COMPARATIVE FINANCIAL PERFORMANCE ANALYSIS OF COMMERCIAL BANKS OF NEPAL

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CHAPTER I
INTRODUCTION

1.1 Background of the Study

Securities market is recognized as an effective way of raising capital for commercial enterprises, and at the same time providing an investment opportunity for individuals and institutions. The activities of buying and selling securities in the securities markets are extremely important for the efficient allocation of capital within economies. The securities market is a prerequisite for the sound development of an economy because it not only provides stable long-term capital for companies and an effective savings vehicle for the public, but also functions as an efficient tool for resource allocation. Mass participation in country's industrialization process is possible only through the efficient mechanism of securities markets as it promotes efficient collection of small and scattered savings from the investors and provides returns to them in the form of dividend. A developed securities market is the medium through which only productive firms that have better performance can easily raise capital. In other words, well-developed capital markets enable high-quality firms to increasingly finance themselves from securities (bond and equity) rather than from bank loans. This type of behaviour of developed market enhances economic growth process by productivity growth (Shirai, 2004:189-208).

Capital plays a vital role in the economic development of a country. Nepal being one of the least developed countries in the world has to make every possible endeavour to efficiently mobilize the available capital. The need for securities market development in Nepal has been accepted reality, however, it has not been developed at desired rate. If we see the size of the market during the past 11 years (i.e., F/Y 1994/95-F/Y 2004/05), the annual average amount of public issue was Rs. 620.04 million, annual average amount of turnover was Rs. 1423.48 million, annual average paid up value of listed securities was Rs. 8197.96 million, annual average market capitalization was Rs. 30723.70 million, annual average percent of turnover on paid up value was 13.35, annual average percent of turnover on market capitalization was 4.30, and annual average percent of market capitalization on nominal GDP at market price was 8.11. The above indicators show that securities market has low level of resource

mobilization, low level of turnover, and low level of impact on national economy (Adhikari, 2004:75-79).

In the last few years basically after the restoration of democracy (1990) in the country the government's move towards liberalization and privatization have paved the way for economic growth and the resultant effect has been positive. The continuing development has helped in establishing many banks, financial institutions and industries under joint venture arrangements.

Economic prosperity is a function of banking development. Economic development is inevitable for the overall prosperity of the country. Well-developed banking system is the route for the economic prosperity. So, banking system is supposed to be the backbone of the nation, which supports for the establishment of industries, development and extension of national and international trade and mobilization of saving to the productive sectors.

The number of joint venture banks has been increasing so is the investment volume and opportunity in various sectors that extends to agriculture, industry commercial and social sectors. Among all the banks, 11 joint venture banks are listed in Nepal stock exchange in FY 2003/04, which claims the highest contribution on the market capitalization as compared to other sectors. As financial intermediary, the joint venture banks also play an important role as fiscal policy implementing body for central bank. The monetary structure involves analysis of the behaviour of banking system, so needs and importance of the commercial banks are increasing.

The First Joint Venture Bank is Nepal Arab Bank Limited (NABIL), which was established in 2041 B.S. There after Nepal Indosuez Bank Ltd. (2042 B.S.), Nepal Grindlays Bank (2043 B.S.), Himalayan Bank Ltd. (2049 B.S.), Nepal SBI Bank Ltd. (2050 B.S.) and other were established as JVBs.

A JVB is the joining of force between two or more enterprises for the purpose of carrying out a specific operation i.e. industrial/commercial investment, production or trade. By this definition, any agreement between two or more than two parties for specific purpose is called joint-venture (Radhaswami and Vashudevan 1996:351-353).

In global perspective, joint-ventures are the modes of credit through partnership among and also form of negotiations between various groups of traders and industries to achieve mutual exchange of goods and services for sharing competitive advantages. From the above definition, it is clear that a JV is a single business deal, which is jointly undertaken by two or more persons or parties with a view to making and sharing profit. The specific features of JV are as follows:

- It is confined to a single deal.
- A JV is limited to a single business adventures.
- Participants contribute capital for the JV and share profits and losses in proportion to their capital (investment) and
- The work of JV may be done by all the participants or by one participant.

Now a day, each and every managerial decision-making is based on financial analysis. It covers the acquisition, utilization, control and administration of fund. "Managerial finance is an interesting, exciting and dynamic area of study. And its importance to the long run success of today's business is unquestioned" (Lawrence, 1985). Common stockholders are residual owners of the firm. In real, they're the real owners of the firm. They invest in the firm. That is why, they participate in the management and entitled to all the profit left after all the liabilities or claims are satisfied. So, common stockholders have to bear all the risk relating to the business. Thus, common stock is the most risky security.

"The rights and responsibilities attached to equity consist of positive considerations (income potential and control of the firm) and negative considerations (loss potential, legal responsibility, and personal liability) (Weston and Copeland, 1992:931)."

Risk is the bitter truth of life, which is a product of future uncertainty and its magnitude depends upon the degree of variability in uncertain cash flow. Risk in fact, is an indication of chance of losing investment back. Interpretation of risk varies as per people's attitude towards it, in real; risk is any unknown unfavorable event. It real, risk is any unknown unfavorable event. It is a chance of happening some or huge unfavorable even or danger of losing some materials value.

"Risk was defined as the variability of possible outcomes from that which was expected " (Van Horne, 1999:72).

"Risk refers to the set of unique outcomes for a given even which can be assigned probabilities" (Khan and Jain, 1992).

"Risk is like pornography, it's hard to define, but you know it when you see it" (Van Horn and Wachowicz, 1986:89).

An investor always wants high return but low risk which is totally impossible. Where there is high return, there is high risk and vice-versa. To earn more return, people invest their wealth in common stock thinking that they will get the entire residual amount as dividend. But their expected return may or may not be high in reality. So, it can be easily conclude that return is uncertain. This uncertainty is the major risk to investor in common stock investment.

"Every investment entails some degree of risk, it requires a present certain sacrifice for a future uncertain benefit" (Francis, 2000:11).

"The return on investment is dividend plus, changes in market price of the share (MPS). It is expressed in percentage. Both of these items are uncertain. So, the actual return on investment in common stock may differ substantially from the expected return" (Malakar, 2001:32).

"Return is the income received in investment. People invest their belongings with an expectation of getting some reward for leaving its liquidity. They only invest in those opportunities where they can get higher return. Hence, investor wants favorable return to be yield by its stock. And go for those, which yield more" (Upadhya, 2001:25).

"The expected rate of return for any asset is the weighted average rate of return using then probability of each rate of return as the weight" (Francis, 2000:11)

1.1.1 A Brief Profile of Sample Banks

(a) Nepal Investment Bank Ltd. (NIBL)

Nepal Investment Bank Limited was established on 21 January 1986 as a third joint-venture bank under the company act, 1964. The bank is managed by Banque Indosuez Paris in accordance with joint-venture and technical services agreement signed between it and Nepali promoters. As mention in the NEPSE annual report main

objective of the bank is to provide loans and advances to the agriculture, industries and commerce and to provide modern banking services to the people. The banks issued capital paid up capital and authorized capital is Rs135,350,600.00, and 270,000000.00 respectively, with 2780 number of outstanding shareholders. Bank was listed in stock exchange at B.S 05/08/2044. It has four branches around the country.

(b) Nepal Arab Bank Ltd. (NABIL)

Nepal Arab Bank Ltd. is the first joint venture bank incorporated in 1984 A.D. (2041 B.S.) and listed in NEPSE in year 1986 A.D. (08/09/042 B.S.) in Nepal. Initially Dubai Bank Ltd. invested 50% of equity share of Nepal Arab Bank Limited. The shares owned by Dubai Bank Ltd. were transferred to Emirates Bank International Ltd. (EBIL), Dubai. Later on, EBIL sold its entire 50% equity holding to National Bank Ltd. Bangladesh (NBLB). NBLB is managing the bank in accordance with the technical services agreement signed between NBLB and the Bank (NABIL) on June 1995 … branches of the bank are in operation around the country. Authorized capital, issued capital and paid up capital of NABIL are Rs. 500000000, Rs. 491654400 and Rs. 491654400 respectively with per value per share Rs. 100 and number of shareholders is 5076.

(c) Bank of Kathmandu Ltd. (BOKL)

Bank of Kathmandu is the latest Joint- venture bank listed in NEPSE. It was established in 2050 B.S in collaboration with the SIAM commercial bank PCL of Thailand Under the company Act. The SIAM commercial bank out of 50% holding diluted its 25% holdings to the Nepalese citizen in 1998. The bank has two branches in operation. Bank of Kathmandu Limited is a culmination of a comprehensive vision of the promoters to take the Nepalese economy to a newer realm in the global market. Each promoter of Bank of Kathmandu has successfully demonstrated leadership skills, business acumen and entrepreneurial talents in his/her respective field

Bank of Kathmandu is committed to providing products and services of the highest standards to its customers by understanding their requirements best suiting the market needs. In pursuit to deliver the products and services of the highest standards, Bank of

Kathmandu has state-of-art technology for appropriate and efficient Management Information System (MIS) and rendering quality services, VSAT and Radio Modem for networking, SWIFT for international trade and transfer of funds around the world, correspondent banking relationships with over 200 banks worldwide for effective and proficient execution of international trade and remittance activities, gamut of corporate and retail banking products and services and centralized banking operations for better risk management, consistent service deliveries and lowering operating cost.

(d) Himalayan Bank Ltd. (HBL)

Himalayan Bank Limited was established in 1992 by the distinguished business personalities of Nepal in partnership with Employees Provident and Habib Bank Limited, one of the largest commercial banks of Pakistan. It is the first commercial bank of Nepal with maximum shareholding by the Nepalese private sector. Besides commercial activities, the Bank also offers industrial and merchant banking. The bank at present has the five branches in Kathmandu Valley, namely Thamel, New Road, Maharajgunj, Pulchowk (Patan), Kalimati and Nagarkot. Besides three branches outside Kathmandu in Birgunj, Bharatpur and Tandi. The Bank has a very aggressive plan of establishing more branches in different parts of the kingdom in the near future. Himalayan Bank's policy is to extend quality and personalized service to its customers as promptly as possible. All customers are treated with utmost courtesy as valued clients. The Bank, as far as possible, offers tailor. Made facilities to its clients, based on the unique needs and requirements. To extend more efficient services to its customers, Himalayan Bank has been adopting innovative and latest banking technology. This has not only helped the Bank to constantly improve its service level but has also kept it prepared for future adoption of new technology.

Himalayan Bank Limited was registered in 2049/10/05 and started its operation on the same date. Its authorized capital is Rs 60 corers and issued capital is 30 corers. It has 7210 shareholders and issued Rs 100 paid-up shares whose par value is also Rs 100. It has main aim of operation of collecting deposits under different accounts and granting loan to needy persons. It has positive role to strengthening the financial sector of Nepal. It is the first bank to register after the democratic government of Giriga Prasad Koirala which adopted liberal economic policy and called foreign investment in all sectors except defense and communication. 80 % of the investment of this bank is

made from Nepalese investors and 20% from foreign investors. The share is listed in Nepal Stock Exchange Ltd on 2050/03/21 BS.

(e) Standard Chartered Bank Nepal Limited

Standard Chartered Bank Nepal Limited (SCBL) which was formerly Nepal Gridlays Bank Limited (NGB) was established in 1985 as a second foreign joint venture bank under the company Act, 1964. ANZ Grindlays Bank PLC is the foreign joint venture partner with 50% equity investment. ANZ Grindlays Bank is managing the bank under joint venture and technical service agreement signed between ANZ Grindlys Bank PLC and Nepalese promoters.

Now, SCBL group had taken over ownership from ANZ Grindlays Bank in 17th Shrawan 2057 (2000). Due to change in 50% ownership, its name changed to standard Chartered Bank Nepal Limited. The main objective of the bank is to collect deposits and provide loans to agriculture, commerce and industry, apart from this it also provide modern banking services to the people. Its share's listing data in NEPSE is 20th Asadh 2045 (04-07-1988). The bank has authorized capital issued and paid up capital of Rs 339548800, Rs. 339548800 and Rs. 339548800. And their numbers of shareholders are 5037.

(f) Everest Bank Limited (EBL)

Everest Bank Limited (EBL) was established in 1994 and started its operations with a view and objective of extending professionalzed and efficient banking services to various segments of the society. EBL joined hands with Punjab National Bank (PNB), India as its joint venture partner in 1997. PNB is the largest Public Sector Bank of India having 109 years of banking history with more than 4400 offices all over India and is known for its strong systems and procedures and a distinct work culture The Bank's Paid-up Capital has increased to 455 million against the Authorized Capital of 750 million whereas the Core Capital of the Bank is around 700 million. The local Nepalese promoters hold 50% stock in the Bank's equity, while joint venture partner PNB contributes 20% of equity whereas the public holds remaining 30%. Despite fragile law and order situation especially during last 2-3 years, the Bank has doubled its deposits, advances as well as profits during the period. Its operating profit have

grown by 55% during the financial year 2060-61, the net profit has increased by 52%. The average credit growth has been over 26% reaching a figure of 6099 million, deposits having reached a figure of 8064 million, A notable feature of the bank's achievement is its containment of NPAs with gross NPAs restricted to 1.72% of the total credit whereas net NPA being reduced to NIL

1.2 Statement of the Problem

Recent trend shows that the general people are interested to invest their small money on the common stock of financial institutions like joint venture banks. But due to the lack of proper information about market status and situation and poor knowledge, market intermediaries exploit investors. Some times they think that investing in common stocks is intolerably hazardous. Due to this, many investors afraid to invest into stocks, this is the main problem that does not allow gearing up the capital market of the nation. The main problem for the individual investors are lack of proper information about market whereas the problem for financial sector to enhance the goodwill among the public due to frequent collapse of some finance companies being unable to utilize public funds properly. The investors are responsible to make rational investment decision. For this rational analytical knowledge is essential. The investor's attitude and perception also plays a vital role in rational decision regarding whether the investment should be made or not. We look in Nepal most of inventors invest their funds in a single security rather they can be benefited by investing in portfolio of securities and achieving diversification of risk. The main problem is that the general public cannot perfectly analyze the risk and return analysis of common stock of commercial banks in Nepal.

As the economic status and consciousness towards economic activities are very poor, development and growth of the capital market in Nepal is still in its infancy. Investors use their own guess and hunches to invest their wealth because they don't have any knowledge about financial assets and they also don't know to take decision to construct an ideal portfolio and to reach a profitable decision. Investors' of Nepal invest their wealth on the basis of looking the past trends of stock prices; so, some times they have to face heavy losses.

"People assume more risk in stock investment than its real risk. To boost confidence analysis in the field is a must. Unavailability of clear and simple techniques to analyze risk associated with return is also a constraint" (Upadhya, 2001:11).

Now, it become necessary to make polices, evaluate relative riskness of decision and impact to general investors by the security businesspersons, security manager, and stockbrokers.

The study deals with the following issues:

- How the investment decisions are to be taken?
- What are the factors affecting riskness of the securities?
- What are the comparative risk positions of selected joint venture banks?
- Does the risk and return of selected joint venture banks vary significantly?
- What is the systematic risk position in relation to total risk?
- Would portfolio construction within the selected joint venture banks be profitable?

Investment on common stock is the main sources of fund for the companies. The investors are the sources of revenue as a customer for the stockbrokers and financial institutions and ultimately they are the backbone of economic development of the nation. So every policy and plan of financial institutions and government also have to encourage them to invest on common stock. For this there is great need of such institutions, which can give valuable information that accelerates the stock investment and market efficiency.

1.3 Objectives of the Study

The main objective of the study is to analyze the risk and return of common stock investment of listed companies i.e. joint venture banks. The following are the specific objectives:

a. To analyze the volatility of common stock and riskness of the securities that should be considered while deciding investment in stock.
b. To evaluate common stock of selected listed companies i.e. joint venture banks in terms of risk and return and to perform sector comparison on the basis of market capitalization.
c. To find out the optimum portfolio within the selected joint venture banks

1.4 Significance of the Study

Open economic policy of the government encouraged the establishment of the financial institution. As result the people's participation in security investment and stock trading is increasing unexpectedly. The recent trend and people's attitude towards common stock investment shows that there is a high potentiality in stock investment, which results an increase in economic activity. It is important to increase financial and economic activities of the nation. Thus this study has tried to fulfill the need in this aspect. The study may also help for interested management. A part from above, this study will be a matter of interest for academicians, students and practitioners.

The focus of the study is on the analysis of risk and return, which will enable all the related persons to guide the investment related activities. Benefits of the study will receive primarily by potential investors. Security businesspersons, issue manager, broker and marketing managers will also be benefited by this study.

1.5 Limitations of the Study

This research explains and analyzes the subject matter with help of well known or already established analytical methods and techniques, therefore as a conclusion oriented research, it doesn't concern with fundamental and decision oriented research. Considering the above matter, following are the limitations of the research.

a. It only focuses on selected listed companies covering the period of last eight years.
b. This study is mainly based on published secondary data.
c. This study only concerns with the risk and return of selected listed companies i.e. joint venture banks.
d. Secondary data gathered from related sources has been used. The reliability depends on it.
e. This study has been conducted to fulfill the requirement of the MBS programs of T.U. for a prescribed time, not for generalization purpose.
f. Only risk and return of common stock would be analyzed.
g. In this study NEPSE is taken as basic source of data.
h. As a research student the study will be unbiased but resources and time period is limited.

i. The truth of the research result is based upon the available data from the NEPSE and other sources.

1.6 Organization of the Study

The present study is organized in five chapters. They are as follows:

Chapter -I introduces the background of the study, which includes; background, statement of the problem, objectives of study, significance of the study, limitations of the study and organization of the study.

Chapter -II introduces literature review. This chapter devoted for the brief review of literature available. Review from books, journals (articles), thesis etc are included in this chapter. Conceptual framework about risk and return is briefly reviewed.

Chapter -III introduces research methodology. This unit deals with the research methodology used in the study, which includes; research design, population and sample, sources of data and method of analysis.

Chapter IV incorporates with the analytical part of the study. In this chapter, data collected from various relevant sources is presented and analyzed using various statistical and non-statistical methods.

The last chapter -V presents the summary, conclusion and recommendations for further study. Bibliography and appendices are incorporated at the end of the study.

CHAPTER II
REVIEW OF LITERATURE

The chapter review of literature includes the review of concept and finding of previous research on the some field. Books, journals and unpublished thesis are reviewed for this purpose. In this regard, basic academic course book on finance, recently published books specially related to this topic, some of the major research based journals and the related studies are reviewed.

There is no any special book and research work about the topic "Risk and Return analysis of common stock, and we do not have sufficient required journals and relevant books. Some master degree thesis is available in Tribhuvan University, which are related to this topic to some extent. These theses are also reviewed to the extent they found related. In addition, independent studies carried out by well-known Nepalese financial experts are also taken into consideration.

2.1 Conceptual Framework

Investment decisions are influenced by various motives. Some people invest in a business to acquire control and enjoy the prestige associated with it. Most investor, however, are largely guided by the pecuniary motive of earning a return on their investment. The main focus of finance is trade off between risk and return. Here, the focus is its implication in the investment of common stock.

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

"Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory" (Pandey, 1997). What is risk? How is it measured? What is return? How is it measured? , are the basic question, which needs to be answered while making an investment decision. In this chapter, an attempt is made to

answer the logic of portfolio theory and the use of Capital Asset Pricing Model (CAPM) for valuing assets with a view to facilitate the investment decision.

2.1.1 Common Stock

Common stock represents equity, or an ownership position in a corporation. It is a residual claim, in the sense that creditors and preferred stockholders must be paid as scheduled before common stockholder can receive any payments. In bankruptcy common stockholders are, in principal, entitled to any value remaining after all other claims have been satisfied. The great advantage of the corporate form of organization is the limited liability of its owners. Common stocks are generally 'fully paid and non-assessable'; meaning that common stockholder may lose their initial investment but not more than that. That is if the corporation fails to meet its obligations, the stockholders cannot be forced to give the corporation the funds that are needed to pay off the obligations. However, as a result of such failure it is result of such failure it is possible that the value of a corporation's share will be negligible. This will result in the stockholders having lost an amount equal to the price previously paid to buy the shares.

2.1.2 Return on Common Stock

The cash payoffs to owners of common stocks are of two kinds:

i. Cash dividend
ii. Capital gain (loss)

As per Brealey and Myers, "If current price of a share is P0 that the expected price at the end of a year is P1 and that the expected dividend per share is Div1. The rate of return that investors expect from this share over the next year is defined as the expected dividend per share Div1 plus the expected price appreciation per share P1-P0 all divided by the price at the start of the year P0 which can be shown in the form of:

$$\text{Expected return} = R = \frac{Div_1 + P_1 + P_0}{P_0}$$

The return from holding an investment over some period, say a year, is simply any cash payments received due to ownership, plus the change in market price divided by the beginning price. Thus, the return comes from two sources: income and price appreciation (Barely and Myers, 1994:84).

For common stock, we may define single-period return as:

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

Where,

R = Actual/expected return

t = Particular time period in the past (future).

D_t = Stocks price at time period t.

P_{t-1} = Stocks price at time period t-1.

The above mentioned formulae can be used to find out both actual single-period return (when based on historical data) as well as expected single period return (when based on future expected dividends and prices).

(The term in the parenthesis in the numerator of above equation represents the capital gain or loss during the period.)

“Holding period return measure mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate of return as an investment yield. The yield calculation is presented value-based and this considers the time value of money” (Barely and Myers, 1994).

“Return is defined as the divided yield plus the capital gain or loss. The relationship between different levels of return on their relative frequencies is called a probability distribution. We could formulate a probability distribution for the relative frequency of a firm’s annual 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 historical data plus the analysis for the outlook for the economy and the outlook for the industry, the outlook for the firm in its industry and another factors” (Barely and Myers, 1994).

2.1.3 The Risk on Common Stock

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

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Different people interpret uncertainties and risks in different ways. For some, uncertainly is simply a lack of definite outcome; it is anything that could happen any unknown event, which may be favorable or unfavorable. To other, it is a risk, many people consider risk as a chance of happening some unfavorable event or danger or losing some value. The trouble of uncertainty are risk, people often use them interchangeably.

Although the meaning of these two terms may differ, authorities in the field of finance and people concern about fiancé do agree that the risk is the outcome of uncertainty.

If we agree to interpret certainty as a future outcome, which is a hundred percent sure to happen, then uncertainly is nothing but just the opposite of certainty that refers to all possible future outcomes none of which is known for sure to happen. On the other hand, risk is the outcome of all potential future outcomes presented with probability associated with each of them and it is measured in terms of the degree of variability in the probability distribution of each outcome.

In the case of financial analysis, definitely, risk and uncertainly are treated separately. The practice is to translate the uncertainty in to mathematical value, which denotes the best estimate of all uncertainty values. In other words, uncertainty is taken care by calculating the expected value of all possible uncertain outcomes. However, risk is

treated differently. Although uncertainty is the root cause of risk, its magnitude depends upon the degree of variability in uncertain cash flows, and it is measured in terms of standard deviation. In project analysis, risk, in fact is an indication of chance of lossing investment value. The word chance refers to the probability of loss in the investment project, here. In other words, the project risk indicates the probability of return being less than the expected value-higher the probability of such loss and less return higher the project risk.

Risk is the unlooked for the unwanted event in the future; some one had said that risk was the sugar and salt of the life. “Risk, defined most generally, is the probability of the occurrence of unfavorable outcomes. But risk has different meaning in different contexts. In our context, two measures developed from the probability distribution have been based as initial measures of return and risk. They are the mean and standard deviation of the probability distribution” (Weston and Brigham, 1995:182-183)

Being a complicated subject, risk needs to be properly analyzed. The relationship between risk and return is described by investors’ perception about risk and their demand for compensation. No investor will like to invest in risky assets unless he/she is assured of adequate compensation of 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, required risk premium that establishes a link between risk and return. In a market dominated by rational investors, higher risk will command by rational premium and the trade-of between the two assumes a linear relationship between risk and risk premium.

On the topic of book review, here we consider some books for literature review and to get sound knowledge about subject matter of investment analysis, portfolio, CAPM, SML which are concerned about the analysis of risk and return of market as well as individual assets including common stocks.

Portfolio Analysis

The investment process consists of two tasks. The first task is security analysis, which focuses on assessing the risk and return characteristics of the available investment

vehicles. The second task is portfolio selection, which involves choosing the best possible portfolio from the set of feasible portfolios.

A portfolio is a combination of investment assets. The portfolio is the holding of security and investment in financial assets i.e. bond, stock. Portfolio management is related to the efficient portfolio investment in financial assets (Francis, 2000:231).

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Superfluous Diversification (Over Diversification)

If refers to the investor spreading himself in so investments on his portfolio. The investor finds it impossible to manage the assets on his portfolio because the management of a large number of assets requires knowledge of the liquidity of each investment, return; tax liability and this will become impossible without specialized knowledge. He also finds it both difficult and expensive to look after a large number of investments. If the plans to switch over investments often selling and buying assets expecting a high rate of return, he involves himself in high transaction costs and more money will be spent in managing superfluous diversification. It will be very difficult for him to measure the return on each of his investments. All those problems may result in inadequate return.

Diversification across Industries

Some investment counselors advocate selecting securities from different industries to achieve better diversification. It is certainly better to follow this advice than to select all the securities in a portfolio from one industry.

Simply Diversification across Quality Rating Categories

Simply Diversification reduces risk within categories of stocks that all have the same quality rating.

Assets Allocation

Francis, Jack Clark writes, assets allocation decisions deal with attaining the optional proportions of investment from different assets categories. Portfolio manager focuses primarily on the stock-bond mix, the decision often boils down to trying to determine the best long-run stock-bond distribution.

Portfolio Analysis with Negative Weights

If an asset has a negative weight, two economic interpretations are possible. First, a negative weight can be used to represent a short sale. Second a negative weight may indicate that the investor created a leveraged (borrowed, or margined) portfolio by selling (issuing) a security that has the same risk and return statistics as the asset with the negative weight (Francis, 2000:400).

He has fixed the following primary and secondary objectives of the portfolio analysis:

1. Primary objectives
   a. To maximize return
   b. To minimize risk
2. Secondary objectives
   a. Regular returns b. Stable income c. Appreciation of capital
   d. Ever liquidity e. Easy marketability e. Safety of investment
   f. Tax benefits

In another book, “Financial Management” I.M. Pandey also reviewed here. He writes - “The portfolio theory provides a normative approach to the investors’ decision to investment in assets or securities under risk” (Pandey, 1997:329). It is based on the assumption that investors are risk-averse. This implies that investors hold well-

diversified portfolios instead of investing their wealth in a single assets or security. A portfolio is a bundle or combination of individual assets or securities. If investor holds a well-diversified portfolio, then his concern should be the expected return and risk of portfolio rather than individual assets or securities. The second assumption of the portfolio rather theory, according to him, is that returns of securities are normally distributed. This means that the mean (the expected value) and variance (or standard deviation) analysis is the foundation of the portfolio decisions.

Markowitz's Diversification

Portfolio theory, originally proposed by Harry Markowitz in the 1950s, was the first formal attempt to qualify the risk of portfolio and develops a methodology for determining the optimal portfolio. Prior to the development of portfolio theory, investors somewhat loosely dealt with the concepts of return and risk. Intuitively smart investors knew the benefit of diversification, which is reflected in the tradition adage: "Do not put all your eggs in one basket." Harry Markowitz was the first person to show quantitatively why and how diversification reduces risk. Markowitz diversification is combining the assets, which are less than perfect positively correlated in order to reduce portfolio risk. It can sometimes reduce the risk below the undiversifiable level. Markowitz's diversification is more analytical than simple diversification and consider asset's correlation (or covariance). The lower the correlation between assets, the more the Markowitz diversification will be able to reduce the portfolio's risk.

Sharpe: The Single Index Model (SIM)

Constructing the Optimal Portfolio

"The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R}$ -T)/βim where $\tilde{R}$ i is the expected return on security i, T is the return on a riskless asset, and βim is the expected change in the rate of return on security i associated with a 1 percent change in the market return. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of $(\tilde{R}$ -T)/βim will be included and all

securities with lower rates excluded. Selecting the optimal portfolio involves the comparison of ($\tilde{R}$ i -T)/βim with C*. All securities whose excess return-to-risk ratios are above the cut-off rate are selected and all those whose ratios are below are rejected. The value of C* is computed from the characteristics of all of the securities that belong in the optimum portfolio. To determine C*, it is necessary to calculate its values as if there are different numbers of securities in the optimum portfolio.

Suppose Ci is candidate of C*, the value of Ci is calculated when i securities are assumed to belong to the optimal portfolio" (Bhalla, 2001:533-535).

"Since securities are ranked from highest excess return to beta to lowest, we know that if a particular security belongs in the optimal portfolio, all higher ranked securities also belong in the optimal portfolio. We proceed to calculate values of a variable Ci as if the first ranked security were in the optimal portfolio (i=1), then the first and second ranked securities were in the optimal portfolio (i=2), and so on. These Ci are candidates for C*. We have found the optimum Ci, that is, C*, when all securities used in the calculation of Ci have excess return to beta above Ci and all securities not used to calculate Ci have excess return to betas below Ci. There will always be one and only one Ci with this property and it is C*" (Bhalla, 2001:534). For a portfolio of i securities, Ci is given by:

$$C_i = \frac{\sigma^2_m \sum_{i=1}^{i} \frac{\left(\tilde{R}_i - T\right)\beta_{im}}{\sigma^2_{ei}}}{1 + \sigma^2_m \sum_{i=1}^{i} \frac{\beta^2_{im}}{\sigma^2_{ei}}}$$

Where:,

σ^2_m = variance of the market index

σ^2_{ei} = variance of a security's movement that is associated with the movement of the market index;

"To construct the optimum portfolio, the percent invested for each selected security in the optimal portfolio is to be calculated. The percentage invested in each security is:

$$X_i^0 = \frac{Z_i}{\sum_{j=1}^{n} Z_j}$$

Where

$$Z_i = \frac{\beta_{im}}{\sigma^2_{ei}}\left[\frac{\tilde{R}_i - T}{\beta_{im}} - C^*\right]$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security σ^2_{ei} plays an important role in determining how much to invest in each security. Applying this formula to selected samples, we obtain Zi then dividing each security Zi by the sum of the Zi we would invest proportional percent of our funds in selected security" (Bhalla, 2001:536).

Capital Asset Pricing Model (CAPM)

In the book "Investment Analysis and Portfolio Management", written by Prasanna Chandra has focused on Capital Asset Pricing Model. "The CAPM predicts the relationship between the risk of an assets and its expected return. The relationship is very useful in the ways. First, it produces a benchmark for evaluating various investments. For example, when we are analyzing a security we are interested in knowing whether the expected return from it is security we are interested in knowing whether the expected return from it is in line with its fair return as per the CAPM. Second, it helps us to make an informed guess about the return that can be expected from an asset that has not yet been traded in the market. For example, how should a firm price its initial public offering of stock? Although the empirical evidence on the CAPM is mixed, it is widely used because of the valuable insight it offers and its accuracy is deemed satisfactory for most practical applications" (Chandra, 2002:240-245).

Prasanna Chandra presents the following basic assumptions of CAPM.

- Individuals are risk averse.
- Individuals seek to maximize the expected utility of their portfolio over a single period planning horizon.
- Individuals have homogeneous expectation. They have identical subjective estimates of the means, variances, and covariance among returns.
- Individuals can barrow and lend freely at riskless rate of interest.

- The market is perfect, there are no taxes, and there are no transaction costs: securities are completely divisible, the market is competitive.
- The quality of risk securities in the market is given.

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

"Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory" (Pandey, 1997). What is risk? How is it measured? What is return? How is it measured? , are the basic question, which needs to be answered while making an investment decision. In this chapter, an attempt is made to answer the logic of portfolio theory and the use of Capital Asset Pricing Model (CAPM) for valuing assets with a view to facilitate the investment decision.E

$$(r_i) = \left(\frac{Rf + [E(r_m) - R_f]}{\sigma^2_m} \right) C_{im}$$

Where,

$E(r_i)$ = expected return for on security i

R_f = the risk-free return

$E(r_m)$ = the expected return on market portfolio

σ^2_m = Variance of return on market portfolio

C_{im} = Covariance of return between security i and market portfolio

In words, the SML relationship says:

Expected return on security i = Risk free return + (Price per unit of risk) Risk

The price per unit of risk = $\frac{E(r_m) - R_f}{\sigma^2_m}$

The measure of risk = C_{im}

In above SLM equation, the risk of a security is expressed in terms of its covariance with the market portfolio, σim. Can we find a standardized measure of risk? Fortunately we can fin a standardized measure of systematic risk, popularly called beta (bi), by taking advantage of the relationship.

$$b_i = \frac{C_{im}}{\sigma^2_m}$$

Which reflects the slope of a linear regression relationship in which the return on security I is regressed on the return of the market portfolio. Thus, the SML is popularly expressed as:

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

In words, the SML relationship says:

Expected return on security i = Risk-free return + Market risk premium × Beta of security. Thus, we can say that the CAPM and the Security Market Line (SML) is same. It means that CAPM is also called the SML.

The CAPM or SML

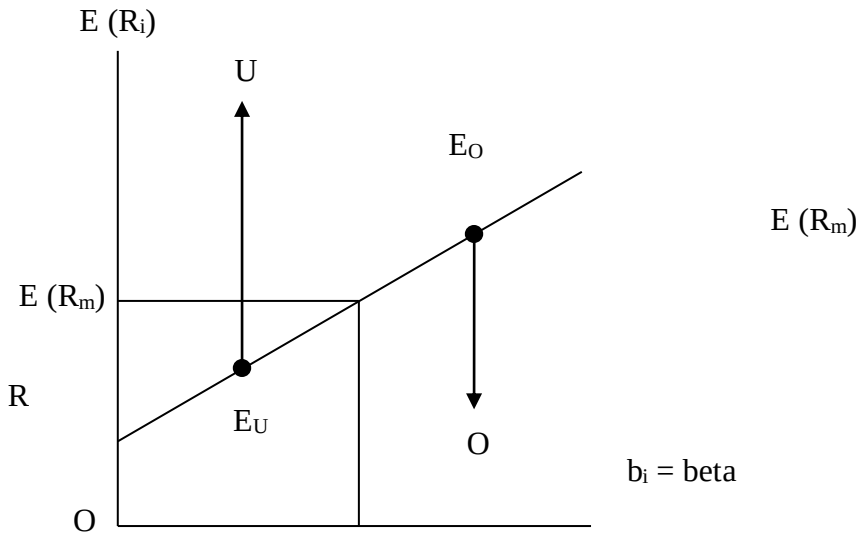

Figure depicts two assets, U and O, which are not in equilibrium on the CAPM. Asset U is undervalued and, therefore, a very desirable asset to own. U's price will rise in the market as more investors purchase it. However, as U's price goes up, its return falls. When U's return falls to the return consistent with its beta on the SML, equilibrium is attained. With O, just the opposite takes place. Investors will attempt to sell O, since it is overvalued, and therefore, put downward pressure on O's price. When the return on assets O increases to the rate that is consistent with the beta risk level given by the SML, equilibrium will be achieved and downward price pressure will cease.

Securities Market Indicators

Security market indicators are of two basic type-average and indexes. A stock market average is merely a weighted or unweighted average price for group of stock. Stock market indexes typically employ more defined methods to measure the level in stock prices than do stock market averages.

"Index numbers are void of rupee values or other units of measure. Stock market indexes are usually calculated as ratios of rupee values. They are pure numbers that are used for making comparison between indexes, averages or other numbers. An index is usually a weighted average ratio that is calculated from an average of a large number of different stocks" (Thapa, 2002). The index numbers are typically a time series constructed from the same base value (which is usually set to be 100, 10, or1). Some year in the past is selected as the base year from which the index's base value is calculated in order to impart a time perspective to the index.

2.2 Review of Journals

The behavioral study of stock market plays a significant role in the development of capital market and to find out the realistic theoretical model to test the appropriate hypothesis in stock market. Considering this, various studies have been conducted about stock market behavior in development country and international prospects. These studies also have been an important note in least developed countries. In Nepalese context, there are few studies associated with stock market and most of them are related to theoretical concepts. Similarly, they are also associated with behavioral aspect and essential in stock market and also in capital markets.

In global base, Philipe has studied about global stock market in twentieth century. The main purpose of this study is to estimate the long run expected return on equity in international base. About the implication n of this study, they mention "In a famous article, Mehra and Prescott (1985) argue that standard general equities models cannot explain the size of the risk premium on US equities which average about 6% over the 1978-89 periods. The study showed that one would need a very large difference of risk aversion, largely in excess of the usual value of two to generate such a premium. This upsetting result has sparkled a flurry of theoretical research that explains alternative performance structure; including dropping the expected utility assumption and introducing habit function" (Zorin and Goetman, 1999:954). Capital appreciation

index of 39 countries for the period of 1921 to 1996 is included in this study. Beyond, this global database allows us a broad investigation into the behavior of equity markets over the long run. Basically, it is based on less volatile market; about 6% annual market growths and 20% standard duration is considered in this study. To obey it, about half century of data is necessary to maintain these requirements. The main sources of data are IFC, IMF and WPI. All of the data are monthly based. These sources of data help to reconstruct histories for the numbers of stock markets going back early of 1920. Approximately 76000 data points are involved in 39 markets of different countries.

To compare the long term performance of global equity markets with annually compounded data, the percentage return one measured in normal term of load currency, in terms of wholesale price index (WPI) and US $. Similarly, arithmetic average return in percentage per annum and standard deviation one also calculated to find out risk and return of global equity markets in terms of local currency, WPI, US $. The purpose of this study is to describe the behavior of stock price measures in real term around the dollar breaks (such as financial crisis credit crisis, civil war etc, the series restart data, and subsequent changes when available. Real returns are in excess of WPI for the corresponding countries. To find out the return in dollar percentage on stock market indices, there exists survived market series and all market series are to measure in normal return in US dollars.

“These data provide unavailable information which helps to understand long-term histories of capital markets. If it relies on the historical data as the basis for estimate In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

“Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory” (Pandey, 1997). What is risk? How is it measured? What is return? How is it measured? , are the basic question, which needs to be answered while making an investment decision. In this chapter, an attempt is made to answer the logic of portfolio theory and the use of Capital Asset Pricing Model

(CAPM) for valuing assets with a view to facilitate the investment decision.which ignores important information about actual investment risk" (Zorin and Goetman, 1999:976).

The study have constructed a portfolio between foreign as well as domestic market and find out whether the domestic investors are able to get quick information than foreign investors and take enough benefits from it. According to the study, "The article develops a model of international equity portfolio investment flow based on difference in international endowments between foreign and domestic investors. It is shown that when domestic investors possess a cumulative information advantage over foreign investors period when the return on foreign asset is high and to sell when the return is low"(Breman and Henry, 1997:1092).

The study assumes, "The major empirical implication of the model are the purchase of foreign equities will be a linear function of return on the domestic and foreign equity markets; and that the coefficient of return on the foreign market index will be positive, provided that foreign investors are and provided that the information advantage of local the results of gradual process of supervision information acquisition rather than of periodic large information leakage to locals. The sign of the coefficient of the returns on the domestic market is indeterminate"(Breman and Henry, 1997:1094). The investor have a position in a stock market based on their past private information signals. Public signal helps the individual investors to revise their price of securities that they hold. All private and public information are reflected in the prices of stock. But it does not represent the perfectly efficient market. However, investor does revise the means of their predictive distribution in a way that depends on signal realization. Most importantly, the less well-informed (i.e. foreign) investors revised the means of their distribution than better informed (i.e. local) investors.

By using the data of US treasury bulletin in quartile and transaction in equities and bonds, US residents are resident of large of other countries such as Canada, Germany, Japan, UK for the period 1982 to 1994, they concluded that "If the foreign and domestic investors are differentially informed, portfolios between two countries will be a linear function of the contemporaneous return on all natural market indices; and if domestic investors have a commutative information advantage over foreign investors about domestic securities the sufficient of the host market return will

positive" (Breman and Henry, 1997:1093). The study observes US portfolio investment market and find strong evidence that US purchasers are positively associated with local market return in many countries. For higher developed or emerging market we do find significant evidence that portfolio flows are affected by most country returns as might be expected if flows were caused by relative wealth shift between residents of different countries. The model developed by Brennan and Henry is able to explain only a small proportion of the variance of international equity portfolios.

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

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The study has made some following assumptions:

1. Investors are quasi-rational and they are optimizers except for then biased updating of this precision.
2. The model explains the price anomalies as market inefficiencies.
3. Investors have a priority on the precision of these private signals and use an updating rule that reflects self-attribution biases.

To achieve above objectives, the paper develops a theory based on investor's confidence and change in confidence. Confidence resulting from biased self-attribution of investment outcomes. The theory implies that investors over react to private information signals and under react to public information signals. In contrast

with the common correspondence of positive or negative auto correlation with under reaction or over-reaction to new information, we show that positive return auto correlation can be constituent with long run negative auto correlation. The theory also offers an explanation for the phenomenon of average public event stock price reaction of the same sign as post event long run abnormal returns. This pattern has some time been interpreted as market under reaction to the event.

2.3 Review of Independent Study

In Nepalese context, there are limited numbers of studied available about stock market behavior in small capital markets. Out of them, this study mainly concern with the "Stock Market Behaviour in Small Capital Market" (Pradhan, 1993). "Shareholder Democracy and Annual General Meeting Feedback" (Shrestha, 1998) and "The Dividend Policy and Value of Firm in Small Stock Market" (Manandhar , 1998).

The study about stock market behaviour in small capital market: in case of Nepal was conducted (Pradhan, 1993). This helps to provide at least some insight into stock market behaviour 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 earning 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 period 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 (Pradhan, 1993).

"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 difficult to carry out any research in Nepalese stock market. Considering the study period of 1986 to 1990, usable data could be obtained for 17 enterprises" (Pradhan, 1993). 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 the study, 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. The study concluded that "the result indicate that larger stock have longer price earning ratios larger ratio of market value to book value of equity, lower liquidity, lower profitability, and small dividends. Price earnings ration and dividend are more variable for smaller stocks, whereas market value to book value of equity is more variable for larger stock. Larger stock also has higher leverage, lower assets turnover and lower interest coverage but there are more variables for smaller stocks than for larger stocks. Stock will larger market value to book value of equity has larger price earning ratio and lower dividends. These stocks also have lower liquidity, higher leverage, lower profitability, and lower turnover, 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 variable for the stock paying higher dividends" (Pradhan, 1993).

"Shareholder's Democracy and Annual General Meeting Feedback" critically analyzed the situation of common stock investors.

Company and other acts relating to financial and industrial sectors has provisioned rights of the shareholders as: voting right, participation in general meeting, right of getting information, electing s board of director, participation in the profit and loss of the company, transferring shares, proxy representation. And the collective rights of the shareholders are: amend the internal by laws, authorize the sales of assets, and enter into merger, change amount of authorized capital (Shrestha, 1998).

According to the research study, "Some public limited companies have floated the shares to the general public without having shareholders representation in the board. There are many such companies, which conduct the annual general meeting just to fill their desire, and do not consider the voice of the majority of the Shareholders. Similarly management involvement and government interview in the board election have brought a greater set back in the voting rights of the shareholder" (Shrestha, 1998:12). He argued further to safeguard the investor's 'interest'. The encouraging and growing confidence of shareholders over their investment seek an independent inquiry of disclosed contents of prospectus. This helps to satisfy a minimum standard

of faith on investment in shares through relying and pros and coins of prospectus. “In this context the expression of disclosure philosophy and investigation of frauds in prospectus need to be reconciled to check growing problems in the development of the capital market in Nepal” (Shrestha, 1998).

The study about “Dividend Policy and Value of the Firm in Small Stock Market” in the context of Nepal has conducted (Manandhar, 1998). The basic objective of this study is to find out the financial variable that is related to market equity. “The study is aimed at identifying some of the significant variables that are significant to the vale of the firm. The analysis, to some extent, helped to understand the dividend policy of the sample companies and their effects on market value of the firm as represented by market capitalization and this understanding helps to know the relevancy and irrelevancy of dividend policy on market capitalization in the stock market in Nepal” (Manandhar, 1998). At the time of research, it was found the following problems in stock market and dividends practices:

1. Most companies are underrating the expectation of investors and thereby resulting how marketability of share and trading floor of stock exchanges.
2. Majorities of the companies are declaring dividends less than risk free rate and market risk premium.
3. The relationship between the earnings, dividend pay out and growth of the expansion program of the companies does not match with financial needs of companies.
4. Companies do not follow sound dividend policy. These are the main causes that are related to the low price of stock and low volume in stock market.

To find the above stated objectives, this study has included the financial data that are related to secondary market of top ten companies of the year 1995/96 on the basis of traded amount. According to this study, the model developed and used to test the hypothesis was multiple regressions, which is implied to test and analyze the cause and effect relationship between dependent and independent variables. So the independent variables are dividend per share, earnings per share, return on equity, divided by closing market price and market price of equity is taken as dependent variable.

At last, the study found out that "the financial variables taken under study to understand the dividend policy followed are DPS, EPS, P/E Ratio, ROE through not exhaustive, based on analysis. It is found that DPS, ROE and D/P ratio have significant impact on MPS whereas ROE and P/E ratio have found no significant impact on market value" (Manandhar, 1998).

2.4 Review of Theses

The studies performed related to topic Risk and return analysis' but there are no study performed in this specific topic i.e. Risk and return analysis of joint venture banks of Nepal. However the performed studied are in some extent, related to the proposed study. In this context three theses are reviewed here, "A study on securities investment in Nepal, by Prabhat Upreti in 2006, Portfolio Analysis of common stock investment by Samir Adhikari in 2005, and Risk & Return of common stock by Sudeep Upadhyaya in 2003.

Mr. Prabhat Upreti (2006) conducted the study on securities investment by using five-year data from 2000 to 2005.

There were various objectives of the study, among them the one is 'to analyze the stock market performance' is nearly related to this study. In the findings of the objective, he has summarized conclusion as, "Interest rate so ascertained by financial institution for the year 1999 ranges from 12% to 12.75% per annum. As it is reviewed on background of commercial banks deposits accepted on fixed term carry 8% to 9.5% p.a. Interest rate in 2000 (Upreti, 2006).

Although, interest rate on fixed deposit is an immediate return generated through saving, the return on securities cannot be exactly predicted. Some of the companies have not even declared dividend for two/three year. Whatever the shareholders have yielded on their securities investment is very low (Avoiding exceptional cases of some financial and banking institution) as compared to the immediate return earned through fixed deposit. But he had not stated the common stock return in any extent figure.

In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk.

Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

"Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory" (Pandey, 1997). What is risk? How is it measured? What is return? How is it measured? , are the basic question, which needs to be answered while making an investment decision. In this chapter, an attempt is made to answer the logic of portfolio theory and the use of Capital Asset Pricing Model (CAPM) for valuing assets with a view to facilitate the investment decision.

"Leaving some exceptional cases aside, almost all the companies experienced their market price going down by less than 50% in 1999. Even the banking group could not spare the share price going down more specifically, the year 1999 was disheartening period for the stock price. It is because, almost all the companies share price during the year were down even in some cases below the face value (Upreti, 2006:79-80)".

The study recommended liberalizing the Government policy by removing capital control and barrier to attract foreign portfolio flows, which is essential for the development of stock market.

The study conducted by Mr. Samir Adhikari (2005) is very closely related to this study. The study has performed an analysis of Portfolio on common stock investment with special reference to banking industry. The study is closely related with the current study in the sense that both studies are related with risk and return analysis of commercial banks. The study wrote, "The main objective of the study is to analyze the risk and return of common stocks in Nepalese stock market, the study is focused on the common stock of commercial banks" (Adhikari, 2005). The study stated that, "Banking industry is the biggest one in terms of market capitalization and turnover. Expected return on the common stock of Nepal Bank Ltd. is maximum, (i.e. 66.99%) and common stock of Nepal SBI Bank Ltd. is found minimum. In this regard common stock of NBL is most risky and common stock of NSB is least risky. In the context of industries, expected return of finance and insurance industry is found highest. Expected return of banking industry is 60.83%". At the end of this study he has concluded that common stock of Nepal Bangladesh Bank (NBB) is the best one for

investment. He further added that "In the other hand, portfolio between the common stock of NGB and BBC is 0.2666, but portfolio standard deviation is only 0.1497, which is less than each individual stock's standard deviation, hence, the portfolio approach of investment is better way to win stock market investment (Adhikari, 2005).

Another study has been conducted by Mr. Sudeep Upadhaya (2003) in the topic Risk and return Analysis of common stock in 2001. In his study, he writes,: "As overall economy, Nepalese stock market is in emerging state. Its development is accelerating since the political change in 1990 in effect of openness and liberalization in national economy, but due to the lack of information and poor knowledge, Nepalese individual investors can not analyze the securities as well as market properly." He has taken eight banks as sample. The simples of his studies are, Nepal Arab bank Ltd. (NABIL), Nepal Indosuez Bank Ltd. (NIBL), Nepal Grindlays Bank Ltd. (NGBL), Himalayan Bank Ltd. (HBL), Nepal SBI Bank Ltd. (SBI), Nepal Bangladesh Banks Ltd. (NBBL), Everest Bank Ltd. (EBL) and Bank of Kathmandu Ltd. In his findings, he writes, "The return is income received on a stock investment, which is usually expressed in percentage. Expected return of the CS of Nepal SBI Bank Ltd. is found minimum. Expected return of NABIL is also favorable with 25% expected return. Standard deviation is only the measure of unsystematic risk, which is not defined by market. Another major aspect of the risk is systematic risk, which is defined by market and measured by beta (β) coefficient. Beta explains the sensitivity or volatility of the stock with market, higher the beta greater the volatility. NABIL and HBL's CS are also volatile as far as beta is concerned. In the recommendation and suggestion section, Mr. Upadhyaya says "Tools that has been considered in this study may not be appropriate in our economy giving view to the prevailing condition in western market, which may not perform exactly as it should in condition like ours. Investors can develop different kinds of looks for analyzing, for this they can consult concerned organization e.g. NEPSE people and SEBO. Using various tools will be beneficial. e.g. coefficient of variation (C.V.) suggests that the other industry is the best one for investment. But Banking industry may be the best, if other subjective analyses are also been considered. Investors need to diversity their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss which can be defined in terms of risk. But portfolio construction is a dynamic job, because efficient

portfolio construction selects the stocks that have higher return with not correlation or negatively correlation stocks. Similar stocks can not diversify risk properly"(Upadhaya, 2003:84). In general, risk and return go hand in hand. For earning returns investors have to almost invariably bear some risk. While investors like returns they avoid risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since, risk and return are central point while making investment decision; we must clearly understand what risk and return are and how they should be measured.

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From the Review of various books, articles and theses, this study is different from previous studies in terms of risk and return analysis. In this study, researcher has taken six joint venture banks in order to construct optimal portfolio by using Sharpe Single Index Model (SIM) on the basis of excess return to beta ration [($\overline{R}$ -Risk free rate)/βin] i.e. expected change in the rate of return on security i associated with 1 percent change in the market return. Researcher focuses only the risk and return analysis of selected joint venture banks. This study will be fruitful to those interested person, researchers, students, teachers, businessmen and government for academically as well as policy perspectives.

CHAPTER III
RESEARCH METHODOLOGY

The main objective of this study is to make the analysis of risk and return of joint venture banks. Thus this chapter is designed to meet the set objectives. The brief discussion of the methodology followed in the study is given below. This chapter includes the brief description of research design, population and sample, sources of data, data collection instrument and procedures and method and tools used for analyzing the data.

3.1 Research Design

This research has been based on recent historical data collected from NEPSE, Securities Board and other sources. It deals with the common stocks of selected listed companies. It covers the period of last eight years i.e. from F.Y. 2000/01 to 2008/09. Discussions have been made to interpret the existing secondary information, which have been analyzed by using analytical tools and techniques. Descriptive and analytical research designs have been followed for the study.

3.2 Population and Sample

There were one hundred and fifty seven companies listed in Nepal Stock Exchange Ltd. by the end of the fiscal year 2008/09 out of them only 20 commercial banks, which submitted their annual reports to security board though there are 26 commercial banks in Nepal. Twelve commercial banks have been assumed as the population of the study and among them following six listed joint venture banks are taken as sample of the study on the basis of judgmental sampling. They are:

i. Nepal Arab Bank Limited (NABIL).
ii. Nepal Investment Bank Limited (NIBL).
iii. Bank of Kathmandu Limited (BOKL).
iv. Himalayan Bank Limited (HBL)
v. Standard Chartered Bank Nepal Limited (SCBL)
vi. Everest Bank Limited (EBL)

3.3 Source of Data

The main sources of data were secondary data. During the study the data had been taken from the Nepal Stock Exchange, individual investor and stockbrokers. Price of the different stocks, NEPSE index was collected from Nepal Stock Exchange. The main source of data was annual trading report published by NEPSE, Securities Board and other concern listed companies' annual report, journal and Nepal Rastra Bank's annual, quarterly publications and others.

3.4 Method of Analysis

3.4.1 Market price of stock (p)

Among the various major data of this study, market price of stock is the most important. There are three-price records available, namely high price, low price and closing price of each year. Therefore two approaches either average price (i.e. average of high and low price) or closing price can be used. By using average price, result may be very close to reality as it represents the price of whole year. But it is very difficult to obtain the real average. To get the real average, volume and price of each transaction in the stock and duration of time of each transaction in the whole year are essential. So, it is of course very hard and difficult to gather and include all these information and average of high and low price cannot be used for this study. Due to such difficulties, it is very difficult to use average price as market price of stock. So, the closing price issued as market price of stock, which has a specific time span of one year and the study has focused in annual basis.

3.4.2 Dividend (D)

Company pays dividend to its shareholders. If a company declares only cash dividend, then there is no problem to take the dividend amount but it is not necessary to pay dividend in the cash form. Company can pay dividend to shareholder in the form of stock i.e. bonus share. So, if company declares stock dividend, it is difficult to obtain the amount that really shareholder has gained. In such condition, shareholders get additional number of shares as dividend and simultaneously price of stock declines, as a result of increased number of outstanding stock. So, to get the real amount of

dividend, there are no any models or formula developed yet. In this study, models have been developed considering practical as well as theoretical aspect.

Model for dividend:

i. In the case of stock dividend:
Total div. Amount = cash div. + stock div. % × next year's MPS

ii. In the case of 'right issued' at par:
Total dividend amount = cash div. + right issued % × next year's MPS

3.4.3 Return on Common Stock Investment (R)

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

Symbolically,

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

Where,

R = Actual rate of return on common stock at time 't'.

D_t = Cash dividend received at time 't'.

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

Standard deviation (σj): Standard deviation is a statistical tool to measure the variability of a distribution of return around its mean. It measures the unsystematic risk on the stock investment. Standard deviation is the square root of the variance.

Symbolically,

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

where,

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

R_j = Return on common stock 'j' investment.

R_j = Expected return on common stock.

3.4.4 Expected Return of Common Stock E (R_j)

One of the main objectives of the study is to determine the expected return on common stock investment. Generally, this rate is obtained by arithmetic mean of the past years return.

Symbolically,

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

Where,

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

n = Number of years that the return is taken

$\sum$ = Sign of summation

3.4.5 Coefficient of Variation (C.V.)

It is the ration of standard deviation of returns to the distribution. It is a measure of relative risk.

Symbolically,

$$C.V. = \frac{\sigma_j}{R_j}$$

3.4.6 Beta Coefficient (β)

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio.

Symbolically,

$$\beta_j = \frac{Cov.(R_j, R_m)}{\sigma^2_m}$$

Where, β_j = beta coefficient of stock j.

Cov. (R_j, R_m) = Covariance between R_j and R_m and is equal to

$$Cov.(R_j, R_m) = \frac{(R - R_j)(R_m - R_m)}{n - 1}$$

σ^2_m = Variance of market return

3.4.7 Correlation coefficient (ρ_{ij})

Correlation is a measure of the relationship between two assets. The correlation coefficient can take on a value ranging from -1 or +1. Correlation and Covariance are related by the following equation

$$Cov._{ij} = \sigma_i \sigma_j \rho_{ij}$$

$$\text{Therefore, } \rho_{ij} = Cov._{ij} \Big/ \sigma_i \sigma_j$$

Where σi and σj are the standard deviations of returns for assets i and j, and ρij is the correlation coefficient for assets i and j.

There are various cases of correlation and risk condition, which are presented below:

3.4.7.1 Perfect Positively Correlation ($\rho_{ij} = +1$)

Returns on two perfectly correlated stocks would move up and down together and portfolio consisting of two such stocks would be exactly as risky as the individuals stocks. Thus, diversification does nothing to reduce risk if the portfolio consists of perfectly positively correlated stock.

3.4.7.2 Perfect negatively correlation ($\rho_{ij} = -1$)

Return on two perfectly negatively correlated stocks would move perfectly together but in exactly opposite direction. In this condition, risk can be completely eliminated. Perfect negative correlation almost never found in the real world.

3.4.7.3 No relationship between return ($\rho_{ij} = 0$)

When the correlation between two stocks is exactly zero, there is no relationship between the returns, they are independent of each other. In this condition, some risk can be reduced.

3.4.7.4 Intermediate risk ($\rho_{ij} = +0.5$)

Most stocks are positively correlated, but not perfectly. On average, the returns on two stocks would lie on the range of +0.4 and +0.75, under this condition, combining stocks into portfolios reduces risk but doesn't eliminated at completely.

3.4.8 Portfolio Return (R_ρ)

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

Symbolically,

$$R_\rho = W_A R_A + W_B R_B$$

Where,

R = Expected return on portfolio of stock A and stock B.

W_A = Weight of stock A.

W_B = Weight of stock B.

$W_A + W_B = 1$.

3.4.9 Portfolio Risk (σ_p)

Portfolio risk is measured by the combined standard deviation of the standard deviations of individual stock return.

Symbolically,

$$\sigma_p = \sqrt{W^2_A \ \sigma^2_A + W^2_B \ \sigma^2_B + 2W_A \ W_B \ \text{Cov.}\ (R_A . R_B)}$$

Where,

σ = Standard deviation of portfolio returns of stock A and Stock B.

Cov. ($R_A R_B$) = Equivalent representation covariance of returns between assets A and B.

3.4.10 Risk Minimizing Portfolio

It is the ratio of the two assets, which minimize the risk (σp).

Symbolically,

$$W_A = \frac{\sigma^2_B - \text{Cov.}\ (R_A . R_B)}{\sigma^2_A + \sigma^2_B - 2\text{Cov.}\ (R_A . R_B)}$$

Where,

W_A = Weight of stock A that minimize the portfolio risk of stock A and stock B.

σ_A = Standard deviation of stock A.

σ_B = Standard deviation of stock B.

3.4.11 Constructing the Optimal Portfolio

The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R}$ -T)/βim where $\tilde{R}$ i is the expected return on security i, T is the return on a riskless asset, and βim is the expected change in the rate of return on security i associated with a 1 percent change in the market return. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of $(\tilde{R}$ -T)/βim will be included and all securities with lower rates excluded.

Selecting the optimal portfolio involves the comparison of $(\tilde{R}$ i -T)/βim with C*. All securities whose excess return-to-risk ratios are above the cut-off rate are selected and all those whose ratios are below are rejected. The value of C* is computed from the characteristics of all of the securities that belong in the optimum portfolio. To determine C*, it is necessary to calculate its values as if there are different numbers of securities in the optimum portfolio. Suppose Ci is candidate of C*, the value of Ci is calculated when i securities are assumed to belong to the optimal portfolio. For a portfolio of i securities, Ci is given by:

$$C_i = \frac{\sigma^2_m \sum_{i=1}^{i} \frac{\left(\tilde{R}_i - T\right)\beta_{im}}{\sigma^2_{ei}}}{1 + \sigma^2_m \sum_{i=1}^{i} \frac{\beta^2_{im}}{\sigma^2_{ei}}}$$

Where,

σ^2_m = variance of the market index

σ^2_{ei} = variance of a security's movement that is associated with the movement of the market index;

"To construct the optimum portfolio, the percent invested for each selected security in the optimal portfolio is to be calculated. The percentage invested in each security is:

$$X_i^0 = \frac{Z_i}{\sum_{j=1}^{n} Z_j}$$

Where

$$Z_i = \frac{\beta_{im}}{\sigma^2_{ei}}\left[\frac{\tilde{R}_i - T}{\beta_{im}} - C^*\right]$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security σ^2_{ei} plays an important role in determining how much to invest in each security. Applying this formula to selected samples, it can be obtain Zi then dividing each security Zi by the sum of the Zi it would be possible to invest proportional percent of total funds in selected security."

CHAPTER IV
DATA PRESENTATION AND ANALYSIS

4.1 Analysis of Data

This chapter data presentation and analysis is the main body of the study. Detail data of market price per share and dividend per share of each commercial bank, NEPSE index of each industry or sector and the market are presented and their interpretation and analysis are included in this chapter. It is tried to analyze and diagnose the recent Nepal stock market movement, with taking a special reference with commercial banks of Nepal.

Risk and return are most important concepts in finance. In fact, they are foundation of the modern finance theory. The expected rate of return for any asset is the weighted average rate of return using the probability of each rate of return as the weight. Return is defined as the divided yield plus the capital gain or loss. On the other hand, risk is the outcome of all potential future outcomes presented with probability associated with each of them and it is measured in terms of the degree of variability in the probability distribution of each outcome. Among the listed joint venture banks only six joint venture banks are taken as sample. As the title is "Comparative financial performance analysis of commercial banks of Nepal", it is necessary to analyze the common stock of selected joint venture banks.

4.1.1 Nepal Arab Bank Limited (NABIL)

4.1.1.1 Data

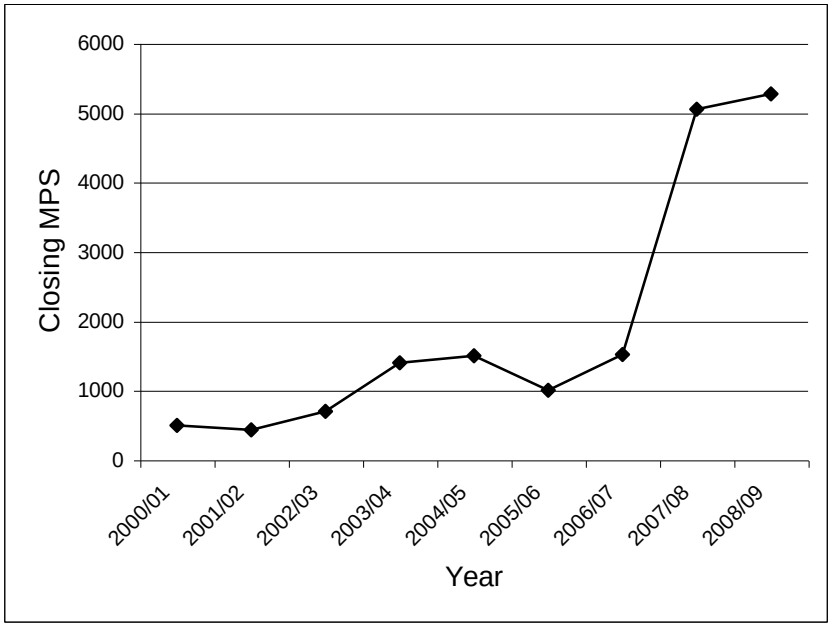
Market price, dividend records of common stock of NABIL are shown in Table 4.1, Price is maximum (Rs.5275) in year 2008/2009 reached at its lowest (Rs.430) in year 2001/2002. Similarly closing price are Rs.500, Rs.700, Rs.1400, Rs.1500, Rs. 1000 Rs.1505, Rs.5050 and Rs.5275 in year 2000/2001, 2002/2003, 3003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008 and 2008/09 respectively. Year-end price is shown in the Fig. 4.1. Figure shows that closing price is in fluctuating trend. The price was increasing trend till 2004/05 and it is decreased in FY 2005/06 and 2006/07 then increased up to 2008/09. Annual dividend amounts gained by shareholders of NABIL are given in the same table. The dividend amounts was increasing trend till 2003/04 and it is decreased in FY 2004/05 and 2005/06 then increasing trend up to 2008/09.

Table 4.1: MPS and Dividend Data of NABIL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	5275	5000	5275	65

Source: Nepal Stock Exchange Trading Report

Fig. 4.1: Year-end Price Movement of NABIL



4.1.1.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\bar{R}$)

To calculate realized rate of return, year-end price and divided amounts are used. Table 4.2 shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of NABIL is 0.64. Standard deviation of NABIL is 0.7149 and C.V. is 1.11.

Table 4.2: Realized Rate of Returns, Expected Returns and S.D. of C.S. of NABIL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2000/01	500	0	-	-	-
2001/02	430	30	-0.08	-0.72	0.5184
2002/03	700	50	0.74	0.1	0.01
2003/04	1400	55	1.08	0.44	0.1936
2004/05	1500	40	0.10	-0.54	0.2916
2005/06	1000	20	0.43	-0.21	0.0441
2006/07	1505	30	0.57	-0.07	0.0049
2007/08	5050	50	2.38	1.74	3.0276
2008/09	5275	65	0.57	-0.07	0.0049
			$\sum R = 5.79$		$\sum (R - \bar{R})^2 = 4.09$

Source: Nepal Stock Exchange Trading Report

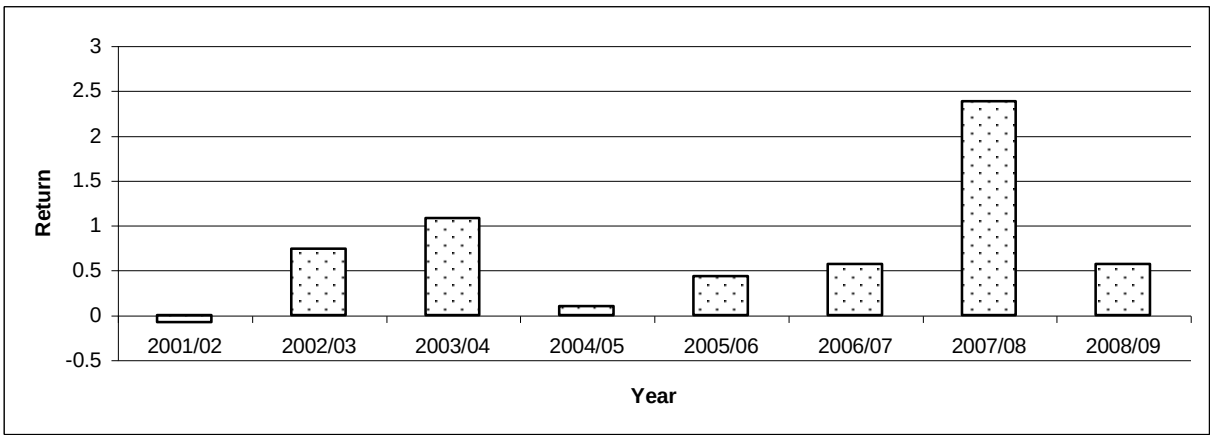
We have,

$$\text{Expected } (\bar{R}) = \frac{\sum R}{n} = \frac{5.79}{9} = 0.64$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{4.09}{9 - 1}} = \sqrt{0.5112} = 0.7149$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.7149}{0.64} = 1.11$$

Fig. 4.2: Annual Return of Common Stock of NABIL



4.1.2 Nepal Investment Bank Limited (NIBL)

4.1.2.1 Data

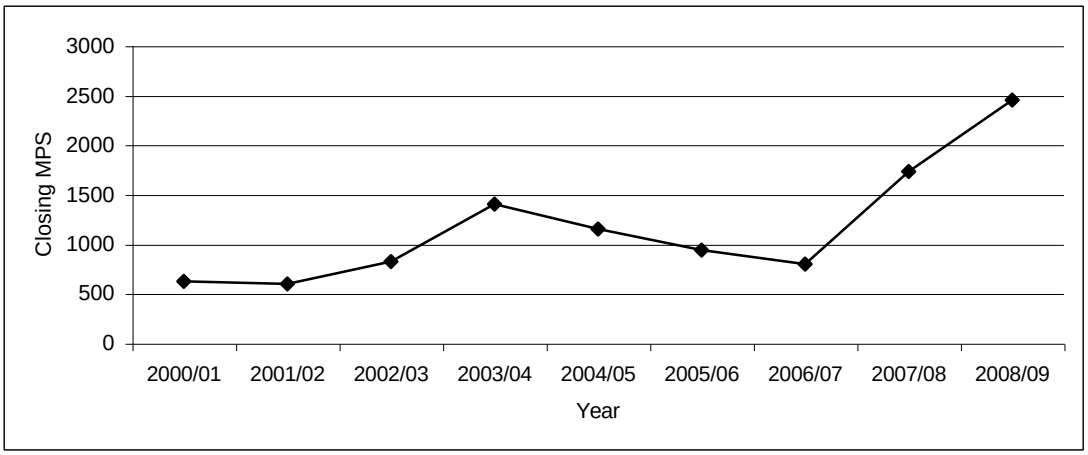
Market price, dividend records of common stock of NIBL are shown in Table 4.3, year-end price is shown in the Fig. 4.3. Price is maximum (Rs.2450) in year 2008/2009 reached at its lowest (Rs. 600) in year 2001/2002. Similarly closing price are Rs.625, Rs.822, Rs.1150, Rs.940, Rs.800, Rs.1729 and Rs.2450 in year 2000/2001, 2002/2003, 2004/2005, 2005/2006, 2006/2007, 2007/2008 and 2008/2009 respectively. Year-end price is shown in the Fig. 4.3. Figure shows that closing price is in fluctuating trend. The price was increasing trend till 2003/04 and it is decreased in FY 2004/05 and 2005/06 then increased up to 2008/09. Annual dividend amounts gained by shareholders of NIBL are given in the same table. The dividend amount was highest in 2003/04 and then decreasing trend up to 2008/09.

Table 4.3: MPS and Dividend Data of NIBL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	2450	1960	2450	15

Source: Nepal Stock Exchange Trading Report

Fig. 4.3: Year-end Price Movement of NIBL



4.1.2.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\overline{R}$)

To calculate realized rate of return, year-end price and divided amounts are used. Table 4.4 shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of NIBL is 0.23. Standard deviation of NIBL is 0.5409 and C.V. is 2.35.

Table 4.4: Realized Rate of Returns, Expected Returns and S.D. of C.S. of NIBL

FY	Closing MPS (Rs.)	Dividend (Rs.)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \overline{R}$	$(R - \overline{R})^2$
2000/01	625	0			
2001/02	600	0	-0.04	-0.27	0.0729
2002/03	822	50	0.45	0.22	0.0484
2003/04	1401	30	0.74	0.51	0.2601
2004/05	1150	25	-0.71	-0.94	0.8836
2005/06	940	0	0.20	-0.03	0.0009
2006/07	800	30	-0.14	-0.37	0.1369
2007/08	1729	20	1.18	0.95	0.9025
2008/09	2450	15	0.42	0.19	0.0361
			$\sum R = 2.1$		$\sum (R - \overline{R})^2$ =2.3414

Source: Nepal Stock Exchange Trading Report

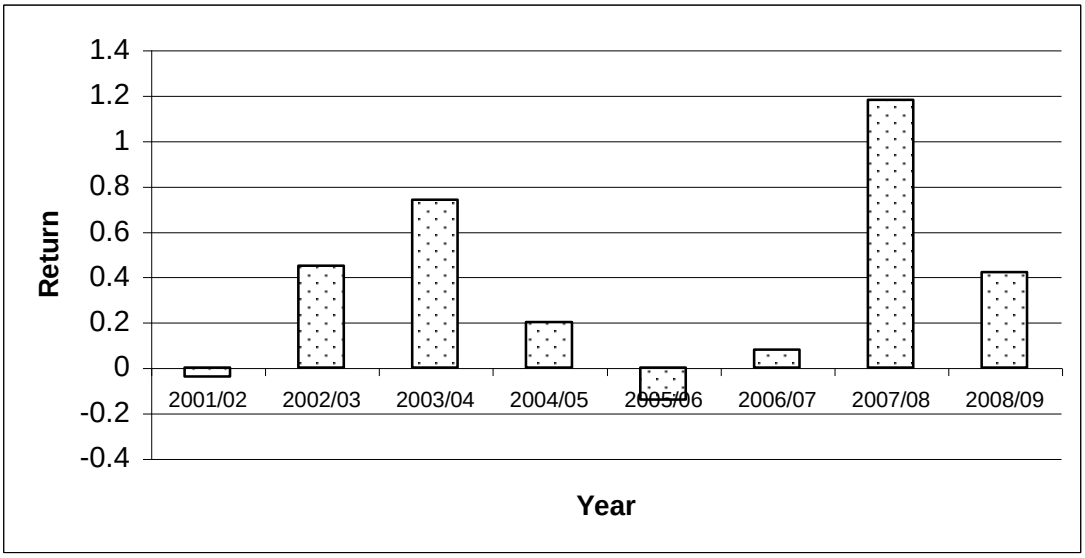
We have,

Expected ($\bar{R}$) = $\frac{\sum R}{n} = \frac{2.1}{9} = 0.23$

S.D. (σ) = $\sqrt{\frac{\sum\left(R - \bar{R}\right)^2}{n-1}} = \sqrt{\frac{2.3414}{9-1}} = \sqrt{0.2926} = 0.5409$

C.V. = $\frac{\sigma}{\bar{R}} = \frac{0.5409}{0.23} = 2.35$

Fig. 4.4: Annual Return of Common Stock of NIBL



4.1.3 Bank of Kathmandu Limited (BOKL)

4.1.3.1 Data

Market price, dividend records of common stock of BOKL are shown in table 4.5, year-end price movement is shown in fig. 4.5.MPS of BOKL is fluctuating trend from initial observation to year 2008/09. Market price is maximum in FY 2008/09.

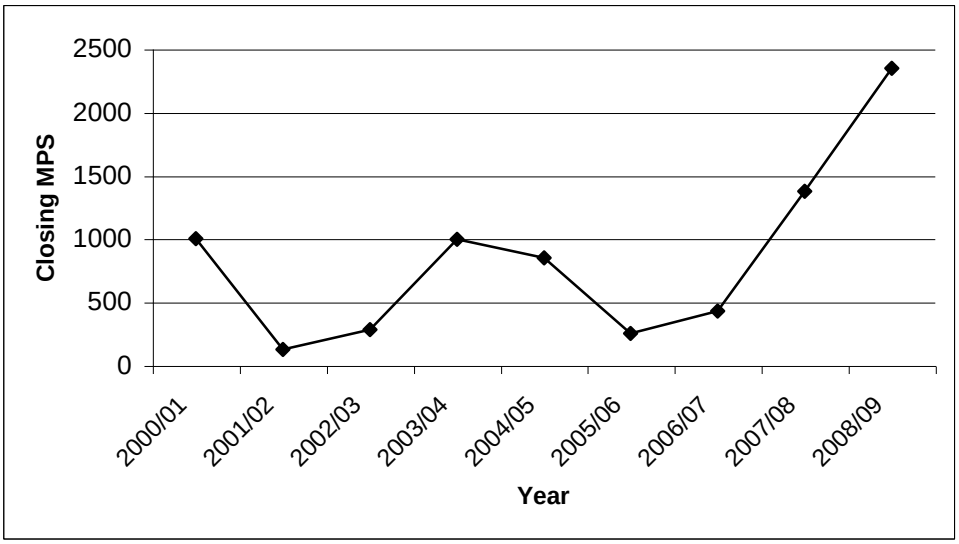
From the table 4.5, it is clear that the closing MPS of BOKL is in fluctuating trend. Price is maximum (Rs.2350) in Year 2008/09 and minimum (Rs.124) in year 2001/02. Similarly closing price are Rs.285, Rs.998, Rs.850, Rs.254, Rs.430, Rs. 1375 and Rs.2350 in year 2002/2003, 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/08 and 2008/2009 respectively. Year-end price is shown in the Fig. 4.5. Figure shows that closing price is in fluctuating trend. The price was increasing trend till 2003/04 and it is decreased in FY 2004/05 and 2005/06 then increased up to 2008/09. Annual dividend amounts gained by shareholders of BOKL are given in the same table. The dividend amounts were fluctuating trend from 2002/03 to 2008/09.

Table 4.5: MPS and Dividend Data of BOKL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	5275	5000	5275	65

Source: Nepal Stock Exchange Trading Report

Fig. 4.5: Year-end Price Movement of BOKL



4.1.3.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\bar{R}$)

Year-end price dividend amounts are used to calculate dividend yield and capital gain yield is added to find for each year. Table 4.6, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of BOKL is 0.63. Standard deviation of BOKL is 1.18 and C.V. is 1.87.

Table 4.6: Realized Rate of Returns, Expected Returns and S.D. of BOKL

FY	Closing MPS (Rs)	Dividend (Rs)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2000/01	998	0	-		
2001/02	124	0	-0.87	-1.5	2.25
2002/03	285	10	1.37	0.74	0.5476
2003/04	998	5	2.51	1.88	3.5344
2004/05	850	10	-0.14	-0.77	0.5929
2005/06	254	0	-0.70	-1.33	1.7689
2006/07	430	30	0.56	-0.07	0.0049
2007/08	1375	15	2.23	1.6	2.56
2008/09	2350	30	0.73	0.1	0.01
			$\sum R = 5.69$		$\sum (R - \bar{R})^2 = 11.268$

Source: Nepal Stock Exchange Trading Report

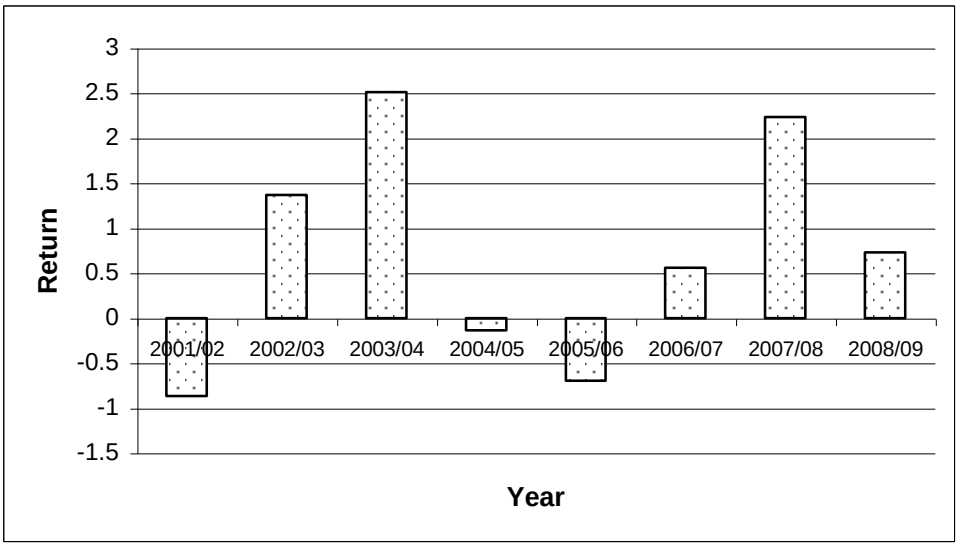
We have,

$$\text{Expected } (\bar{R}) = \frac{\sum R}{n} = \frac{5.69}{9} = 0.63$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{11.268}{9 - 1}} = \sqrt{1.40} = 1.18$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{1.18}{0.63} = 1.87$$

Fig. 4.6: Annual Return of Common Stock of BOKL



4.1.4 Himalayan Bank Limited (HBL)

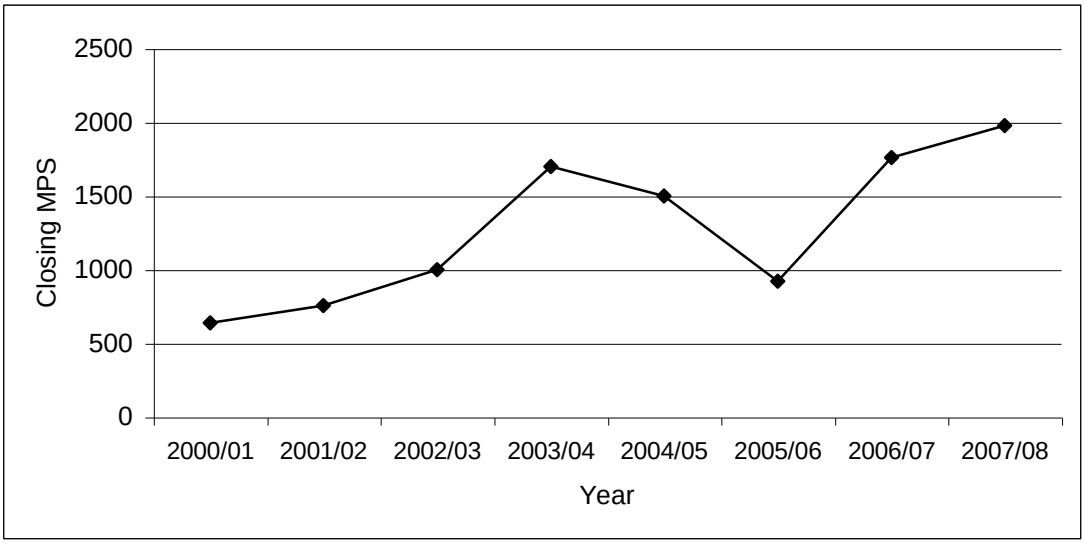
4.1.4.1 Data

Table 4.7: MPS and Dividend Data of HBL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	5275	5000	5275	65

Source: Nepal Stock Exchange Trading Report

Fig. 4.7: Year-end Price Movement of HBL



Market price and dividend records of common stock of HBL are shown in Table 4.7. MPS of HBL is very high in FY 2008/09. Year-end price movement of HBL is shown in the fig. 4.7. Annual dividend amounts gained by shareholders of HBL are given in the same table. The closing MPS is maximum (Rs.1980) in FY 2008/09 and lowest (Rs.640) in FY 2000/01. Similarly closing price are Rs.755, Rs.1000, Rs. 1700 Rs.1500, Rs.1350, Rs.920, Rs.1760 and Rs.1980 in year 2001/2002, 2002/2003,

2003/04, 2004/2005, 2005/2006, 2006/2007, 2007/2008 and 2008/2009 respectively. Year-end price is shown in the Fig. 4.7. Figure shows that closing price is in fluctuating trend. The price was increasing trend till 2003/04 and it is decreased in FY 2004/05, 2005/06 and 2006/07 then increased up to 2008/09. Annual dividend amounts gained by shareholders of HBL are given in the same table. The dividend amounts were fluctuating trend from 2000/01 to 2008/09.

4.1.4.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\bar{R}$)

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.8, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of HBL is 0.22. Standard deviation of HBL is 0.4041 and C.V. is 1.83.

Table 4.8: Realized Rate of Returns, Expected Returns and S.D. of HBL

FY	Closing MPS (Rs)	Dividend (Rs)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2000/01	640	50	-	-	
2001/02	755	110	0.35	0.13	0.0169
2002/03	1000	50	0.39	0.17	0.0289
2003/04	1700	50	0.75	0.53	0.2809
2004/05	1500	27.5	-0.11	-0.33	0.1089
2005/06	1350	7.5	-0.10	-0.32	0.1024
2006/07	920	25	-0.30	-0.52	0.2704
2007/08	1760	13.2	0.92	0.7	0.49
2008/09	1980	25	0.13	-0.09	0.0081
Total			$\sum R = 2.03$		$\sum (R - \bar{R})^2 = 1.3065$

Source: Nepal Stock Exchange Trading Report

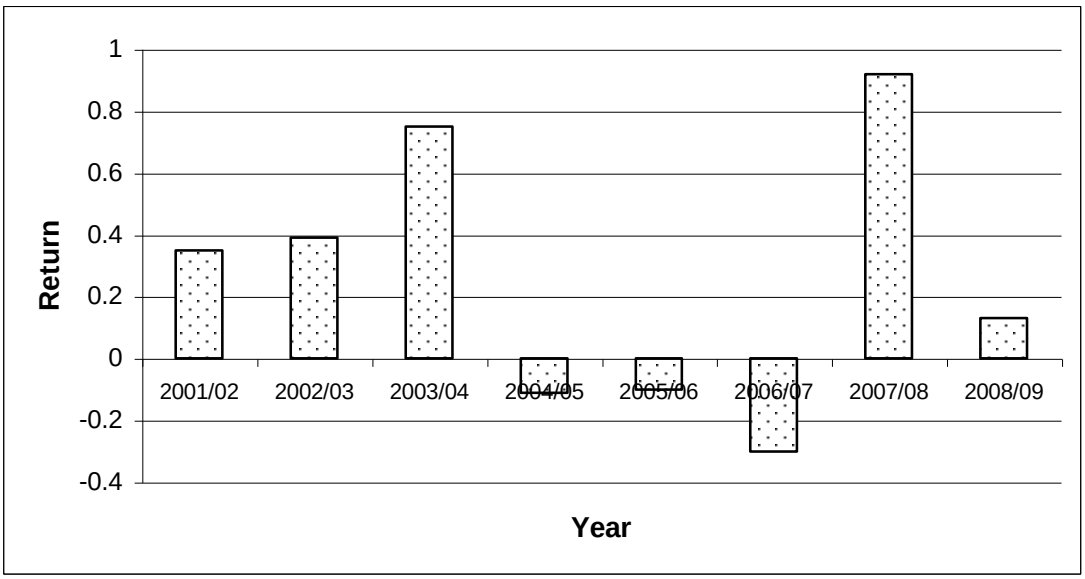
We have,

$$\text{Expected } (\bar{R}) = \frac{\sum R}{n} = \frac{2.03}{9} = 0.22$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{1.3065}{9 - 1}} = \sqrt{0.1633} = 0.4041$$

$$C.V. = \frac{\sigma}{\bar{R}} = \frac{0.4041}{0.22} = 1.83$$

Fig. 4.8: Annual Return of Common Stock of HBL



4.1.5 Standard Chartered Bank Nepal Limited

4.1.4.1 Data

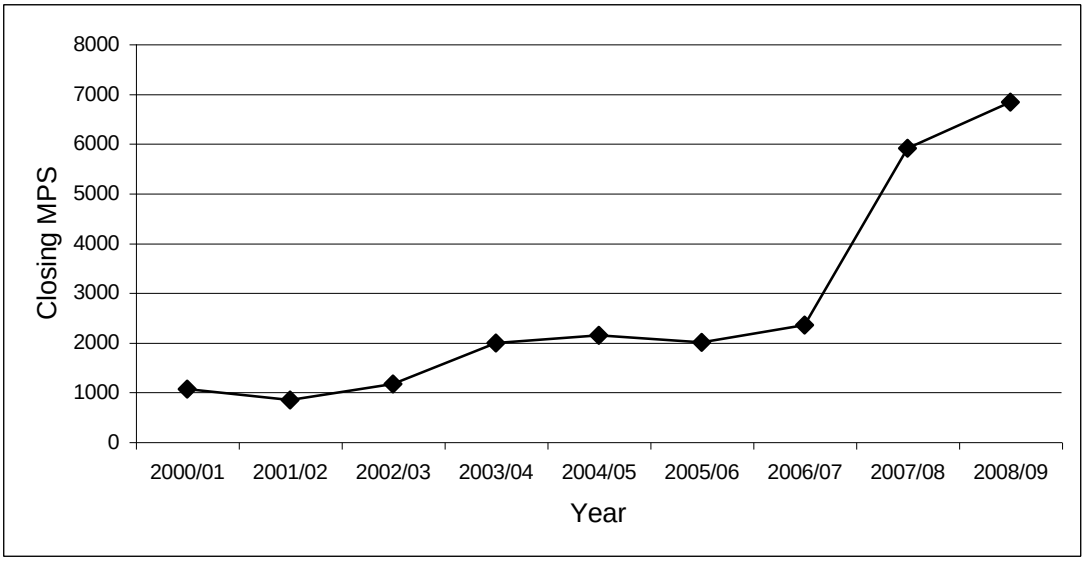
Market price and dividend records of common stock of SCBL are shown in Table 4.9. MPS of SCBL is very high in FY 2008/09. Year-end price movement of SCBL is shown in the fig. 4.9. Annual dividend amounts gained by shareholders of SCBL are given in the same table. The closing MPS is maximum (Rs. 6830 in FY 2008/09 and lowest (Rs.840) in FY 2001/02. Similarly closing price are Rs.1050, Rs.1162, Rs.1985, Rs.2144, Rs.2000, Rs.2345 and Rs. 6830 in year 2000/2001, 2002/2003, 2003/2004, 2004/2005, 2005/2006, 2006/2007 and 2007/2008 respectively. Year-end price is shown in the Fig. 4.9. Figure shows that closing price is in fluctuating trend. The price was increasing trend till 2004/05 and it is decreased in FY 2005/06 and 2006/07 then increased up to 2008/09. Annual dividend amounts gained by shareholders of SCBL are given in the same table. The dividend amounts were constant from 2003/04 to 2006/07 then increasing trend up to 2008/09.

Table 4.9: MPS Dividend Data of SCBL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	5275	5000	5275	65

Source: Nepal Stock Exchange Trading Report.

Fig. 4.9: Year-end Price Movement of SCBL



4.1.5.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\bar{R}$)

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.10, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of SCBL is 0.36. Standard deviation of SCBL is 0.5117 and C.V. is 1.42.

Table 4.10: Realized Rate of Returns, Expected Returns and S.D. of SCBL

FY	Closing MPS (Rs)	Dividend (Rs)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2000/01	1050	90		-	
2001/02	840	120	-0.09	-0.45	0.2025
2002/03	1162	80	0.48	0.12	0.0144
2003/04	1985	100	0.79	0.43	0.1849
2004/05	2144	100	0.13	-0.23	0.0529
2005/06	2000	100	-0.02	-0.38	0.1444
2006/07	2345	100	0.22	-0.14	0.0196
2007/08	5900	110	1.56	1.2	1.44
2008/09	6830	110	0.17	-0.19	0.0361
			$\sum R = 3.24$		$\sum (R - \bar{R})^2 = 2.0948$

Source: Nepal Stock Exchange Trading Report

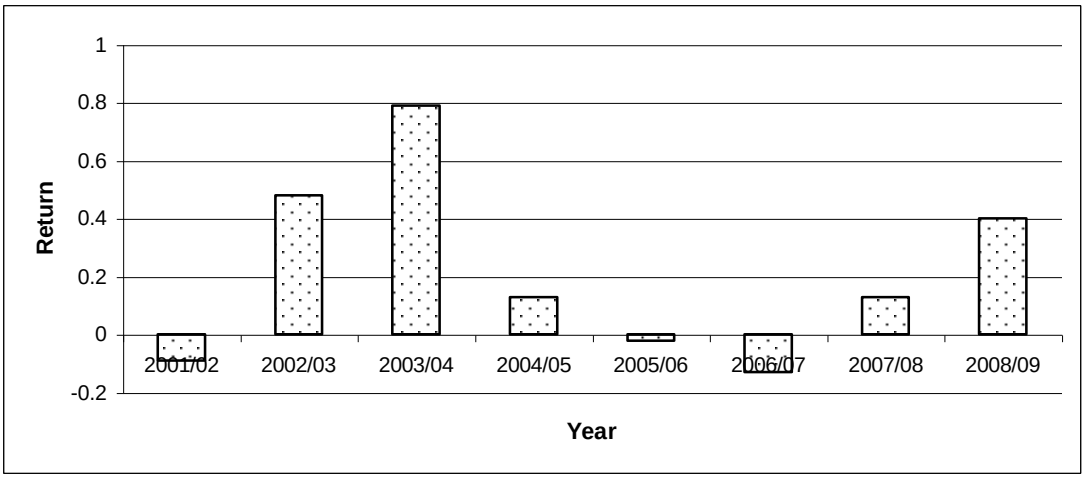
We have,

$$\text{Expected } (\bar{R}) = \frac{\sum R}{n} = \frac{3.24}{9} = 0.36$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{0.2.0948}{9 - 1}} = \sqrt{0.2618} = 0.5117$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.5117}{0.36} = 1.42$$

Fig. 4.10: Annual Return of Common Stock of SCBL



4.1.6 Everest Bank Limited (EBL)

4.1.6.1 Data

Market price and dividend records of common stock of EBL are shown in Table 4.11. MPS of EBL is very high in FY 2008/09. Year-end price movement of EBL is shown in the fig. 4.11. Annual dividend amounts gained by shareholders of EBL are given in the same table. The closing MPS is maximum (Rs.3132) in FY 2008/09 and lowest (Rs.407) in FY 2002/03. Similarly closing price are Rs.980, Rs.750, Rs.930, Rs.750, Rs.430, Rs.870 and Rs. 2430 in year 2000/2001, 2001/2002, 2003/2004, 2004/2005, 2005/2006, 2006/2007 and 2007/2008 respectively. Year-end price is shown in the Fig. 4.11. Figure shows that closing price is in fluctuating trend.

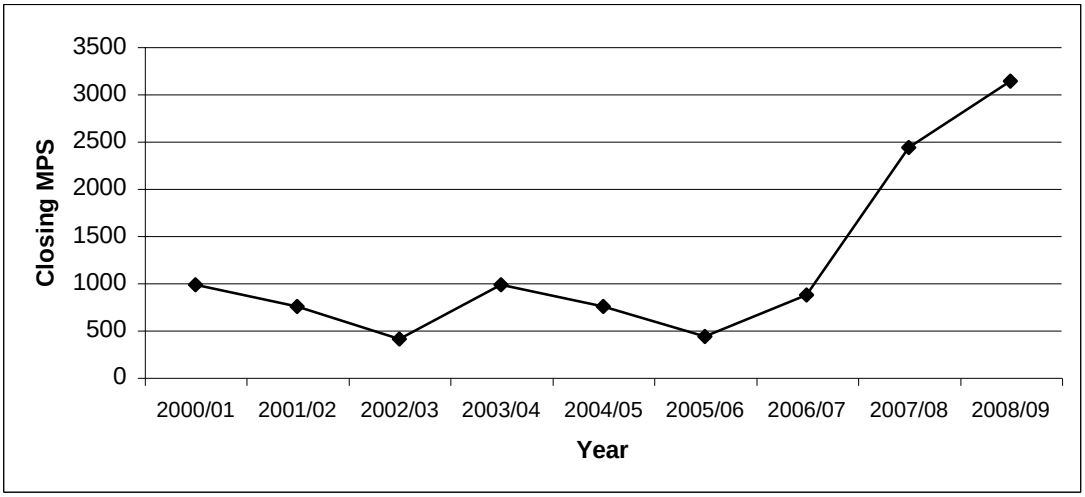
The price was increasing trend till 2003/04 and it is decreased in FY 2004/05 and 2005/06 then increased up to 2008/09. Annual dividend amounts gained by shareholders of EBL are given in the same table. The dividend amounts was not distributed up to 2006/07 and distributed in FY 2007/08 and 2008/09.

Table 4.11: MPS Dividend Data of EBL

FY	High MPS	Low MPS	Closing MPS	DPS
2000/01	925	490	500	0
2001/02	675	415	430	30
2002/03	762	404	700	50
2003/04	1495	700	1400	55
2004/05	2301	1310	1500	40
2005/06	1005	705	1000	50
2006/07	1515	1000	1505	65
2007/08	5050	4800	5050	50
2008/09	5275	5000	5275	65

Source: Nepal Stock Exchange Trading Report

Fig. 4.11: Year-end Price Movement of EBL



4.1.6.2 Realized Returns (R), Standard Deviation (σ) and Expected Returns ($\overline{R}$)

Year-end price and dividend amounts are used to calculate yield and capital gain yield is added to find return for each year. Table 4.12, shows the calculation of yearly-realized returns, expected return and standard deviations of returns. Expected return of the common stock of EBL is 0.67. Standard deviation of EBL is 0.75 and C.V. is 1.12.

Table 4.12: Realized Rate of Returns, Expected Returns and S.D. of C.S. of EBL

FY	Closing MPS (Rs)	Dividend (Rs)	$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$R - \overline{R}$	$(R - \overline{R})^2$
2000/01	980		-	-	
2001/02	750		925	490	500
2002/03	407		675	415	430
2003/04	980		762	404	700
2004/05	750		1495	700	1400
2005/06	430		2301	1310	1500
2006/07	870		1005	705	1000
2007/08	2430	20	1515	1000	1505
2008/09	3132	20	5050	4800	5050
			$\sum R$ =6.11		$\sum (R - \overline{R})^2$ =4.5557

Source: Nepal Stock Exchange Trading Report

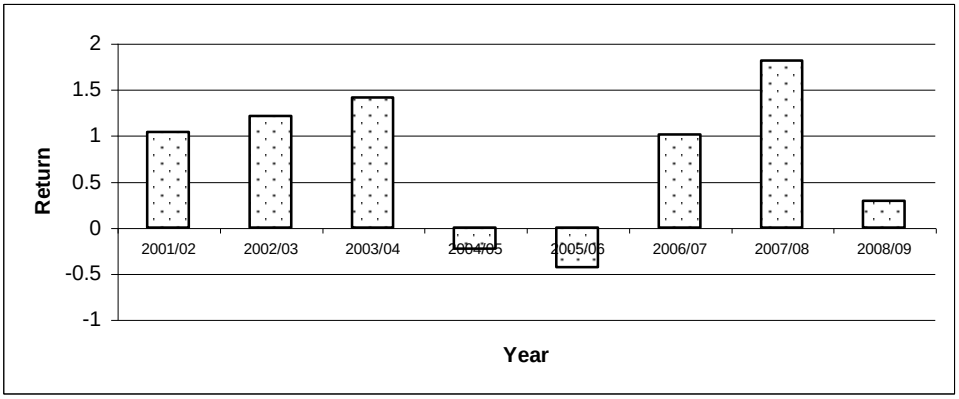
We have,

$$\text{Expected } (\bar{R}) = \frac{\sum R}{n} = \frac{6.11}{9} = 0.67$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum (R - \bar{R})^2}{n - 1}} = \sqrt{\frac{4.5557}{9 - 1}} = \sqrt{0.5694} = 0.75$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.75}{0.67} = 1.12$$

Fig. 4.12: Annual Return of Common Stock of EBL



4.1.7 Inter Bank Comparison

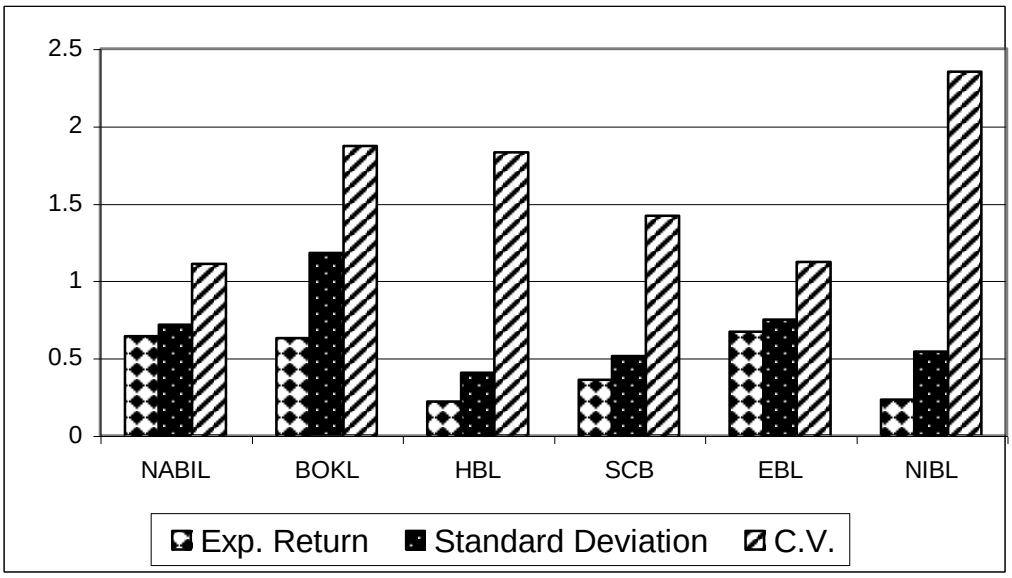
According to the return from the previous section, a comparative analysis of return and unsystematic risk is performed there. Expected return, standard deviation of returns, coefficient of variations of each bank for the year 2000/01 to 2008/09 is presented in table 4.13.

Table 4.13: Expected Return, S.D. and Coefficient of Variation of Each Bank

Bank	Expected Return	Standard Deviation	C.V.	Remarks
NIBL	0.23	0.5409	2.35	Higher C.V., lowest return
NABIL	0.64	0.7149	1.11	Higher C.V., higher return
BOKL	0.63	1.18	1.87	Higher C.V., higher return
HBL	0.22	0.4041	1.83	Higher C.V., lowest return
SCBL	0.36	0.5117	1.42	Higher C.V., lowest return
EBL	0.67	0.75	1.12	Lower C.V., higher return

Investor can get highest return from investment in common stock of EBL among the six banks and lowest from Himalayan Bank limited. Standard Chartered Bank has least unsystematic risk but BOKL has nearly equal unsystematic risk and expected return. To make the comparison easily understandable, diagram No 4.13 is presented below: Coefficient of Variation (C.V.) is the more appropriate basis of taking decision on the investment in single security because it measures risk per unit return of a stock. So, standard Deviation and Expected Return are included in it. Therefore, an investor should always be careful to invest in a security regarding its C.V. Like traffic red light, investor should provide utter care and be alert with C.V. From below figure 4.13 we have found that Everest Bank Ltd. has the best common stock for investment because of its minimum coefficient of variation. The contradiction of theory may be due to extreme value of return which ultimately affects the mean value of return. Higher the return lower will be the C.V. provided that other factor remaining same. But here other factor did not remain same.

Fig. 4.13: Expected Return, S.D. and C.V. of Each Bank



On the basis of the market capitalization, this is the total market value at the specific time period of the company, industry and market. The end of year 2008/09, sizes of each bank are presented in table 4.14 and figure 4.14 respectively.

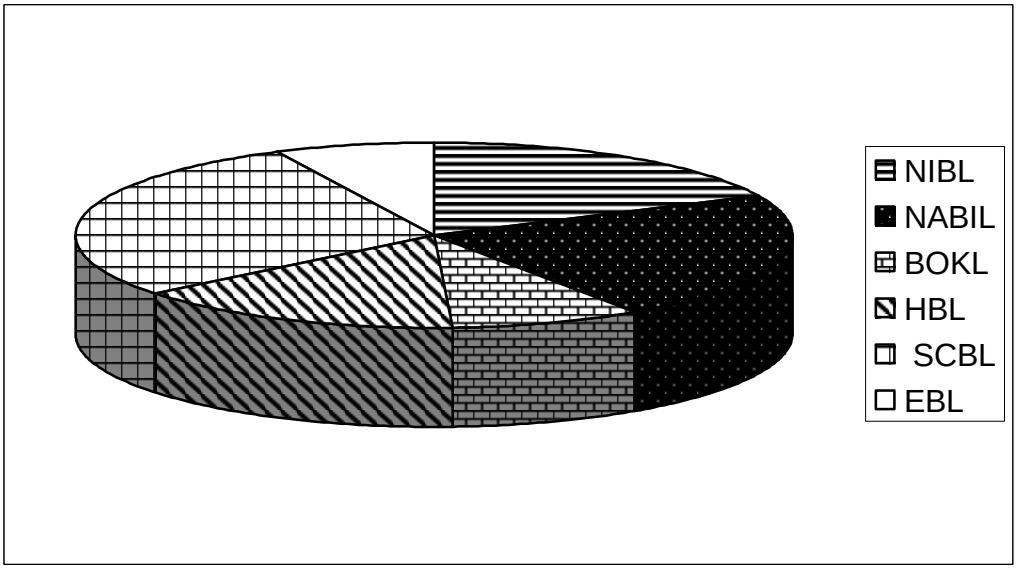
Table 4.14: Market Capitalization of Banks

(Rs. In Million)

Market capitalization as on 15th July 2009	
Banks	Market Capitalization
NIBL	29495.92
NABIL	36259.98
BOKL	14173.82
HBL	24081.05
SCBL	46497.54
EBL	11838.96
Total	162347.27

Source: Nepal Stock Exchange Annual Report

Fig. 4.14: Market Capitalization of Selected Banks under Study at 15th July 2009



Similarly, a comparison is made on the movement of market capitalization. Here only six joint venture banks are taken into the consideration during the period of 2000/01 to 2008/09. Table No.4.15 shows the comparative movement of market capitalization of six banks, NIBL, NABIL, BOKL, HBL, SCBL and EBL.

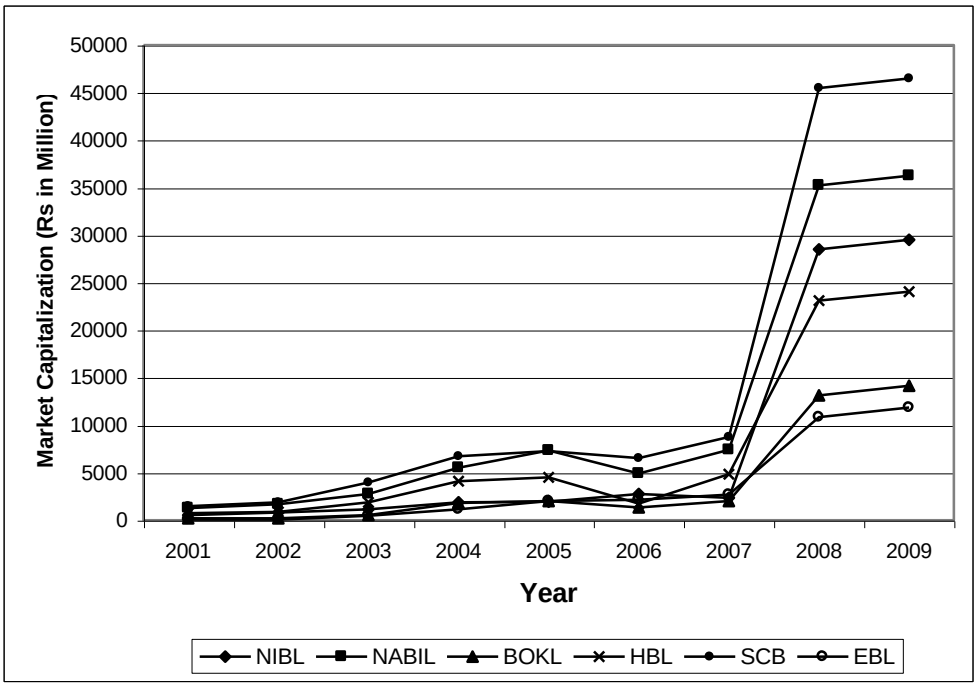
Table 4.15: Year wise Comparative Movement of Market Capitalization

(Rs. In Million)

Banks	Years								
	15 July 2001	15 July 02	15 July 03	15 July 04	15 July 05	15 July 06	15 July 07	15 July 08	15 July 09
NIBL	563	810	1112.58	1896.26	1945.66	2775.75	2362.34	28494.91	29495.92
NABIL	1308.50	1689.04	2749.60	5499.20	7374.75	4909.95	7389.47	35258.97	36259.98
BOKL	223.20	223.20	513	1796.40	1989	1367.56	1993.40	13172.81	14173.82
HBL	768.00	906.00	1920.0	4080	4500	1745	4830.0	23080.04	24081.05
SCBL	1500	1890	3945.56	6740.04	7279.93	6537.47	8785.32	45496.53	46497.54
EBL	80.12	88.32	488.40	1176	1989	2142	2704.50	10837.95	11838.96

Source: Nepal Stock Exchange Trading Report

Fig. 4.15: Year wise Comparative Movement of Market Capitalization



4.1.8 Inter-Industry Comparison

To compare the size of industries, table 4.16 and fig 4.16 are presented below. We can observe the banking industry has majority value of total market share i.e.72.0 percent. Though the percentage value shown in the figure is in the round value but the 'Trading' has covered the lowest market share value i.e. 1100 million is equal to 0.30 percent.

Table 4.16: Market Capitalization of Each Industry at July 15, 2009

Industry	Market Capitalization (Rs. In Million)	Percent
Banking	260000.0	72.0
Manufacturing and processing	7500.0	2.08
Hotel	25800.0	7.15
Trading	1100.0	0.30
Finance and insurance	48800.0	13.52
Others	17900.0	4.95
Total	361100	100

Source: Nepal Stock Exchange

Fig. 4.16: Market Capitalization of Each Industry at 15 July 2009

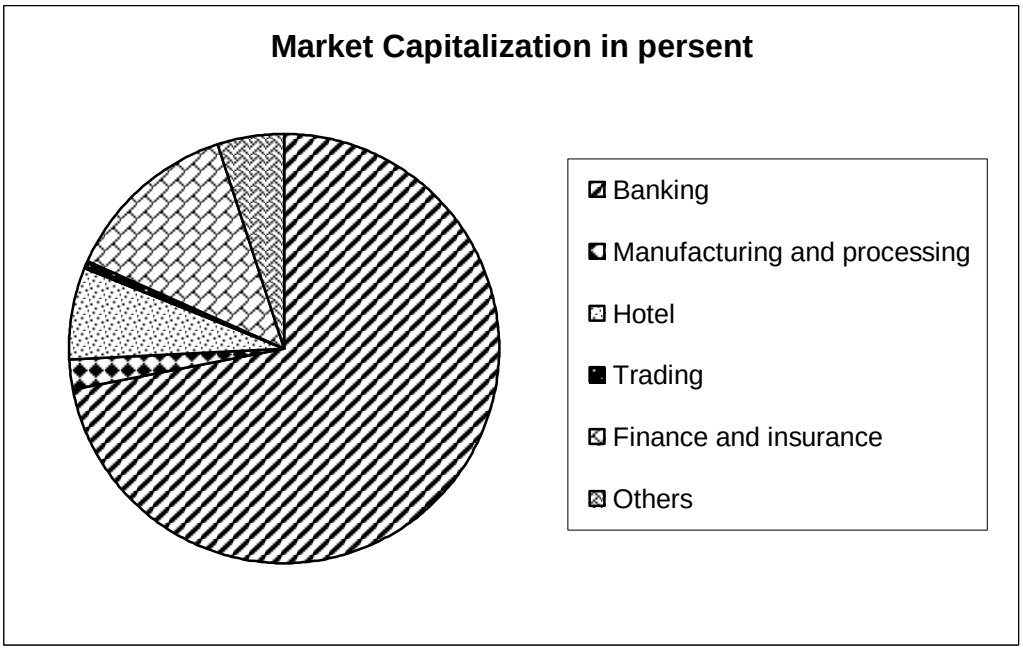


Table 4.17: Industry wise Market Capitalization

(Rs. In million)

Industry	July 02	July 03	July 04	July 05	July 06	July 07	July 08	July 09
Banking	6958.97	13632.42	28391.09	31235.21	21436.72	68694.36	40119.88	260000.0
Manufacturing and Processing	2611.38	3925.81	5201.56	4657.29	4731.30	5472.11	5024.83	7500.0
Hotel	1535.93	2309.90	3528.55	2904.62	2550.61	2344.21	2308.38	25800.0
Trading	654.54	642.04	602.29	552.36	488.02	764.44	635.88	1100.0
Finance and Insurance	2215.82	255.10	4235.61	4484.22	4949.70	9952.23	7632.23	48800.0
Others	200.00	420.29	432.46	249.88	1084.03	9586.39	5644.69	17900.0

Source: Nepal Stock Exchange Trading Report.

Fig. 4.17: Industry wise Movement of Market Capitalization

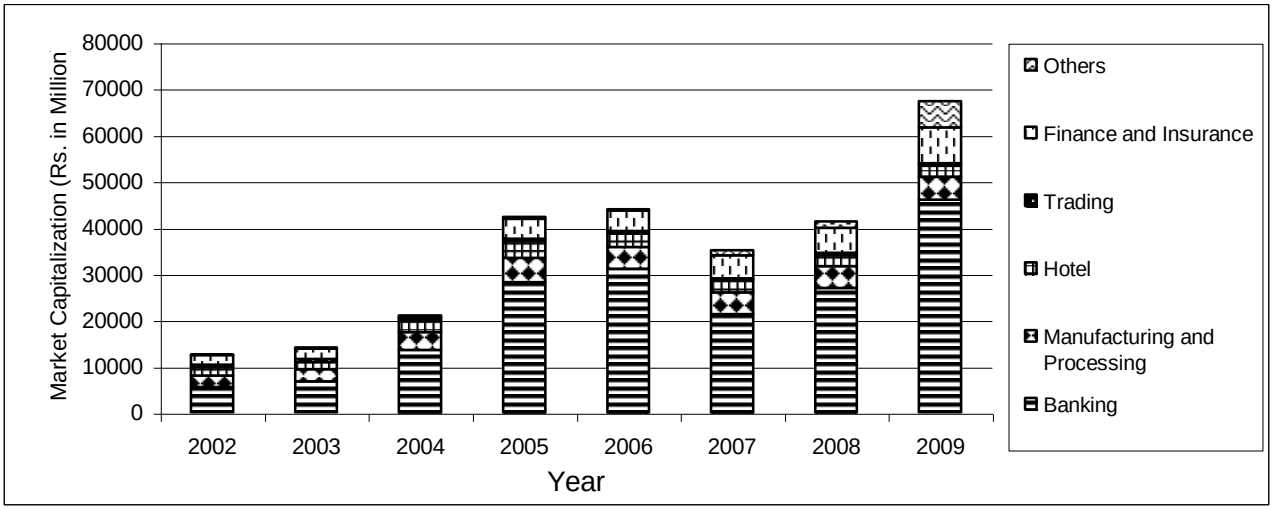


Table 4.18: Industry-wise NEPSE Index at Closing Date of FY 200/01 to 2008/09

Year/ Industry	Banking	Mfg. and Pro.	Hotel	Trading	Fin. and Ins.	Others	Market
2000/01	167.20	217.05	277.47	156.95	172.18	228.26	348.43
2001/02	194.95	226.65	244.49	160.58	176.32	221.59	227.54
2002/03	219.44	229.83	242.52	123.99	195.68	376.10	204.86
2003/04	397.17	340.59	346.15	123.74	305.98	308.46	222.04
2004/05	379.38	349.31	291.34	115.55	318.67	190.90	286.67
2005/06	219.35	273.67	216.51	102.2	288.75	77.34	386.86
2006/07	199.90	250.13	196.68	94.56	224.39	48.56	683.95
2007/08	966.5	418	390.7	213.4	1081.6	817.8	963.36
2008/09	985.7	423.7	370.9	204.1	1152.7	768.3	661.27

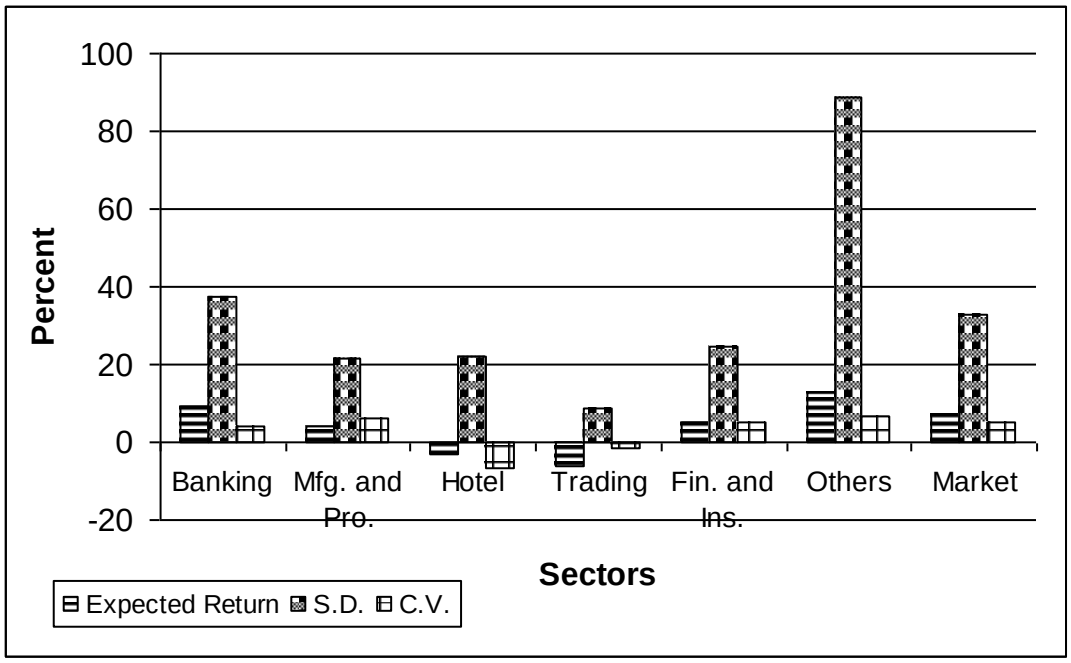
Source: Nepal Stock Exchange Trading Report

Table 4.19: Expected Return, S.D. of Return and C.V. of Industries

Industry	Expected Return	S.D.	C.V.	Remarks
Banking	0.1133	0.3320	2.93	Higher return
Mfg. and Pro.	0.04	0.1870	4.67	Higher C.V.
Hotel	-0.033	0.1904	-5.77	Negative C.V
Trading	-0.018	0.1467	-8.15	Negative C.V.
Fin. and Ins.	0.049	0.2151	4.39	Higher C.V.
Others	0.27	0.8791	3.25	Higher C.V.
Market	0.1266	0.3597	2.841	Higher C.V.

Expected rate of return, standard deviation and coefficient of variation are taken as main concern to make comparison between industries. Return of each industry is calculated on the basis of industry wise NEPSE index. Year-end industry-wise NEPSE index is given in Table 4.18. Detail of calculation of each variable of each industry is shown in Appendix (A –G).

Fig. 4.18: Industry wise Expected Return, S.D. and C.V.



Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

4.1.9 Comparison with Market

4.1.9.1 Market Risk and Return

There is only one stock market in Nepal, known as Nepal stock exchange shortly NEPSE. Overall market movement of the country is represented by the NEPSE index. Portfolio market return, its standard deviation and coefficient of variation are shown in Table 4.20.

Table 4.20: Calculation of Market Return, S.D. and C.V.

Year	NEPSE INDEX (NI)	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2000/01	348.43			
2001/02	227.54	-0.346	-0.4726	0.223351
2002/03	204.86	-0.099	-0.2256	0.050895
2003/04	222.04	0.083	-0.0436	0.001901
2004/05	286.67	0.291	0.1644	0.027027
2005/06	386.86	0.349	0.2224	0.049462
2006/07	683.95	0.767	0.6404	0.410112
2007/08	963.36	0.408	0.2814	0.079186
2008/09	661.27	-0.313	-0.4396	0.193248
Total		1.14	0.1272	1.035182

Source: Nepal Stock Exchange Trading Report

We have,

$$\text{Expected Return } (\bar{R}_m) = \frac{\sum R_m}{n} = \frac{1.14}{9} = 0.1266$$

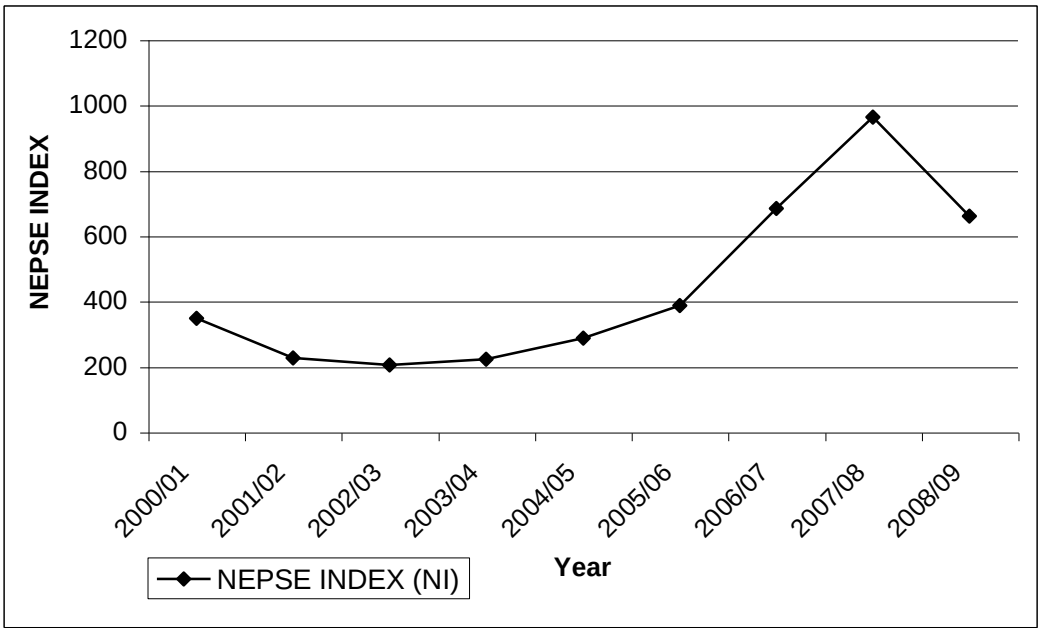
$$\text{S.D. } (\sigma_m) = \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{n-1}} = \sqrt{\frac{1.035182}{9-1}} = \sqrt{0.1293} = 0.3597$$

$$C.V._m = \frac{\sigma_m}{\bar{R}_m} = \frac{0.3597}{0.1266} = 2.841$$

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

In comparison with market risk (35.97%), manufacturing and processing industry (18.70%), Hotel Industry (19.04%), Trading industry (14.67%) and Finance and insurance industry (21.51%) have lower risk than that of market risk where as banking industry (33.20%) and 'others' industry (87.91%) have higher risk than market risk.

Fig. 4.19: NEPSE Index Movement



4.2 Analysis of Market Sensitivity

Beta coefficient explains the market sensitivity. Higher the beta greater the sensitivity and higher will be the reaction to the market movement. Beta measures the systematic risk, which cannot be eliminated by mean of diversification.

Beta coefficient of market is always equal to one. . This statement can be proved as follows:

$$\beta_i = \frac{Cov.(R_i\ R_m)}{\sigma^2_m} = \frac{\sigma_i\ \sigma_m \rho_{im}}{\sigma^2_m}$$

Where, ρ_{im} = Correlation coefficient between market return and stock return.

Hence,

$$\beta_m = \frac{Cov.(R_m\ R_m)}{\sigma^2_m} = \frac{\sigma_m\ \sigma_m \rho_{mm}}{\sigma^2_m} = 1, \text{ since } \rho_{mm} = 1$$

Hence, Beta coefficient of market is always equal to 1.

Table 4.21: Equilibrium Return Expected Return and Price Evaluation

Banks	Beta(βi)	$E(Ri)=R_f+(R_m-R_f)\ \beta i$	Expected return (R_i)	Price situation
NIBL	1.05	0.0092	0.23	Under price
NABIL	1.529	0.1147	0.64	Under price
BOKL	3.19	0.19	0.63	Under price
HBL	0.8680	0.083	0.22	Under price
SCBL	0.8325	0.082	0.36	Under price
EBL	1.67	0.1213	0.67	Under price

Where, R_f = Risk free Rate of Return = 0.0432 i.e. 4.32%[1]

R_m = Market return of return = 0.1266 i.e.12.66%[2]

$E(R_i)$ = Equilibrium Rate of Return of Capital Assets Pricing Model (CAPM)

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

4.2.1 Portfolio Analysis

A portfolio is a combination of different investment assets. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. It reduces a portfolio's total diversifiable risk to zero. Previous analysis to risk and return is based on the investment in single security. The expected return of portfolio is simply a weighted average of the expected return of the securities comprising that portfolio the weights are equal to the proportion of total fund invested in each security. The sum of weight must be 100%. Analyses have shown that many Nepalese private investors placed their entire wealth in single asset or investment if they construct a portfolio or group of investment in such kind of assets, which are negatively correlated. They can reduce unsystematic risk dramatically without loosing their return. Therefore, we need to extend our analysis of risk and return to portfolio context.

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[1] Risk free rate is based on the weight average Treasury bill rate of 364 days (*Quarterly Economies Bulletin* NRB mid July 2009).

[2] Expected Market rate of Return is for the year 2000/01 to 2008/09.

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

Here the portfolio of the common stock of NABIL (let's suppose stock A) and common stock of BOKL (let's suppose stock B) is analyzed. The following table 4.22 shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.22: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2000/01			
2001/02	-0.33	-0.41	0.1353
2002/03	0.49	0.96	0.4704
2003/04	0.83	2.1	1.743
2004/05	-0.15	-0.55	0.0825
2005/06	-0.54	-1.11	0.5994
2006/07	-0.52	-0.74	0.3848
2007/08	0.18	0.15	0.027
2008/09	0.32	0.04	0.0128
Total			3.4552

We have

$$\text{Cov}(R_A.R_B) = \frac{\sum(R_A - \bar{R}_A)(R_B - R_B)}{n-1} = \frac{3.4552}{8} = 0.4319$$

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

$$W_A = \frac{\sigma_B^2 - \text{Cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}(R_A, R_B)} = \frac{1.08 - 0.4319}{0.2196 + 1.08 - 2*0.4319}$$

$$= \frac{0.6481}{0.4358} = 1.4871$$

$W_B = 1 - W_A = 1 - 1.4871 = -0.4871$

Where

σ_A^2 = Variance of stock of NABIL

σ_B^2 = Variance of stock of BOKL

Cov (R_A, R_B) = Equivalent representation of covariance of returns between stock of NABIL and BOKL

W_A = Proportion of stock of NABIL.

W_B = Proportion of stock of BOKL

Portfolio return,

$R_p = W_A R_A + W_B R_B$

=1.4871*0.25-0.4871*0.41=0.1719

Portfolio risk,

$$\sigma_p = \sqrt{W^2{}_A \sigma^2{}_A + W^2{}_B \sigma^2{}_B + 2 W_A W_B \text{Cov.}(R_A . R_B)}$$

$$\sigma_p = \sqrt{2.21 * 0.2196 + 0.2372 * 1.08 + 2 * 1.4871 * -0.4871 * 0.4319}$$

$$\sigma_p = \sqrt{0.1157}$$

= 0.3401

Correlation:

$$(r_{AB}) = \frac{\text{Cov}(R_A, R_B)}{\sigma_A \, . \, \sigma_B} = \frac{0.4319}{0.4686 * 1.04} = \frac{0.4319}{0.4873} = 0.8863$$

Since WA = 1.4871, and WB = -0.4871, this result indicates that if the investor wanted to minimize risk, he/she would have to invest 148.71% of his/her capital in stock A i.e. common stock of NABIL and the 48.71% disinvestment in stock B i.e. common stock of BOKL.

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

Again, the portfolio of the common stock of HBL (let's suppose stock A) and common stock of SCBL (let's suppose stock B) is analyzed. The following table 4.23, shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.23: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$\left(R_A - \overline{R}_A\right)$	$\left(R_B - \overline{R}_B\right)$	$\left(R_A - \overline{R}_A\right)\left(R_B - \overline{R}_B\right)$
2000/01			
2001/02	0.24	-0.27	-0.0648
2002/03	0.28	0.30	0.084
2003/04	0.64	0.61	0.3904
2004/05	-0.22	-0.05	0.011
2005/06	-0.21	-0.20	0.042
2006/07	-0.47	-0.31	0.1457
2007/08	-0.09	-0.05	0.0045
2008/09	-0.02	0.22	-0.0044
Total			0.6084

We have

$$\text{Cov}(R_A.R_B) = \frac{\sum\left(R_A - \overline{R}_A\right)\left(R_B - R_B\right)}{n-1} = \frac{0.6084}{8} = 0.0758$$

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

$$W_A = \frac{\sigma_B^2 - \text{Cov}\left(R_A, R_B\right)}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}\left(R_A, R_B\right)} = \frac{0.09 - .0.0758}{0.107 + 0.09 - 2*0.0758}$$

$$= \frac{0.0142}{0.0454} = 0.3127$$

$W_B = 1 - W_A = 1-0.3127=0.6873$

Where

σ_A^2 = Variance of stock of HBL

σ_B^2 = Variance of stock of SCBL

Cov (R_A, R_B) = Equivalent representation of covariance of covariance of returns between stock of HBL and SCBL

W_A = Proportion of stock of HBL.

W_B = Proportion of stock of SCBL

Portfolio return,

$R_p = W_A R_A + W_B R_B$

$=0.1506*0.20+0.8494*0.43=0.3953$

$$\sigma_p = \sqrt{W^2{}_A\sigma^2{}_A + W^2{}_B\sigma^2{}_B + 2W_A W_B \text{Cov.}(R_A.R_B)}$$

$$\sigma_p = \sqrt{0.0226*0.581 + 0.7214*0.414 + 2*0.1506*0.8494*0.3780}$$

$\sigma_p = \sqrt{0.0967}$

=0.3109

Correlation:

$$(r_{AB}) = \frac{Cov(R_A, R_B)}{\sigma_A \,.\, \sigma_B} = \frac{0.0758}{0.329 *.0.30} = \frac{0.0758}{0.0984} = 0.7703$$

Since WA = 0.3127, and WB = 0.6873, this result indicates that if the investor wanted to minimize risk, he/she would have to invest 31.27% of his/her capital in stock A i.e. common stock of HBL and the higher part 68.73% in stock B i.e. common stock of SCBL.

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

Again, the portfolio of the common stock of NIBL (let's suppose stock A) and common stock of EBL (let's suppose stock B) is analyzed. The following table 4.24 shows the calculation of covariance, correlation and the proportion of stock of the return of the given two stocks.

Table 4.24: Cov ($R_A.R_B$), Correlation (r_{AE}) and Weights of Stock A and Stock B

Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2000/01			
2001/02	-0.067	0.61	-0.04087
2002/03	0.423	0.78	0.32994
2003/04	0.713	0.98	0.69874
2004/05	-0.737	-0.66	0.48642
2005/06	-0.357	-0.86	0.30702
2006/07	0.053	-0.40	-0.0212
2007/08	0.173	0.14	0.02422
2008/09	-0.167	-0.13	0.02171
Total			1.8059

We have

$$\text{Cov } (R_A.R_B) = \frac{\sum (R_A - \overline{R}_A)(R_B - R_B)}{n - 1} = \frac{1.8059}{8} = 0.2257$$

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

$$W_A = \frac{\sigma_B^2 - Cov(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2Cov(R_A, R_B)} = \frac{0.414 - 0.2257}{0.1778 + 0.414 - 2*0.2257}$$

$$= \frac{0.1883}{0.1404} = 1.34$$

$W_B = 1 - W_A = 1-1.34= -0.34$

Where

σ_A^2 = Variance of stock of NIBL

σ_B^2 = Variance of stock of EBL

Cov (R_A, R_B) = Equivalent representation of covariance of covariance of returns between stock of NIBL and EBL

W_A = Proportion of stock of NIBL.

W_B = Proportion of stock of EBL

Portfolio return,

$R_p = W_A R_A + W_B R_B$

$=1.34*0.027-0.34*0.4512=-0.1173$

$$\sigma_p = \sqrt{W^2{}_A \sigma^2{}_A + W^2{}_B \sigma^2{}_B + 2W_A W_B Cov.(R_A.R_B)}$$

$$\sigma_p = \sqrt{1.79*0.1778 + 0.1156*0.4678 + 2*1.34*-0.34*0.2257}$$

$$\sigma_p = \sqrt{0.1666}$$

$=0.408$

Correlation:

$$(r_{AB}) = \frac{Cov(R_A, R_B)}{\sigma_A \cdot \sigma_B} = \frac{0.2257}{0.4217 * 0.64} = \frac{0.2257}{0.2698} = 0.8365$$

Since WA = 1.34, and WB = -0.34. This result indicates that if the investor wanted to minimize risk, he/she would have to invest 1.34% of his/her capital in stock A i.e. common stock of NIBL and the 34% disinvestment in stock B i.e. common stock of EBL.

The main aim of the portfolio construction is to reduce the risk. But the portfolio between the common stock of NIBL and EBL cannot reduce risk significantly with comparison to reduction in return. And the correlation of above two stocks is 0.8365, which is positively correlated, so the portfolio construction between these two stocks is not beneficial.

4.2.2 Sharpe's: The Single Index Model (SIM) for Determination of Optimal Portfolio

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

Table 4.25: Data Needed to Find Optimal Portfolio (T=4.20)

Security No. i,	Mean return $\tilde{R}_i$	Excess return $\tilde{R}_i - T$	Beta β_{im}	Unsystematic Risk $\sigma e^2 i$	Excess Return over Beta $(\tilde{R}_i - T)/\beta_{im}$
1.NABIL	64	59.8	1.52	2.09	39.34
2. SCBL	36	31.8	0.83	3.1	38.31
3. EBL	67	62.8	1.67	17.06	37.60
4.HBL	22	17.8	0.86	4.4	20.69
5.BOKL	63	58.8	3.19	24.81	18.43
6. NIBL	23	18.8	1.05	8.24	17.90

Table 4.25 and 4.26 depicts the ranking procedure. Table 4.25 contains the data necessary to determine an optimal portfolio. It is the normal output generated from a single index model, plus the ratio of excess return to beta. There are six securities in the tables. They are already ranked. Selecting the optimal portfolio involves the comparison of $(\tilde{R}i - T)/\beta im$ with C*. For C* = 35.29 Examining table 4.25 shows that for securities 1(NABIL), 2(SCBL) and 3 (EBL), $(\tilde{R}i - T)/\beta im$ is greater than C*, while for security 4, 5 and 6 it is greater than $(\tilde{R}i - T)/\beta im$. Hence, an optimal portfolio consists of securities 1(NABIL), 2(SCBL) and 3 (EBL).

All securities whose excess return-to-risk ratios are above the cut-off rate are selected and all those whose ratios are below are rejected. The value of C* is computed from the characteristics of all of the securities that belong in the optimum portfolio. To determine C*, it is necessary to calculate its values as if there were different numbers of securities in the optimum portfolio. Suppose Ci is candidate of C*, the value of Ci is calculated when i securities are assumed to belong to the optimal portfolio.

Since securities are ranked from highest excess return to beta to lowest, we know that if a particular security belongs in the optimal portfolio, all higher ranked securities also belong in the optimal portfolio. It was proceed to calculate values of a variable Ci as if the first ranked security were in the optimal portfolio (i=1), then the first and second ranked securities were in the optimal portfolio (i=2), and so on. These Ci are candidates for C Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

Where:

σ^2_m = variance of the market index

σ^2_{ei} = variance of a security's movement that is associated with the movement of the market index;

Table 4.26: Calculation for Determining Cut-off rate with σ_m^2=12.93

Security	$(\tilde{R}_i - T)/\beta_{im}$	$\frac{(\tilde{R}_i - T)\beta_{im}}{\sigma_{ei}^2}$	$\frac{\beta^2_{im}}{\sigma^2_{ei}}$	$\sum_{i=1}^{i} \frac{(R_i - T)\beta_{im}}{\sigma^2_{ei}}$	$\sum_{i=1}^{i} \frac{\beta^2_{im}}{\sigma^2_{ei}}$	C
1.NABIL	39.34	43.49	1.105	43.49	1.105	36.80
2. SCBL	38.31	8.15	0.2222	51.64	1.3272	36.76
3. EBL	37.60	6.14	0.1634	57.78	1.4906	36.85
4.HBL	20.69	3.47	0.1680	61.25	1.6586	35.29
5.BOKL	18.43	7.56	0.4101	68.81	2.0687	32.07
6. NIBL	17.90	2.39	0.1337	71.2	2.2024	31.23

To construct the optimum portfolio, the percent invested for each selected security in the optimal portfolio was calculated. The percentage invested in each security is:

$$X_i^0 = \frac{Z_i}{\sum_{j=1}^{n} Z_j}$$

Where

$$Z_i = \frac{\beta_{im}}{\sigma^2_{ei}}\left[\frac{\tilde{R}_i - T}{\beta_{im}} - C^*\right]$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security σ^2_{ei} plays an important role in determining how much to invest in each security. Applying this formula to selected banks, we have:

$$Z_1 = \frac{1.52}{2.09}(39.34 - 35.29) = 0.2.94$$

$$Z_2 = \frac{0.83}{3.1}(38.31 - 35.29) = 0.0.80$$

$$Z_3 = \frac{1.67}{17.06}(37.60 - 35.29) = 0.22$$

$$\sum_{i=1}^{2} Z_i = 3.96$$

Dividing each security Zi by the sum of the Zi it would be possible to invest 74.25 percent of total funds in security 1 (NABIL), 20.20 percent in security 2(SCBL) and 5.55 percent in security 3(EBL).

Based on a result of an in-depth study of overall portfolio management of 15 commercial banks operating in the country, Nepal Rastra Bank for the first time in its history has ranked Nepal Industrial and Commercial (NIC) Bank with the score of 1250 in number one position. According to the study, this was based on the statistics of third-quarter of the fiscal year 2005/06. Likewise, with the score of 1043, Everest Bank Limited captured the second position while Standard Chartered Bank secured 1022 and remained in third position. The banks were ranked as per the international standard of CAELS. The study was conducted on the basis of five key financial parameters: capital adequacy, assets quality, earnings, liquidity and sensitivity to market risks. From this study of overall portfolio management of selected banks EBL, SCBL and NABIL were selected as optimal portfolio which were some extent match with NRB's previous study report.

4.3 Major Findings of the Study

4.27: Expected Return, S.D. and C.V. and Beta (βi) of Sample Banks

Bank	Expected Return	Standard Deviation	C.V.	Beta(βi)
NIBL	0.23	0.5409	2.35	1.05
NABIL	0.64	0.7149	1.11	1.529
BOKL	0.63	1.18	1.87	3.19
HBL	0.22	0.4041	1.83	0.8680
SCBL	0.36	0.5117	1.42	0.8325
EBL	0.67	0.75	1.12	1.67

Details of data, its presentation and analysis reveal that standard deviation of BOKL is 118% which is highest of all the banks selected for study. Standard deviation of EBL, NIBL, NABIL, HBL, and SCBL are 75%, 54.09%, 40.41%, and 51.17% respectively. Depending upon this parameter i.e. S.D., HBL and SCBL stock is said to be relatively less risky. On the other hand, expected return of' EBL is 67% indicating its highest position in return and NIBL, NABIL, BOKL, SCBL, and HBL have 23%, 64%, 63%, 36% and 22% respectively in terms of expected return. Thus, both the parameters differ as to which stock to choose - as per S.D. investors must choose HBL and SCBL (as they have lowest S.D.) while as per expected return, investors must choose EBL. To remove this difficulty regarding the choice of individual stocks, we can use other relative measure of risk i.e. coefficient of variance (C.V.). Stock NABIL, which has its C.V. least of all i.e. 1.11, is the best investment alternative as it has least risk per unit of expected return. CVs for other five banks – BOKL, NIBL, HBL, EBL, and SCBL are 1.87, 2.35, 1.83, 1.12, & 1.42 respectively.

Market Capitalization of the selected banks in 2007 i.e. NIBL, NABIL, BOKL, SCBL, HBL and EBL are Rs.2362.34, Rs. 7389.47, 1993.40, 8785.32, 4830 and 2704.50 (Rs. in Million) respectively, SCBL is in its highest position regarding the market capitalization and then NABIL followed by HBL, EBL, NIBL and BOKL. Out of the total market capitalization of various industries, banking sector covers most of the share i.e. 72.0%. Analysis and interpretation as to the industry wise NEPSE index shows that banking sector has higher return than all others. Standard deviation seems in its midest position for this sector.

Over all market risk and return can be assessed through over all NEPSE index. NEPSE index is very high in the year 2003/2004 and it has decreased little bit in the year 2004/05. It is lowest i.e. 163.35 in 2001/02. In comparison with market risk

(29.44%), manufacturing and processing industry (18.70%), hotel industry (19.04%), Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

BOKL are said to be aggressive stocks for being their betas greater than 1, While SCBL and HBL's stock is defensive as its beta less than 1. When aggressive stock is added to a market portfolio, it increases the risk but opposite type of effect has of the stock having beta less than 1.

Investing in a single asset is riskier job. If investor constructs a portfolio i.e. group of investments, s/he can reduce risk dramatically without losing considerable return. Therefore, a brief analysis of risk and return is extended to portfolio context.

The expected return of a portfolio is simply a weighted average of the expected returns of the securities comprising that portfolio. The weights are equal to the proportions of the total funds invested in each security. While the portfolio expected return is a straightforward weighted average of returns on the individual securities. The portfolio standard deviation is not the weighted average of individual security's standard deviation. Proper selection and combination of' stocks from this sector to form portfolio wiI1 be very useful. Portfolio risks made up of stocks of HBL and SCBL were 29.22%, while it is 32.80% and 30% respectively if held individually. To what extent various joint venture banks stocks are useful to form a portfolio is determined by the associated co-movement of returns of the stock and measured by their correlation coefficient. Correlation coefficient of NABIL and BOKL is 0.8863, HBL and SCBL is 0.7703 and 0.8365 of NIBL and EBL. Portfo1io risk made up of stocks NABIL and BOKL is 34.01% and NIBL and EBL is 40.8%. Portfo1io made up of stocks HBL and SCBL will be more useful than the portfolio made up of stocks NABIL and BOKL & NIBL and EBL. Likewise, portfolio made from combining HBL and SCBL do little toward reduction of the risk of' individual stock as it has moderately positive correlation.

The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R}$ -T)/βim. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The number of securities selected depends on a unique cut-off rate such that all securities

with higher ratio of ($\tilde{R}$ -T)/βim is included and all securities with lower rates excluded.

From analysis it shows that for securities Nepal Investment Bank, Everest Bank and Standard Chartered Bank, ($\tilde{R}$ i -T)/βim is greater than cut off rate, while fore other security, it is greater than ($\tilde{R}$ i -T)/βim. Hence, an optimal portfolio consists of securities 1(NABIL), 2(SCBL) and 3 (EBL). By constructing the optimum portfolio, the percent invested for each selected security in the optimal portfolio was determined. The percentage invested in each security was also found. It was found that 74.25 percent of total funds can be invested in NABIL Bank Security, 20.20 percent in Standard Chartered Bank Security and 5.55 percent in security of Everest Bank in order get optimal portfolio.

CHAPTER V
SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study has taken six joint venture banks, which are listed in NEPSE. An analysis of the risks and return in common stocks of these banks are made in this study.

Trade off between risk and return is the central focus of finance. And its major part stock market has greatest glamour, not only for the professionals or institutional investors but for the individual or private as well. Risk and return, a new and complex concept is also foundation of modern investment. Here, risk is defined as the variability of the return of a period. The greater the variability of the returns, the riskier the investment whereas an investment involves the sacrifice of current rupees for future rupees or reward, that future rupees or reward is called the return. It includes both current income and capital gains or losses that arise due to the increase or decrease on price of the security.

Stock market investment is the main focus of the study. Stock market investment can be both rewarding and fun so long as sufficient tune is given to appreciate its many facts and characteristics.

The relationship between risk and return described by investors' perception about risk and their demand for compensation, all the investors will like to invest in non-risky assets. So, risk plays a vital role in the analysis of investment and to reach an investment decision. Higher risk gives bigger premium and the trade off between the two assumes a linear relationship between risk and risk premium.

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

5.2 Conclusions

Details of data, its presentation and analysis reveal that standard deviation of BOKL is 118% which is highest of all the banks selected for study. Standard deviation of EBL, NIBL, NABIL, HBL, and SCBL are 75%, 54.09%, 71.49%, 40.41% and 51.17% respectively. Depending upon this parameter i.e. S.D., SCBL stock is said to be relatively less risky. On the other hand, expected return of' EBL is 67% indicating its highest position in return and NIBL, NABIL, BOKL, SCBL, and HBL have 23%, 64%, 63%, 36% and 22% respectively in terms of expected return. Thus, both the parameters differ as to which stock to choose - as per S.D. investors must choose SCBL (as it has lowest S.D.) while as per expected return, investors must choose EBL. To remove this difficulty regarding the choice of individual stocks, we can use other relative measure of risk i.e. coefficient of variance (C.V.). Stock NABIL, which has its C.V. least of all i.e. 1.11, is the best investment alternative as it has least risk per unit of expected return. CVs for other five banks – BOKL, NIBL, HBL, EBL, SCBL and are 1.87, 2.35, 1.83, 1.12, & 1.42 respectively.

Market Capitalization of the selected banks in 2007 i.e.NIBL, NABIL, BOKL, SCBL, HBL and EBL are Rs.2362.34, Rs. 7389.47, 1993.40, 8785.32, 4830 and 2704.50 (Rs. in Million) respectively, SCBL is in its highest position regarding the market capitalization and then NABIL followed by HBL, EBL, NIBL and BOKL. Out of the total market capitalization of various industries, banking sector covers most of the share i.e. 72%. Analysis and interpretation as to the industry wise NEPSE index shows that banking sector has higher return than all others. Standard deviation seems in its midest position for this sector.

Over all market risk and return can be assessed through over all NEPSE index. NEPSE index is very high in the year 2003/2004 and it has decreased little bit in the year 2004/05. It is lowest i.e. 163.35 in 2001/02. In comparison with market risk (29.44%), manufacturing and processing industry (18.70%), hotel industry (19.04%), trading industry (14.67%), finance and insurance industry (21.51%) have lower risk than that of market risk, where as others industry (87.91%) and banking (33.20%) have higher standard deviation. Beta Coefficient, which is sometimes called correct measure of risk shows the stocks return sensitivity relative to market. Beta coefficient of NIBL, NABIL, EBL and BOKL are1.05, 1.529, 1.67 and 3.19 respectively and are

greater than 1, which indicates that return of stocks of NIBL, NABIL, EBL and BOKL are more volatile than that of market. For example, every 1% change in market return leads to 1.529% change in NABIL stock's return. Most of all of the banks have positive beta showing positive relationship with market return

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

Investing in a single asset is riskier job. If investor constructs a portfolio i.e. group of investments, s/he can reduce risk dramatically without losing considerable return. Therefore, a brief analysis of risk and return is extended to portfolio context.

The expected return of a portfolio is simply a weighted average of the expected returns of the securities comprising that portfolio. The weights are equal to the proportions of the total funds invested in each security. While the portfolio expected return is a straightforward weighted average of returns on the individual securities. The portfolio standard deviation is not the weighted average of individual security's standard deviation. Proper selection and combination of' stocks from this sector to form portfolio wiI1 be very useful. Portfolio risks made up of stocks of HBL and SCBL were 29.22%, while it is 32.80% and 30% respectively if held individually. To what extent various joint venture banks stocks are useful to form a portfolio is determined by the associated co-movement of returns of the stock and measured by their correlation coefficient. Correlation coefficient of NABIL and BOKL is 0.8863, HBL and SCBL is 0.7703 and 0.8365 of NIBL and EBL. Portfo1io risk made up of stocks NABIL and BOKL is 34.01% and NIBL and EBL is 40.8%. Portfo1io made up of stocks HBL and SCBL will be more useful than the portfolio made up of stocks NABIL and BOKL & NIBL and EBL. Likewise, portfolio made from combining HBL and SCBL do little toward reduction of the risk of' individual stock as it has moderately positive correlation.

The desirability of any security is directly related to its excess return to beta ratio: $(\tilde{R}$ -T)/βim. Securities are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any security's inclusion in a portfolio. The

number of securities selected depends on a unique cut-off rate such that all securities with higher ratio of ($\tilde{R}$ -T)/βim is included and all securities with lower rates excluded.

Expected return of the portfolio of others industries lies on the first position and that banking industries lies on the second position. The expected return of banking industry is 11.33%. In comparison with rest industries 'manufacturing and processing industries' possesses highest coefficient of variation

According to CAPM model, required rates of' return is risk free rate plus risk premium in market weighted by its beta. Comparison between RRR and ERR gives the idea whether the stock is over or under priced. All the stocks under study are under priced, as their expected returns are higher than required rate of return. Depending upon general rule regarding buy and sell, all the under priced stocks must be bought.

5.3 Recommendations

This study has focused on individual investors who are going to invest their wealth on banking sector. Moreover, other components of stock market are also considered to some extent. Based on this study, individual investors can invest their wealth on right stocks. On the basis of the analysis and findings of this study, the following recommendations are prescribed. The recommendations are presented separately i.e. number-wise to different aspect of the study, which will be more beneficial and ease to understand and to improve present stock performance by the banks under study.

1. Risk and return of banking sector is very divergent. It is suggested to analyze risk and return sincerely before investing in this sector. It is not always reliable to reach in a decision based on the risk and return. It is highly preferable to use CV. to reach to ideal investment alternatives. According to CV, NABIL is the best of all, as it has least C.V.
2. Standard deviation gives ideas as to total risk. But investors must concern with the systematic risk as measure by the given stock's beta. Systematic risk is only the risk, which is priced at market. Stock of EBL, has systematic risk greater than other while; HBL has its beta least of all. Although there is

chance of more return than that of expected, there is also a chance of heavy loss because stock market investment a risky job. So investor must be well aware of this fact and must be able to visualize and analyze the whole things. It is possible to beat the stock market but proper analysis of individual security, industry and overall market is always essential. General knowledge about economic, political and technological trend is advantageous.

3. Investors need to diversify their fund to reduce risk. Efficient portfolio depends on market movement. For the portfolio construction Investor should select the stocks that have higher return and negative correlation or moderate positive correlation between stocks of different companies and sector. Similar, stocks cannot diversify risk properly. Investors should follow the following guidelines: focus on fundamentals but keep an eye on technical, diversify moderately and periodically review and revise the portfolio. Investor like higher return but risk is inevitable thing attached with return. To reduce risk, portfolio evaluation from time to time is necessary. Managing portfolio construction, select the stocks those have higher return with less or negative correction. For our purpose, correlation of returns of the stocks of HBL and SCBL are least of all and accordingly, are the best of all for portfolio construction.
4. Before making an investment decision in stock, assessment of personal risk attitude, needs and requirements will always be helpful. To make several discussions with stockbroker before reaching at the decision on the basis or reliable information rather than rumor and imagination will ultimately favor the investor. Investor should make their investment decisions based on financial parameters of the banks. They not rush over the rumors.
5. Conservative equity investors seek to minimize the investment risk as well as the time and effort devoted to portfolio management. Conservative equity investors should bear in mind the following suggestions specially applicable to them:
    a. Look for relatively safe opportunities in the primary market.
    b. Participate in the schemes of mutual funds.
    c. Join a suitable portfolio management scheme.
    d. Consult an investment advisor.

6. To provide different type of securities at the same place to investors, NEPSE should manage the trading of government securities. It will increase the opportunities for well diversification of funds to investors and it will also increase the private investor's participation in government securities.
7. Nepal Sock Exchange needs to modernize the trading system and effective information channel. It needs to 'develop different program for private investors. These programs will contribute to increase investor's rationality as well as market efficiency.
8. The listed companies should operate their activity smoothly. They should publish their annual reports and information timely and correctly which will help to the investors to take the investment decision on their common stocks.
9. At last, once again, common stock investment is risky. So investors should learn about the operations of the security market, the characteristics or various investment avenues available to them, the concept of time value of money, the basic models of security evaluation, the approach of fundamental analysis and the tools of technical analysis

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APPENDIX A

Realized return, Standard Deviation and expected return and Coefficient of variance of banking sector

Year	Year End Price (P)	$R=\frac{BI_1 - BI_0}{BI_0}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2000/01	167.20			
2001/02	194.95	0.1660	0.0527	0.00277
2002/03	219.44	0.1256	0.0123	0.00015
2003/04	397.17	0.8099	0.6966	0.4852
2004/05	379.38	-0.0448	-0.1581	0.0249
2005/06	219.35	-0.4218	-0.5351	0.2863
2006/07	199.90	-0.0887	-0.202	0.0408
2007/08	966.5	0.1604	0.0471	0.0022
2008/09	985.7	0.3132	0.1999	0.0399
Total		1.019		0.8822

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\bar{R}) = \frac{\sum R}{n} = \frac{1.019}{9} = 0.1133$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \bar{R}\right)^2}{n-1}} = \sqrt{\frac{0.8822}{9-1}} = \sqrt{0.1102} = 0.3320$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.3320}{0.1133} = 2.93$$

Where

BI_0 = Starting Banking sector's Index

BI_1 = Ending Banking sector's Index

APPENDIX B

Realized return, Standard Deviation and expected return and Coefficient of variance of hotel sector

Year	Year End Price (P)	$R=\frac{HI_1 - HI_0}{HI_0}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2000/01	277.47			
2001/02	244.49	-0.1189	-0.0889	0.0079
2002/03	242.52	-0.0081	0.0219	0.0005
2003/04	346.15	0.4273	0.4573	0.2091
2004/05	291.34	-0.1583	-0.1283	0.0165
2005/06	216.51	-0.2568	-0.2268	0.0515
2006/07	196.68	-0.0916	-0.0616	0.0038
2007/08	390.7	-0.0624	-0.0324	0.0010
2008/09	370.9	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\overline{R}) = \frac{\sum R}{n} = \frac{-0.3035}{9} = -0.033$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.2903}{9-1}} = \sqrt{0.0362} = 0.1904$$

$$\text{C.V.} = \frac{\sigma}{\overline{R}} = \frac{0.1904}{-0.033} = -5.77$$

Where

HI_0 = Starting Hotel sector's Index

HI_1 = Ending Hotel sector's Index

APPENDIX C

Realized return, Standard Deviation and expected return and Coefficient of variance of manufacturing sector

Year	Year End Price (P)	$R=\frac{MI_1 - MI_0}{MI_0}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2000/01	217.05			
2001/02	226.65	-0.1189	-0.0889	0.0079
2002/03	229.83	-0.0081	0.0219	0.0005
2003/04	340.59	0.4273	0.4573	0.2091
2004/05	349.31	-0.1583	-0.1283	0.0165
2005/06	273.67	-0.2568	-0.2268	0.0515
2006/07	250.13	-0.0916	-0.0616	0.0038
2007/08	418	-0.0624	-0.0324	0.0010
2008/09	423.7	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\overline{R}) = \frac{\sum R}{n} = \frac{0.3668}{9} = 0.040$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.2798}{9-1}} = \sqrt{0.034} = 0.1870$$

$$\text{C.V.} = \frac{\sigma}{\overline{R}} = \frac{0.1870}{0.04} = 4.67$$

Where

MI_0 = Starting Manufacturing sector's Index

MI_1 = Ending Manufacturing sector's Index

APPENDIX D

Realized return, Standard Deviation and expected return and Coefficient of variance of trading sector

Year	Year End Price (P)	$R=\frac{TI_1 - TI_0}{TI_0}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2000/01	156.95			
2001/02	160.58	-0.1189	-0.0889	0.0079
2002/03	123.99	-0.0081	0.0219	0.0005
2003/04	123.74	0.4273	0.4573	0.2091
2004/05	115.55	-0.1583	-0.1283	0.0165
2005/06	102.2	-0.2568	-0.2268	0.0515
2006/07	94.56	-0.0916	-0.0616	0.0038
2007/08	213.4	-0.0624	-0.0324	0.0010
2008/09	204.1	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\overline{R}) = \frac{\sum R}{n} = \frac{-0.1618}{9} = -0.018$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \overline{R}\right)^2}{n-1}} = \sqrt{\frac{0.1722}{9-1}} = \sqrt{0.021} = 0.1467$$

$$\text{C.V.} = \frac{\sigma}{\overline{R}} = \frac{0.1467}{-0.018} = -8.15$$

Where

TI_0 = Starting Trading sector's Index

TI_1 = Ending Trading sector's Index

APPENDIX E

Realized return, Standard Deviation and expected return and Coefficient of variance of Finance and Insurance sector

Year	Year End Price (P)	$R=\frac{FI_1 - FI_0}{FI_0}$	$\left(R - \bar{R}\right)$	$\left(R - \bar{R}\right)^2$
2000/01	172.18			
2001/02	176.32	-0.1189	-0.0889	0.0079
2002/03	195.68	-0.0081	0.0219	0.0005
2003/04	305.98	0.4273	0.4573	0.2091
2004/05	318.67	-0.1583	-0.1283	0.0165
2005/06	288.75	-0.2568	-0.2268	0.0515
2006/07	224.39	-0.0916	-0.0616	0.0038
2007/08	1081.6	-0.0624	-0.0324	0.0010
2008/09	1152.7	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\bar{R}) = \frac{\sum R}{n} = \frac{0.4418}{9} = 0.049$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \bar{R}\right)^2}{n-1}} = \sqrt{\frac{0.3703}{9-1}} = \sqrt{0.046} = 0.2151$$

$$\text{C.V.} = \frac{\sigma}{\bar{R}} = \frac{0.2151}{0.049} = 4.39$$

Where

FI_0 = Starting Finance and Insurance sector's Index

FI_1 = Ending Finance and Insurance sector's Index

APPENDIX F

Realized return, Standard Deviation and expected return and Coefficient of variance of other sector

Year	Year End Price (P)	$R=\frac{OI_1 - OI_0}{OI_0}$	$\left(R - \overline{R}\right)$	$\left(R - \overline{R}\right)^2$
2000/01	228.26			
2001/02	221.59	-0.1189	-0.0889	0.0079
2002/03	376.10	-0.0081	0.0219	0.0005
2003/04	308.46	0.4273	0.4573	0.2091
2004/05	190.90	-0.1583	-0.1283	0.0165
2005/06	77.34	-0.2568	-0.2268	0.0515
2006/07	48.56	-0.0916	-0.0616	0.0038
2007/08	817.8	-0.0624	-0.0324	0.0010
2008/09	768.3	-0.0347	-0.0017	0.00002
Total		2.51		6.18

Source: Nepal Stock Exchange

We have,

$$\text{Expected Return } (\overline{R}) = \frac{\sum R}{n} = \frac{2.51}{9} = 0.27$$

$$\text{S.D. } (\sigma) = \sqrt{\frac{\sum\left(R - \overline{R}\right)^2}{n - 1}} = \sqrt{\frac{6.18}{9 - 1}} = \sqrt{0.7729} = 0.8791$$

$$\text{C.V.} = \frac{\sigma}{\overline{R}} = \frac{0.8791}{0.27} = 3.25$$

Where

OI_0 = Starting other sector's Index

OI_1 = Ending other sector's Index

APPENDIX G

Realized return, Standard Deviation and expected return and Coefficient of variance of Market

Year	NEPSE INDEX (NI)	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$\left(R_m - \overline{R}_m\right)$	$\left(R_m - \overline{R}_m\right)^2$
2000/01	348.43			
2001/02	227.54	-0.1189	-0.0889	0.0079
2002/03	204.86	-0.0081	0.0219	0.0005
2003/04	222.04	0.4273	0.4573	0.2091
2004/05	286.67	-0.1583	-0.1283	0.0165
2005/06	386.86	-0.2568	-0.2268	0.0515
2006/07	683.95	-0.0916	-0.0616	0.0038
2007/08	963.36	-0.0624	-0.0324	0.0010
2008/09	661.27	-0.0347	-0.0017	0.00002
Total		-0.3035		0.2903

Source: Nepal Stock Exchange Trading Report

We have,

$$\text{Expected Return } (\overline{R}_m) = \frac{\sum R_m}{n} = \frac{1.14}{9} = 0.1266$$

$$\text{S.D. } (\sigma_m) = \sqrt{\frac{\sum\left(R_m - \overline{R}_m\right)^2}{n-1}} = \sqrt{\frac{1.035182}{9-1}} = \sqrt{0.1293} = 0.3597$$

$$\text{C.V.}_m = \frac{\sigma_m}{\overline{R}_m} = \frac{0.3597}{0.1266} = 2.841$$

APPENDIX H

Beta Coefficient (b_j) of the common stock of NIBL

Year	$\left(R_j - \overline{R}_j\right)$	$\left(R_m - \overline{R}_m\right)$	$\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)$
2000/01	-		
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total	0.034	0.1272	-0.15991

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)}{n-1} = \frac{0.1599}{9-1} = 0.01998$$

$$\beta_j = \frac{\text{Cov}\left(R_j, R_m\right)}{\sigma_m^2} = \frac{0.01998}{0.1293} = 1.05$$

APPENDIX I

Beta Coefficient (b_j) of the common stock of NABIL

Year	$\left(R_j - \overline{R}_j\right)$	$\left(R_m - \overline{R}_m\right)$	$\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)$
2000/01			
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total		0.1272	1.052

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)}{n-1} = \frac{1.052}{9-1} = 0.1315$$

$$\beta_j = \frac{\text{Cov}\left(R_j, R_m\right)}{\sigma_m^2} = \frac{0.1315}{0.086} = 1.529$$

APPENDIX J

Beta Coefficient (b_j) of the common stock of BOKL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2000/01			
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total		0.1272	2.1959

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n-1} = \frac{2.1959}{9-1} = 0.2744$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.2744}{0.086} = 3.19$$

APPENDIX K

Beta Coefficient (b_j) of the common stock of HBL

Year	$\left(R_j - \overline{R}_j\right)$	$\left(R_m - \overline{R}_m\right)$	$\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)$
2000/01			
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total		0.1272	0.5972

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)}{n-1} = \frac{0.5972}{9-1} = 0.07465$$

$$\beta_j = \frac{\text{Cov}\left(R_j, R_m\right)}{\sigma_m^2} = \frac{0.07465}{0.086} = 0.\ 8680$$

APPENDIX L

Beta Coefficient (b_j) of the common stock of SCBL

Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2000/01			
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total		0.1272	0.5727

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{n-1} = \frac{0.5727}{9-1} = 0.0715$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.0715}{0.086} = 0.8325$$

APPENDIX M

Beta Coefficient (b_j) of the common stock of EBL

Year	$\left(R_j - \overline{R}_j\right)$	$\left(R_m - \overline{R}_m\right)$	$\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)$
2000/01			
2001/02	-0.1189	-0.0889	0.0079
2002/03	-0.0081	0.0219	0.0005
2003/04	0.4273	0.4573	0.2091
2004/05	-0.1583	-0.1283	0.0165
2005/06	-0.2568	-0.2268	0.0515
2006/07	-0.0916	-0.0616	0.0038
2007/08	-0.0624	-0.0324	0.0010
2008/09	-0.0347	-0.0017	0.00002
Total		0.1272	1.1536

We have

$$\text{Cov}(R_j,R_m) = \frac{\sum\left(R_j - \overline{R}_j\right)\left(R_m - \overline{R}_m\right)}{n-1} = \frac{1.1536}{9-1} = 0.1442$$

$$\beta_j = \frac{\text{Cov}\left(R_j, R_m\right)}{\sigma_m^2} = \frac{0.1442}{0.086} = 1.67$$