic Risk of BOK

$=\sigma_B \times (1 - \rho_{B,m})$

$=0.8880 \times (1 - 0.7318)$

$=0.2382$