

**INVESTMENT IN SHARES OF COMMERCIAL BANKS IN NEPAL
AN ASSESSMENT OF RISK AND RETURN ELEMENTS**

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EXAM ROLL NO. 4165

T.U. Regd. No. 7-2-361-26-2003

A THESIS SUBMITTED TO:

OFFICE OF DEAN

FACULTY OF MANGEMENT

TRIBHUVAN UNIVERSITY

In Partial Fulfillment of the Requirement for the degree of Masters of Business

Studies (M.B.S)

Submitted on: March 24, 2011

DECLARATION

I hereby, declare that the work reported in this project entitled "INVESTMENT IN SHARES OF COMMERCIAL BANKS IN NEPAL", submitted to office of the Dean, Faculty of Management Tribhuvan University is my original work done on the form of partial fulfillment of the requirement of the Master's Degree of Business Studies (MBS), under the supervision of Mr. Shankar Thapa (Co-Ordinator, MBS Program, Faculty of Management).

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Acknowledgement

I express my profound gratitude to my supervisor Mr. Shankar Thapa of St. Xavier's Campus (CO-ordinator, MBS Program, Faculty of Management), for his valuable supervision and guidance with continuous and kind support.

I am also grateful to my friend Prabha Sigdel, of NCBS Campus for her effortless cooperation in finishing the thesis.

Finally, I would like to express my gratitude to all the members of my family who inspired me in many ways to cope during the entire period of the study.

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List of Tables

Table 1 : MPS, Dividend, EPS and P/E Ratio of NIBL.....	43
Table 2 : Statistical Analysis of the Common Stock of NIBL.....	44
Table 3 : MPS, Dividend, EPS and P/E Ratio of BOK.....	46
Table 4 : Statistical Analysis of the Common Stock of BOK.....	47
Table 5 : MPS, Dividend, EPS and P/E Ratio of HBL.....	49
Table 6 : Statistical Analysis of the Common Stock of HBL.....	50
Table 7 : MPS, Dividend, EPS and P/E Ratio of KIST.....	52
Table 8 : Statistical Analysis of the Common Stock of KIST.....	53
Table 9 : MPS, Dividend, EPS and P/E Ratio of LAXMI BANK.....	55
Table 10 : Statistical Analysis of the Common Stock of Laxmi Bank.....	56
Table 11 : Expected Returns, S.D and C.V. of 5 selected Commercial Banks.....	58
Table 12 : Market Capitalization of 5 selected Commercial Banks 15 July 2010.....	59
Table 13 : Industry/Sector wise Market Capitalization at the end of the year.....	61
Table 14 : Market Capitalization of Different Sector during the Observation Period.....	63
Table 15 : Sector wise NEPSE Index.....	64
Table 16 : Statistical Analysis of the Common Stock of Commercial Bank.....	64
Table 17 : Expected Return, S.D and C.V of Market.....	66
Table 18 : Expected Return, S.D & C.V of different Sectors.....	67
Table 19 : Calculation of Beta Coefficient of the common stock of NIBL.....	69
Table 20 : Beta Coefficient of 5 selected Commercial Banks.....	70
Table 21 : RRR, ERR & Price Evaluation of 5 Commercial Banks.....	71
Table 22 : Calculation of $Cov.(R_A-R_B)$ AND Weight of Stock A & Stock B.....	72

List of Figures

Figure 1 : Relationships Between Risk And Return	15
Figure 2 : Year- End Price Movement of common stock of NIBL	44
Figure 3 : Annual Rate of Return of Common Stock of NIBL.....	45
Figure 4 : Year-End Price Movement of Common Stock of BOK.....	47
Figure 5 : Annual Rate of Return of Common Stock of BOK	48
Figure 6 : Year-End Price Movement of common Stock of HBL	49
Figure 7 : Annual Rate of Return of Common Stock of HBL.....	51
Figure 8 : Year-End Price Movement of Common Stock of KIST Bank.....	53
Figure 9 : Annual rate of return of Common Stock of Kist Bank.....	54
Figure 10 : Year-End Price Movement of Common Stock of Laxmi Bank	56
Figure 11 : Annual Rate of Return of Common Stock of Laxmi Bank	57
Figure 12 : Expected Returns, SD & CV of 5 Selected Commercial Banks	59
Figure 13 : Pie Chart.....	60
Figure 14 : Pie Chart.....	62
Figure 15 : Annual Rate of Return of Common Stock of Commercial Banks.	65
Figure 16 : Annual Rate of Return of Common Stock of Market	67
Figure 17 : Expected Return, S.D and C.V. of different sectors.....	68

List of Abbreviations

BS	=	Bikram Sambat
C.V.	=	Coefficient of Variation
CAPM	=	Capital Assets Pricing Model
CS	=	Common Stock
Cov.	=	Covariance
CBI	=	Commercial Bank Index
DPS	=	Dividend per Share
NIBL	=	Nepal Investment Bank Ltd
EPS	=	Earning per Share
ERR	=	Expected Rate of Return
F/Y	=	Fiscal Year
BOK	=	Bank of Kathmandu
HBL	=	Himalayan Bank Ltd
LTD.	=	Limited
MPS	=	Market per Share
NEPSE	=	Nepal Stock Exchange
NI	=	NEPSE Index
No.	=	Number
NRB	=	Nepal Rastra Bank
P/E Ratio	=	Price Earning Ratio
RRR	=	Realized Rate of Return
Rs.	=	Rupees
S.D.	=	Standard Deviation
SEBO/N	=	Security Exchange Board of Nepal
SEC	=	Stock Exchange Centre
T-Bill	=	Treasury Bills

Table of Contents

DECLARATION	ii
Acknowledgement	iii
List of Tables	iv
List of Figures	v
List of Abbreviations	vi
CHAPTER 1	1
INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.2 STATEMENT OF THE PROBLEM	6
1.3 OBJECTIVE OF THE STUDY	7
1.4 SIGNIFICANCE OF THE STUDY	8
1.5 LIMITATIONS OF THE STUDY	8
1.6 CONCEPTUAL FRAMEWORK	9
1.6.1 INVESTMENT	9
1.6.2 COMMON STOCK	10
1.6.3 RISK	11
1.6.4 RETURN	12
1.6.5 RELATIONSHIP BETWEEN RISK AND RETURN	14
1.6.6 PORTFOLIO ANALYSIS	16
1.6.7 CAPITAL ASSETS PRICING MODEL	17
1.8 RESEARCH GAP	19
1.9 ORGANIZATION OF THE STUDY	19
CHAPTER 2	21
REVIEW OF LITERATURE	21
2.1 REVIEWS FROM JOURNAL	21
2.2 REVIEW FROM THESIS	28
CHAPTER 3	33
RESEARCH METHODOLOGY	33

3.1	INTRODUCTION	33
3.2	RESEARCH DESIGN	33
3.3	POPULATION AND SAMPLE	34
3.4	SOURCE OF DATA.....	34
3.5	METHOD OF DATA ANALYSIS.....	35
3.5.1	FINANCIAL TOOLS	35
CHAPTER 4		42
DATA ANALYSIS AND MAJOR FINDINGS		42
4.1	DATA PRESENTATION AND ANALYSIS	42
4.1.1	ANALYSIS OF COMMERCIAL BANKS	42
4.1.1.1	NEPAL INVESTMENT BANK LIMITED (NIBL).....	42
4.1.1.2	BANK OF KATHMANDU	45
4.1.1.3	HIMALAYAN BANK LIMITED (HBL).....	48
4.1.1.4	KIST BANK	51
4.1.1.5	Laxmi Bank.....	55
4.2	Inter Company Comparison	58
4.3	INDUSTRY WISE COMPARISON	60
4.3.1	COMMERCIAL BANK SECTOR.....	64
4.3.2	MARKET RISK AND RETURN	66
4.4	MARKET SENSITIVITY ANALYSIS.....	68
	(Source: Refer Table 20).....	71
4.5	PORTFOLIO ANALYSIS.....	71
4.6	MAJOR FINDINGS	74
CHAPTER 5		77
SUMMARY, CONCLUSION AND RECOMMENDATION		77
5.1	SUMMARY	77
5.3	RECOMMENDATION	80
Bibliography		0
Appendices.....		4

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Finance is an art of managing the money or wealth of an entire organization. It is the body of facts, principles and theories dealing with the clearings using of money by individuals, business and governments. Every organization needs a sound financial system to carry out its activities efficiently because each and every managerial decision making is based on financial analysis. Without finance neither business can be started nor can the business be developed. So, all business organizations require finance. Finance is one of the most important resources of the body. It involves requisition, utilization, central and administration of funds needed for the business.

SECURITIES OF MARKETS

Development and expression of securities markets are essential for the economic development. Security market is a mechanism designed to facilitate the exchange of financial assets or security by bringing buyers and sellers of securities together. Precisely speaking, security markets allow supplies and demand less of funds to make transactions.

"Stock Market is the financial market which probably has the greatest glamour and is perhaps the least understood. Some observers consider it as legalized heaven for gambling and many investors consider stock market investing as a game in which sole purpose is picking winners."¹

¹ James H Lorie & Peter Dodd, "*The Stock Market: Theories and Evidence*", Richard D. Irwin Inc. USA, (1985)

Capital Market refers for the financial market in which long-term securities are traded. Specifically speaking securities having life spans of more than one year are traded in capital market. The market through which the funds are transferred from savers to investors is called primary market. Hence, the transaction of securities issued for the first time takes place in primary market. Securities already purchased by the public in primary market are treated again and again.

The history of capital market in Nepal dates back to the era of Rana Prime Minister Juddha Samsher. Though the history of capital market dates that back, it is not developed properly. The industrial revolution took place in Nepal after the establishment of Biratnagar Jute Mill in 1936 and one year later Nepal Bank was established for promoting banking and industrial sector. The next significant development after there was the introduction of the Company Act 1964 and the insurance of the Government Board in the same year. Institutional development when Securities Exchange Centre (SEC) with the objective of facilitating and promoting the growth of capital markets in Nepal. Further to regulate the securities market and to protect and promote the interest of investors for Securities Board Nepal (SEB) was established on 26 May 1993. His Majesty's Government converted Securities Exchange Centre to Nepal Stock Exchange (NEPSE) on June 13, 1993 and it started its trading operation from January 1994.

NEPSE is the single non-profit organization operating under Securities Exchange Act, 2040 B.S. It is only a secondary market in Nepal which helps in systematic trading of securities. All the companies must be listed in NESE for the trading of their securities in secondary market. The basic objective of NEPSE is to impart free marketability and

liquidity to the government and corporate securities by facilitating transaction in its trading floor through market intermediaries.

INVESTMENT

Investment means to invest in anything with an aim to earn certain profit. In other words sacrificing current earning for future earning is investment. Investment is always associated with risk and return.

"An investment is the current commitment of money on other resources in hope of reaping future benefits."²

Investment Alternatives

Wide ranges of investment alternatives are available in the stock market. They are as follows.

1. Equity Securities: Common Stock and Preferred Stock.
2. Short Term Debt
3. Intermediaries and Long Term Debt
4. Hybrid Securities
5. Warrants, Convertibles and Options
6. Derivatives Securities
7. Real Assets
8. International Securities
9. Others

Out of these alternatives, the interested investors can choose one that suits them the best.

This study deals with the common stock investment.

² Zvi Bodie, Alex Kane & Alan J. Macus, "*Essentials of Investment*", 2nd Edition (IRWN), USA

COMMON STOCK

Common stock is regarded as the most risky securities as it gets paid out last. Common stock holder of a corporation is its residual owner. Their claim to income and assets comes after creditors and preferred stock holders have been paid full. As a result stockholders return on investment is less certain than the return to the lender or to a preferred stock holder. Common Stock is the first security of a corporation to be issued and in the event of bankruptcy the last to be retire or common stock represents equity or ownership position in the corporation.

This study focused on the risk and return analysis of common stock investment.

RISK

Risk plays a central role in the analysis of investment. Risk is typically defined as uncertainty. It arises from imperfect knowledge or from incomplete data.

Higher the risk of the security, higher the rate of return demanded by the investors. Since ordinary share is more risky, investors will require highest rate of return on their investment in common stock.

"Risk is defined in Webster's dictionary as "a hazard, a peril, and exposure to loss or injury. Thus, risk refers to the chance that some unfavorable event occurs. If you invest in speculative stocks (or really, stock) you are taking a risk in the hope of making an appreciable return."³

RETURN

Return means any addition to the initial amount. It is usually as dividend plus any change in market price of share (MPS) and is usually expressed in percentage. Both of dividend

³ Western, Besley & Brigham, "*Essentials of Managerial Finance*", 11th Edition, 182 - 183

and change in MPS are uncertain items. So, the actual return on investment in common stock may differ substantially from the expected return. The variability of return from these that one expected is defined as risk. The greater the variability, the risks the security is said to be.

"The return is total gain or loss experienced on an investment over a given period of time. It is commonly measured as a change in the value plus any cash distribution during the period expressed as a percentage of the beginning of the period investment value."⁴

PORTFOLIO

Portfolio is simply combination of two or more securities. Portfolio analysis considers the determination of future risk and return in holding various blends of individuals' securities. The help of portfolio can diversify risk. In this context, it can be cleared through a proverb can lose all the eggs if some unlikely event occurs. So we can say that investing in a single asset cannot diversify risks. This objective of portfolio that has a maximum return at the level of risk investor finds appropriate.

BANKS

The history of commercial banks in Nepal is not so old. The first commercial bank and the first bank of Nepal started since 1994 B.S. in the name of Nepal Rastra Bank Act 1995. As per the need of the changing economic circumstances in Nepal, commercial bank act has been introduced in 1974 A.D. This act has helped to emerge number of commercial banks with a view to maintain the economic interest and comfort of the public in general. Rastriya Banizya Bank Ltd was established under Rastriya Banijya Bank Act 2021 B.S. HMG of Nepal allowed for the establishment of joint venture bank

⁴ Lawrence J. Gitman, "*Principle of Managerial Finance*", Singapore : Addison Wesley Longman : (2001)

under the name of Nepal Arab Bank Ltd. In 2042B.S. the second joint venture bank Indosuez Bank Ltd. was established. Further, Nepal Grindlay's Bank Ltd. was Standard Chartered Bank Ltd in the form of third joint venture bank was also established. But more joint venture banks came into existence after the initiation of government's policy of economic liberalization and privatization in 2049 B.S.

1.2 STATEMENT OF THE PROBLEM

Stock market is one of the very volatile sectors of the financial system. After the emergence of NEPSE the concept of capital market has been developed and has been growing rapidly within a very short period. Numbers of public limited companies are increasing rapidly but the investment opportunities have not been increased. The rapid expansion in primary market and increasing number of listed securities has speedily raised the market capitalization which is the indication of bright future of capital market in Nepal.

Commercial banks shares are highly traded in Nepal Stock Exchange, the commercial banks occupy a lion's share of the stock trading; any fluctuation in their price is directly reflected in the index. Small investors are investing in a share and are a shareholder without any knowledge.

The thought and the knowledge of the investors have not been changed. They still believe in the mouth publicity and friend's opinion while making investment. Due to lack of information and knowledge the individual investors are manipulated and exploited by the financial institution and other markets intermediaries to such an extent that investing in common stock is intolerably hazardous most of the Nepalese investor are investing their

fund in single security rather than investing in portfolio of securities to maximize return at a minimum level of risk.

Government policy is found less encouraging in promoting common stock. The policies of government are unable to create favorable and proper investment environment to encourage investors to invest in common stock. Government has not taken any serious steps to regulate stock market and policies that are made are seemed to favor the companies not to the individual investors.

The major problems of the study are:

- How do investors get the required information about risk and return associated with their investment portfolio?
- What should be the compensation for bearing risk?
- How can one minimize risk and maximize return through diversification?
- How do investors know about the magnitude of risk?

1.3 OBJECTIVE OF THE STUDY

The study focuses on the risk and return of the common stock investment of commercial banks. Thus, the main objective of the study is to analyze risk and return.

Some of the specific objectives are:

- To examine the movement of market price of share.
- To find out whether the common stock of selected banks are overpriced or underpriced.
- To calculate risk and return of their portfolio
- To point out suggestions to investors.

- To determine whether the shares of commercial banks are correctly priced by analyzing the realized rates of returns and the required rates of return using the Capital Asset Pricing Model(CAPM).

1.4 SIGNIFICANCE OF THE STUDY

After the restoration of democracy in 2046 B.S. people is in security investment and stock trading increased unexpectedly but it could not attract people as expected because due to lack of proper information.

There are few magazines and articles of capital market and very few studies are made on 'Risk and Return'. Thus the Nepalese investors invest in common stock as a "shooting in the dark". So, the significant of the study is to point out the risk and return position of investing in shares of commercial banks in Nepal.

This study will be beneficial to the potential investors as well as managers to determine future risk and return in holding various blends of individual securities. It also provides proper guidelines for making choice of stock alternation on basis of 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.

1.5 LIMITATIONS OF THE STUDY

As every research has its own limitations, this study has also limitations. The study is carried out to fulfill the partial requirement of MBS degree of T.U.

The limitations of the study are:

- The study only focuses on the analysis of risk and return of common stock investment of selected banks.

- This study is carried out only for five years starting from 2004/05 to 2009/10.
- All the data taken into analysis is secondary data and information. We depend heavily on the data collected from NEPSE.
- Altogether five commercial banks i.e. NIBL, BOK, HBL, KIST & LAXMI BANK are taken into consideration.

1.6 CONCEPTUAL FRAMEWORK

The study focuses on risk and return in the investment of common stock. Thus, various books deal with the risk and return is taken into consideration.

1.6.1 INVESTMENT

Investment simply means sacrificing current earnings for future cash flow. It is an exchange of financial claim-stocks and bond etc. Investment involves commitment of resources that have been saved or put away from current consumption in the hope that some benefits will occur in future.

"Investment in the broad sense means the sacrifice of current dollars for further dollars. Two different attributes are generally involved: time and risk. The sacrifice takes place in the present and is certain. The rewards come later, if at all and the magnitude is generally uncertain."⁵ Investment decision involves emotional activities. Investors invest their fund on securities for the long run future returns. "Investing or speculating in the stock has all the characteristics of the game. The purpose of the stock market game is to win."⁶

⁵William F. Sharp, Gordon J. Alexander & Jeffery V. Bailey "*Investment*", 5th Edition, Prentice Hall Inc., USA. (1995)

⁶S.S.Grewal, "*The Thinking Investor*"

The investors can make a wide range of investment such as: common stock, preferred stock, bond, convertible, warrant, option etc. This study deals with the common stock.

1.6.2 COMMON STOCK

Since, the study deals with the common stock investment: light must be thrown on it. Common stock is an ownership security. Common stock holder will get the return from common stock. People typically buy common stock expecting to earn dividend plus a corporation are its residual owners their claim to income and assets comes after creditors and preferred stock holders have been paid full. Hence, risk is highest in common stock, so is the return. Common holder may lose their initial investment and nothing more in case of liquidation of the organization.

"Of all the form of securities common stock (equity share) appears to be most romantic. It has one important investment characteristics and one important speculative characteristic. Their investment value and average market price tend to increase regularly by persistently over the decade as their net worth builds most of the common stock is subjected to irrational and excessive price fluctuation in both directions, as the consequences of the ingrained tendency of most people to speculate or gamble i.e. to give away to fear, hope and greed."⁷

Common stock represents the ownership of an organization: therefore, the common stock holders are the owners. As the owner of the company, stockholders have many rights, the law specifies some of these rights and the company's charter specifies some. The following are the rights of the common stock holders and these rights are divided into two types:

⁷ Prasanna Chandra, "*The Investment Game*", 6th Edition, Tata MC. Grand Hill India. (1995)

Collective and Specific rights

Collective Rights

- The right to elect the directors of the corporations.
- The right to authorize the sale of fixed assets.
- The right to adopt and amend by laws.
- The right to enter merger.
- The right to issue preferred stock, debentures, bonds and other securities.
- The right to change the amount of authorized capital.

Specific Rights

- The right to sell their stock certificate and to transfer the ownership.
- The right to vote in the manner prescribed by the corporate charter.
- The right to save proportionately the residual of assets at the time of the liquidation.

1.6.3 RISK

Risk is the uncertainty associated with the enough period value of an investment. An occurrence of unfavorable outcomes which is harmful for the business is known as risk.

Risk is the variability of returns of the period. The one-period rate of return is the basic random variable used in measuring and investments risks. The greater the variability of returns, the riskier is the project. The more certain return from assets, the less variability and therefore less risk.

"Risk defined most generally is the probability of the occurrence of unfavorable outcomes. But risk has different meaning in different context. In our context two major

developments from the probability distribution has been used as initial measure of return and risk."⁸

Actually risk in a simple language is an uncertainty. "Risk is typically defined as uncertainty. It arises from imperfect knowledge or from incomplete data."⁹

Risk plays central role in the analysis of investment. There are various types of risk, which an investor might have to face like interest rate risk, market risk, financial risk, business risk, management risk, market risk, currency risk, asset-class risk, sector risk, country risk, credit risk, etc. Risk can also be diversifiable risk and undiversifiable risk. Diversifiable risk also known as unsystematic risk is that portion of total risk, which is unique to the firm that issued securities and hence can be controlled by the management. Whereas undiversifiable or systematic risk is that portion of the total risk that is caused by market factors and hence is cannot control the management.

Risk is very much likely to occur in any type of investment but proper analysis will be able to help us to minimize the risk up to some extent. So, while making an investment, an investor is required to analyze all possible outcomes, risk and return associated with an investment. Investors will only be able to get mean return if they bear risk. Due to risk being associated with an investment most people prefer to invest in risk free securities.

1.6.4 RETURN

The return form an investment cannot be thought without the risk factor. Since the future is uncertain there is always a chance that return will be either more or less than anticipated.

⁸ J.Fred Weston and Eugene f. Brigham, "*Managerial Finance*", 7th Edition, Hold Saunders International Edition.

⁹ Peter L. Bernstein, "*The Portable MBA in Investment*". (1995)

Return is commonly defined as reward for bearing risk. Return is the major factor behind any investment. It is the most important outcome of any investment. It is the most important outcome of any investment. It measures the investor's rate of wealth accumulation i.e. increase or decrease in the wealth of the investor. Return is the total gain or loss experienced in an investment over a given period of time. It can also be defined as the after tax increase in the value of the investment.

"Return is defined as dividend plus capital gain or loss. The relationship between different levels of returns on their relative frequencies is called probability distribution. We could formulate probability return by analyzing its historical return over the previous year. But we know that history never repeats itself exactly hence after analyzing relative frequencies of historical return for the individual company we can form a probability distribution based on a historical data plays the analyzing for the economy, for the industry and outlook for the firm in its industry and other factor."¹⁰

Return can be of different types like holding period return, return from speculation or return from short sell, capitalization etc. Holding period return is useful with the investment horizon of one year or less whereas for longer periods, it is better to use rate of return as an investment yield. Return comes from two-source income and price appreciation. Investment decision is based on expectation about the future. The expected rate of return for any asset is the weighted average rate of return. Yet magnitude of our returns on investments would be hard to measure. We seldom know how much our earning power will be increased as a result of our investment. In spite of this, return remains the main motivation behind making an investment. The return from holding an

¹⁰ James C. Van Horne, John M. Wachowicz Jr., *"Fundamentals of Financial Management"*, India, Prentice Hall. (1995)

investment over some period say a year is simply any cash payment received due to ownership plus the change in market price derived by the beginning price. Return can be expressed as:

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

Where,

R = The actual return when it refers to a particular time period in the past (future).

P_t = Ending stock price

P_{t-1} = Starting stock price

D_t = Cash dividend for time t

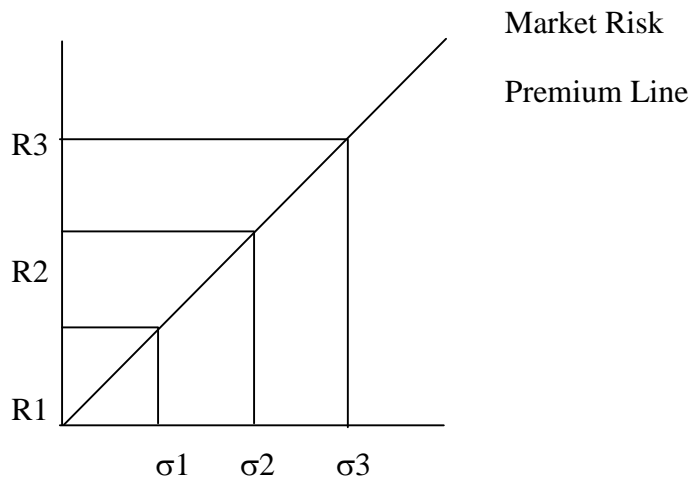
1.6.5 RELATIONSHIP BETWEEN RISK AND RETURN

Investor's perception about risk and their demand for compensation describe the relationship between risk and return. Those investors who can tolerate higher levels of risk should be regarded with higher level of return. This statement is supported by the most empirical studies of historical risk-return relationship. No investors like to invest in risky security unless he is assured of adequate compensation for the assumption of risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rational investors, higher risk will command higher premium, and the tradeoff between the two assumes a linear relationship between risk and risk premium.

“The observe difference in both the levels and variability of the rates of return across securities are indicative of the underlying risk return relation in the market.”¹¹

Generally, there is a positive relationship between rate of return and risk. It means an investor can usually attain more return by selecting dominant assets that involves more risk. While it is not always true that a riskier asset will pay a higher average rate of return, as it is usually is. The reason is that investors are likely to prefer more return to induce them to make the riskier investment. It means investors will not choose an investment that guarantee less return when investments promising higher returns in the same level of risk class are readily available. Risk and return relationship can be shown by following figure.

Figure 1 : Relationships Between Risk And Return



Relationship between Risk and Return

The figure 1 represents a higher return for higher risk in a linear fashion indicating a premium of R_1 for σ_1 degree of risk, R_2 for σ_2 and so on. Under the assumption of a linear

¹¹ James H. Lorie, Peter Dodd and Mary Hamilton Kempton, “*The Stock Market Theories and Evidence*”, 2nd Edition, USA: IRW/N INC, Homewood, (1993) P.3.

relationship, the risk premium increases or decreases in proportion to a change in the level of risk.

1.6.6 PORTFOLIO ANALYSIS

A portfolio is a combination of investment in financial assets. The portfolio is the holding of securities and investment in financial assets i.e. bonds stocks. Portfolio theory gives the concept of investment in a very good way that “never keep all your eggs in a single basket” i.e. never invest your entire amount in a single asset. Investment on more than one security means diversification or minimization of risk. If a person holds the stocks of two different companies, such holding is called two stock portfolios. A stock held as a part of portfolio is less risky than the same stock held in isolation. So an individual investor can reduce the degree of risk of holding the stocks in portfolio. The investor attempts to minimize the risk by making a portfolio, which ultimately raises the value of her/his investment.

“Portfolio is defined as a combination of assets usually offers the advantage of reducing risk through diversification. Portfolio deals with the selection of optimal portfolio; that is, portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Since portfolio theory has been development most thoroughly for the financial assets - stocks and bonds. We shall for the most part restrict our discussion to these assets. However, extensions of financial assets portfolio theory to physical asset are readily made and certainly the concepts are relevant in capital budgeting.”¹²

¹² J. Fred Weston, Thomas E. Copeland, “*Managerial Finance*”, 9th Edition.

Portfolio analysis considers the determination of future risk and return I holding various blends of individual securities. Portfolio expected return is the weighted average of the expected return of the individual securities but portfolio variance can be something less than a weighted average of security variance. As a result investors can sometime portfolio risk by adding another security with greater individual risk than any other securities in portfolio.

“An investor’s portfolio is the set of individual common stocks, bonds, option future contract, real estate, diamonds, cash, gold, saving account and other assets the investor owns. It is usually better to invest in a portfolio than in a single security because of the risk of reducing benefits of diversification. Investing all of your funds in a single security is advisable only if you are absolutely sure that the security’s future performance will be rewarded on if you are willing to gamble your entire investment on the success of a single risky assets.”¹³

1.6.7 CAPITAL ASSETS PRICING MODEL

This model was developed by William Sharp(1990 Nobel Prize in Economics) and John Linther in the 1960’s and it has had important implications for finance ever since. While other models also attempt to capture market behavior, the capital asset pricing model is simple in concept and had real-world applicability.

“The CAPM is undoubtedly the most successful model to link the risk and expected return and unavoidable risk and the valuation of securities that follows, is the essence of the capital asset pricing model.”¹⁴

¹³ Jack Clark Fransis, “*Investment Analysis Management*”, 7th Edition, Mc Graw Hill, Inc., New York P.3

¹⁴ James C.Van Horne, “*Financial Management and Policy*”, 10th Edition, Prentice Hall of India.(1997)

CAPM assumes that investors can lend and borrow at the same risk free rate of interest.

CAPM states that expected return on assets depend on

- The time value of money
- The reward per unit of systematic risk.
- The asset systematic risk as measured by beta.

The CAPM uses the theory of Security Market Line (SML) to show the relationship between required return and beta. As per CAPM, a security's expected return should relate to its degree of systematic risk and not to the degree of systematic risk and not to the degrees of total risk. The greater the systematic risk i.e. its beta the greater is the risk and greater the expected return. CAPM indicates that assets required rate of return should be related to the risk free rate of return plus a risk premium based on the beta of the asset. In the CAPM model security's expected return is the risk free plus a premium based on the systematic risk of the security. The model is:

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

Where,

(R_j) = The required rate of return of asset j.

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

j = Beta coefficient of stock j

\overline{R}_m = The expected rate of return on the market portfolio.

Hence CAPM helps us to decide whether to purchase or sell the stock of the particular company. We decide by comparing required rate with the expected rate of return. The capital asset pricing model provides us a means by which to estimate the required rate of

expected return can be calculated. With comparison of two return investors can analyze whether the stock is under priced or overpriced.

1.8 RESEARCH GAP

This study is a partial fulfillment of MBS degree, therefore a detail study has not been conducted, because of which we can get to know only some parts of the findings. The study only focuses on the risk and return of common stock and study is limited to few years and selected banks. Therefore lots of necessary and useful data's are not covered in the research which I think is a gap in the research work.

1.9 ORGANIZATION OF THE STUDY

The whole study is divided into five different chapters to make the study simpler and easy to understand.

Chapter 1:

The first chapter deals with the introduction part of the study. This chapter contains background of the study, statement of the problem, objective of the study, research questions, significance of the study, limitation of the study, organization of the study, conceptual framework, research gap, organization of the study.

Chapter 2:

A brief review of the related studies and findings are presented in this chapter. Review of literature consists of the conceptual review, review of journal and review of thesis.

Chapter 3:

Methodology used for the purpose of the study is presented in this chapter. Methodology focus on research design, population and sample source of data, data collection procedure and data analysis procedure.

Chapter 4:

This chapter is the body part of the study. It includes data presentation, interpretation, analysis and findings of the study. This chapter analysis the risk and return of common stock and their comparison is also made between them. Major findings of the study are also included in this chapter.

Chapter 5:

This is the final chapter of the study, which contains the summary, conclusions and recommendations.

CHAPTER 2

REVIEW OF LITERATURE

Review of literature is a chapter where a researcher reviews books, journals and magazines, which are related to the study. Review will help us to perform our study in a right track through proper knowledge of the topic.

“Review of literature means reviewing research studies on other relevant proposition in the related areas of study so that all the past studies, their conclusions and deficiencies may be known and further research can be conducted. It is an integral and mandatory process in research work.”¹⁵

The study is divided into:

- Review from journal and
- Review from thesis.

2.1 REVIEWS FROM JOURNAL

A) FOREIGN CONTEXT

In August 1999, an article entitled “Local Returns Factors and Turnover in Emerging Stock Markets” by K. Great Rouwenhorst published in the journal of finance by American Finance Association has been reviewed here. This paper examines the sources of return variation in emerging stock markets. The return factors in the emerging market are qualitatively similar to these in developed markets; small stocks outperform growth stocks and emerging market stock exhibit momentum. There is growing evidence that

¹⁵ P R Joshi, “*Research Methodology*”, 1st Edition: Buddha Academic Publishers Limited, Kathmandu. (2001)

multiple factors are cross-sectionally correlated with average returns than large stocks Bang (1981), Fama Frence (1992/1996) and Lakosnishock, Shleifer and Vishny (1994) show that value/stocks with book to market (B/M), earning to price (E/P), and cash flow to price (C/P) outperform growth stocks with low B/M, E/P, or C/P. Moreover, stock with high return over the past three months to one year continue to outperform stocks with poor prior performance (Jagadees and Titman 1993). The evidence that beta is also compensated for in average returns is weaker (Fama and Frence 1992), Kothari, Shaken and Stone (1995).

This paper examines that sources of return variation is emerging stock markets Roumenhorest tries to answer the two set of questions. The first set of three questions concern the existence of expected return premiums:

1. Do the factors that explain expected return differences in developed equity markets also describe the cross-section of expected returns of emerging market firms?
2. Are the return factors in emerging markets primarily in local components or they have global components as well?
3. How does the emerging market evidence contribute to the international evidence from developed market that similar return factors are present in markets around the world?

The second set of questions of the paper includes:

1. Is there a cross-sectional relation between liquidity and average returns in emerging markets?

2. Are the return factors in emerging markets cross-sectionally correlated with liquidity?

Total return is calculated as the sum of the dividend return and price appreciation, using prices scaled by a capital adjustment factor, which the IFC computes to correct for the effects associated with stock dividends and right issues. Many emerging markets have firm with multiple classes of shares carrying different ownership restrictions. Firms with multiple share classes are treated as a value weighted portfolio of the outstanding equity securities.

The first conclusion is that the return factors in emerging markets are qualitatively similar to those in developed markets. Small stocks outperform growth stocks and emerging market stocks exhibit momentum. There is no evidence that local markets betas are associated with average returns. The correlation between the country return factors suggest that the premiums have a strong local character. Furthermore global exposure cannot explain the average factor returns of emerging markets.¹⁶

Almost all of the testing carried out by Edwin J. Elton aware involves the use of realized returns as a proxy for expected returns. The use of an average return is the proxy for expected return releases on a belief that information surprises tend to out over the period of a study and realized returns are therefore an unbiased estimated of expected returns. However, he believes that there is ample evidence that this belief is misplaced. There are periods longer than ten years during which stock market realized returns are on average less than the risk free rate (1973 to 1984). There are periods longer than fifty years in which risky long-term bonds on average underperform the risk free rate (1927 to 1981).

¹⁶ K. Great Rouwenhoust, “*Local Return Factors & The Turnover in Emerging Markets*”. The Journal of Finance Vol. LIV no. 3, (1999). P. 1439-40

Having a risky assets with and expected returns above the risk-less rate is an extremely weak condition for realized returns to be an appropriate proxy for expected return, and 11 and 50 years is an awfully long time for such a weak condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30 percent per year while Asian Markets have had stock market returns of higher than 30 percent per year while Asian Markets have had negative returns.¹⁷

B) NEPALESE CONTEXT

In Nepal there are very few research based journals in the field of finance. There are very few limited business magazines which hardly publish the topic related to the risk and return. Some journals which are related in our studies are taken into account.

The study about stock market behaviors in small capital market: in case of Nepal was conducted by Dr. Radhe Shyam Pradhan in 1993 is quite relevant to this study. This helps to provide at least some insight into stock market behavior in Nepalese context by concerning listed and traded shares in secondary market. The purpose of this study is to address the stock market equity, market value to book value, price earnings and dividends with liquidity, leverage profitability, assets turnover and interest coverage. To find out the above objective, the study period is based on cross-sectional analysis of 55 observations and the study periods of 1986 to 1990. According to him, this paper is based on pooled cross section analysis of 55 observations. Data could not be obtained on contacting the individual enterprises as they traded them confidential.

Due to initial and un-established stage of stock market, there is no system yet to compile and publish stock market data on a regular basis. There is no database, which make it

¹⁷ Edwin J. Elton, “*Expected Return, realized Return and Assets Pricing Tests*”, journal of Finance. Vol. LIV no. 4, (1999), P.1100

difficult to carry on any research Nepalese stock market. Considering the study period of 1986 to 1990, usable data could be obtained for 17 enterprises. These enterprises are in different sectors such as manufacturing, banking, trading, hotels, insurance etc. In this study he has constructed three different levels of portfolios of sample securities (small, intermediate and large). According to him, market value to book value, P/E and DPS to MPS, DPS to EPS, analyzed liquidity, leverage, earnings and coverage of each portfolio in terms of larger and smaller and also average ratios are computed. He concludes “the result indicate that larger stock have longer price earning ratio larger ratio of market value to book value of equity, lower liquidity, lower profitability, and smaller dividends. Price earnings ratio and dividend are more variable for smaller stocks, whereas market value to book value of equity is more variable for larger stocks also has higher leverage, lower assets turnover and lower interest coverage but there are more variables for smaller stocks than for larger stocks. Stocks with larger market value to book value of equity have larger price earning ratio and lower dividends. These stocks also have lower liquidity, higher leverage, lower profitability, lower turnover and lower interest coverage. However, there are more variable for assets with smaller price earning ratio. Stock paying higher dividends have higher liquidity, low leverage, high earnings, higher turnover and high interest coverage, liquidity and leverage ratio are more variable for the stock paying lower dividends while earnings assets turnover and interest coverage more variables for the stock paying higher dividends.”¹⁸

An article published in business age Oct-Nov 1999 entitled; “Stock Market Doing Pretty Well” by Nawaraj Pokharel is reviewed here.

¹⁸ Radhe Shyam Pradhan, “*Stock market Behaviour in Small Capital Market: A Case Study in Nepal*”. (1993) P. 23-49.

In this article he has tried to visualize the fact that the investors are not regarding a investment security from all the viewpoints which he has made clear from the investment made in Himalayan Bank Ltd. which fetched him 3 times more return than normal but at the same time he would have got thrice more if he had invested in Bank of Kathmandu or Bottlers Nepal. It also shows that the companies' performance is good. Even the market price of nearly dead stock of NMC Mutual fund seems to be progressing. The reason this according to Mr. Pokharel may be one of the following:

- Companies are reasonably rewarding their shareholders.
- Reduction of interest rate of money market.
- Healthy speculation and loan has made the market interesting.
- Investors have become aware of the situation and opportunities.
- Regulation and continuity of government policy is added benefit.

Finally he concludes that the capital market needs more infrastructural investment than institution investment and finally introduction of new instrument such as government bonds can increase market size.¹⁹

Mr. Yogendra Timilsina in April 2001 entitled "Capital Market Development and Stock Price Behavior in Nepal" is also relevant to our study. In his study Mr. Timilsina says that the market price of share depends on EPS as well as on DPS but DPS is more prices sensitive and it will have direct and immediate response in the market. However market values of share computed on the basis of EPS are near to the observed market prices of equity share reveal that the stock is not inconsistent.²⁰

¹⁹ Nawaraj Pokharel, "Stock Market Doing Pretty Well ", Business Age Oct-Nov (1999).

²⁰ Yogendra Timilsina, "Capital Market Development & Stock Price Behavior in Nepal", Apr(2001) NRB P.26

Another article published in the Business Age magazine of June 2001 entitled “Nepal Share Market an Investors Prospect” by Atma Ram Ghimire also quite related to this study.

In this study he has tried to portrait some special qualities of our capital market. He has mentioned in his article many unbalanced factors like political instability etc. are the main cause of decreasing share price. According to him current share price are on the declining process. The fluctuation in NEPSE is due to banking sector whose price change has due to availability or unavailability of bonus, dividend etc.

When we analyze our stock market we find that all the components of the market are lame, weak and perhaps work for vested interest. The general public are also reckless in their investment and the booker organization is also unqualified and is a one-man show. In addition to this, board always favors company and not the investors.²¹

Another research conducted by Mr. A.R. Bhattarai in New Business Age May 2008 entitled “Making it or Breaking it on the Stock Market”,²² concludes many things about market, which is quite relevant to our study. He critically analyses the motives of Nepalese investors. He has tried to examine what is going on in Nepalese investors and how do the investors invest in stocks.

²¹ Atma Ram Ghimire, “*Nepal Share Market an Investor’s prospective*”. Business Age June(2001)

²² A.R. Bhattarai, “*Making it or Breaking it on the Stock Market*”, New Business Age. May (2008) P.59

2.2 REVIEW FROM THESIS

Though risk and return is not a new topic for financial analyst but there is a shortage of the study performed in this topic in Nepal. Some studies are related to the topic “Risk and Return” that has been conducted as a thesis for the partial fulfillment of Masters Degree in T.U. is reviewed here.

A research study on the topic “Assessment of the performance of listed companies in Nepal (1996) by Mr. Gopal Prasad Bhatta is reviewed here. The study conducted by Mr. Gopal Prasad Bhatta had included 10 listed companies with data from 1990 to 1995. The main objective of the study was to analyze the performance of listed companies in terms of risk and return. From the study, Mr. Gopal Prasad Bhatta addressed the following findings in risk and return analysis of different common stocks.

A highly significant positive correlation has been addressed between risk and return character of the company. Investors generally accept higher return from those stocks, which associated higher risk. Nepalese capital market is not efficient , so the stock price does not contain all the information related to the market and company. Neither investor analyzes the overall relevant information relating to the market and company itself, nor does the member of the stock exchange try to disseminate the information. So, the market return and risk both may not represent reality.

Investors in 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 between the return of the two securities, the risk is undiversifiable. The analysis shows that some has negative correlation and some

has positive. Negative correlation between security return is preferred for diversification of risk.

On the basis of findings Mr. Bhatta derived a conclusion that “Analysis of risk and return shows that many companies have higher unsystematic or specific risk. There is a need of expert institution, which will provide consultancy service to the investors to maximize their wealth through rational investment decision.

At last, Mr. Bhatta has recommended the following points to improve the market efficiency:

- Develop institutions to consult investors for risk minimization.
- Establish an information channel in Nepal stock exchange, and
- Market proper amendment of trade rules.

From the study of Mr. Bhatta’s research study, it can be said that the focus has given in the analysis of risk and return in common stock investment, but due to various other aspects of analysis investor cannot easily assess the results. The study has not focussed the viewpoint of investor and concentrated on the companies and stock market. However, this study has explored some dimension for further research in this subject. ²³

The study conducted by Jeet Bashadur Sapkota entitled “Risk and Return in Common Stock Investment in Commercial Bank in Nepal is also relevant to this study. The basic aim of his study is to analyze risk and return of securities of listed commercial banks in Nepal. The aim target of his study is potential investor who wants to invest in security but repel by imaginary and an unreal risk. So, the study was supposed to be more significant for exploring and increasing stock investment. The basic objective of this study is to

²³ Gopal Prasad Bhatta, “*Assessment of the Performance of Listed Companies in Nepal*”, Masters Degree Thesis, Central Department of Management, T.U, Kirtipur(1995)

describe risk, return, volatility of stock and some relevant and irrelevant factors, which are very important to make decision in stock investment. It also observes the unseen problems facing by individual investors.

Basically, this study analyses risk and return of commercial banks in Nepal, which were listed and traded in NEPSE. The data were collected from secondary sources like banks, officials, NEPSE, Brokers etc. The tools for analysis are market price of stocks, dividends and expected return, standard deviation, covariance, coefficient of variance, and beta etc. It is based on hypothetical data and more analytical and empirical types of research rather than descriptive. Although this study helps to analyze risk and return concept with considering risk. However, it ignores financial risk and return of related banks. Without considering financial risk and return, only market return could not help to make optimal investment decision.

This paper also does not appropriately observe the unseen problems facing by individual investors. Regarding various problems is stock investment in security market, the study is able to conclude following findings:

- It enables the investors to put the return as they can expect and the risk they take into better prospective.
- Nepalese economy is in emerging stage but due to the lack of appropriate information and other knowledge, Nepalese private investors cannot analyze the securities as well as its market properly.
- Banking industry is the biggest one in terms of market capitalization; turnover and return for common stock of commercial banking sectors are more parallel with market return.

- This study has also found risky and higher return projects by analyzing coefficient of variance, beta (i.e. less volatile and higher volatile market.) The portfolio approach of investment is better way to win the stock market investment.²⁴

The study conducted by Buddhi Raj Tamang entitled “ Risk and Return Analysis of Commercial Banks in Nepal” is also reviewed here. Among different objectives of his study, one is to analyze whether the common stock of commercial stock of commercial banks are correctly priced or not by analyzing the required rate of return using CAPM and it also aims to measure systematic and unsystematic risk of commercial banks. From his findings, Nepal Bangladesh Bank is placed as the highest return earner and Arab Bank as the lowest return earner where as unsystematic risk of Arab Bank is highest and that Bank of Kathmandu is lowest. Correlation coefficient of Arab Bank shows that the return on bank goes down when market return goes up. Though the shares of banking sector are one of the heavily traded shares in Nepal none of the company’s shares are correctly priced. From his study, the shares of commercial banks in Nepal are heavily traded in NEPSE; none of the share price is correctly priced.²⁵

In another research conducted by MR. Prajan Nandon Joshi entitled “Risk and Return on Common Stock Investment”, he has concluded that without proper analysis of individual security, industry and overall market, it is almost impossible to beat the stock market. The main objective of the study is to analyze the risk and return in common stock investment of Nepalese finance company. Most of the people see stock market investment as a black art. From his study proper analysis of individual security, industry

²⁴ Jeet BAhadur Sapkota, “*Risk and Return in Common stock Investment in Commercial Banks in Nepal*”, Master’s Degree Thesis, central Department of Management. T.U. Kirtipur (2000).

²⁵ Buddhi Raj Tamang, “*Risk and Return in commercial Banks in Nepal*”, Master’s Degree Thesis, Central Department of Management. T.U. Kirtipur, (2003)

and overall market is always needed. The investment, which has the highest coefficient of variance, return of that investment is more volatile and which has the lowest coefficient of variance, return of that investment is less volatile. From his study of difference investment sectors of Nepalese capital market, it is found that coefficient of variance of hotel sector is most volatile. On the other hand, the coefficient of variance of trading sector is less volatile.

In addition, Mr. Prajan further addressed that investment of Nepal hasn't yet practiced to invest in portfolio of securities. The stock price in Nepal is determined more by other factors rather than the financial performance of the concerned company.

To some extent, Mr. Prajan focused in the analysis of risk and return in common stock investment. But due to the many other aspects of analysis, investor can't easily assess the results. Indeed, study didn't focuses the view points of investors rather it concentrates the companies and stock market. However, this study also explores some dimension for further research in this topic.²⁶

²⁶ Prajan Nandon Joshi, "*Risk and Return on Common Stock Investment*", Central Department of Management. T.U. Kirtipur, (2006).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The rationale behind the study is to analyze, examine and compute the risk and return on common stock investment of listed commercial banks. Thus, this chapter includes those methods and techniques used for finding out before said objectives.

Research methodology refers to the various segmental steps (along with the rationale of /each step) to be adopted by a researcher in studying a problem with certain objectives in a view. It is the way to solve the research problem systematically. It includes the various steps that are generally adopted by a researcher in studying his or her research problem along with the logic behind them.

"Research methodology is a way to systematically solve the research problem."

This chapter focuses and deals with the following aspects of methodology;

- Research design
- Population and sample
- Sources of data
- Methods of data analysis

3.2 RESEARCH DESIGN

Research Design is the plan structure and strategy of investigation conceived to obtain answer to research question. It is the overall operational pattern or framework of the project that stipulates what information is to be collected from which source by what procedure. The research design of this study is analytical as well as descriptive

approaches to evaluate the risk and return of common stock investment of commercial banks. Basically this study is based on the secondary data and the past five years data will be used for the finding of objective.

3.3 POPULATION AND SAMPLE

Nowadays, a number of commercial banks have been emerging rapidly and others are in the process of establishment. Here all the commercial banks listed on NEPSE are population of the study and the following five commercial banks are taken as sample of the study and the banks are: NIBL, BOK, HBL, KIST, LAXMI BANK.

3.4 SOURCE OF DATA

The main sources of data for the study are secondary data. Besides, necessary suggestions are taken from various experts both inside and outside of NEPSE whenever required.

Other sources of data are:

- Bulletins and reports
- Annual trading report
- Reports published by NEPSE
- Banks annual reports
- Google Search

3.5 METHOD OF DATA ANALYSIS

The collected data are analyzed by using various financial tools, which are presented below:

3.5.1 FINANCIAL TOOLS

A) Earnings per Share (EPS)

Earning refers to the net income after taxes. Earning per share can be obtained by dividing net income by number of common stock outstanding.

Symbolically it is represented as:

$$\text{EPS (Earning per Share)} = \frac{\text{Net Income after Taxes}}{\text{No. of common stocks outstanding}}$$

B) Market Price per Share (MPS)

Market price of the stock is one of the major data of this study. There are three types of market price: high, low and closing price. Each year closing price has been taken as the market price of the stock which has specific time of span of one year and the study focussed in annual basis.

C) DIVIDEND

Common stock holders are rewarded through dividend. Dividend is the part of earning which is distributed to the shareholders by the decision of board of directors. It is usually distributed from the retained earnings. It is useful in the computation of the realized rate of return. Symbolically, it can be expressed as:

$$\text{Dividend per Share (DPS)} = \frac{\text{Total amount of dividend paid}}{\text{No. of common stocks outstanding}}$$

D) Expected Return of Common Stock(\bar{R})

Expected rate of return is the arithmetic mean of the past years return. Symbolically it is represented as:

$$E(R_j) \text{ or } \bar{R}_j = \frac{\sum R_j}{n}$$

Where,

\bar{R}_j = Expected rate of return on stock j

n = Number of year that the return is taken

= Sign of summation

R_j = Return on stock j

E) Return on Common Stock (R)

Holding periods includes capital gain and dividend yield. Deducting present price from price of previous year and adding any capital gain of the period and dividing by the previous year's price calculate it. Symbolically it is represented by;

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

Where,

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

P_t = Price of a stock at time t

P_{t-1} = Price of a stock at time t

D_t = Cash dividend received at time t

F) STANDARD DEVIATION

It is statistical measure of variability of return. It is the square root of variance.

Symbolically, it is represented by:

$$\sigma_j = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}}$$

Where,

n = No. of time period

σ_j = Standard deviation of returns on stock j during the time period.

R_j = Holding period return

\bar{R}_j = Expected rate of return on stock j

G) Coefficient of Variation (CV)

By standard deviation we can calculate total risk on investment; if we want to calculate risk per unit of expected return we use CV. It is the unitary risk measure. It gives the result of regarding the unit of risk to bear for earning 1 unit of return. Symbolically, it is represented as:

$$CV = \frac{\sigma_j}{\bar{R}_j}$$

Where,

σ_j = Standard deviation of return on stock j.

\bar{R}_j = Expected rate of return on stock j.

H) PORTFOLIO RISK

The risks of the portfolio are measured by standard deviation of the portfolio. Portfolio risk is measured by the combined standard deviation of the stocks held in the portfolio. In case of two assets, symbolically, it is represented as:

$$\sigma_p = \sqrt{W_a^2 \sigma_a^2 + W_b^2 \sigma_b^2 + 2W_a W_b \text{COV}_{ab}}$$

Where,

- σ_p = Portfolio Risk
- W_a = The proportion of the portfolio devoted by security A.
- W_b = The proportion of the portfolio devoted by security B.
- COV_{ab} = The covariance of the return of the security A and B.
- σ_a = Standard deviation of security A.
- σ_b = Standard deviation of security B.

I) PORTFOLIO RETURN

Portfolio is the combination of two or more than two assets. Portfolio return simply is weighted average of the return of the different securities in the portfolio. Symbolically, it is represented as:

$$\overline{R_p} = W_a \overline{R_a} + W_b \overline{R_b} + \dots + W_n \overline{R_n}$$

Where,

- $\overline{R_p}$ = Expected return on portfolio.
- $\overline{R_a}$ = Expected return on asset a.
- $\overline{R_b}$ = Expected return on asset b.
- W_a = Weight of asset a.
- W_b = Weight of asset b.
- W_n, \dots, W_n = Weight of investments on assets.

J) PORTFOLIO BETA

The beta of portfolio can be easily estimated by using beta of individual assets it includes.

Symbolically, it is represented as:

$$\text{Portfolio Beta(} \rho) = \frac{\sum_{j=1}^n W_j S_i}{j=1}$$

Where,

- ρ = Portfolio Beta Coefficient
- W_j = Proportion of the portfolio
- S_i = Beta Coefficient of Assets i

K) RISK MINIMIZING PORTFOLIO

Risk of the portfolio can be minimized through the construction of optimal portfolio.

Optimal portfolio gives the idea of investment of different assets getting maximum return with minimum risk. It can be calculated by finding out the proportion of investment in each asset. Symbolically, it can be represented as:

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

Where,

- W_A = Weight or proportion of stock A that minimize the portfolio risk.
- $W_A + W_B = 1$
- $W_B = -W_A$
- σ_A = Standard deviation of stock A
- σ_B = Standard deviation of stock B

L) BETA COEFFICIENT

Beta coefficient measures unsystematic risk. It is an index of a degree of an asset return in response to change in the market return. Assets return is used in finding asset's beta coefficient. Market sensitivity of stock is explained in terms of beta coefficient. For an individual stock beta could be less than equal to, or greater than 1, depending upon the volatility of that stock return in the market. Symbolically, beta coefficient is represented as:

$$\beta_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2}$$

Where,

β_j = Beta coefficient of stock j.

$\text{COV}(R_j, R_m)$ = Covariance of the return on asset j and the market portfolio.

$$\text{COV}(R_j, R_m) = \frac{\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n - 1}$$

Where,

\bar{R}_m = Required rate of return of the market portfolio of securities.

σ_m^2 = Variance of the return on the market.

M) CORRELATION OF THE COEFFICIENT

It is the statistical measure of the relationship, between series of number representing data of any kind, from returns to test scores. If two series move in same direction they are positively correlated and if they move in opposite direction they are negatively correlated. Correlation coefficient value ranges from -1 to +1. Symbolically, it can be expressed as:

$$R_{ij} = \frac{\text{COV}(r_i, r_j)}{\sigma_i \sigma_j}$$

Where,

R_{ij} = Correlation between stock i and stock j

σ_i = Standard deviation of stock i

σ_j = Standard deviation of stock j

$\text{COV}(r_i, r_j)$ = Covariance of the return on assets i and assets j.

N) REQUIRED RATE OF RETURN

It is the amount, which an investor wants if he makes an investment. Without this amount an investor is not likely to invest his fund. It is always greater than risk free rate of return. This rate helps us to decide whether the stock is underpriced or overpriced and we can easily take decisions about the securities. Underpriced assets are purchased whereas overpriced assets must be sold. Symbolically, it is expressed:

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

K_j = Required rate of return of security i.

R_f = Risk-free rate of return.

R_m = Expected return of market.

β_j = Beta Coefficient.

CHAPTER 4

DATA ANALYSIS AND MAJOR FINDINGS

4.1 DATA PRESENTATION AND ANALYSIS

This chapter is the main body of the study, where collected data are presented and analyzed. In this chapter the effort has been made to analyze “Risk and Return” in commercial banks. With the help of various financial and statistical tools, movement of Nepalese stock market of listed commercial banks are tried to evaluate. In this study data of MPS, DPS, EPS and P/E ratios of selected commercial banks as well as NEPSE index of each industry is presented and their analysis is done. With the help of figures and tables, results have been tried to make simple and easy to understand.

4.1.1 ANALYSIS OF COMMERCIAL BANKS

In this chapter, selected banks are analyzed which is our topic. Altogether five commercial banks are analyzed separately among total commercial banks listed in NEPSE. The selected banks are: Himalayan Bank Limited (HBL), Nepal investment Bank Limited (NIBL), Bank of Kathmandu (BOK), Kist Bank Limited, Laxmi Bank Limited.

4.1.1.1 NEPAL INVESTMENT BANK LIMITED (NIBL)

Nepal Investment Bank Limited previously Indosuez Bank Limited was established in 1986 which is joining hand with French partner credit Agricole Indosuez, a largest banking group in the world with the decision of credit Agricole Indosuez to divest a group of companies comprising of banker, professionals, industrialist and businessman has acquired on April 2002. The 50% share holding of credits Agricole in Nepal Indosuez

Bank Limited. Thereafter the name of the bank has changed to Nepal Investment Bank Limited. It has authorized, issued and paid up capital of 1,000,000,000.00, 801,352,600.00 and 801,352,600.00 respectively.

Table 1 : MPS, Dividend, EPS and P/E Ratio of NIBL

F/Y	Closing MPS	Dividend			EPS	P/E Ratio
		Cash	Stock (%)	Total Dividend		
2004/05	800.00	12.50	-	12.50	39.50	20.25
2005/06	1,260.00	20.00	35.46	633.10	59.35	21.23
2006/07	1,729.00	5.00	25.00	617.50	62.57	27.63
2007/08	2,450.00	7.50	33.33	470.12	57.87	42.33
2008/09	1,388.00	20.00	-	20.00	37.42	37.10
2009/10	1,300.00	25.00	-	25.00	52.55	13.42

(Source: Refer trading annual report)

(Note: Total Dividend = Cash dividend + % of stock dividend * Next year's MPS)

The table 1 shows that the closing MPS of stock of NIBL is increasing during the fiscal year 2004/05 till 2007/08. It is highest in fiscal year 2007/08 and lowest in the fiscal year 2004/05. The total dividend is fluctuating all the fiscal years. EPS also seems to be fluctuating in all the years from 2004/05 to 2009/10.

Figure 2 : Year- End Price Movement of common stock of NIBL

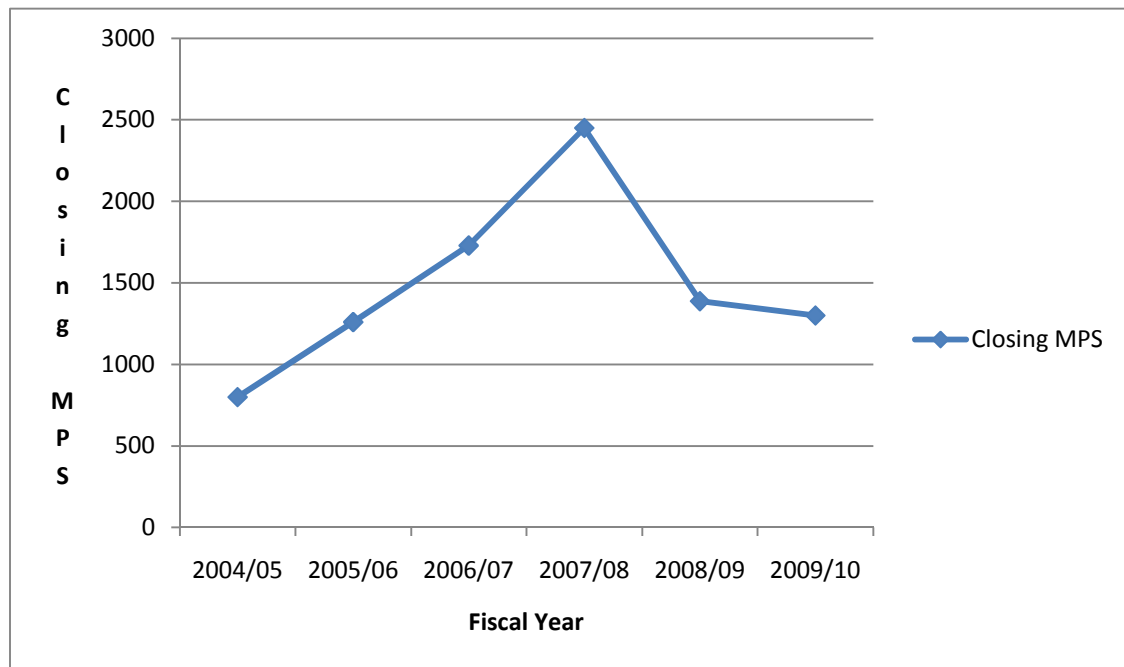


Table 2 : Statistical Analysis of the Common Stock of NIBL

F/Y	Closing MPS	Total Dividend	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R-R	$(R-R)^2$
2003/04	940	-	-	-	-
2004/05	800	12.50	-0.1356	-0.6069	0.3683
2005/06	1260	633.10	1.3664	0.8951	0.8012
2006/07	1729	617.50	0.8623	0.391	0.1529
2007/08	2450	470.12	0.6889	0.2176	0.0473
2008/09	1388	20.00	-0.4253	-0.8966	0.8039
Total			2.3567	0.0002	2.1736

(Source: Refer Table 1.)

We have,

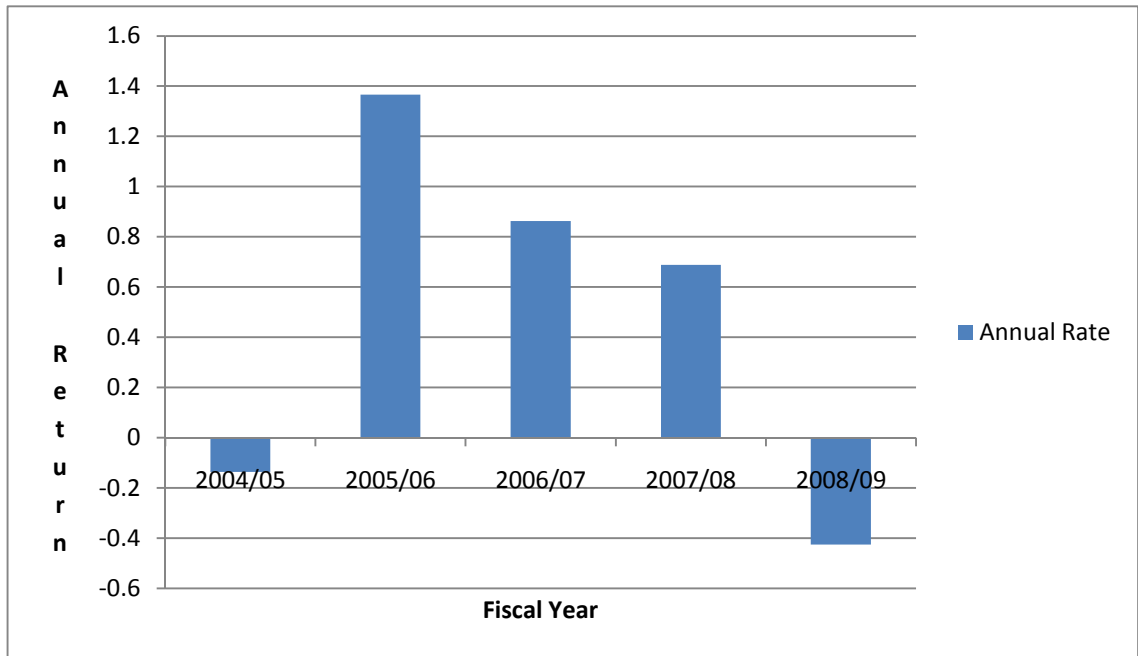
$$\text{Expected Return}(R) = R/n = 2.3567/5 = 0.4713$$

$$\text{Standard Deviation ()} = \sqrt{(R-R)^2/n-1} = \sqrt{2.1736/4} = 0.7372$$

$$\text{Coefficient of Variation (C.V)} = \sigma/R = 0.7372/0.4713 = 1.5642$$

The expected return is 0.4713(47.13%). Its standard deviation is 0.7372 (73.72%) and C.V. is 1.5642. This means that for earning 1 unit of return from the share of NIBL, investors have to bear 1.5642 unit of risk. The annual return of NIBL is negative during the fiscal year 2004/05 and 2008/09.

Figure 3 : Annual Rate of Return of Common Stock of NIBL



4.1.1.2 BANK OF KATHMANDU

BOK started its operation in March 1995 with the objective to stimulate the Nepalese economy and take it to newer heights. BOK also aims to facilitate the nation's economy and to become more competitive globally. To achieve these, BOK has been focusing on its set objectives right from the beginning. To highlight its few objectives:

To contribute to the sustainable development of the nation by mobilizing domestic savings and channeling them to productive areas

- To use the latest banking technology to provide better, reliable and efficient services at a reasonable cost
- To facilitate trade by making financial transactions easier, faster and more reliable through relationships with foreign banks and money transfer agencies
- To contribute to the overall social development of Nepal.

It's authorized capital, issued and paid-up capitals are 2,000,000,000, 1,182,157,100 and 1,182,157,100.

Table 3 : MPS, Dividend, EPS and P/E Ratio of BOK

F/Y	Closing MPS	Dividend			EPS	P/E Ratio
		Cash	Stock (%)	Total Dividend		
2004/05	295	15.00	10	42.75	30.10	14.29
2005/06	426	18.00	30	430.5	43.67	19.46
2006/07	850	20.00	30	725	43.50	31.61
2007/08	1375	2.11	40	702.11	59.94	39.21
2008/09	2400	7.37	40	691.37	54.68	33.37
2009/10	1710	15.00	15	-	691.37	19.50

(Source: Refer trading Annual Report)

In the table 2, the closing MPS of BOK is in increasing trend except in the year 2009/10, where it has decreased to 1710 from 2400. Dividend is increasing from the fiscal year 2004/05 to 2006/07 and again it decreases in the year 2008/09 and 2009/10. The EPS of BOK shows fluctuating nature.

Figure 4 : Year-End Price Movement of Common Stock of BOK

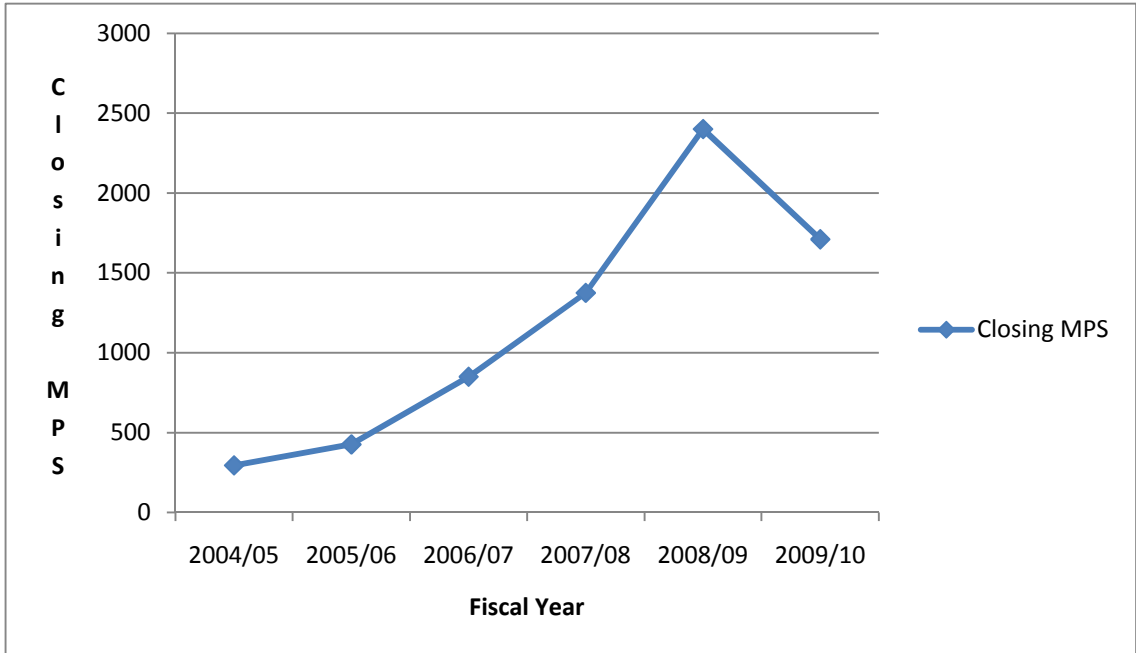


Table 4 : Statistical Analysis of the Common Stock of BOK

F/Y	Closing MPS	Total Dividend	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R-R	$(R-R)^2$
2003/04	198	-	-	-	-
2004/05	295	42.75	0.705	-0.794	0.630
2005/06	426	430.5	1.903	0.404	0.163
2006/07	850	725	2.697	1.198	1.435
2007/08	1375	702.11	1.443	-0.056	0.003
2008/09	2400	7.3684	0.750	-0.749	0.561
Total			7.498		2.792

(Source: Refer Table 3.)

We have,

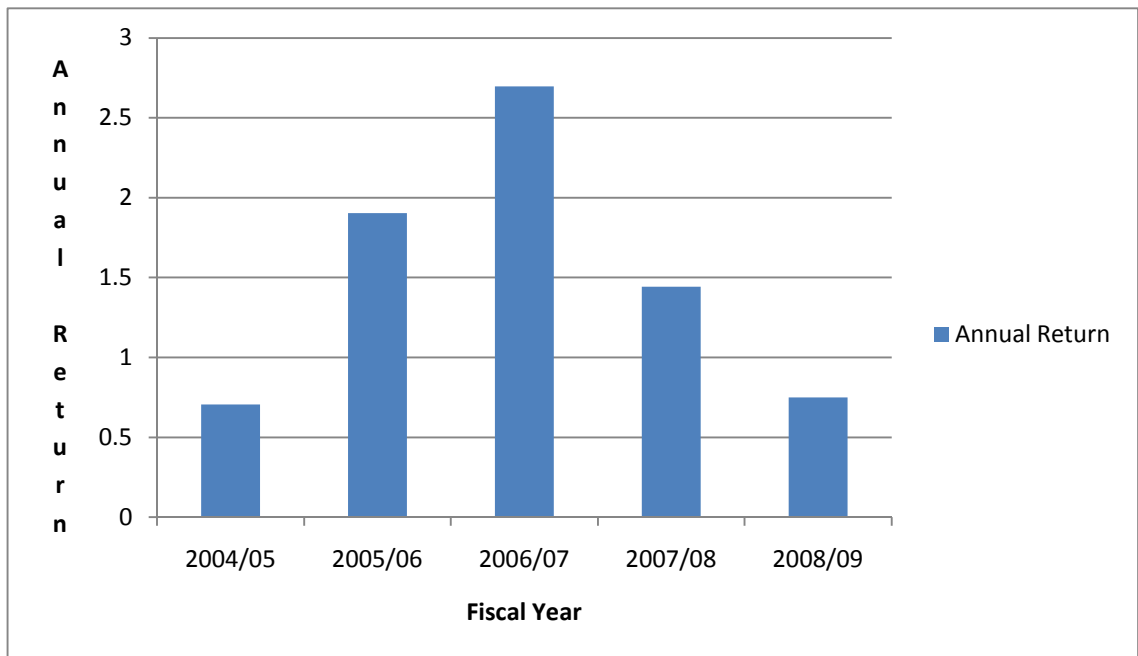
$$\text{Expected Return (R)} = R/n = 7.498/5 = 1.499$$

$$\text{Standard Deviation ()} = \sqrt{(R-R)^2/n-1} = \sqrt{2.792/4} = 0.8355$$

$$\text{Coefficient of Variation (C.V)} = \sigma/R = 0.8355/1.499 = 0.5574$$

The expected return, standard deviation and coefficient of variation of BOK are 1.499, 0.8355 and 0.5574 respectively. C.V.(0.5574) shows that for earning 1 extra unit of return from the share of BOK, investors have to bear 0.5574 unit of risk. The return is fluctuating and highest in the year 2006/07 and lowest in the year 2004/05.

Figure 5 : Annual Rate of Return of Common Stock of BOK



4.1.1.3 HIMALAYAN BANK LIMITED (HBL)

Himalayan Bank was incorporated in 1992 by the distinguished personalities of Nepal by joining hand with Habib Bank Ltd., Pakistan. This is the first joint venture bank with maximum shareholders by Nepalese private sector, which is also managed by Nepalese Chief Executive. Its authorized capital, issued and paid –up capitals are 2,000,000,000 , 1,216,215,000 and 1,218,215,000 respectively.

Table 5 : MPS, Dividend, EPS and P/E Ratio of HBL

F/Y	Closing MPS	Dividend			EPS	P/E Ratio
		Cash	Stock (%)	Total Dividend		
2004/05	855	-	20.00	220	47.91	19.20
2005/06	1100	30	5.00	117	59.54	18.57
2006/07	1760	15	25.00	510	60.66	28.69
2007/08	1980	25	20.00	377	62.74	31.56
2008/09	1760	12	31.58	544.87	61.90	28.43
2009/10	1725	-	-	-	-	-

(Source: Refer trading Annual Report)

The price is fluctuating. During the period the highest closing price is Rs 1980 in the year 2007/08. The EPS of HBL shows fluctuating nature. The total dividend is highest in the year 2008/09 and lowest in the year 2005/06.

Figure 6 : Year-End Price Movement of common Stock of HBL

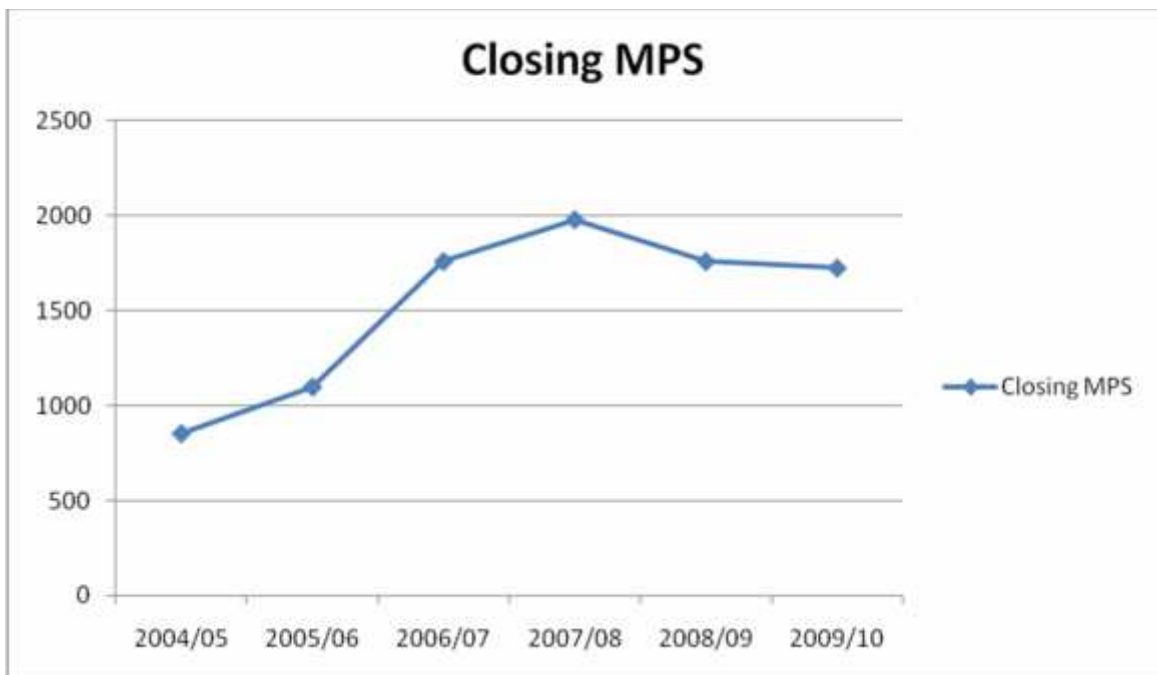


Table 6 : Statistical Analysis of the Common Stock of HBL

F/Y	Closing MPS	Total Dividend	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R-R	(R-R) ²
2003/04	836	-	-	-	-
2004/05	855	220.00	0.285	-0.169	0.02860
2005/06	1100	117.00	0.423	-0.031	0.00096
2006/07	1760	510.00	1.063	0.609	0.37100
2007/08	1980	377.00	0.339	-0.115	0.01320
2008/09	1760	544.87	0.164	-0.290	0.08410
Total			2.274		0.41380

(Source: Refer Table 5)

We have,

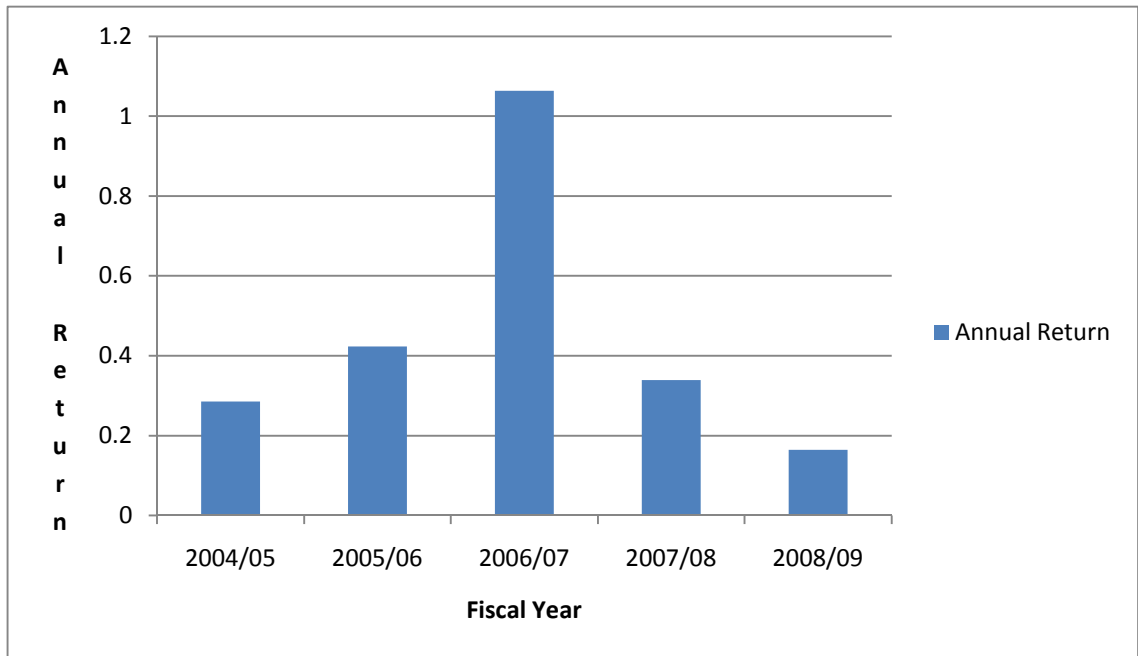
$$\text{Expected Return (R)} = R/n = 2.274/5 = 0.454$$

$$\text{Standard Deviation ()} = \sqrt{(R-R)^2/n-1} = \sqrt{0.4979/4} = 0.3528$$

$$\text{Coefficient of Variation(C.V)} = \text{SD}/R = 0.3528/0.454 = 0.7771$$

The expected return, standard deviation and coefficient of variation of HBL are 0.454, 0.3528 and 0.7771 respectively. C.V. (0.7771) shows that for earning 1 extra unit of return from the share of HBL, investors need to bear 0.7771 unit of risk. The return is fluctuating and highest in the year 2006/07 and lowest in the year 2008/09.

Figure 7 : Annual Rate of Return of Common Stock of HBL



4.1.1.4 KIST BANK

With its vision of becoming the best bank on operational excellence and superior financial performance, KIST Bank was initially incorporated as a 'C' class financial institution in 2003 for undertaking limited banking activities. The Bank started commercial banking activities from May 7, 2009 after complying with all the conditions of Nepal Rastra Bank (Central Bank of Nepal) for becoming a Commercial Bank. The Bank is a public limited company incorporated under the Bank and Financial Institution Act 2006 and the Companies Act 2006. The Bank is licensed by NRB to undertake commercial banking services and merchant banking activities in the country. The Authorized Capital of the Bank is Rupees 5 Billion and the Issued and Paid-Up Capital is Rupees 2 Billion. 60 Percent of the Paid-Up Capital is held by the promoter and remaining 40% is held by the general public. The shares of the Bank is listed at Nepal Stock Exchange Limited(NEPSE), the only Stock Exchange in the country, as 'A'

category share. It's authorized capital, issued capital and paid up capital are:5,000,000,000 , 2,000,000,000 and 2,000,000,000 respectively.

Table 7 : MPS, Dividend, EPS and P/E Ratio of KIST

F/Y	Closing MPS	Dividend			EPS	P/E Ratio
		Cash	Stock (%)	Total Dividend		
2004/05	-	-	-	-	-	-
2005/06	378	10.53	-	10.53	18.55	8.25
2006/07	560	10.53	-	10.53	13.13	43.41
2007/08	998	5.00	-	5.00	5.91	168.90
2008/09	378	3.50	-	3.50	4.48	84.32
2009/10	383	5.00	-	5.00	7.21	27.61

(Source: Refer Annual Trading Report)

Table 7 shows that the MPS of KIST Bank is of fluctuating nature. Total dividend seems to remain constant in the fiscal year 2005/06, 2006/07 which is 10.53. EPS and P/E ratio is also of fluctuating nature. The MPS is highest in the year 2007/08 and lowest in the year 2004/05.

Figure 8 : Year-End Price Movement of Common Stock of KIST Bank.

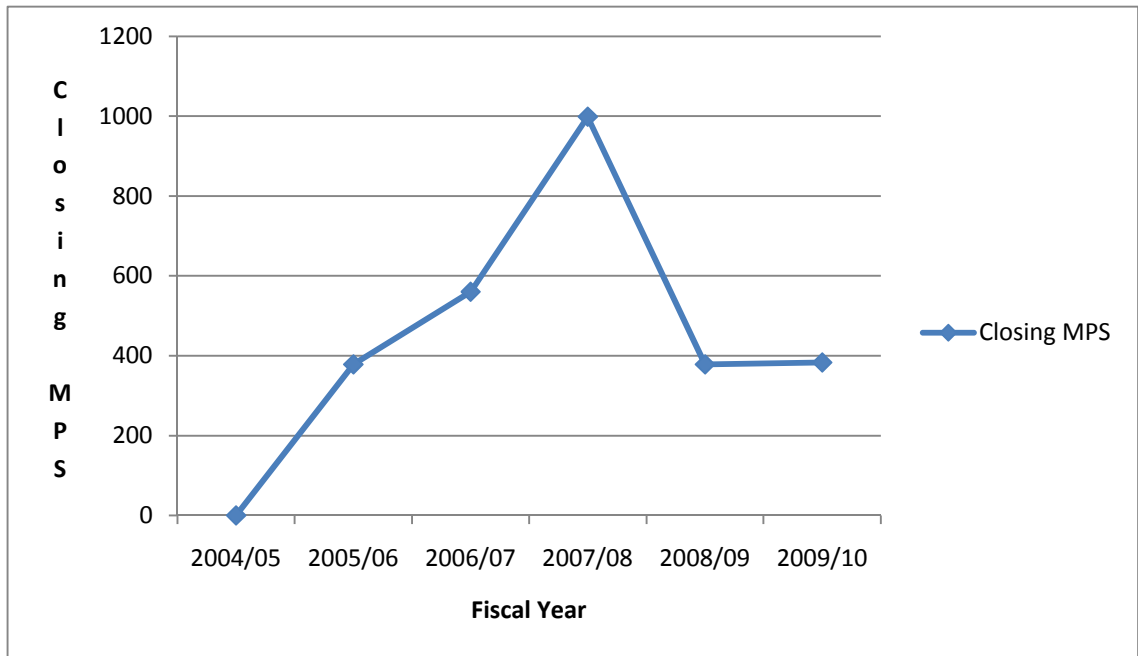


Table 8 : Statistical Analysis of the Common Stock of KIST

F/Y	Closing MPS	Total Dividend	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R-R	$(R-R)^2$
2003/04	-	-	-	-	-
2004/05	-	-	-	-	-
2005/06	378	10.53	-	-	-
2006/07	560	10.53	0.5093	0.3386	0.1146
2007/08	998	5	0.7911	0.6204	0.3849
2008/09	378	3.5	-0.6177	-0.7884	0.6216
Total			0.6827		1.1211

(Source: Refer Table 7)

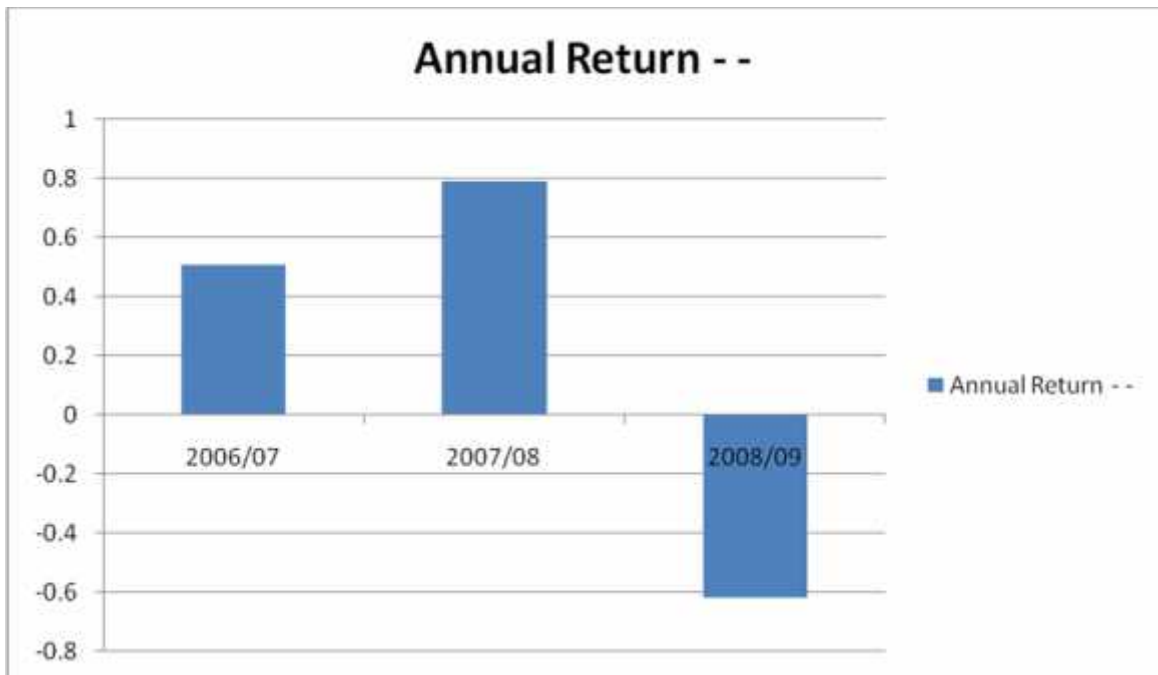
$$\text{Expected Return}(R) = R/n = 0.6827/4 = 0.1707$$

$$\text{Standard Deviation}(\sigma) = \sqrt{(R-R)^2 n/n-1} = \sqrt{1.1211/3} = 0.6113$$

$$\text{Coefficient of Variation(C.V.)} = \sigma/R = 0.6113/0.1707 = 0.3581$$

The expected return is 0.1707(17.07%). Its standard deviation is 0.6113(61.13%) and C.V. is 0.3581, which means that for earning 1 unit of return from the share of KIST, investors have to bear 0.3581 unit of risk. The annual return of KIST is increasing. KIST has highest return in the year 2007/08 and negative in the year 2008/09.

Figure 9 : Annual rate of return of Common Stock of Kist Bank



4.1.1.5 Laxmi Bank

Laxmi Bank was incorporated in April 2002 as the 16th commercial bank in Nepal. With total assets of NPR 20 billion at April 2010 and 22 branches across the country Laxmi Bank is amongst the top financial institutions in the country in terms of size and quality of operations.

In 2004 Laxmi Bank merged with HISEF Finance Limited, a first generation financial company which was the first and ever merger in the Nepali corporate history.

Laxmi Bank is a Category ‘A’ Financial Institution and re-registered in 2006 under the “Banks and Financial Institutions Act” of Nepal. The Bank’s shares are listed and actively traded in the Nepal Stock Exchange (NEPSE). It’s Authorized capital, issued capital and paid up capital are: 1,60,00,00,000, 1,09,80,86,100 and 1,09,80,86,100.

Table 9 : MPS, Dividend, EPS and P/E Ratio of LAXMI BANK

F/Y	Closing MPS	Dividend			EPS	P/E Ratio
		Cash	Stock (%)	Total Dividend		
2004/05	155	-	-		4.34	65.69
2005/06	368	-	-		5.80	63.44
2006/07	992	-	-		10.75	64.18
2007/08	1113	1.05	20	228.09	15.45	67.66
2008/09	1135	-	7	68.60	20.70	51.31
2009/10	980	-	5	5.00	20.70	51.31

(Source: Refer trading annual report)

In table 9 The closing MPS is in fluctuating nature. The lowest MPS is on the year 2004/05 and highest in the year 2008/09. The dividend is also fluctuating. The EPS is on increasing trend and P/E ratio is also in fluctuating trend.

Figure 10 : Year-End Price Movement of Common Stock of Laxmi Bank

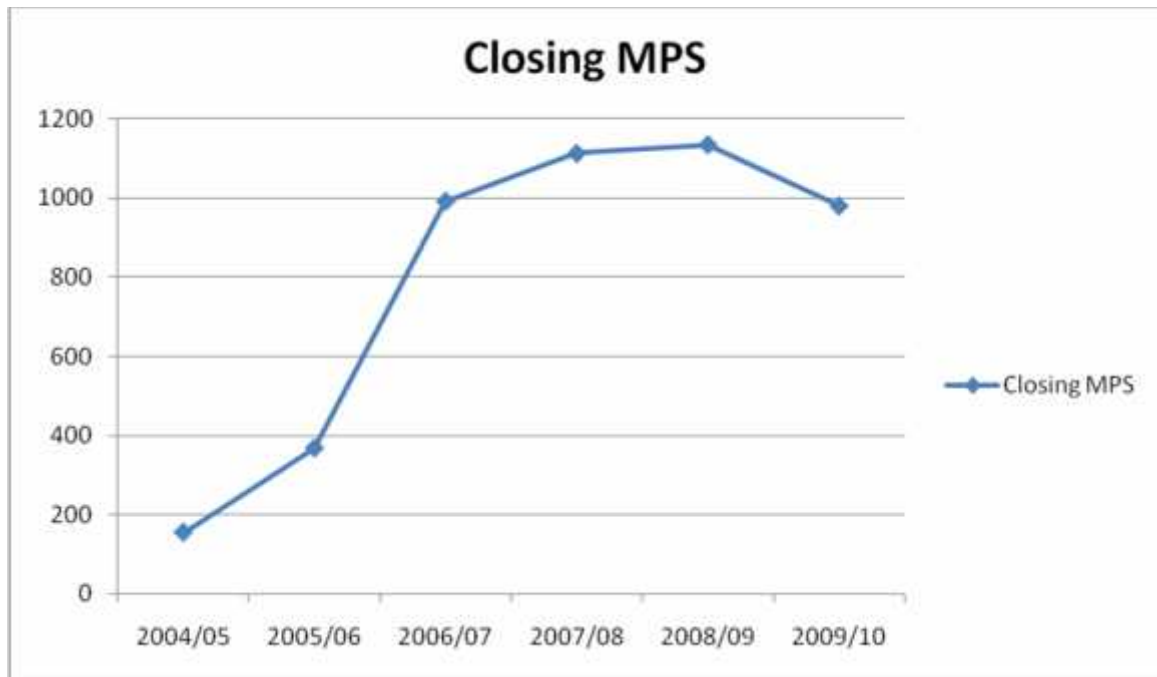


Table 10 : Statistical Analysis of the Common Stock of Laxmi Bank

F/Y	Closing MPS	Total Dividend	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	R-R	$(R-R)^2$
2003/04	-	-	-	-	-
2004/05	155	-	-	-	-
2005/06	368	-	1.3740	0.4983	0.2483
2006/07	992	-	1.6956	0.8199	0.6722
2007/08	1113	228.09	0.3519	-0.5238	0.2744
2008/09	1135	68.60	0.0814	-0.7943	0.6309
Total	980		3.5029		1.8258

(Source: Refer Table 9)

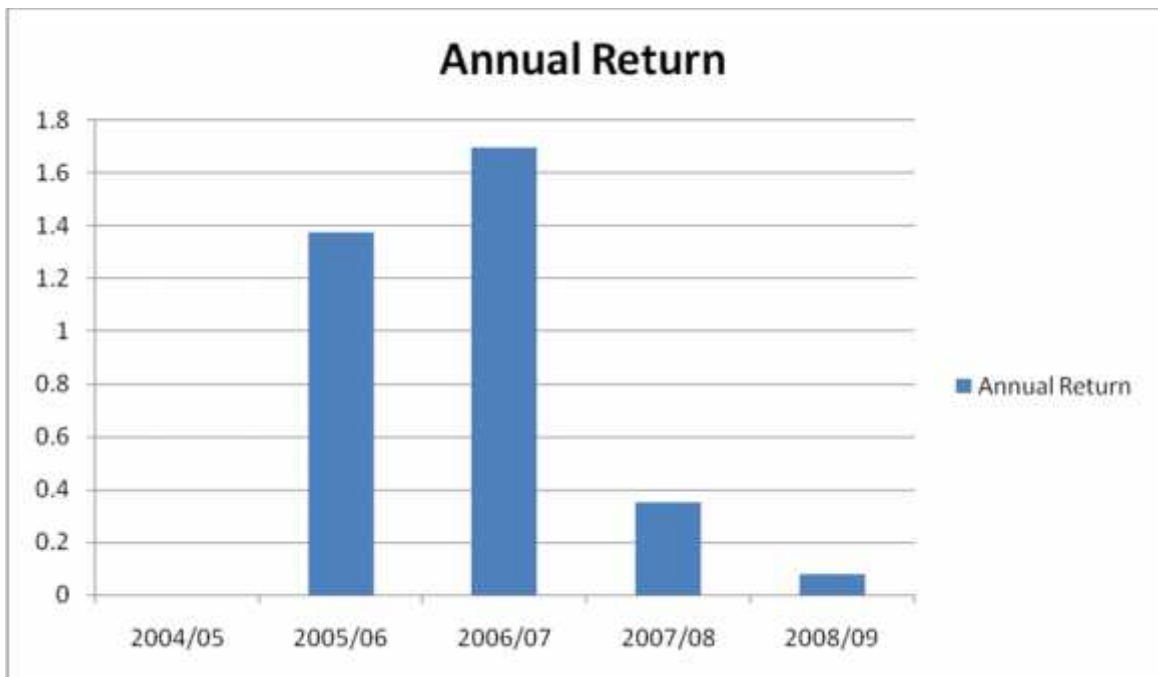
$$\text{Expected Return (R)} = R/n = 3.5029/4 = 0.8757$$

$$\text{Standard Deviation ()} = \sqrt{(R-R)^2/n-1} = \sqrt{1.8258/3} = 0.7801$$

$$\text{Coefficient of Variation (CV)} = \sigma/R = 0.7801/0.8757 = 0.8908.$$

The expected return of Laxmi Bank is 0.8757 (87.57%). During the fiscal year 2006/07 rate of return is very high whereas lowest in the year 2008/09. Standard deviation of Laxmi Bank is 0.7801 (78.01%). The CV is 0.8908, which means that to earn every extra 1 unit of return from common stock of Laxmi Bank investors must bear 0.8908 unit of risk.

Figure 11 : Annual Rate of Return of Common Stock of Laxmi Bank



4.2 Inter Company Comparison

Here, the summary of Expected Return, Standard Deviation and Coefficient of Variation of common Stock of 5 selected banks are presented below.

Table 11 : Expected Returns, S.D and C.V. of 5 selected Commercial Banks

S.N.	Banks	Expected Return	Standard Deviation	Coefficient of Variation
1	NIBL	0.4713	0.7372	1.5642
2	BOK	1.4990	0.8355	0.5574
3	HBL	0.4540	0.3528	0.7771
4	KIST	0.1707	0.6113	0.3581
5	LAXMI	0.8757	0.7801	0.8908

From Table 11, it is clear that expected return of BOK has highest return (149.9%) and KIST has lowest (17.07%). The C.V of NIBL has highest (1.5642) and KIST has the lowest (0.3581), that means the return of BOK is more volatile. Since KIST has least C.V., KIST can be considered as the best security for investment.

Figure 12 : Expected Returns, SD & CV of 5 Selected Commercial Banks

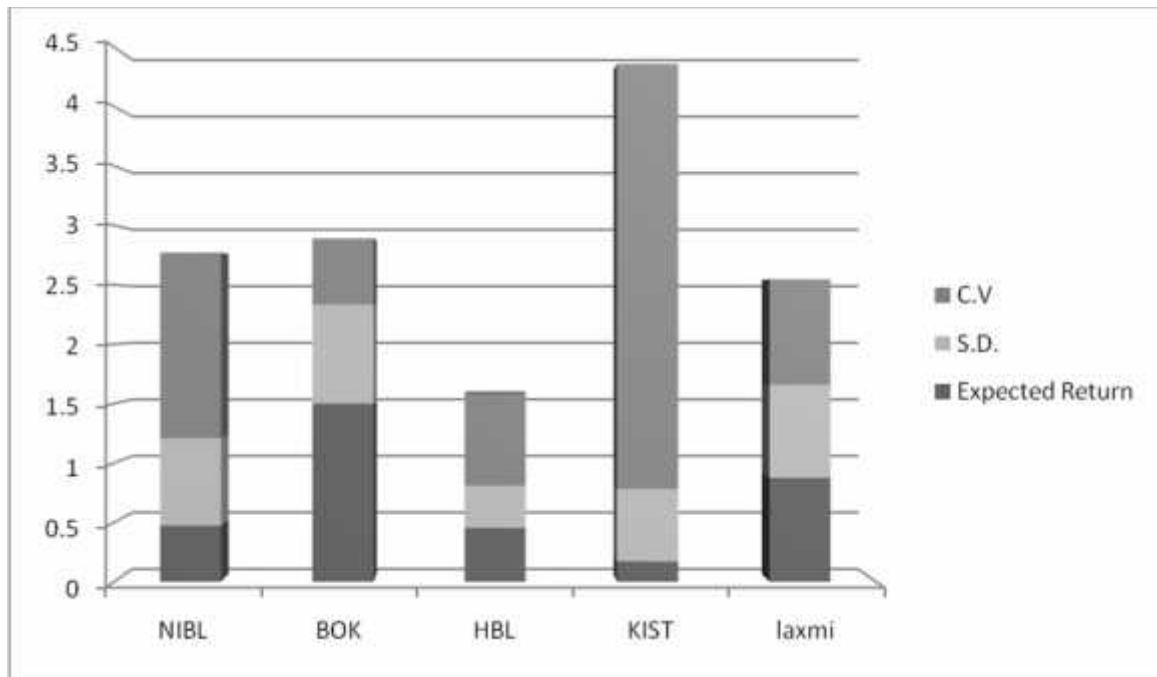
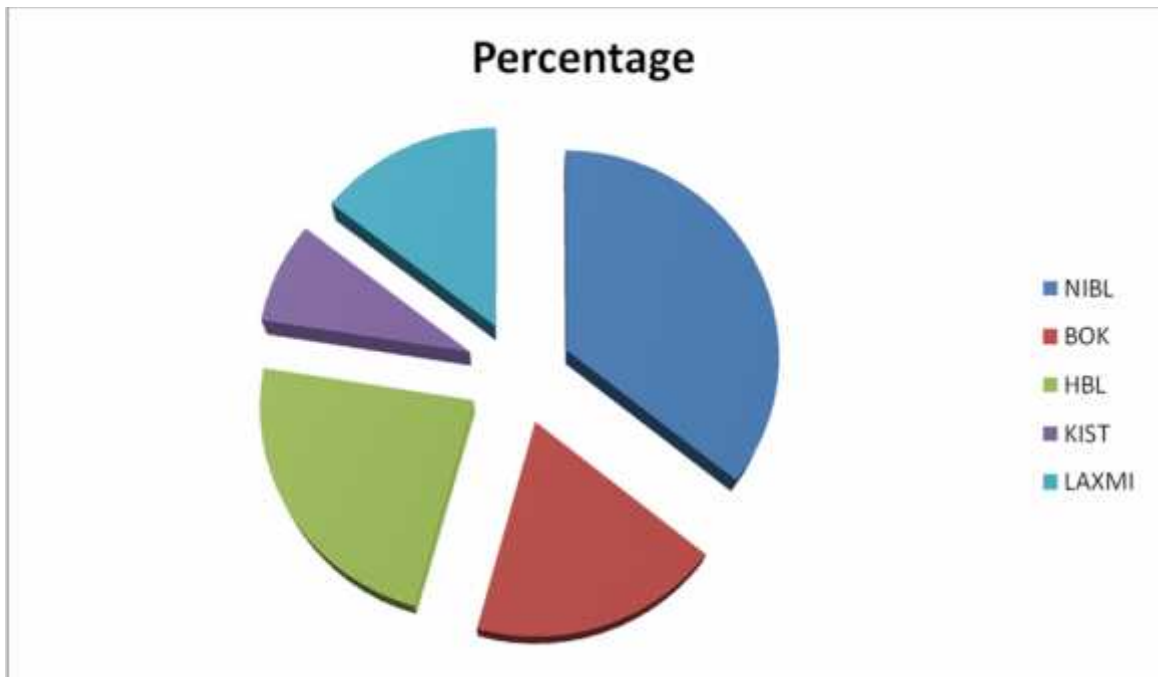


Table 12 : Market Capitalization of 5 selected Commercial Banks 15 July 2010

Name of Banks	Market Capitalization	Percentage(%)
NIBL	15,900,044,820.00	35.73
BOK	8,265,642,656.00	18.57
HBL	10,320,000,000.00	23.19
KIST	3,560,000,000.00	8.00
LAXMI	6,454,082,000.00	14.50
TOTAL	44,499,769,476.00	100

Source: Refer Trading Annual Report 15 July 2010

Figure 13 : Pie Chart



The figure 13 shows the comparative proportion of the market capitalization of listed 5 commercial banks. On the basis of the market capitalization, we can easily conclude that NIBL is the biggest and KIST is the smallest commercial bank.

4.3 INDUSTRY WISE COMPARISON

Here the entire sectors are listed in NEPSE are compared. To make the study simple firstly they are compared on the basis on their market capitalization and then compared on the basis on their NEPSE index.

Table 13 : Industry/Sector wise Market Capitalization at the end of the year

Industry Name	Market Capitalization	Percentage(%)
Commercial Banks	184,860,234,978.00	73.30
Finance	12,959,821,290.00	5.14
Insurance	8,886,317,300.00	3.52
Manufacturing	3,980,452,896.00	1.58
Hotel	2,317,817,862.00	0.92
Trading	21,522,525.00	0.01
Other	16,971,674.00	0.01
Hydropower	27,113,714,430.00	10.75
Development Banks	11,884,402,064.00	4.71
Preferred Stock	141,400,000.00	0.06
Mutual Fund	18,000,000.00	0.01
Total	252,200,655,019.00	100.00

Source: Refer Annual Trading Report

The table 13 shows that the total market capitalization of the different sector at the end of the fiscal year 2010/11. The total market capitalization of the commercial bank is the highest and the capitalization of others is lowest.

Figure 14 : Pie Chart

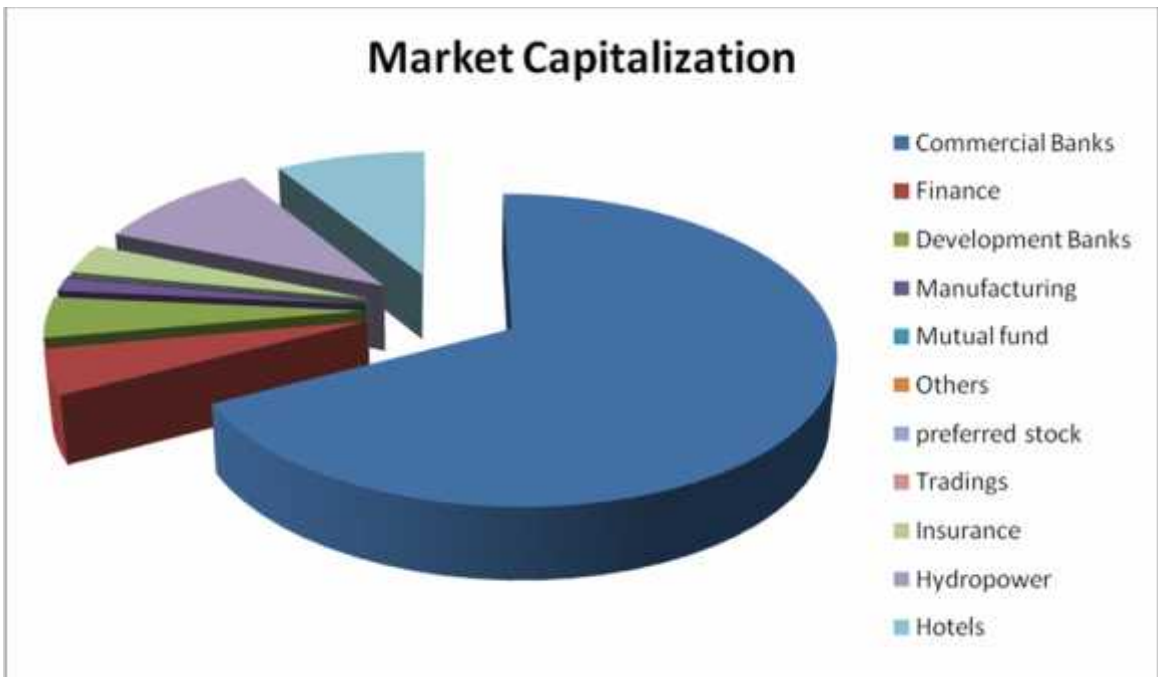


Table 14 : Market Capitalization of Different Sector during the Observation Period

F/Y Sector	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Comm. Bank	68841.24	13086.43	259955.3	218264.19	192611.17	174097.45
Manufacturing	4619.20	3760.28	7516.87	6576.18	5424.58	5491.21
Dev. Bank	1227.49	5980.80	17997.78	15619.36	16648.39	21458.39
Hotel	2393.61	1935.59	4809.65	3484.13	3346.41	3521.89
Trading	737.39	787.4	1170.24	686.73	980.70	1599.41
Insurance	4852.19	7959.78	11241.41	10897.16	8640.32	11285.39
Hydropower	-	-	-	25863.26	20769.65	18729.38
Others	8012.20	16503.02	25881.93	18.69	94350.00	69000.00
Mutual fund	-	-	-	247.00	260.00	318.30
Preferred S.	-	-	-	-	1906.00	1880.00
Finance	4930.63	11491.4	37674.43	27113.59	17342.23	21834.23

(Source: NEPSE)

Market Capitalization of all the listed companies shows the fluctuating nature. Market Capitalization of commercial banks, Finance, Hydropower, Development Bank, Insurance, Manufacturing are on the higher side whereas Hotel, Trading, Mutual fund and preferred stock are on the lower side of market capitalization.

Table 15 : Sector wise NEPSE Index

Sector \ F/Y	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Comm. Bank	304.64	325.35	789.21	985.70	780.87	764.48
Manufacturing	276.50	291.68	348.63	423.70	434.32	434.32
Dev.Bank	237.86	226.11	539.66	1285.90	772.56	764.01
Hotel	178.00	180.11	251.47	370.90	367.42	367.99
Trading	123.20	126.91	155.37	204.10	295.83	295.83
Insurance	320.24	321.38	612.46	817.30	656.41	657.31
Hydropower	-	-	-	1324.00	1044.81	1028.43
Others	347.65	335.09	818.93	768.30	738.99	724.89
Finance	228.39	229.69	471.82	1152.70	697.61	692.19
Market	302.78	286.67	683.95	963.36	749.10	749.10

(Source: NEPSE)

4.3.1 COMMERCIAL BANK SECTOR

Table 16 : Statistical Analysis of the Common Stock of Commercial Bank

F/Y	Commercial Bank Index	R = CMBI₁-CMBI₀	(R-R)	(R-R)²
2003/04	238.31	-	-	-
2004/05	304.64	0.2783	-0.0794	0.0063
2005/06	325.35	0.0600	-0.2977	0.0886
2006/07	789.21	1.4200	1.0623	1.1285
2007/08	985.70	0.2400	-0.1177	0.0139
2008/09	780.87	-0.2100	-0.5677	0.3223
Total				1.5596

(Source: Refer Table 15)

We have,

$$\text{Expected Return (R)} = \bar{R}/n = 1.7883/5 = 0.3577$$

$$\text{Standard Deviation (S.D)} = \sqrt{(R-R)^2/n-1} = 1.5596/4 = 0.6244$$

$$\text{Coefficient of Variation (C.V)} = \text{S.D}/\bar{R} = 0.6244/0.3577 = 1.7456$$

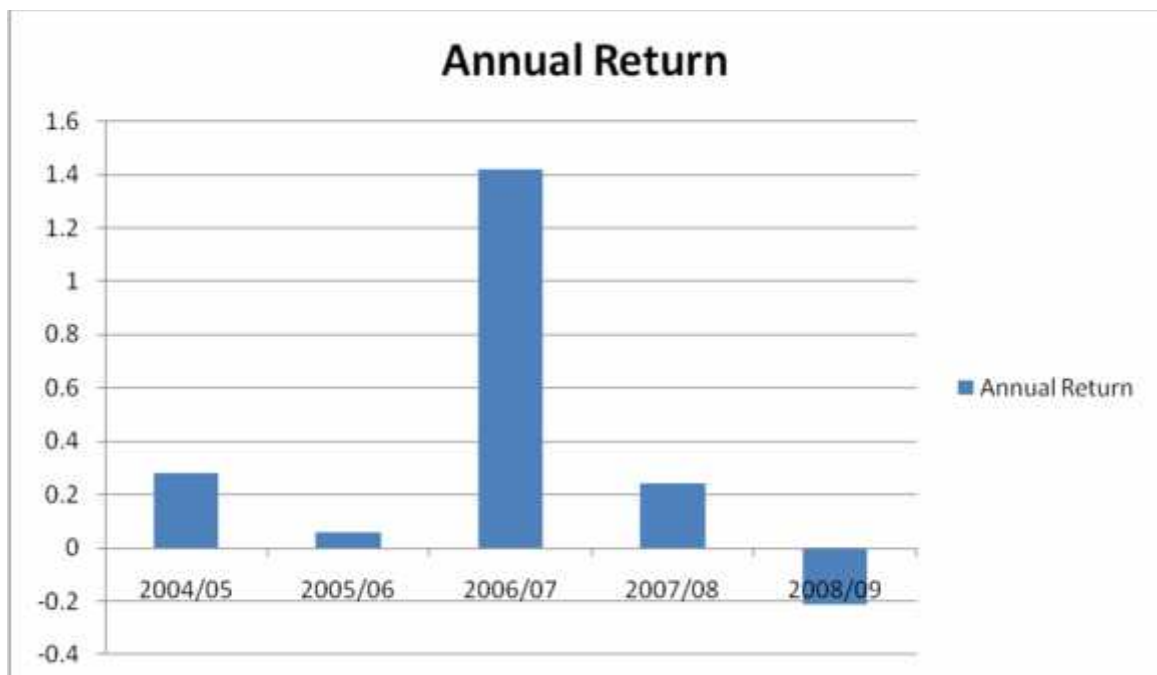
Where,

CMBI_0 = Starting Commercial Bank Index.

CMBI_1 = Ending Commercial Bank Index

The expected rate of return of commercial bank sector is 0.3577 i.e.35.77% and standard deviation is 0.6244 i.e. 62.44%. Therefore, risk is higher than the return. The C.V. of commercial bank sector is 1.7456. That means investor investing in this sector must be prepared to bear 1.7456 units of risk if he wants to earn 1 extra unit of return.

Figure 15 : Annual Rate of Return of Common Stock of Commercial Banks.



4.3.2 MARKET RISK AND RETURN

Table 17 : Expected Return, S.D and C.V of Market

F/Y	NEPSE Index(NI)	R_m	$NI_1 - NI_0$	$R_m - R_m$	$(R_m - R_m)^2$
			NI_0		
2003/04	302.78		-	-	-
2004/05	286.67		-0.0532	-0.3450	0.1190
2005/06	300.05		0.0467	-0.2451	0.0600
2006/07	683.95		1.2795	0.9877	0.9756
2007/08	963.36		0.4085	0.1167	0.0136
2008/09	749.10		-0.2224	-0.5142	0.2644
Total			1.4591		1.4326

(Source: Refer Table 15)

We have,

$$\text{Expected Return (R)} = R/n = 1.4591/5 = 0.2918$$

$$\text{Standard Deviation ()} = (R-R)^2/n-1 = 1.4326/4 = 0.5985$$

$$\text{Coefficient of Variation (C.V)} = /R = 0.5985/0.2918 = 2.0511$$

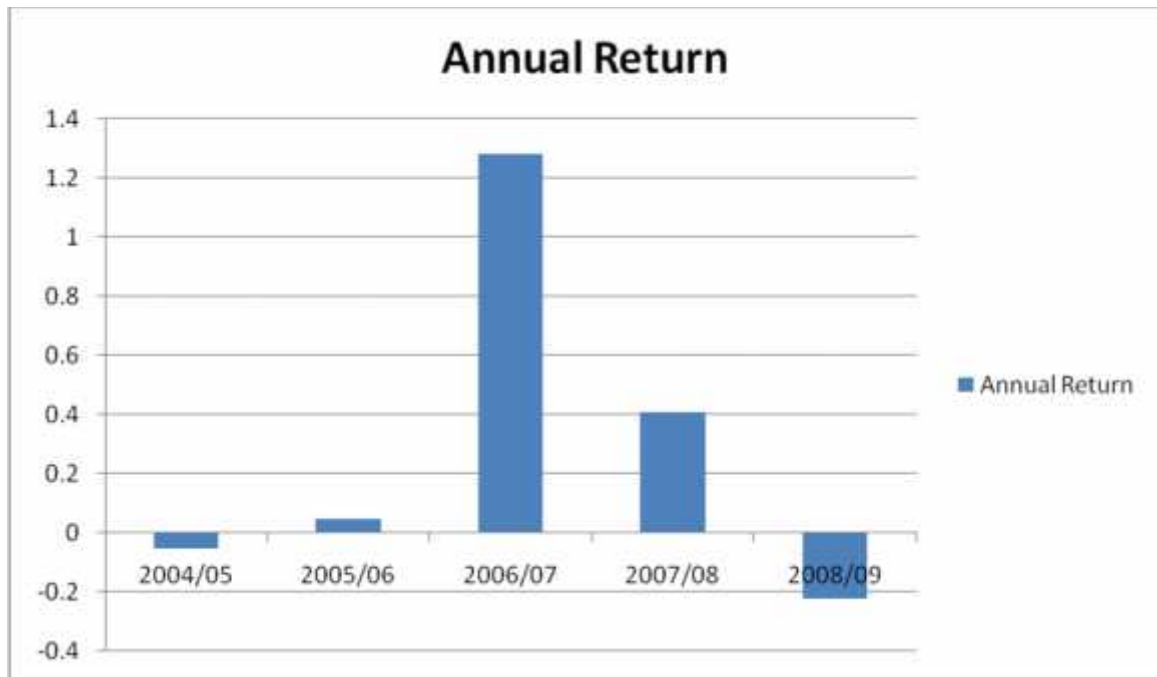
Where,

NI_0 = Starting NEPSE Index

NI_1 = Ending NEPSE Index

The expected return (R) of the market is 0.2918 i.e.29.18%. During the different year, the highest point of NEPSE Index was 963.36 recorded in the year 2007/08, while the lowest point was 286.67 recorded in the year 2004/05.

Figure 16 : Annual Rate of Return of Common Stock of Market



Note: Similarly we have calculated Expected Return, S.D & C.V each sector in the appendix A.

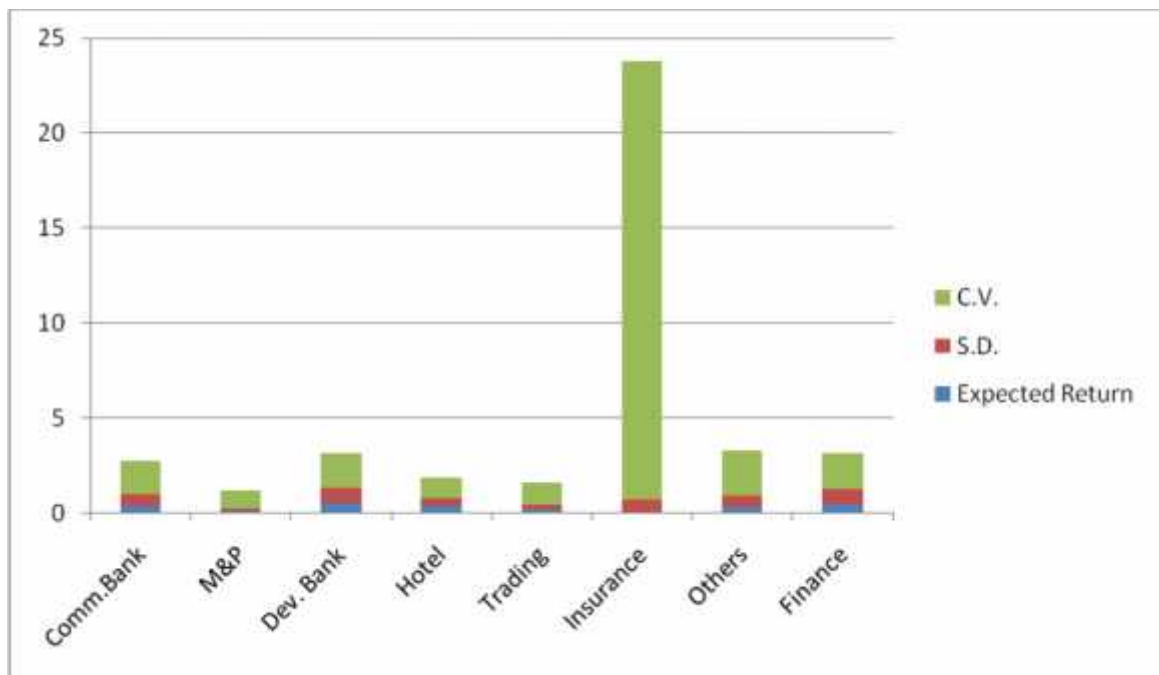
Table 18 : Expected Return, S.D & C.V of different Sectors

Sectors	Expected Return	S.D.	C.V.	Remark
Comm. Bank	0.3577	0.6244	1.7456	
M&P	0.0996	0.0981	0.9849	Best in C.V
Dev. Bank	0.4726	0.8488	1.7960	Best in ER
Hotel	0.3748	0.4066	1.0848	
Trading	0.1862	0.2154	1.1568	
Insurance	0.0289	0.6672	23.086	
Others	0.2789	0.6538	2.3442	
Finance	0.4134	0.8007	1.9369	
Market	0.2918	0.5985	2.0511	

(Source: Refer calculated value from table16, 17 and Appendix A)

In the table 18, Dev. Bank has highest expected return (47.26%) and insurance has the lowest return 0.0289 i.e (2.89%). The total risk is highest in Insurance and lowest in M&P sector. From the point of view of C.V, M&P sector is better as it has the least C.V (0.9849). So, we can conclude that it will be better to invest in M&P sector as it's risk is minimum and it has the least C.V.

Figure 17 : Expected Return, S.D and C.V. of different sectors



4.4 MARKET SENSITIVITY ANALYSIS

Market sensitivity of stock is explained by its beta coefficient. Higher beta represents greater sensitivity and higher reaction to the market movement and vice-versa. Beta is systematic risk which can't be reduced by diversification. Greater beta represents higher risk and higher return. It measures the responsiveness of a security movement in market portfolio.

For an individual stock, beta could be less than, more than or equal to 1 depending upon the volatility of that stock return relative to market return. The different values of beta can be defined as,

= 1, means average market return, hence commands average market risk premium.

< 1, means stock return is less sensitive to market fluctuation.

> 1, means stock return is more sensitive to market fluctuation.

The calculation of beta coefficient of the common stock of NIBL, shown in the table 19 whereas calculation of beta coefficient of BOK, HBL, KIST, Laxmi is shown in Appendix B.

Table 19 : Calculation of Beta Coefficient of the common stock of NIBL.

Fiscal Year	R_j	$R_j - R_m$	R_m	$R_m - R_m$	$(R_j - R_j)(R_m - R_m)$
2004/05	-0.1356	-0.6069	-0.0532	-0.3450	0.2094
2005/06	1.3664	0.8951	0.0467	-0.2451	-0.2194
2006/07	0.8623	0.391	1.2795	0.9877	0.3862
2007/08	0.6889	0.2176	0.4085	0.1167	0.0254
2008/09	-0.4253	-0.8966	-0.2224	-0.5142	0.4610
Total	2.3567				0.8626

Source: Refer Table 2 & 17

We have,

$$\text{Cov. } (R_j \cdot R_m) = (R_j - R_j)(R_m - R_m) / n - 1 = 0.8626 / 4 = 0.2157$$

$$j = \text{Cov.}(R_j \cdot R_m) = 0.2157 / 0.3582 = 0.6022$$

Where,

$$N = \text{No. of observation (period)} = 5$$

$$\sigma_m^2 = \text{Variance of market returns (NEPSE)} = 0.3582 \text{ (Source: Refer table no.18)}$$

The beta of NIBL is 0.6022.

Table 20 : Beta Coefficient of 5 selected Commercial Banks

S.N.	Commercial Banks	Beta Coefficient (β_j)
1	NIBL	0.6022
2	BOK	1.9084
3	HIBL	0.5606
4	KIST	0.5670
5	LAXMI	0.7225

(Source: Refer Calculated Value of Table 19 & Appendix B)

The Table 20 shows the beta coefficient of 5 selected commercial banks. The market beta serves as a benchmark for evaluation of risk of individual stock. Here, all the common stock of selected banks (except BOK) is less than 1. Hence the common stock of these banks is less sensitive. BOK has highest beta (1.9084) & HIBL has lowest beta (0.5606). Hence, the common stock of BOK are highly sensitive.

Here, using CAPM model, we have determined the RRR, ERR & price situation which are shown in Table 21.

Table 21 : RRR, ERR & Price Evaluation of 5 Commercial Banks

S.N	Commercial Banks	Beta ()	Riskfree Rate (R_f)	Market Return (R_m)	$RRR=R_f+(R_m-R_f) \beta_j$	ERR	Price situation
1	NIBL	0.6022	0.0871	0.2918	0.2104	0.4713	Under-price
2	BOK	1.9084	0.0871	0.2918	0.4778	1.4990	Under-price
3	HBL	0.5606	0.0871	0.2918	0.2019	0.4540	Under-price
4	KIST	0.5670	0.0871	0.2918	0.2033	0.1707	Over-price
5	LAXMI	0.7225	0.0871	0.2918	0.2350	0.8757	Under-price

(Source: Refer Table 20)

4.5 PORTFOLIO ANALYSIS

The analysis which we have carried out so far was based only in the investment in single security i.e. isolation. Nepalese investor is in the habit of investing their entire investment amount in single security due to which they are subjected to immense risk. If investor constructs a portfolio or groups in negatively correlated assets they can reduce unsystematic risk without losing their return.

The expected return of portfolio is simply a weighted average of the expected returns of the securities held in the portfolio. The weights are equal to the proportions of the total funds invested in each security. Portfolio analysis is performed to develop a portfolio that has maximum return at whatever level of risk, and investor feels appropriate.

The analysis is based on two assets portfolio and tools for analysis are already mentioned in the research methodology. Since the analysis is based on two assets portfolio, presents study still leaves scope for further diversification.

Here, we have tried to construct a portfolio between two commercial banks, which we have included in our study. The banks choose for portfolios are NIBL & HBL. Let us suppose the common stock of NIBL as stock A and that of HBL as stock B.

Table 22 : Calculation of Cov.(R_A-R_A) AND Weight of Stock A & Stock B

Fiscal Year	(R _A -R _A)	(R _B -R _B)	(R _A -R _A) (R _B -R _B)
2004/05	-0.6069	-0.169	0.1026
2005/06	0.8951	-0.031	-0.0278
2006/07	0.3910	0.609	0.2381
2007/08	0.2176	-0.115	-0.0250
2008/09	-0.8966	-0.290	0.2600
			0.5479

(Source: Refer Table 2 &6)

We have,

$$\text{Cov}(R_A, R_B) = (R_A - R_A)(R_B - R_B) / n - 1 = 0.5479 / 4 = 0.1369$$

$$\begin{aligned} W_A &= \frac{\sigma_B^2 - \text{Cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}(R_A, R_B)} \\ &= 0.1245 - 0.1369 / 0.5435 + 0.1245 - 2 * 0.1369 \\ &= -0.0124 / 0.3944 = -0.0314 \end{aligned}$$

$$W_B = 1 - W_A = 1 - (-0.0314) = 1.0314$$

Correlation between stock A & Stock B

$$(r_{AB}) = \text{Cov}(R_A, R_B) / \sigma_A \cdot \sigma_B = 0.1369 / 0.7372 * 0.3528 = 0.1369 / 0.2601 = 0.5263$$

Here,

W_A = Optimal Weight to invest on stock of NIBL.

W_B = Optimal weight to invest on stock of HBL.

$$\sigma_A^2 = \text{Variance of NIBL (S\>D\> value taken from table 2)}$$

$$\sigma_B^2 = \text{Variance of HBL (S\>D\> value taken from table 6)}$$

The correlation of NIBL & HBL is highly positive. If price of stock of NIBL falls then stock price of HBL also falls and vice-versa.

Calculation of Portfolio Return

It is the combination of two or more securities or assets and portfolio return is simply a weighted average of the individual stock return.

$$\begin{aligned} R_p &= W_A R_A + W_B R_B \\ &= -0.0314 * 0.4713 + 1.0314 * 0.454 \\ &= 0.4535. \end{aligned}$$

Where,

R_p = Expected Return on portfolio of Stock A and Stock B

R_A = Expected Return of Stock A i.e. NIBL (From table 2)

R_B = Expected Return of Stock B i.e. HBL (From table 6)

Calculation of Portfolio Risk

It is function of the proportion invested in components, the risk of the components and correlation of the returns on the component stock. It is measured by the combined standard deviation of the individual stock return.

$$\begin{aligned} \sigma_p^2 &= W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{COV}_{AB} \\ &= (-0.0314)^2 * 0.5436 + (1.0314)^2 * 0.1245 + 2(-0.0314) * 1.0314 * 0.1369 \\ &= 1.06 \end{aligned}$$

Here,

σ_p = Standard Deviation of portfolio return of stock A & B which measures portfolio risk.

From the above result it is clear that Return (0.4535) is less than its risk 1.06. So, the portfolio construction is not beneficial for investment.

4.6 MAJOR FINDINGS

The major findings of the study are summarized below:

Expected return, S.D. and C.V. of banks are as below

S.N.	Banks	Expected Return	Standard Deviation	Coefficient of Variation
1	NIBL	0.4713	0.7372	1.5642
2	BOK	1.4990	0.8355	0.5574
3	HBL	0.4540	0.3528	0.7771
4	KIST	0.1707	0.6113	0.3581
5	LAXMI	0.8757	0.7801	0.8908

On the basis of C.V. the coefficient of variation of KIST bank is low. So, KIST is considered as best for investment as it has least C.V.

Expected Return, S.D. & C.V. of different Sector

S.N.	Sectors	Expected Return	Standard Deviation	C.V.	Remarks
1	Com. Bank	0.3577	0.6244	1.7456	
2	Manuf. & Proc.	0.0996	0.0981	0.9849	Best in C.V.
3	Dev. Bank	0.4726	0.8488	1.7960	Best in ER
4	Hotel	0.3748	0.4066	1.0848	
5	Trading	0.1862	0.2154	1.1568	
6	Insurance	0.0289	0.6672	23.086	
7	Others	0.2789	0.6538	2.3442	
8	Finance	0.4134	0.8001	1.9369	
9	Market	0.2918	0.5985	2.0511	

Expected Return of Dev. Bank is high i.e. 47.26%, S.D. of Dev. Bank is high and M&P sector has least C.V. i.e. 0.9849.

Systematic risk of different listed banks under study are as below:

S.N.	Commercial Banks	Beta Coefficient()
1	NIBL	0.6022
2	BOK	1.9084
3	HBL	0.5606
4	KIST	0.5670
5	LAXMI	0.7225

It shows BOK's common stock is high sensitive as it has high beta and HBL's common stock is least sensitive as it has lowest beta.

Portfolio construction can reduce the risk and increase their chance of acquiring higher return. Portfolio must be constructed wisely to deal with the Up's and downs of the market.

The correlation between NIBL and HBL is positive. If the price of stock of NIBL falls than stock price of HBL also falls and vice-versa.

While creating the portfolio between two assets (NIBL & HBL), Return (0.4535) is less than it's risk (1.06). So, the portfolio construction is not beneficial for investment.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents summary in the first section where the whole study is summarized and the second section includes drawn from the study whereas the final section gives recommendation to the problem observed on the basis of the findings.

5.1 SUMMARY

Risk and return plays the vital role in the analysis of any investment. Common stock is the most risky security. Investor's perception, attitude, belief, risks handling behavior also plays vital role in investment. No investor's like to invest in risky security unless he is assured of adequate return as compensation for the acceptance of risk. Diversification also lowers the risk of the portfolio.

Common stock is life blood of stock market. Because of the higher expected return, an investment in common stock of a corporate firm neither ensures an annual return or principal. Therefore, investment in the common stock is very sensitive on the ground of the risk. Dividend to common stock holders is paid only if the firms make an operating profit after tax and preference dividend.

People's participation in the security investment and it's dynamic trading plays a vital role in the overall economic development of the nation. The investment environment detects the availability of investment opportunities. The central focus of the study is the risk and return trade-off. Nepal stock market has been passing through the transitional phase and has to face various obstacles and hindrances. Nepalese capital market is gradually growing or showing improvements. Although the stock market investment is

assumed least understood, investor's attitude regarding financial investment is increasing especially investment in common stock due to high return associated with it. Because of limited industries in Nepal, there is limitation of investment opportunities. Due to lack of proper information and alternative investors in Nepal are making blind investment.

Since the main objective of this study is to analyze the risk and return of common stock, the study is focused on the common stock of listed commercial banks. Five listed commercial banks are taken into consideration to analyze the risk and return of common stock investment. While analyzing the risk and return, a brief review of the literature has also been conducted with the aim of providing help to this study. Sound methodology has been used for the analysis of the collected information. Both financial and statistical tools have been used for analysis. Tables, graphs and figures are used to make the findings simple and easy to understand. The study primarily depends on the secondary data collected from Nepal Stock Exchange, NRB, the financial records of the studied banks and internet.

5.2 CONCLUSION

The major conclusions derived from this study are as follows:

- Stocks have greater risk than other form of securities hence investors must be prepared to face the ups and downs of the stock market.
- Return is the changes in the initial value plus any cash distribution in addition to the initial value. Expected return of CS of BOK is highest 149.9% whereas that of KIST is least at 17.07%. On the basis of sector wise comparison Dev. Bank has the maximum expected return 47.26%.

- From the investment point of view BOK is best, as it has very high return and moderate risk in comparison to its return.
- From the point of view of C.V, KIST is best, as it has least C.V
- Standard deviation & Coefficient of variation can measure the risk associated with the assets. S.D. measures unsystematic risk. The total investment risk associated with the common stock of banks are 73.72%, 83.55%, 35.28%, 61.13%, 78.01% of NIBL, BOK, HBL, KIST,LAXMI respectively. On the other sector, Dev. Bank has highest risk associated with its common stock of 84.88% whereas M & P has lowest risk of 9.81%. C.V. of Insurance has highest (23.08%) whereas M&P has least C.V. 0.9849.
- Beta which measures the systematic risk and is defined by market, explains the sensitivity or volatility of stock with market is used for ranking the systematic risk of various assets. The beta of BOK is highest (1.9084) & the beta of HBL is lowest (0.5606). So, shares of BOK are more volatile whereas shares of HBL are said to be less volatile.
- Comparison between the RRR & ERR helps us to identify whether the stock is under-priced or over-priced. All the common stock of selected banks except for KIST is under-priced.
- Most of the investors invest only keeping the return in mind but they are found unable to calculate the risk factor of the security. Most of the Nepalese private investor invests in single security. They do not analyze portfolio before selecting security. They invest their fund in different securities on the basis of expectation and assumption of individual securities rather than analysis of the effect of the

portfolio. It seems that they don't have knowledge of the risk diversification by using the portfolio of their investment.

5.3 RECOMMENDATION

Stock market is one of the very strong instruments of economic development in Nepal.

Since the economic activities of the nation get big boost by the effective functioning of the stock market is must for the country. Various problems are found in the stock market of Nepal, which has to be solved for effective mobilization of resources in the economy.

The following are the recommendation based on the basis of research work.

- Investors must focus on the risk factor before making an investment to get maximum benefit from the investment.
- Investors need to diversify fund to reduce risk, investing in fixed yielding securities can reduce risk.
- The similar stock cannot diversify the risk properly. Constructing portfolio rather than investing in single assets can reduce some risk.
- There is acute shortage of professional investors as well as information in Nepalese Stock Market. Trained personal, intensive information network and proper management of the transaction are required to uplift the stock market.
- Shareholders must sell the overvalued stock, as it is likely to result in loss whereas they should try to purchase the undervalued stock, as it will prove beneficial in future.
- The companies concerned must focus on decreasing systematic and unsystematic risk as it affects their business.

- Financial information must be published regularly so that existing as well as prospective investors are informed about the changes that take place.
- Investors can also evaluate the risk of the concerned companies by its beta. If the beta is greater than 1 it can be concluded that the company is risky. Risk averts must invest in companies having bets less than 1 whereas risk taker can invest in companies having beta mare than 1.
- Banking and financial sector seems to dominate our stock market due to which investors are also focused towards it which needs to be changed and participation of other sector must also be increased for overall development.
- Over the counter (OTC) market should be established so that the securities once de-listed from the NEPSE can be traded in the over the counter market. As a result investors donation have to lose liquidity when the stock exchange de- lists the security.
- Financial investment in Nepalese context has still been new phenomenon due to the lack of enough knowledge and awareness about it. So, effective programs in radio/ F.M/T.V/ should be conducted. Small or large types of seminars should be organized to increase awareness among the general people.
- All the concerned persons be it investors, stock markets staffs, government, policy maker or the respective companies is required to put some effort from their parts for the overall development of the stock market.

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www.nibl.com.np

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Appendices

Appendix A

Table 1: Expected Return, S.D. and C.V. of M&P

Fiscal Year	Year End Price (P)	R =	MI ₁ -MI ₀	R-R	(R-R) ²
			MI ₀		
2003/04	274.42		-	-	-
2004/05	276.5		0.0076	-0.0920	0.0085
2005/06	291.68		0.0549	-0.0447	0.0019
2006/07	348.63		0.1952	0.0956	0.0091
2007/08	423.70		0.2153	0.1157	0.0134
2008/09	434.32		0.0251	-0.0745	0.0056
Total			0.4981		0.385

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{0.4981}{5} = 0.0996$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{0.009625}{4}} = 0.0981$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.0981}{0.0996} = 0.9849$$

Where,

MP₀ = Starting M&P Sector's Index

MP₁ = Ending M&P Sector's Index

Table 2: Expected Return, S.D & C.V. of Dev. Bank

Fiscal Year	Year End Price (P)	R =	DB ₁ -DB ₀	R-R	(R-R) ²
			DB ₀		
2003/04	228.27		-	-	-
2004/05	237.86		0.0420	-0.4306	0.1854
2005/06	226.11		-0.0494	-0.5220	0.2725
2006/07	539.66		1.3867	0.9141	0.8356
2007/08	1285.9		1.3828	0.9102	0.8285
2008/09	772.56		-0.3992	-0.8718	0.7600
Total			2.3629		2.8820

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{2.3629}{5} = 0.4726$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{2.882}{4}} = 0.8488$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.8488}{0.4726} = 1.7960$$

Where,

DB₀ = Starting Dev. Bank Sector's Index

DB₁ = Ending Dev. Bank Sector's Index

Table 3: Expected Return, S.D. & C.V of Hotel

Fiscal Year	Year End Price (P)	R =	HI ₁ -HI ₀	R-R	(R-R) ²
			HI ₀		
2003/04	177.90		-	-	-
2004/05	178.00		0.0006	-0.3742	0.1400
2005/06	180.11		0.0119	-0.3629	0.1317
2006/07	251.47		0.3962	0.0214	0.0005
2007/08	370.90		0.4749	0.1001	0.0100
2008/09	367.42		0.9906	0.6158	0.3792
Total			1.8742		0.6614

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{1.8742}{5} = 0.3748$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{0.6614}{4}} = 0.4066$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.4066}{0.3748} = 1.0848$$

Where,

HI₀ = Starting Hotel Sector's Index

HI₁ = Ending Hotel Sector's Index

Table 4: Expected Return, S.D. & C.V of Trading

Fiscal Year	Year End Price (P)	R =	TI ₁ -TI ₀	R-R	(R-R) ²
			TI ₀		
2003/04	134.84		-	-	-
2004/05	123.20		-0.0863	-0.2725	0.0743
2005/06	126.91		0.0301	-0.1561	0.0244
2006/07	155.37		0.2242	0.0380	0.0014
2007/08	204.10		0.3136	0.1274	0.0162
2008/09	295.83		0.4494	0.2632	0.0693
Total			0.9310		0.1856

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{0.931}{5} = 0.1862$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{0.1856}{4}} = 0.2154$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.2154}{0.1862} = 1.1568$$

Where,

TI₀ = Starting Trading Sector Index

TI₁ = Ending Trading Sector Index

Table 5: Expected Return, S.D, & C.V of Insurance

Fiscal Year	Year End Price (P)	R =	$\Pi_1 - \Pi_0$	R-R	$(R-R)^2$
			Π_0		
2003/04	329.97		-	-	-
2004/05	320.24		-0.9022	-0.9311	0.8669
2005/06	321.38		0.0036	-0.0253	0.0006
2006/07	612.46		0.9057	0.8768	0.7688
2007/08	817.30		0.3345	0.3056	0.0934
2008/09	656.41		-0.1969	-0.2258	0.0509
Total			0.1447		1.7806

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{0.1447}{5} = 0.0289$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{1.7806}{4}} = 0.6672$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.6672}{0.0289} = 23.086$$

Where,

Π_0 = Starting Insurance Sector Index

Π_1 = Ending Insurance Sector Index

Table6: Expected Return, S.D & C.V of Other Sector

Fiscal Year	Year End Price (P)	R =	FI ₁ -FI ₀	R-R	(R-R) ²
			FI ₀		
2003/04	319.85		-	-	-
2004/05	347.65		0.0869	-0.1920	0.0369
2005/06	335.09		-0.0361	-0.3150	0.0992
2006/07	818.93		1.4439	1.1650	1.3572
2007/08	768.30		-0.0618	-0.3407	0.1161
2008/09	738.99		-0.0381	-0.3170	0.1005
Total			1.3948		1.7099

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{1.3948}{5} = 0.2789$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n-1}} = \sqrt{\frac{1.7099}{4}} = 0.6538$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.6538}{0.2789} = 2.3442$$

Where,

OI₀= Starting Other Sector Index

OI₁ = Ending other Sector Index

Table 7: Expected Return, S.D & C.V of Finance

Fiscal Year	Year End Price (P)	R =	FI ₁ -FI ₀	R-R	(R-R) ²
			FI ₀		
2003/04	246.54		-	-	-
2004/05	288.39		0.1682	-0.2452	0.0601
2005/06	229.69		-0.2035	-0.6169	0.3806
2006/07	471.82		1.0542	0.6408	0.4106
2007/08	1152.7		1.4431	1.0297	1.0603
2008/09	697.61		-0.3948	-0.8082	0.6532
Total			2.0672		2.5648

$$\text{Expected Return (R)} = \frac{\sum R}{n} = \frac{2.0672}{5} = 0.4134$$

$$\text{Standard Deviation (†)} = \sqrt{\frac{\sum (R - R)^2}{n - 1}} = \sqrt{\frac{2.5648}{4}} = 0.8007$$

$$\text{Coefficient of Variation (C.V)} = \frac{\dagger}{R} = \frac{0.8007}{0.4134} = 1.9369$$

Where,

FI₀= Starting Finance Sector Index

FI₁= Ending Finance Sector Index

Appendix B

Table 1: Calculation of Beta Coefficient of Common Stock of BOK

Fiscal Year	R_j	$R_j - R_m$	R_m	$R_m - R_m$	$(R_j - R_j)(R_m - R_m)$
2004/05	0.705	-0.794	-0.0532	-0.3450	0.2739
2005/06	1.903	0.404	0.0467	-0.2451	-0.0990
2006/07	2.697	1.198	1.2795	0.9877	1.1833
2007/08	1.443	-0.056	0.4085	0.1167	0.9934
2008/09	0.750	-0.744	-0.2224	-0.5142	0.3826
Total					2.7342

(Source: Refer Table 4 & 17)

We have,

$$COV(R_j, R_m) = \frac{\sum (R_j - R_j)(R_m - R_m)}{n - 1} = \frac{2.7342}{4} = 0.6836$$

$$j = \frac{COV(R_j, R_m)}{\uparrow^2_m} = \frac{0.6836}{0.3582} = 1.9084$$

Where,

N = No. of observation (Periods) = 5

\uparrow^2_m = Variance of Market Return = 0.3582 (Source: Refer Table 18)

Table 2: Calculation of Beta Coefficient of Common Stock of HBL

Fiscal Year	R_j	$R_j - R_m$	R_m	$R_m - R_m$	$(R_j - R_m)(R_m - R_m)$
2004/05	0.285	-0.169	-0.0532	-0.3450	0.0583
2005/06	0.423	-0.031	0.0467	-0.2451	0.0076
2006/07	1.063	0.609	1.2795	0.9877	0.6015
2007/08	0.339	-0.115	0.4085	0.1167	-0.0134
2008/09	0.164	-0.290	-0.2224	-0.5142	0.1491
Total					0.8031

(Source: Refer Table 6 &17)

We have,

$$COV(R_j, R_m) = \frac{\sum (R_j - R_m)(R_m - R_m)}{n - 1} = \frac{0.8031}{4} = 0.2008$$

$$\beta_j = \frac{COV(R_j, R_m)}{\sigma_m^2} = \frac{0.2008}{0.3582} = 0.5606$$

Where,

N = No. of observation (Periods) = 5

σ_m^2 = Variance of Market Return = 0.3582

(Source: Refer Table 18)

Table 3: Calculation of Beta Coefficient of Common Stock of KIST Bank

Fiscal Year	R_j	$R_j - R_j$	R_m	$R_m - R_m$	$(R_j - R_j)(R_m - R_m)$
2004/05	-	-	-0.0532	-0.345	-
2005/06	-	-	0.0467	-0.2451	-
2006/07	0.5093	0.3386	1.2795	0.9877	0.3344
2007/08	0.7911	0.6204	0.4085	0.1167	0.0724
2008/09	-0.6177	-0.7884	-0.2224	-0.5142	0.4054
Total					0.8122

(Source: Refer Table 8 &17)

We have,

$$COV(R_j, R_m) = \frac{\sum (R_j - R_j)(R_m - R_m)}{n - 1} = \frac{0.1822}{4} = 0.2031$$

$$\rho_j = \frac{COV(R_j, R_m)}{\sigma_m^2} = \frac{0.2031}{0.3582} = 0.5670$$

Where,

N = No. of observation (Periods) = 5

σ_m^2 = Variance of Market Return = 0.3582

(Source: Refer Table 18)

Table 4: Calculation of Beta Coefficient of Common Stock of LAXMI BANK

Fiscal Year	R_j	$R_j - R_m$	R_m	$R_m - R_m$	$(R_j - R_m)(R_m - R_m)$
2004/05	-	-	-0.0532	-0.3450	-
2005/06	1.3740	0.4983	0.0467	-0.2451	-0.1221
2006/07	1.6956	0.8199	1.2795	0.9877	0.8098
2007/08	0.3519	-0.5238	0.4085	0.1167	-0.0611
2008/09	0.0814	-0.7943	-0.2224	-0.5142	0.4084
Total					1.0350

(Source: Refer Table 10 & 17)

We have,

$$\text{COV}(R_j, R_m) = \frac{\sum (R_j - R_m)(R_m - R_m)}{n - 1} = \frac{1.035}{4} = 0.2588$$

$$\beta_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{0.2588}{0.3582} = 0.7225$$

Where,

N = No. of observation (Periods) = 5

σ_m^2 = Variance of Market Return = 0.3582

(Source: Refer Table 18)

Appendix C

Table 1: Calculation of Weighted Beta of Commercial Banks

S.N	Banks	Market Capitalization	W_j	B_j	$W_j * B_j$
1	NIBL	14,575,041,085.00	0.3415	0.6022	0.2057
2	BOK	7,749,039,990.00	0.1815	1.9084	0.3464
3	HBL	10,000,000,000.00	0.2343	0.5606	0.1313
4	KIST	3,260,000,000.00	0.0764	0.567	0.0433
5	LAXMI	7,099,490,200.00	0.1663	0.7225	0.1201
Total		42,683,571,275.00	1		0.84

Table 2: Calculation of Estimated Population S.D. of Beta

S.N	Commercial Banks	Beta(β_j)	$\bar{\beta} - \beta_j$	$(\bar{\beta} - \beta_j)^2$
1	NIBL	0.6022	-0.2699	0.0728
2	BOK	1.9084	0.1279	0.0164
3	HBL	0.5606	-0.3115	0.0970
4	KIST	0.5670	-0.3051	0.0931
5	LAXMI	0.7225	-0.1496	0.0224
Total		4.3607		0.3017