CHAPTER - I

INTRODUCTION

1.1 Background

Development is the process through which the people march forward according to the needs of the time, and situation. No of people, family, village and community or the nation remain the same at all the time, changes take place all the time.

So a country's development is determined by its agriculture transportation communication and trade and commerce etc.

Nepal is a developing country. |Its economy is agro-based economy. Because of about 80% people depend on agriculture and left on other sector. So, financial institutions play a vital role for the economic growth, and the development of the country. Financial institutions help to promote trade and industry and influence the economic activities. They help to uproot the poverty by creating employment opportunities. It aids to raise funds and also to raise the standard of the people of the country. Therefore, we can say that they are the essential requirement of the every economy in the context of the present century, including Nepal.

In Nepal, the financial transactions were operated from ancient time. Now a day, we can find the personal lending everywhere, which is the one of the ancient form of financial transaction in Nepal. In context of Nepal, after many years modern financial institution were established. The first commercial bank was established in B.S. 1994 named as "Nepal Bank Ltd." Thereafter, in B.S. 2013, "Nepal Rastra Bank was established as the central bank of Nepal.

But commercial banks were not enough to handle the economic activities of the country. Consequently, therefore, " Rastriya Banijya Bank" was established in B.S. 2040 under the full ownership of the government. And the joint venture also allowed from the same year. NABIL bank was the first established joint venture bank of Nepal. Now there are nineteen commercial banks in Nepal, who are providing their financial support to promote the financial activities to the different sectors.

The financial institution not only includes the banks but also different financial companies and co-operative institutions. How ever, the present study and thesis work is going to be done only one the commercial banks of Nepal, which are regarded as 'A' Graded financial Institution as per Banks and Financial Institution Ordinance 2061. These commercial banks provide services to the investors, traders, business men, government and other individual. They help to such parties to invest in production sectors, which help to develop the country.s

Today, a financial institution has to accept all the challenges which are lie in competitive environment. It has to evaluating their risk and returns position and compare it with other competitors to make its positions in the market.

1.2 Focus of the study

Today, these financial institutions have become essential parts of the economy. They are known as the pillar of the development of the country's economy. In financial institutions, various kinds of decisions have to take .e.g. deposits, acceptances, enhancing loan and other investment decision. When there is the matter of investment, two fundamental aspects risk and return are associated with it. Since an investor always analysis risk and return before he is ready to invest his capital. The study is focused on the risk and

return analysis of the selected financial institution. Hence, Risk is defined variously by the investors. Some investors, they perceive it as a fluctuation of the M.P. of the investment, while other considers it as and uncertainty of return. The risk can be categorized into two parts as Diversifiable and None Diversifiable risk.

The risk which can be totally eliminated is known as diversifiable risk and which can not be eliminated is known as Non-Diversifiable risk. Same way, investors are also categorized into two parts; Risk seeker and Risk averter. The investor who prefers the higher risk known as Risk seeker. And the investor who prefers less risky investment is known as Risk averter.

Similarly, the return is generally meant as a reward in form of cash after investing. The term return has different meaning to different investors. Some investors they regard it as high growth rate of return in long term investment. And other regards it as short term cash inflow. Thus, it is cleared that the study is focused on the analysis of Risk and Return of the selected A graded financial institutions of Nepal are; NABIL, BOK, NSBIL, SCBNL, AND NIBL using the five years data.

1.3 Statement of the problem

The development of the country depends on the development of the trade and commerce. And it is possible only when there is smooth operation of financial institutions as well as their financial activities. In case of worst operation of such financial activities leads to the creation of the serious problems to the financial condition of the economy.

Therefore, the present study is especially focused on the analysis and interprets the risk and return position of the each institution. This analysis will help the investor to select the best investment alternative and as well as the financial institution for the financial

investment. In this study, the questions related to the financial institution are as below:

- What is the risk return position of each selected financial institution?
- What is the degree of correlation between the risk and return of each selected financial institution?
- What are the rates of return of each selected ones?
- What is the trend of return?
- How much is the risk associated with the return?
- Which financial institution is the best among the selected ones of the study?
- What is the risk-return position of each selected 'A' graded financial institution?

1.4 Objective of the study

Each study has its own objective is that point where the research work is completed, or we can say that a researcher stops his/her effort at the gain of objectives. The main objective of this study is to analysis, interpret and examine the Risk and Return position of 'A' graded financial institution of Nepal. This objective can be gained using various essential tools and techniques in the study. The objectives of this study are as below:

- To evaluate the degree of attractiveness of the financial institution in term of risk and return.
- To identify the risk and return position of the financial institution.
- To know the trend of return of each selected 'A' graded financial institution.
- To identify the nature of risk and return.

- To test the statistical significance of the calculate ratios.
- To use different statistical; tools and technical to find the position of risk and return.
- To make relevant suggestion and recommendation regarding the risk and return position of the selected 'A' graded institutions.

1.5 Significance of the study

This research work is going to be done on the risk and return analysis of the 'A' graded financial institution, as per Bank and financial institution ordinance 2061 of Nepal. It is one of the important and very interested topics for all types of investors as stock holders who want to know the financial position (Risk and Return) position of the financial institution, where they want to invest their wealth. The investors are very curious and interested to know the risk and return position of the financial institution. Therefore, this study has significance role to all the people in various ways for the various purposes, which can be listed below:

To the management:

For the good management, a organization should be in good financial position.

Therefore, manger always tries and interested to know the financial position of his/her organization. This topic means this analysis is also a relevant subject matter for the manager. Because, it helps to find the degree of tolerance of the risk under a given return.

To the stakeholders

The stockholders are the real owner of the organization. They invest their huge amount of wealth. So, they always try and interested to know the financial condition of their organization. They

are not only the return owner but also risk bearer. This study helps them to known the position of their organization.

To the business

A business always seeks to such financial institutions which help them in their financial transaction and who are reliable. For this, this study help those to know which financial institutions are in good position by anglicizing risk and return of such institutions.

To the government

Government of the country always interested to know the financial condition of those institutions that has a great role in the development of the country. This study helps the government to know the risk and return position of such financial institutions.

To other |Individual

Apart from the above parties, this study is also important to other individuals like customers, creditors, investors, competitors, brokers, students, economists etc

1.6. Variables of the study

There are various variables used in the study. The research work depends upon such variables that care used to interpret and analysis the data. They are very important for the research work because the relationship between data is established through the variables and by testing on such variables. They are very required factors or contexts of the study. They are listed below:

- Gross profit to Operating Income Ratio[GPR]
- Return on Operating Income Ratio[NPR]
- Return on Equity[ROE]
- Earning Yield[EY]

- Dividend Yield[DY]
- Standard Deviation [$\pm$]
- Return On Assets[ROA]
- Mean[$\overline{X}$]
- Coefficient of Variation[CV]

1.7. Research Hypothesis

Hypothesis is an assumption made about a population parameter for which the test is carried out. It is a statement which if proved becomes a theory. Each test contains two hypotheses; One being null hypothesis, and similarly, two tests are there, T-test and F-test.

Null hypothesis indicates a definitive, exact relationshi9p between two variables. i.e. it states that there is no co-relation between two variables or the difference between group or variables is equal to zero. Where as, alternative hypothesis, which is opposites of the null, is a statement expressing a relationship between two variables or indicating difference between to variables or groups.

1. Hypothesis applied for the T-test

H_o: There is no significant correlations between the risk and return, express as the mean return of the selected institutions under the study. (It means there is no difference between risk and return)

H_A: There is significant co-relationship between the risk and return expressed as the mean return of the selected institutions under the study. (It means there is difference between risk and return)

2. Hypothesis applied for the F-test

H_o: There is no significant difference among the mean values of profitability ratios of the selected institutions under study.

$H_{A:}$ There is significant difference between the mean values of profitability ratio of the selected institution under the study.

1.8. Limitation of the study

A research work is done to get the dept of the fact. But the researcher has to face different limitation which is lie behind of the research works. Some of them are as below:

- The study covers a period of 5 years only.
- The study is based on the secondary data derived from the NSE website *WWW.nepalstock.com.np* and assumed as true.
- The research is mainly based on the data taken from the NSE website *WWW.nepalstock.com.np* and which are given in appropriate form.
- The study is confined 5 among the nineteen 'A' graded financial institutions.
- The study has been completed under the given time period and cost according to the given format by faculty of management.
- Various financial and statistical tools and techniques are used as mean, SD, coefficient of variation etc.
- The finding of the result may not always be true in future.

1.9. Scheme of the study

The frame work or the structure of the study is known as scheme of the study. The present study on selected financial institutions has been organized into five chapters are as follow:

Introduction

It is the main part of the study in which whole study of the related topic is lie. It includes focus of the study statement of the problem, objective of the study, significance of the study, variable of the study, research hypothesis, limitations of the study and scheme of the study.

Review of Literature

Under these past findings, theoretical framework and review of related studies are presented.

Research Methodology

Under this, research design, population and sample, nature and type of data, sources of data, data collection procedure, data processing procedure technique of analysis and analytical tools applied in the study are included.

Data presentation and Analysis

Under this all the required and related data are presented in the either in tabular form or in the graphical form as per the requirement of the study. And interpretation and analysis of such data, presentation is done.

Summary, Conclusion and Recommendation

Under this part, the summary, conclusion and recommendation are included. After summary, conclusions are derived on the basis of the interpretation of the data. Finally, the recommendation are made and given on the basis of conclusions which are required for everyone who are related to this study.

CHAPTER - II

REVIEW OF LITERATURE

Introduction

Financial institutions are the requirement of each and every economy of the country. They are known as the pillar of the development of the country's development. Even they are known as the pillar of the development, these financial institutions are in need to be in good conditions. There are two aspects risk and return are associated with these financial institutions, which should be evaluated equally and properly. Under this study of such financial institutions, the Review of Literature is an essential part of the study. |It helps to discover that what other research has done to solve the problem related to this study. It provides the foundation for development of comprehensive theoretical framework to develop hypothesis for the testing.

So this review of literature means that what research studies and work has done and what remains to be done. The review of literature has classified into three categories. At first is definition and secondly theoretical framework and last is Review of the previous related study.

2.2 Definition And Theoretical Framework

Under this study various terms are used which should be defined properly. It helps to clear the theme of the study. This helps to make the study more meaningful and very easy to understand the problem of the study.

2.2.1 Risk

Risk is uncertainty. It is the chance of happening unfavorable events. In our daily life everyone faces the risk. It is the probability of occurring some unfavorable events or situation. Different persons perceive the risk in different way and they define the risk differently. In real world no one is able to predict the future. Therefore, every investment has some risk. Some of them are less risky investment and some are higher risky investment. Some investors consider it as variable of return from those that are expected. Where as some consider it as the fluctuation in the M.P. of the stock of the investment.

“Risk can be defined as a financial loss or more formally the variability of returns associated with a given assets.”

It is the measure of uncertainty about the outcomes from a given event. The greater the possible of outcomes will be the possibility if greater risk. There is some variability of outcomes. For some investment this variability can be small and for some investment this variability can be high.

In this way, risk is expressed in different ways. Only the terms or definitions used by the people are different but the meaning is same.

Thus it is expressed in different ways by the people according to their perception and experience.

2.2.1.1 Measurement of Risk

When analyzing investment, analysis define risk as “variability of return” Thus, the wider the probability distribution or returns, the riskier the investment. It might seem more logical to measure risk buy the area in a probability distribution that lies below the expected return. Risk is referred to a situation where the probability distribution or the cash flow on investment proposal is known.

Probability Allotment

The word ‘probability’ is the synonym of the words “most likely” “probably”, “Chance” which may consciously or unconsciously use in our daily life. A numerical measure of uncertainty is provided by a very important branch of statistics known as the “Theory of Probability.” This theory was originated by a gambler Chevalies De Mere in 17th century, had its beg8ining with games of chance such as throwing a dice, tossing of a coin, drawing card and so on. But nowadays it has wide application in economics, business, and social science and even in our daily life too.

In a probability distribution consists of some estimation. In an investment also probability can be used. Either there may be the probability of good return or the probability of loss. In this study, there are three terms through which we measure the risk are as below:

A. Standard Deviation[$\pm$]

B. Coefficient of variation{CV}

C. Variance[$\pm^2$]

A. Standard Deviation [$\pm$]

S.D. is the absolute measure of risk. It is absolute measure of dispersion in which the drawbacks present in other measure of dispersion are removed.

SD is defined as the positive square root of the mean of the square of the deviations taken from the arithmetic mean. It is denoted by [$\pm$]

SD is commonly used to measure of risk, SD measures the variance root about the expected rate of return of each of the possible rate of returns. The smaller or lower the SD will be risk ness

of an investment .Actually it is a measure that indicates the degree of uncertainty of a return and is one important measure of risk. Smaller the SD, lower the risk, higher SD, higher the risk.

Symbolically

$$\pm = \sqrt{\sum_{t=1}^{T} P_t (r_t - \bar{r}\ )^2}$$

Where,

r_t =Rate of return

$\bar{r}$ =Expected rate of return

p_t =Probability

B. Coefficient of Variation

Coefficient of variation is known as relative measure of risk. Actually S.D. is the dispersion.

The relative measure of dispersion based on the S.D. is known as the coefficient of SD. It is denoted by,

Coefficient of SD $= \frac{SD}{\bar{x}} = \frac{\pm}{\bar{x}}$

But when the coefficient of dispersion based on SD multiplied by 100 is known as the coefficient of variation (CV) CV measures the risk per unit.

Mathematically,

$$CV = \frac{\pm}{\bar{x}} \times 100$$

Where,

$\bar{x}$ =Average rate of return

CV =Coefficient of variation

± =Standard deviation

Coefficient of variation s is a useful measure of risk to compare the project. Since, the CV shows the risk per unit of return. It helps to make comparison of two alternatives. Higher the coefficient of variation indicates that there is less uniformity or consistency, which means higher risk, where as the lower the coefficient of variation indicates that there is more uni9formity and consistency etc. means lower risk.

C. Variance

The square of the standard deviation is known as the variance. It is the variation of return from the expected return. It also measures the volatility of return. It is denoted by $\pm^2$ or «^{2}.

The SD and Variance are equally acceptable and conceptually equivalent quantitative measure of total risk.

Symbolically, $$Var(r) = \sum_{t=1}^{T} P_t [r_t - \Sigma(r)]^2$$

Where,

Var(r) = variance of the return

r_t =rate of return for the tth possibility

$\Sigma(r)$ =Expected rate of return

P_t =Probability of occurring r_t return

T = Total no of possibilities

2.2.1.2 Types of Risk

The total risk of any assets can be assessed by measuring its variability of returns. Total risk can be partitioned into two main parts; Systematic risk (undiversifiable risk) and Unsystematic risk (diversifiable risk).

A. Systematic Risk

Systematic risk is that portion of total variability in return caused by market forces or factors that simultaneously affect all assets or the prices of all the securities." Systematic risk is the variability of return on stocks or portfolios associated with change in return on market as whole." Thus, systematic risk is also called undiversifiable risk.

The beta coefficient is an index of systematic risk. Beta coefficient may be used for ranking the systematic risk of different assets. Beta coefficient is taken as modern scientific technique of measuring a security's risk. It is an indication of the relationship between an individual asset's return between market return.

"According to the definition, the beta for market (B) us 1. If the beta is larger than 1, b>1, then the assets is more volatile than the market. And is called aggressive assets. And if the beta is less than 1, b<1, the assets is a defensive assets, its price fluctuation is less volatile than the market.

For example, if an investment which has beta of suppose1.7 indicates that the stock has greater fluctuation than the market portfolio. It means that the return on the security investment will be increased by 17%, if there will be assumed to increase the market return by 10%.

On the other hands, if a security has a beta of supposed of 0.5, indicates that there is less fluctuation than the market portfolio. It

means that return on the securities will be raised by 5%, if there is assumed to increase the market return by 10%. Generally, individual security beta falls between the range of 0.6 and 1.8.

In the way beta indicates the relation between an individual's securities with the market. OR relation between an individual investment return and the market return. In the term of statistic the beta describe the tendency of an individual stock to co-vary with the market.

Major Source of Systematic risk

The causes or reasons which help to create systematic or undiversifiable risk are known as the sources of the Systematic risk. Change in the economic, political and sociological environment that affect securities markets are sources of systematic risk. Systematic risk is more different to reduce through diversification because it is common to all assets in the market. The sources of systematic risk include changes in the purchasing power of money, fluctuation in interest rates, swings in the security market prices, and other factors that contribute to undiversifiable fluctuations. The sources are listed below:

Systematic Interest Rate Risk

Systematic Default Risk

Systematic Purchasing Power Risk

Systematic Market Risk

And others.

A.1. Systematic Interest Rate Risk

Interest rate risk is defined as the political variability of return caused by charges in the market interest rate. The interest rate risk affects the prices of bonds, stock, real estate, gold, puts and other

investment etc. Due to the fluctuation in the general level of interest rate the uncertainty of future market value and its size of future income uncertain which is known as interest rate risk? The main causes of interest rate risk are while rate of interest paid on the government securities change; the rate of returns demanded on alternative investment securities like stocks and bonds in the private sectors. In more general terms, if market interest rate rise, then the investment value and market prices will fall and vice versa.

A.2. Systematic Purchasing Power Risk

Purchasing power risk is the variability of return an investor suffers because of inflation." The possible loss in purchasing power over real goods is purchasing power risk. Purchasing power risk is often larger than investors realize because they are unaware of inflation and its implications. When there is increment in the prices of goods services or decrement in the value of money is known as inflation and if there is decrement in prices of goods and services or increment in the value of money is known as deflation.

A.3. Systematic Default risk

It is that portion of an investment's total risk that result form changes in the financial integrity of the investment. e.g. When a company that issues securities moves either further away from bank rupty or closes to it these changes in the firm's financial integrity ill be reflected in the market price of its securities. The variability of return that investors experience as a result of changes in the credit worthiness of a firm in which they invested is their default risk. If an insolvent company fills to make a scheduled payment of interest or principal on a debt, the firm is said to be default.

A.4. Systematic Market Risk

In the market, the price of stocks fluctuates widely within a short period of time even in the situation when the earnings are unchanged. This situation is happened because of the change in investor's attitude towards general or certain types of securities. The market risk is referred to the variability in return on most common stocks that are caused by the changes in investor's expectation. Various market situations like political and economical situations which force to the investors to think about the market and create market risk.

B. Unsystematic Risk

It is also known as diversifiable risk. Unsystematic risk is that portion of total risk which is unique to the firm that issued the securities. Events such as lab our, strikes, management errors, invention, advertisement campaign change in consumer taste etc. cause unsystematic variability in the value of a market assets. Unsystematic security price movement are statistically independent each other, and so they may be averaged to zero when different assets are combined to form a diversified portfolio. Therefore, unsystematic risk is called diversifiable risk. Unsystematic fluctuation in a security's price is diversifiable because they occur in an idiosyncratic fashion that makes them statistically. The sources of unsystematic interest risk are listed bellow:

- Unsystematic interest rate risk
- Unsystematic purchasing power risk
- Unsystematic market risk
- Unsystematic management risk
- And others.

Now

Total Risk=	Systematic Risk (Unavoidable Risk OR UndiversifiableRisk)	+	Unsystematic Risk (Diversifiable Risk OR Avoidable Risk)

Symbolically

$$Var(R) = \frac{Cov(R_j, R_m)}{Var(R_{m)}} + Var(e)$$

$$= B_j + Var(e)$$

Where,

$Cov(R_j R_m)$ = Covariance of return between individual and market assets.

$Var(R_m)$ =Variance of market return

$Var(R)$ =Total Risk

Var (e) =Standard error

2.2.1.3 Attitude Towards Risk

It is true fact that every person as investor desire to avoid risk. When an investor is ready to invest then he wants to enjoy a great rate of return and his expectation is to zero risk. But, actually it doesn't happened. Because, when a investor wants to invest he/she has to assume certain risk level. It means that to acquire higher rate of return higher risk is also be assumed. So, what is the attitude of an investor towards the risk has become an interesting subject matter. The attitude of an investor towards the risk is determined by

the co0mposition of certainty equivalent and expected monetary equivalent and expected monetary value of a risky investment. Investors are divided into three groups based upon the risk preferences or their altitude towards risk.

Risk Averse: An investor is said to be risk averse who tries to avoid the risk.

Risk Seeker: An investor is said to be risk seeker who seeks risk.

Risk Neutral: An investor is said to be risk neutral who assumes risk indifferently. Whether the investor is risk averse risk seeker or risk neutral can be classified in the following way:

- Preference of Risk Certainty equivalent>Expected value
- Indifference Risk Certainty equivalent=Expected value
- Averse Risk Certainty Equivalent<Expected Value

Generally, it is accepted that the risky investment must offer higher expected returns than the less risky investment.

2.2.1.4 Theories of Risk and Return

The theories, which are based upon the concept of risk and return, are known as the theories of risk and return. If it is possible to measure the risk of and investment project and if we know the price of risk, then we can determine the risk adjusted rate of return, which can be used for computing project's NPV. And for this there are two similar equilibrium theories of the measurement and pricing risk The CAPM and APM.

Portfolio theory, CAPM, and APT are the most common and important theories of risk and return. The theories are described under the following

A. Portfolio Theory

The process of selecting an optimum portfolio is known as portfolio theory. It is proved that portfolios are more desirable than individual assets because portfolios can be benefited from the risk reducing power of diversification that individual assets cannot be obtained. Since portfolio theory has been developed most thoroughly for financial assets. The objectives of portfolio theory are:

- Minimizing risk at the same level of return.
- Maximizing return at the same level of risk.

At first this theory was introduced by Harry Markoteiz in 1952 AD. There are some certain assumptions of the Portfolio Theory below:

Utility: Consumer's investment decision can be analyzed using utility isoquants which are called indifference curves. These curves are the determinant factor of risk and return, which define that the investor bearing high risk requires more return than the low risk bearing investor.

Risk Aversion: Investors have risk avers behavior. Risk averter prefers not to assume the risk but to assume the higher return.

Risk: The **va**riability of return from the expected return from the expected return is the risk that is to be tolerates by an investor.

Principle of Dominance: The investor follows the principle of dominance i.e. if there is same level of return then lower risk is preferred and same level of risk then higher return will be preferred.

A.1. Portfolio Risk

It is the variation in expected return from investing two or more than two assets is known as portfolio risk. It means, when the risk raised from the investment in more than one asset is known as portfolio

risk. Therefore, the portfolio risk is depends on the following three basic factors are:

- Individual Risk
- Proportion/weight if assets
- Relation between the return of assets

Thus the portfolio risks us the combination of individual assets is, proportion of investment and relation between the return of assets. Portfolio risk is the variance of portfolio return.

Mathematically,

$$Var(R_p) = \sum_{i=1}^{n}\sum_{j=1}^{n} x_i x_j \sigma_{ij}$$

Portfolio Risk for two |Assets

$$\sigma_p = \sqrt{x_i^2 \sigma_i^2 + x_j^2 \sigma_j^2 + 2 x_i \sigma_i x_j \sigma_j \rho_{ij}}$$

Where,

ρ_{ij} =Correlation coefficient between assets i and j

OR

$$\frac{Cov(i,j)}{\sigma_i \sigma_j}$$

x_i =Weight of investment in ‘i ‘assets

x_j =Weight of investment in ‘j’ assets

σ_{ij} $=\sigma_i \sigma_j \rho_{ij}$

σ_i =S.D. of return for ‘i’ asset

$\pm_j$ = S.D. of return for 'j' assets

$\pm_p$ =S.D. of portfolio's rate of return

n =No of securities contained in portfolios

A.2 Portfolio Return

A portfolio is defined as a conclusion of assets. Portfolio theory deals with the selection of optimal portfolios; that is, portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. The rate of return on a portfolio is always a weighted average of the returns of the individual securities in the portfolio.

Therefore, the return gained from the investment in two or more than two assets or investment6 is known as portfolio return. Portfolio return always depends upon the individual rate of return and the ratio of investment in those assets.

$$\Sigma(R_p) = \sum_{i=1}^{n} x_i E(R_i)$$

For more than two assets

$$E(R_p) = x_i \mathrm{E}(R_i) + x_j \mathrm{E}(R_j) + ...x_n \mathrm{E}(R_n)$$

Where,

$E(R_p)$ =Expected return on the portfolio

x_i = weight if investment in (i) assets

x_j = Weight of investment in (j) assets

$\mathrm{E}(R_i)$ = Expected return on (i) assets

$E(R_j)$ = Expected return on (j) assets

n = Total no of assets containing in portfolio

A.3. Risk minimizing Portfolio: It is the combination of portfolio that provides the minimum variance for a given rate of return. It means that the ratio of investment on each asset that minimizes the risk to its lowest form, which is known as risk minimizing portfolio.

In case of two assets, the percentage or weight of fund invested in each asset is obtained by using following formula.

Weight of Investment in assets A

$$W_A = \frac{(\pm_B)^2 - \circ_{AB}\pm_A\pm_B}{(\pm_A)^2 + (\pm_B)^2 - 2\circ_{AB}\pm_A\pm_B}$$

OR

$$W_A = \frac{(\pm_B)^2 - Cov_{AB}}{(\pm_A)^2 + (\pm_B)^2 - 2Cov_{AB}}$$

OR

$$W_A = (1 - W_B)$$

Weight of investment made in assets B

$$W_B = \frac{(\pm_A)^2 - \circ_{AB}\pm_A\pm_B}{(\pm_A)^2 + (\pm_B)^2 - 2\circ_{AB}\pm_A\pm_B}$$

$$W_B = \frac{(\pm_A)^2 - Cov_{AB}}{(\pm_A)^2 + (\pm_B)^2 - 2Cov_{AB}}$$

Where,

$\pm_A$ =S.D. of assets A

$\pm_B$ =S.D. of assets B

ρ_{AB} =Correlation coefficient between returns on A and B

$(\sigma_A)^2$ = Variance of return on assets A

$(\sigma_B)^2$ =Variance of return on assets B

Cov_{AB} =Covariance between the return of assets A and B

The above formulas are used to calculate the optimum weight of the risk-minimizing portfolio in case of two assets.

A.4. Portfolio Selection

It is the determination of portfolio opportunities or attainable set of portfolio.

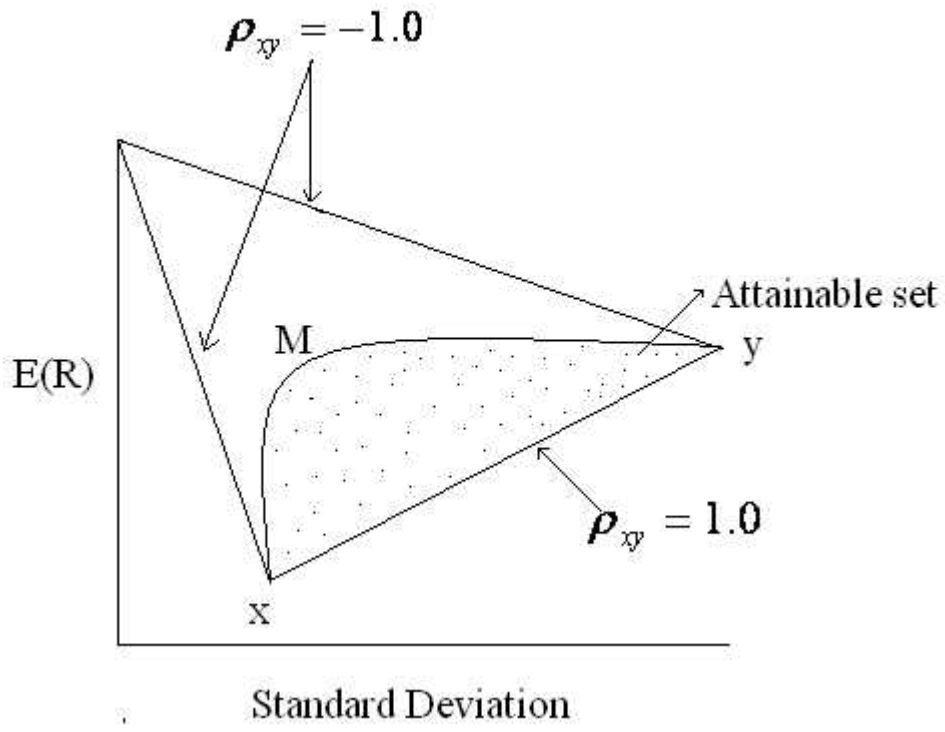

Figure- 1

Investors look forward for those assets combination that can be attainable. It means, portfolios help to minimize the risk. Each possible portfolio will have an expected rate of return and risk. So the hypothetical set of all possible portfolios is called the Portfolio Opportunity Set or attainable set as it shown in above figure. We know that the correlation coefficient can never be larger than 1.0 or smaller than 1.0($-1.0 \leq \rho_{xy} \leq 1.0$). In the figure, the triangle XYZ bounds the set of possibilities. The general case occurs when the risky assets are not perfectly correlated and it is shown in the figure XMY, which is called the minimum variance portfolio opportunity set. It is the combination of portfolios that provides the minimum variance (or $\pm$) for a given rate of return. And it is called the Portfolio Opportunity Set or the attainable set.

A.5. Optimal Portfolio Choices or Determination of efficient Portfolio

Portfolio deals with the selection of optimal portfolio; That is, portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. So the portfolio which has the highest expected returns for a given level of risk and minimum risk for a given level of return is called an efficient portfolio.

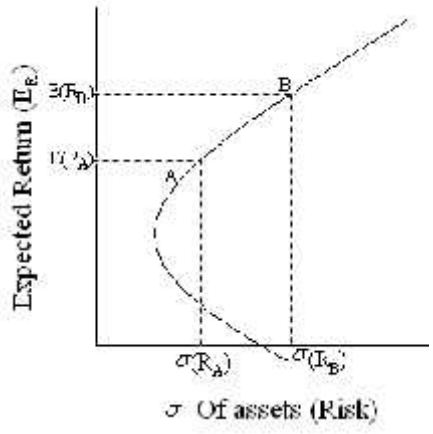

Figure -2

From the figure, there are two portfolio; A and B are regarded as dominant assets. Comparing among the efficient portfolio A and B, portfolio A has low risk and low return, where as B has high risk with high return. After the study of these both portfolios A and B are equally efficient. And it depends upon the investors, to which portfolio, they give preference.

B. CAPM (Capital Assets Pricing Model)

CAPM is the theory of how risky assets are priced in market equilibrium. It provides a measure of the risk of an individual security which is consistent with portfolio theory. It makes us able to estimate the undiversifiable risk of a single asset and compare it with the undiversifiable risk of a well diversified portfolio. This theory is originally developed by Sharpe. CAPM provides equilibrium rate of return for individual assets such as individual stocks and bonds. And the price of portfolio can be determined with the help of CAPM too. Some assumptions of this theory are as below:

- There are efficient capital markets. It means that there are well known investors and transaction costs are also low and there is short restriction on investment.
- There are risk adverse investors and they evaluate the portfolio and give preference on the basis of S.D. and expected return of possible portfolios.
- The interest rates and inflation rates are never varies.
- For CAPM, there is no provision for tax.

C. The Security Market Line(SML)

SML describes whether the required rate of return on all securities is efficient or not. When CAPM is graphed in figure, it is called SML (Security Market Line). S.M.L. provides a unique relationship between undiversifiable risk (systematic risk) which is

measured by ( ) and expected return. Hence if we measure the beta of a security, we can estimate its equilibrium risk adjusted rate of return. A figure of the CAPM is presented below:

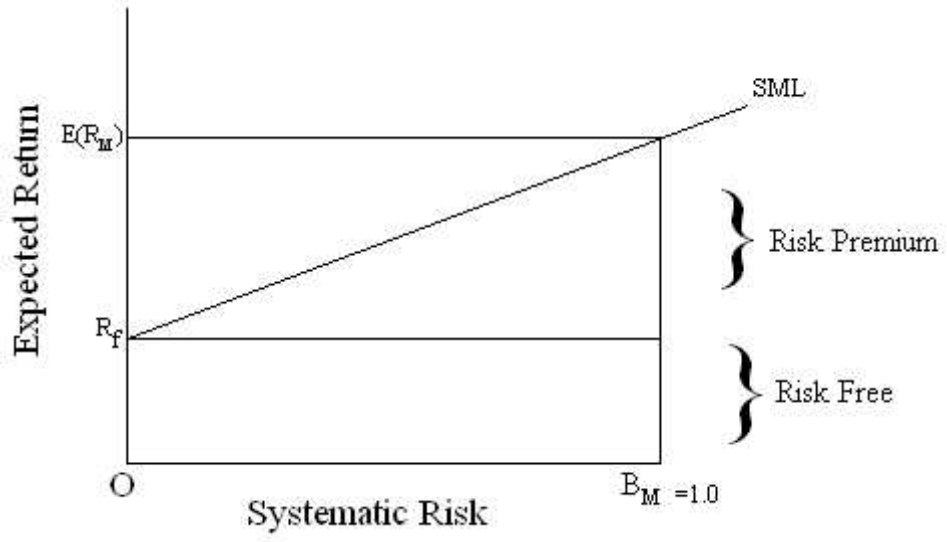

Figure-3

In the above figure, the expected one year return is shown on vertical axis. And Beta, an index of systematic risk, is on the horizontal axis. The relationship between the riskiness of an individual investment, measured by its beta.

The advantage of the SML approach to measuring the risk adjustment factor and the required return on an investment are that the relationships can be quantified. The expected rate of return on SML can be presented in the following equation.

$$\mathrm{E}(R_i) = R_f + (\mathrm{E}R_m - R_f) \quad _i$$

Where,

$\mathrm{E}(R_i)$ =Expected return for an i^{th} assets

R_f =Risk free rate of return

$\mathrm{E}R_m$ =expected market return

$_i$ =Systematic risk of an asset

D. Capital Market Theory (CML)

CML is also another portfolio pricing model. CML is used for determining the required return only for those efficient portfolios that are perfectly correlated with the market portfolio. Therefore, the [1]"CML cannot used to predict the return for inefficient securities which lie in the interior of the portfolio opportunity set"[1].

CML represents the equilibrium relationship between the risk $(\pm)$ and return (expected) for the efficient portfolios. When a risk-free assets is introduced into Markowitz Portfolio analysis, the efficient frontier change from a curse to a straight line. This new efficient frontier is called a CML.

CML was mathematically derived from the efficient frontier by unrealistically assuming that, money could be freely borrowed or lent at the risk free rate. "[2]The CML traces out what is called the "efficient frontier". "Efficient Frontier" is the locus of investments graphed risk-return space which has either the maximum expected rate of return in their risk class or the minimum risk at whatever rate of return is selected.[2]

[1] J. Fred Weston, *Managerial Finance* 9th edition, The Dryden Press, A Harcourt Brace Jovanovich College Publisher. Pg-1916

[2] Jack Clark Francis, *Investment Analysis and Management*,7th edition, McGraw –Hill International book co.Pg-20,1993

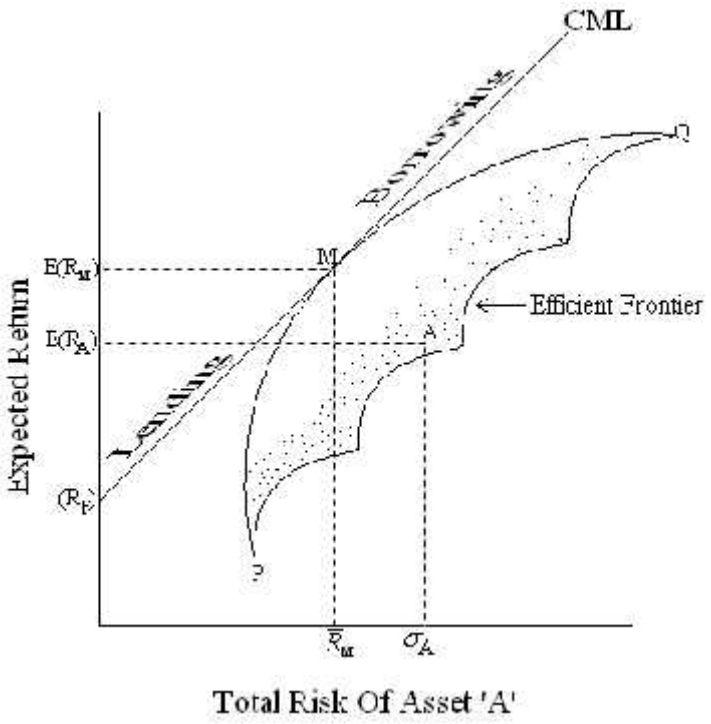

Figure-4

In the above figure, the CML starts with the risk free assets (R_F) That is tangent to a risky portfolio (M) on the market efficient frontier. In the above figure, portfolio M is the only risky portfolio. To the left side of M, the investors they will hold both risk free assets and the risky portfolio. All portfolios on the line between Risk free assets and risky assets (R_F and M) represent lending portfolios. To the right side of M, investors borrow at risk free rate and invest their funds more in Risky Portfolio (M) by utilizing leverage. Portfolio on the right of M represent borrowing portfolio. And portfolio M is called the market portfolio which is consisted of all type of assets. The slope of CML can be represented as follows:

Slope of CML =Market price of risk

$$= \frac{E(R_M) - R_F}{\pm_M}$$

Slope of the CML is said to be the market price of the risk and is reward per unit of risk. Since the CML shows the trade off risk and

return for efficient portfolios, the unit of risk must be the portfolio standard deviation. Therefore, the equation for the CML happens to be:

Total Return = Reward for waiting + Reward for risk bearing

$$\overline{R} = R_F + \left(\frac{\overline{R}_M - R_F}{\pm_M} \right) \times \pm_P$$

=Risk force + (Price of risk) amount of risk

Where,

$\overline{R_P}$ =Required rate of return on any efficient portfolio on the CML

$\overline{R_M}$ =Expected rate of return on market portfolio

R_F =Risk free rate of return

$\pm_M$ =Standard deviation of return on market portfolio.

$\pm_P$ =Standard deviation of return on efficient portfolio.

The above CML equations, state that the required return on any efficient portfolio in equilibrium is equal to the risk free rate plus the market price of risk multiplied by the amount of risk on the portfolio.

E. Relationship of SML and CML

The CML and SML are merely different pictures of the same market equilibrium. The CML is used to determine the required return only for that efficient portfolio that is perfectly correlated with the market portfolio. Where as the SML is 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 or systematic risk (measured by) and expected returns"[3].

The relationship between the CML and SML can be seen by writing the two equations as shown below:

CML: $$\mathrm{E}(R_P) = R_F + \left[\frac{\mathrm{E}(R_M) - R_F}{\pm_M}\right] \pm (R_P)$$

SML: $$\mathrm{E}(Rj) = R_F + \left[\mathrm{E}(R_M) - R_F\right]_j$$

Rewriting the SML by using the definition of $_j$,

SML: $$\mathrm{E}(R_j) = R_F + \left[\mathrm{E}(R_M) - R_F\right]\frac{Cov(R_j R_M)}{Var(R_M)}$$

Since, Var $(R_M) = \pm^2_M$,

SML equation can be expressed as:

SML:

$$\mathrm{E}(R_j) = R_F + \left[\frac{\mathrm{E}(R_M) - R_F}{\pm_M}\right] \times \frac{Cov(R_j R_M)}{\pm_M}$$

The above equation shows that the market price of risk per unit of risk is the same for the SML and CML, which is,

Market price of risk $= \dfrac{\mathrm{E}(R_M) - R_F}{\pm_M}$

[3] J. Fred Weston, *Managerial Finance* 9th edition, The Dryden Press, A Harcourt Brace Jovanovich College Publisher. Pg-403,1916.

Where,

$E(R_j)$ =Expected rate of return of j^{th} assets

(R_P) =Required rate of return on any efficient portfolio on CML

$E(R_M)$ =Expected rate of return on market portfolio

(R_P) =Risk free rate of return

$\pm_M$ =Standard deviation of return on market portfolio

$Cov(R_j R_M)$ =Covariance of return between individual assets

And market return.

F. An Arbitrage Theory (APT)

"The APT is a theory, which is based on the law of one price, which says that the same good cannot sell for two different prices. If it is happened then the arbitragers will buy the good where it is cheap and will sell those goods in market at higher prices. And it will be continued until all prices for the good are equal"[4].

So, The APT is a theory, where the price of an asset depends in the multiple factors and arbitrage efficiency prevails. This theory is proposed by Stephen Ross. This theory suggests how to price market assets. Before it CAPM was the most prominent financial theory to explain the prices of market assets. But the APT admits more different variables into the analysis than the CAPM. Therefore, the APT is a more general theory than CAPM. This theory states that the assets with

[4] Jack Clark Francis, *Investment Analysis and Management*,7th edition, McGraw –Hill International book co.Pg-287,1993

the same level of risk are equivalent investment and therefore the expected rate of return of those investments must be same or equal.

Therefore,

$$\mathrm{E}(R_1) = \mathrm{E}(R_2) = \mathrm{E}(R_3) \ldots\ldots\ldots\ldots = \mathrm{E}(R_n)$$

Somehow, this theory is perhaps the most important challenge to the CAPM. In the CAPM, only the single factor underlying in all assets determines return on the market portfolio. Whereas, the APT theory suggests that there are more than one factor that the affects the return and those needs to be considered for the requiring the return.

$$\mathrm{E}(R_j) = R_F + b_{1j} f_1 + b_{2j} f_2 + b_{3j} f_3 + \ldots\ldots\ldots\ldots\ldots b_{nj} f_n$$

Where,

(R_f) =Risk free rate

b_{1j} & b_{2j} & b_{3j} =Reaction coefficient depicting the change security's return to one unit change in a factor OR sensitivity indicator

$f_1, f_2, \& f_3$ = j^{th} risk factors

n = n^{th} factor depicting the change in the security's return to one unit change is a factor.

The above equation which shows the general form of the APT model can be expressed as below:

$$R_j = \mathrm{a}_0 + b_{1j} \mathrm{a}_1 + b_{2j} \mathrm{a}_2$$

Where,

a_0 =Risk free rate of return

a_1 & a_2 =Uncertain values of factor 1 and 2 OR measures the market price of risk or Risk fermium

$b_{1j} b_{2j}$ =Coefficient that measure the sensitivity of assets/ factors beta.

Beta for the APT

$$b_{nj} = \frac{Cov(R_j R_n)}{VarR_n}$$

It is same as for the CAPM the only one assumption of this APT model is that there is unrestricted selling exists.

2.2.2. Return

While an investment is made the investors, they think about the return, means what will be the benefit from the investment. It means the benefit which comes from the any kind of investment is known as Return. The terms return and investment are associated to each other. It is the return which inspires the investment to accept the challenge and make the investment. This term Return is used differently. Some consider it as revenue; other considers it as reward and so on.

In finance, Return means the output which comes from the investment on single assets or portfolio assets.In context of capital investment; it has different meaning to different investors. Some investors they take it as short term cash inflow while other perceive it as a high growth rate of return for the long period.In the investment, Return and Risk both one complement to each other. Where higher risk there is higher return and where is lower risk there is lower return. It

means while a investment is done, one should has to think about the return as well as risk. There are two types of investment; one is single assets investment and another is portfolio assets investment. Same as this Return can be classified and studied in different terms, which are given in detail in below.

A. Single Period Return

In simple word, the return which is earned from a single period is known as Single Period Return. It is the most important outcomes from an investment; it measures the investment rate of wealth increment or decrement per period. The Single Period Return is the basic random variable in investments analysis. "An investment is single period rate of return is simply the total return and investor would receive during the investment period or holding period stated as a percent of the investment's price at the start of the holding period"[5].

Investor can obtain two kind of income from an investment in a share as a bond:

- Income from price appreciation or losses from price depreciation termed as capital gain or losses.
- Cash flow income from cash dividend or coupon interest payments.

Symbolically,

$$r_t = \frac{\text{Price change + Cash inflow(if any)}}{\text{Beginning price of the period}}$$

[5] Jack Clark Francis, *Investment Analysis and Management*,7th edition, McGraw –Hill International book co.Pg-1,1993

$$r_t = \frac{(P_t - P_{t-1}) + C_t}{P_t - 1}$$

Where,

r_t = Actual or expected return when t refers to a particular time period in the past or the future.

P_{t-1} = price at the end of period (t-1)

P_t =market price at the end of period t

C_t = cash flow income received during the t^{th} period.

From the above formula, we can say that Single Period Rate of Return is the composition of current yield and capital gain yield.

C. Expected Rate of Return

In general sense, the rate of return which is expected from the investment in the future is known Expected Rate of Return. "Investment decisions are based on expectations about the future. The expected n rate of return is the weighted average rate of return for any assets using the probability of each rate of return as the weight"[6].

The expected rate of return on a portfolio is always a weighted an average of the return's of the individual securities in the portfolio. The expected rate of return is calculated by adding all the product of expected value under each situation with their expected probability of occurrence.

[6] Jack Clark Francis, *Investment Analysis and Management*,7th edition, McGraw –Hill International book co.Pg-11,1993

Symbolically,

$$\mathrm{E}(r) = \sum_{t=1}^{T} p_t r_t$$

OR

$$= p_1 r_1 + p_2 r_2 + \ldots\ldots\ldots\ldots p_T r_T$$

Where,

$\mathrm{E}(r)$ = Expected rate of return

p_t = Probability that the return r_t will occur

p_T = total no of possibilities of future outcome

r_t =Return on the i^{th} possibility

The above formula for expected return is based on the possible rate of return and the probability for that event. If the probability of possible outcomes is uncertain. The expected return may be wrong and it may give wrong direction to the investors. So in case of unsure future outcomes, another method can be followed to find out the expected rate of return which is known as average rate of return.

Under this, the past data are used and assumed to be equal probability distribution to calculate the average rate of return. For this the total sum of average rate of return of different years is divided by the no, of years.

Symbolically:

$$\mathrm{E}(r) = \frac{\sum_{t=1}^{T} r_t}{T} = \frac{r_1 + r_2 + r_3 + \ldots\ldots\ldots r_n}{T}$$

The average rate of return is considered as expected rate of return for the future period on the assumption that the same rate of return will be prevalent in the future time, will not have the same return always, in this dynamic world , so the expected rate of return may lose its accuracy. So the expected rate of return based upon on the past history also not has the accuracy and not regarded as the proper indicator of expected rate of return.

A. Return on portfolio assets

"A portfolio is defined as the combination of assets. Portfolio theory deals with the selection of optimal portfolios; that is, portfolio that provides the highest possible return for any specified degree of risk or lowest possible risk for any specified rate of return"[77]**.**

B. Return on Single assets

When an investment is made on one asset only, then the return generated from that single asset is known as the single asset. In such condition, among various assets, the investor selects only one asset and makes investment as a best one. The return on single asset may be on the basis of expected rate of return also when the different probabilities of outcomes are multiplied to their respective expected return and finally they are added together.

[7] J. Fred Weston, *Managerial Finance* 9th edition, The Dryden Press, A Harcourt Brace Jovanovich College Publisher. Pg-366, 1916.

D. Required Rate of Return

Required Rate of Return means the return which an investor wants to earn from his investment. Although, required rate of return and expected rate of return, both seems the same but actually, both have different meaning.

About the expected Rate of Return we have made discussion abo9ve. And about the Required Rate of Return means, the rate of return which an investor wants to earn and must earn from his investment. The Required rate of must be equal or less than the expected rate of return, while there is comparison made between both of them. It is so, because if the expected rate of return is more than that of required rate of return, the investor will try to purchase the investment and this will give the result of high price and vice versa. It is said, equilibrium price, when expected Rate of return and Required Rate of Return between are equal to each other. The rate of return on a portfolio is always a weighted average of the returns of the individual securities in the portfolio. Portfolio is just like baskets, where the apples are kept. The rotten apple may rotten the other apple too. it means , in a portfolio there are different asset which have different return.

So, “The expected return on a portfolio may be defined as the weighted average of the expected return on the assets, which comprise the portfolio. The weight reflects the proportion of the portfolio or, wealth invested in each asset. The objective of the portfolio is to maximize return or minimize the risk. So, the return on portfolio is calculated to earn stable income, safety of investment, ever liquidity and for other benefits. And the weight of asset is equal to the sum to 100%. The formula for the expected return on a portfolio is as follows:

$$\overline{R} = \sum_{t=1}^{T} w_j R_j$$

Where, w_j = the proportion, or the weight of the total funds invested in security j

R_j =Expected return for the security j

T =Total number of different securities existing in the portfolio.

$$\text{Weight} = \frac{\text{Amount of rupees invested in an assets}}{\text{Total investment in the portfolio}}$$

Note: the weight may be (+) or (-)

The portfolio return for three assets can be obtained by applying the following formula.

$$\overline{R} = w_A \times \overline{R}_A + w_B \times \overline{R}_B$$

Where, $w_A = (1 - w_B)$

$w_B = (1 - w_A)$

R_A =The expected rate of return from asset A

R_B = the expected rate of return from assets

2.3 Review of Related Studies

There are some studies which made upon the theoretical concept about the nature of relationship between risk and return. “During the 1950’s and 1960s. Harry Markowitz, James Tobin, Jack Trynor and

other showed that rational investors should ignore the investment characteristics Individual assets and focus instead on diversified portfolios"[8].

They proved that portfolios are more desirable than individual assets because portfolios can benefit from the risk reducing power of diversification that individual assets can not obtain. But more recently Sephon Ross proposed the Arbitrage Pricing Theory (APT) hereafter an investment theory that which competes with Markowitz Portfolio Theory and complements it. This is based on the law of one price which says that the same good cannot sell for different prices.

Risk, in terms of variance and return, in terms of mean return of 387 companies were tested based upon the return on equity. These comp0anies were selected from 11 industries and the time period for 1972 to 1976.

In context of Nepal, Mr. Umakand Dahal (2001) had studied the position of ri9sk and return of Nepalese companies. For this he used profitability ratio as a basis for the measurement of risk and return. Risk was expressed in terms of Standard deviation (±)and coefficient of variation of the portfolio ratio. The study justified opposite of the proverb" Higher the risk and higher the return and vice versa."

So in this way, time to time many of personalities have defined the ri8sk and return relationship in different ways.

[8] Jack Clark Francis, *Investment Analysis and Management*,7th edition, McGraw –Hill International book co.Pg-266,1993

CHAPTER-III

RESEARCH METHODOLOGY

3.1. Introduction

R.M. is a process, in which steps are taken to solve a research problem. It is the way which solves the problem in systematic way. Basically, R.M describes the methods, process tools and techniques applied in the entire process of a scientific research.

C.R. Kothari, Research M, M, & Technology.

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

This study is made to know about the risk and return position of some selected ‘A’ graded financial institutions, which requires various steps to be followed to gain the objectives. So, R.M. refers to the various steps to be adopted by a researcher to find out the solutions of related research problems with their certain objective. In this study, the R.M. is adopted to accomplish the objective of the study on the risk and return analysis of “A graded financial institutions, consisting of research design, population and sample, nature and type of data, techniques of analysis, analytical tools and limitations of research methodology.

3.2. Research Design

Research Design means an overall frame work or plan for the collection and analysis of data. RD serves as a frame work for the study, guiding the collection and analysis of the data. So, the R.D. then

focuses on the data collection methods, the research instruments utilized, and the sampling plan to be followed. It is an integrated system that guides the researcher in formulating, implementing, and controlling the study. Useful, research design can produce the answers to proposed research questions. Therefore, the research design is thus an integrated frame that guides the researcher in planning and executing the research works.

"Research design is the plan, structure, and strategy of investigation conceives so as to obtain answers to research questions and to control variance. Where, the plan is the overall scheme or program of the research. And the structure, it is the outline, the scheme, the paradigm of the operation of variables"[99]. This research study attempts to analysis the position of risk and return of the selected financial institutions. For the analysis, data are obtained from NSE website www.nepalstock.com. The pattern of risk and return are analyzed in this study. Excluding this the relationship between the mean return, standard deviation and the CV are examined too.

Therefore, the research design used in the study is basically descriptive analytical in nature.

3.3. Population and Sample

Population refers to the entire group of people, events, or things of interest that researcher wishes to investigate. It is also called as "Universe". "The word 'universe" as used in statistics denotes the aggregate from which the sample is to be taken"[1010]. Population may be infinite or finite. A finite population is one containing a fixed no. of

[9] Howard K. Wolff and Prem R. Pant, *A Handbook for Social Science Research And Thesis Writing*, Buddha Academic Publisher and Distributor Pvt. Ltd.,Kathmandu,Nepal.Pg-74,2003.
[10] Howard K. Wolff and Prem R. Pant, *A Handbook for Social Science Research And Thesis Writing*, Buddha Academic Publisher and Distributor Pvt. Ltd.,Kathmandu,Nepal.Pg-180,2003.

elements. An infinite population is one without limits of any kind and is therefore indeterminate. It is not always possible to study every items or elements in a universe. In this case samples are taken for the study; Sample is the representative of the population. Here, sample is a collection of items or elements from a population or universe. Hence, a sample is only a portion of the universe or population. On study has finite population. So, sample is a subject of population units and the process of choosing a sample from the population to learn about the population on the basis of sample is known as sampling.

In our study, the financial statements of all the 'A' graded financial institutions are regarded as population. There are nineteen 'A' graded financial institutions during the research work. Among there, NABIL, BOK, NSBIL, SCBNL and NIBL are taken as sample for the study.

3.4. Nature of Type of data

Connecting data is the connecting link to the world of reality for the researcher. The data collection activity consists of taking ordered information from reality and transforming it into some recording system. So that it can later be examined and analyzed for patterns without the data, methodology cannot be utilized to bring us to the conclusion, which the hypothesis suggests. But one of the most difficult problems in research to obtain the required and related data.

3.4.1 Sources of data

Data may be obtained from several sources; it is not easy to list them in detail. However, the general classification of data sources has the following dimensions.

Secondary sources refer to those for already gathered by other. These data are those, which have been passed through the statistical

process. Such sources may include books, periodicals, published reports, data services, and computer data banks. On the other hand, Primary data are original data gathered by the researcher for the research project at hand. These data are new and fresh and at the first time collected. Thus , these data are collected for meeting the specific object of the study, The researcher directly goes to the related field and collects the related information by observation, interview or by experiments etc.

This study is mainly based on the data collected from the secondary sources as tabulated from financial statements of the selected A graded banks for the study for the period of 5 years i.e. FY 2002/3 to 2006/7, which have been derived from NSE website www.nepalstock.com.np Also the annual magazines, related website were consulted. Therefore, the data for the study are more focused on secondary sources and then primary sources.

3.4.2. Data Collection Procedure

In the process of preparation of the research work, the related daters as appropriate for the study was obtained through the computer print out from the Nepal stock exchange website www.nepalstock.com.np consequently the P/L a/c and B/sheet was also collected in the same manner. And the visit s=also made to the related institutions to get other related information, other published reports and other required in formations etc.

3.4.3 Data Processing Procedure

After collecting the data, the researcher has to process the data in order to make it easy for the presentation and analysis of the study. In the context of this research work the data have been processed and recasted in condensed or compressed form. After that, the data have

been tabulated and presented using financial and statistical tools. All the profitability ratios used for the study have been calculated by using the financial tools. Calculation of risk and return, the trend equation and the trend value and the relationship bet9ween the risks and return are also worked out. Finally, for the relevancy of correlation ship and to analysis the variance, student t-test and ANOVA also tested respectively.

3.5. Techniques of analysis

For this project, descriptive and inferential techniques are applied as techniques of analysis.

Descriptive analysis means the analysis which is based on the various profitability ratios and is arranged in variability of the ratios standard deviation and CV has been used. And the trend of return trend equation with their predicts values are also computed and at last to describe the nature of relationship between risk and return Karl Pearson's coefficient of correlation is also calculated.

Where as to know the relationship between two variables, differences among different variables sub-group of a variables, and so on the inferential techniques are applied. So Inferential technique are defined as such technique that help to establish relationship among variables from which conclusions can be drawn, For the inferential analysis, null and alternative hypothesis are formulated and tested in student's t-test and ANOVA. If the calculated t-value are less than the critical value of't' at 5% level of significance with (n-2) degree of freedom the null hypothesis will be accepted and alternative hypothesis will be rejected. Similarly, if the critical value of f- ration more than the calculated value, at 5% significance with 7/32 degree of freedom, the

null hypothesis will be accepted and alternative hypothesis will be rejected.

3.6. Analytical Tools

For the analysis of data, appropriate tools are to be utilized in order to find the required finding of the study. So, all the tools, which are utilized for the analysis and interpretation of the data is known as analytical tools, All those tools which are utilized for the analysis and interpretation of the data are known as analytical tools. There are two types of analytical tools applied in the study. They are as below:

- Statistical Tools
- Financial Tools

3.6.1. Statistical Tools

Usually in research studies after data is collected and coded, statistical analysis are performed by using the statistical tools. By using the statistical tools statistical analysis is done which describe the data. Using statistical tools, it is possible to talk about the relations and differences of variables. So, under this, we use mean, standard deviation, coefficient of variation, Karl Pearson's coefficient of correlation, student's t-test and ANOVA. These tools are discussed as under.

3.6.1.1. Arithmetic Mean

Arithmetic mean is almost popular and widely used measure for the representing the entire data by one value and which we get when the total of all values in a distribution is divided by the number of values in the distribution. In this study, AM is used to find out the average of the different profitability ratios applied. The A.M. is symbolically represented as below:

$$« = \text{mean} = \frac{\Sigma x}{n}$$

OR

$$« = \bar{x} = \frac{\sum x}{n}$$

Where,

$« = \bar{x}$ = Arithmetic Mean

$\Sigma x =$ The sum of the values of variables

N= No. of observations

3.6.1.2. Standard Deviation

S.D. is the absolute measure of dispersion in which the draw backs present in other measures of dispersion are removed. “It is said to be the best measure of dispersion as it satisfies most of the requisites of a good measure of dispersion”[11]

It is defined as positive square root of the mean of the square of the deviations taken from the A.M. The standard deviation is a function of the differences between each individual score and the overall mean score and of the sample. Hence, if all the sc ores were exactly the same, the S.D. will be zero, because there would no differences between individual and the mean.

So, Symbolically:

$$\pm = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

[11] B.C. Bajracharya, *Business Statistics and Mathematics,* M.K. Publishers and Distributors, Kathmandu, Nepal.Pg-177, 2054.

Where,

$\pm$ =Standard deviation

$\sum(x-\bar{x})^2$ = Sum of the square of mean deviation or deviation.

n = No. of the observations.

3.6.1.3. Coefficient of Variation

Standard deviation is the absolute measure of dispersion. The relative measure of dispersion based on the S.D. is known as the coefficient of S.D. And therefore, the coefficient of variation. If $\bar{x}$ is the arithmetic mean and$\pm$, is the standard deviation of the distribution, then the CV is defined by:

$$CV = \frac{\pm}{\bar{x}} \times 100$$

Where,

CV =Coefficient of Variation

$\pm$ =Standard deviation

$\overline{X}$ = Arithmetic Mean

Less the CV, more will be the uniformity, consistency etc. and more the CV; less will be the uniformity and consistency etc.

3.6.1.4. Trend Analysis

On the basis of observation made on the past analysis of risk and return can be done. So, in this study, trend analysis indicates the directions of change that helps in the position of banks and the change thereof over time and determines whether there has been improvement or declination in the financial condition and performance overtime. It is important to analyze trends in the ratios as well as their absolute levels.

So, there are various methods that can be used for determine trend; Trend percentage Method, Graphical Method, Least Square Method, which help to make the study simple and easy to understand.

3.6.1.4.1 Least Square Method: The method of least squares is widely used in practice to fit a trend lime to the available data. It is the method in which a trend line is fitted in such a manner that the following two conditions are fulfilled.

1. $\sum(y - y_c) = 0$

Where,

Y = Actual dependent variables values

y_c = Computed value for different period of time

N = 1, 2, 3…….

2. $\sum(y - y_c)^2$

The sum of the deviations of the actual and computed values is least form this line and so this method is known or called as least Square method.

This Least Square Method is used either to fit a straight line trend or a parabolic trend. The straight line trend is represented by the following equation:

$$Y_c = a + b_x \qquad \text{……i}$$

Where,

Y_c =Value of y computed from relationship for a given $\overline{A}$

a =numerical constant measures the distance of the fitted line directly below or above the origin or Y intercept. Or value of Y, when Ā=0

b = numerical constant which measures the change in Y or it is the slope of the trend line

Y =It is the independent variables

Symbolically,

$$a = \frac{\sum Y}{n}$$

$$b = \frac{\Sigma xy}{\Sigma x^2}$$

Where,

Σy =The sum of values of dependent variables Y

Σxy = Sum of values of variables X and Y multiplied

n =No. of observations

Σx^2 =Sum of square of value ‘x’

The constant ‘a’ gives the average of y and b, is the rate of change. Due to the use of Least Square Criteria, the obtained trend line gives the line of best fit.

3.6.1.4.2. Graphical Method

A clear picture of the variation in the values of variables is much more easily obtained by diagram or graphs than the values given at the table. Graphs and diagram are nothing but the presentation of

statistical data in form of geometrical figures kike points, lines, bar, rectangles, circles etc.

So, the graphical method used in the study shows the calculated or predicted values for different five years derived from the trend equation. This graphical method is used to support the tabulated value of trend equation and trend values of the selected financial institutions.

On the X –axis of the graph, fiscal years are presented and on y-axis, the banks with their predicted values are shown.

3.6.1.5. Analysis of Variance

If the researcher wants to test for difference among more than two groups of data, the analysis of variance is required. The analysis of variance or ANOVA is a statistical technique developed by A.A. fisher. We need ANOVA to test the significance of the difference among more than two sample means, F-distribution or f is suitable technique, by using this, we will be able to make inferences about whether the samples drawn from the population having the same mean.

This f-test mechanism is used in the present study to test the null hypothesis that the mean value of the various parameters of 5 –years sample of fiscal year 2002/3 to 2006/7 pf the selected banks are equal and came from the same sample or similar population.

The ANOVA test statistic can be computed by applying the following procedure:

Step 1st: Formulate null hypothesis:

$$H_0 : «_1 = «_2 = «_3 = ...«_n$$

i.e., the A.M. of the population from which n samples are drawn is equal to one another.

Step 2nd: Set Alternate hypothesis:

$$H_A : «_1 \neq «_2 \neq «_3 \neq \ldots\ldots\ldots\ldots\ldots «_n$$

i.e. the A.M. of the population from which n samples are drawn not equal to each other.

Step 3rd: Analysis of variance is based on a comparison of two different estimates of the variances. The two estimates of variances are computed from the samples by breaking the total variances into variance between the samples means and variances within the samples means.

Where,

Total variation =Variation between sample + Variation within samples

$$\left[X_i - \overline{\overline{X}}\right]^2 \qquad = n_1 \sum \left[\overline{X}_i - \overline{\overline{X}}_i\right]^2 \qquad + \qquad \sum \left[X_i - \overline{X}_i\right]^2$$

Computation of variance between the samples using the following procedures:

- Computation the mean of each sample i.e. $\overline{X}$
- Computation the grand mean $\overline{\overline{(X)}}$

$$\overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3 + \ldots\ldots\ldots\ldots\ldots\ldots\overline{X}_n}{N_1 + N_2 + N_3 + \ldots\ldots\ldots\ldots\ldots\ldots N_n}$$

- Compute the deviation of the sample mean from the grand mean and square these deviations and multiply by the sample size.
- Computation of the Mean Square Between the Sample (M.S.B.)

$$M.S.B. = \frac{n\sum\left[\overline{X}_i - \overline{\overline{X}}_i\right]^2}{n-1}$$

Where, $\overline{\overline{X}}$ = Grand mean

n = No of samples

(n-1) = degree of freedom

Computation of variance within the sample using the following procedures:

- Computation of mean of each sample $(\overline{X})$
- Sum of the squares of deviation of various samples item from their mean (SSW)
- Computation of the mean square within the samples (MSW)

$$MSW = \frac{\sum\left[X_i - \overline{X}i\right]^2}{N-n}$$

$\overline{X}_i$ = Mean of each samples

N-n = Degree of freedom

Preparation of the ANOVA Table

Sources of Variance	**S.S**	**D.F.**	**M.S.**	**f-Ratio**	**Result**
Between Samples	SSB	n-1	$MSB = \frac{SSB}{n-1}$		
Within the samples	SSW	N-n	$MSW = \frac{SSW}{N-n}$		
Total	SST	N-1			

Where,

SS =Sum of Squares

DF =Degree of freedom

MS =Mean square

$$\text{F-Ratio} = \frac{\text{larger estimate of variance}}{\text{Smaller estimate of variance}}$$

Step 4th: At 5 % level of significance, determine f for each.

Step 5th: Make Decision.

If the $F_{cal} < F_{tab}$ then accept H_o and

If the $f_{cal} > f_{tab}$ then accept H_A

3.6.1.6 Karl Pearson's Coefficient of Correlation

"Correlation is an analysis of the co-variation between two or more variables. Two variables are said to have "Correlation", when they are so related that the change in value of one variable is accompanied by the change in the value of the other. The measure of correlation called the "Correlation coefficient"[1212].

So, one of the widely used mathematical methods of calculating the correlation coefficient between two variables is Karl Pearson's Correlation Coefficient. Even there are other methods i.e. Scatter diagram, Graphic Method, and Spearman's rank correlation. This Karl Pearson's Coefficient Of Correlation is widely used. It is also known as Pearson's Correlation coefficient. It is denoted by r_{xy} simply by 'r' and is defined by

[12] B.C. Bajracharya, *Business Statistics and Mathematics,* M.K. Publishers and Distributors, Kathmandu, Nepal.Pg-254, 2054.

$$R = \frac{n\Sigma XY - \Sigma X.\Sigma Y}{\sqrt{n\Sigma X^2 - (\Sigma X)^2} \times \sqrt{n\Sigma Y^2} - (\Sigma Y)^2}$$

Where,R =Karl |Pearson's Coefficient of Correlation

N = no of observations

ΣX =Sum of the value of variables X

ΣY =Sum of the value of variables Y

ΣXY =Sum of the multiplied value of X and Y

ΣX^2 = Sum of the squared value of variable X

ΣY^2 = Sum of the squared value of variable Y

$(\Sigma X)^2$ =Squared of the sum of the value of variable X

$(\Sigma Y)^2$ = Squared of the sum of the value of variable Y

3.6.1.7. Student's t-test

The correlation between the variables is analyzed by using the Karl Pearson's Correlation coefficient. But to observe the significance of the correlation coefficient, this study applies student's t- test, which is used to test the significance of the coefficient of correlation.

This student's t-test is used to test the significance or insignificant (zero), i.e. the variables in the population are uncorrected, and the following test is applied:

Null Hypothesis:

$H_0 : ° = 0$, the variables in the population are not correlated (i.e. correlation coefficient is insignificant)

$H_1 : ° \neq 0$, the variables are the populations are correlated. (i.e. Correlation coefficient is significant)

Where, ° = Correlation coefficient in the population

And, Mathematically:

$$t = \frac{r.\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where, t = student's t-test

r =Coefficient of correlation

n = no of observation

The t- statistic is based on (n-2) degree of freedom at ~ % (i.e. 5%) level of significance.

If the calculated 't' is less than or equal to tabulated 't', at ~ % and (n-2) D.F., Null hypothesis (H_0) is accepted, and which imply that the value of 'r' is insignificant.

And if the calculated value of t> tabulated value of t, at ~ % and (n-2) d.f, then Null hypothesis (H_0) is rejected, which imply that the value of 'r' is significant.

3.6.2 Financial Tools

Another analytical tool to analysis and interpretation of the data is financi9al tools. Financial tools are used to find the Rate of Return from this return, the risk (i.e. $\pm$) and C.V**.** is calculated. The risk and return are calculated by using the various profitability ratios are listed below:

- Gross profit of operating income

- Net profit to operating income
- Net profit to working fund ratio
- Net profit to Net worth ratio
- Interest earned to working fund ratio
- Earning Yield
- Dividend Yield
- Price Earning Ratio

3.6.2.1 Gross Profit to Operating Ratio

This ratio is also known as Gross Profit Margin Ratio (GPR). It shows the relationship between the gross profit and sales. As we know, Bank is not a manufacturing firm, therefore operating income is considered as sales figures. A bank should have a reasonable gross profit margin which can ensure adequate coverage for operating expenses and sufficient return to the owners of the bank.

Symbolically

$$\text{Gross Profit to operating Income Ratio} = \frac{\text{Gross Profit} \times 100}{\text{Operating income}}$$

3.6.2.2. Net Profit to Operating Income

This ratio is also known as net profit margin or net profit ration (NPR) .It shows the management‘s ability to generate net profit in terms of operating income. IT is shown or expressed in %.

Symbolically

$$\text{Net Profit Margin} = \frac{\text{Net Profit} \times 100}{\text{Operating Income}}$$

3.5.2.3 Net Profit to Working fund Ratio

The ratio is also known as return on assets (ROA). ROA shows the relationship between net profit and total assets. This ratio examines how the assets will have contributed to earn net profit.

Symbolically,

$$\text{Return on Assets} = \frac{\text{Net Profit} \times 100}{\text{Working Fund}}$$

3.6.2.4 Net Profit to Net worth Ratio

This ratio is also known as return on equity (ROE). It shows the relationship between N.P. and the net worth. It shows how much bank is able to provide a satisfactory return to its stock holders.

Symbolically,

$$\text{Return on Equity} = \frac{\text{Net Profit} \times 100}{\text{Net worth}}$$

3.6.2.5 Interest earned to Working Fund Ratio

This ratio expresses the relationship between the interest earned by the bank and the working fund (Total assets).

Symbolically,

$$\text{Interest Earned to Working Fund Ratio} = \frac{\text{Interest Earned} \times 100}{\text{Working Fund}}$$

3.6.2.6. Earning Yield

The relationship between the EPS (EY) and market price per share (MPS) is known as earning yield (EY). Generally, it is true that increase in the earning leads to increase in M.|P. of a share, also.

Symbolically

$$\text{Earning Yield} = \frac{\text{EPS} \times 100}{\text{MPS}}$$

3.7 Limitation of the Methodology

Although a researcher always tries to get the dept of the study's objections in the practical life that are considered as limitations of the study; which are shown below:

1. The study is solely based on the financial statement of the banks as given in the various annual reports for the period of 5 years i.e. from F.Y. 2002/3 to FY 2007/7. However, the amounts given in these financial statements are in the round figures of thousand of rupees. Therefore the result may be vary.
2. The pro0fitability ratios analysis, which too is used as a tool for determine risk and return, has its own limitation, which are listed below:
   - It is difficult to decide as appropriate basis of comparison.
   - The ratio does not give any indications of the future as it calculated from the past financial statement.
   - The arithmetic mean as a statistical tool of data analysis depends upon each and every items of the series; items may be very small or may be very small or may be very large.
   - The trend analysis as statistical tool of data analysis ignores the impact of cyclonical and irregular variation, as predications are based only on the long term variations. Hence, the trend analysis is inflexible.

- The Karl Pearson's coefficient of correlation as a statistical tool of data analysis always assumed linear relationship between the variables regardless of the fact, whether, that assumption is correct of not.
- The test of statistical significance (i.e. student t- test of coefficient of correlation and ANOVA Test, though indicates that a difference has statistical significance. However they do not tell us why the different exists. Nevertheless, they suggest the need for further investigation in order to definite conclusion.
- The critical value of the f-distribution at 5% level of significance with degree of freedom (numerator 4 and denominator 20) is assumed to be equal to the degree of freedom for numerator 4 and denominator 20).

CHAPTER –IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

In this chapter all the collected data are shown in tabular and graphical form to analyze and interpret systematically. The collected data are diagnosed, selected, formulated and calculated before giving them tabular and graphical shape. After showing and presenting them in a tabular and graphical form, they are analyzed and interpreted. The collected and presented data for the study are of five fiscal years (F.Y. 2002/03 to 2006/07) in order to assess the position of risk and return o f the 'A' graded financial institutions. For the purpose, the data are analyzed and interpreted in two ways, descriptively and inferentially.

In descriptive analysis, different profitability ratios are used to determine the risk-return position of the selected financial institutions. The measurement of central tendency (AM) and dispersion ($\pm$ and CV) are applied to asses the return and risk respectively. And the time series analysis (Trend analysis) is devoted to examine the trend and trend equation of return of each institution under study.

And the inferential analysis, ANOVA, Karl Pearson's coefficient and Student's t-test is used to make inter –bank analysis on risk and return position.

4.2. Presentation, Interpretation and Analysis of data

The presentation and analysis of data can be divided into two groups, systematically. This division makes the analysis and

interpretation, simple, clear, and easy to understand. The two groups of presentation, interpretation and analysis of data can be classified under two categories given below:

- According to descriptive analysis
- According to Inferential analysis

4.2.1 Presentation, Interpretation and analysis of data according to descriptive analysis

Under descriptive analysis, the presentation, interpretation and analysis of data are devoted to find the position off risk and return of all the selected banks under this study. Under this, the trend analysis and profitability ratios are used to as a basis of inter bank comparison of risk and return. So, this descriptive analysis also can be categorized into two groups to make the study easy6 are as below:

- Descriptive analysis based on profitability
- Descriptive analysis based on Trend analysis

4.2.1.1 Descriptive Analysis Based on Profitability Ratio

In this part of study, descriptive analysis is based on profitability ratios, which have already shown and presented in the previous chapter III. The presentation, interpretation and analysis of data according to descriptive analysis based on these profitability ratios are described and shown in tabulation form below, systematically.

4.2.1.1(A): Analysis of Risk and Return position of all the selected financial institutions based on Gross Profit Margin Ratio:

In this study, risk is presented by CV, and return is presented by mean ($\overline{X}$) which have already discussed are shown in the following

table. And the interpretation and analysis of all selected banks are done and discussed below the table.

Table-1.1

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on GPR).

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	42.04	45.78	40.12	42.24	54.10	44.85	4.96	11.05
BOK	21.46	26.72	28.86	30.6	34.26	28.38	4.25	14.97
SCBL	51.92	52.85	42.39	40.64	42.76	46.11	5.17	11.23
NIC	15.03	24.88	21.19	23.86	26.00	22.19	3.91	17.66
NSBIL	14.59	20.36	34.62	30.58	36.15	33.38	8.39	30.79

The table no. 1.1 shows the position of risk and return based on the Gross Profit Ratio of the selected financial institutions. Mean ($\overline{X}$ **)** represents the return and CV represents the risk factor.

The table shows that the SCBL has the highest efficiency to earn the return having 46.11%. Similarly, NABIL has the second highest return with 44.85 %. Where as the NIC has lowest return with 22.19%. On the another hand, NSBIL has the highest risk having CV of 30.79% and NABIL bank has the lowest risk having the CV of 11.05%.

For the conclusion, the table interprets that the bank having highest risk has not the highest return. It is not in favor of the saying, “Higher the risk, higher the return”. Instead of this, the above table is in favour of the unusual saying, “higher the risk, lower the return.”

4.2.1.1(B): Analysis of risk and return position of all the selected financial institutio9ns based on Net Profit Margin

Risk and return are represented by CV and mean ($\overline{X}$ **)** respectively of all the selected financial institutions. These are shown in table below. And interpretation of above calculation are shown under the table (1.2)

Table no: 1.2

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on NPR)

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	31.05	34.14	43.52	46.72	45.53	40.19	6.36	15.83
BOK	12.46	17.93	27.12	35.1	38.75	26.27	9.825	37.27
SCBL	33.81	34.07	41.71	46.44	44.39	40.08	4.87	12.17
NIC	7.91	16.38	38.89	30.67	38.56	26.48	12.36	46.69
NSBIL	8.615	9.95	14.13	25.16	47.77	21.12	14.53	68.8

The above table shows the status of Risk and Return based on the Net Profit Ratio (i.e. Net profit to Operating Income). Here, return is represented by mean return ($\overline{X}$ **)** and the risk is represented by CV.

According to the table and calculation of ratio of selected 'A' graded financial institutions, NABIL has the highest rate of return with 40.19% and it is followed by SCBL with 40.08%. And on other hand, lowest earning bank is NSBIL with 21.12 %. And on the other hand, NSBIL has the highest risk having the CV of 68.8% .SCBL has the lowest risk, having the CV of 12.17%.

From the above table, we come to the conclusion that the bank having the highest risk has not the highest return and the bank having the lowest risk has the highest return. Which is not in favour of the

saying, “higher the risk and higher the return.” In fact it is in favour of the saying, “higher the risk, lower the return.” I also agree with it.

4.2.1.1(c): Analysis of risk and return position of all the selected financial institutions based on Return on Assets.

The risk and return of all the selected banks are represented by CV and mean $(\overline{X})$ respectively, and shown in table (1.3) below. And the interpretation of above calculations is shown in below the table (1.3).

Table no: 1.3

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on ROA):

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	2.51	0.27	3.04	2.84	2.47	2.23	1.0005	45.06
BOK	1.1	1.3	1.4	1.6	1.8	1.44	0.0589	4.0346
SCBL	2.41	2.27	2.46	2.55	2.41	2.42	0.091	3.76
NIC	0.64	1.15	1.51	0.93	1.35	1.12	0.0308	2.75
NSBIL	0.64	0.72	0.57	0.89	1.8	0.932	0.46	49.44

The above table states the position of Risk and Return based on the net income to working fund ratio. Mean return $(\overline{X})$ **re**presents the position of return and the coefficient of variation (CV) represents the risk position.

In the above table, we see that SCBNL has the highest return with 2.42% also followed by NABIL with 2.23%. And the lowest return is of NIC with 1.12%

And on the other side, NSBIL bears the highest risk having the CV of 49.44% and NIC bears the lowest risk having the CV of 2.75%. From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, “higher the risk, higher the return.” Rather this table shows and proverbs that the unusual saying, “higher the risk, lower the return.”

4.2.1.1(D):Analysis of risk and return position of all the selected financial institutions based on Return on Equity.

The Risk and |Return of all the selected banks are represented by CV and mean respectively, and shown in table (1.4) below. And the interpretations of above calculation are shown in below the table (1.4).

Table no: 1.4

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on ROE).

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	31.67	30.73	31.398	33.88	32.76	32.08	1.112	3.46
BOK	14.18	19.59	19.35	24.1	26.72	20.788	4.319	20.78
SCBL	37.03	35.96	33.88	37.55	32.82	35.44	1.817	5.127
NIC	4.7	11.0	16.63	12.62	17.26	12.43	2.02	16.30
NSBIL	8.554	9.71	8.32	11.91	21.91	12.083	5.07	41.19

The above table states the position of Risk and Return based on Return on Equity ratio of the selected ‘A’ graded financial institution. Return is presented by $(\overline{X})$ mean return and the risk is presented by CV. In the table, we see that the SCBL has the highest rate of return

with 35.45% and followed by NABIL with 32.08%. And the NSBI has the lowest return with 12.08%.

And on the other side, NSBIL bears the highest risk having the CV of 41.19% and NABIL bears the lowest risk having the CV of 3.46%. From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, “higher the risk, higher the return.” Rather this table shows and proverbs that the unusual saying, “higher the risk, lower the return.”

4.2.1.1(E).Analysis of risk and return position of all the selected financial institutions based on Interest earned to Working Fund.

The Risk and |Return of all the selected banks are represented by CV and mean respectively, and shown in table (1.5) below. And the interpretations of above calculation are shown in below the table (1.5).

Table no: 1.5

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on IE to WF).

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	$\pm$	CV
NABIL	6.15	.60	4.84	4.26	3.78	3.926	0.054	13.82
BOK	6.67	5.97	3.69	3.33	3.29	4.59	1.436	31.28
SCBL	4.77	4.41	3.69	3.44	3.49	3.95	0.529	13.4
NIC	7.21	6.12	3.083	2.3	2.606	4.26	2.005	47.08
NSBIL	6.20	5.20	3.21	2.86	3.01	4.10	1.353	32.98

The above table states the position of Risk and Return based on Return on Equity ratio of the selected ‘A’ graded financial institution. Return is presented by $(\overline{X})$ mean return and the risk is presented by

CV. In the table, we see that the BOK has the highest rate of return with 4.59% and followed by NIC with 4.26%. And the NABIL has the lowest return with 3.93%.

And on the other side, NIC bears the highest risk having the CV of 47.08% and SCBL bears the lowest risk having the CV of 13.4%.

From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, “higher the risk, higher the return.” Rather this table shows and proverbs that the unusual saying, “higher the risk, lower the return.”

4.2.1.1(F):Analysis of risk and return position of all the selected financial institutions based on Earning Yield.

The Risk and |Return of all the selected banks are represented by CV and mean respectively, and shown in table (1.6) below. And the interpretations of above calculation are shown in below the table (1.6).

Table no: 1.6

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on EY).

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	11.52	9.26	7.029	5.768	2.71	3.926	.054	13.82
BOK	8.94	9.322	7	5.13	3.16	6.712	2.32	34.63
SCBL	9.1	8.22	6.1	2.83	4.65	6.18	2.28	37.04
NIC	2.88	6.26	6.22	3.25	2.53	4.228	1.65	39.22
NSBIL	4.498	4.64	3.967	2.98	3.34	3.88	.64	16.49

The above table states the position of Risk and Return based on Return on Equity ratio of the selected ‘A’ graded financial institution.

Return is presented by $(\overline{X})$ mean return and the risk is presented by CV. In the table, we see that the BOK has the highest rate of return with 35.45% and followed by SCBL with 32.08%. And the NSBIL has the lowest return with 3.88%.

And on the other side, NIC bears the highest risk having the CV of 39.22% and NABIL bears the lowest risk having the CV of .13.82%.

From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, “higher the risk, higher the return.” Rather this table shows and proverbs that the unusual saying, “higher the risk, lower the return.”

4.2.1.1(G): Analysis of risk and return position of all the selected financial institutio9ns based on Dividend Yield.

The Risk and |Return of all the selected banks are represented by CV and mean respectively, and shown in table (1.7) below. And the interpretations of above calculation are shown in below the table (1.7).

Table no: 1.7

Table showing the risk and return position of the selected banks for the FY 2002/03 to 2006/07 (Based on DY).

Banks	2002/3	2003/4	2004/5	2005/6	2006/7	$\overline{X}$	±	CV
NABIL	6.8	6.5	0	0	0	2.661	2.52	94.37
BOK	2.52	3.389	3.488	2.177	1.45	2.59	0.77	29.72
SCBL	6.7	6.3	0	0	0	2.6	3.18	122.3
NIC	0	0	2.732	0.1	0.15	0.596	1.069	179.28
NSBIL	3.13	0	0	0.87	1.67	1.135	1.178	103.79

The above table states the position of Risk and Return based on Return on Equity ratio of the selected 'A' graded financial institution. Return is presented by $(\overline{X})$ mean return and the risk is presented by CV. In the table, we see that the NABIL has the highest rate of return with 2.661% and followed by SCBL with 2.6%. And the NIC has the lowest return with 0.596%.

And on the other side, NIC bears the highest risk having the CV of 179.28% and BOK bears the lowest risk having the CV of 29.722%.

From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, "higher the risk, higher the return." Rather this table shows and proverbs that the unusual saying, "higher the risk, lower the return."

4.2.1.1(H): Analysis of risk and return position of all the selected financial institutio9ns based on Price Earning Ratio.

Table no: 1.8

Banks	**2002/3**	**2003/4**	**2004/5**	**2005/6**	**2006/7**	$\overline{X}$	±	**CV**
NABIL	8.68	10.8	14.23	17.34	36.83	17.57	10.06	57.31
BOK	11.17	10.72	14.28	19.46	31.6	17.45	7.73	44.31
SCBL	10.98	12.15	16.38	35.25	21.46	19.24	8.808	45.78
NIC	34.68	15.96	16.087	30.8	39.56	27.41	9.7	35.41
NSBIL	22.23	21.52	25.2	33.49	29.88	26.46	4.582	17.31

The above table states the position of Risk and Return based on Return on Equity ratio of the selected 'A' graded financial institution. Return is presented by $(\overline{X})$ mean return and the risk is presented by

CV. In the table, we see that the NIC has the highest rate of return with 27.41% and followed by NSBIL with 26.46%. And the BOK has the lowest return with 17.45%.

And on the other side, NABIL bears the highest risk having the CV of 57.31% and NSBIL bears the lowest risk having the CV of 17.31%.

From the table we can see that the bank having the highest risk has lowest return but the bank has lowest risk earns highest return. Which is not in favour of the saying, “higher the risk, higher the return.” Rather this table shows and proverbs that the unusual saying, “higher the risk, lower the return.”

4.2.1.2:Presentation and analysis of data according to descriptive analysis based on trend of return of the selected financial institution.

OR

Descriptive Analysis based on Trend Analysis:

A series formed from a set of statistical data arranged in accordance with their time of occurrence is said to be a time series. Trend analysis is the study of time series that shows the direction of the variation which are depend on the time. In this part of study, descriptive analysis is done based on trend analysis. For this the trend of return which is acquired by profitability ratios is shown in table. The trend equation and predicted values or trend values of each of the selected banks are shown and presented in tables from below (from table no2.1to 2.8)

And, moreover the graphical presentations of those values are also presented below the table to identify the nature of the trend i.e. negative or positive. At below, the interpretation and the analysis

related to the table and figure are also dealt just after the presentation of table and figure.

4.2.1.2(A): Analysis the trend of return of the selected financial institutions regarding GPR as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table showing the Trend equation and Trend values of return of the selected banks for the FY 2002/03 to 2006/07(Based on GPR)

Table no. 2.1

Banks	Trend Equation Y=a +bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=44.85+2.058X	40.73	42.79	44.85	46.90	48.96
BOK	Y=28. 38+2.948X	22.46	25.43	28.38	31.32	34.27
SCBL	Y=46.11-3.05X	52.21	49.16	46.11	43.06	40.01
NIC	Y=22.19+2.092X	26.37	24.28	22.19	24.28	26.37
NSBIL	Y=27.26+5.32X	16.62	21.94	27.26	32.58	37.9

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

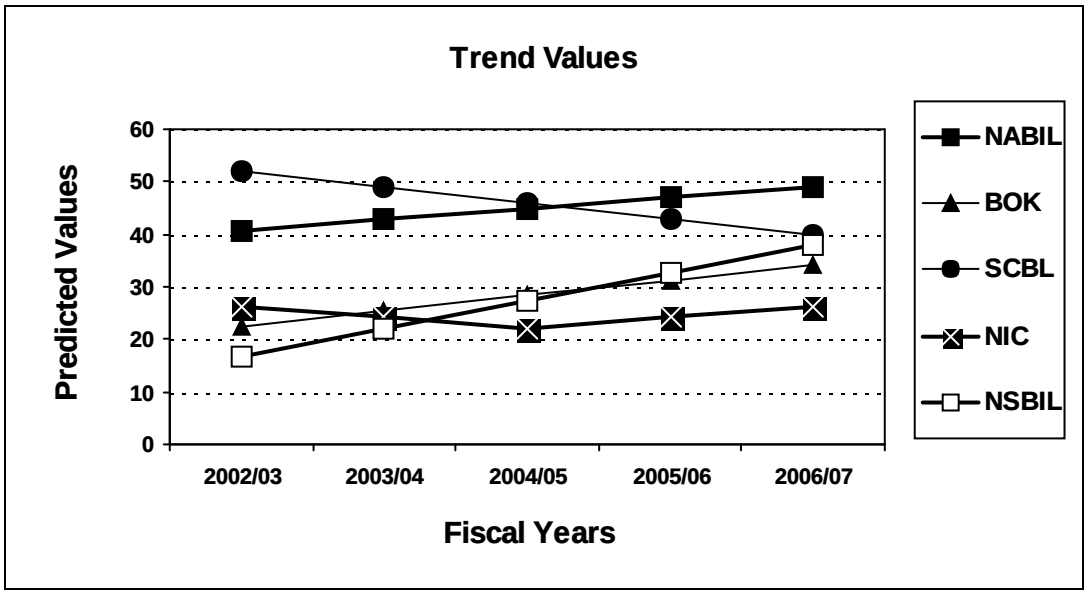

Figure -5.1

The above table and figure shows the trend of mean return based on GPR. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions.

NABIL, BOK and NSBIL have the positive trend of mean return and others SCBL and NIC has the negative trend of mean return. NISBL has the highest positive growth pattern of 5.32 times per year and followed by the BOK with 2.948 times. On the other hand SCBL has the highest negative trend rate of 3.05 times per year.

4.2.1.2(B) Analysis the trend of return of the selected financial institutions regarding NPR as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table no.2.2

Banks	Trend Equation Y=a +bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=40.19+4.15X	31.89	36.04	40.19	44.34	48.49
BOK	Y=26.36+6.88X	12.6	19.48	26.36	33.24	40.12
SCBL	Y=40.08-1.08X	42.24	41.16	40.08	39	37.92
NIC	Y=26.48+7.559X	11.36	18.92	26.48	34.039	41.598
NSBIL	Y=21.13+9.35X	2.43	11.78	21.13	30.48	39.83

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

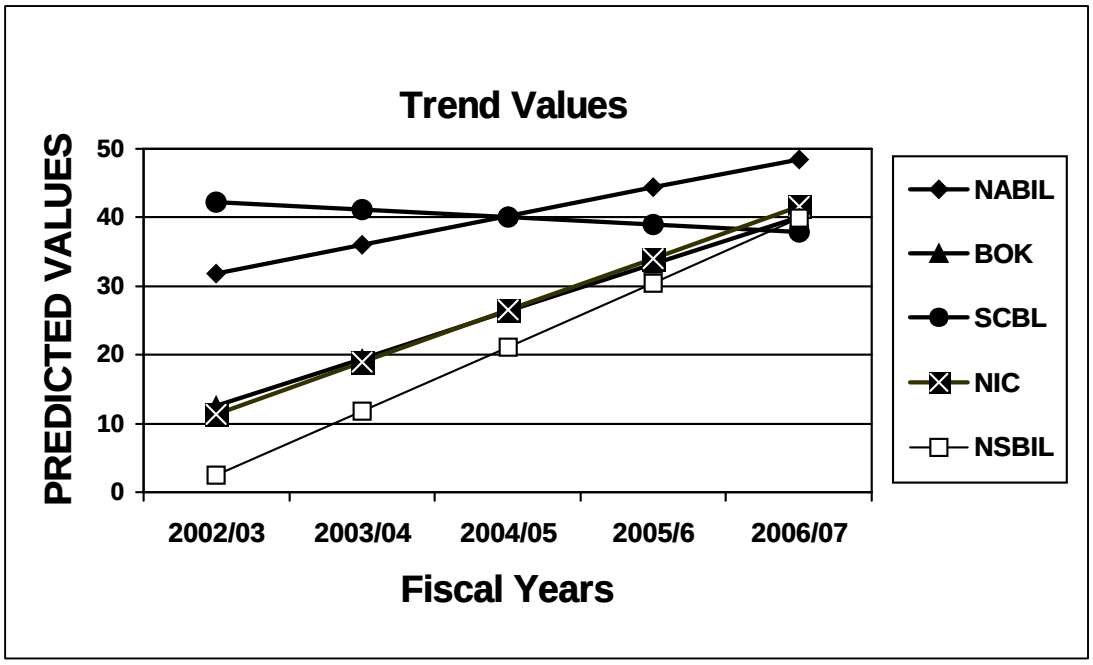

Figure -5.2

The above table and figure shows the trend of mean return based on NPR. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions.

NABIL, BOK, NIC and NSBIL have the positive trend where as SCBL has the negative trend. NSBIL has the highest growth trend rate of 9.35 times per year and followed by the NIC having the growth rate of 7.559 times. On the contrary of this SCBL has the highest negative trend having the 1.08 times growth rate.

4.2.1.2(C): Analysis the trend of return of the selected financial institutions regarding ROA as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table no:2.3

Banks	Trend Equation Y=a +b**X**	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=2.22+0.249X	1.72	1.97	2.22	2.47000	2.72
BOK	Y=1.46+0.169X	1.12	1.29	1.46	1.63	1.79
SCBL	Y=2.42+0.028X	2.36	2.39	2.42	2.44	2.48
NIC	Y=1.117+0.121X	0.88	0.99	1.12	1.24	1.36
NSBIL	Y=0.934+0.255X	0.42	0.68	0.93	1.19	1.44

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

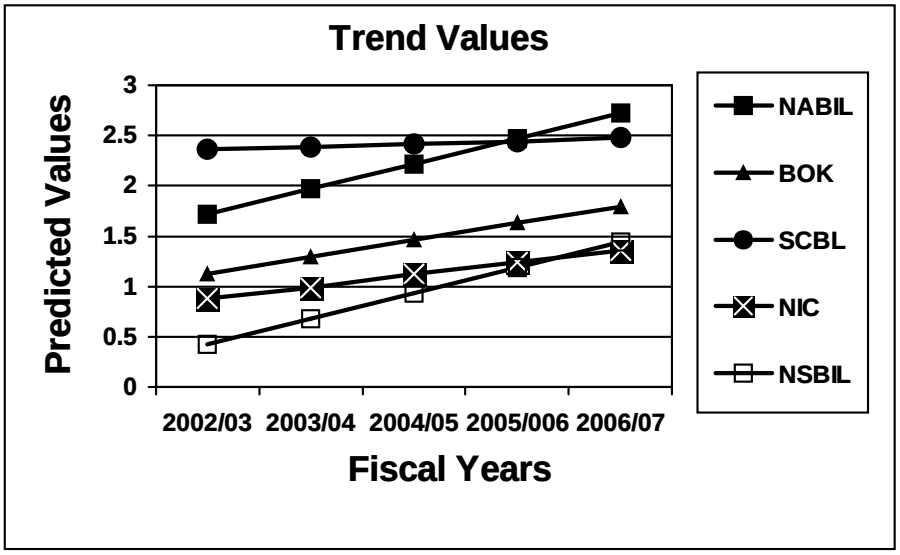

Figure -5.3

The above table and figure shows the trend of mean return based on ROA. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions.

By see the above table and graph, we came to know that all bank has the positive trend. But among of them, NSBIL has the highest positive trend having the 5.32 times per year and followed by BOK having the 2.948 times growth rate per year. And the lowest positive trend is of SCBL having 3.05 times per year.

4.2.1.2(D): Analysis the trend of return of the selected financial institutions regarding ROE as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table no: 2.4

Banks	Trend Equation Y=a +bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=32.08+0.533X	31.01	31.54	32.08	32.61	33.15
BOK	Y=20.78+2.95X	14.88	17.83	20.78	23.73	26.68
SCBL	Y=35.44-0.681X	36.80	36.12	35.44	34.76	34.08
NIC	Y=12.438+2.67X	7.09	9.77	12.44	15.11	17.78
NSBIL	Y=12.083+2.89X	6.30	9.19	12.08	14.97	17.86

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

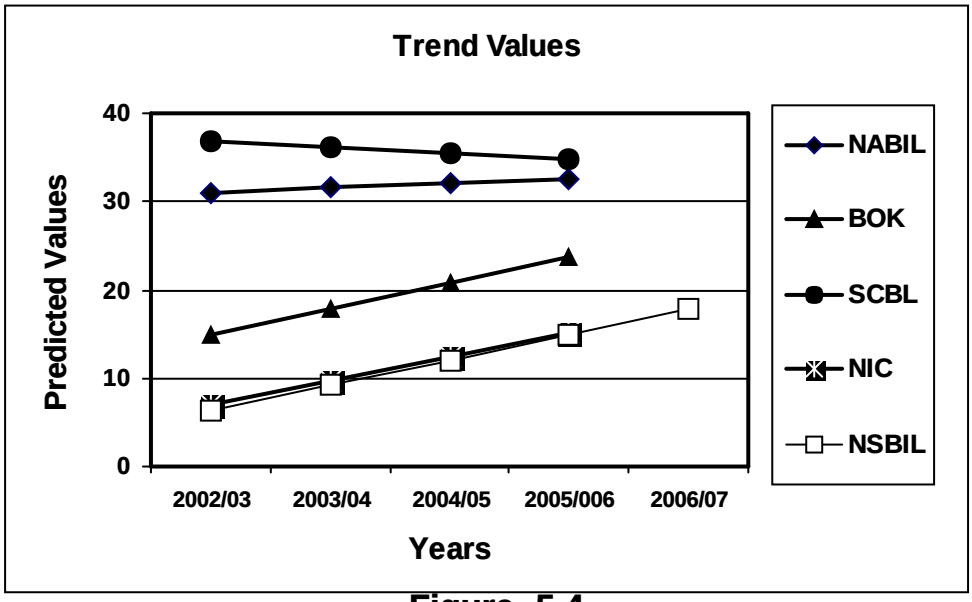

Figure -5.4

The above table and figure shows the trend of mean return based on ROE. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions.

It is reveal from the table and graph that BOK, NSBIL, NIC, NABIL has the positive trend values. Among them BOK has the highest trend rate of 2.95 times of growth rate per year and followed by the NSBIL having 2.89 times of growth rate per year.And the least positive trend is of NABIL having 0.533 times of growth rate per year. On the other hand, SCBL has the negative trend of 0.68 times of growth rate

4.2.1.2(E). Analysis the trend of return of the selected financial institutions regarding IE to WF as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table no: .5

Banks	Trend Equation Y= a+bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=3.926-0.108X	4.14	4.034	3.93	3.71	3.82
BOK	Y=4.59+0.940X	2.71	3.65	4.59	5.53	6.47
SCBL	Y=3.95-0.357X	4.66	4.31	3.95	3.59	3.24
NIC	Y=4.26-1.302X	6.86	5.56	4.26	2.96	1.66
NSBIL	Y=4.10-0.873X	5.85	4.98	4.1	3.23	2.35

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

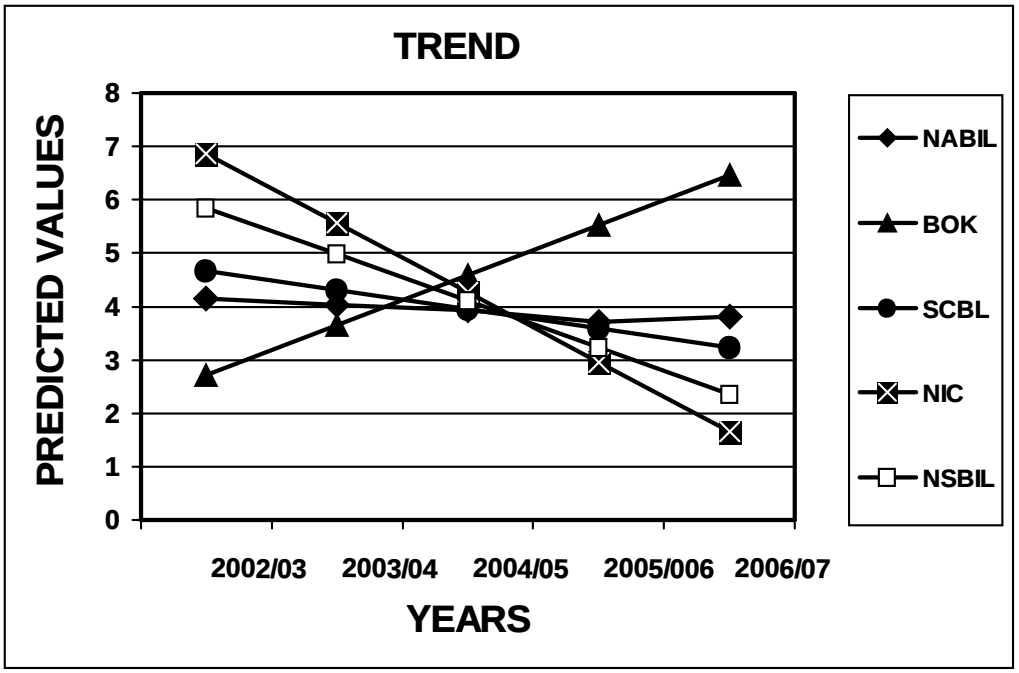

Figure -5.5

The above table and figure shows the trend of mean return based on IE to WF. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevelant in Nepalese “A” graded financial institutions.

From the table and the graph, we came to know that all bank such as NABIL, SCBL, NIC, and NABIL has the negative trend having the values of 0.108, 0.357, 1.302, and 0.873 times per year respectively. Among of them, NIC has the highest negative trend. And on the other hand only BOK has the positive trend of 0.940 times growth rate per year.

4.2.1.2(F): Analysis the trend of return of the selected financial institutions regarding EY as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and

analysis of the table and graph are also presented just after the table and graph.

Table no:2.6

Banks	Trend Equation Y=a+bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=7.25-2.11X	11.47	9.36	7.25	5.14	3.03
BOK	Y=6.712-1.577X	9.85	8.28	6.71	5.14	3.57
SCBL	Y=6.181-1.428	9.04	7.61	6.18	4.75	3.33
NIC	Y=4.228-0.371X	4.97	4.59	4.23	3.86	3.49
NSBIL	Y=3.88-0.395X	4.67	4.28	3.88	3.49	3.09

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

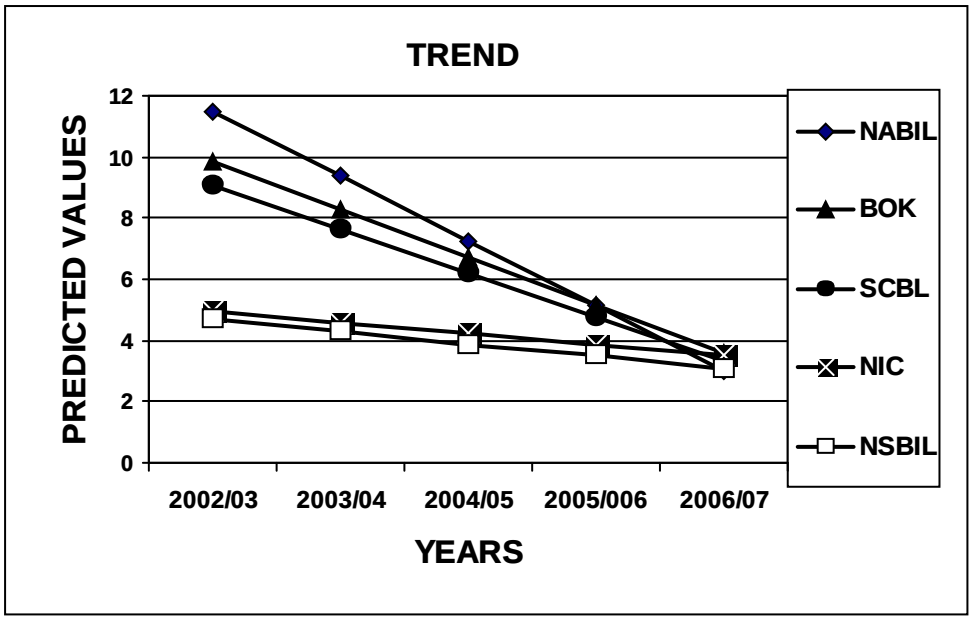

Figure -5.6

The above table and figure shows the trend of mean return based on EY. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions. The above table and the graph figure shows that all the selected banks such as NABIL, BOK, SCBL, NIC, and NSBIL under the study have negative trend having the trend values of 2.11, 1.577, 1.428, 0.371, 0.395 respectively. Among them, NABIL has the highest negative trend of 2.11 times growth rate and followed by the BOK having 1.577 times growth rate.

4.2.1.2(G): *Analysis the trend of return of the selected financial institutions regarding DY as a rate of return.*

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and analysis of the table and graph are also presented just after the table and graph.

Table no: 2.7

Banks	Trend Equation Y=a+bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=2.66-2.01X	6.68	4.67	2.66	0.65	-1.36
BOK	Y=2.59-0.342X	3.27	2.93	2.59	2.5	1.96
SCBL	Y=2.6-1.97X	6.54	4.57	2.6	0.63	1.34
NIC	Y=0.596+0.04X	0.52	0.56	0.59	0.64	0.68
NSBIL	Y=1.135-0.206X	1.55	1.34	1.14	0.93	0.72

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

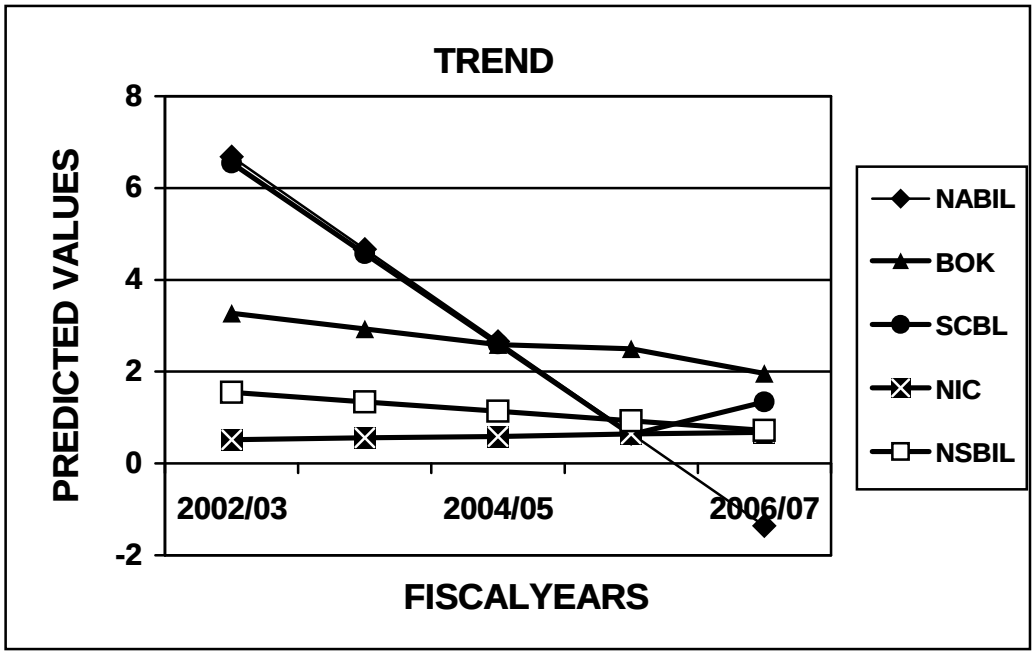

Figure -5.7

The above table and figure shows the trend of mean return based on DY. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese "A" graded financial institutions.

The table and the graph figure show that the entire bank except NIC has the negative trend of 2.01, 0.342, 1.97, 0.206 times of growth rate per year respectively. Among of them, NIC has only the positive trend of 0.04 times per year. And among the others, NABIL has the highest negative trend of 2.01times and followed by the SCBL having 1.97 times of growth rate per year.

4.2.1.2(H). Analysis the trend of return of the selected financial institutions regarding P/E as a rate of return.

The trend of return, trend equation and the predicted trend values are presented in the following table and figure. The interpretation and

analysis of the table and graph are also presented just after the table and graph.

Table no: 2.8

Banks	Trend Equation Y=a+bX	PREDICTED VALUES				
		2002/03	2003/04	2004/05	2005/006	2006/07
NABIL	Y=17.57+6.284X	5.0	11.29	17.57	23.85	30.13
BOK	Y=17.45+4.96X	7.53	12.49	17.45	22.41	27.37
SCBL	Y=19.21+4.39X	10.43	14.82	19.21	23.6	27.99
NIC	Y=27.41+2.46X	22.49	24.95	27.41	29.87	32.33
NSBIL	Y=26.46-2.727X	31.9	29.14	26.46	23.74	21.02

Source: Comparative B/S and P/L A/C statements of the respective banks during the period for 2002/2003 to 2006/2007 as given in the website of www.nepalstock.com.

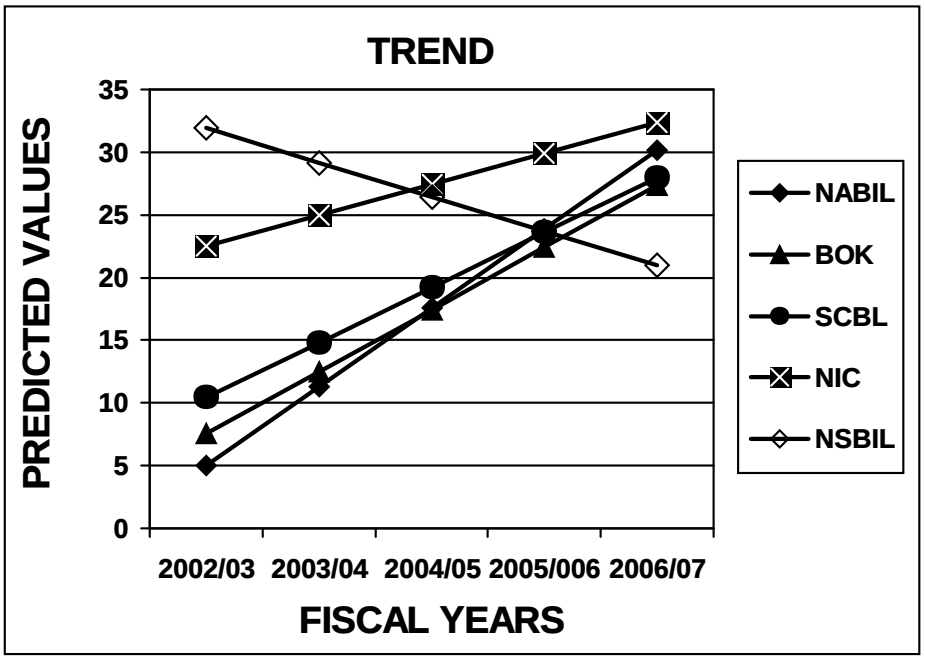

Figure 5.8

The above table and figure shows the trend of mean return based on P/E. In the table and figure shows the predicted values of different selected institution for the five fiscal years. The table and graph shows that there are negative and positive trend prevalent in Nepalese “A” graded financial institutions.

Here, from the table and graph, we get the in formations that all bank such as NABIL, BOK, SCBL, NIC have the positive trend having 6.284, 4.96, 4.39, and 2.46 times respectively. Except the bank NSBIL has the negative trend having 2.727 times growth rate per year. Among the bank, NABIL has the highest positive trend value of 6.284 times and followed by the BOK having the trend value of 4.39 times per year. And NIC has the lowest positive trend of 2.46 times per year.

4.2.2 : Presentation and analysis of data according to Inferential Analysis

Many times, however the researcher may be interested in inferential Analysis. So, inferential analysis is done to know the relationship between two variables, differences among different sub -groups of a variable and so on. Applying students’ t-test, applying the analysis of variance (ANOVA). And moreover, the significant difference among the mean values of profitability ratio of the selected banks under the study also tested. For this hypothesis is formulated and presented and tested. For this study, this inferential analysis is categorized into the following parts.

- Inferential Analysis based on ANOVA of F-test.
- Inferential Analysis based on students’ t-test and correlation ship.

4.2.2.1 Inferential Analysis based on ANOVA of F-test.

In this section, the test of significant differences among the mean values of various profitability ratios of the selected institutions is calculated or done in this category.

The hypothesis is set out and the calculated f- ratio values are compared with the critical value of f at 5 % level of significance with (4, 20) as degree of freedom. The test is carried out on the basis of each of the profitability ratio as under:

4.2.2.1(A): Test based on the basis of GPR

The null hypothesis and alternative hypothesis for the test are as below:

H_o: here is no significant difference among the mean value of GPR of the selected banks under the study.

H_A: There is significance difference among the mean values of the GPR of the selected banks under the study.

Table no: 2.9

ANOVA Table showing the F-Ratio (calculated) based on GPR.

Source of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	2404.16	4	601.04	15.48	Significant
Within samples	776.48	20	38.82		
Total	3180.64	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSR Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 15.48, which is more than the critical value of f, (2.87) . This shows that there is significant difference between the mean values of the selected banks under the study based on the Gross Profit Ratio. So we accept the alternative hypothesis, and reject the null hypothesis.

4.2.2.1(B): Test based on the basis of NPR

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of NPR of the selected banks under the study.

H_A : There is significance difference among the mean values of the NPR of the selected banks under the study.

Table no: 3.0

ANOVA Table showing the F-Ratio (calculated) based on NPR.

Source of Variation	Sum of squares	d.f	Mean Square	F- ratio	Result
Between samples	1536.18	4	384.04	2.85	Not Significant
Within samples	2695.98	20	134.79		
Total	4232.16	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSR Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 2.85, which is less than the critical value of f, (2.87) . This shows that there is no significant difference between the mean values of the selected banks under the

study based on the Net Profit Ratio. So we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.1(C): Test based on the basis of ROA

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of ROA of the selected banks under the study.

H_A : There is significance difference among the mean values of ROA of the selected banks under the study.

Table no: 3.1

ANOVA Table showing the F-Ratio (calculated) based on ROA.

Source of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	8.74	4	2.19	6.422	Significant
Within samples	6.82	20	0.341		
Total	15.56	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 6.422, which is more than the critical value of f, (2.87) .This shows that there is significant difference between the mean values of the selected banks under the study based on the Return on Assets. So we accept the alternative hypothesis, and reject the null hypothesis.

4.2.2.1(D) :Test based on the basis of ROE

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of ROE of the selected banks under the study.

H_A : There is significance difference among the mean values of ROE of the selected banks under the study.

Table no: 3.2

ANOVA Table showing the F-Ratio (calculated) based on ROE

Source of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	2362	4	590.5	29.92	Significant
Within samples	394.63	20	19.73		
Total	2756.63	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 29.92, which is more than the critical value of f, (2.87) . Thus, we conclude that there is significant difference between the mean values of the selected banks under the study based on the Return on Equity. So we accept the alternative hypothesis, and reject the null hypothesis.

4.2.2.1(E) : Test based on the basis of Interest earned to working fund ratio.

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of IE to WF of the selected banks under the study.

H_A : There is significance difference among the mean values of IE to WF of the selected banks under the study.

Table no: 3.3

ANOVA Table showing the F-Ratio (calculated)based on IE to WF.

Source Of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	1.47	4	0.37	**0.13**	Not Significant
Within samples	58.25	20	2.91		
Total	59.72	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 0.13, which is less than the critical value of f, (2.87) . This shows that there is no significant difference between the mean values of the selected banks under the study based on the Interest Earned to Working Fund. So we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.1(F) :Test based on the basis of EY Ratio.

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of EY of the selected banks under the study.

H_A : There is significance difference among the mean values of EY of the selected banks under the study.

Table no: 3.4

ANOVA Table showing the F-Ratio (calculated) based on EY.

Source of Variation	Sum of squares	d.f	Mean Square	F- ratio	Result
Between samples	45.63	4	11.41	1.48	Not Significant
Within samples	154.24	20	7.712		
Total	199.87	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

In above table we see that that calculated value of f- ratio is at 5 % level of significance with a degree of (4, 20) is 1.48, which is less than the critical value of f, (2.87) . This shows that there is no significant difference between the mean values of the selected banks under the study based on the Earning Yield Ratio. So we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.1(G): Test based on the basis of Dividend Yield Ratio:

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of DY of the selected banks under the study.

H_A : There is significance difference among the mean values of DY of the selected banks under the study.

Table no: 3.5

ANOVA Table showing the F-Ratio (calculated) based on DY.

Source of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	19.22	4	4.81	0.805	Not Significant
Within samples	119.41	20	5.97		
Total	138.63	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

It is apparent from the above ANOVA table that the calculated value of f –ratio at 5 % level of significance with the degree of freedom of (4, 20) is 0.805 which is less than the critical value of f, i.e. 2.87. Therefore the result reveals that there is no significant difference between the mean values of the Dividend Yield Ratio of the groups. Hence we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.1(H) :Test based on the basis of Price Earning Ratio.

The null hypothesis and alternative hypothesis for the test are as below:

H_o : There is no significant difference among the mean value of P/E **o**f the selected banks under the study.

H_A : There is significance difference among the mean values of P/E of the selected banks under the study.

Table no: 3.6

ANOVA Table showing the F-Ratio (calculated)based on P/E .

Source of Variation	Sum of squares	d.f	Mean Square	F-ratio	Result
Between samples	538.42	4	134.61	1.282	Not significant
Within samples	2100.39	20	105.02		
Total	2638.81	24			

SOURCE: Comparative B/s and P/L A/C statement of the respective banks during the period for 2002/3 to 2006/7 as given in NSE Website www.nepalstock.com.

It is apparent from the above ANOVA table that the calculated value of f –ratio at 5 % level of significance with the degree of freedom of (4, 20) is 1.282 which is less than the critical value of f, i.e. 2.87. Therefore the result reveals that there is no significant difference between the mean values of the Price Earning Ratio of the groups. Hence we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.2 : Presentation and Analysis of data according to Inferential Analysis based on Correlation and t-test.

Here, to know the relationship and co-movement of the risk and return Karl Pearson's correlation coefficient is computed. All the calculation is shown in the table by using the formula. And after that, the significance of the correlation coefficient is also tested by applying t-test. The calculation and interpretation are shown after the interpretation of the correlation. For this, hypothesis are computed and compared with the calculated value of t at the 5% of the significance with (n-2) degree of freedom. The significance of the correlation is known on the acceptance and rejection of the null and alternative hypothesis.

4.2.2.2(A) :Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on GPR).

Table no- 3.7

Calculation of correlation between risk and return based on the GPR ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	44.85	11.05	2011.5	122.10	495.59
BOK	28.38	14.97	805.4	224.10	424.85
SCBL	46.11	11.23	2126.13	126.11	517.82
NIC	22.19	17.66	492.39	311.87	391.87
NSBI	27.26	30.79	743.10	948.02	839.33
	$\Sigma X =$ 168.79	$\Sigma Y =$ 85.7	$\Sigma X^2 =$ 6178.52	$\Sigma Y^2 =$ 1732 .2	$\Sigma XY =$ 2669.465

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 2669.465 - 168.79 \times 85.7}{\sqrt{5 \times 6178.52 - (168.79)^2} \times \sqrt{5 \times 1732.2 - (85.7)^2}}$$

r=-0.628

The calculated value of r (-0.628) shows that there is negative relationship between the risk and return of the selected banks. This states that the increment in the risk or return causes to decrement in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the result is in support of saying, "lower the risk, higher the return." And vice versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test:

1. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (Based on GPR).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (based on GPR

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.6286\sqrt{(5-2)}}{\sqrt{1-(-0.6286)^2}}$$

t = 1.399

t = 1.399< 3.182 (critical value of t)

The above calculation states that the calculated value of t is 1.399, which is less than the critical value of t at 95% level of confidence. This states that there is no significant correlation ship between the risk in terms of coefficient of variation (CV) and return in terms of mean return($\overline{X}$) of the selected banks under the study.

Hence we accept the null hypothesis (Ho) and reject the alternative hypothesis. It suggests that some time it happens, “Lower the risk, higher the return.”

4.2.2.2(B) :Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on NPR).

Table no.- 3.8

Calculation of correlation between risk and return based on the NPR ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	40.19	15.83	1615.24	250.58	636.207
BOK	26.36	37.27	694.84	1389.05	982.44
SCBL	40.08	12.17	1606.4	148.108	487.77
NIC	26.48	46.69	701.19	2179.9	1236.35
NSBI	21.13	68.80	446.48	4733.44	1453.74
	$\Sigma X =$ 154.24	$\Sigma Y =$ 180.76	$\Sigma X^2 =$ 5065.15	$\Sigma Y^2 =$ 8701.07	$\Sigma XY =$ 4796.51

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 4796.51 - 154.24 \times 180.76}{\sqrt{5 \times 5065.15 - (154.24)^2} \times \sqrt{5 \times 8701.07 - (180.76)^2}}$$

r=-0.955

The calculated value of r (-0.955) shows that there is negative relationship between the risk and return of the selected banks. This states that the increment in the risk or return causes to decrement in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the

result is in support of saying, “lower the risk, higher the return.” And vice versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test.

2. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study(Based on NPR).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (based on NPR).

Calculation of t-value

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.955\sqrt{(5-2)}}{\sqrt{1-(-0.955)^2}}$$

t = 5.5768

t = 5.5768>3.182 (critical value of t)

From the above calculation it is shown that the critical value of t is smaller than the calculated value of t. the calculated and the critical value of t is 5.5768 and 3.182 at 5% level of significance with (n-2) degree of freedom. The calculation significance that there is significant relationship between the risk, in terms of CV and mean return ($\overline{X}$) of the selected banks under the study.

From the above analysis the result comes that the null hypothesis is rejected and the alternative hypothesis is accepted.

4.2.2.2(C) :Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on Return on Assets)

Table no- 3.9

Calculation of correlation between risk and return based on the ROA ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	2.22	45.06	4.928	2030.4	100.033
BOK	1.45	4.03	2.1025	16.24	5.84
SCBL	2.42	3.76	5.856	14.13	9.099
NIC	1.11	2.75	1.232	7.56	3.052
NSBI	0.93	49.44	0.864	2444.3	45.98
	$\Sigma X =$ 8.13	$\Sigma Y =$ 105.04	$\Sigma X^2 =$ 14.983	$\Sigma Y^2 =$ 4512.63	$\Sigma XY =$ 4512.63

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 164.004 - 8.13 \times 105.04}{\sqrt{5 \times 14.98 - (8.13)^2} \times \sqrt{5 \times 4512.63 - (105.04)^2}}$$

r=-0.1581

The calculated value of r (-0.1581) shows that there is negative relationship between the risk and return of the selected banks. This

states that the increment in the risk or return causes to decrement in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the result is in support of saying, "lower the risk, higher the return." And vice versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test.

3. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study(Based on ROA).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return($\overline{X}$) of the selected institutions under the study (based on ROA)

Calculation of t-value: $$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.1581\sqrt{(5-2)}}{\sqrt{1-(-0.1581)^2}}$$

t = 0.2772

t = 0.2772<3.182 (critical value of t)

In the above calculation, the calculated value of t is 0.2772 at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of

t is greater than the calculated value of t. So, it reveals that there is no significant co relationship between the risk and return based on the Return on assets (ROA) of the selected banks. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.2.2.2(D) :Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on Return on Equity)

Table no.- 4.0

Calculation of correlation between risk and return based on the ROE ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	32.08	3.46	1029.126	11.97	110.99
BOK	20.78	20.78	431.81	431.81	431.81
SCBL	35.45	5.127	1256.7	26.29	181.75
NIC	12.44	16.7	154.75	278.89	207.75
NSBI	12.08	41.19	145.93	1696.62	497.58
	$\Sigma X =$ 112.83	$\Sigma Y =$ 87.26	$\Sigma X^2 =$ 3018.316	$\Sigma Y^2 =$ 2445.58	$\Sigma XY =$ 1429.88

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 1429.88 - 112.83 \times 87.26}{\sqrt{5 \times 3018.32 - (112.83)^2} \times \sqrt{5 \times 2445.58 - (87.26)^2}}$$

r=-0.8169

The calculated value of r (-0.8169) shows that there is negative relationship between the risk and return of the selected banks. This

states that the increment in the risk or return causes to decrement in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the result is in support of saying, "lower the risk, higher the return." And vice versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test.

4. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (Based on ROE).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (based on ROE)

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.8169\sqrt{(5-2)}}{\sqrt{1-(-0.8169)^2}}$$

t = 2.453

t = 2.453<3.182(critical value of t)

In the above calculation, the calculated value of t is 2.453 at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of

t is greater than the calculated value of t. So, it reveals that there is no significant correlation ship between the risk and return based on the Return on assets (ROE) of the selected banks.

Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.2.2.2(E) :<u>Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on I E to WF).</u>

Table no- 4.1

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	3.926	13.82	15.41	190.99	54.26
BOK	4.59	31.28	21.07	978.44	143.58
SCBL	3.95	13.4	15.6	179.6	52.93
NIC	4.26	47.08	18.15	2216.53	200.56
NSBI	4.1	32.98	16.81	1087.68	135.22
	$\Sigma X =$ 20.83	$\Sigma Y =$ 138.56	$\Sigma X^2 =$ 87.04	$\Sigma Y^2 =$ 4653.24	$\Sigma XY =$ 586.55

Calculation of correlation between risk and return based on the IE to WF ratio of the selected banks for the FY 2002/3 to 2006/7.

Where, $$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 1429.88 - 112.83 \times 87.26}{\sqrt{5 \times 3018.32 - (112.83)^2} \times \sqrt{5 \times 2445.58 - (87.26)^2}}$$

r=-0.8169

The calculated value of r (-0.8169) shows that there is negative relationship between the risk and return of the selected banks. This states that the increment in the risk or return causes to decrement in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the result is in support of saying, "lower the risk, higher the return." And vice versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test.

5. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study(Based on ROE).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (based on ROE)

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.8169\sqrt{(5-2)}}{\sqrt{1-(-0.8169)^2}}$$

t = 2.453

t = 2.453<3.182(critical value of t)

In the above calculation, the calculated value of t is 2.453 at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of t is greater than the calculated value of t. So, it reveals that there is no significant correlation ship between the risk and return based on the Return on assets (ROE) of the selected banks.

Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.2.2.2(F) :Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on Earning Yield).

Table no- 4.2

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	3.926	13.82	15.41	190.99	54.26
BOK	6.712	34.63	45.05	1199.24	232.44
SCBL	6.18	37.04	38.19	1371.96	228.91
NIC	4.228	39.22	17.86	1538.21	165.822
NSBI	3.88	16.49	15.05	271.92	63.98
	$\Sigma X = 24.93$	$\Sigma Y =$ 141.02	$\Sigma X^2 =$ 131.56	$\Sigma Y^2 =$ 4572.3	$\Sigma XY =$ 745.41

Calculation of correlation between risk and return based on the Earning Yield Ratio of the selected banks for the FY 2002/3 to 2006/7.

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 745.41 - 24.93 \times 141.02}{\sqrt{5 \times 131.56 - (24.93)^2} \times \sqrt{5 \times 4572.32 - (141.02)^2}}$$

r=0.6434

The calculated value of r (0.6434) shows that there is Positive relationship between the risk and return of the selected banks. This states that the increment in the risk or return causes to increment in return or risk and vice versa. So, the result is in favor of the proverb" higher the risk, higher the return and vice versa."

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test:

6. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (Based on Earning Yield).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (based on Earning Yield).

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{0.643\sqrt{(5-2)}}{\sqrt{1-(0.643)^2}}$$

t = 0.149

t = 0.149<3.182(critical value of t)

In the above calculation, the calculated value of t is 0.149 at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of t is greater than the calculated value of t. So, it reveals that there is no significant correlation ship between the risk and return based on the Earning Yield (EY) of the selected banks.

Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.2.2.2(G) Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on Dividend Yield)

Table no.- 4.3

Calculation of correlation between risk and return based on the Dividend Yield Ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	2.66	94.37	7.076	8905.69	251.024
BOK	2.59	29.72	6.708	883.28	76.975
SCBL	2.6	122.3	6.76	14957.29	317.98
NIC	0.596	179.28	0.3552	32141.32	106.85
NSBI	1.135	103.79	1.288	10772.36	117.8
	ΣX = 9.581	ΣY = 529.46	ΣX^2 = 22.19	ΣY^2 = 67659.94	ΣXY = 870.63

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 870.63 - 9.581 \times 529.46}{\sqrt{5 \times 22.19 - (9.581)^2} \times \sqrt{5 \times 67659.94 - (529.46)^2}}$$

r=-0.6823

The calculated value of r(-0.6823) shows that there is negative relationship between the risk and return of the selected banks. This states that the decrement in the risk or return causes to increment in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the

result supports the saying “lower the risk, lower the return and vice-versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test:

7. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (Based on Dividend Yield).

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return($\overline{X}$) of the selected institutions under the study (based on Dividend Yield).

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

t = 1.62

t = 1.62<3.182(critical value of t)

In the above calculation, the calculated value of t is 1.62at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of t is greater than the calculated value of t. So, it reveals that there is no significant correlation ship between the risk and return based on the Dividend Yield (DY) of the selected banks.

Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.2.2.2(H) Table showing the calculation of correlation coefficient between risk and return of the selected financial institution (Based on Price Earning Ratio)

Table no.- 4.4

Calculation of correlation between risk and return based on the Price Earning Ratio of the selected banks for the FY 2002/3 to 2006/7.

Banks	X Return	Y Risk	X2	Y2	XY
NABIL	17.57	57.31	308.7	3284.44	1006.94
BOK	17.45	44.31	304.5	1963.38	773.21
SCBL	19.24	45.78	370.178	2095.81	880.81
NIC	27.41	35.41	751.31	1253.87	970.59
NSBI	26.46	17.31	700.13	299.64	458.023
	ΣX = 108.13	ΣY = 200.12	ΣX^2 = 2434.82	ΣY^2 = 8897.14	ΣXY = 4089.57

$$r = \frac{N\Sigma xy - \Sigma x \times \Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2} \times \sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

$$r = \frac{5 \times 4089.57 - 108.13 \times 200.12}{\sqrt{5 \times 2434.82 - (108.13)^2} \times \sqrt{5 \times 8897.14 - (200.12)^2}}$$

r=-0.81

The calculated value of r (-0.81) shows that there is negative relationship between the risk and return of the selected banks. This states that the decrement in the risk or return causes to increment in return or risk and vice versa. So, the result is not in favor of the proverb" higher the risk, higher the return and vice versa." In fact, the

result supports the saying “lower the risk, higher the return and vice-versa.

Applying the t-test to check the relevancy of the correlation coefficient calculated in the above table. The hypothesis set out for the test:

8. Hypothesis applied for the test

H_o : There is no significant correlation ship between the risk, represented by CV and return, expressed by mean return ($\overline{X}$) of the selected institutions under the study (Based on Price Earning Ratio)

H_A : There is significant correlation ship between the risk, represented by CV and return, expressed by mean return($\overline{X}$) of the selected institutions under the study (based on Price Earning Ratio).

Calculation of t-value:

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

$$t = \frac{-0.81-\sqrt{(5-2)}}{1-(-0.81)^2}$$

t = 2.392

t = 2.392<3.182(critical value of t)

In the above calculation, the calculated value of t is 2.392 at 5% level of significance with a (n-2) degree of freedom. The critical value of t at the same level of significance and degree of freedom is 3.182. After the comparison of the t – value, it can be found that the critical value of t is greater than the calculated value of t. So, it reveals that there is no significant correlation ship between the risk and return based on the

Price Earning Ratio of the selected banks. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected.

4.3 Major Finding of the Study:

On the basis of presentation, analysis and interpretation of the data, some relevant findings have been forwarded for generation. It is the outcome and follows to the analysis and interpretation of the data. It is done whether the problems and purpose of the study has met its objective or not. Since the different analysis has done. The major findings of the study have also been systematically categorized into the following heads, which are based on Descriptive analysis and inferential analysis.

- From the Descriptive Study
- From the Inferential Study

4.3.1 Findings from the Descriptive Study:

Under the descriptive study, risk and return position of the banks are analyzed, interpreted, studied and shown to find the conclusions. For this, descriptive analysis included the profitability ratios and the trend analysis. So the findings drawn from the profitability ratios and the trend analysis as the basis of descriptive study are shown as below:

4.3.1.1 Finding derived on the basis of Profitability Ratios:

On the basis of Gross profit Margin:

On the basis of Gross Profit Margin Ratio, the risk return position of the selected banks SCBL has the highest return, in terms of mean return and the risk, in term of CV. Studying this; the SCBL is only one bank which may attract the investors towards it. After that, NABIL bank is in 2nd position that may attract the investors towards it. On the other hand, NSBIL has the highest risk with the lower return in the respect of

its risk. So it is concluded that SCBL is the best and NSBIL is the worst bank in term of GPR.

On the basis of Net Profit Margin:

On the basis of NPR, the risk return position of the selected banks, NABIL has the highest return, in terms of mean return and the CV. And on the other hand, NSBIL has the highest risk but lowest return with respect of its mean return. So, we concluded that NABIL has performed the best, whereas the NSBIL has the worst performance.

On the basis of Return on Assets:

On the basis of this, SCBL has occupied the highest position among the other with the highest return, in terms of mean return and the C.V. And on contrary of this, NSBIL has performed worst with the highest risk and relatively lowest return. So it can be concluded that the SCBL is the best performer and the NSBIL is the worst performer among the selected banks.

On the basis of Return on Equity:

In the respect of ROE, SCBL has occupied the highest position with the lowest return, where as, NSBIL has the highest risk with the lowest return. Therefore, it can be concluded that again SCBL has become the best performer, where as the NSBIL has become the worst performer.

On the basis of IE to WF:

On the basis of IE to WF ratio, BOK is the most attractive bank in terms of risk and return position based on IE to WF ratio. The bank has the highest rate of return .In the contrary of this NIC bears the highest risk with the lower return.

On the basis of Earning Yield:

On the basis of EY, BOK has performed the best with highest rate of return and relatively lower risk as compared with other. And NSBIL has performed the worst with the highest risk and relatively lower return.

On the basis of Dividend Yield:

On the basis of DY, NABIL has occupied the 1st and the best position in terms of risk and return. The bank has the highest return and relatively the lower risk. And on the other hand NIC has occupied the worst position with the highest risk and lower return. So, NSBIL is the best and NIC is the worst bank among other based on DY.

On the basis of Price Earning (P/E):

On the basis of Price Earning, NIC is the best performer with the highest return and BOK is the worst performer with the highest risk. So, NIC is the most attractive bank among the others and the BOK is the worst.

4.3.1.2 Finding derived on the basis of Trend Analysis:

Under trend analysis, the trend of returns of the selected banks is found. Form this, various findings are ascertained and presented as below:

On The basis of Gross Profit Margin ratio:

On the basis of this ratio, NSBIL is the best one because of the highest positive trend. And the SCBL has the highest decreasing trend, so it is the worst bank and kept itself in the last position.

On the basis of Net Profit Margin ratio:

On the basis of NSBIL is the best with highest increasing trend of return. And the SCBL is the worst because of its highest decreasing trend of return.

On the basis of Return on Assets ratio:

On the basis of this ratio, NSBIL is the best with the highest increasing trend of return. So it is the best than other banks.

On the basis of Return on Equity ratio:

On the basis of this ratio, BOK is the best performer with the highest positive trend and on the other hand, SCBL is the worst bank, On the basis of IE to WF ratio:

On the basis of Earning Yield ratio:

On the basis of Earning Yield, NIC has the lower negative trend and NABIL has the higher negative trend.

On the basis of Dividend Yield ratio:

On the basis of DY ratio, NIC is the best with highest positive trend, where as the NABIL has the highest negative trend so, it is the worst bank.

On the basis of Price Earning ratio:

On the basis of this ratio, the best bank is SCBL with the highest positive trend and on the other hand NSBIL is the worst bank with the highest negative trend.

4.3.2 Finding derived from the Inferential Study:

Under the inferential study, the correlation, t-test and analysis of variance (ANOVA) are done. So, findings are also based on each of the mentioned statistical findings:

4.3.2.1 Finding based on correlation analysis

The correlation analysis was done to find the relationship between the risk and return. And the study shows the result that in most of the basis ratios the relationship between the risk and return is negative. Except the Earning Yield, other ratios show the negative relationship. And Earning Yield is in support of the proverb “higher the risk, higher the return and vice versa”. The negative relationship of others ratios i.e. GPR, NPR, ROA, ROE, IE to WF, DY and Price earning shows that higher the risk, lower the return.

4.3.2.2 Finding based on student’s t- test

Student t-test is done to test the significance of the correlation coefficient between the return, in terms of mean return ($\overline{X}$) and the risk, in terms of CV .the study shows that except NPR other profitability ratios accepted the null hypothesis and rejected the alternative hypothesis that concludes of no significant relationship between the risk and return. Where as the NPR rejects the null hypothesis that concludes that there is significant relationship between the risk and return. In conclusion, we see that there is both types of correlation ship between risk and return of the selected financial institutions.

4.3.2.3 Finding based on Fisher’s F-test

ANOVA is a statistical technique which test whether the mean value of more than two quantitative populations are equal. On the basis of ANOVA test, it is found that differences among the mean vales of all profitability ratios such as GPR, ROA, ROE of the selected financial institutions, under the study are found to be significant. Whereas, on the other hands, in NPR, IE to WF, EY, DY, P/E , the mean values of all the financial institutions are found to be insignificant.

CHAPTER-V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION:

This is the last chapter with the three topics; summary, conclusions and the recommendations. This research aimed at studying about the risk and return position of the various selected A graded financial institutions. So, in summary, the contents and format of the study is described. In the conclusion, the whole conclusions which are taken out from the whole study are presented. And, at last , the researcher is free to express his/her conclusion and make generalization as in the topic of recommendations.

5.2. SUMMARY:

Financial institutions play a vital role for the economic growth and the development of the country. These financial institutions are very important to facilitate the trade and the commerce. They help to uproot the poverty by providing the job opportunity and raise the standard of living of the people. They help by providing loan to various sectors like; industrial sector, agricultural sector, and other service sector and governmental sector. These financial institutions make investment in such sectors and help to create the employment. To make the development in the country, it is necessary to make the development in financial institutions. But it is the true fact that to make the development of financial institutions there should be the efficient management and the right decisions should be taken.

Risk and Return is one of the important ways to take the financial decisions. There are many investors in the market to make investment in such financial sectors who are gaining the highest profit. And on the other hand the investors are interested to know the risk and return position of the institutions.

Risk keeps the investors away whereas the high rate of return attracts the investors towards itself and also it help to retain the customers. Thus this study is done to know the risk and return position of the selected banks, which has been divided into five chapter starting with introduction, review of the literature, research methodology, presentation, interpretation and analysis of data and at last completed with the summary, conclusions and the recommendation. For this various financial tools are applied to calculate the rate of return and risk, And the trend of return are also found out by using trend equations and are predicted of different five years. More over, the correlation of coefficient is also tested to know more. And ANOVA test is also done for the study. For this, the hypothesis is set out to confirm the finding of the study. All these tools helped to draw the clear vision of the risk and return position of “A” graded financial institutions.

5.3 CONCLUSIONS:

After the studying of Risk and Return position of different selected banks, following are the some major conclusions are explained below:

NABIL bank has the highest rate of return with lower risk in some cases like NPR, and DY. And has the highest risk in many cases of profitability ratios based on P/E ratio. And lowest return with highest risk is in case of P/E ratio.

NSBIL has the lowest return with highest risk based on NPM, ROA, and ROE. SCBL has the lowest return and higher risk based on ROA and ROE.

NIC has the highest risk and lower return based on IE to WF, EY, and DY. In some case such like has the lower risk and highest return is P/E. BOK has the highest return with lower risk based on IE to WF and EY.

On the other hand, NSBIL has the highest positive trend rate on the basis of GPR, NPR, and ROA. And SCBL has the highest negative trend rate based on GPR, NPR, and And ROA. In same way, NABIL bank has the highest negative trend rate based on EY and has the highest positive trend on the basis of DY and P/E.BOK has the highest positive trend rate on the basis of ROE.

And the study of correlation ship concludes that there is negative correlation ship between the risk and return in many cases of profitability ratio (GPR, NPR, ROA, ROE, IE to WF, DY and P/E) except EY ratio.

And the study of students't- test concludes that there is no significant correlation ship between the banks based on GPR, NPR, ROA, ROE, IE to WF, EY, DY, and P/R except the NPR.

The study of F-test concludes that the profitability ratios; IE to WF, EY, DY, And P/E support that there is no significant difference between the mean values of the selected financial institutions. And on the other hand, the profitability ratios; GPR, , ROA, ROE support that there is significant difference between the mean values of the selected financial institutions.

At last after the above calculation based on different techniques and methods, we find that the study doesn't support the saying "higher the risk, higher the return and vice versa". And we found that there is negative correlation ship between the risk and return in most of cases .And as the result, whole study support the saying "lower the risk, higher the return" which is prevalent in context of Nepalese financial institutions.

5.4 RECOMMENDATION

All knows that all the banks have its own objective, policy and the strategy. The study of the selected "A" graded banks under the study also have their own strategy, objectives and the policy. Even the researcher has no legal rights to recommend to the selected banks under the study, but somehow, It is recommended as a view of suggestion based upon the finding of the study.

1. On the basis of Profitability ratios analysis SCBL has to increase its gross profit and net profit margin. The trend is also in fluctuation. So the bank should increase its gross profit and net profit trend. And the bank has the highest risk in many cases like DY, and P/E ratios.
2. NSBIL has the decrease trend in many cases like P/E and EY. There is the fluctuation P/E. NSBIL bears the highest risk on the basis of ROA, ROE, GPR and NPR. The bank has the lowest return tolerating the high risk in case of GPR, NPR, ROA and ROE. And in case of DY there is fluctuation, which is not good for the bank. Therefore the financial manager has should take a corrective actions towards the bad performance.
3. NIC bank shows the decreasing trend in case of EY and IE to WF. And it shows the fluctuation of gross profit. It has lowest mean return in compare to the other bank. The bank has the negative trend of

return on the basis of EY and IE to WF. So the bank is suggested to control such negative trend by taking corrective steps. The bank is also bear the highest risk in many cases based on EY and DY. So the bank should take the corrective action to reduce it.

4. NABIL bank bears the highest risk in case of P/E, and because of it mean return is also very low. In the case of IE to WF, EY and DY it has negative trend. And the dividend has not been distributed in the 3 fiscal y ears out of the five fiscal years. This is not good for the bank because it affects the owner who want dividend. So the bank should take right action at the right time.
5. About BOK, it has fluctuation in IE to WF. And the trend of EY and DY are negative trends. So the financial manager of the bank should take corrective steps to make it positive trends.
6. The financial institution should compete to each other fairly.
7. And the financial institutions should extend its branches not only in urban areas but also in rural and remote areas. Especially should provide such banks facilities to the agriculture sector.
8. And at last, banks should bring attractive policy to attract the customers towards it.