RISK AND RETURN: A comparative study of Commercial Banks in Nepal

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Declaration

I hereby declare that the work reported in this entitled “RISK AND RETURN: A comparative study of Commercial Banks in Nepal”, submitted to Post Graduate Campus, Biratnagar, Faculty of management, Tribhuvan University, in my original work done in the form of partial fulfillment of the requirement for the Master’s Degree in Business Studies under the supervision of Mr. Dev Raj Shrestha, Post Graduate Campus, purano Hawai Field, Biratnagar.

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Date:----------

Nisha Thapa
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ABBREVIATION

T.U= Tribhuvan University
A.D= Anno Domini
F.Y= Fiscal Year
CSI= Cottage and Small Industries
CWD= Centre for Women and Development
SBPP= Small Business Promotion Project
UMN= United Mission to Nepal
WDP= Women Development programmed
WEAN= Women Entrepreneurs Association of Nepal
FNCCI= Federation of Nepalese Chambers of Commerce and Industry
C.V= Coefficient of Variation
CAPM= Capital Assets Pricing Model
SML= Security Market Line
COV= Covariance
CS= Common Stock
D.F= Degree of Freedom
Ltd.= Limited
GDP = Gross Domestic Production
EPS= Earnings Per Share
DPS= Dividend Per Share
MPS= Market Price Per Share
BPS= Book Value Per Share
ERR= Expected Rate of Return
SR= Systematic Risk
USR= Unsystematic Risk
NEPSE= Nepal Stock Exchange
SEBO= Security Board

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Nepal is small and landlocked country and considered to be one of among the poorest and least developed country of the world. Its territory is surrounded by India in eastern, southern and western and Tibet in the north. Having said that, Nepal is Wealthiest country when it comes to natural beauty and cultural heritage. People out here are of diverted nature and various casts of people live on this beautiful garden.

When it comes to economy, Agriculture happens to be the lead occupation to support the Nepalese economy. But lately agriculture alone is not proving sufficient and our nation have already started facing problem like political instability, lack of skilled manpower, poor resource mobilization, lack of capital, instability of government policy etc. Beside the above scenario private sector in Nepal have also significantly trying to enhance the country's economy.

The banks are indispensible for all the overall development of the country; they mobilize saving and making industry and so on. In general banks are those financially institutions those offer a widest range of financial services especially saving investment, remittance and other financial function of any business firm in the economy. "Financial management endeavors to make optimal investment financing and dividend share repurchase decision". Despite immense benefits, the modern banking system had started very late in the country with the establishment of Nepal Bank Ltd in 1937 A.D. Nepal has also followed the course of economic liberalization since the decade of 80s. As a result, a number of commercial bank has been established in joint venture with foreign Commercial banks in Nepal.

Commercial bank occupies quite an important place in the framework of every economy because it provides Capital for the development of trade, industry and business investing the collected saving as deposits. All the economic activities of each and every country are greatly influenced by the commercial banking business of the country. Commercial banks are playing active role and have changed the economic structure of world.

The concept of risk and return are the determinant for the valuation of securities. However risk means that we do not know what is going to happen even though we occasionally have a good idea of the range of possibilities that we face. In most basic sense risk can be defined as the change of loss. Assets having greater change of loss is viewed as more risky them those with lesser change of loss. More formally, the term risk is used interchangeably with uncertainty to refer to the variability of return associated with a give asset."

The investment process is concerned with how an investor should proceed in making decision about what marketable securities to invest in, how extensive the investment should be, and when the investment should be made. Hence people are very conscious about sacrificing the current amount as there are chances that the amount sacrificed today may not be recovered fully or partially in future. The presence of risk in financial investment is very common. Despite the risk, people at large cannot resist themselves and made an investment in financial securities. The financial securities have been returning a very attractive return which is more than other returns like bank deposit, real assets etc.

In Nepal, organized banking system is a relatively recent phenomenon. The process was started by the establishment of Nepal Bank Ltd. In Nepal, activities of financial securities are conducted in Nepal Stock Exchange. The investors require knowing why a stock should be purchased? What is the appropriate price to purchase it? What will be the expected return from his/her investment? How to minimize risk at the same time maximize return? This study is an attempt to analyze the risk and return of stock, how they are calculated, why they are important and the methods to minimize risk.

"Managerial, finance is important in all types of business whether they are public or private, deal with financial services or are manufacturers. The types of

jobs one encounter in managerial finance range from decision regarding plant expansions to choosing what types of securities to issue to finance expansion."(*Weston J. Fred and Brigham Fugene,1996:5).*

In this time, the field of finance is wide and dynamic. Different types of tools for acquisition of fund and effective utilization have been developed. Finance has become an important branch of any economy of which share market is a leading sectors. In the short period, the field of finance has developed considerably. Securities raise funds in capital market that certainly help to extend the national economy.

Risk is typically defined as uncertainty. It arises from imperfect knowledge or from incomplete data. "Risk plays a central role in the analysis of investment. Risk is the facts of life, which is a product of uncertainty and its magnitude depends upon the degree of variability in uncertain cash flows. Risk is fact is an indication of chance of losing investment value. Different people interpret risk in different ways. To, some it is simply a lack of definite outcome, which can be any unknown event, which may be unfavorable. It is a chance of happening some unfavorable event or danger of losing some material value. Risk can be thought of as the possibility that actual return from holding security will deviate from unexpected return."(*Pandey, 1997:878)*

The concept of risk and return are the determinant for the valuation of securities. However risk means that we do not know what is going to happen even though we occasionally have a good idea of the range of possibilities that we face. In the most basic sense risk can be defined as the change of loss. Assets having greater changes of loss are viewed as more risky than those with lesser changes of loss. More formally, the term risk is used interchangeably with uncertainty to refer to the variability of returns associated with a given asset." (*Gitman, 2001:237)*

Out of the various types of the securities this study deals with common stock investment. It is a risky investment than both bonds and preferred stock but it has also benefit like voting right in participation in profit. And also common stock may be purchased and sold immediately. There is the uncertainty of future return whose main source is the price fluctuation of the common stock. The

stock price may be decreased due to the economic factor such as inflation, interest rates, strength of dollar, economic growth of the nation etc. The stock price is also affected by political and legal environment of the nation. The dividend received by the investor directly contributes to the return received by the investors but at the same time reduce the amount of earning reinvested by the firm resulting limited potential growth. So, mainly the risk of a stock investment can be measured by its price volatility and degree of uncertainty of dividend fluctuation.

In general, banks mean an institution that accepts deposits in different account and provides loans of different types. Many changes have taken place in the function of a bank from the initial stages of its development to present day. The modern complex economic system cannot function without bank. When a performs multiple tasks, the efficiency and effective of work become weak. Hence different banks are established with different purpose and in different categories. Among them this study primarily focuses on commercial banks.

The commercial bank is the oldest form of bank. There are various changes in the original concept and functions of commercial banks. “Commercial bank exchange money, deposit grants loans and performs other commercial bank function and is not a bank meant for corporative agriculture industrial as per specific function.”(*Commercial bank Act, 2031:5)* Commercial banks are established as a joint stock company with a view to earn profit. Thus, banks are regarded as the heart of modern economy.

Securities board, Nepal (SEBO) was established on 26 may, 1993, under the provision of the securities exchange act, 1983 with the objective of promoting and protecting the interest of investors by regulating the security market. Besides the regulatory role, it is also responsible for the development of securities market in the country.” Securities exchange act has empowered Nepal stock exchange (NEPSE) with the capacity of promulgating various byelaws in order to ensure orderly and fair transaction of securities. According securities listing byelaws, 1996, and membership of stock exchange and transactions byelaws, 1998 (*securities board, 2001:15*). Formally stock market development started only after the establishment of securities exchange center in 1984, which was later renamed as Nepal stock exchange (NEPSE) Ltd. In 1990 and it brought new dimensions and atmosphere in stock market (*Manandhar: 15-20).*

Now days, the number of companies have been established and listed their shares in NEPSE Ltd. NEPSE Ltd. Has, as a secondary market provided its trading floor where buying and selling practices of stocks take place with the help of open-out-cry system. The secondary market provides adequate tradeoff between risk return for investors and also for financial institutions to purchase and sell according to needs and given strategies aims (*shrestha, M.K., 1998:10).*

In Nepal, organized banking system is a relatively recent phenomenon. The process was started establishment of Nepal bank ltd on 30th kartik 1994(BS) as the first commercial bank of the nation. That time also the banking sector wasn't in growth and progress. Nepal Rastra bank was established on 14th Baishakh 2013(BS) as the central bank of Nepal which was going on 30th years without any competitors. Nepal Rastriya Bank was established on 2022(BS) as the second commercial bank in order to play a major role not only domestic but also in foreign trade.

With the initiation of economic liberalization in the country, entry restriction on banking business was lifted. So, the number of private and joint venture bank have been established such as Nepal Arab Bank Ltd (2041), Standard Chartered Bank Ltd (2043), Himalayan Bank Ltd (2049), Everest Bank Ltd (2051), and many more.

1.2 FOCUS OF THE STUDY:

The study has been mainly focused about the commercial banks on behalf of the "risk and return" for common stock issues. Risk and return relationship is an important and vague issue among investor and analyst. "Common stock is securities that represent the ultimate ownership (and risk) position in a corporation." *(Ivan Horne.J.C. and Wachowiez, 2001:75)*

Common stock holders of a company are its ultimate owners and collectively they own the company assuming that ultimate risk is associated with ownership. Hence, analyzing and minimizing the risk associated with the ownership can be address through market return, expected return, total risk, systematic risk and

unsystematic risk to give an ideas for sustainable profit. Banking sector in Nepal has increased significantly within a short period comparatively. They play a vital role in the country's all-round development. Economic development in a limited and insufficient banking and financial activities is a major constraint. Therefore, commercial bank addressed and mobilized the finance (fund) for a better output and profit making target.

1.3 STATEMENT OF THE PROBLEM:

In the context of Nepal, investment in financial securities is a new idea. It is not popular in our country. The Nepalese Capital Market is at development phase besides bank deposit or real estate investment, people have no other option.

The main role of these commercials banks is to act as the bridge between the savers and users. They collect scattered deposits and gives various types of loans to maximize their wealth. But because of unfavorable present situation, these banks are being compelled to reduce in the interest rate offered to depositors in order to minimize the collect of deposit. In this situation, Nepalese banks were suffering from various problems like lower per capita income, high population growth rate, lower employment opportunity, lower economic growth rate, lack of inadequate infrastructure and high unemployment in agriculture sector.

At this time, there is no any separate institution, which provides information required to rational decision that can accelerate the stock investment and marketing efficiency. Government policy is less encouraging in promoting common stock investment. Therefore, courage is needed and at the same time faith to invest in common stock because there are several question which may have arising in the mind of the individual investors at the time of investment.

To sum up this study deals with the following issues:

- How much return is provided by the commercial bank to their common stockholder?
- What kind of relation does exist with risk and return?

- How can investor diversify the risk?
- What is effect of portfolio on return?
- What should be the compensation for the bearing risk?
- What are the sources of risk?
- What kind of risk exists on the stock investment of Nepalese commercial banks?

1.4 OBJECTIVES OF THE STUDY:

The Key objectives of this study is to examine the situation to securities market of Nepal and to evaluate the risk associated with return on common stock investment of the selected Nepalese commercial banks.

The specific objectives of this study are as follows:

- To analyze the risk and return associated with the common stock of commercial banks.
- To understand and identify the problems faced by the individual investor and commercial banks.
- To analyze the risk and return of different portfolio.
- To analyze the covariance and correlation between the return of common stocks of commercial banks.
- To analyzed and recommend the “Risk and Return Analysis” within and between commercial banks.
- To provide suggestion, some practical ideas and recommendations for improvement.

1.5 SIGNIFICANCE OF THE STUDY:

Every research work or study should be fruitful. This study will give correct information about Nepalese stock market by analyzing risk and return and will definitely contribute to increase the analytical power of the investor in stock market. In Nepalese context, very few studies are made and there are no

specific magazine and articles on the topic. So, the study will be more significant for exploring and increasing stock investment.

The main significant of this study are:

- This study will be beneficial for the entire person who is directly related to the Nepalese stock market.
- This study is matter of carrying needs to identify the possible return with responsible risk.
- This study will prove beneficial to the present investors to analyses and revise their action.
- This study helps to identify risk and return trade off of their investment.
- This study will be helpful in taking right decision.
- This study will be significant academicians, students and investors by providing different guideline, suggestion and recommendation.

1.6 LIMITATION OF THE STUDY:

Each and every research has its own limitation likewise this has also some limitation. NO one can be free from constants. The research will be done for the partial fulfillment of the requirement of the MBS degree. The time is not enough and this study might not fully reliable because of the lack of researcher experience.

- Based on secondary data: This study is mainly based on the secondary data. Which are derived from the website www.nepalstock.com and the website of related banks?
- Based on sampling: The number of listed companies in the Nepalese stock market is small and the number of the companies, whose securities are traded regularly in the market, is even smaller. The sample for the study has been selected from such companies is therefore very small.
- Data Period: This study covers the data of only 5yrs of period (i.e. 2002/2003 to 2006/2007) which may not sufficient for the study of this topic.

- Time Constraint: Due to the time constraint all related areas are not possible to cover in depth.
- Format: The research has done according to the Tribhuvan University format.
- Technique and variable: This study has done using simple techniques and limited variables.
- Thus, while using the findings of study is should be very careful and use the same judiciously by considering the various limitations.

1.7 ORGANIZATIONAL OF THE STUDY:

The whole study has been divided into five chapters.

Introduction:
It includes the introduction and general background, focus of the study, statement of the problem, objective of the study, significance of the study, limitation of the study and organization of the study etc.

Review of the literature:
The second chapter deals with review of available literature which includes conceptual/theoretical review and review of related studies.

Research Methodology:
The third chapter explains the research methodology used in the study which various tools and techniques of data, population and sample, research design, method of data analysis etc.

Presentation and data analysis:

The four chapters is the main body of the research. It includes data presentation, Interpretation and analysis and finding of the study. In this chapter, the risk and return of the result of each selected companies is analyzed. The result obtained is compared with industries and market too.

Summary, Conclusion and Recommendation:

This is the last chapter of the study which includes the summary, conclusion and recommendation of the research. And finally suggestion of the recommendation is given for improving the future performance of the selected commercial banks.

CHAPTER II

LITERATURE REVIEW

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

In this chapter, the summary of major finding from reviewing the books, journals, magazines etc. Related to the field of the study are presented. Research is a continuous process the procedure of findings may change due to continuous research. To get the ability of analysis and interpretation of data. A researcher must review than literature about his/her field study. So, the books and previous studies related to this field study might provide the foundation for the study. This continuity in research is ensured by linking the present study with the past research studies.

In this chapter relevant and recent literature, which are related to the topic “Risk and Return” is reviewed. Various books, journals and articles, thesis of seniors, some research report related with the topic have been reviewed in this chapter.

2.1 CONCEPTUAL FRAMEWORK

Various books deals with theoretical aspects of risk and return are taken into consideration. Major focus is given to the implication of Risk and Return trade off in the investment on common stocks. The Capital Assets Pricing Model is also deal to some extent. It gives the theoretical framework to analyze the study.

2.2 INVESTMENT RISK AND RETURN

Analysis of risk and return shows the relationship between risk and return on any kind of investment. Investment means sacrificing current earnings from future return or reward bearing certain risk. Investment can be made on real assets or financial assets. Investment on real assets is called real investment and on financial assets is called financial investment. In primitive economics most investment was on real assets, whereas in modern economy most investment is of financial variety.

"Investment in the broadest sense means the sacrifice of current dollars for further dollars. Two different attributes are generally involved time and risk. The sacrifice takes place in the present and is certain. The rewards come later at future and magnitude is generally uncertain." (Sharpe, 1995:1) A wide range of investment opportunity is available to individual investors. Investment can be made on common stock, preferred stock, bond, convertible, warrants and option etc. among various alternatives the present study focuses on common stock investment only.

Risk is the possibility of meeting danger or suffering harm or loss. Risk is term of investment is unexpected outcome, which are harmful for investors. Risk can also be defined as the chance that some unfavorable event will occur.

Return is reward received from investment for sacrifice of present certain amount of assets. It is commonly defined as reward for bearing risk. Investors invest their funds in long term securities for the future return for long run. So, return is the most important outcome from and investment. It measures the investor's rate of wealth accumulation i.e. increase or decrease in the wealth of the investor.

2.3 COMMON STOCK:

The research study is focused on the investment, risk and return on common stock so the discussion about common stock has made here.

"Common stock represents an ownership position in a co-operation. It is a residual claim, in the sense that creditors and preference shareholders must be paid as scheduled before common stock holders can receive any payment. In bankruptcy common stockholders are in the principal entitled only to assets remaining after all prior claimants have been satisfied. Thus risk is highest with common stock and so must be in this expected return. When investors buy a common stock, they receive certificate of ownership as a proof of being a part of owners of the company. The certificate status the numbers of shares purchased and their par value." (*Bhalla, 2000:196)*

Common stock represents ownership position in a co-operation. It is a residual claim, in the sense that creditors and preference shareholders must be paid out before common stock holders can receive any payment. As, result stockholder's return on the investment is less certain than the return to lender or to a preferred stock holder. Hence risk is the highest in common stock so is the return. The potential reward and penalties associated with common stock makes it both romantic and exciting proposal. Common stock holder may lose their initial investment and nothing more in case of liquidation of the organization. Equity or common stock is usually known as risk bearing shares it does not receive any dividend during the early stage. During liquidation they are paid out but they are entitled to all surplus assets after payment to creditors and preference shareholders.

"Of all the form of securities common stock appears to be the most romantic. Which fixed income investment revenue may be more important to the most investors. Common stock seen to capture their interest the most. The potential reward and penalties associated with common stock make them an interesting even exciting proposition, no wonder common stock investment is favorite topic for conversation in parties and get together. *(Prasanna, 1995:93)*

2.3.1 RETURN ON COMMON STOCK

Return is the benefit or income received on investment. Return is the motivational factors, encourages investors to scarify some certain amount of assets for uncertain benefit in future. “The return from an investment is the realizable cash flow earned by its owner during a given period of time. Typically it is expressed as percentage of beginning of period value of the investment.”*(Prasanna, 1995:62)*

The return on common stock can be defined as the dividend yield plus the capital gain or loss. If an investor purchases a stock of any company and held it for certain period, he/she can get return in two ways- one is increased in the value of that stock as compared to initial one and another is direct cash payment. The increase in the value is capital appreciation and direct cash payment is divided income. So, the one period return on common stock is given by:-

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

Where,

R = Actual Expected Return.

P_t = Stock’s price at “t” time.

P_{t-1} = Stock’s price at “t-1” time.

D_t = Cash Dividend at the end of “t” time.

This formula can be used to determine both actual one period return (based on historical date) and expected one period return (based on expected dividend and price).

The analyzed rate of return over several periods can be calculated in two ways. The first is simply to take arithmetic average of the annual holding period returns and the second is the geometric mean which also takes in the account the compound effect of the cash receipts.

The arithmetic mean holding period,

$$E\ (HPR) = \frac{\sum_{t-1}^{n} HPR_t}{n}$$

The geometric mean return,

$$E\ (HPR_g) = \left[\prod_{t-1}^{n}[1 + HPR_t]\right]^{\frac{1}{n}} - 1$$

Where,

HPR = Holding Period Return

$\sum$ = Sign of Summation or total

Π = Sign of product or multiplication

n = Numbers of periods

t = Time period 1, 2, 3……N

Expected Rate of Return

Most of the investment decisions are made for future events. Hence, it is necessary to predict the future returns than past return. But future is always uncertain for the common stock holders. Therefore it leads to find the expected rate of return. The expected rate of return can be estimated by analyzing the trend of return of previous period and by using probability distribution of returns. The ex-post returns can be averaged for calculating the future expected return and a probability distribution could be used to forecast the future rate of return.

Using probability distribution,

$$\text{Expected Return } E(R) = \frac{\sum_{t-1}^{n} HPR_t}{n}$$

Using Ex-post Return,

$$\text{Expected Return } E(R) = \sum_{t-1}^{n} r_i p_i$$

Where,

r_i = The return for the i^{th} possibility.

P_i = The probability of that returns occurring.

n = No. of possibilities.

2.3.2 RISK ON COMMON STOCK:

Risk is the uncertainty associated with the end of period value of an investment .Risk and Return are the determinants for the valuation of the securities. However, risk means that we do not know what is going to happen even though we occasionally have a good idea of the range of possibilities. Risk is a hazard, a peril and exposure to loss or injury. Thus most risk refers to the chances that some unfavorable event may occur. While other view it as a chances of loss. But in reality, particularly activity or event may be cause of risk. Risk is the product of all potential outcomes expressed with probability associated with each other and it is distribution of such outcomes. Investment on common stock is a risky investment. So, the uncertainty of risk on common stocks is the facts of life to the common stock holders. Uncertainty and risk are treated separately in financial analysis. Risk is the unlooked and unwanted event in the future. Someone has said that risk was the sugar and salt of life.

"Instead of measuring risk the probability of a no. of different possible outcomes, the measure of risk should somehow estimate the extent to which the actual outcome is likely to diverge from the expected outcomes. Standard deviation is a measure that does this because it is an estimate of the likely divergence of actual return from an expected return. (*Sharpe, Alexander and bailey,1995:151)*

We can measure risk by examining the tightness of the probability distribution associated with the possible outcomes. It is widely used to measure risk from holding a single assets. Greater the standard deviation represents a high dispersion of return and is a greater the risk. On other hand a smaller standard deviation represents a low dispersion of return and is s smaller the risk. The risk or standard deviation is denoted by σ which is given.

$$\sigma = \sqrt{\frac{\sum_{t=n}^{n}[r-E(r)]^2}{n-1}}$$

Where,

σ = Standard deviation

r_i = return for j^{th} possibility

E(r) = Expected rate of return

n = No. of years.

Financial analysis and statisticians prefer to use a quantitative risk surrogate called the variance of returns denoted var (r). The variance of an assets rate of return equals the sum of the products of the required deviation of each possible rate of return from the expected rate of return occurs.

$$\text{Var}(r) = \frac{\sum_{t=n}^{n}[r_1 - E(r)]^2}{n-1}$$

The other useful measure of risk is the coefficient of variation. It is the standard deviation divided by the expected return which measures risk per unit of return. "A standard deviation can something be misleading I comparing the risk or uncertainty surrounding alternatives of they differ in size. To adjust for the size or scale, problem, the standard deviation cam be divided by the expected return to compute the coefficient of variation (C.V.).

$$\text{Coefficient of variation (C.V)} = \frac{\sigma}{E(r)} x\ 100\%$$

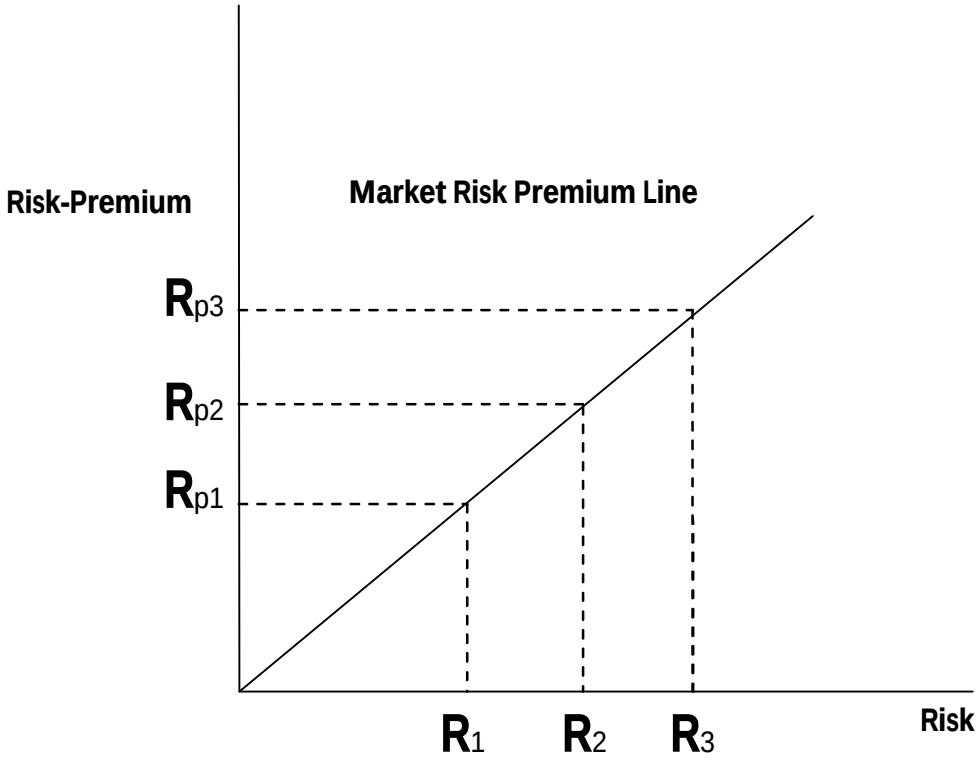
The coefficient of variation is a measure of risk per unit of expected return. The larger the C.V., the larger the negative risk of the investment."(*Van Horn & wachowich, 1995:97)*

2.4 REALTIONSHIP BETWEEN RISK AND RETURN:

In general it is known that there is a positive relationship between risk and return. The relationship between risk and return is described by investor's perception about risk and their demand for their compensation. Investors will invest in project only if it promises adequate risk premium for the level of risk involved. Therefore, it is the investor's required risk premium that established a link between risk and return. In a market dominated by rational investors, higher risk will be rewarded higher premium and the trade between the two assumes a liner relationship between risk and premium as illustrated in the figure 2.1 below:

Figure NO.2.1

General Pattern of Risk and Return



The figure represents a higher premium for higher risk in a linear fashion indicating a premium of Rp1 for r1 degree, Rp2 for r2 and so on. Under the assumption of linear relationship, the risk premium increases or decreases in proportion to change in the level of risk."(*Pradhan, 2000:325 – 326)*

The expected return from any investment proposal will be linked to a fundamental relationship to the degree of risk in the proposal. In order to be acceptable a higher risk proposal must offer a higher forecasted return then lower risk proposal. He tries to show the relationship with the help of figure 2.1. The figure represents, if the level of risk increases the return will also increase. Here, it is seen that the value of the expected return is increase for level of Rp1 to Rp2 as a result the level of risk also increased from level $\sigma 1$ to $\sigma 2$. Similarly, it is increase from the level

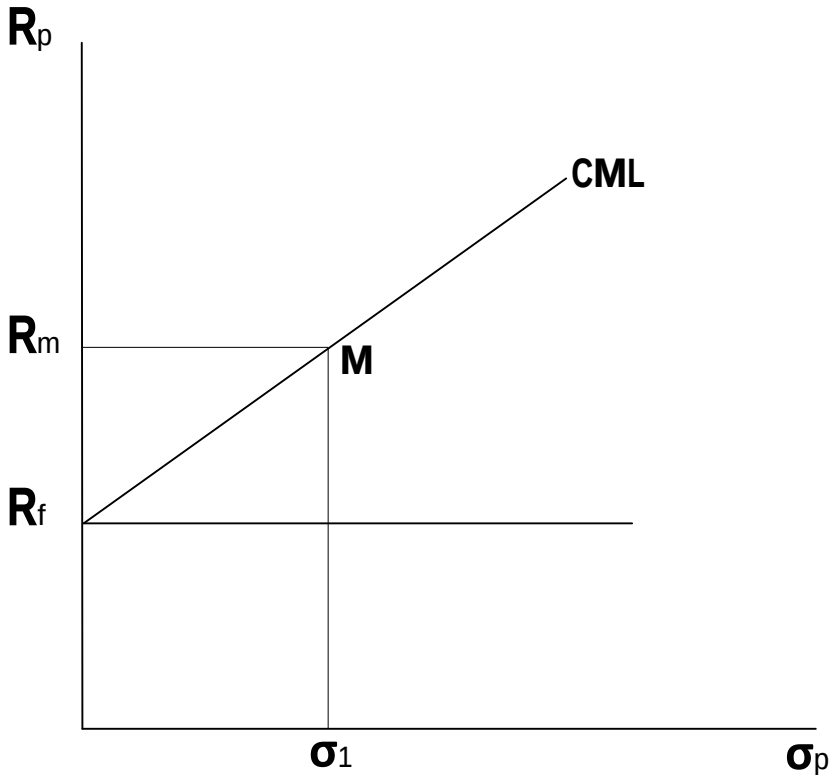
Rp2 to Rp3 consequently the level of risk will also increase from σ2 to σ3 and vice-versa.(Hampton,1986:397)

As with any model, there are assumptions to be made, this model has also some assumptions. Sharpe have describe the following assumption behind CAMP are as follows (*Sharpe et al, 2005:228*)

- Investors evaluate portfolios by looking at the expected returns and standard deviation of the portfolio over a one period horizon.
- Investors are never satiated, so when given a choice between two portfolios with the higher expected returns.
- Investors are risk averse, so when given a choice between two portfolios with identical expected returns, they will choose the one with the lower standard deviation.
- Individual assets are infinitely divisible, meaning that an investor can buy a fraction of a share if he or she so desires.
- There is a risk free rate at which an investor may either lend or borrow money.
- Taxes and transaction costs are irrelevant. To those assumption the following once are added
- All investors have the same one period horizon.
- The risk free rate is the same for all investors.
- Information is freely and instantly available to all investors.
- Investors have homogeneous expectations, meaning that they have the sane perception in regard to the expected returns, standard deviation and co-variance of securities.

By considering the above assumption the writer have further described that in the world of CAPM, it is a simple matter to determine the relationship between risk and return for efficient portfolios. Figure 2.2 portrays it graphically.

Figure No. 2.2
The Capital Market Line



Point M represents the market portfolios and R_f represents the risk free rate of return. Efficient portfolio plot along the line starting at R_f and going through M and consists of alternative combination of risk and return obtainable by combining the market with risk – free borrowing or lending. This linear efficient set of the all portfolios other than those employing the portfolio and risk-free borrowing or lending would lie below the CML, although some plot are very close to it. The slope of the CML is equal to the difference between the expected return of the market portfolio and that of the risk free security
($\bar{r}p$ - r□) divided by the difference in their risk (σm-0) and ($\bar{r}p$ - r□)/σm. Because the vertical intercept of the CML is r, the straight line characterizing the CML, has the following equation:

$$\bar{r}_p = \left[\frac{\overline{r_m} - r_f}{\sigma_m}\right] \sigma_p$$

Where $\bar{r}_p$ and $\bar{\sigma}_p$ refer to the expected return and standard deviation of an efficient portfolio.

The CML represents the equilibrium relationship between expected return and standard deviation for efficient portfolios. Individual risky securities will always plot below the line because a single risky security when held by it is an efficiency portfolio. The CAPM does not imply any particular relationship between the expected return and the standard deviation of an individual security.

$$\bar{r} = r_f + \left[\frac{\overline{r_m} - r_f}{\sigma^2_m}\right] \sigma_{im}$$

Where,

r_i = Return from security

r_f = Risk free rate of return

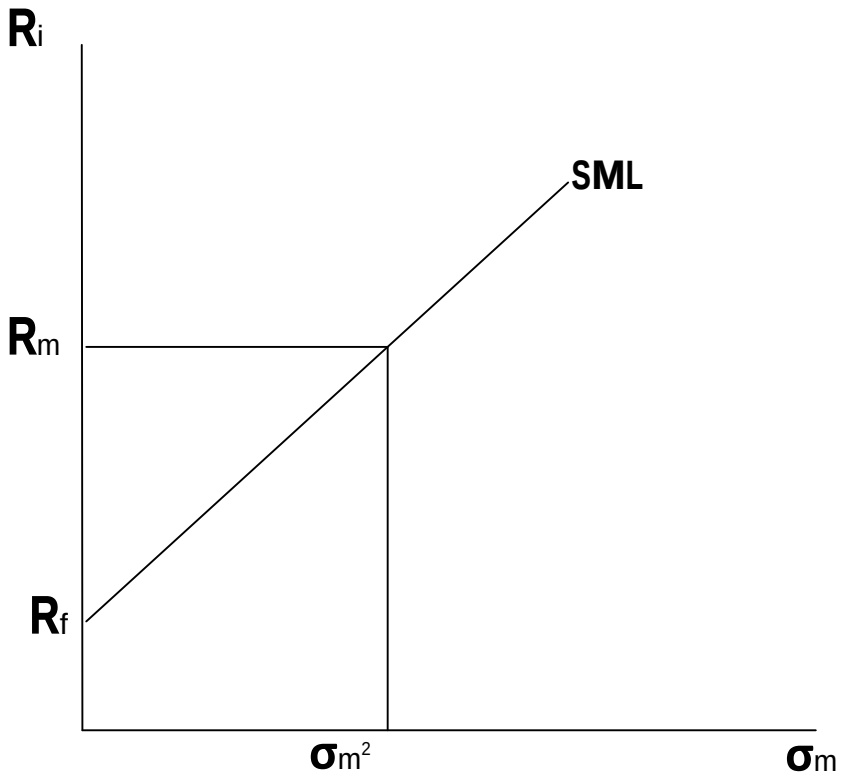
r_m = Market return

σ^2_m = Market variance

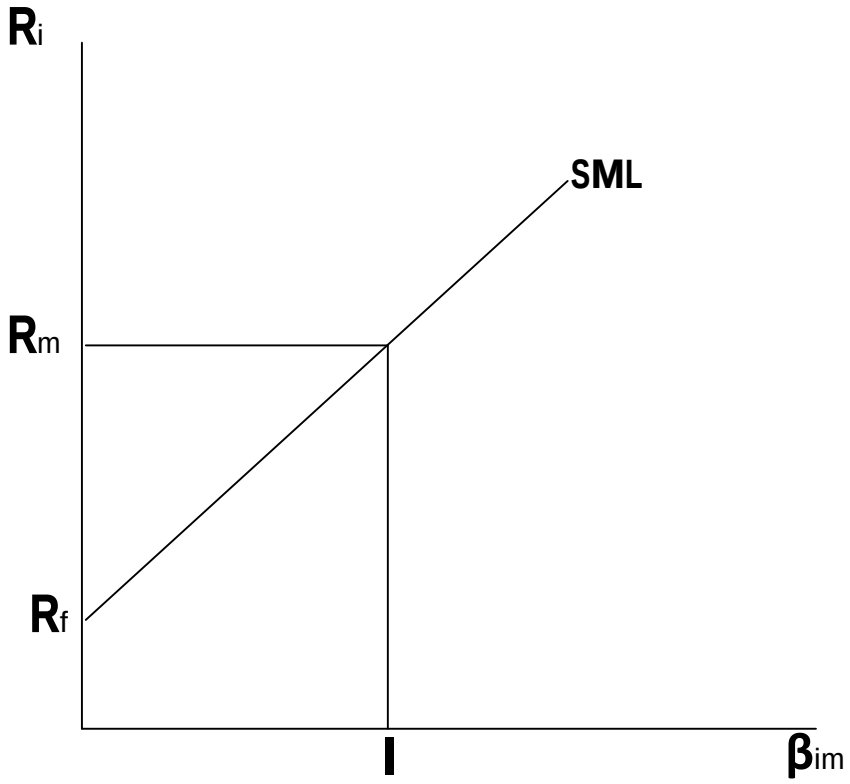
$\sigma_{i\,m}$ = Cov. Of security with market portfolio.

As can be seen in figure below and above equation represents straight line having vertical intercept of r_f and a slope of
Because the slope is positive, the equation indicates that securities with larger co-variance with market ($\sigma_{i\,m}$) will be priced so as to have larger expected return $\bar{r}i$. This relationship between co-variance and expected return is known as security market line (SML).

Figure No. 2.3
Co-variance Version of SML



Beta Version of SML



Another way of expression the SML is as follows.

$$\overline{r_i} = r_f + (\overline{r_m} - r_f)\beta_{im}$$

where the term β_{im} is defined as:

$$\beta_{im} = \frac{\sigma_{im}}{\sigma^2_{im}}$$

The term of is β_{im} known as the beta co-efficient for security I, and is an alternative way of representing the co-variance of a security. (*Sharpe et al, 2005:231).*

The major implication of the model is that the expected return of an asset will be related to a measure of risk for the asset from a beta. The exact

manner in which expected return and beta are related is specifies by CAPM.

Market risk is related to the risk of the market portfolio and to the beta of the security in equation. Securities with large beta will have larger amount of market risk. In the world of CAPM, securities with large beta will have larger expected return. These two relationships together imply that securities with larger market risk should have larger expected return. Non market risk is not related to beta. This means that there is no reason why securities with larger amounts of non-market risk should have larger expected returns. Thus, according to CAMP investors are rewarded for bearing market risk but bot for bearing non market risk.

2.5 PORTFOLIO ANALYSIS:

Portfolio is combination of two or more assets. Portfolio is the best way of investment for rational investors. The portfolio theory gives the concept of investment in a very good way that "never keeps all the eggs in a single basket" i.e. entire amount should not be invested into a single asset.

"The objective of portfolio is to analyze different individual assets and delineate efficient portfolios. The group of efficient portfolios will be called the efficient set portfolios; the efficient set of portfolios comprises the efficient frontier. The efficient frontier is the locus of points in risk-return space having maximum return at each risk class. The efficient frontier dominates all other investment." Portfolio theory developed by professor Harry M. Markowitz in 1952 A.D. is based on the following assumption:-

- The expected return from an asset is the mean value of a probability distribution of future returns over some holding period.
- The risk on the individual assets or portfolio is based on the variability of returns (i.e. S.D. or variance).

- Investors adhere to dominance principal i.e. for any given levels of risk investors prefer assets with higher expected return to assets with lower expected return.

2.5.1 RETURN ON PORTFOLIO:

The expected return of a portfolio is simply the weighted average of the expected returns on the individual assets in the portfolio with weights being the fraction of total portfolio invested in each asset.

For the investment on two assets the formula is:

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

where,

r_p = Portfolio return.

W_i = Weight on security i.

W_j = Weight on security j.

$E(R_i)$ = Expected return on security i.

$E(R_j)$ = Expected return on security j.

“A portfolio weight can be either positive or negative. A positive weight means you are buying the security” we also refer to this as taking long position in the security. The opposite of taking a long position is taking a short position or selling short. In this case, the portfolio weight is negative because a numerator is negative.” (R.A. Haugen, 1998:68)

2.5.2: RISK ON PORTFOLIO:

Risk on portfolio is not a weighted average risk. Securities consider in a portfolio are associated with each other. Therefore, the portfolio risk also accounts for co-variance between the return of securities. Covariance is the product of the standard deviation of individual securities times their correlation coefficient. The portfolio risk is the cause of two-security portfolio can be computed as follows.

Portfolio risk is the risk of individual securities plus covariance between the securities. It is measured by standard deviation and calculating by using this formula:

$$\sigma_p = \sqrt{w_i^2 . \sigma_i^2 + w_j^2 . \sigma_j^2 + 2 w_i w_j Cov(r_i r_j)}$$

Where,

σ_p = Portfolio standard deviation

w_i = weight or proportion of fund investment in i^{th} security

w_j = weight or proportion of fund investment in j^{th} security

σ_i^2 = variance of security i

σ_j^2 = variance of security j

Cov ($r_i r_j$) = covariance of stock I and j

The covariance of the possible returns of two securities in a measure of the extend which they are expected to vary together rather than independently of each other. The covariance in the above formula can be written as:

$$Cov (r_i r_j)) = \sigma_i \sigma_j p_{ij}$$

where,

p_{ij} = the correlation coefficient between possible returns for security I & j

σ_i = Standard deviation of security "I"

σ_j = Standard deviation of security "j"

The correlation coefficient always lines in a range from -1.0 to +1.0. Positive correlation coefficient indicates that return from two securities generally move in the same direction while negative correlation coefficient indicate they generally move in opposite direction. A zero correlation coefficient indicated that the return from two securities an uncorrelated. The risk can be diverse if the correlation between securities is negative.

2.5.3 MARKOWITZ EFFICIENT FRONTIER:

Efficient Frontier is the combination of all possible called the attainable set of investment opportunities. An investor will choose his/her optimal portfolio from the set of portfolio that offer maximum expected return for varying level of risk and offer minimum risk for varying level of expected return.

According to Markowitz, an investor should seek a portfolio of securities that lies on the efficient frontier set. "A portfolio is not efficient if there is another portfolio with a higher expected return and the same standard deviation. If your portfolio is not efficient you can increase the expected return without increasing the risk, decrease the risk without decreasing the expected return or some combination of increased expected return and decreasing the risk by switching to a portfolio on the efficient frontier."(*Van Horn, 1997:60*)

2.6 SYSTEMATIC RISK AND UNSYSTEMATIC RISK:

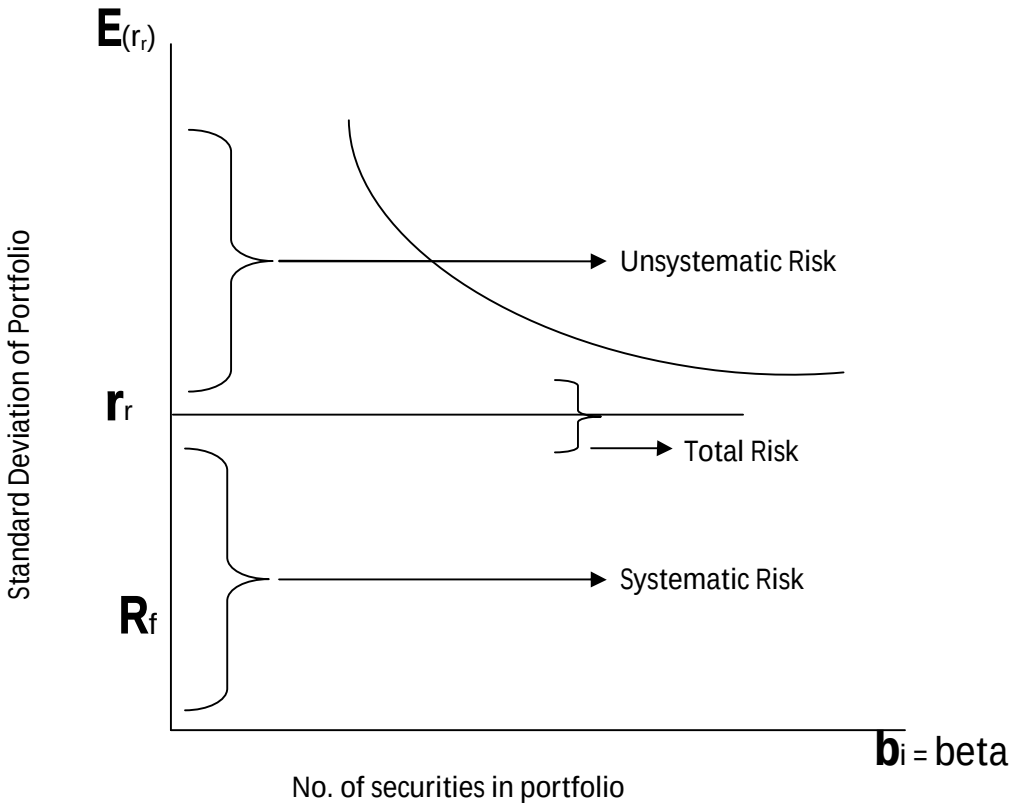
Any type of business, whether it is large or small, suffers risks because investment is a part of economics and the economic cycle changes frequently. When the market is bullish there is no risk and when starts declining i.e. bearish there may be high risk. The total risk associated with the investment can be classified as unsystematic risk and systematic risk. Systematic risk is also known as non- diversifiable risk which is neither avoidable no can be quite. This risk arises due to the changes in the economic state or due to changes made by government in fiscal or monitory policies that affect security overall or the interview who holds a well-diversified portfolio will be exposed to this type of risk.

Unsystematic risk is also known as diversifiable or avoidable risk because an efficient portfolio is formed the unsystematic risk can totally be diversified. Such type of risk arises due to the many more reasons like labor strikes, management error, inventions, company not being to able to manage or obtain adequate raw materials on time, entry of strong competitor in the marker etc. this type of risk are normally minor and can be handled by the management.

The following figure shows the relationship among diversification, unsystematic risk and systematic risk.

Figure no 2.5

Total, systematic and unsystematic risk



"As shown in figure, unsystematic risk can be reduced as more and securities are added to a portfolio. In, USA it has been found that unsystematic risk can be eliminated by holding about fifteen securities and in India, it is forty."(panday, 1997:340)
Similarly, Francis has proposed that "Total Risk" can be measured by the help of standard deviation (SD) or variance (var ri) which is square of SD.(Francis,1992:254)

Total risk (σi^2) = Systematic risk + Unsystematic risk

Where,

Systematic risk = var($\beta_i . r_m$)

Unsystematic risk = var (e)

So,

$(\sigma i^2) = \beta i^2 . var(rm) + var(e)$

2.7 REVIEWS FROM RELATED STUDIES:

This topic is again sub-divided into three parts the review from journals, thesis and other independent (Nepalese) studies related to this topic "Risk & Return".

2.7.1 REVIEW FROM JOURNALS:

The main focus of the study is the risk and associated returns of the common stock investment. So, for the purpose the journals of finance published in different dates may be reviewed here.

In context of Nepal, there are very few financial research based journals. They are very limited business magazines, which hardly publish in the topic related to "risk and return". So some foreign journals are taken into account to review the risk and return topics.

An article written by K. Greet Rouwenhorst entitled "Local return Factors and Turnover in Emerging Stock Market's" this had been published in 1999. This paper examines the sources of return variation in emerging stock markets. Compared to the developed markets the correlation between most emerging markets and stock markets has been historically low and until recently many emerging countries

restricted investment by foreign investors. He attempts two sets of question to answer by his solution. Many emerging markets have firms with multiple classes of shares crying different ownership restrictions. Firms with multiple shares classes are treated as single value weighted portfolio of the outstanding equity securities. He concludes that the return factors in emerging markets are qualitatively similar to those in developed markets. The low correlation between the country return factors suggest that the premiums have a strong local character. Furthermore, global exposure can't explain the average factors return of merging markets. There is little evidence that the correlation between the local factor portfolios have increased, which suggest that factors responsible for increase of emerging market country relation are separate from those that drive the differences between expected return within these market. A Bayesian analysis of premiums in developed and emerging market shows that, unless one has stronger prior beliefs to the country, the empirical evidence factors the hypothesis that size, momentum and values strategies are compensated for expected returns around the world. Finally the paper documents the relationship between expected return and share turnover examines the turnover characteristics of the local return factor portfolio. There is no evidence of a relation between expected return turnovers in emerging market. However, Beta, Size, Momentum and value are positively cross sectional correlated with turnover in emerging markets. This suggest that the returns premiums don't a simply reflects compensation for liquidity.(*Rouwesnhoust,1999*)

An article written by Elton entitled "Expected Return, Realized Return and Asset Pricing Tests" which had been published in 1999 is also relevant in this research. In this paper the writer has mentioned that "Almost all of the testing I am aware of involved using realized returns as proxy for expected returns relies on a belief the information surprises trend to cancel out over the period of over the period of a study and realized returns are therefore an unbiased estimates of expected returns. However, I believe that here is simple evidence that

is belief is misplaced. There are period longer than 10 years during which stock market realized returns are no average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risky long-term bond on average underperform the risk free rate (1927 to 1981). Having a risky asset with an expected return above the risk-less rate is an extremely weak condition for realized returns to be an appropriate proxy for expected return and 10 and 50 is an awfully long time for such a weak condition not goes to be satisfied. In recent pass united states has had a stock market return of higher than 30 percent year while Asian markets have had negative return."(*Elton, 1999*)

2.7.2 REVIEW FROM NEPALESE STUDIES:

There are very few independent studies can be found here in the topic of finance in Nepalese context. But there are some independent studies about Nepalese stock markets are reviewed here,

The study carried out by Professor Manohar Krishan Shrestha in 1992 in the title of **"Shareholders Democracy and annual general Meeting (AGM) Feedback".** This study critically analyzed the situation of common stock investors. Shrestha has argued the need of separate act regarding the protection of shareholders right.

This study has been divided into two parts. The first part includes view on the rights of the shareholders regarding how they can exercise then in democratic perspective and the second part consist of feedback and the issue raised by shareholders at different annual general meeting of public, limited companies and financial institution.

Company and another acts relating to financial and industrial sector have provisioned right of the shareholders are:

I. Voting rights.
II. Participation in general meeting.
III. Right of getting information.
IV. Electing as aboard of director.
V. Participating in the profit and loss of the company.
VI. Transferring shares.
VII. Proxy representation.

The collective rights of the shareholders are:

I. Amend the internal by laws.
II. Authorize the sales of laws.
III. Enter to merger.
IV. Change amount of authorized capital.

There are many companies, which conduct the annual general meeting just to fulfill their desires and do not consider the voice of the majority of the shareholders. Similarly, managements involvement and government's intervention in the board election have brought a greater set back in the voting rights of the shareholders.

Similarly, another study carried out by Dr. Radhey Shyam Pradhan in 1993 in the title of **"Stock Market Behavior on Small Capital Market: A case study in Nepal"** Which are conducted more than five years ago and published in the book of "Research in Nepalese Finance" in 2006. This study was based on data collected foe seventeen enterprises from 1986 to 1990 whose stocks are listed in stock exchange center and traded in stock market. One of the major objectives, which are related to this study, was" To assess the stock market behavior in Nepal.

Mr. Pradhan has given the following finding.

- DPS and MPS is positively correlated.

- Higher the earning on stock, larger the ratio of dividend per share to MPS.
- There are positive relationship between dividend payout and liquidity.

Another independent study made by Atma Ram Ghimire entitled **"Nepal Share Market and Investor's Prospect"** published in the "Business Age" in June 2001 is reviewed here.

In this study he has pointed out some important trends to our capital market. He has mentioned in his article many unbalanced factors like potential in stability etc. are the main cause of decreasing share price. According to him current share price is on declining process. The fluctuation in NEPSE is due banking sector which price change has no logical explanation. Price change was due to availability of bonus, dividend etc. When we analyze our stock market we find that all the component of the market are lame, weak and perhaps work for vested interest. The general publics are also reckless in their investment and booker organization is also unqualified and is a one – man show. In addition to this board always favors companies and not the investors. The conclusion of Mr. Atma Ram Ghimire is that the investors should be alert and aware to this situation. They must receive the financial information before making investment.

2.7.3 REVIEW FROM RELATED THESIS

There are some studies related to the topic "Risk and Return" has been reviewed for the fulfillment of Master's degree in T.U. which may be helpful for this study.

Mr. Ghimire has conducted the research entitled **"Portfolio Management of Nepalese Listed Companies"** in 2005 includes six commercial banks, four finance industry, four insurance industry and two manufacturing industry as a sample is reviewed here. His work is basically with portfolio management, which go some extent is also useful to present study.

The main objective of this study is to study the risk and return of securities (i.e. banking, finance, insurance and manufacturing section) and to find out relationship between the rate of return of various securities and market return of

these securities and to examine the usefulness of diversification effect to reduce the risk i.e. portfolio analysis. Similarly the some of his major findings are as follows:

- It is possible to diversify the risk by making portfolio. The making of portfolio itself needs consideration between the stocks includes.
- The banking sector dominates the Nepalese stock market and investor's choice..
- The highest return offering stock is Nepal Lever Ltd. Among all sixteen samples taken for his study. The highest risk expose stock is Kathmandu finance Ltd. Among all sixteen samples.
- The Nepal share market Ltd has the highest coefficient of variation (i.e.2.49) among all samples.
- Nepal lever ltd. Has the highest beta and SBI bank ltd. Has lowest beta among all samples, it indicates that the common stock of Nepal lever Ltd. is most volatile and the common stock of Nepal SBI bank ltd. Is least volatile.
- Only two stock Nepal lever ltd. And Nepal share market ltd. Fail to produce the expected return more than the require rate of return. Beside these two stocks, all other stocks are qualified from the view of SML equation.

Mr. Gautam has conducted the research entitled "Analysis of Risk and Return on Common Stock Investment of Listed Insurance Companies" in 2006 includes five insurance companies as a sample is reviewed here.

The main objective of this study is to determine the level of risk associated with common stock investment of listed insurance companies in Nepal and to analyzed risk and return and other relevant that help in making decision about the stock and the investment. Similarly the some of his findings are as follows:

- All insurance companies have positive expected return. Expected return of the common stock of EIC is the highest i.e.30.93% and NLGIC is lowest at 5.62% among all sample insurance companies.
- On the basis of sector wise comparison banking sector is the best as per highest expected return and higher degree of risk and from viewpoint of

CV, insurance and finance sector is the best as it has least CV whereas trading sector has minimum return and risk i.e. negative return.

- Overall market return is 9.9% risk on common stock of overall market (i.e.S.D.) is 35.4% and coefficient of variation of market is 3.58.
- The portfolio analysis indicates that forming portfolio can reduce the risk. By making portfolio it is found that their correlation coefficient is positively correlated.
- Since beta coefficient of all sample companies except NLGIC is greater than 1. It indicates that the share is more volatile than market except NLGIC.
- The CAPM analysis indicates that the stock of NLGIC is overpriced and other remaining company's stocks are underpriced.
- In case of hypothesis testing the calculated value is less than the tabulated value so the null hypothesis is accepted. It means expected return of common stock of insurance company is equally to market return at all level of significance.

Kedar Prasad Tiwari has conducted a thesis entitled "Risk and Return Analysis of Selected Finance Companies Listed in Nepal" in 2007 includes six finance companies as a sample.

The main objective of the study is to analysis the risk and return associated with the common stock. For analyzing the data, he has used various statistical technique of simple linear regression as well as other financial tools. Similarly the some of his finding are as follows:

- There is positive relationship between expected return and different measure of risk of the finance company.
- The return of majority finance companies has higher degree of positive correlation with the return of other companies.
- All the investment involved certain amount of risk (i.e. Standard Deviation) as well as most of the finance company have the risk less than the average.
- All the finance companies have positive expected return as well as most of the finance company has the return near the average.

- Some finance companies securities have highest value of CV is 3.49 although many of the finance companies CV is less than the average value of CV(1.77) but bot in acceptable level.
- The overall effect of portfolio on risk and return shows mixed result. It means the portfolio helps to increase the return in some case but in some case it also decreased the result up to negative level. But other hand. Neatly in all case it has helped to decrease the level risks up to some extent.

Mr. mangal Bhakta Shrestha has conducted a thesis on the topic “Risk and Return Behavior of Listed Commercial Banks in NEPSE” in 2008 includes eight commercial banks as sample is reviewed here:

The main objective of the study is to examine the current status of stock market of Nepal and to analyze the risk and return associated with common stock of commercial banks. Similarly the some of his findings are as follows:

- The selected commercial banks having higher risk pose fewer rates of return and bank having low risk have higher return.
- The portfolio analysis provides empirical evidence of disparity between risk and return of selected commercial banks.
- Bank of Kathmandu Ltd has the higher value of beta is 2.25. Similarly it has the highest risk 67.61% and return is 22.04%.
- Most of the selected commercial banks have sensitive stock with market. Among 8 selected commercial banks, 5 of the banks have value of beta greater than one and 3 of them have value of beta is less than one.
- Risk and Return of the selected commercial banks are not consistence. The average risk of selected commercial banks is 40.07% whereas return is only 9.23%. The highest risk is 67.61% of bank of Kathmandu Ltd. Whereas higher return is 23.49% of Nabil Bank Ltd.
- In comparison of overall market return of NEPSE and average return of selected commercial banks shown that there is no significantly difference.

- In case of hypothesis testing the calculated value is less than the tabulated value, the null hypothesis may be accepted. In other words, there is no significant different between average return of selected common stock and overall market return.

CHAPTER- III

RESEARCH METHODOLOGY

This chapter has been divided as follows:

3.1 REASEARCH DESIGN:

This study based on historical data so, it is a historical research which covers the five years period data from the FY 2002/03 to 2006/07. It deals with the common stocks of commercial banks on the basis of available information. As the title of the study suggests, it is more analytical and empirical but less descriptive.

3.2 POPULATION AND SAMPLE:

All the items under consideration in any field of inquiry constitute a universe or population. A complete study of all the elements of the population is known as census enquiry. But the need of sampling arises when the fields of study grow large and it becomes difficult to adopt such methodology.

The population of this study is as follows:

1. Nepal Bank Limited
2. Rastriya Banijya Bank Limited
3. Nepal Investment Bank Limited
4. Standard Chartered Bank Limited
5. Nabil Bank Limited
6. Himalayan Bank Limited
7. Nepal SBI Bank Limited
8. Nepal Bangladesh Bank Limited

9. Everest Bank Limited
10. Bank of Kathmandu

The researcher has taken only two commercial Banks as samples, which are as

- Nabil Bank Limited
- Everest Bank Limited
- Kumari Bank limited

His study is based on five years financial data, which can be indicated 1002/03 to 2006/07 period.

3.4 SOURCES OF DATA:

Data can be obtained from either the primary source or secondary source. Primary source refers as originally collected data for the first hand use to the purpose of various research works. The use of same data by other parties would now be termed as secondary data.

In our context we are mainly dependent upon secondary data collected from official website of Nepal stock exchange NEPSE (ww.nepalstock.com) and also from some of the publication of Nepal Rastra Bank and security exchange board of Nepal (SEBO-N).

3.5 DATA ANALYIS TOOLS

Data are collected for analysis, research or any conclusive result. Data alone are not complete unless the data are related with activities to get some output/result. The data can be analyzed by using financial and statistical tools. Brief explanation of the terms and tools of analysis used in this study are as follows:

i) **Market price per share of stock (MPS):**

Market price per share is the major part of return. NEPSE index shows the three types of market price namely high, low and closing price. In place of average, we have taken clogging price of the stock at the end of year as market price because it is difficult to get all the required data accurately MPS.

ii) **Earnings per Share (EPS):**

Net income of the company is a earning of that company. Earnings per share are calculated by dividing net income by no of common stock outstanding.

Mathematically,

$$EPS = \frac{\text{Net Income}}{\text{No. of common stock outstanding}}$$

iii) **Dividend per Share (DPS):**

Dividend is the reward for waiting to the investor which is distributed to the shareholder. Dividend is of two types: cash dividend and stock dividend. If only cash dividend is paid there will be no problem in calculation of total gain to the shareholders. In this case, they get extra no. of shares as dividend and simultaneously price of the stock declines as a result of increased number of stock. To get a real amount of dividend following model has been used throughout, there are no any model and formula. So, the model has been developed considering practical as well

as theoretical aspects after discussions with NEPSE staffs and investors.

The model is:-

Total dividend amount = Cash Div. + Stock Div. % x next year's MPS

Where,
Div. = Dividend
MPS = Market price per share.

iv) **Return on common stock (R_J):**

Return on common stock is also known as single period rate of return. It is the capital appreciation plus dividend yield by initial stock price. Mathematically:

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

Where,
D_t= Cash div. received during the "t" period.
P_t = Price of security at "t" time.
P_{t-1} = Price of security at "t-1" time.

v) Expected rate of return on common stock, E (R_j)

Expected rate of return is the average rate of return on common stock. It is obtained by arithmetic mean of the past year's return.

Mathematically;

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

where,

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

R_j = Return on stock 'j'

n = Number of years that the return is taken

$\sum$ = Sign of summation

vi) **Return on Market (R_M)**

It is the % increase in NEPSE index. Market return is the average return of the market as a whole. It is calculated as:

$$R_M = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

R_M = Return on market.

NI_t = NEPSE index at 't' time.

NI_{t-1} = NEPSE index at 't-1' time.

vii) **Expected return on market, E (R_m)**

It is average return of future expectation. It is calculated by summing up the past return and dividing by no. of samples period.

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

Where,

$\sum R_m$ = Summation of market return.
N = No.of sample period.

viii) **Standard Deviation:**

It is the statistical measure of variability of return. It is the most popular and most useful measure of dispersion. Mainly, it measures the deviation from expected mean return. Standard deviation, usually denoted by the letter σ (sigma). Standard Deviation is the square root of the variance. Standard Deviation can be calculated using historical data also.

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

Where,

σ_j = Standard Deviation of return of stock 'j' during the time period n.
Rj = Return on stock j
$E(R_j)$ = Expected return on stock j
N = no. of years

ix) **Coefficient of Variation (C.V):**

The other useful measure of risk is the coefficient of variation. It gives the risk per unit of the expected return and gives the result regarding the unit of risk to bear for earning one unit of return.

Coefficient of Variation (C.V.) = $\frac{\sigma}{E(R_j)}$x 100%

Where,

σ = Standard Deviation
$E(R_j)$ = Expected return on stock j

x) **Portfolio Return:**

The expected return of a portfolio is simply a weighted average of the expected return of the securities comprising that portfolio. The weights are the proportion of total funds invests in each security and the sum of weight equals to 100%. The return on the portfolio in case of only two assets portfolio is given by:

$E(r_p) = W_i E(R_i) + W_j E(R_j)$

Where,

r_p = Proportion return
W_i = Weight on security i
W_j = Weight on security j
$E(R_i)$ = Expected return on security i.
$E(R_j)$ = Expected return on security j

xi) Portfolio Risk:

Risk of a portfolio is not the weighted average of the standard deviation of the specific securities comprising that portfolio. It rather depends upon the co-movement (interactive risk) among the security as well. This interactive risk is measure by co-variance and correlation which is relative measurement. A statistical measure of the degree to which variable such as securities return move together is correlation. The formula for the calculation of portfolio risk

for two assets case is given below:

$$\sigma_p = \sqrt{\sigma_i^2 w_i^2 + \sigma_j^2 w_j^2 + 2Cov(R_i.R_j)W_iW_j}$$

Where,

$\sigma_{p=}$ Portfolio standard deviation

σ_i^2/σ_j^2 = Variance of assets I and j

Cov$(R_i.R_j)$ = Covariance between assets I and j

xii) **Minimum Variance Portfolio:**

It is the proportion of stock that minimizes the possible (unsystematic) risk. It can be calculated by finding out the proportion of investment in each asset.

Mathematically,

$$\mathbf{W_i} = \frac{\sigma_j^2 - Cov(R_iR_j)}{\sigma_i^2 + \sigma_j^2 + 2Cov(R_iR_j)}$$

Where,

$\mathbf{W_i}$ = Optimal weight to invest in stock i

σ_p = Portfolio standard deviation

σ_i^2/σ_j^2 = Variance of assets I and j

Cov$(R_i.R_j)$ = Covariance of return between assets I and j

xiii) **Correlation coefficient:**

The correlation is also a measure of the relationship between two

variables. Correlation may be positive or negative. Its value is limited between the range of and one and minus one. It can be calculated as

$$\mathbf{P_j^i = \frac{Cov_j^i}{\sigma_i \sigma_j}}$$

Where,

$\mathbf{P_j^i}$ = Correlation coefficient

$\mathbf{Cov_j^i}$ = Covariance of return between assets I and j

$\boldsymbol{\sigma_i \sigma_j}$ = Standard deviation of stock I and j

Where, σi and σj are the standard deviation of return for assets I and j and pij is the correlation coefficient for asset I and j.

Various cases of correlation and risk condition:

1. Perfectly Positive correlation (P_{ij} = +1)

Return on two perfectly positive correlated stocks would move up same direction. So, risk cannot be diversified away by investing in such assets in portfolio. Portfolio of such would be exactly

2. Perfectly Negative correlation (P_{ij} = -1)

Return on two perfectly negative correlated stocks would move up exactly opposite direction so can be completely eliminated by holding such stocks in portfolio. Perfectly negative correlation is almost never found in the real world.

3. No Relation Between Returns (P_{ij} = 0)

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

4. Intermediate risk (P_{ij} = +0.5)

Most of the stock returns 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 the portfolio of stocks reduces risk but not eliminate it completely.

xv) Beta:

Beta coefficient of any security tells how sensitive in that securities return with respect to the return in the market. Beta coefficient is an index that measures the systematic risk of different assets. Beta coefficient of a particular stock will be less than 1, equal to 1 and more than 1 but the beta for market will be always 1.

Mathematically,

$$\beta_j = \frac{Cov(R_j R_m)}{\sigma^2 m}$$

Where,

β_j = Beta coefficient of stock 'j'
$\sigma^2 m$ = Variance of market return

xvi) **Partitioning of total risk:**

Systematic Risk Proportion(p^2) = $\frac{\beta_j^2 \, \sigma m^2}{\sigma_j^2}$

Unsystematic Risk Proportion$(1-p^2) = \frac{\mathbf{Var(e)}}{\boldsymbol{\sigma_j^2}}$

Where,

$\boldsymbol{\beta_j^2}$ = Beta square of stock 'j'

$\boldsymbol{\sigma m^2}$ = Variance of market return

$\boldsymbol{\sigma_j^2}$ = Variance of stock 'j'

Var (e) = Residual variance

xvii) Testing of Hypothesis:

Testing of hypothesis is one of the most important aspects of the theory of decision making. The two complementary hypotheses that are set up in the testing of hypothesis are the null hypothesis and the alternative hypothesis. These two hypotheses have a reciprocal relation to each other.

Null hypothesis:

A Statistical hypothesis or assumption made about the population parameter to testing its validity for the purpose of possible acceptance is called null hypothesis is usually denoted by H_0.

Alternative hypothesis:

A complementary hypothesis is the null hypothesis is called an alternative hypothesis. In other words, a hypothesis which is set up against the null hypothesis is called in alternative hypothesis. An alternative hypothesis is also called hypothesis of difference. It is usually denoted by H_1**.**

Test of significance of single mean for small sample

Step-1 Formulation of Ho and H1

Null hypothesis, Ho: $\mu = \mu o$ i.e. the population has a particular mean μo. In other words, there is no significant difference between sample mean (x) and population mean (μ).

Alternative hypothesis, H1: $\mu \neq \mu o$ (two tail test) i.e. the population means is not equal to μo. In other words, there is significant difference between sample mean(x) and population mean (μ). Or

Alternative hypothesis, H1: H1>Ho (right tailed test) i.e. the population mean is greater than μo.
Alternative hypothesis, H1: H1<Ho(left tailed test) i.e. the population mean is less than μo.

(only one alternative hypothesis is to be chosen depending upon the nature of problem.)

Step-2 Level of significance (μ): use $\mu = 5\%$, unless otherwise stated.

Step-3 Type of test: since n<=30 apply t-test.

Step-4 Test Statistics: under Ho: Test statistics is

$$\mathbf{t} = \frac{\frac{\bar{x} - \mu}{s}}{\sqrt{n-1}}$$

Where,

S= Based sample standard deviation.

Step-5 Table: The tabulated value of t at α % level of significance for (n-1) dss.f. Is obtained from table according as whether alternative hypothesis is two tailed test.

Step-6 Decision:

i) If tcal ≤ tacb then Ho is accepted and H1 is rejected.
ii) If tcal ≥ tacb then H1 is accepted and Ho is rejected.

LIMITATION OF METHOD :

1. This study based on the historical figures to forecast the future, i.e. their search design for this study is historical past may be the genesis for future but the past may not happen in future in same manner.

2. The population is only 17 commercial banks, which are listed in NEPSE. And the total no. of samples is only six listed commercial banks. So, the samples do not cover whole industry.

3. The source of data is secondary and mainly collected from web site of NEPSE. So, accuracy of methodology is based on the secondary data.

4. The data analysis tool are based on financial and statistical concepts. The values provided by such tool may be the approximation values only.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

This chapter is the main body of the study. It comprises detail data of market price of stock and dividend of selected sample banks and NEPSE index. The data are arrange into table, diagrams, graph and figure as per is nature. The data are so arrange are scrupulously analyzed and interpreted to serve the purpose of study using the various financial as well as statistical tools and techniques. It analysis the risk and return behavior within and between the selected commercial bank, market sensitivity of stock and risk and of individual stock and their interpretation.

4.1 ANALYSIS OF INDIVIDUAL BANK, FINANCIAL INDICATORS:

There are 17 commercial Banks listed in NEPSE. Due to the various limitations only six commercial banks are taken for study. Risk and Return on common stock of these banks are presented and analyzed below. Whole working cited here facilitate as able to separate each commercial bank in terms of their risk and return and facilitates as to how these dimension help to make decision to invest in common stock of individual bank.

4.1.1 NABIL BANK LIMITED

Table No. 4.1

Summary of the financial performance of NABIL Bank Ltd.

Fiscal Year	MPS (Rs.)	DPS (Rs)	BPS (Rs)	EPS (Rs)	Return
2001/02	700	30	233	55.25	
2002/03	740	50	267	84.66	-44.45
2003/04	1000	65	301	92.61	-7.02
2004/05	1505	70	337	105.49	69.93
2005/06	2240	85	381	129.21	103.93
2006/07	5050	12.59	418.39	137.08	9.81
Total					**132.20**
Average					26.40

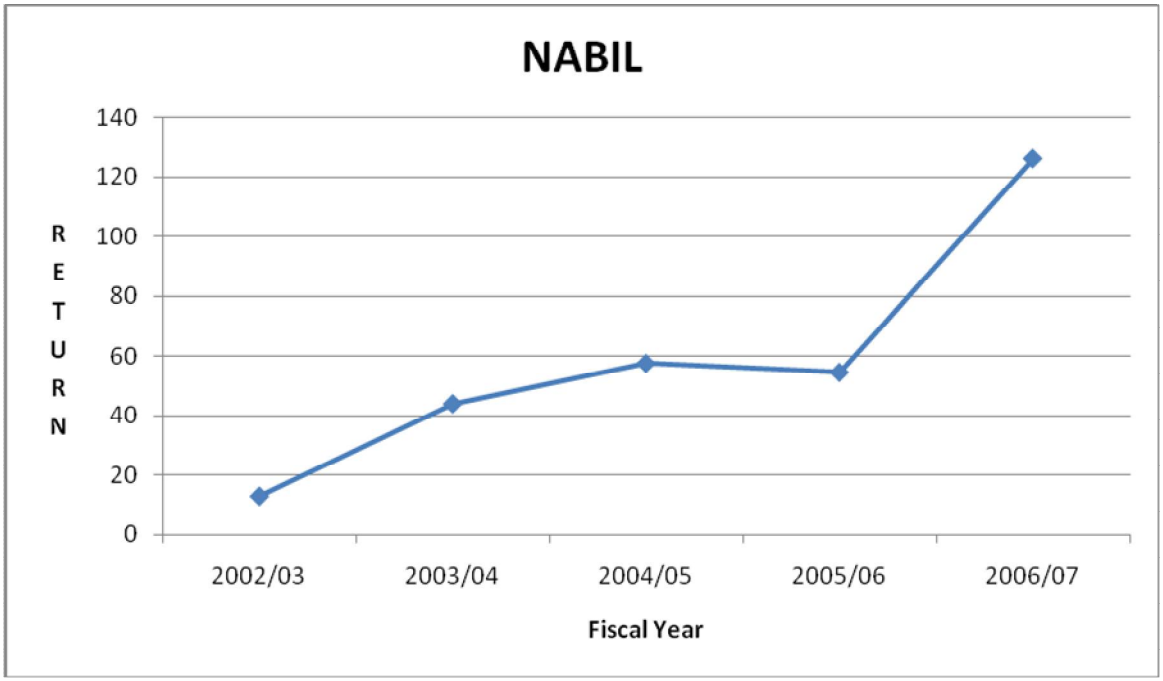
Sources: NEPSE index and AGM report of NABIL

The above table present the summary of financial performance of NABIL Bank Ltd for the last six year (2001/02 – 2006/07). From the above table, it can be revealed that MPs has been continuously increasing each year till 2006/2007. The organization is distributing it DPS each year in increasing trends but last year DPS was decreased to 12.59 from 85. Likewise, the BPS and EPS are also in increasing trend. It shows the betterment in its performance each year.

Table4.2
Calculation of expected rate of return, and SD and CV of NABIL

Fiscal Year	R	r-E(r)	$[r-E(r)]^2$
2002/03	12.86	-46.10	2125,2100
2003/04	43.92	-15.04	226.2016
2004/05	57.50	-1.46	2.1316
2005/06	54.49	-4.47	19.9809
2006/07	126.01	67.05	4495.7025
	$\sum r=294.78$		$\sum[r-E(r)]^2 = 6869.2266$

Annual Required Rate of Return on Common Stock of NABIL



Expected Rate of Return = $\frac{\sum r}{n}$

$$= \frac{249.78}{5}$$

$$= \mathbf{58.96}$$

Standard Deviation = $\sqrt{\frac{\sum[r - E(r)]2}{n-1}}$

$$= \sqrt{\frac{1717.3067}{5-1}}$$

$$= \mathbf{41.44}$$

Coefficient of Variation (C.V) = $\frac{E(r)}{\sigma}\ x\ 100\%$

$$= \frac{58.96}{41.44}\ \text{x}\ 100\%$$

= 70.28**%**

4.1.2 EVEREST BANK LIMITED

Table No. 4.1
Summary of the financial performance of Everest Bank Ltd.

Fiscal Year	MPS (Rs)	DPS (Rs)	BPS (Rs)	EPS (Rs)	Return
2001/02	405	20	170.76	32.91	
2002/03	455	0	150.1	29.9	9.88
2003/04	680	0	171.52	45.58	52.81
2004/05	870	20	219.87	54.22	30.88
2005/06	1379	0	217.67	62.78	58.51
2006/07	2430	10	231.95	57.22	76.94
Total					229.20
Average					45.80
S.d					25.95

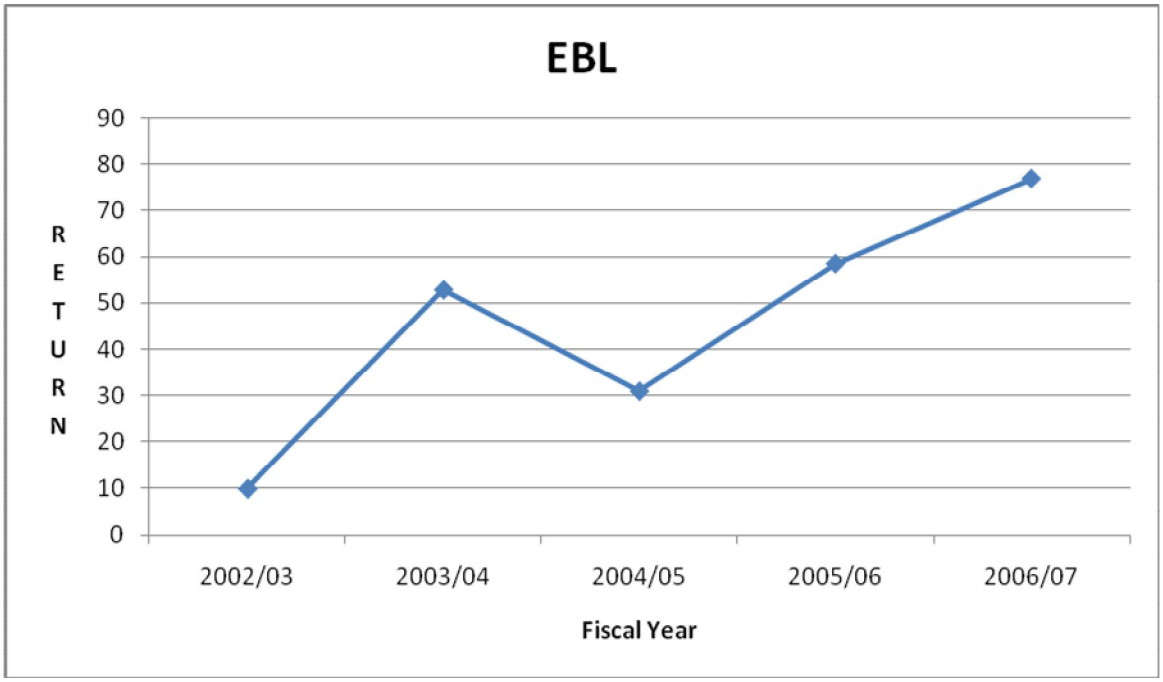
Sources: NEPSE index and AGM report of EBL

The above table represents the summary of the financial performance of the Everest Bank Ltd the above last six years (2001/02 to 2006/07). From the above table it can be revealed that MPS has been continuously increasing each year till 2006/07. The bank has distributed dividend only three times within this period at different rate. BPS has been decreased first and then increased. The BPS of the organization is not consistent.

Table no. 4.2
Expected rate of return, SD & CV of EBL

Fiscal Year	R	r-E(r)	$[r-E(r)]^2$
02/03	9.88	-35.92	1290.2464
03/04	52.81	7.01	49.1401
04/05	30.88	-14.92	222.6064
05/06	58.51	12.71	161.5441
06/07	76.94	31.14	969.6996
	$\sum r = 229.02$		$\sum[r-E(r)]^2 = 2693.2366$

Annual Required Rate of Return on Common Stock of EBL



Expected Rate of Return = $\frac{\sum r}{n}$

$$= \frac{229.02}{5}$$

$$= \mathbf{45.80\%}$$

Standard Deviation = $\sqrt{\frac{\sum[r-E(r)]^2}{n-1}}$

$$= \sqrt{\frac{2693.2366}{5-1}}$$

$$= \mathbf{25.95\%}$$

Coefficient of Variation (C.V) = $\frac{\sigma}{E(r)} x\ 100\%$

$$= \frac{25.95}{45.80} \text{x}\ 100\%$$

$$= \mathbf{56.66\%}$$

4.1.3 KUMARI BANK LIMITED

Kumari Bank Limited, came into existence as the fifteenth commercial bank of Nepal b starting its banking operation from Chaitra 21, 2057 B.S(April,03,2001) with an objectives of providing competitive and modern banking services in the Nepalese financial market. The bank has paid up capital of Rs. 1186099200.00 of which 70% is contributed from promoters and remaining from public.

Table No. 4.1
Summary of the financial performance of Kumari Bank Ltd.

Fiscal Year	MPS (Rs)	DPS (Rs)	BPS (Rs)	EPS (Rs)	Return
2001/02	122	0			
2002/03	127	0	110.25	4.10	4.10
2003/04	184	0	120.35	44.88	44.88
2004/05	407	15	128.35	124.88	124.88
2005/06	040	0	138.22	140.79	140.79
2006/07	750	0	136.75	-23.47	-23.47
Total					291.18
Average					58.24
S.d					72.53

Sources: NEPSE index and AGM report of KBL

The above table represents the summary of the financial performance of the Kumari Bank Ltd the above last six years (2001/02 to 2006/07). From the above table it can be revealed that MPS has been increased slowly at first then at faster rate.

The incremental were 121.20% and 140.79% in the year 2005 and 2006 respectively. However, the MPs is reduced by 23.47% in the year 2007, when it falls to Rs750 from Rs040. The decrease in MPs can be attributed to the issuance of bonus share, when it issued in 2005 in the ratio 1:4.

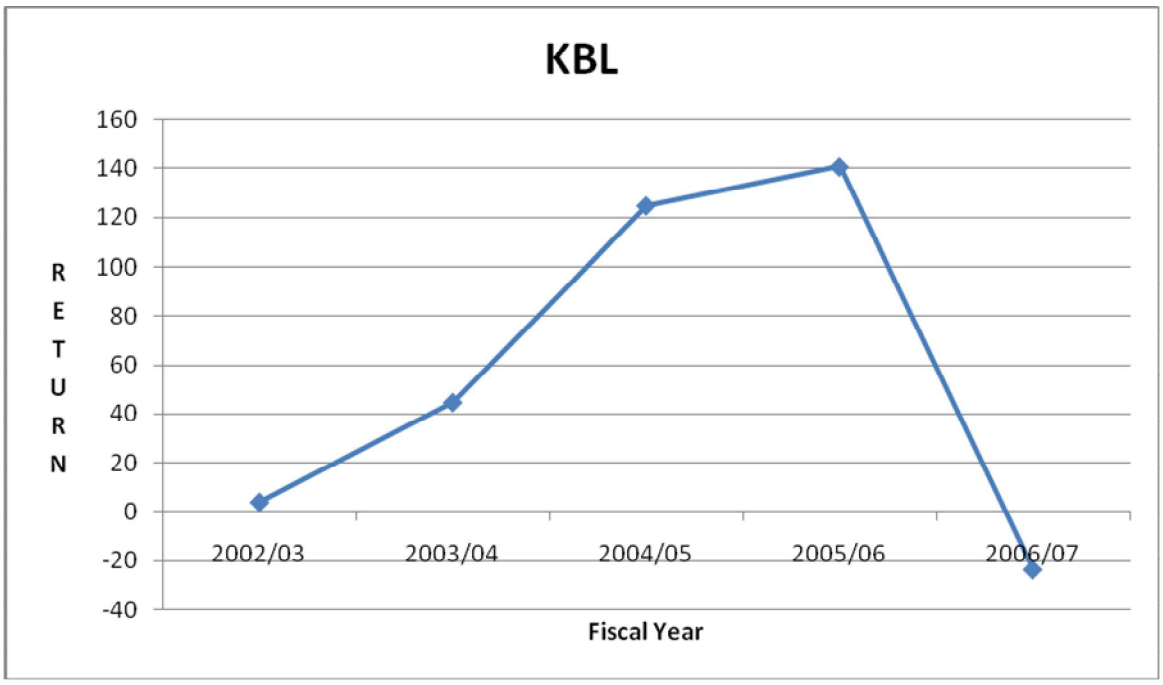
The bank did not seem prominent and declaring dividend. Only one offer of dividend made by KBL and it was in 2005 when it declares Rs 15 dividend per share. The dividend yield was 3.68% at that time. Therefore, the return of a stock of KBL was mainly composed by Capital Gain yield then dividend yield, as the graph shows. The trend of return of a stock of KBL was coinciding with the capital gain yield trend during the given period of study.

The average return of KBL is found to be 58.34%. The variance of return is 5260.39% while the standard deviation of return is 72.53%. In general, a high rate of return for higher risk is seen from the study.

Table no. 4.2
Expected rate of return, SD & CV of EBL

Fiscal Year	R	r-E(r)	$[r-E(r)]^2$
02/03	4.10	-54.136	2930.7065
03/04	44.88	-13.356	178.383
04/05	124.88	66.644	4441.423
05/06	140.79	82.554	6815.163
06/07	-23.47	-81.706	6675.87
	$\sum r = 291.18$		$\sum[r-E(r)]^2 = 21041.55$

Annual Required Rate of Return on Common Stock of Kumari Bank



Expected Rate of Return = $\frac{\sum r}{n}$

$= \frac{291.18}{5}$

$=$ **58.236%**

Standard Deviation = $\frac{\sqrt{\sum [r - E(r)]^2}}{n-1}$

$= \sqrt{\frac{21041.55}{5-1}}$

$=$ **72.53%**

Coefficient of Variation (C.V) = $\frac{\sigma}{E(r)} x\ 100\%$

$= \frac{72.53}{58.236} \text{x}\ 100\%$

$=$ **124.54%**

4.2 Inter Bank Comparisons:

Analysis of risk and return is very important concept of the investment activities which can be examined through the various way current owners, potential investors, employees, creditors, government; customers analyze the risk and return for their own interest. For the

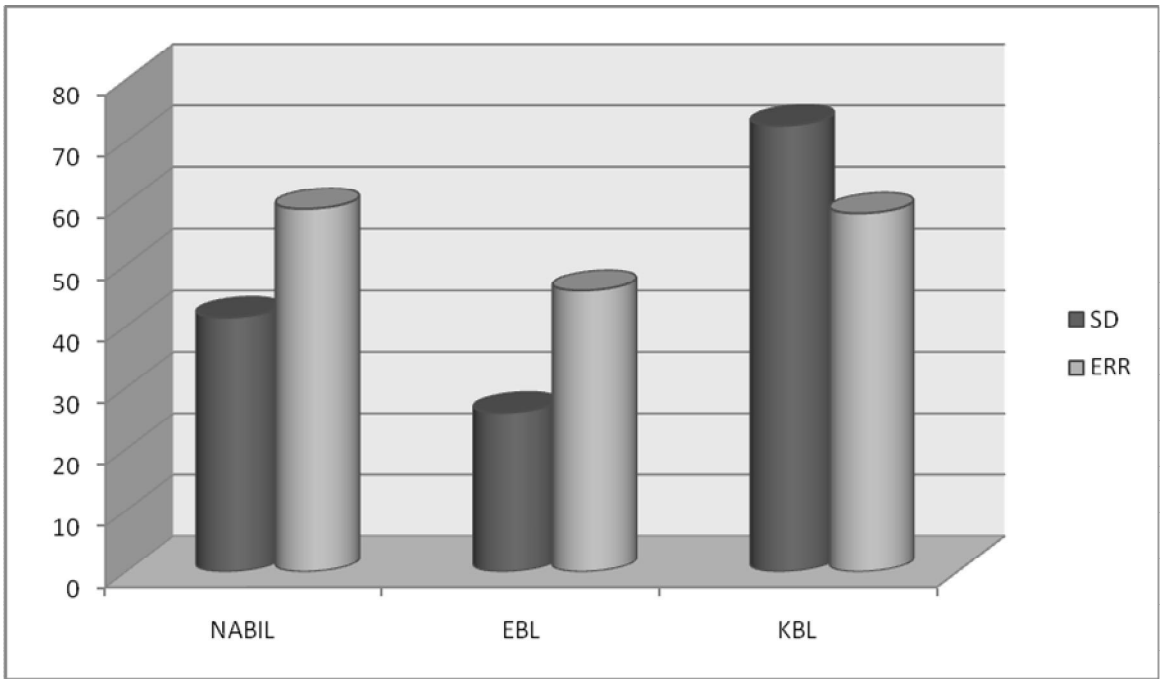
analysis of risk and return various dimension relating to the common stock and need to calculate. Here to examine "risk and return analysis in context to commercial bank in Nepal" it is calculated the expected rate and return, standard deviation (σ) and co-efficient of variation (CV) at first. After that it is calculated the portfolio construction using "Risk Minimizing Weight" as well as systematic risk portion and unsystematic risk portion by using financial performance (market price per share and dividend price per share) of 5 years study (2002/03 to 2006/07) of the selected Nepalese commercial banks.

Table no. 4.2.1
Summary of SD, ERR and CV of sample commercial banks

Name of Banks	SD (σ)%	ERR, E(r)%	CV
Nabil Bank LTD	**41.44**	**58.96**	**70.28**
Everest Bank Ltd	**25.95**	**45.80**	**56.66**
Kumari Bank Ltd	**72.53**	**58.24**	**124.54**
Total	**139.92**	**162.996**	**251.48**
Average	**46.64**	**54.332**	**83.83**
Highest	**72.53**	**58.96**	**124.54**
Lowest	**25.95**	**45.80**	**56.66**

Sources: NEPSE index and AGM report of sample commercial banks

Risk (SD) and Return (ERR) of Sample Commercial Banks



Return to investor refers to the sum of dividend received per share and market price appreciation depreciation) per share at the end of the year. Share were trading in secondary market is determine by supply and demand factor as well as consensus opinion of investors. It is said to be better that market price per share of common stock reflect the performance of bank. The demand of the stock for better banks will be higher and market price per share of these banks will be hired, as a result, the return to investors will also become higher.

Among the selected commercial banks the highest expected rate of return value is 58.96% from Nabil Bank Ltd. Lowest ERR is found at Everest Bank (45.80%). The average expected rate of return of these banks is 54.332.

In above table shows two commercial banks higher rate of return value than average rate of return and Everest bank have lower expected rate of return value.

The average S.D value of these banks is 46.64. In table Kumari bank have higher S.D than average S.D value and other remaining banks have lower S.D value than Average value of S.D.

In case of C.V, Kumari bank has maximum C.V (124.54%) and Everest bank has lowest value of CV(56.66%).

4.3 PORTFOLIO ANALYSIS

A portfolio is a combination of two or more assets. The portfolio would be able to reduce unsystematic of diversifiable risk. It is the random selection of securities that are to be added to 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 the portfolio is simply a weight average of the expected rate of return of the security compromising that portfolio the rate are equal to the proportion of total fund invested in each security. The sum of weight must be 100%. Analysis has shown that many Nepalese private investors place their entire wealth in single assets. If they construct a portfolio a group of investment in such kind of assets is negatively correlated. They can reduce unsystematic risk dramatically without losing their return. Therefore, we have to extend our analysis of risk and return portfolio context.

Here, is the study formed two assets portfolio through the combination of selected commercial bank.

SELECTED SAMPLE BANKS

- NABIL BANK Ltd.
- EVEREST BANK Ltd
- KUMARI BANK Ltd**.**

COMBINATION OF BANKS

- NABIL Bank Ltd. & EVEREST Bank Ltd.
- NABIL Bank Ltd. & KUMARI Bank Ltd.
- EVEREST Bank Ltd & KUMARI bank Ltd.

Now, Investors have to invest their amount on feasible and efficient combination of two assets at a time. Such combined minimizes the risk factor associated with the investment. There are so many possibilities of forming portfolio. Here, the study has to take portfolio constructing using risk minimizing weight.

Summary of Portfolio risk & return, covariance (cov) and covariance (cov) and correlation coefficient (p) of sample banks.

Table No.4.3
using risk minimizing weight

Combination of Banks	Weight		E(rp)	σp	Cov	p
NABIL & EVEREST	-0.39	1.39	40.67	24.2	900.85	0.8377
NABIL & KUMARI	0.88	-0.12	44.896	16.20	-812.0425	0.270
EVEREST & KUMARI	1.032	-0.032	45.40	24.48	811.223	0.0060
Average			43.65	21.63		
Maximum			45.40	24.48		
Minimum			40.67	16.20		

(Detail Calculation is shown in Appendix no.B1 to 3)

4.4 MARKET RISK AND RETURN

There is only stock market in Nepal, known as Nepal Stock Exchange, shortly NEPSE. In the context of Nepalese financial market, average market movement is represent by the NEPSE index and average return or market return can be found by using NEPSE index. Its market return, Expected market return, standard deviation and coefficient of variance calculated as follows.

$$rm = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

NI_{t-1} = NEPSE Index at "t" time.

NI_t = NEPSE Index at "t-1" time

Note: The expected market return (i.e. average market rate of return), standard deviation and coefficient of variation of market are 27.86%, 32.63% and 117.12% respectively.

4.5 ANALYSIS OF MARKET SENSITIVITY:

By using beta coefficient, market sensitivity of stock is calculated and explained. Stock with higher the beta indicates greater the market sensitivity. Stock with lower the beta indicates less sensitivity and stock with the negative beta indicates negative sensitive to market. Beta is the index of systematic risk, which can't be reduced by diversification. Beta co-efficient of market is always 1. Here, in this study try to measure by overall NEPSE index. Beta co-efficient gives idea about systematic risk relative to that of market on the other hand beta of particular stock gives the percentage change in the stock return resulting from one percent change

in market. Beta co-efficient of the stock can be calculated through the following formula;

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

Where,

β_j = Beta co-efficient of jth stock

Cov (R_j, R_m) = Covariance of jth stock with market

$\sigma^2 m$ = Variance of market

In the table no. 4.19, presents the summary of beta co-efficient of each of the sample banks. Detail calculation is shown in appendix no: C1 to 6.

Table no. 4.19
Summary of beta coefficient of sample Banks

Name of Banks	**Value of Beta(β)**
Nabil Bank Ltd	1.24
Everest Bank Ltd	0.6613
Kumari Bank Ltd	0.24

(Detail calculation is shown in appendix no. B 1 to 3)

The above table shows, the beta co-efficient of Nabil have greater than 1. It indicates that this bank is highly sensitive with market. In other to say this bank are aggressive. Beta co-efficient of Everest and Kumari have smaller than 1. It indicates that these banks are less sensitive with market. In other to say the stock of these banks are defensive.

4.6 PARTITIONING RISK

Systematic risk is market risk. It is also called undiversified risk. Systematic risk is caused by the external forces in the environment and those are out of the control of management and company. Such examples of factors are political instability, economic condition, social culture change and technological changes etc. this risk affects all firms in the market. This portion of risk is from of risk premium.
Unsystematic risk is not market related risk. It is also called company specific risk or diversifiable risk. Various factors cause unsystematic variability in the value of common stock, example of such factors is labors strike, new inventions. It is inherent in individual companies or projects. This portion of total risk is diversifiable and it is possible to reduce or eliminate through diversification of investment. The unsystematic risk is not rewarded because it can reduce to zero. Total risk in any security can be partitions into two components i.e. systematic and unsystematic risk which gives knowledge to the investors what extent the risk of a given stock can be diversified by combining a large number of assets into a portfolio. The risk (systematic and unsystematic) involved with in the common stock shown in table and diagram in the page follow:

Table no. 4.20
Summary of various risk involved within the common stock

Name of Banks	Total Risk	Systematic risk(RS)	Unsystematic risk(SR)	Proportion of SR (%)	Proportion of USR (%)
Nabil Bank	0.4144	0.1637	0.2507	39.5	60.5
Everest Bank	0.2595	0.0466	0.2129	17.96	82.04
Kumari Bank	0.7253	0.006	0.7193	0.827	99.17

(Detail calculation is shown in appendix no. C 1 to 3)

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The Study has been focused about the commercial banks on behalf of the risk and return analysis for common stock issues among other securities. Invests of common stock are ultimate owner of the company, who are ultimately associated with risk and return. Risk and return is an updated concept for modern investment decision which acts as basic foundation of safer investment. Risk and return analysis should always be address before investment so to maximize the share price, the financial manager must learn to assess two key determinants i.e. risk and return, It become easier when there is existence of developed and healthy stock market.

The common stock is the most risky security than other securities. An investment in common stock of company cannot ensure the annual return and the return on principal. Dividend are paid to the shareholder if there will be earning available to equity return on common stock are the facts of the life to the common stockholders.

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. The investors will invest in risky assets only when he is assured of adequate compensation for risk bearing. Hence, risk and return plays a vital role in the process of investment.

The main objective of these studies is to analyze the risk and return on common stock investment of Nepalese stock market, the study is focused on common stock of six sample commercial ban which is taken from NEPSE. To analyze and recommend the risk and return, Analysis within and between commercial banks and to determinate effect of portfolio risk

and return. When analyzing risk and return brief review of related studies has been performed. The secondary data's are collected from NEPSE, security board of Nepal, Journals and concerned banks. The collect secondary data has analyzed by table, graph figure have used to present the data more clearly.

The major findings of the studying are as follows:

From the analysis of risk and return factor of expected rate of return, standard deviation and coefficient of variation of which average value of expected rate of return of the selected commercial banks is 54.332%. NABIL and KUMARI have higher rate of return value than average value of expected rate of return. EVEREST bank has lower expected rate of return than average value of expected rate of return. The average value of standard deviation is 46.64%. Kumari bank have higher standard deviation value than average value of standard deviation.

5.2 CONCLUSON

Finally the study has concludes some empirical evidence about risk and return analysis in context to Nepalese Commercial Banks. There is no positive relationship between risk and return. So, investment on banking sectors has more risky than other but also investors are interest to invest their wealth in risky assets. The overall effect of portfolio on risk and return shows mixed result. It means making a portfolio we can reduce the risk and increase the return but some case we can get negative result. On the other hand, in all case it helps to reduce the level of risk to some extent. The return of some of the banks has high degree of positive co-relation with the return of other banks. It is no beneficial to make portfolio between such banks. Because the portfolio between highly positively correlated banks may not be able to reduce the level of risk significantly. Two banks are aggressive and these are highly sensitive to market as well as other remaining banks are defensive and these banks are less sensitive to market. The average expected rate of return of selected banks and overall market return have positive relationship.

5.3 RECOMMENDATION

The main objective of the study is to make risk and return analysis of common stock investment. Basically, the study has been focused on the individual investors who are going to invest their fund on the banking sector. Based on above results, the following recommendation has been developed.

- Investors have to prefer to invest their fund in these sectors which provides them a handsome return at minimum risk within a short time period. Therefore, investors must be able to analysis the whole component of stock market and financial condition of various banks. Also be aware of political situation, economic condition and other various factor of the company which affect the price of share.
- Investment on common stock is risky job. Investors have to focus their mind not only on return but also on risk. Higher the return higher will be the risk definitely. T does not guarantee return and principal both. Hence, it is risk in the short term investment and investors need to be prepared for it.
- Most of the Nepalese investors found investing in only single type of common (C.S.) i.e. only on C.S. of Nabil etc. Investors need to diversify their fund to reduce the unsystematic risk. It is better to make invest in portfolio of more than single assets. For the higher portfolio effect, stock returns with higher expected return and negative correlation should be best.
- Investor should analyze the required rate of return and expected return of the company before going to invest. Depending upon general rule regarding buy and sell, and vice versa.
- The market sensitivity of C.S. also helps to invest the funds. It is better to invest the C.S. of beta less than one i.e. defensive stock. But the higher return can't obtain in such investment.
- The financial institutions and companies should provide the real financial statement. The data provided by NEPSE and the company itself are different in some cases. It creates confusion to the possible investor about the actual financial condition of the company. The

value of asset and liabilities should not be manipulated by the company to show the under profitability or over profitability.

- Investor have to be clear and be aware about the financial statement of relative company, broker's behavior and attitude, real tendency of NEPSE and rules and regulation of the government investors are required to boost their knowledge up regarding share (common stock) value of the company and share market to get expected return from the investment.

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Appendix: A-1

Calculation of portfolio risk and return for NABIL(x) and EVEREST(Y)

Fiscal Year	r_x	r_y	$r_x - E(r_x)$	$r_y - E(r_y)$	$[r_x - E(r_x)][r_y - E(r_y)]$
2002/03	12.86	9.88	-46.10	-35.92	1655.912
2003/04	43.92	52.81	-15.04	7.01	-105.4304
2004/05	57.5	30.88	-1.46	-14.92	21.7832
2005/06	54.49	58.51	-4.47	12.71	-56.8137
2006/07	126.01	76.94	67.05	31.14	2087.937
					$\sum[r_x - E(r_x)][r_y - E(r_y)] = 3603.3881$

$$\text{Cov}(r_x, r_y) = \frac{\sum[rx - E(rx)][ry - E(ry)]}{n-1}$$

$$= \frac{3606.3881}{5-1}$$

$$= \mathbf{900.85}$$

to minimize the risk the weight of the stock x in the portfolio is given as

$$W_x = \frac{\sigma_y^2 - Cov(r_x, r_y)}{\sigma_x^2 + \sigma_y^2 - 2cov(r_x, r_y)}$$

$$= \frac{(25.95)^2 - 900.85}{(41.44)^2 + (25.95)^2 - 2x\ 900.85}$$

= -0.39

We know,
$W_x + W_y = 1$

$W_y = 1.39$

Hence, the portfolio return (r_p) is given,

$$E(r_p) = W_x . E(r_x) + W_y . E(r_p)$$

= -0.39 x 58.96 + 1.39 x 45.8
= 40.67

And, portfolio risk (σ_p) is given as;

$$\sigma_p = \sqrt{w_x^2 . \sigma_x^2 + w_y^2 . \sigma_y^2 + w_x . w_y . Cov(r_x, r_y)}$$

$$= \sqrt{(-0.39)^2 \; x \; (41.44)^2 + (1.39)^2 x (25.95)^2 + 2x(-0.39)x1.39x900.85}$$

= 24.20%

The correlation between two stock x and y (p_{xy}) is calculated as;

$$P_{xy} = \frac{Cov(r_x, r_y)}{\sigma_x . \sigma_y}$$

$$= \frac{900.85}{41.44 \; x \; 25.95}$$

= 0.8377

Since, the correlation is positive, the portfolio between Nabil Bank Ltd and Everest Bank Ltd. Is not being able to reduce its unsystematic risk significantly.

Appendix: A-2

Calculation of portfolio risk and return for NABIL(x) and KUMARI(Y)

Fiscal Year	r_x	r_y	$r_x - E(r_x)$	$r_y - E(r_y)$	$[r_x - E(r_x)][r_y - E(r_y)]$
2002/03	12.86	4.10	-46.10	-54.136	2495.67
2003/04	43.92	44.88	-15.04	-13.356	200.87
2004/05	57.5	124.88	-1.46	66.644	-97.300
2005/06	54.49	140.79	-4.47	82.554	-369.02
2006/07	126.01	-23.47	67.05	-81.706	-5478.39
				$\sum[r_x - E(r_x)][r_y - E(r_y)]$ = -3248.17	

$$\text{Cov}(r_x, r_y) = \frac{\sum[rx - E(rx)][ry - E(ry)]}{n-1}$$

$$= \frac{-3248.17}{5-1}$$

$$= \mathbf{-812.0425}$$

to minimize the risk the weight of the stock x in the portfolio is given as

$$W_X = \frac{\sigma_y^2 - Cov(r_x, r_y)}{\sigma_x^2 + \sigma_y^2 - 2cov(r_x, r_y)}$$

$$= \frac{(72.53)^2 - (812.0425)}{(41.44)^2 + (72.53)^2 - 2x - 812.0425}$$

= 0.71

We know,
$W_x + W_y = 1$

$W_y = -0.29$

Hence, the portfolio return (r_p) is given,

$$E(r_p) = W_x.E(r_x) + W_y.E(r_p)$$

= 0.71x 58.96 + -0.29x58.236
= 24.97

And, portfolio risk (σ_p) is given as;

$$\sigma_p = \sqrt{w_x^2.\sigma_x^2 + w_y^2.\sigma_y^2 + 2w_x.w_y.Cov(r_x, r_y)}$$

$$= \sqrt{(0.71)^2\ x\ (41.44)^2 + (-0.29)^2 x (72.53)^2 + 2x(0.71)x - 0.29x900.85}$$

= 40.53%

The correlation between two stock x and y (p_{xy}) is calculated as;

$$P_{xy} = \frac{Cov(r_x, r_y)}{\sigma_x.\sigma_y}$$

$$= \frac{-812.0425}{41.44\ x\ 72.53}$$

= - 0.270

Since, the correlation is negative, the portfolio between Nabil Bank Ltd and Kumari Bank Ltd. Is able to reduce its unsystematic risk significantly.

Appendix: A-3

Calculation of portfolio risk and return for Everest(x) and KUMARI(Y)

Fiscal Year	r_x	r_y	$r_x - E(r_x)$	$r_y - E(r_y)$	$[r_x - E(r_x)][r_y - E(r_y)]$
2002/03	9.88	4.10	-35.92	-54.136	1944.57
2003/04	52.81	44.88	7.01	-13.356	-93.6256
2004/05	30.88	124.88	-14.92	66.644	-994.33
2005/06	58.51	140.79	12.71	82.554	1049.26
2006/07	76.94	-23.47	31.14	-81.706	-2544.32
					$\sum[r_x - E(r_x)][r_y - E(r_y)] = -638.45$

$$\text{Cov}(r_x, r_y) = \frac{\sum[rx - E(rx)][ry - E(ry)]}{n-1}$$

$$= \frac{-638.45}{5-1}$$

$$= \mathbf{-159.61}$$

to minimize the risk the weight of the stock x in the portfolio is given as

$$W_x = \frac{\sigma_y^2 - Cov(r_x, r_y)}{\sigma_x^2 + \sigma_y^2 - 2cov(r_x, r_y)}$$

$$= \frac{(72.53)^2 - (159.61)}{25.95)^2 + (72.53)^2 - 2x - 159.61}$$

$$= 0.87$$

We know,
$W_x + W_y = 1$

W_y = -0.13

Hence, the portfolio return (r_p) is given,

$$E(r_p) = W_x . E(r_x) + W_y . E(r_p)$$

= 0.87x 45.80 + -0.13x58.236
= 32.275

And, portfolio risk (σ_p) is given as;

$$\sigma_p = \sqrt{w_x^2 . \sigma_x^2 + w_y^2 . \sigma_y^2 + 2 w_x . w_y . Cov(r_x, r_y)}$$

$$= \sqrt{(0.87)^2 \, x \, (25.95)^2 + (-0.13)^2 x (72.53)^2 + 2x(0.87)x - 0.13x159.61}$$

= 40.53%

The correlation between two stock x and y (p_{xy}) is calculated as;

$$P_{xy} = \frac{Cov(r_x, r_y)}{\sigma_x . \sigma_y}$$

$$= \frac{-159.61}{25.95 \, x \, 72.53}$$

= - 0.085

Appendix: B 1

Calculation of beta coefficient of Nabil Bank Ltd. (x)

Fiscal Year	$r_x - E(r_x)$	$r_m - E(r_m)$	$[r_x - E(r_x)][r_m - E(r_m)]$
2002/03	-46.10	-37.79	1742.119
2003/04	-15.04	-19.51	293.4304
2004/05	-1.46	1.28	1.8688
2005/06	-4.47	7.05	-31.5135
2006/07	67.05	48.98	3284.109
$\sum[r_x - E(r_x)][r_m - E(r_m)] =$			5286.2761

$$\text{Cov}(r_x r_m) = \frac{\sum[r_x - E(r_x)][r_m - E(r_m)]}{n-1}$$

$$= \frac{5286.2761}{n-1}$$

$$= 1321.57$$

$$\text{Beta } (\beta_x) = \frac{Cov(r_x r_m)}{\sigma_m^2}$$

$$= \frac{1321.57}{1064.72}$$

$$= 1.24$$

Decision: Beta coefficient of NABIL bank Ltd. Is 1.24 which is greater than 1. It indicates that stock return of NABIL is more volatile than market. So, NABIL is highly sensitive that 1% increase in market return there will be 1.24% rise in the stock return.

Appendix: B 2

Calculation of beta coefficient of Everest Bank Ltd. (x)

Fiscal Year	$r_x - E(r_x)$	$r_m - E(r_m)$	$[r_x - E(r_x)][r_m - E(r_m)]$
2002/03	-35.92	-37.79	1357.4168
2003/04	7.01	-19.51	-136.7651
2004/05	-14.92	1.28	-19.0976
2005/06	12.71	7.05	89.6055
2006/07	31.14	48.98	1525.2372
$\sum[r_x - E(r_x)][r_m - E(r_m)] =$			2816.3968

$$\text{Cov}(r_x r_m) = \frac{\sum[r_x - E(r_x)][r_m - E(r_m)]}{n-1}$$

$$= \frac{2816.3968}{5-1}$$

$$= 704.10$$

$$\text{Beta } (\beta_x) = \frac{Cov(r_x r_m)}{\sigma_m^2}$$

$$= \frac{704.10}{1064.72}$$

$$= 0.6613$$

Decision: Beta coefficient of Everest Bank Ltd. is 0.6613 which is less than 1. It

indicates that stock return of EBL is less volatile than market. So, EBL is less sensitive that 1% increase in market return rise in the stock return only 0.8377% change in EBL stock’s return.

Appendix: B 3

Calculation of beta coefficient of Kumari Bank Ltd. (x)

Fiscal Year	$r_x - E(r_x)$	$r_m - E(r_m)$	$[r_x - E(r_x)][r_m - E(r_m)]$
2002/03	-54.136	-37.79	2045.799
2003/04	-13.356	-19.51	260.576
2004/05	66.644	1.28	85.30432
2005/06	82.554	7.05	582.0057
2006/07	-81.706	48.98	-4001.96
$\sum[r_x - E(r_x)][r_m - E(r_m)] =$			-1028.27

$$\text{Cov}(r_x r_m) = \frac{\sum[r_x - E(r_x)][r_m - E(r_m)]}{n-1}$$

$$= \frac{-1028.27}{5-1}$$

$$= 257.07$$

$$\text{Beta } (\beta_x) = \frac{Cov(r_x r_m)}{\sigma_m^2}$$

$$= \frac{257.07}{1064.72}$$

$$= 0.24$$

Appendix: C 1

Calculation of Systematic and unsystematic Risk of NABIL Bank Ltd.

Total risk = σ = 41.44 = 0.4144

Total risk = Systematic risk + Unsystematic risk

Systematic risk = $\beta^2 \; x \; \sigma^2 m$

= $(1.24)^2 \; x \; (0.3263)^2$

= 0.1637

Unsystematic risk = Total risk - Systematic risk

= 0.4144 – 0.1637

= 0.2507

Proportion of systematic risk = $\frac{Systematic\ risk}{Total\ risk}$

= $\frac{0.1637}{0.4144}$

= 0.395

= **39.5%**

Proportion of Unsystematic risk = $\frac{UnSystematic\ risk}{Total\ risk}$

$$= \frac{0.2507}{0.4144}$$

= 0.605

= **60.5%**

Appendix: C 2

Calculation of Systematic and unsystematic Risk of EVEREST Bank Ltd.

Total risk = σ = 25.95 = 0.2595

Total risk = Systematic risk + Unsystematic risk

Systematic risk = $\beta^2 \; x \; \sigma^2 m$

= $(0.6613)^2 \; x \; (0.3263)^2$

= 0.0466

Unsystematic risk = Total risk - Systematic risk

= 0.2595 – 0.0466

= 0.2129

Proportion of systematic risk = $\frac{Systematic\ risk}{Total\ risk}$

= $\frac{0.0466}{0.2595}$

= 0.1796

= **17.96%**

Proportion of Unsystematic risk = $\frac{UnSystematic\ risk}{Total\ risk}$

$= \frac{0.2129}{0.2595}$

$= 0.8204$

$=$ **82.04%**

Appendix: C 3

Calculation of Systematic and unsystematic Risk of KUMARI Bank Ltd.

Total risk = σ = 72.53 = 0.7253

Total risk = Systematic risk + Unsystematic risk

Systematic risk = $\beta^2 \; x \; \sigma^2 m$

= $(0.24)^2 \; x \; (0.3263)^2$

= 0.006

Unsystematic risk = Total risk - Systematic risk

= 0.7253 – 0.006

= 0.7193

Proportion of systematic risk = $\frac{Systematic\ risk}{Total\ risk}$

= $\frac{0.006}{0.7253}$

= 0.00827

= **0.827**

Proportion of Unsystematic risk = $\frac{UnSystematic\ risk}{Total\ risk}$

$= \frac{0.7193}{0.7253}$

$= 99.17\%$

$= \mathbf{82.04\%}$