A Study on Risk and Return Analysis in context to Commercial Banks in Nepal

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ABBREVIATION

NBL	=	Nepal Investment Bank Limited
SCBL	=	Standard Chartered Bank Nepal Limited
EBL	=	Everest Bank Limited
HBL	=	Himalayan Bank Limited
NSBI	=	Nepal SBI Bank Limited
PFL	=	People's Finance Limited
CIT	=	Citizen Investment Trust
NSML	=	Nepal Share Market Limited
FKL	=	Kathmandu Finance Limited
UIL	=	United Insurance Co. (Nepal) Limited
PIL	=	Premier Insurance Co. (Nepal) Limited
HGIL	=	Himalayan General Insurance Co. Limited
EIL	=	Everest Insurance Co. Limited
NLL	=	Nepal Lever Limited
NLOL	=	Nepal Lube Oil Limited
NEPSE	=	Nepal Stock Exchange Ltd.
NRB	=	Nepal Rastra Bank
NSM	=	Nepalese Stock Market
T-BILLS	=	Treasury Bills
SML	=	Security Market Line
CML	=	Capital Market Line
RRR	=	Required Rate of Return
S.D.	=	Standard Deviation
VAR	=	Variance
C.V.	=	Coefficient of Variation
DY	=	Dividend Yield
CGY	=	Capital Gain Yield
DPs	=	Dividend per Share
MPs	=	Market Price Per Share
COV	=	Covariance
CAPM	=	Capital asset Pricing Model
SEBO-N	=	Security Exchange Board of Nepal
Rm	=	Return of Market
Exp	=	Expected

CHAPTER – 1
INTRODUCTION

1.1 Background

The investment process is concerned with how an investor should proceed in making decisions about what marketable securities to invest in, how extensive the investment should be, and when the investment should be made. Since the meaning of investment, in a sense, is sacrificing current amount for future amount. 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.

The risky side of an investment cannot be denied. The investors' perception of risk is a major factor about their choices of investment in different financial securities. Generally, People do not like risk and they do every activity to avoid or minimize risk.

In Nepal, the buying and selling activities of financial securities (mainly stock) is conducted in Nepal Stock Exchange (NEPSE). Many people visit the NEPSE, with on objective to test their fate. While doing so, many investors are deceived by the broker and loose their money. Thus, investor requires to know 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 carried out to answer such and other type of questions. 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.

1.2 Focus of the study

The relationship between risk and return is a topic of major concerned among investor and analyst. This relationship is very critical and very difficult to understand. The investor suffers more for not recognizing the trade off between risk and return. People love more and more of return but they forget that more and more of return automatically means more and more of risk also. It is understood that return is positively co varied with risk but the exact degree of covariance (relation) is yet to be found out. It is obvious that people do not like risk at all and they want to avoid risk as much as possible. However, a mere wish is not enough to minimize the risk. There could be number of ways to deal with the risk but the most effective way is to create a portfolio. A portfolio is nothing but to hold securities by an individual or institution. A portfolio may contain bonds, preferred stock and common stock of various types of enterprises. *(Haugen Robert 1998, p.241).*

Therefore, the focus of the study is about the creation of portfolio by which an investor can safeguard his as her investment. The study is to show how an effected portfolio can reduce the risk. Other theory and tools re also used to support the portfolio theory. It is believed that this study will help many investors to know-how they should use their money while investing in financial securities.

1.3 Statement of the problem

Investment in financial securities was not very popular in a decade ago in our country. Mainly some private and joint venture commercial banks are main root for

many of such investment in financial securities. Very few options exist in financial securities. The most applied financial security is common stock. Other security such as bond, debenture and preferred stocks are rare in Nepalese capital market. It is believed that the people have money for investment but the sector of investment is limited except than a bank deposit. The failure of public and private companies also influenced negatively to people to invest in capital market. Many people have lost their money from such investment. It is not unique for Nepalese people to listen and read the news of people going bankrupt in security market. Therefore, people fears to invest in capital market. This study is an attempt to lower the unnecessary fear about the security market. This study will help to know what are the sources of risk, what is the return and expected return of a stock and how they are calculated, how to manage a portfolio to avoid risk, how the market determines the return, what are the relationship among stocks and also give suggestions for a rational investment. Generally, people are not aware about the basic idea of stock. For example:

– What are the sources of risk?

– What is the meaning of return and expected return?

– How the returns are calculated?

– What factor affects the return?

– What is portfolio and how they are created?

– How the market determines the risk and how it requires a return?

– What are the relationships among many stocks available in stock market?

This study is an attempt to answer such questions and also attempt to give suggestions for a rational investment.

1.4 Objective of the study

Investors are always seeking to select an optimal investment opportunity because all investors are concerned with less risk and high return and they do not want to estimate a blind speculation. Only the appropriate information dissemination system helps the investors for the diversity of risk and forming of a prospective portfolio. So this study deals all about the investment in common stock. The main objectives are as follows.

1. To study the risk and return of securities (of banking, finance, insurance, manufacturing sector)

2. To study the market price of stock and dividend yield.

3. To find out the relationship between the rates of return of various securities and market return of those securities.

4. To analyze the relationship of return among various securities.

5. To examine the portfolio analysis.

6. To know the permanent risk of a stock (beta coefficient).

7. To know the required rate of return of a stock.

1.5 Significance of the Study

Every research work or study should be fruitful. It is believed that this work will be fruitful for various people and organization. The conclusion of this study will also add some literature in the portfolio theory especially in Nepalese Context.

The findings of this study will be important for everyone who wants to invest in share market. This study will show the way to manage the investment so that investor can get maximum of return for lower risk. Many aspects of risk, return and portfolio are also presented in theory and practical.

The conclusion of the study will also benefit for the companies as it shows how the market determine returns in their stock, how investors select a stock to invest etc. Because the market price per share determines the fate of a company, it is necessary for the companies to make every effort for not lowering the market price of share. The investors are particularly benefited from this study, as it is prepared to the point of view of investor. The listed company will also be benefited and they can take necessary steps for a better performance in stock market.

The study will also help to the governing and monitoring body to make necessary rules and regulations for sound and healthy system in share trading, good corporate culture in country, and more importantly protecting the interest of shareholders and investors.

This study will also help for further study in the field of portfolio management and capital assets pricing model in the context of Nepal.

1.6 Limitation of the Study:

It is natural that such type of study has been conducted within certain limitations. This study is not an exception. There could be many limitations of this study but major limitations are as follows:

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The study is strictly prepared to fulfill the requirements of Master Degree in Business Studies.

1. The study is based on secondary data.

2. The study mainly concerned with risk, return and portfolio management of four commercial banks only viz NABIL Bank Limited ; Kumari Bank Limited ; Standard Chartered Bank Nepal Limited ; Nepal SBI Bank Limited.

3. Lack of sophisticated technology limit the area of study and many financial tools cannot be applied.

4. Resources constrains have been experienced in terms of time and money.

5. Judgment sampling is applied.

1.6 Organisation the Study:

The whole study has been divided into five chapters; Introduction, Review of literature, Research methodology, Presentation and analysis of data, Summary, Conclusions and recommendations.

The first chapter, introduction focuses the whole study in brief. This chapter includes introduction and background of the investment, focus of the study, statement of problems, objective of the study, significance of the study, limitations and organization of the study.

The second chapter, review of literature reviews the existing literature. The books, journals and other research studies previously done in Nepal and as well as international level in related financial aspects are also reviewed.

The third chapter, research methodology deals with methods adopted in carrying out the projects. It includes research design, population and sample, nature and sources of data, methods of data collection, data processing and analysis, techniques and tools.

The fourth chapter, presentation and analysis of data highlight the comprehensive presentation, analysis and interpretation of data using various financial and statistical tools.

The final one will represent summary, conclusions and recommendations of the study.

CHAPTER-II

REVIEW OF LITERATURE

The concern of the study primarily is to focus on the portfolio management. Theoretical aspect of risk, return and portfolio is explored in this chapter. Portfolio management has got the tremendous concentration in financial management and hence most of the consulted books bear some paragraph on this issue. This chapter reviews some basic academic courses books, journals and other related studies. Unfortunately, very few researches have been performed in this topic in Nepal. Our stock market is still in immature state and hence unable to provide valuable information elating to such type of study. However, this chapter deals with the basic theoretical concept upon which this study is based.

CONCEPTUAL/ THEORETICAL FRAMEWORK

Various books dealing with risk, return and portfolio are taken into consideration. The Capital Asset Pricing Model is also dealt to some extent. It gives the theoretical framework to analyze my study.

2.1 Common Stock

This study is focused on portfolio of securities, mainly consist common stock, and therefore some review about common stock is necessary. Common stock represents an ownership position in a corporation. 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. The holders of common stock called stockholders. Such stockholders are legal owners of the company. Being the owners of the company, shareholders bear the risk of ownership; they are entitled to dividends

after the income claims of others have been satisfied. Similarly, when the company is wound up, they are can exercise their claims on assets after the claims of other suppliers of capital have been met. *(Pandey I.M., 2003, p. 905).*

The market value of a share is the price at which it trades in the stock market. It is generally based on expectations about the performance of the company, in general and the company, in particular. Ordinary shares of all companies may not be traded on stock markets. Therefore, the market value of ordinary shares of all companies may not be available. *(Pandey, p.907).*

Holders of common stock have no guarantee of receiving any periodic distributions of earnings in the form of dividends, nor are they guaranteed anything in the event of liquidation. Common stockholders are likely to receive nothing as a result of bankruptcy proceedings. However, one thing they are assured of is that as long as they pay more than the par value for the stock, they cannot lose any more than they have invested in the firm. Moreover, the common stockholders can receive unlimited return through the distribution of earnings and through appreciation in the value of holdings. Nothing is guaranteed, but the possible rewards for providing risk capital can be great. *(Gitman L.J., 2006,p.245).*

2.2 Concept of Return and Return on Common Stock

Before investing in any securities, the investors, at first, want to know about the return .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 a percentage of the beginning-of-period value of the investment *(Prasanna Chandra, 2nd Ed. pg-62).* When people buy common stock, they give up current consumption in the hope of

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attaining increased future consumption. They expect to collect dividends and eventually sell the stock at a profit. The rate of return (or simply the return) is calculated as follows:

Return = end-of-period wealth- beginning-of-period return

beginning-of-period wealth

The cash pay off to owners of common stock comes in tow forms:

1. Cash dividends and

2. Capital gains or losses.

Suppose that the current price of a share is Po, that the expected price at the end of a year is P_1, and that the expected dividend per share is DIV_1. The rate of return that investors expect from this share over the next year is defined as the expected dividend per share DIV_1 plus expected price appreciation per share P_1-P_o, all dividend bye the price at the start of the year P_o:

$$\text{Expected return} = r = \frac{P_1 - P_0 - Div_1}{P_0}$$

This return that is expected by investors is often called market capitalization rate. *(Brealey & Myers, 2004., p.63).*

If the stock is sold at a price above its purchase price, the investor will receive a capital gain. Generally, at the time people who buy common stocks, they do expect to receive capital gains; otherwise, they would not buy the stocks. Similarly, if the

stock is sold at a price below its purchase price, the investor will suffer from a capital loss.

Most of the investment decisions are made for future events. Hence, it is necessary to predict the future return rather than the past returns. But future is always uncertain for the common stockholders. Therefore, it leads to find the expected rate of return. The expected rate of return for any asset is the weighted average rate of return, using the probability of each rate of return as the weight. The expected rate of return is calculated by summing the products of the rates of return and their respective probabilities i.e.

Expected rate of return $E(R) = \sum_{t=1}^{T} P_t r_t$

$= P_1r_1+p_2r_2+p_3r_3+..................+p_tr_t$

The subscripts in the formula for the expected return are event counters that are appended to each possible rate of return and the probability (denoted by P) for that event. T different events are perceived as possibilities. *(Francis J.C., 6th Ed.,p. 11).*

The above return is calculated, is based on future outcome or event. However, predicting future outcome and assigning a probability to that outcome is a difficult task. If we assume that the future is a proxy of past, that the past events will not change and hence the profit, investment and other market factors then we can calculate expected return or better say- arithmetic average. Expected rate of return based on historical data can be calculated as follows:

Expected rate of return $\bar{R} = \dfrac{\sum\limits_{i=1}^{n} R_{ij}}{N}$

Where,

R$_j$ = Sum of the returns of 'j' years

N = No. of years

Brealey & Myers took the past data from 1926 to 2003 to calculate the return of certain portfolios. The reason for such a long period date, as they wrote" you may ask why we look back over such a long period to measure average rates of return. The reason is that annual rated of return for common stocks fluctuate so much that averages taken over short periods are meaningless. Our only hope to gaining insights from historical rates of return is to look at a very long period". *(Brealey & Myers,6th Ed. p. 155).*

2.3 Concept of Risk and Risk on Common Stock

Having briefly discussed about, it should be the turn of risk-and its discussion. Risk and return is the fundamental concept of modern financial management. They are complementary to each other.

Risk is the possibility that the actual return from an investment will differ from the expected return. Embedded in this definition is a subtle, but important, distinction between 'risk' and 'uncertainty'. In situations involving 'risk', the probabilities of various outcomes are known. But under 'uncertainty', there is no knowledge of the probability distribution of the possible outcomes. In roulette, for example, while there is no way of predicting what the next outcome will be, explicit knowledge is available

on the underlying probabilities of all possible outcomes. Hence, in roulette, the exact risk associated with any situation can be calculated. At the other extreme, a prospective investor in a new and unseasoned company has no reliable means of estimating the likelihood of sales, earnings, or stock price distributions. Technically, the latter situation is characterized by uncertainty, not risk. *(Hagin, Robert L,.1998, p.139).*

Whenever there is a probability of happening or non-happening of an event, there is always a risk. The difference between risk and uncertainty, as given above, is, in fact, probability. If there is not any probability of happening an event, in other way one cannot assign any probability to an event, the event is under uncertainty. Risk is a bitter truth for many investors. The modern would is an exceedingly complex and dynamic one in which many forces affect the value and yield of investment.

Fischer D.E. and Jordan R.J. describe risk as "in holding securities is generally associated with the possibility that realized returns will be less than the returns that were expected. The source of such disappointment is the failure of dividends (interest) and/or the security's price to materialize as expected. They also distinguish the tern risk and uncertainty". They further wrote "Risk suggests that a decision maker knows the possible consequences of a decision and their relative likelihood at the time he makes that decision. Uncertainty, on the other hand, involves a situation about which the likelihood of the possible outcomes in not known" *(ibid, p. 89).*

Weston & Brigham defined risk 'as the probabilities that the returns and therefore the values of an asset or security may have alternative outcomes'.

Attitudes toward risk are an important factor that must be taken into account when considering investment opportunities that are subject to uncertainty. These attitudes toward risks are called 'risk preferences theory'. One of the basic assumptions of financial management is that the investors are risk averter, which means that the investor will choose the portfolio with the smaller standard deviation. What does it mean to say that an investor is risk-averse? It means that the investor, when given the choice, will not want to take fair gambles, where a fair gamble is defined to be one that has an expected payoff of zero. The reason is that the potential loss represents an amount of 'displeasure' that is greater than the amount of 'pleasure' associated with potential gain. A risk seeker or is one who prefers risk. Given a choice between more and less risky investments with identical expected monetary returns, this person would prefer the riskier investment. Faced with the same choice, the risk averter would select the less risky investment. The person who is indifferent to risk would not care which investment he or she received. The undoubtedly are individuals who prefer risk and others who are indifferent to it, but both logic and observation suggest that business managers and stockholders are predominately risk averters. *(Weston & Copeland, 2006, p.358).*

Although it is assumed that all investors are risk-averse, it is not assumed that they have identical degrees of risk aversion.

What creates risk is an often-asked question. Some external that cannot be controlled, and some internal, which can be controlled, factors create the risk. External factors that cannot be controlled, called systematic risk. It includes mainly market

risk, interest-rate risk, purchasing power risk etc. Internal factors that can be controlled, is called Unsystematic risk. It includes business risk, financial risk etc.

In a world of uncertainty, an expected return may not be realized. Risk can be thought of as the possibility that the actual return from holding a security will deviate from the expected return. The greater the magnitude of deviation and the greater the probability of its occurrence, the greater is said to be the risk of the security. *(Van Horne J.C, 2003, p 35).*

There are many methods of calculating risk. However, most analysts use standard deviation to calculate risk. The most common statistical measure of an asset's risk is the standard deviation from the mean or expected value of return *(L.J.Gitman).* The standard deviation is just the square root of the variance. The variance of return (given that we have subjective probability estimates and not sampling statistics) is defined as the average of the mean squared error terms. A mean squared error is simply the square of the difference between a given return, R_i , and the average of all returns, E(R): Mean squared Error = $[R_i- E(R)]^2$

The variance is the expectation (or average) of these terms, in other words, each mean squared error is multiplied by the probability, p_i, that it will occur and then all terms are summed. The mathematical expression for the variance of returns is:

$$\text{VAR(R)} = \frac{\sum \{R_i - E_R\}^2}{N}$$

$$\sum_{i=1}^{n} P_i \{R_i - E_R\}^2$$

Usually, risk is expressed in terms of the standard deviation, (R), rather than the variance of returns i.e.

$$(R) = \sqrt{\text{var}(R)}$$

$$= \sqrt{\sum_{i=1}^{n} Pi[Ri - E(R)]^2} \qquad \textit{(Weston \& Copeland. 2006, p.356.}$$

The above standard deviation is based on future outcome. Standard deviation can also be calculated using historical data, which is given by:

$$\dagger (\overline{R}) = \sqrt{\sum_{t=1}^{n} \frac{Ri - \overline{R}}{N-1}}$$

$$\text{VAR}(\overline{R}) = \left[\dagger(\overline{r})\right]^2$$

$\dagger(\overline{R}) =$ expected standard deviation,

N = No. of years

$R_i =$ Historical return for i year

$\overline{R} =$ Average historical return

VAR(R) = Variance of Return

Standard deviation is used not for calculating risk only but also to comparing risks among securities. But one must be careful in using the standard deviation to compare risk, since it is an absolute measure of dispersion and does not consider the dispersion of outcomes in relationship to an expected value. In comparison of assets with differing expected values, the use of the standard deviation can easily be improved upon by converting the standard deviation into a coefficient of variation.

The coefficient of variance, CV, is calculated by dividing the standard deviation by mean. Thus,

$$CV = (r)/ E(r)$$

Common stock is the most risky securities. The amount for which a stock can be bought or sold varies considerably, making the annual return highly unpredictable. Studies show that the return of common stocks is more volatile than others. The study shows the return of common stock is high up to 53.05% in 1933 and low up to -43.33% in 1932. The average standard deviation of returns of common stock over the period of 1926 to 1053 is 20.44%, much more higher than others viz. T-bills, long-tern government bonds, long-term corporate bonds. The above study is based in the USA. *(Francis, J.C.,2005, pp. 5-6).*

2.4 **Relationship between Risk and Return**

The relationship between risk and return is one of the fundamental topics of financial management. Investors are very much lucky if they can find the exact relationship between these twos of the securities they are thinking to invest. 'Higher the risk, higher the return' is the bottom line of finance. While it is not always true that a riskier asset will pay a higher average holding period return, it is usually true. The reason is that investors are risk-averse-they dislike risk and seek to avoid it. As a result, high-risk assets must offer investors high returns to induce them to make the riskier investment. The figure below illustrates the relationship between risk and return for various investments.
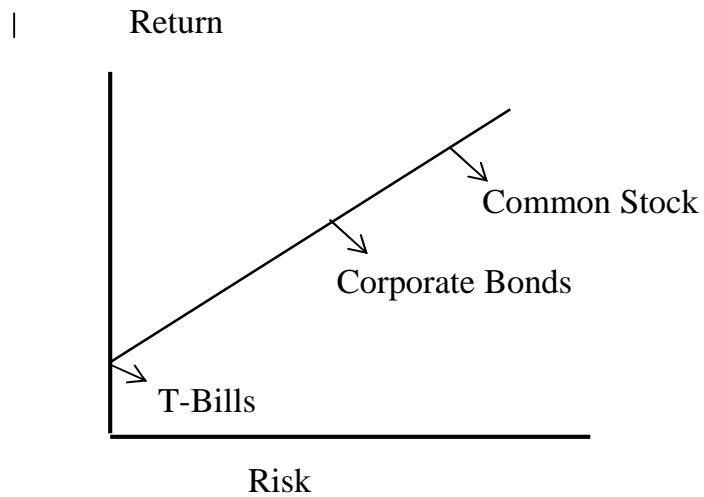
Fig-1: The relationship between risk and return

(ibid, p.7)

2.5 Concept of Portfolio Management

So far, it have been focused on the risk and return of single investments held in isolation. Investors rarely place their entire wealth into a single asset or investment. Rather, they construct a portfolio or group of investments. Robert Hagin defines portfolio as " Holding of securities by an individual or institution. A portfolio may contain bonds, preferred stock and common stocks of various types of enterprises"

The basic idea behind portfolio is: Don't put all of your eggs in one basket. Normally, it is not a desirable strategy for individual investors to put all their invest able funds into the one stock or bond they consider the best. The disadvantage of an investor concentrating investments is that if some unfavorable event occurs that greatly affects the one investment, it will have a drastic effect on the investor's total financial situation.

Stock market investors typically attempt to spread their investments in common stock over a number of different companies. When this strategy is followed, an unfavorable event specific to the firm, affecting the value of that firm, will have a

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relatively small effect on the value of the entire portfolio because many of the other investments will be unaffected by the occurrence of such an event.

The collection of marketable stocks and other assets held by an individual investor is referred to as a portfolio. The object is to construct a portfolio with desirable characteristics with respect to both risk and expected rate of return where there is a trade-off between the two. *(Bierman & Smidt,2005, p.73)*

Fisher & Jordan in their book 'security analysis and portfolio management' wrote: The simple fact than securities carry deferring degree of expected risk leads most investors to the notion of holding more than one security at a time, in am attempts to spread risks by not putting all their eggs into one basket. Diversification of one's holdings is intended to reduce risk in an economy in which every asset's returns are subject to some degree of uncertainty. Even the value of cash suffers from the inroads of inflation. Most investors hope that if they hold several assets, even if one goes bad, the others will provide some protection from an extreme loss. *(Fisher & Jordan, p.638)*.

Portfolio theory was first developed by Markowitz, in his report " *Portfolio Selection: Efficient Diversification of Investments."*

When portfolio management is a specialized function in a firm, it is likely that a large number of diverse securities will be considered for investment.

The basic assumption of portfolio analysis is that most investors dislike risk. Also, other thing being equal, most investors would prefer higher return to lower returns. Whenever it is possible to reduce risk without reducing expected returns, it

follows that investors will attempt to do this. It will be assumed that the standard deviation of the rate of return from a portfolio of securities is a reasonable measure of portfolio risk. Thus there is an incentive to use diversification to reduce the standard deviation of a portfolio. For example, if the rates of return from two securities have the same expected value and their outcomes are statistically independent, it can be shown that a portfolio consisting of both securities have the same expected value and their outcomes are statistically independent, it can be shown that a portfolio consisting of both securities in appropriate proportions will have the same expected return and a lower risk than will a portfolio that consists of one of the securities.

The base of portfolio is a well diversification. Efforts to spread and minimize risk take the form of diversification. However, it is always difficult to find the 'right' kind of diversification and the 'right' reason. There were three diversification techniques before the Markowitz diversification technique came into the scenario. The three-diversification techniques were:

- Simple diversification

- Diversifying across industries

- Superfluous diversification

- Markowitz diversification

Simple diversification is more than not putting all your eggs in one basket. It implies that a portfolio made up of 206 different securities is ten times more diversified than a portfolio made of 20 securities. Simple diversification can usually

be expected to reduce the unsystematic risk of a portfolio risk substantially. Simple diversification cut the portfolio's total variability of return almost in half.

Diversification across industries is very simple concept as the name suggests. Many investment counselors advocate selecting securities from unrelated industries to achieve better diversification. It is certainly better to follow this advice than to select all the securities in a portfolio from one industry. But diversifying across industries is not much better than simply selecting securities randomly.

Superfluous diversification is not good at all. Further spreading of the portfolio's assets is superfluous diversification.

Markowitz diversification is more scientific than simple diversification since it considers assets' correlation. All the theories are now based on the Markowitz diversification theory.

Portfolio management is not an easy subject to study as viewed by Christy & Clendenin in the book - *Introduction to Investment.* They wrote: For three reasons, portfolio management is a difficult subject for the investor to study. First, it is an art, not a science; and its central core of theory is limited in both scope and direct usefulness. Second, despite much recent research, the information needed to choose among contending portfolio policies is lacking. Third, like today's clothing, portfolio management is strongly subject to fads and fashions, and these tend to obscure, and often contradict, sound, time-tested approaches. *(Christy & Clendenin, 2003, p.645).*

The bottom line of portfolio theory is that the diversification reduces risk (standard deviation). This concept is presented below in figure:
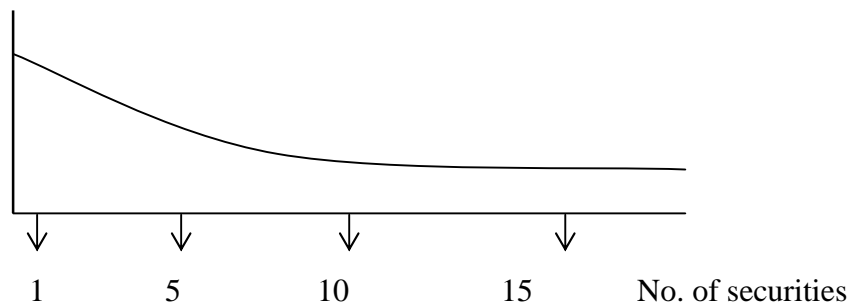
Portfolio Standard Deviation

1   5   10   15   No. of securities

Figure showing that diversification reduces risk (standard deviation) rapidly at first, then more slowly. *(Brealey & Myers, p.167).*

2.6   Meaning of Expected Return on Portfolio

The expected return, as previously defined, for any asset is the weighted average rate of return, using he probability of each rate of return as the weight. Similarly portfolio means a collection of securities. Here, the attempt has been made to define the expected return on a portfolio.

R.A. Haugen defines "The expected rate of return to a portfolio is a simple average of the expected rates of return to the securities that are included in the portfolio" The weights are equal to the fraction of our money that we are investing in each security. These fractions are also called portfolio weights. When summed, they add up to 106 percent, and they are computed as

$W_A = \underline{\text{Dollar amount of security A bought}}$

    Your total equity investment in the portfolio

(Haugen,R.A., p.69).

Similarly, Prasanna Chandra defines " The expected return on a portfolio is simply the weighted arithmetic average of the expected return on the assets constituting the portfolio" *(Chandra, 2003,p.98).*

I.M. Pandey wrote about the expected return on a portfolio is "the weighted expected return on each security in the portfolio with weights being equal to the proportion of investment in each security" *(Pandey, p.383).*

The expected return of a portfolio consists of two securities is:

$E(R_p) = W_x E(R_x) + (1-W_x)E(R_y)$

Where,

$E(R_p)$ = Expected Return on a portfolio

W_x= Proportion of portfolio invested in security 'x'

$E(R_x)$ = Expected return on security 'x'

$(1-W_x)$ = Proportion of portfolio invested in security 'y'

$E(R_y)$ = Expected return on security 'y'

If there are more than two securities in a portfolio, the expected return will be:

$$E(R_p) = \sum_{i=1}^{n} WiE(R_j)$$

$= w_1 E(R_1) + w_2 E(R_2) + w_3 E(R_3) + w_4 E(R_4) + \dots\dots\dots + W_n E(R_n)$

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 a 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 the numerator is negative. *(Haugen, p.68).*

Another method to calculate expected return on a portfolio is by using end-of-period values. This method involves calculating the expected end-of-period value of the portfolio and then using the following formula:

Return on Portfolio $= \dfrac{W_1 - W_0}{W_0}$

Where,

W_1 = expected end-of-period value of portfolio

W_0 = initial portfolio value

Because a portfolio's expected return is a weighted average of the expected returns of its securities, the contribution of each security to the portfolio's expected return depends on its expected return and its proportionate share of the initial portfolio's market value. Nothing is relevant. *(Sharpe et. all. 2005,p.145).*

2.7   Risk on Portfolio

While the portfolio expected return is a straightforward, weighted average of returns on the individual security standard deviations *(Van Horne & Wachowicz,Jr.,2001. p.246).* To take a weighted average of individual security standard deviations would be to ignore the relationship, or covariance, between the returns on securities. This covariance, however, does not affect the portfolio's expected return. Covariance of two securities means their co movement.

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2.7.1 Meaning of Covariance in the context of Portfolio Risk

What is covariance? It is a statistical measure of the relationship between two random variables, such as the returns on securities i and j, 'move together'. A positive value for covariance indicated that the securities' returns tend to move in the same direction- for example, a better-than-expected return for one is likely to occur along with a better-than-expected return for other. A negative covariance indicated a tendency for the returns to offset one another- for example, a better-than-expected return for one security is likely to occur along with a worse-than-expected return for the other. A relatively small or zero value for the covariance indicated that there is little or no relationship between the returns for two securities. How is covariance calculated? Three steps are involved in the calculation of covariance between two securities:

1. Determine the expected returns for securities

2. Determine the deviation of possible returns from the expected return for each security

3. Determine the sum of the product of each deviation returns of two securities and probability

That is:

$$\text{Cov}_{xy} = \sum_{i=1}^{n} Pi[Rx - E(Rx)][Ry - E(Ry)]$$

Where,

Cov_{xy} = Covariance returns between security 'x' and 'y'

p_i = Probability of occurrence

R_x = Return of security 'x'

R_y = Return of security 'y'

$E(R_x)$ = Expected return on security 'x'

$E(R_y)$ = Expected return on security 'y'

2.7.2 Meaning of Correlation in the context of Portfolio Risk

Closely related to covariance is the statistical measure known as correlation. In fact, the covariance between two random variables is equal to the correlation between the two random variable times the product of their standard deviations:

$$COV_{ij} / \dagger_{ij} = _{ij} \quad _i \quad _j$$

Where (The Greek letter *rho*) denoted the correlation coefficient between the return on security i and return on security j. The correlation coefficient rescales the covariance to facilitate comparison with corresponding values for other pairs of random variables.

Correlation coefficients always lie between -1 and +1. A value of -1 represents perfect negative correlation, and a value of +1 represents perfect positive correlation. Most of cases lie between these two extreme values.

A perfect positive correlation indicated that when one of the two securities has a relatively high return, then so will the other. Similarly, when one of the two securities has a relatively low return, then so will the other. (Fig-a)

A perfect negative correlation indicated that the return on the two securities moves opposite direction. (Fig-b)

An uncorrelated or zero correlation indicated that there is no relationship between the returns of two securities i.e. they are independent variables. (Fig-c)
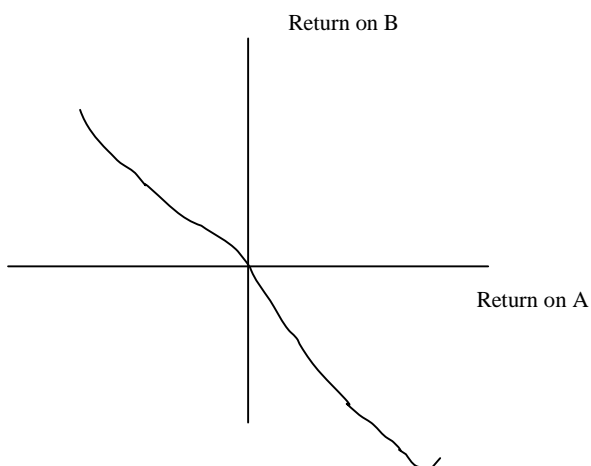
Return on B

Return on A
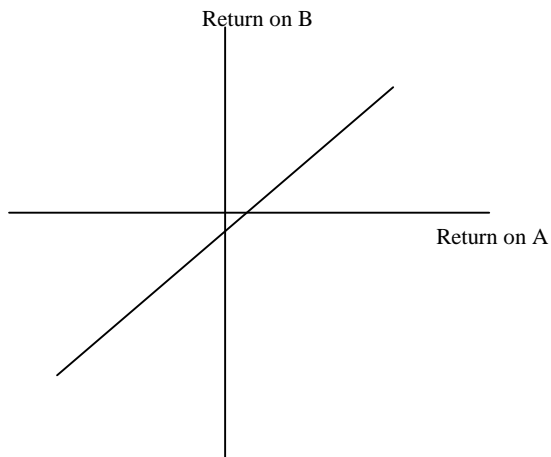
Fig(a): Perfectly positively correlated returns.

Return on B

Return on A

Fig (b): Perfectly Negatively Correlated returns

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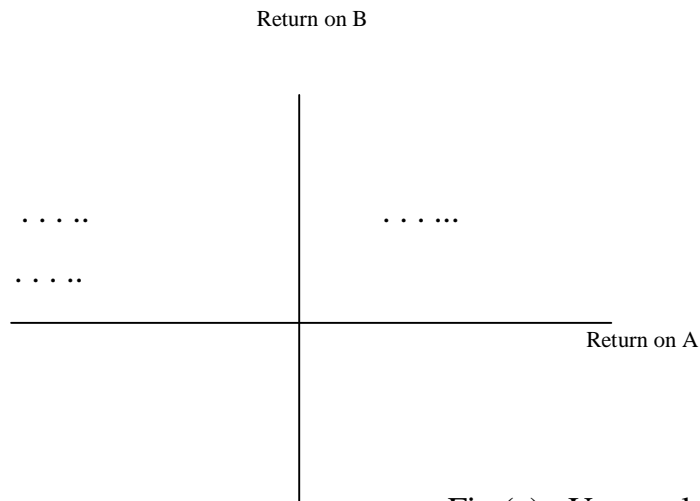
. . . ..

Return on A

Fig (c) : Uncorrelated Returns

After briefing covariance and correlation, it is time to enter into root of portfolio risk.

The standard deviation of portfolio return can be found by using the formula given below:

$$\dagger_p = \sqrt{\dagger_x^2 w_x^2 + 2.w_x.(1-w_x).COV_{xy} + \dagger_y^2(1-w_x)^2}$$

Where,

$_p$ = standard deviation of portfolio

$_x^2$ = variance of return of security x

w_x^2 = proportion of portfolio invested in security 'x'

$(1-w_x)$ = proportion of portfolio invested in security 'y'

COV_{xy} = Covariance of returns between security 'x' and 'y'

We know the relationship between correlation and covariance, i.e.

$$COV_{ij} = \quad_{ij} \quad_i \quad_j$$

Using this relation in the formula of calculating portfolio risk,

$$\sigma_p = \sqrt{\sigma_x^2 w_x^2 + 2.w_x.(1-w_x)....\,_{xy}\,\sigma_x\sigma_y + \sigma_y^2(1-w_x)^2}$$

Where $_{xy}$ = correlation coefficient between the returns of security x and y.

However, a portfolio can consist more than two securities also. If this is the case where number of securities in a portfolio is more than two, the formula for calculation of s.d. is:

$$\sigma_p = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} x_i x_j \sigma_{ij}}$$

For example, if three securities A, B and C are held in a portfolio, the standard deviation will be:

$$\sigma_p = \sqrt{\sum_{i=1}^{3}\sum_{j=1}^{3} x_i x_j \sigma_{ij}}$$

Here, it is important to understand how the double summation indicated in above equation is performed. It starts with the first summation and sets i at its initial value of 1. Then the second summation is performed for j going from 1 to 3, except that now i=2. Continuing, i in the first summation is again increased by 1, so that i=3. Then the second summation is once again performed by letting j go from 1 to 3. This means that it is time to stop, as the double summation has been finished. This process can be shown algebraically as follows:

$$\sigma_p = \left[\sum_{j=1}^{3} x_1 x_j \sigma_{1j} + \sum_{j=1}^{3} x_2 x_j \sigma_{2j} + \sum_{j=1}^{3} x_3 x_j \sigma_{3j}\right]^{1/2}$$

$$= [x_1 x_1\,_{11} + x_1 x_2\,_{12} + x_1 x_3\,_{13} + x_2 x_1\,_{21} + x_2 x_2\,_{22} + x_2 x_3\,_{23} + x_3 x_1\,_{31} + x_3 x_2\,_{32} + x_3 x_3\,_{33}]^{1/2}$$

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It is interesting to note in the above formula that when the number of securities is three, there are total 9 expressions in formula. This relationship continues for other number of securities held in portfolio. If number of securities in a portfolio is 5, then the expressions will be 25. For 16 securities, the expressions will increase to its square i.e. 256. *(Sharpe et. all. p. 181).*

2.8   Efficient Portfolio
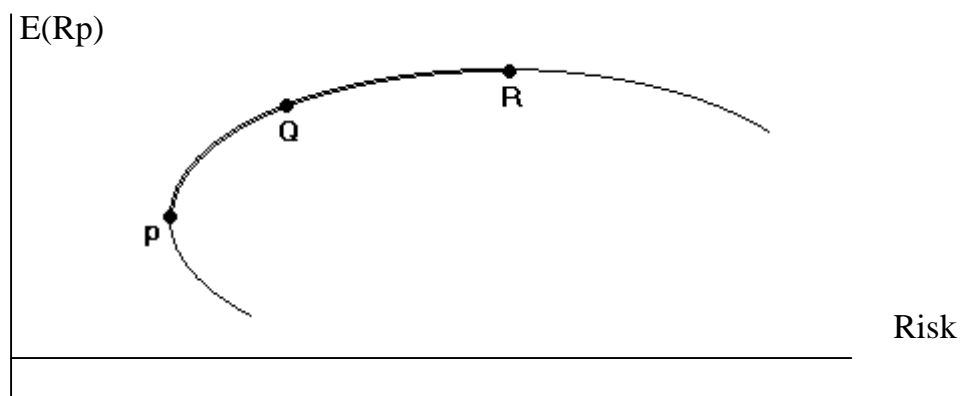
The above figure illustrates about the efficient portfolio. Portfolio P has minimum risk. This portfolio has low risk and low return than portfolio Q that has high risk and high return. Portfolio R has high risk and low return as compared to portfolio Q. Thus, portfolio Q dominated portfolio R. A risk averse investor will prefer a portfolio with the highest expected return for a given level of risk or prefer a portfolio with the lowest level of risk for a given level of expected return. In the portfolio theory, this is referred to as the principle of dominance, and the portfolio which ahs the highest expected returns for a given level of risk is called an efficient portfolio. In above figure, the line PR is the efficient frontier, and represents the locus of all portfolios which have the highest return for a given level of risk. All other portfolios that lie outside the efficient frontier are inefficient portfolios.

It may be observed in the above figure that both portfolios P and Q are equally efficient- portfolio P has low risk and low return, while portfolio Q has high risk and high return. Which portfolio the investor will choose will depend on his risk-return preference.

2.9   Systematic & Unsystematic Risk

So far it is discussed that when securities are combined into portfolios, risk is reduced. Diversification reduces risk when the returns of securities do not exactly vary in the same direction. But the important question is: Can diversification reduce all risk of securities? To answer this question, it is necessary to know that risk has two parts. A part of the risk arises from the uncertainties which are unique to individual securities, and which is diversifiable if large number securities are combined to form well-diversified portfolios. The unique risk of individual securities in a portfolio cancelled out each other. This part of risk can be totally reduced though diversification, and it is called unsystematic, or unique or diversifiable risk. The examples of unsystematic risk are:

- workers declare strike in a company

- the Research & Development expert of the company leaves

- a formidable competitor enters the market

- the company loses a big contract in a bid

- the company makes a breakthrough in process innovation

- increase in tax, custom duty etc.

The other part of the risk arises on account of the economy-wide uncertainties and the tendency of individual securities to move together with changes in the market. This part of risk cannot be reduced through diversification, and it is called systematic or undiversifiable risk or market risk. Investors are exposed to market risk even when they hold well-diversified portfolios of securities. The examples of this type of risk are:

changes in interest rate
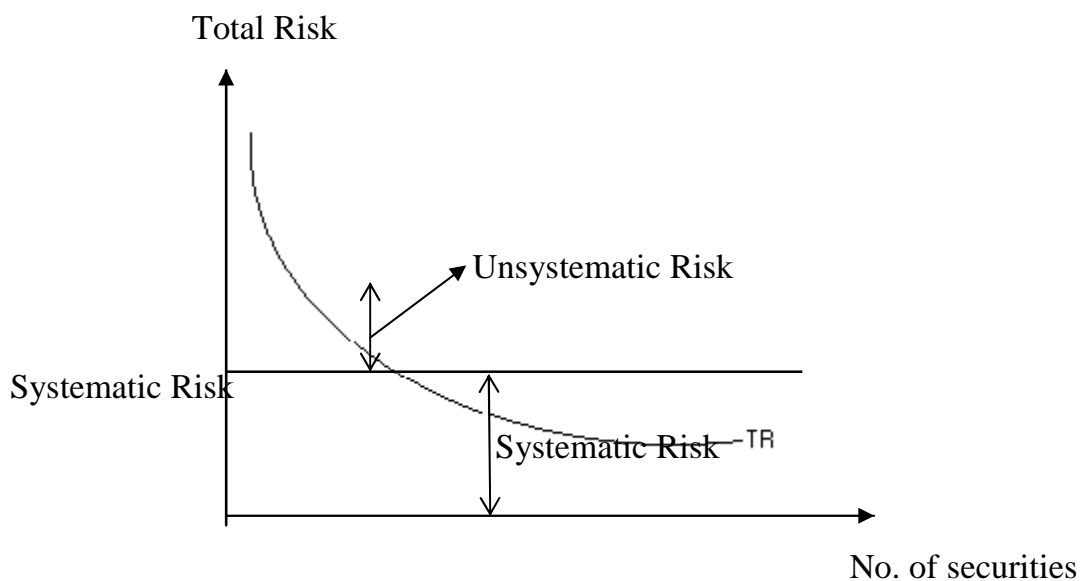
corporate taxes change

inflation rate increases   *(Pandey,I.M., p.340).*

Thus, the total risk can be divided into two parts:

Total Risk = Systematic Risk + Unsystematic Risk.

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

Total Risk

Unsystematic Risk

Systematic Risk

Systematic Risk   TR

No. of securities

As shown in figure, unsystematic risk can be reduced as more and more securities are added to a portfolio. In USA, it has been found that unsystematic risk can be eliminated by holding about fifteen shares, and in India, it is forty (Pandey,I.M.pg-340). Diversification is not able to reduce the systematic risk. For a well-diversified portfolio, systematic risk is a matter to think because unsystematic risk can be reduced to almost zero.

We can summarize the analysis of risk to this point as follows:

- The risk of a portfolio can be measured by the standard deviation of its rate of return,   p.

- The risk of an individual security is its contribution to the portfolio's risk, namely, its covariance with the portfolio

- A stock's standard deviation reflects both unsystematic risk that can be eliminated by diversification and systematic, or market-related, risk; only the systematic component of security risk is relevant for the well-diversified investor, so only this element is priced in the marketplace.

- A stock's systematic risk is measured by the covariance between its returns and the general market.*(Weston & Copeland,2006:p353).*

2.10 Capital Asset Pricing Model (CAPM)

The capital asset pricing model (CAPM) is a major contribution to modern business finance theory and practice. The CAPM is an extension of the portfolio literature of the 1950s and early 1960s. The main change is that the CAPM makes use of the prices that the market is setting for return-risk trade-offs rather than uses

subjective measure of attitudes toward risk (such as the risk preferences of specific investors). (*Bierman & Smidt, p.102)*

In early discussion about portfolio, it was left out one crucial element. There was no opportunity to invest in a risk-free asset (or, more exactly, a default-free asset). When that opportunity is included in the analysis, we can derive a theoretical development called the CAPM.

The CAPM theory was originally developed by William F. Sharpe, in 1964. The major implication of the model is that the expected return of an asset will be related to a measure of risk for that asset known as beta. The exact manner in which expected return and beta. The exact manner in which expected return and beta are related is specified by the CAPM. This model provides the intellectual basis for a number of the current practices in the investment industry. *(Sharpe et. all. p.262).*

The CAPM based on the following assumptions:

a. Investors evaluate portfolios by looking at the expected returns and standard deviation of the portfolios over a one-period horizon.

b. Investors are never satiated, so when given a choice between two otherwise identical portfolios, they will choose the one with the higher expected return.

c. Investors are risk-averse, so when given a choice between two otherwise identical portfolios, they will choose the one with the lower standard deviation.

d. Individual assets are infinitely divisible, meaning that an investor can buy a fraction of a share if he or she so desires

e. There is a risk free rate at which an investor may either lend (that is, invest) money or borrow money.

f. Taxes and transactions costs are irrelevant.

g. All investors have the same one-period horizon.

h. The risk free rate is the same for all investors.

i. Information is freely and instantly available to all investors.

j. Investors have homogenous expectations, meaning that they have the same perception in regard to the expected returns, standard deviations, and covariance of securities. *(Sharpe et.all., p.262)*

Consider a risk less security earning a pure time value of money rate, R_f(such as the yield of Treasury bill). If a portfolio consisting of the risk less security and a risky portfolio of marketable securities ($\overline{R_m}$, $\dagger_m$) were purchased, the expected mean and standard deviation of the different portfolios would lie on the straight line connecting the two points R_f and M. this is shown in figure below.
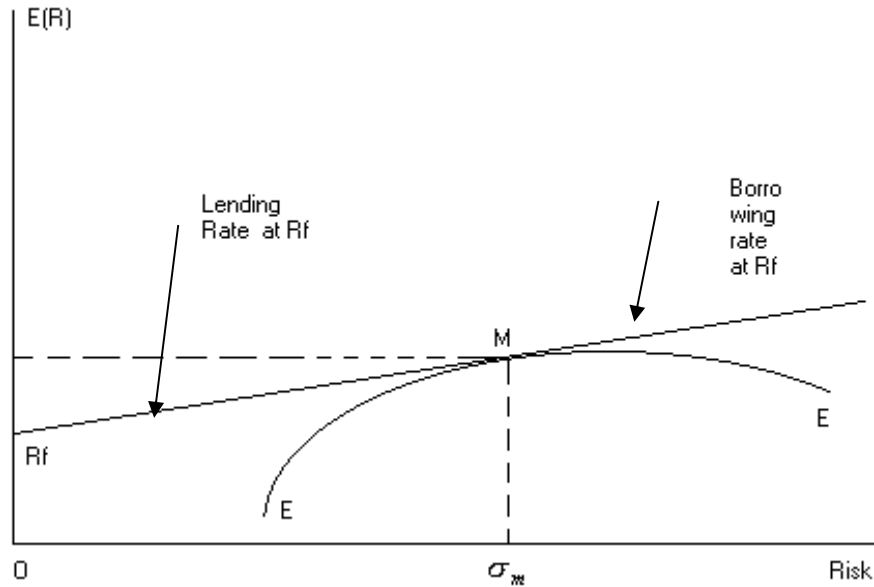
Point M is the tangent of the line originating at R_f and the efficient frontier determined without considering the risk free asset. Although there are other possible portfolios make up of the risk free asset and efficient portfolios (other points on the efficient frontier EE), none of them is as desirable as the portfolios represented by the line R_fM The R_fM is called Capital Market Line.

If 106 percent of the portfolio is invested in portfolio M, the investor will earn R_m with risk $_m$. If some risk free asset is substituted for M, the line R_fM defines the feasible combinations of expected return and risk that are possible.

If the investor supplements the invest able resources by borrowing at a rate of R_f and investing in portfolio M, the right hand extension of R_fM defines the expected return possibilities. Since funds are being borrowed at R_f and invested to earn R_m, where R_m is larger than R_f, the borrowing increases the expected profit, but it also increases the portfolio's risk.

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Choose any point on curve EE other than M. Note that for the same risk, a higher expected return can be earned by investing in a mix of M and the risk-free asset and being on the line R_fM. The line R_fM offers a set of investment opportunities that is at least as desirable as all points on the efficient frontier,(the set of investment opportunities that excludes the risk free asset).

Different investors (with differing degrees of risk aversion) will have optimal portfolios that lie on different points on the capital market line, but all optimal portfolios will consist of the risk less asset and the portfolio M, which is called the market portfolio. *(Bierman & Smidt, p.105).*

"The market portfolio is a portfolio consisting of all securities where the proportion invested in each security corresponds to its relative market. The relative market value of a security is simply equal to the aggregate market value of the security divided by the sum of the aggregate market values of all securities". *(Sharpe et. all., p. 244).*

The significant contribution of the CAPM is that it provides a measure of the risk of an individual security which is consistent with portfolio theory. It enables us to estimate the undersifiable risk of a single asset and compare it with the undiversifiable risk of a well- diversified portfolio. Originally developed by Sharpe, Treynor, Mossin and Lintner, the CAPM equation, or Security Market Line (SML), is usually written as,

$E(R_j) = R_f + [E(R_m)\text{-}R_f]_j$

Where,

$E(R_j)$ = the expected return on the jth risky asset

R_f = the rate of return of a risk less asset

$E(R_m)$ = the expected return of the market portfolio

β_j = $COV(R_j,R_m)/VAR(R_m)$ = a measure of the undiversifiable risk of the jth security

The CAPM is graphed in figure below, panel (b), where it is called the Security Market Line (SML). In equilibrium, all securities must be prices so that they fall on the SML. Assets A,B,C and D in panel (a) all have different variances but the same expected return. The fact that they have different total risk (that is, different variances) is irrelevant for determining their expected return, because total risk contains a diversifiable component which is not priced in market equilibrium.

The Capital Market Line (CML) and the Security Market Line (SML) are merely different pictures of the same market equilibrium. The CML may be used for determining the required return only for those efficient portfolios that are perfectly correlated with the market portfolio because they fall on the CML, but the SML may be used to explain the required rate of return on all securities whether or not they are efficient. The SML provides a unique relationship between undiversifiable risk measured by) and expected return.

(a) Capital Market Line   (b) Security Market Line
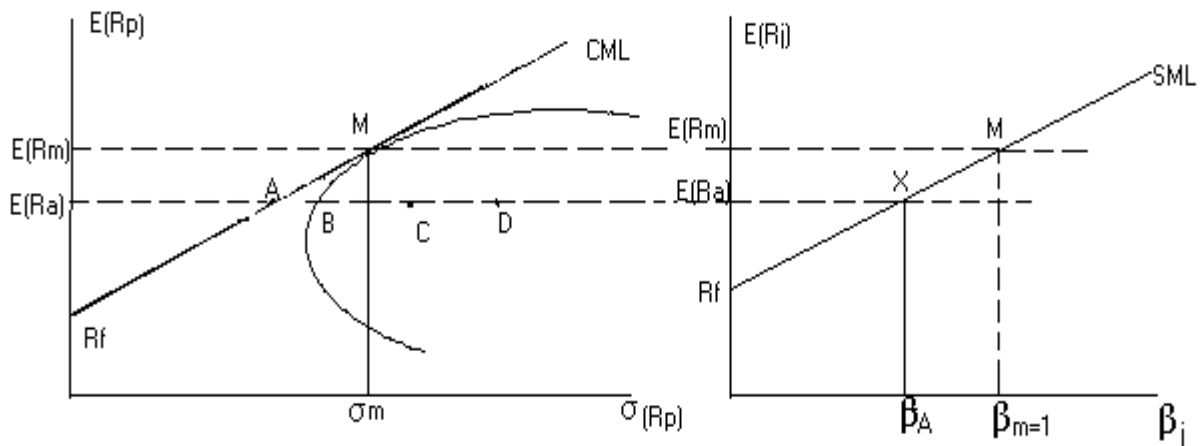

Fig: Comparision of the CML and the SML

"The Capital Market Line represents the equilibrium relationship between the expected return and standard deviation for efficient portfolios. Individual risky securities will always lot below the line because a single risky security when held by itself is an inefficient portfolio" (*Sharpe et. all., p.268*).

"SML, derived from the CAPM, is a linear relationship between the expected returns on securities and the risk of those securities, with risk expressed as the security's beta (or equivalently, the security's covariance with the market portfolio)." *(ibid)*

Under the CAPM, each investor holds the market portfolio and is concerned with its standard deviation because this will influence the slope of SML and hence the magnitude of his or her investment in the market portfolio.

2.10.1 <u>Beta</u>

The total risk of portfolio consists of two parts. One part, unsystematic risk, can be reduced to almost zero if properly diversified of investment. Other part,

unsystematic risk, cannot be reduced and hence is more important in portfolio selection. The unsystematic risk measured by beta ( ). The beta is simply the slope of the characteristic line. A characteristic line is a simple linear regression model expressing the relationship between the excess return on a security and the excess return on the market portfolio *(ibid, p.1064)*. Beta depicts the sensitivity of the security's excess return to that of the market portfolio. If the slope is 1, it means that excess returns for the stock vary proportionally with excess returns for the market portfolio. In other words, the stock has the same unavoidable or systematic risk as the market whole. A slope steeper than 1 means that the stock's excess return varies more proportionally with the excess return of the market portfolio. Put another way, it has more systematic risk than the market as a whole. This type of stock is often called an 'aggressive' investment. A slope less than 1 means that stock has less unavoidable or systematic risk than does the market as a whole. This type of stock is often called a 'defensive' investment. *(Van Horne, p64).*

The beta of a security is a measure of the responsiveness of its excess returns to those of the market portfolio. Mathematically, this responsiveness is nothing more than the covariance between possible returns for security J and the market portfolio divided by the variance of the probability distribution of possible returns for the market portfolio. Therefore, the beta of security j can be expressed as:

$$ \mathsf{S}_j = \frac{r_{jm}\dagger_j\dagger_m}{\dagger_{,}^2} $$

Where, $(r_{jm}\dagger_j\dagger_m)$ is the covariance of returns for security j with those of the market. r_{jm} is the expected correlation between possible returns for security j and the market portfolio. *(Van Horne, pp.69- 70).*

The beta for the market is equal to 1, all other betas are viewed in relation to this value. Asset betas may take on values that are either positive or negative; positive betas are much more common than negative betas. The majority of betas fall between 0.2 and 2.

A stock's beta of 2 indicated that its return move in same direction as market return moves. In fact, the responsive is twice greater than the market return or risk. A zero beta means no correlation between market and stock's return or risk. A beta of -1 indicates the return of a stock and the return of market moves in opposite direction. *(Gitman, p124).*

One property of beta is that the beta of a portfolio is simply a weighted average of the betas of its component securities, where the proportions invested in the securities are the respective weights. That is:

$$S_p = \sum_{i=1}^{N} w_i S_i$$

This feature of beta is the most useful properties of the CAPM. Weston & Copeland, in their view,- "One of the most useful properties of the CAPM is that the beta of a portfolio, $_p$, of securities (or assets) is the weighted average of the betas of the individual securities, $_i$," *(ibid, p406).*

2.10.2 Use of CAPM

Even though the assumption on which the CAPM is based limit the generality of the model, it is still widely used. Among the uses are:

- To estimate the cost of equity capital using $R_j = R_f + [(R_m - R_f)]_j$

- These estimates are used both for public utility regulatory proceedings and determining the required return to be earned by operating divisions of corporations.

- To form portfolios of securities (the weighted average of the betas of all the securities in one relevant risk measure if the investor is imperfectly diversified)

- To evaluate securities- if the expected return is larger than $E(R_j) = R_f + [(R_m - R_f)]_j$ the security is a 'bargain'

- If security has a larger expected return than the return indicated by the CAPM, all investors will buy it and vice-versa.

The capital asset pricing theory is the best-known model of risk and return. It is plausible and widely used but far from perfect. Actual returns are related to beta over the long run, but the relationship is not as strong as the CAPM predicts, and other factors seem to explain returns better since the mid-1960s. Stock of small companies, and with book values relative to market prices, appear to have risks not captured by the CAPM. *(Brealy & Myers, p212)*

The CAPM has also been criticized for its strong simplifying assumptions. There exist several other theories. Some of the alternative or supplementary theories

are: consumption betas versus market betas, Arbitrage Pricing Theory (APT) developed by Stephen A. Ross, The Three Factor Model by E.F. Fama and K.R. French etc. *(ibid).*

2.11   Review of Related Studies

The base of Markowitz's portfolio theory is that higher the risk, higher the return and a well-diversified portfolio can significantly reduces the risk of portfolio. In previous section, some theoretical frameworks of portfolio management were defined. In this section, an attempt has been made to test the theoretical base of portfolio management..

There are some empirical studies based on the theoretical beliefs of portfolio management. *Modigliani and Pogue (1034)* took the realized rates of return and the betas of many different assets between January 1945 and June 1030. In most cases, risk-return relationships make sense. *(Weston & Copeland, p166).*

The common stock, among all securities, is the most risky security. Most risky securities should have the most return. This is the case indeed. *Ibbotson Associates* measures the historical performance of securities. In the measure, it was found that a dollar invested in the safest investment, Treasury bills, would have grown to just over $14 by 2003. The study period was from 1926 to 2003. An investment in long-term T-bonds would have produced $39 and corporate bonds a pinch more. Common stocks were in a class by themselves. An investor who placed a dollar in the stocks of large US firms would have received $1828. $5520 was rewarded to the investors of common stock of small firms. In the study, it was also observed that the variation in

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common stock was also high. The highest return was 54% and the lowest -43%. *(Ibbotson Associates, Inc., 2004-year book).*

It is observed that risk has two parts. One is systematic and another is unsystematic. A study about risk factor conducted by *B.F.King(2002)* showed that one-half of total risk was occurred due to systematic risk. In his word- "nearly all stocks listed on the New York Stock Exchange move in the same direction as the NYSE Index. On the average, 50 percent of the variation in a stock's price can be explained by variation in the market index. In other words, about one-half the total risk is an average common stock is systematic risk.

Another statement of portfolio-diversification reduces the risk- is also tested by *Wagner & Lau (1031).* They divided a sample of 206 NYSE stocks into six subgroups based on S&P's quality rating as of Jung 1960. The result-as the number of securities in the portfolio increases, the standard deviations of portfolio returns decreases, but at a decreasing rate, with further reductions in risk being relatively small after about 10 securities are included in the portfolio. *(Wagner and Lau, p1031).*

There are many studies that test the CAPM. Such studies are primarily conducted by *Black, Jensen, and Scholes (1032); Fama and MacBeth (1033); Litzenberger and Ramaswamy (1039)* and *Gibbons (1042).* The results are: **a)** The low beta securities earn more than the CAPM predicts while high beta securities earn less, **b)** There are other indicators to measure risk but beta dominates all them **c)** In long run, the rate of return on market portfolio is greater than the risk-free rate **d)** Factors other than beta are successful in explaining that portion of security returns not captured by beta **e)** It was found that low price\earnings portfolios have rates of return

higher than could be explained by the CAPM *(Basu,1037)*. **f)** The size of a firm is important, smaller firms tend to have higher rates of return *(Banz & Reinganum,1041)*. **g)** The market requires higher rates of return on equities with high dividend yields. **h)** The stock returns are seasonal *(Keim,1043)*.

There are very few topics regarding the analysis of portfolio management in Nepal. A master degree thesis written by *Mr. Umakanta Dulal* entitled - *Risk and Return Analysis of Nepalese Companies* - is reviewed here as other journals\thesis\research cannot be found to review. Mr. Dulal's work is basically with risk and return, which to some extent is also useful to present study. Some of his findings are as follows:

- It is interesting to find that there exist a positive relationship between risk and returns. Eighteen out of twenty-four Nepalese companies have positive relationship between risk and return i.e. risk and return vary in same direction rather than opposite direction.

- In sector wise, banking and insurance, manufacturing trading and finance have been found negative risk and return relationship i.e. higher the risk, lower the return and vice-versa. Only two sector viz. manufacturing and trading, and finance have positive risk-return relationship.

- Mr. Dulal, however, did not look the market return and risk relationship. His work is based on the return on Gross profit, Net profit, Assets, Equity and Dividends.

Thus, the present study is an attempt to study the market risk-return relationship with some of Nepalese companies and, of course, to reduce risk by the means of diversification.

Review of study about Nepal Stock Exchange

Since this study has a major link with stock market of Nepal, it, therefore, needs some paragraph about stock market. In this section, the background and some of studies about Nepal stock market is dealt.

The history of stock market began with the floatation of shares by Biratnagar Jute Mill and Nepal Bank Limited in 1937, other development relating capital markets were the introduction of the Company Act, in 1951. The first issue of government bands was in 1964 and the establishment of the Securities Marketing Center in 1036, under the Company Act. It assisted public limited companies to raise capital through issue of shares and debentures and also provide a market place for trading securities. Although the purpose of the establishment was to assist the public limited companies, but it was only concerned with dealing the government bonds and treasury bills in the beginning phase of establishment. After the Securities Exchange Act in 1043, the Security Marketing Center was changed to Securities Exchange Center and it opened the floor for secondary trading of shares to provide liquidity and marketability of new issued securities. His Majesty's Government under a program initiated to reform capital market and in the process Securities Exchange center was converted into Nepal Stock Exchange in 1053. Nepal Stock Exchange opened its trading floor in 13th January 1054 from newly appointed brokers and market makers.

Some researchers have carried out some researches. One of the study conducted by *Mohan Khatiwada* about *'Securities Investment in Nepal'* in 2007 is related with stock market performance. He concluded his study with following findings:

- Nepalese stock market has no liquid and small size of market than other countries.

- Institutional base, dominating role of money market and rigid rules and regulations are main problems seen in stock market.

- Securities return is less than market return.

- Dominant roles of banking and financial institution in stock market and also management groups and majority share holders groups in company

Similarly, another study conducted by *Mr. Bharat Prasad Bhatta* entitled *'dynamics of stock market'*. His findings of stock market are summarized below:

- Due to lack of proper implication of government rules, policy and programme, people are not conscious well and aware about stock market.

- Stock market development indicators and economic indicators have a close relationship, the growth rate of equity capital market capitalization and turnover are higher than GDP.

- Due to underdeveloped stock market, there exist few number of stock listed in stock market, size of stock market is very low, low liquidity and low development indicators are found in stock market.

Mr. Jeet Bahadur Sapkota conducted a study-*'Risk and return in commercial bank in Nepal'* in 2006. The given facts are discovered by his study:

It enables the investors to put the return as they can expect and the risk they may take into better prospective.

- Nepalese economy is in emerging stage but due to lack of the appropriate information and other knowledge, Nepalese private investors cannot analyze the securities as well as market properly.

- Banking industry is the biggest one in terms of market capitalization and turnover and return for common stock of commercial banking sectors are more parallel with market return.

People invest in stock market for return. However, those returns are subject to risk. A careful analyze requires before investing in stock market. A portfolio investment is a good investment strategy.

Investment in the security market is not risk free. At the same time, such investments are also called gambling. As a matter of fact, blind speculation in the stock market is gambling where as informed speculation is investment. A quickly achieved peaks and values of the NEPSE Index graph are the results of a speculator behavior shown by a majority of investors in process. Some have lost their capital while some others have made good profits. Loosing and making money are however parts of game. Everybody cannot be a winner every time. But the past of the stock market has left some clues to the future. All can make money in stocks if they can rightly decipher the clues.

CHAPTER-III

RESEARCH METHODOLOGY

3.1   Introduction

" Research Methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objective in view"*(Kothari, C.R., p2).* Thus, the main purpose of this is to stress on the different research methods and conditions, which are used in this study.

The purpose of this study is to analyze portfolio management and various aspect of portfolio theory. To achieve these objectives, some methodology have been adopted which includes research design, population and sample, source of data, data collection techniques, data analysis tools and so on.

3.2   Research Design:

Research design is the plan, structure and strategy of investigation conceived so as to obtain answer to research questions. Since the study is related to the risk, return and portfolio of common stocks of some of the listed Nepalese companies, the research design of this study is analytical, historical, descriptive and co relational research.

It is an analytical research because it analyzes various aspects of risk, return and portfolio. It is historical research because it is concerned with past phenomena i.e various past data are collected, evaluated, and analyzed to reach a conclusion. It is a descriptive research because it describes the behavior and characteristics of a given population. It is also a correlation research as the relation between/among various

dependent and independent variables are attempted to find for the objective of the research.

Thus, research design tells the researcher about the steps to follow. It tells what things are to be observed, how many observation should be made i.e. what should be the size of sample and how should the sample units be selected. It helps to locate the variable, and tells how to manipulate the variables. It also describes how to test the relationships among variables and which statistical methods are suitable to test the relationship. Finally, it tells how to analyze the qualitative and the quantitative representations of the observations. It outlines the possible conclusion to be drawn from the analysis.

3.3   Population and Sample:

The term 'population' or 'universe' for research means all the members of any well-defined class of people, events or objects. Because of its large size, it is fairly difficult to collect detailed information from each member; a sub-group is chosen which is believed to be representative of the population. This sub-group is called a sample and the method of choosing this sub-group is done by sampling *(Wolff H.K. &; Pant P.R., p75)*

This study is concerned with the portfolio management of listed companies. So, it is obvious that all the companies listed in stock market are population for this study.

However, the study of all companies i.e. population is neither feasible nor desirable. Therefore, a sub-group of the population is selected which is called sample and it is believed that the sample represents the population in true sense. The method

of sampling is stratified random sampling. For this all the listed companies are classified into four industries viz. banking, finance, insurance and manufacturing industries. From this category, six from banking, four from finance, four from insurance and two from manufacturing samples are selected randomly. The following companies are sample for this study:

NABIL Bank Limited (NABIL)

Standard Chartered Bank Nepal Limited (SCBL)

Nepal SBI Bank Limited (NSBI)

Kumari Bank Limited(KBL)

To this study, financial data from each of the sampled companies were taken for the period of five years from 2003 to 2007.

3.4 Sources of Data

Data can be obtained from either the primary source or secondary source. The data, which are originally collected by an investigator for the first time for the purpose of research work, are known as primary data. These data are original in nature. On the other hand, the data (published or unpublished), which have already been collected and processed by some agency for their statistical work, are termed as secondary data as far as the agency is concerned.

The present stably is based on secondary data. In the age of computer technology, collection of data becomes easier. All the data are used in this study is extracted from the website of Nepal stock exchange (NEPSE) i.e.

. However some related data are also taken from some of the publication of Nepal Rastra Bank and security exchange board of Nepal (SEBO-N).

3.5   Data Collection Techniques

The study is based solely on secondary data. As already stated, the computer technology makes data collection technique very simple. One can view, copy, carry and send data from computer. At first, the website of NEPSE is visited (www.nepalstock.com), then relevant data is collected from financial statement of listed company in the web page. These data are copied for this study. However, the website is not regularly updated for new information and data of listed companies.

3.6   Data Analysis tools

Data are collected for analyzed. Collection of data is meaningless unless it is analyzed for further meaning. The data can be analyzed by using various statistical and financial tools. In this study, the collected data are analyzed by using both financial and statistical tools.

3.6.1 Statistical Tools

Arithmetic Mean

Arithmetic mean of a given set of observation is their sum divided by the number of observations. If X_1, X_2, X_3....................X_N are the given observations, then their arithmetic mean (A.M.) usually denoted by X is given by:

$$\overline{X} = \frac{X_1 + X_2 + X_3 + ...Xn}{n}$$

$$= \frac{\sum x}{n}$$

In this study the expected return is found by using this technique.

Weighted Arithmetic Mean

Weighted arithmetic mean is used for giving importance for some fact/data. The important fact/data should be weighted. If W_1, W_2,............W_n be the weights attached to variable values X_1, X_2,.........Xn respectively, then the weighted arithmetic mean X_w is :

$$X_w = \frac{W_1.X_1 + W_2.X_2 + W_3.X_3... + W_n.X_n}{W_1. + W_2 + W_3 + ...W_n} = \frac{\sum_{i=1}^{n} W_i X_i}{\sum_{i=1}^{n} W_i}$$

In this study, the weighted arithmetic mean is used because of the importance of amount invested in each if stock in a portfolio.

Standard Deviation

Karl pearson propounded the standard deviation concept in 1893. It is one of the most used techniques in the field of studying dispersion. Standard deviation, usually donated by the letter (Small sigma) of the Greek alphabet, is defined as the positive square soot of the arithmetic mean of the squares of the deviations of the given observations from their arithmetic mean. Thus, If X_1, X_2............ Xn is a set of 'n' observations then its standard deviation is given by :

$$s.d./† = \sqrt{\frac{\sum (X - \overline{X})^2}{N-1}}$$

Where,

† = Sigma, denoted for standard deviates

X = Observation set

$\overline{X}$ = Arithmetic mean

N = No. of observation

The standard deviation is used in this study to measure the risk of stock's return and the risk of portfolio.

Variance

Variance is the mean of the squared deviations about the mean of a series. In other words, variance is the square of the standard deviation and denoted by ^{2}/VAR. i.e.

$$VAR = \dagger^{2} = \sqrt{\frac{\sum (X - \overline{X})^{2}}{N-1}}$$

The variance is used to measure risk the risk of a stock as well as the risk of portfolio.

Coefficient of Variation

While standard deviation is only an absolute measure of dispersion depending upon the units of measurement. The sedative measurement of dispersion based on standard deviation is called the coefficient of standard deviation and is given by:

Coefficient of variation (C.V) = $\dfrac{\dagger}{\overline{X}}$

        = Standard deviation

$\overline{X}$ = Mean.

Correlation

The correlation is a statistical tool, which studies the relationships between two variables. Two variables are said to be correlated if the change in one variable result in a corresponding change in other variable. The formula to calculate the coefficient of creation (by Karl Pearson) is given by:

$$r = \frac{Cov(xy)}{\dagger_x \dagger_y}$$

Where,

$Cov_{(xy)}$ = Covariance between 'x' and 'y' variables

$_x$ = standard deviation of variable 'x' $_y$ = standard deviation of variable 'y'

r = coefficient of correlation

In this study, the correlation tools are used to find the relationship between the return of two common stocks.

The value of correlation coefficient ranges between -1 and $+1$. When r= $+1$, it indicates there is perfect positive relationship between the variables. When r = -1, it means there is negative perfect correlation between the two variables. If r = 0, the variables are uncorrelated. When 'r' falls between 0 and $+1$, two variables are increasing or decreasing to the same direction. But if 'r' ranges 0 to -1, two variables are increasing or decreasing in the opposite direction.

3.6.2 Financial tools

$$Return\ on\ Stock = \frac{P_1 - P_0 - Div_1}{P_0}$$

The return on stock simply the sum of expected dividend and expected price of the security in a given time. An adequate measurement of security return consists regular income and income from price changes. Symbolically,

$$\text{Return on C. stock} = \frac{P_1 - P_0 - Div_1}{P_0}$$

where,

Div $_1$ = Expected divided per share

P_1 = Price of stock at time '1' fear

Po = Current price of stock

Dividend yield

The dividend yield is the rate of yield by a stock in a given year, based on cash dividend i.e.

$$\text{Dividend yield} = \frac{\text{Dividend}}{\text{Stock Price}}$$

Capital Gain Yield

The price appreciation of a stock is capital gain yield i. e.

$$\text{Capital gain yield} = \frac{P_1 - P_0}{P_0}$$

Beta

The beta of a security is a measure of the responsiveness of its excess returns to those of market portfolio. This responsiveness is nothing more than the covariance

between possible returns for security j and the market portfolio divided by the variance of the probability distribution of possible return for the market portfolio. i.e.

$$\beta_j = \frac{r_{jm}.\sigma_j.\sigma_m}{\sigma_m^2}$$

where,

$r_{jm}\sigma_j\sigma_m$ = Covariance of returns for security 'j' with those of the market.

r_{jm} = expected correlation between possible returns for security 'j' and the market portfolio.

Dividend per share.

Dividend per share (DPs) is dividend for shareholders divided by no of stock outstanding i.e.

$$DPS = \frac{Total\ Amount\ of\ Dividend}{No.\ of\ Common\ Stock}$$

3.7   Limitations of Methodology

To understand the research more clearly and to find the objective of the research, there have been applied various financial and statistically tools. However, these tools have some limitations which is not unexpected.

The expected return on stock is calculated by using arithmetic mean based on the data of 5-year. However, it may mislead because 5-year data is not sufficient and future is too uncertain to predict. Mathematically, risk is nothing but dispersion of expected return. There are many techniques to measure dispersion but standard deviation is widely used in all books and journals. The relationship between two

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variables can be measured by various techniques but only correlation technique is used to measure such relationship.

As earlier stated, to have limitations is common phenomena. But those limitations are not so crucial that it can deviate the basic findings of the study. But, nevertheless, limitations prevent to explore more in a subject matter.

CHAPTER-IV

DATA PRESENTATION & ANALYSIS

4.1   Introduction

The purpose of the study is to analyze the risk and return of market, selected banks, finance companies, insurance companies and manufacturing and other companies, and to show the effect of diversification among the selected above samples. It also attempts to find the required rate of return using CAPM and beta of selected samples. After collecting the necessary data, this section of study attempts to analyze, interpret and present of data so that some conclusions can be drawn for the objective of this study.

Details data of MPs, DY, Capital gain yield, NEPSE index, rate of return of Treasury Bills are presented in various table throughout the section of this study. Important calculation of market risk and return, risk-free rate of return, risk and return of individual sample, beta of individual samples, required rate of return of individual sample, risk and return of portfolio of samples are also done and presented in table. Some figures are also constructed. It is believed that tables and figures make the results more simple and understandable.

4.1.1 Analysis of Market Risk-Return, and risk-free rate of return

Usually, the index of a stock market is taken for the true reflector of market risk and return. Unlike a developed economy, Nepal has only one small size and immature stock market which is yet to cross its tenth year of operation. But it, nevertheless, regularly publishes the level and movement of index of stock market. The following figure shows the movement of index from the beginning of its

establishment to the period of this study. The indices are taken at the end of fiscal year of B.S., i.e. 31 Ashadh or 17 July.

The following table shows the Nepse Index, T-Bills rate of return and risk and return of market with risk-free rate of return.

Table 4.1 Table showing the NEPSE Index and T-Bills

Year	NEPSE Index	Market return (Rm) %	Annual T-Bill return %
July 02	185.6		
July 03	176.3	-5.07	10.22
July 04	163.4	-7.32	3.52
July 05	216.9	32.74	2.33
July 06	360.7	66.30	4.66
July 07	348.4	-3.41	4.96
Total		**83.30**	**25.69**
Average		**16.67**	**5.14**
s.d.		**32.29**	**3.02**
Variance		**1042.53**	**9.15**

Source: Quarterly Economic Bulletin, Mid-January, 2002, Nepal Rastra Bank.

The risk-free rate of return is the return of a risk-free asset. All corporate securities in principle have some chance of default; the risk-free asset cannot be issued by a corporation. The risk free return should be free of interest rate risk, default risk, reinvestment risk and marketability risk. Generally, a government's issued securities are qualified in above mention risk. A typical short-term security issued by government has almost free of any risk. To calculate the risk- free rate of return for the period of this study, the Treasury Bill (91 days) issued by Nepal Rastra Bank on the behalf of government is taken into consideration. A-91 days T-Bills is free of default risk, interest-rate risk, reinvestment risk, marketability risk and also from

inflation risk because of very short period of maturity. The risk-free rate of return is calculated by finding the arithmetic mean of risk-free rate of return of the period of study. The following figure shows the movement of rate of return of Treasury Bills (91-days).

Fig 4.1 Yearly movement of Index of Nepal Stock Exchange from 1998/99 to 2006/07
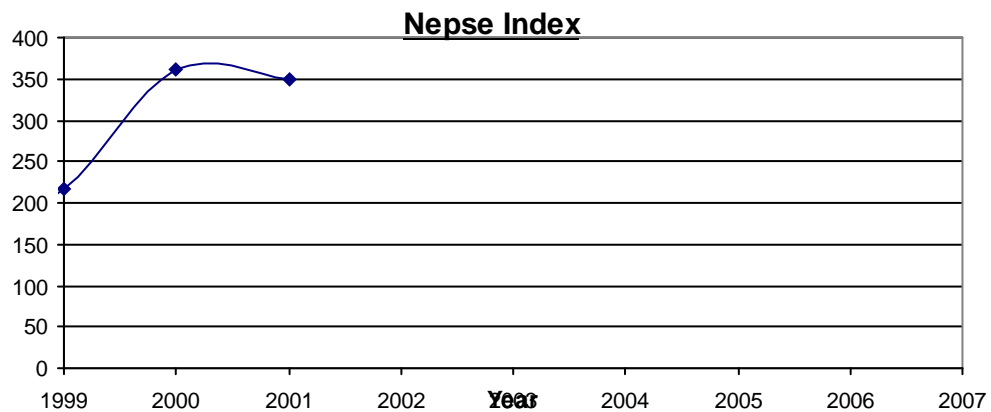
Source : Table 4.1

Fig 4.2 Annual movement of rate of return of T-Bills (91days)
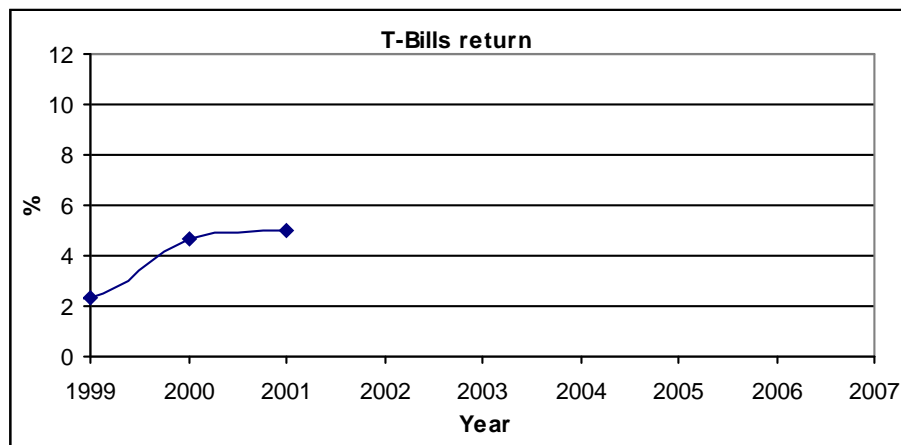
Source : Table 4.1

From Fig 4.1 and Table 4.1, it can be observed that the NEPSE Index was decreasing in its initial phase. The lowest point was recorded in July 2004 when the index went down to 163.4 point. After that lowest point, it began to increase

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sharply. An increase of 32.74% in 2005 and 66.30% in 2006 can be observed. The closing index points were 216.9 and 360.7 respectively for those years. More precisely, it is the month of March 2006 when the index crosses the important '306 points' and started to increase sharply till Nov, 2007 when the index reaches almost 520 point -an all time high point till now, the time of this study. Then after the index is decreasing, and it losses by 3.41% in the year 2007. It is predicted that decreasing trend will remain unchanged for coming years because of political crisis of kingdom of Nepal.

Based on the calculation during these periods, the average market return is found to be 16.67% while the variation in the return is found 1042.53%. The standard deviation is found to be 32.29%. As a whole, a moderate rate of return with high risk.

Increasing and decreasing trend is also attached with the return of T-Bills. By observing fig 4.2 and table 4.1, the T-bills rate of return was 10.22% in July 2003 and sharply decreased to 3.52% - almost lose two third. The return was recorded of only 2.33% in following year, then after some increases can be observed and is 4.96% in 2007/02. The arithmetic mean of T-Bills rate of return found to be 5.14% for the period of study. The 5.14% is taken as risk-free rate of return for the period of this study and for further calculation.

4.1.2   Analysis of Banking Sector

In Nepal, there are altogether 16 commercial banks- two governments, 7 joint ventures and rest other private. The banking sector is dominant sector in stock market. Investors want to invest in bank's stock more than other sector. It is said that almost 80% of a day transaction in stock market accounts for banking sector. Their market price of share is far higher than other sector. They regularly pay dividend to investors.

People believe in their services and the jobs of these private and joint venture commercial banks are perceived as better than other jobs.

However, this study mainly focus on the return and risk of stock of selected commercial banks, correlations among them, and the resulted risk and return if investment is made in tow or more bank- a portfolio investment. It also attempts to find the risk of their stock in terms of market i.e. beta. Finally, a comparison between the required rate of return and expected rate of return of each of selected bank is done.

4.1.2.a NABIL Bank Limited

NABIL (former Nepal Arab Bank Ltd.) is the first private and joint-venture commercial bank incorporated in 1044. The bank was listed in NEPSE in 1046(8 Poush 2042). Initially Dubai Bank Ltd invested 50% of equity share in Nabil. The equity owned by DBL transferred to Emirates Bank International Ltd, Dubai. Currently, these 50% of equity share is held by National Bank Ltd, Bangladesh. The capital structure of Nabil is as follows:

Authorized Capital (5,060,060 @ Rs.106 each)	Rs.5, 06,060,060
Issued Capital	Rs.491, 654,406
Paid-up Capital	Rs.491, 654,406

The following table shows the relevant data of MPs, DPs and calculation of DY, CGY and Return of NABIL during the year 2002 TO 2007.

Table 4.1.2.a   Table showing the MPs, DPs, DY, CGY and Return of Nabil from 2002 to 2007.

Year	Price (Rs.)	DPs (Rs.)	DY (%)	CGY (%)	Return (%)
2002	906				
03	506	0	0	-44.45	-44.45
04	430	30	6.04	-14.06	-7.02
05	706	50	7.14	69.79	69.93
06	1406	55	3.93	106	103.93
07	1506	40	2.67	7.14	9.81
Total	--	--	--	--	**132.20**
Avr. Return	--	--	--	--	**26.40**
s.d. of Return	--	--	--	--	**59.83**

Source: www.nepalstock.com\listed companies

The following figures illustrate the relationship among DY, CGY and stock's return of Nabil Bank Ltd., as well the relationship between MPs & DPs.
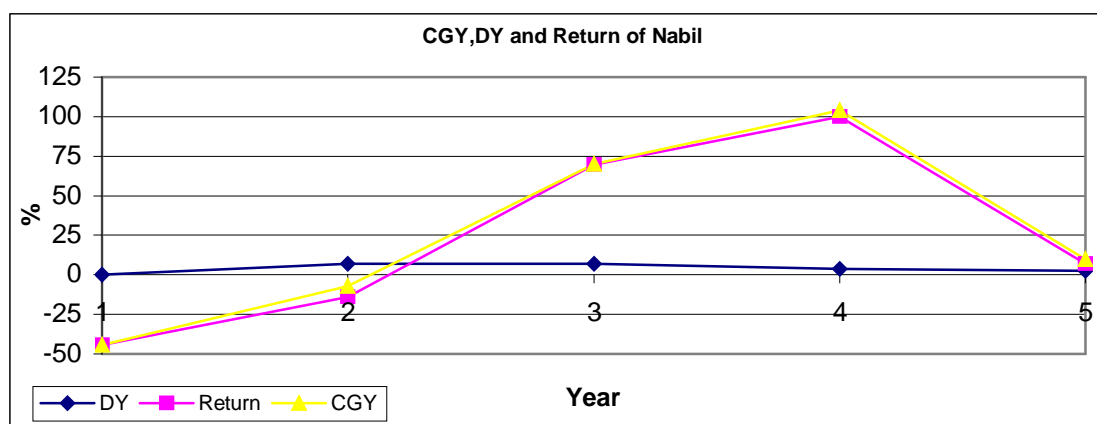
Fig 4.12.a DY, CGY and Return on stock of Nabil
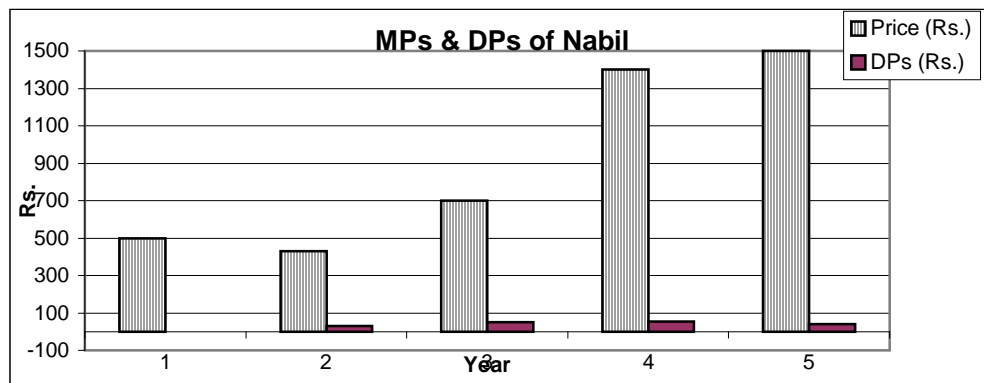
Fig 4.1.2.b DPs & MPs of Nabil

From the given table and figures, it can be observed that the MPs of Nabil Bank Ltd. was decreasing in first three years when the MPs went down from Rs 906 to Rs 430. After that it registered 62.79% increase in next year. The highest increase in MPs and can be observed in year 2006 when the MPs increase exactly by 106% and reaches to Rs 1406. Yet another increase in MPs in the last year of this study period can be found when the MPs increases by 7.14%. The bank did not offer any dividend in 2003 but after that it offered dividend of Rs 30, Rs 50, Rs 55 and Rs 40 per share in subsequent year. Because of the fall in the MPs and no amount of dividend in the year 2003, the return of one common stock of Nabil was -44.45%. As the MPs and dividends were increasing, the return on common stock was also increasing. The highest return on common stock was 103.93% in the year 2006.

As a whole, the average return on common study during this period is found 26.40%, where the variation in the return is found to be 3579.40%. The standard deviation of return of common stock during the period 2003 to 2007 is found to be 59.83%. High volatility in MPs is the prime reason behind the higher variation and standard deviation.

One cannot judge the position of bank in terms of risk and return for investment in its common stock without comparing other banks' same position in stock market.

4.1.2.b Standard Chartered Bank Ltd

SCBL was established in 1045 as a second joint venture bank under the Company Act,1964. Actually, it was initially Nepal Grindlays Bank Ltd. Initially; ANZ Grindlays Bank PLC is the 50% of investment sold to the Standard Chartered Bank Ltd, England by ANZ. The capital structure of SCBL, which is considered as number one commercial bank in Nepal, is as follows:

Authorized Capital (3395488@ Rs106)   Rs.339548806

Issued Capital   Rs.339548806

Paid-up Capital   Rs.339548806

The following table shows the relevant data of MPs, DPs and calculation of DY, CGY and Return of SCBL during the year 2002 to 2007.

Table 4.1.2.b   Table showing the MPs, DPs and calculation of DY, CGY and Return of SCBL from 2002 to 2007.

Year	Price (Rs)	DPs (Rs)	DY (%)	CGY (%)	Return (%)
2002	720				
03	1050	90	8.75	45.83	54.53
04	840	70	8.33	-20.06	-11.67
05	1162	80	6.88	38.33	45.21
06	1045	106	5.04	70.83	75.87
07	2144	106	4.66	8.07	12.67
Total	--	--	--	--	**176.48**
Average	--	--	--	--	**35.30**
S.d.	--	--	--	--	**34.74**

The following two figures illustrate the relationship between MPs and DPs of SCBL, as well the relationship among DY, CGY and Return.
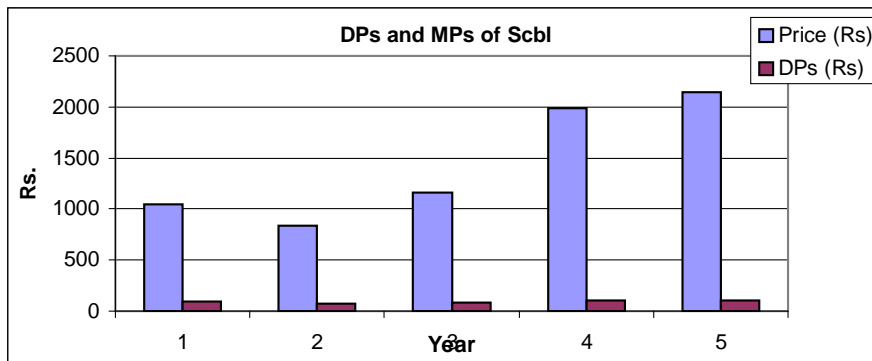
Fig 4.2.1.b MPs & DPs of SCBL during 2003 to 2007.
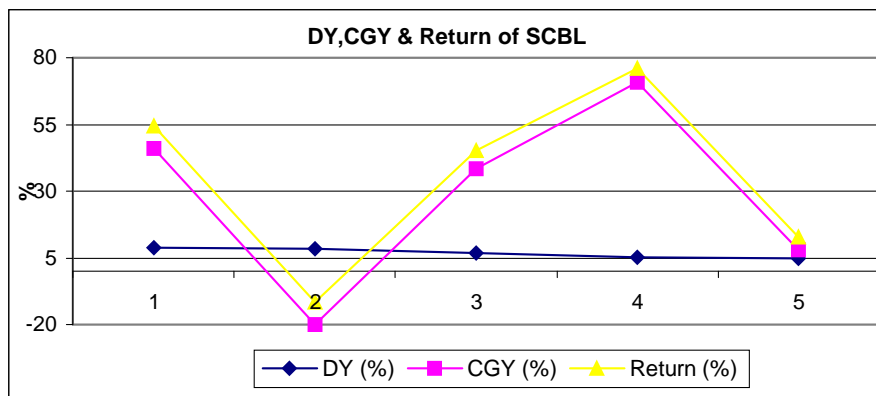
Fig 4.1.2.b.1 DY, CGY & Return of stock of SCBL.

Figure 4.1.2.b and 4.1.2.b.1 with table 4.1.2.b present the MPs, DPs, DY, CGY, Return and standard deviation of return of SCBL. It can be observed that ending closing price of one common stock of SCBL was Rs 7250 in the year 2002. The following year it increased by 45.83% and decreased by 20% in the next following year. After then, it started to increase sharply in following three years and reaches to Rs 2144 in the year 2007. As a whole, the MPs were increasing trend during the period of study except in 2004. The bank continuously offered dividends other than the year 2002. The bank offered Rs 90 as dividend in the year 2003 and then after Rs70, Rs80, Rs106 and Rs 106 in subsequent years. In last two years, the

bank declared 106% dividend based on par value/book value of a share. The return is -11.67% in the year 2004. In other years, the return was positive. The highest return was in the year 2006 when 75.87% of return on a stock was earned.

The average return on common stock during the period is 35.30% while the variation in the return is 12.6.81%. The standard deviation of return of common stock during the period 2003 to 2007 is found to be 34.74%. A better rate of return on minimum risk.

SCBL has better average return than Nabil and the standard deviation is also lower than Nabil. It shows the consistency in its performance in stock market. That may be the reason investors want to invest in SCBL more than any other company.

4.1.2.c Kumari Bank Limited

Kumari Bank Limited, came into existence as the fifteenth commercial bank of Nepal by starting its banking operations from Chaitra 21, 2057 B.S (April 03, 2001) with an objective of providing competitive and modern banking services in the Nepalese financial market. The bank has paid up capital of Rs. 1,186,099,200.00 of which 70% is contributed from promoters and remaining from public.

Founded in April 03, 2001

Head Office , Putalisadak

Capital

Authorized Capital Rs. 1,600,000,000.00

Issued & Paid-Up Capital Rs. 1,186,099,200.00

Branches

13 Outside valley

9 Inside valley

ATMs Total - 20

The following table shows the relevant data of MPs, DPs and calculation DY, CGY and Return of KBL during the year 2002 to 2007.

Table 4.1.2.d Table showing the MPs, DPs, DY, CGY and Return of KBL from 2002 to 2007.

Year	MPs (Rs)	DPs (RS)	DY (%)	CGY (%)	Return
2002	122	0			
2003	127	0	0	4.10	4.10
2004	184	0	0	44.88	44.88
2005	407	15	3.68	121.20	124.88
2006	040	0	0	140.79	140.79
2007	750	0	0	-23.47	-23.47
Total					**291.18**
Average					**58.24**
S.d.					**72.53**

Source: www.nepalstock.com/listed company

The following figures present the graphical view of above table.
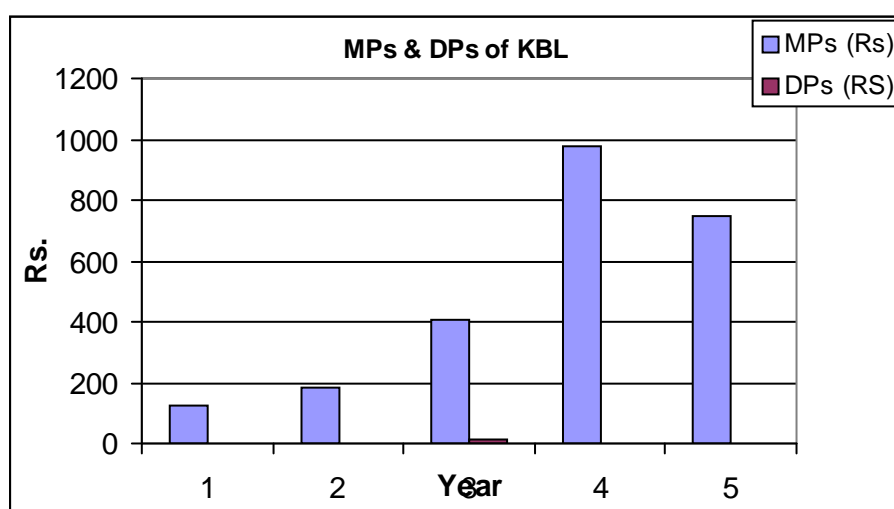
Fig 4.1.2.d MPs & DPs of KBL during 2002 to 2007.
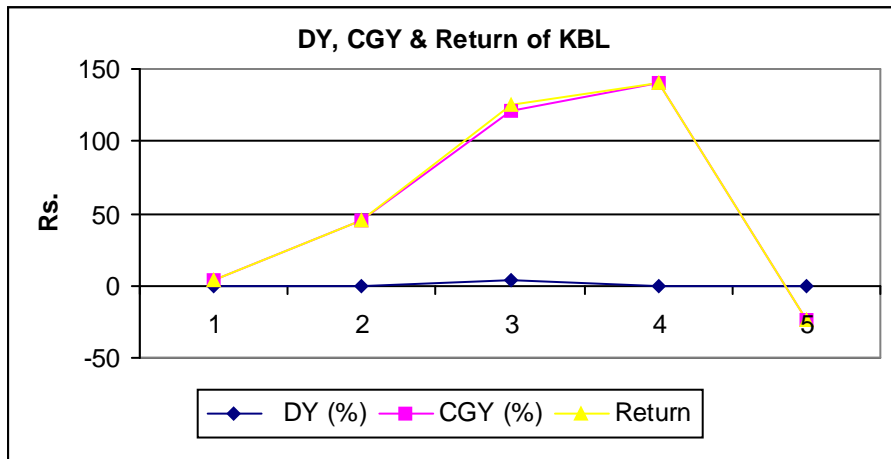
Fig 4.1.2.d.1 DY, CGY and Return on stock of KBL during 2002 to 2007

The table and figures clearly present that the MPs of KBL started from Rs122 in year 2002 and started to increase. The increase was 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 Rs 750 from Rs 040. The decrease of MPs can be attributed to the issuance of bonus share, which it issued in 2005 in ration of 1:4.

The bank did not seem prominent in declaring dividend. Only one offer of dividend made by KBL and it was in 2005 when it declared 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 than dividend yield, as the graph shows .The trend of return of a stock of KBL was coincide 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 a higher risks.

4.1.2.d **Nepal SBI Bank Limited.**

Nepal SBI Bank Limited (NSBI) started its operation on 8 July 1053. NSBI is a joint venture entity between the Nepali promoters and State Bank of India. SBI holds 50% of equity in NSBI. The following is capital structure of NSBI:

Authorized Capital (10,06,060 @Rs106)   Rs.1, 060, 060,060

Issued Capital   Rs.144, 060,060

Paid-up Capital   Rs.143, 935,206

The bank has presently 15 branches including extension counter in the kingdom of Nepal. The bank was listed on 17 January 2007.

The following table presents the relevant date of NSBI.

Table 4.2.1.e Table showing the relevant date of DPs, MPs and calculation of DY, CGY & Return on stock of NSBI during 2002 to 2007.

Year	Price (Rs)	DPs (RS)	DY (%)	CGY (%)	Return (%)
2002	412				
2003	412	20.07	4.86	0	4.86
2004	440	20.07	4.55	6.8	11.35
2005	562	10	1.78	27.73	29.51
2006	562	15.07	2.67	0	2.67
2007	1506	0	0	166.9	166.9
Total					**215.29**
Average					**43.06**
S.d.					**70.03**

www. nepalstock.com\listed company

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The following figures present the graphical view of above table.
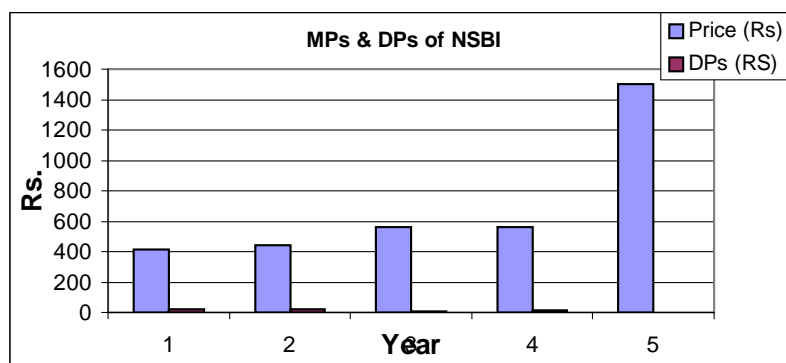
Figure 4.2.1.f MPs & DPs of NSBI
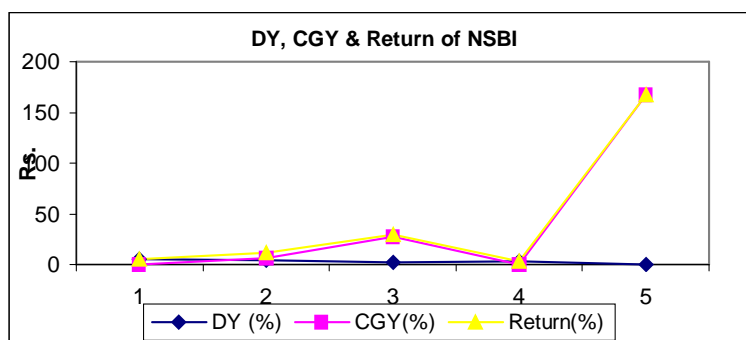
Fig. 4.2.1.f.1 DY, CGY and Return of NSBI during 2002 to 2007.

The table shows Rs 412 was the closing market price of a stock of NSBI in 2002 and 2003. The following two years, the MPs was increased by 6.80% and 27.73% respectively. In 2007, it increases sharply to Rs 1506, an increase of 166.90%.

The bank declared some amount of dividend during the first four years of study. However, these dividends were in very small amount. Rs 20 was the highest amount offered. In last year of study period, NSBI does not offer any cash dividend.

The return on a common stock is the highest in the year 2007, when it registers 166.9% return. Because the dividend yields are very low, the major part of returns is due to capital gain yield. The second figure shows it.

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The average return on a stock of NSBI during the period of study found to be 4904.02%. The variance of return is 70.0% while the standard deviation of return is 70.03%. A moderate return for a high risk.

4.1.3 Summary result of banking sector.

The following table presents the summary of the analysis of banking sector.

Table 4.1.3 Table showing the return and risk of selected banks

Banks	Return (%)	Variance (%)	S.d. (%)	C.V.
NABIL	26.4.	3579.40	59.83	2.27
SCBL	35.30	1206.81	34.74	0.04
KBL	58.24	5260.39	72.53	1.25
NSBL	43.06	4904.02	70.03	1.63

The table summarizes the analysis of banking sector. In isolation, KBL has the highest return as well as highest risk. It provides the statement- higher risk, higher return. The table also presents some interesting results. The NABIL has 26.40% in return but 59.83% in risk. Any investor who wants to invest in NABIL' stock is taking very high risk for a relative low return. Investor can achieve more return than NABIL's. In other words, SCBL SCBL is the only bank which return exceeds the risk.

The coefficient of variance (C.V.) is another tool for measuring variability. The c.v. here measures the variability of return. According to this tool of measurement, NABIL is the most riskier and SCBL is the least riskier.

The following figure presents the above table in graphical style so that comparisons can be done easily.
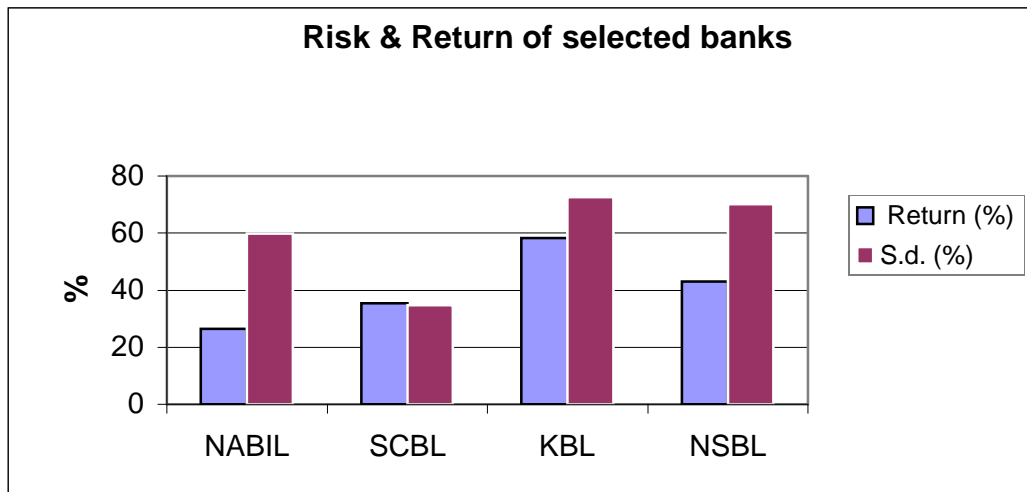
Figure 4.1.3 Risk and Return of selected banks
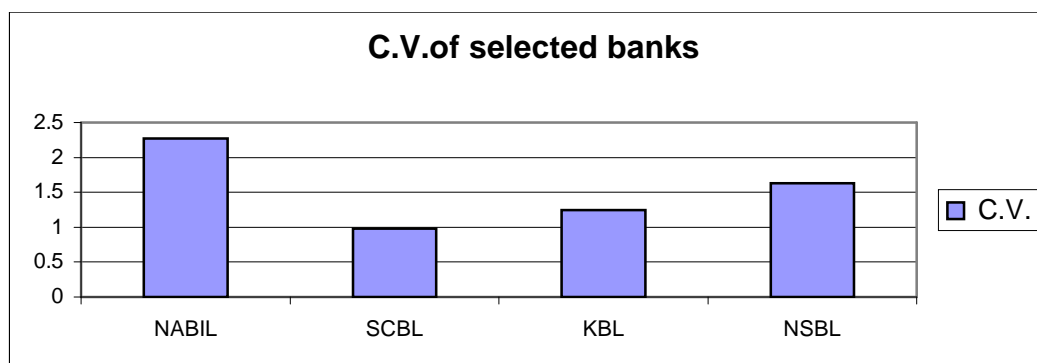
Figure 4.1.3.a Coefficient of Variance of selected banks.

	NABIL	KBL	NSBI	SCBL
NABIL	3579.40	3734.71	-502.39	1042.18
KBL	3734.71	5260.39	-2966.09	1363.06
NSBI	-502.39	-2966.09	4904.02	-953.90
SCBL	1042.18	1363.06	-953.90	1206.81

Table 4.1.9.e Covariance matrix among selected samples between the periods of 2002 to 2007.

To minimize portfolio risk, an investor always looks those securities that have negative covariance among themselves. The covariance matrix table may not look good for a rational investor because of very few negative covariances. However, one can still evaluate some of the sample company. After all, the table represents only

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selected sample. There are large numbers of companies available and an investor can select his or her best portfolio by using the method discussed in this study.

4.1.4 Analysis of Diversification

A well diversified portfolio reduces the risk. In this section of the study, it is attempted to test the effect of diversification. Furthermore, the role of covariance or correlation in selecting optimum combination of securities and weight of investment is also tested. Portfolio theory suggests that a negative correlation between two securities reduces the risk significantly. Similarly, positively correlated securities do not reduce the risk.

4.1.4.1 Analysis of diversification in banking sector.

Investor may select two common stock- one of SCBL and another of NSBI. The covariance between the stocks' return is negative. Thus, it is negative correlated investment case. Following facts are already known about these two stocks.

	NSBI	SCBL
Exp. Return	43.06	35.30
Variance	70.03	34.74

Covariance = -953.90

The investor's investment in the stock of NSBI is W_x and $(1-W_x)$ in the stock of SCBL. Following table shows the risk and return of the investor at various level of investments.

Table 4.1.4.1b Table showing the expected risk and return for various level of investment between the share of NSBI & SCBL.

NSBI	SCBL	Erp	VAR	S.D.
1	0	43.06	4904.02	70.03
0.9	0.1	42.28	3812.45	61.75
0.8	0.2	41.51	2881.29	53.68
0.7	0.3	40.73	2110.54	45.94
0.6	0.4	39.95	1506.20	38.73
0.5	0.5	39.18	1050.28	32.41
0.4	0.6	38.40	760.76	27.58
0.3	0.7	37.62	631.66	25.13
0.2	0.8	36.85	662.03	25.75
0.1	0.9	36.07	854.68	29.23
0	1	35.30	1206.81	34.74

The various level of risk and return from the portfolio consisting the share of SCBL and NSBI are given in the table. Investor can achieve 43.06% of return and 70.03% of risk by investing all of his invest able fund into the stock of NSBI only. On the other hand, a return of 35.30% and risk of 34.74% can be achieved if entire funds invested in SCBL security only. These conditions are presented in the table on first and last row. If borrowings and landings are not allowed, these are two extreme points. As the investor mixes his/her amount in these two stocks, the result of portfolio risk-return is the table. From point of maximize return, all fund must be invested into the stock of NSBI. However, risk al also very high in this investment. Portfolio investment is all about the risk. The risk is minimal by investing 70% of fund in SCBL and 30% of fund in NSBI. By doing this, the investor can get 37.63% of return and exposed to 25.14% of risk. This level of risk is very low than individual stock's risk. Therefore, a rational investor should make his investment in this level of portfolio. The table is shown in graph below.
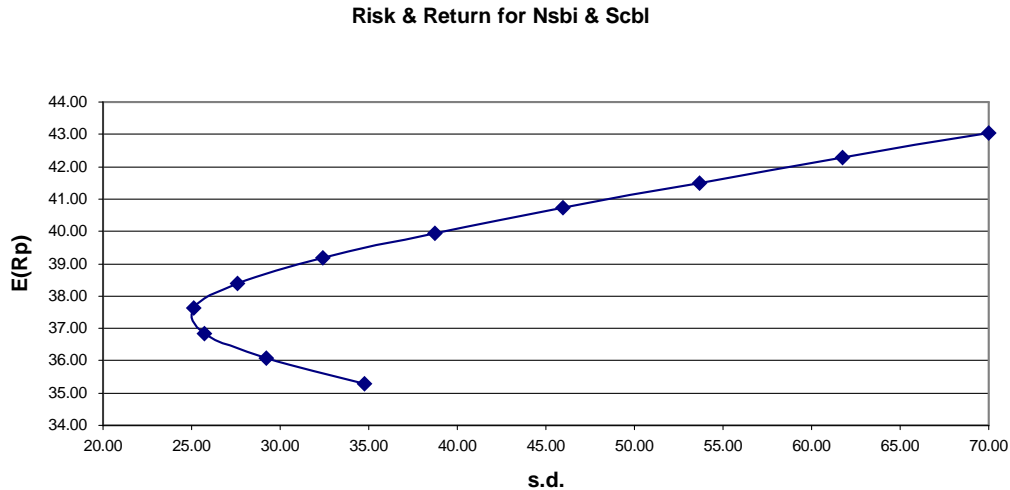
Figure 4.1.4.b Risk & return for portfolio of stock of Nsbi & Scbl.

The graph has a familiar curve for the various points of risk and return for the stock of NSBI and SCBL. This is typically a bullet –like curve. The left side of the curve is the point for lower standard deviation while the point of top right corner is for higher expected return. This curve has many features. The first point from left side has the lowest level of risk. The level of risk is increasing, as the curve moves upward from the point. However, the return is also increasing. The level of risk increases if the curve moves downwards, but the return is decreasing at this portion of risk. Thus, all the points of the curve below the first point from left, are dominated by the first point from left side. The point dominates because it has higher level of expected return as well lower standard deviation than other points below it. Any rational investor would not choose the point below it. If they did, they were exposed to higher risk for low level of return. They can achieve more return at lower risk on the first point from left side. The upward moving curve from the first point has more return and more risk than the first point. A risk seeker investor will choose the last point of upward moving curve. All the upward points from the first point are called efficient set. A rational

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investor surely choose the first point from the left side, but any point above this is desirable which depends on the preference of investor toward the risk.

The meaning of portfolio cannot be confined within the limit of just two securities. A portfolio can be more than two securities. An investor can invest his/her fund in all six selected securities of banking sector. If this is the case the return and risk of that portfolio can also be calculated, though it will be a difficult calculation without any sophisticated tools. The workout is done here by using the Microsoft's Excel.

Following table presents the expected risk and return of the portfolio, which consists all six securities of banking sector. The portfolio of investment in each of securities has been selected randomly.

Table4.1.4.c Table showing the expected risk and return among all selected banking samples between the year 2003 to 2007.

BANK	WEIGTS						E(Rp)	s.d.
NABIL	0.1666	0.2	0.1	0.05	0.5	0.12	36.442	30.05
KBL	0.1667	0.2	0.1	0.1	0.1	0.17	37.25	31.92
NSBI	0.1667	0.2	0.2	0.2	0.1	0.14	35.87	21.71
SCBL	0.1667	0.1	0.2	0.25	0.1	0.17	36.09	21.02

The weights of investment are taken as random. The table clearly shows a particular level of return and risk for a given investment in each of six securities of banking sector. Because the sample is relatively large, it is quite difficult to point the best portfolio, as there could be many combinations of weight of investment. However, some combinations of weight is given in above table and one can easily decide the best portfolio. The highest expected return is 37.25% but to achieve this

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return investor have to invest 20% each of his total investment into the stocks of NABIL, KBL & NSBI and 10% for SCBL. But the investor should not ignore the other side of this return –i.e. expected risk of this particular portfolio investment. The risk is usually calculated in terms of standard deviation. The expected risk of this portfolio is 31.92%. Is this reasonable or high? One cannot judge it by merely a single look. However, a comparison is the yardstick. By comparing all standard deviation of table no 4.1.10.c, it can be judged that this is not an acceptable level of risk. Investor can minimize his/her risk by changing the weights of investment. For selected weight of investment taken into the table, the lowest level of risk is 21.02% with 36.09% of expected return. To attain this level of risk and return, an investor has to invest 12% of total investment into the stock of NABIL; 17% into KBL; into NIBL: 14% into NSBI; and 17% into the stock of SCBL. Investor may achieve less level of risk than the 21.71% presented in the table by changing the weight of investment.

Table no 4.1.10.c can also be presented in graph. Following figure represents th4e table in terms of expected risk and return for each set of weights.

Figure 4.1.4.c.1 Figure showing risk and return of selected banks' stock during the period of 2003 to 2007.
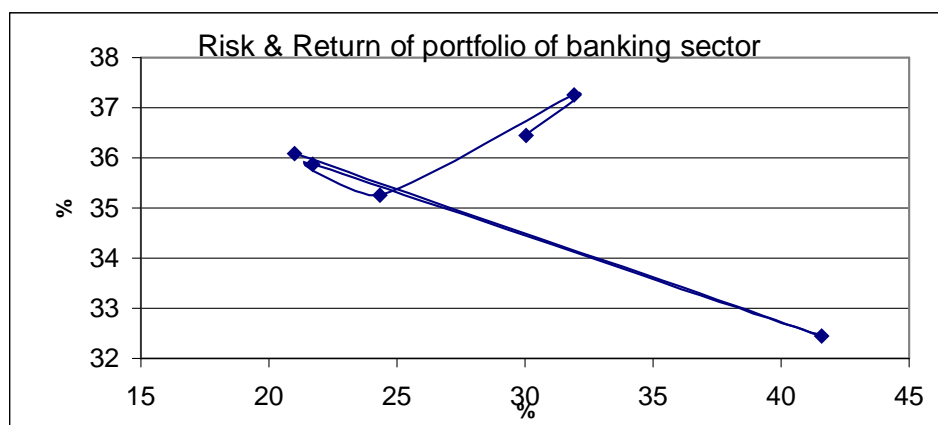
The curve of the figure is not the conventional one like a bullet-shape. The points on the curve represent one set of portfolio. Observing the figure, the most unwanted position is the point of bottom-right, where the return is the lowest but risk is the highest among all the points of the curve. On the other hand, the best position is the point of far left. This point dominates other points below of this point. On this point, the level of risk is the lowest among all points and return is highest among four points below of this point. Clearly, this is the point where every investor wants to be, given the proportion of weight presented in the table 4.1.10.c.

Overall, an investment in all the stocks of banking sector is quite attractive and minimizes the level of risk. However, investor should be clever to the weight of investment in each of the stock. The weight of investment is a crucial factor that separates a good portfolio and a bad portfolio beside the selection of stock itself.

The conclusion of this analysis is: more securities into portfolio reduce the risk more, than just two securities in a portfolio. The risk of six securities portfolio is lower than the risk of just two securities' portfolio. However, this could be reversed if the investors do not choose the appropriate weight of investment in each of the securities.

4.1.5 Analysis of Undiversified risk/ Beta Analysis

The definition and other feature of beta are already defined in second chapter. The total risk of portfolio has tow folds. One fold is unsystematic risk which can be reduced to zero if properly diversified of investment. Other fold is unsystematic risk that cannot be reduced and hence plays a vital role in portfolio selection. This

unsystematic risk is measured by Beta(β). The beta is simply the slope of characteristics line. It is found that higher the beta, higher the risk.

In this part of analysis, the betas for all sixteen securities are calculated. The formula and theory on beta is already presented in chapter two. Following table presents the covariance between each sample's return and market returns.

Table No 4.1.5.A Table showing the covariance between the return of market and other securities during the period of study.

NABIL	NABIL	KBL	NSBI	SCBL
NABIL	3579.40	3734.71	-502.39	1042.18
KBL	3734.71	5260.39	-2966.09	1363.06
NSBI	-502.39	-2966.09	4904.02	-953.90
SCBL	1042.18	1363.06	-953.90	1206.81

The market return, variance and standard deviation is calculated on table no.4.1. The variance of market return is 1042.53. All the betas calculated are presented in the table below:

Table No 4.1.5.B Beta for all selected samples during the period of study.

NABIL	1.73
SCBL	0.80
NSBI	-0.75
KBL	1.05

The following figure presents the overall look of betas for all securities.
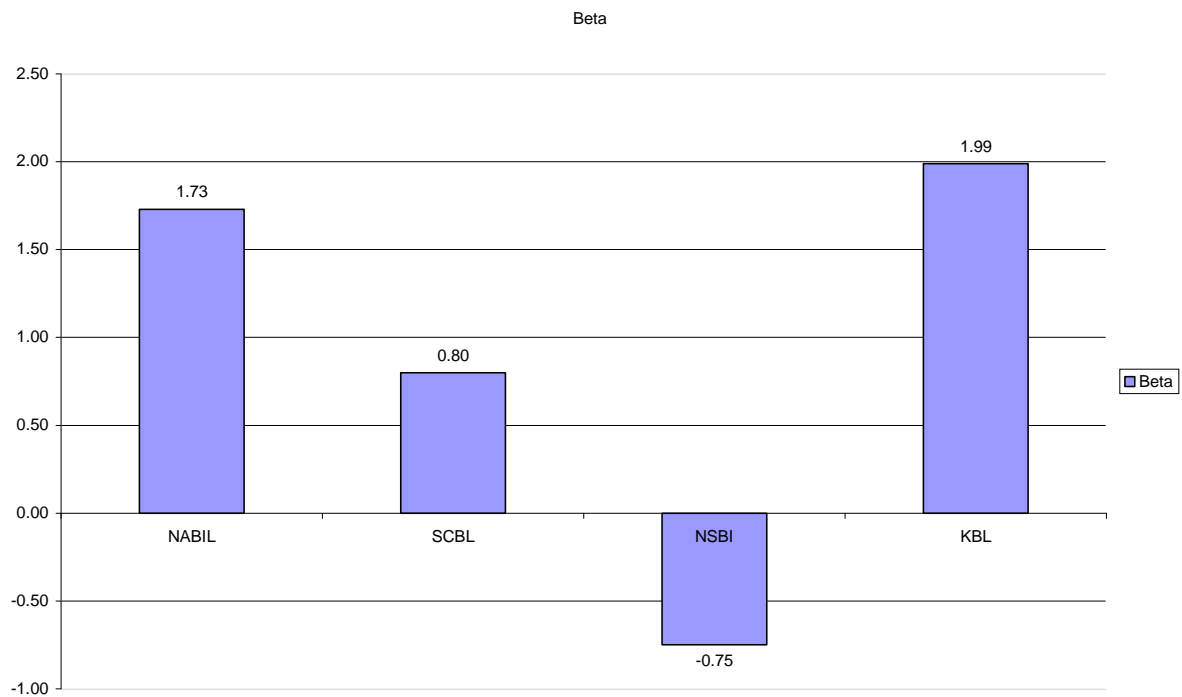
Figure No 4.1.5.B Beta for all selected samples during the period of study.

The beta of banking sector varies widely. The lowest beta is –0.75 of NSBI. On other extreme, the highest beta is 1.05 of KBL. The stock of KBL has more market risk than other banking sectors beta. The beta of KBL indicates that its return move in same direction as market moves. In fact, the responsive is almost twice greater than the market return or risk. On the other hand, the –0.75 beta of NSBI indicates that the return of NSBI's stock and return of market moves opposite direction. If the market is falling, the stock of NSBI is rising and vice-versa. However, a negative beta is very rare. The beta is generally falls between 0.2 and 2. The beta of banking sector also falls between these two numbers with the exception of NSBI stock. On the analysis of beta, the stock of KBL is the riskiest among all in banking sector. The stock of NSBI with negative beta is very useful in making an excellent portfolio because of its nature of moving opposite against market.

4.1.6. Required Rate of Return by Security Market Line

The literature on CAPM is already presented in chapter–II. Originally developed by Sharpe and et. al., the CAPM equation or SML equation is usually written as:

$E(R_j) = Rf + [E(Rm) - Rf] \times B_j$

This equation helps investor to evaluate the return they want and the return that the stock offers. Any reasoned investor wants at least the return provided by the equation of SML. If the expected return form stock is greater than that of SML, the investor should select the stock to invest and vice-versa. In this section of analysis, the required rate of return is calculated and compared with the expected return, which is calculated earlier.

Table 4.1.6 Table showing the required rate of return (RRR) of all sixteen samples.

S.No.	Sample	Required rate of return= $E(R_j) = R_f + [E(R_j) - R_f]\mathsf{s}_j$	
1.	NABIL	5.14+11.53*1.73	25.09
2.	KBL	5.14+11.53*0.8	14.36
3.	SCBL	5.14+11.53*-0.75	-3.51
4.	NSBI	5.14+11.53*1.05	28.08

The table shows both returns: the required rate of return and the expected return. The RRR on the stock of NABIL is 25.09% while the expected return from it, is 26.40%. The expected return is above the RRR. Investors can invest in the stock of NABIL as it is offering higher rate than the market actually needs. The stock of KBL has for better position. The market/investor requires 28.08% and it is expected to offer 58.24%. The expected return is more than two times than the required return. All the stocks of banking sector follow this trend- higher expected return than require return.

The typical case is however of NSBI. The RRR on the stock of NSBI is –3.50% and the stock in reality offering a rate of 43.06%. The movement of stock of NSBI is typically opposite than market. This factor makes it quite attractive for a portfolio creation. All four selected banks have more return than the market wants from these securities. This in one of the reason why investor always wants to invest in the stock of banking sector.

A comparisons figure is presented below.

Figure 4.1.12 figure showing the expected rate of return and required rate of return for all selected samples during the period of study.
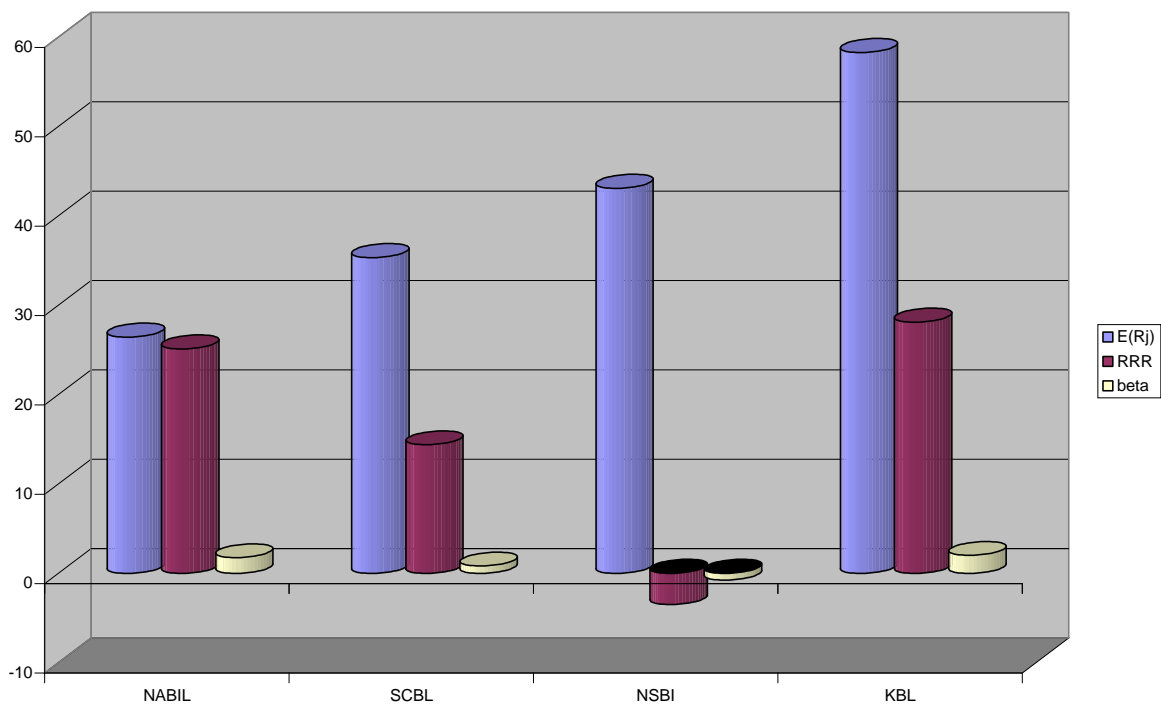
For any rational investment, the expected return should be more than the required rate of return. Two companies among sixteen has negative difference between these two 'benchmark' rate. Any rate less than required rate of return should not be entertained by the investors.

4.1.7 Major Findings of the study:

a. The major findings of this part of the study is given below:

b. The banking sector is preferable to investors.

c. Portfolio is appropriate for diversify the risk.

d. Negative degree of correlation or negative covariance can reduce the risk significantly.

e. Positive degree of correlation (or positive covariance) is not effective while making a portfolio investment.

f. As the number of stock increases in a portfolio, the risk will be lowered. However again the degree of correlation matters for this effect.

CHAPTER – V

SUMMARY; COCLUSION AND RECOMMENDATION

5.1　Summary

Very few people in Nepal know about stock market and about financial securities like common stocks, debentures, T-bills, convertibles, options etc. The history of issuing and trading of stocks is not so long. In 1937, the stock of Biratnagar Jute Mills and Nepal Bank Limited were floated. However the government established the securities Marketing Center in 1036, to help to raise capital for public limited companies. After the restoration of democracy in 1050, the government rapidly reformed the close market to open market. In that process, the then 'Securities Exchange Center' was converted into Nepal stock exchange in 1053. Nepal stock exchange opened its tracing floor on 13th January 1054. The financial securities are traded in the floor of NEPSE. Despite the history of 11 years of share trading in NEPSE, very few people know about the NEPSE and the people knowing how, when and where to buy /sell securities are even less in number. But people invest in shares of banks, finance companies, insurance companies, hotels, manufacturing companies with a hope of getting return from their investment.

But risk is always there. Risk and return are complementary to each other. The return from an investment is the realizable cash flows earned by its owner during a given period of time. On the other hard, risk in the possibility that the actual return from an investment will differ from the expected return. It is generally believed that higher the return, high will be the risk. This belief is found to be true in chapter-IV of this study. However, risk can be reduced to a significant level. A creation of portfolio investment helps the investor to reduce risk of their investment. The meaning of

portfolio is collection of securities. A portfolio may contain bonds, preferred stocks and common stocks of various types of enterprises. Since a rational investor always dislikes risk, the creation of portfolio is the key to avoid such 'dislikes'. It is found that collections of fifteen securities can diversity the 'unsystematic' portion of risk. The literature is also attempted to test and found to be correct. As the number of stock increases in a portfolio, the risk, commonly measured by standard deviation, shall decrease. To diversity the risk, one should be careful to select the securities. The point of carefulness is related to covariance or degree of correlation between or among the securities selected for creation of portfolio. To minimize risk, negative covariance/degree of correlation should be preferred between or among the securities of the portfolio. Negative covariance or negative degree of correlation between or among securities always reduces the risk significantly.

This hypothesis is also tested and found to be correct. The diversification effect created by portfolio is subject to the unsystematic/ divestible risk of each securities of the portfolio. A portfolio cannot reduce the systematic/undiversifiable risk of each security. These risks are due to external factor and are permanent nature. These risks are measured by beta. Because investors do not like risk, lower beta is preferred.

The expected return of a security is compared with the required rate of return. The expected return should always higher than required rate of return to perform any rational investment decision. The required rate of return is one of the main features of capital assets pricing model (CAPM), a milestone work, worked by William F. Sharpe.

This study has been carried out with a view to analyze the risk and return of sixteen selected samples from leading industries sector of Nepal. There are five chapters in this study viz. Introduction, Review of Literature, Research Methodology, Data Presentation and Analysis, and summary, Conclusion and Recommendation.

The first chapter dealt with background, focus of the study, statement of the problem, objective of the study, significance of the study and limitations of the study.

In the second chapter, the relevant and pertinent literature on the subject is reviewed.

The third chapter explains about the research methodology. It is the way to conduct such type of research study. This chapter consists of research design, population and sample, sources of data, data collection techniques, data analysis tools, limitations of the methodology and review of related studies.

The fourth and the important chapter analyze, interpret and present of necessary data by using various statistical and financial tools. Many tables and graphs are used in this chapter so that presentations can be made easy to understand.

The last chapter is the summary, conclusion & recommendation of the study. It presents the summary, conclusion by point and gives recommendation for all concerned people, organization and company.

5.2   Conclusion

The conclusion of the study is as follows:

a. The year 2006 was very prosperous in terms of market return, market price of share and return on stock.

b. In banking sector, KBL has the highest return of 58.24%

c. In banking sector, the coefficient of variance of SCBL is the lowest with 0.0442.

d. In banking sector, standard deviation and variance of KBL is the highest with 72.53% and 5260.39 respectively.

e. The coefficient of variance of NABIL is the highest with 2.27.

f. From the point of principle of dominance, the stock of SCBL and HBL dominate other four stock in terms of risk and return.

g. The creation of portfolio can diversify the risk

h. The covariance and coefficient of correlation is key for a good portfolio.

i. Negatively correlated stocks can diversify the risk.

j. More and more stocks in a portfolio safeguard the investors' preference towards low risk.

k. The creation of portfolio reduces only unsystematic risk of stock. The systematic risk of stock is permanent and cannot be reduced by any means an investor has. The systematic risk is represented by beta of the stock. Since the unsystematic risk can be reduced by the creation of portfolio, the investors' concern is for the systematic risk. Systematic risks are there due to external conditions on which investor can do nothing.

l. From the point of view of systematic risk, the stock of KBL with 1.05 of beta is the highest among the banking sector.

m. The lowest beta among all samples is -0.75 of NSBI. The negative beta is very uncommon but very useful for a portfolio of stock.

n. As investors' have a certain required rate of return, so the market. The required rate of return (CAPM) for any stock can be found by using the equation of SML. A careful comparison between the expected return and required rate of return is needed for a rational investment.

o. Investors always want their money to earm more and more return. A gambling in stock market makes many people penniless. However, a careful study and analyze can always ensure the return is sure for any investment. The prospectus of the company, the risk free rate of return, the nature of industries can be analyzed by the statistics published by various sources. However, the return, covariance, beta, required rate of return is hard to find for each investment because there is no published data in this regard, as it happens in developed countries. The selecting of good stock and a better portfolio will always ensure the best return for an investment, a gambling is not taken for sure of a good return.

p. Investors are very passive to trade their stocks. Whatever the price of stock, they tend to hold it for long period without knowing the reason to hold such a long period. The frequency of trading is very low among investors.

5.3 Recommendation:

- Any investment in stock market should be done only after careful examination of each stock's price, the trend of increment/decrement in stock's price, the effect of dividend, bonus share and the prospectus of the company. Return from a stock consists of capital gain yield and dividend yield. The rate of dividend is also important before selecting a stock for investment.

- Investors should always try to minimize risk and every effort should be made to do so.

- The stock of banking sector is lucrative in terms of risk and return. Thus, investors are advised to invest more in banking sector rather than other sector of industries.

- It is advised that investors should select negatively correlated stock, while they create portfolio investment. In this study, the stock of NSBI is negatively correlated with other stocks.

- A highly positive covaried stock should be avoided to create a portfolio investment. The study showed that a single security investment is better than the portfolio of two stocks with high positive covariance between them.

- A company should be concerned with the stock price of its own share. A listed company must regularly monitors the movement of stock price in market and if it is falling necessary steps should be taken in time to

know the reasons and prevent the price of stock falling more. Since investors judge a company by its dividend payout policy also, company should be care more in this regard and if it is possible, dividend should be declared regularly. The company should also explain the shareholders why it does not declare any dividend, in case of non-payment of dividend.

- To create a portfolio of stocks, it is always better to diversity a cross industries.

- Many companies are found to be late to disclose their financial statement to the public and to submit it to the Nepal stock exchange. Such activities may mislead the investors' beliefs toward the company. The governing body should discourage the lately disclose and submission of financial statement by a company.

- The stock market should make every efforts to inform people about the trading of stock, where and how of stock trading should be informed the people so that people can easily trade their stock at their desire.

- People widely perceive the market price of stock as a reflector of financial position of a company. The higher the market price of stock, the better is the position of a company from the point of investor. Thus, the company should make every effort to increase the MPs. A regular dividend payment, timely disclosure of financial statement as well dischargement of social responsibilities is some of good steps for the

good effect on stock price. However, a company's own way of functioning and operating are the main point regarding the effect on stock price.

- The KBL seems poor on declaring dividend.

- The index of stock market is commonly related to the economy of a nation. The overall development of economy has positive impact on stock market and vice versa. Hence, it is necessary to make every effort, form government to private sector to individual participant, to regulate the stock market in good and proper manner.

BIBLIOGRAPHY

Bastola, S. (2003), *Stock Market in Nepal,* Unpublished Master's Thesis, Post-Graduate Campus, Biratnagar.

Bhatta, B.P., *Dynamics of Stock Market,* Unpublished Master's Thesis, Central Department of Management, Tribhuvan University.

Bierman Jr, H. & Smidt, S. (1986), *Financial Management for Decision Making,* McMillan Publishing Company.

Brealey, R.A. & Mayers, S.C. (1998), *Principals of Corporate Finance,* 6/e, Prentice-Hall India Pvt. Ltd.

Brigham, E.F. & Weston, J.F. (1981), *Managerial Finance,* 7/e, The Dryden Press.

Brigham, E.F. (1980), *Fundamentals of Financial Management,* 2/e, The Dryden Press.

Chandra, P. (1995), *The investmeent Game,* 6/e, Tata McGraw-Hill India.

Christy, G.A. & Clendenin, J.C. (1985). *Introduction to Investment,* 6/e McGraw Hill.

Clarkson, G.P.E. (1965), *Portfolio Selection: A Simulation of Trust Investment,* Prentice-Hall, Inc., Englewood Cliffs, N.J.

Copeland, T.E. & Weston, J.F. (1992), *Managerial Finance,* 9/e, The Dryden Press.

Dobbins, R. (1986), *Investment Decisions & Financial Strategy,* Heritage Publishers, New Delhi.

Dulal, U. (2002), *Risk and Return Analysis of Nepalese Companies,* Unpublished Master's thesis, Post-Graduate Campus, Biratnagar

Fischer, D.E. & Jordan, R.J. (1993), *Security Analysis & Portfolio Management*, 5/e, Prentice Hall of India.

Fisher, D.E., Jordan, R.j. (1990), *Security Analysis and Portfolio Management,* EEB 4/e.

Fischer, D.E. & Jordan, R.J. (1974), *Security Analysis & Portfolio Management,* 5/e, Prentice-Hall of India Pvt. Ltd.

Francis, J.C. (1983), *Management of Investment,* McGraw-Hill International Book Company.

Gitman, L.G. (2001), *Principles of Managerial Finance,* 3/e, Harper & Row Publisher, New York.

Haley, C.W. & Schall, C.D. (1979), *The Theory of Financial Decisions,* 2/e, McGraw-Hill International Book Company.

Hampton, J.J. (1994), *Financial Decision Making Concepts, problems and cases,* 4/e, Prentice-Hall of India Private Limited.

Haugen, R.A. (1998) *Modern Investment Theory,* 4/e, Prentice Hall, International Inc.

Henderson Jr, G.V., Trennepolh, G.L. & Wert, J.E. (1984), *An Introduction to Financial Management,* Addison-Wesley Publishing Company.

Joshi, M.R. (1996), *Securities Market in Nepal with Special Reference to Nepal Stock Exchange,* Banijya Sansar, Issu 9, Vol. 16, Central Department of Management.

Khan, M.Y. & Jain, P.K. (1988). *Financial Management,* Tata McGraw-Hill Publishing Company Limited.

Khatiwada, M. (1995), *Securities Investment in Nepal,* Unpublished Master's Thesis, Central Department of Management, Tribhuvan University.

Kolb, R.W. (1991). *The Investment Reader,* Kolb Publishing Company Inc.

Levi, M.D. (1991), *International Finance,* 3/e, McGraw Hill Inc.

Lewis, C.W. & Peterson C, *Managerial Economics,* 3/e, Prentice Hall of India Pvt. Ltd.

Mahat, R.S. (1981) *Capital Market, Financial Flow & Industrial Finance in Nepal,* Sajha Prakashan.

Moshin, M.& Khan, M.A. (1980), *Corporation Finance,* Tata McGraw-Hill Publishing Company Limited.

Page, C.S. & Canaway, E.E. (1980) *Finance for Management,* Heinemann:London.

Pandey, I.M. (1997). *Financial Management* 7/e, Visas Publishing House Pvt. Ltd.

Prakinson, D. (1979), *Finance,* Blandform Press.

Pradhan, R.S. (1993), *Stock Market Behavior in a small capital market: A Case Study of Nepal,* The Nepalese Management Review.

Ross, S.A., Westerfield, R.W. & Jeffrey, F.J. (1993), *Corporate Finance,* 3/e, Richard D. Irwin Inc.

Sapkota, J.B. (2000), *Risk and Return of Commercial Bank in Nepal,* Unpublished Master's Thesis, Central Department of Management, Tribhuvan University.

Sharpe, W.F., Alexander, J.V. & Bailey, J.V. (1998). *Investment,* 5/e Prentice-Hall of India Private Limited.

Shrestha, M.K. (1980), *Financial Management,* Curruculum Development Centre, Tribhuvan University.

Solomon, E. & Pringle, J.J. (1978), *An Introduction to Financial Managment,* Prentice-Hall of India Pvt. Ltd.

Sprecher, S.R. (1978), *Essentials of Investments,* Boston Houghton.

Miffin, Stevenson, R.A. (1981), *Fundamentals of Finance.* McGraw Hill International Book Company.

Van Horne, J.C. (2000), *Financial Management & Policy,* 11/e, Prentice-Hall of India Private Limited.

Van Horne, J.C. & Wachowicz Jr., J.M. (2000), *Fundamentals of Financial Management,* 10/e, Prentice-Hall of India Private Limited.

Nepal Stock Exchange, Website, www.nepalstock.com.

Publications:

Annual Trading Report (Various issues), NEPSE.

Economic Reports (Various issues), MOF/N, Kathmandu.

Economic Survey (Various issues), MOF/N, Kathmandu.

Monthly Market Report (Various issues), NEPSE.

		Audited	Audited	Audited	Audited
Nepal Stock Exchange Ltd.					
Singhdubar Plaza, Kathmandu					
Some Key Figures of B/S And P/L Account with brief financial indicator					
of NABIL Bank Ltd					
		Audited	Audited	Audited	Audited
		2061/62	2062/63	2063/64	2064/65
		2004/2005	2005/2006	2006/2007	2007/08
Brief Financial Indicators					
	Networth Per Share	337.16	381.36	418.39	353.62
	Earning Per Share	105.79	129.21	137.08	108.31
	Dividend Per share	30	50	55	40
	NPA %	0.00%	0.00%	0.00%	0.00%
	Earning Yield	31.38%	33.88%	32.76%	30.63%
	Price Earning Ratio (In case of old co)	14.23	17.34	36.84	48.7
	Market Price	430	706	1406	1506
		Rs. In Million	Rs. In Million	Rs. In Million	Rs. In Million
Capital Structure					
	Authorised Capital	500	500	500	1600
	Issued Capital	491.65	491.65	491.65	689.22
Liabilities					
	Issued and Paid up capital	491.65	491.65	491.65	689.22
	Reserve & Surplus	1165.98	1383.34	1565.4	1747.98
	Debenture	0	0	0	240
	Borrwoings	17.06	173.2	882.57	1360
	Deposits	14586.61	19347.4	23342.29	31915.05
	Others	802.77	934.38	971.49	1180.51
	Total	17,064.08	22,329.97	27,253.39	37,132.76
Assets					
	Cash & Bank Balance	536.06	556.18	1383.82	2340.9
	Investment	5167.28	7987.5	9524.85	12222.38
	Loan, advances & overdraft	10586.17	12922.54	15545.78	21365.05
	Fixed Assets	361.24	319.09	286.9	598.04
	Others	413.34	544.67	512.05	606.39
	Total	17064.08	22329.97	27253.39	37132.76

Profit and Loss Account				
Interest Income	1068.75	1310	1587.76	1978.7
Other operating income	369.7	406.68	448.11	450.17
Non operating income (Net)	45.56	34.54	56.94	75.18
Total Income	1484.01	1751.21	2092.81	2504.04
Expenditures:				
Interest Expenses	243.54	357.16	555.71	758.44
Overhead Expenses(Employees)	199.52	219.78	240.16	262.91
Operating expenses(office mgmt)	190.3	182.7	188.18	220.75
Loan loss provision	8.66	3.77	14.21	64.06
Provision for bonus	84.2	89.8	99.5	108.9
Others				
Total Expenditure	726.22	853.21	1097.77	1415.05
Profit before tax	757.79	898	995.05	1088.99
Tax provision	237.67	262.74	321.09	342.52
Net profit after tax	520.11	635.26	673.96	746.47

		Audited	Audited	Audited	Audited
		2061/62	2062/63	2063/64	2064/65
		2004/2005	2005/2006	2006/2007	2007/08
Brief Financial Indicators					
	Networth Per Share	422.38	468.22	512.12	401.52
	Earning Per Share	143.14	175.84	167.37	131.92
	Dividend Per share	70	80	106	106
	NPA %	0.00%	0.00%	0.00%	0.00%
	Earning Yield	15.43	9.11	5.82	5.92
	Price Earning Ratio (In case of old co)	16.38	21.47	35.25	51.77
	Market Price	840	1162	1985	2144
	Current Market Price (12-1-09)				
		Rs. In Million	Rs. In Million	Rs. In Million	Rs. In Million
Capital Structure					
	Authorised Capital	1000	1000	1000	1000
	Issued Capital	500	500	500	620.78
Liabilities					
	Issued and Paid up capital	374.64	374.64	413.25	620.78
	Reserve & Surplus	1207.78	1379.5	1703.1	1871.76
	Dbenture	0	0	0	0
	Borrowings	27.55	0	400	0
	Deposits	19363.47	23061.03	24647.02	29744
	Others	808.24	952.18	1433.32	1099.24
	Total	21,781.68	25,767.35	28,596.69	33,335.79
Assets					

Singhdubar Plaza, Kathmandu

Some Key Figures of B/S And P/L Account with brief financial indicator

of Standard Chartered Bank Ltd

Cash & Bank Balance	1111.12	1276.24	2021.02	2050.24
Investment	11962.24	14815.83	15314.38	16100.36
Loan, advances & overdraft	8143.21	8935.42	10502.64	13718.6
Fixed Assets	71.41	101.3	125.59	117.27
Others	493.7	638.56	633.06	1349.32
Total	21781.68	25767.35	28596.69	33335.79
Profit and Loss Account				
Interest Income	1058.68	1189.6	1411.98	1591.2
Other operating income	480.99	531.84	559.08	654.68
Non operating income (Net)	34.25	52.11	24.74	64.28
Total Income	1573.92	1773.56	1995.8	2310.15
Expenditures:				
Interest Expenses	254.13	303.2	413.06	471.73
Overhead Expenses(Employees)	148.59	168.23	199.78	225.26
Operating expenses(office mgmt)	256.65	221.09	228.45	230.57
Loan loss provision	27.73	47.73	36.81	69.89
Provision for bonus	88.68	93.94	101.61	119.34
Others				
Total Expenditure	775.77	834.18	979.7	1116.78
Profit before tax	798.15	939.37	1016.1	1193.37
Tax provision	261.9	280.62	324.43	374.45
Net profit after tax	536.24	658.76	691.67	818.92

		Nepal Stock Exchange Ltd.			

		Singhdubar Plaza, Kathmandu			

		Some Key Figures of B/S And P/L Account with brief financial indicator			
		of Nepal SBI Bank Ltd			

		Audited	Audited	Audited	Unaudited
		2061/62	2062/63	2063/64	2064/65
		2004/2005	2005/2006	2006/2007	2007/08
Brief Financial Indicators					
	Networth Per Share	159.54	153.44	179.58	133.02
	Earning Per Share	13.29	18.27	39.35	29.17
	Dividend Per share	0	15	0	0
	NPA %	0.12%	0.32%	0.04%	0.05%
	Earning Yield	11.18	2.49	7.43	0.58
	Price Earning Ratio (In case of old co)	25.21	33.49	29.89	51.8
	Market Price	184	407	40	750
		Rs. In Million	Rs. In Million	Rs. In Million	Rs. In Million
Capital Structure					
	Authorised Capital	1000	1000	1000	1000
	Issued Capital	650	650	650	650
Liabilities					
	Issued and Paid up capital	431.87	640.24	647.8	874.53
	Reserve & Surplus	257.15	342.14	515.49	288.76
	Debenture	0	200	200	200
	Borrwoings	469.63	612.43	815.37	1627.48
	Deposits	8654.77	11002.04	11445.29	13715.4
	Others	149.61	239	277.26	1660.69
	Total	9,963.02	13,035.84	13,901.20	18,366.86
Assets					
	Cash & Bank Balance	533.78	870.31	844.21	1347.57
	Investment	2920.76	4221.82	3287.93	3450.97
	Loan, advances & overdraft	6213.88	7626.74	9460.45	12742.53
	Fixed Assets	66.45	66.71	97.22	120.21
	Others	228.15	250.26	211.39	705.58
	Total	9963.02	13035.84	13901.2	18366.86
Profit and Loss Account					

	Interest Income	578.37	708.72	831.12	966.91
	Other operating income	86.2	90.95	114.66	122.46
	Non operating income (Net)	54.42	51.25	78.26	27.77
	Total Income	718.99	850.92	1024.03	1117.14
Expenditures:					
	Interest Expenses	258.43	334.77	412.26	454.92
	Overhead Expenses(Employees)	37.58	50.54	53.23	74.72
	Operating expenses(office mgmt)	90.63	99.21	120.11	152.57
	Loan loss provision	193.24	146.66	59.38	39.45
	Provision for bonus	13.91	19.98	34.46	35.95
	Others				
	Total Expenditure	593.79	651.16	679.44	757.61
	Profit before tax	125.19	199.76	344.59	359.54
	Tax provision	67.81	82.76	89.68	104.42
	Net profit after tax	57.39	117	254.91	255.12

	Nepal Stock Exchange Ltd.			
	Singhdubar Plaza, Kathmandu			
	Some Key Figures of B/S And P/L Account with brief financial indicator			
	of Kumari Bank Ltd			
		Audited	Audited	Audited	Unaudited
		2061/62	2062/63	2063/64	2064/65
		2004/2005	2005/2006	2006/2007	2007/08
Brief Financial Indicators					
	Networth Per Share	128.35	138.22	136.75	128.6
	Earning Per Share	16.84	16.59	22.7	16.86
	Dividend Per share	0	0	0	0
	NPA %	0.00%	0.05%	0.03%	0.03%
	Earning Yield	13.12%	12.00%	16.60%	13.11%
	Price Earning Ratio (In case of old co)	21.91	26.71	36.56	59.62
	Market Price	369	443	830	1005
	Current Market Price (28-07-08)				962
		Rs. In Million	Rs. In Million	Rs. In Million	Rs. In Million
Capital Structure					
	Authorised Capital	1000	1000	1000	1000
	Issued Capital	500	625	750	750
Liabilities					
	Issued and Paid up capital	500	625	750	1070
	Reserve & Surplus	141.76	238.85	275.63	306
	Debenture	0	0	0	400
	Borrwoings	401.76	251.4	212.97	100
	Deposits	6268.95	7768.96	10557.42	12778.16
	Others	115.82	126.07	122.29	375.92
	Total	7,428.30	9,010.28	11,918.31	15,030.08
Assets					
	Cash & Bank Balance	331.08	346.35	575.59	933.84
	Investment	1392.56	1583.23	2147.15	2194.16
	Loan, advances & overdraft	5584.64	6891.86	8929.01	11338.73
	Fixed Assets	82.98	91.93	189.32	221.88
	Others	37.04	96.91	77.23	341.47
	Total	7428.3	9010.28	11918.31	15030.08

Profit and Loss Account				
Interest Income	499.92	605.53	791.28	962.76
Other operating income	40.68	62.66	76.34	97.1
Non operating income (Net)	0.01	5.08	6.12	18.69
Total Income	540.6	673.26	873.74	1078.55
Expenditures:				
Interest Expenses	240.13	337.06	397.05	498.78
Overhead Expenses(Employees)	42.4	59.82	74.24	89.53
Operating expenses(office mgmt,)	71.81	88.68	104.08	135.37
Loan loss provision	47.4	25.87	24.95	65.23
Provision for bonus	13.89	14.71	24.86	26.33
Others				
Total Expenditure	415.62	526.14	625.18	815.24
Profit before tax	124.98	147.12	248.56	263.32
Tax provision	40.78	43.45	78.3	82.95
Net profit after tax (PAT)	84.2	103.67	170.26	180.37