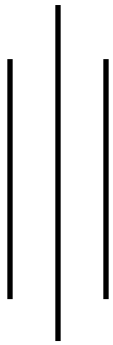
A COMPARATIVE RISK AND RETURN ANALYSIS OF COMMERCIAL BANKS IN NEPAL



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A Thesis Submitted to

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In partial fulfillment of the requirement for the degree of
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has been prepared as approved by this department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.

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and found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for

Master's Degree in Business Studies (M.B.S.)

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DECLARATION

I hereby declare that the work reported in this thesis entitled " **A COMPARATIVE RISK AND RETURN ANALYSIS OF NABIL BANK LIMITED, STANDARD CHARTARED BANK NEPAL LIMITED AND EVEREST BANK LIMITED**" submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Master's Degree in Business Study (M.B.S.) under the supervision of Prof. Dr. Madhav Bdr. Shrestha.

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_____

Om Prakash Purbey
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Date:

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LIST OF ABBREVIATIONS

A/C	Account
B.S.	Bikram Sambat
B/S	Balance Sheet
CML	Capital Market Line
DY	Dividend Yield
EBL	Everest Bank limited
Ed.	Edition
EY	Earning Yield
Fig	Figure
FY	Fiscal Year
Govt	Government
IE	Interest Earning
i. e.	That is
Ltd	Limited
MBS	Master of Business Studies
NABIL	Nepal Arab Bank Limited
No	Number
NPR	Net Profit Ratio
NSE	Nepal Sock Exchange
P/E	Price Earning

P/L	Profit and loss account
ROA	Return on Assets
ROE	Return on Equity
SCBNL	Standard Chartered Bank Nepal Limited
SML	Security Market Line
Viz	Vide licet
WF	Working Fund

CHAPTER - I

INTRODUCTION

1.1. Introduction

The financial institutions play an important role in the economic growth and development of the country. They promote trade and industry, influence the economic activity and monetise the economy. They help to alleviate the poverty by creating employment opportunities. It aids in raising the living standard of the people. In fact, they are the requirement of the twenty first century for the economic growth of every country.

In Nepal, the financial transactions were operated from the old ancient time. Financial transactions through personal lenders are still present in the country. In eighth century, king Gunakama Dev took the loan from the merchant to rebuild the Kathmandu city and later on Shankhadhar Shakh, a trader cleared the loan in B.S. 937 and established "Nepal Sambat" as found in the history. King Jayastithi Malla of fourteenth century divided the people into different group. Among them, "Tankadhari" group performed the task of discounting and providing the loan. In nineteenth century, the then prime minister; Rannoddip Singh provided the loan at a cheap rate only to the government employees by establishing 'Tejarath Adda'.

Modern financial institutions were established after many years. The first commercial bank was established in B.S. 1994 named as Nepal Bank Limited. Thereafter, in B.S. 2013, Nepal Rastra Bank was established as a central bank of the country. The only commercial bank was not sufficient to handle the increasing economic activity of the country. Realizing the fact, Rastriya Banijya Bank was established in B.S. 2040 under the full ownership of government. The joint ventures were also allowed to establish from the same year. NABIL was the first established joint venture bank of Nepal. Currently, there are seventeen commercial banks operating in the country.

The financial institutions include Commercial bank, Development bank, Finance companies, Insurance companies and Co-operative institutions. However, the present study is concentrated only on commercial banks, which are regarded as 'A' graded financial institution as per Banks and Financial Institution Ordinance, 2061.

Commercial bank provides services to the investors, entrepreneur, businessmen, government and other individuals. They minimize the risk of the parties. However, a bank also has to bear a certain risk. To bear the risk it also requires earning the return. Risk is considered as the variability of return from those are expected and return is considered as an income received on an investment plus amount of change in market price that is generally expressed as a percent of the beginning market price of the investment. What is the risk of the bank that helps to minimize the risk of other parties? Creates curiosity to the researcher and other individuals towards the study of risk and return. Thus, the risk and return study of the financial institution are of great importance and interesting subject.

In today's dynamic and competitive environment, it is increasingly important for the financial institution to evaluate the risk and return position and compare with their competitors to retain their existing customers and attract their potential customers.

1.2. Focus of the study

Financial institutions play a vital role for the economic growth and development of the country. They are the pillars of nation's economy. They are also regarded as the storehouses of country's wealth, as well as the reservoirs of resources for economic development. Various kinds of financial decisions are taken in the institution. Among them, deposit acceptance, enhancing loan and investment decisions are the most important one. When the term investment is pronounced, two fundamental aspects, risk and return are associated with it. Since, an investor always analyses the risk and return thoroughly before investing their wealth, the study is focused on the risk and return analysis of the selected financial institution. Although, the term risk and return sounds to be familiar, the conceptual meaning of risk and return vary from investor to investor.

Return is generally understood as a reward or receipt as cash inflow for an investment. The term return from a capital investment is a concept that has different meaning to different investors. Some investors regard it, as a short-term cash inflow while the others perceive it as a high growth rate and higher rate of return in the long run. Still other measures it in terms of financial ratios such as return on investment or return on equity. "Return can be stated as an income received on an investment plus any change in market price usually expressed as a percentage of the beginning market price of the investment"[1]. Return consists of current yield and capital gain and is generally expressed in terms of percentage basis.

Similar is the case of risk also. The investor interprets the term 'risk' differently. "Risk is considered as the variability of returns from those that are expected "[2]. Some perceive it as a fluctuation in market price of the investment while the other considers it as an uncertainty of return. The investors also view the risk as an uncertainty of whether the invested amount will be returned or not. Risk can be considered as the possibility that the actual return from the investment will deviate from an expected return. The risk can be categorized into two parts- diversifiable and non- diversifiable risks. Diversifiable risk can be defined as the risk that can be totally eliminated, while the risk that can't be eliminated is termed as non-diversifiable risk.

Normally, an investor prefers a higher return for a lower risk. But we all know the fact that higher return has higher risk associated with it. To make a trade-off between risk and return, the risk relating to an investment project is determined by using the statistical tools *viz* profitability ratio, trend analysis, mean, standard deviation, coefficient of variation, Karl Pearson's coefficient of correlation, student's t-test and analysis of variance.

Thus, it is clear that the study is focused on the analysis of risk and returns of the selected 'A' graded financial institution of Nepal viz; NABIL, SCBNL and EBL using the past five year's data.

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[1] Lawrence Gitman, *Principle of Managerial Finance*, 5th edition, Warper & Row publishers, New York. Pg-211, 1988

[2] James C. Van Horne & John M. Wachowitz Jr. *Fundamentals of Financial Management*, 9th edition, Prentice Hall of India Pvt. Ltd, New Delhi. Pg-90, 1997

1.3. Statement of the problem

The successful operation of the financial institution leads to the upliftment of the nation's economy while the worst operation causes serious problem to the financial condition of the country. The present study, therefore, attempts to diagnose analyze and interpret the risk and return position of each institution and their degree of attractiveness from the viewpoint of stakeholders. The relationship of risk and return helps the investor to select the institution for the financial transaction.

Generally, we understand that low risk gives lower return and higher risk gives higher return. Therefore to test whether the statement is true or not, this research is carried out.

The problem towards which this study is directed is to diagnose analyze and interpret the risk and return position of the 'A' graded financial institutions of the country in order to answer the following research questions:

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

1.4. Objective of the study

Each research has its own objective. Objective is final point for what one strives for. The main objective of this research is to analyze, examine and interpret the risk and return position of the 'A' graded financial institutions of Nepal. All commercial banks are tagged 'A' grade according to the Banks and Financial institution Ordinance,

2061. Objective is acquired; using the selected tools processes variables of the study. Financial, as well as statistical tools are applied for the study. The objective of the study may be listed as under:

1. To evaluate the degree of attractiveness of the financial institution in terms of risk and return.
2. To identify the risk and return position of the financial institution.
3. To know the trend of return of each of the institution.
4. To identity the nature of risk and return relationship of 'A' graded financial institution and test their statistical significance
5. To test the statistical significance of the calculated ratios.
6. To make relevant suggestion and recommendation regarding the risk and return position of the financial institution under study.

1.5. Significance of the study

The research work deals with the risk and return analysis of the 'A' graded financial institution, as per Banks and Financial institution Ordinance, 2061 of Nepal. It is one of the most important and interesting topic for all the stakeholders who are interested to know the risk and return situation of the financial institution. People are curious to know about the riskness of the financial institution that helps to minimize their risk position. After all, financial institutions are the base for the economic growth and development of the country. Therefore, the study has its significance to various people in various ways for various purposes that can be advocated as under:

To the shareholders

The shareholders are the real owners of the institution. They have keen interest to know about the riskness of their investment. They are not only the return enjoyers but also the risk bearer. This proves the significance of the study to the shareholders.

To the management

The managers are always interested to know the financial condition of the organization. The risk associated with the return is also their

subject of matter. It helps them to find the degree of tolerance of the risk under a given return. Therefore, the study is useful to the management of the financial institution.

To the businessmen and entrepreneur

The financial institution that performs well is always regarded, appreciated and preferred by the businessmen and entrepreneur for their financial transaction. They prefer the financial institution having low risk with high return. In this context, the study is significant to them.

To the government

The government is always interested to know about the risk and return condition of those institutions that play a vital role for the economic growth and development of the country. Financial institutions serve as an indicator of nations' economy. The research helps to formulate the appropriate plan and policy for the country. Therefore the study is significant to the government for the formulation and implementation of Fiscal and Monetary policy.

To other individuals

Apart from the above mentioned parties, the study is also important to other individuals that comprise of customers, creditors, investors, competitors, stock brokers, students, economists, statistician and other rational individuals.

1.6 Variables of the study

There are various variables used in the study. The research work depends upon the variables that serve as a basis for the interpretation and analysis of the data. They are important for every research. The relationship between the data is established through the variables. The tests are carried out on the variables. In fact, they are the necessary contents of the research work. The variables used under the study are as follows:

- Return on operating income ratio (NPR)
- Return on working fund (ROA)
- Return on equity (ROE)
- Interest earned to working fund ratio
- Earning yield (EY)
- Dividend yield (DY)
- Price-earning ratio (P/E)
- Mean
- Standard deviation
- Coefficient of variation

1.7 Research hypothesis

Hypothesis is simply a statement about the population. Hypothesis is an assumption made about a population parameter for which the test is carried out. It is a supposition made on the basis for reasoning. Hypothesis is a statement which, if proved becomes a theory. Each test contains two hypothesis, one being null hypothesis and the other being alternative hypothesis. Since there are two tests (t-test and f-test) carried out in the study, there are altogether four hypotheses which are presented as under:

1. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed as mean return of the selected institutions under the study.

H_A: There is significant correlationship between the risk, represented by CV and return, expressed as mean return of the selected institutions under the study.

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 among the mean values of profitability ratios of the selected institutions under study.

1.8 Limitation of the study

The researcher always attempts to get into the depth of the fact; however, there exists some loopholes in the practical life that are considered as limitations of the study. Limitation is also referred as an assumption of the study. The limitations of the study can be categorized under the following heads:

1. The study is confined to three among the twenty six 'A' graded financial institutions of Nepal.
2. The study covers a period of five years only (i.e. FY 2003/04 to FY 2007/08).
3. The study is based on the secondary data derived from the annual report of the selected banks and these data are assumed to be true and correct.
4. The analysis of the study is drawn relying on financial and statistical tools. Various profitability ratios are taken as the financial tools and mean, standard deviation, coefficient of variation, Karl Pearson's coefficient of correlation, student's t-test, and analysis of variance.
5. The research is mainly based on the data of the annual report of the selected banks downloaded from their respective website which are given in approximate format.
6. The findings of the result may not always be true in future.
7. The study has been completed under allotted time and cost according to the given format by faculty of management.
8. The time value of money has not been considered by the data used for the analysis.

1.9 Scheme of the study

The organization or the structure of the study is known as scheme of the study. The present study has been organized into five chapters namely:

Introduction

It the initial part of the study includes focus of the study, statement of the problem, objective of the study, significance of the study, variables of the study, research hypothesis, limitation of the study and scheme of the study.

Review of literature

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

Research methodology

This part of the research includes 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.

Data presentation and analysis

In this part of the study all the data are presented in the tabular and graphical form as per the requirement of the study. After this, the interpretation and analysis are done.

Summary, conclusions and recommendations

The last part of the study comprises of summary, conclusion and recommendations includes the summary of the whole study. Likewise, the conclusions are derived on the basis of interpretation and analysis of data. Finally, the recommendations are made on the basis of conclusions derived from the study.

CHAPTER - II

REVIEW OF LITERATURE

2.1 Introduction

Financial institutions are the lifeblood of the economy and serve as the barometer of economic prosperity of every country. However, in order to serve as a barometer of economic prosperity, the financial condition of these institutions needs to be in proper condition. The risk and return aspect of the institution needs to be evaluated properly. After all, they are the pillars of the nations' economy. In this context, the study attempts to review the literature. The review of literature is an essential part of all study. It is a way to discover what other research in the area of our problem has uncovered. It provides the foundation for developing a comprehensive theoretical framework from which hypothesis can be developed for testing. "The purpose of literature review is thus, to find out what research studies have been conducted in ones chosen field of study, and what remains to be done". The review of literature for our study is classified into three sections. The first section begins with a definition. The second section follows with the theoretical review of risk -return and finally the third section reviews the previous related study in the field.

2.2 Definition and Theoretical framework

The definition of the terminology used in the study needs to be described properly. It helps to clear the vision of the study. This makes the study more meaningful and easy to understand the problem of the study.

2.2.1 Return

Before an investor makes any kind of investment decision, the benefit from the investment is always considered at first, known as return.

The term return and investment are always associated with it. It is the return that motivates to accept the challenge. It strengthens the will power to assume the risk. The term 'return' is often used in our daily life also. But still the conceptual meaning of return differs from one person to another. Some consider it as revenue, other consider it as a reward while the other consider it as a profit and so on.

However in finance, return means the return from the investment on single assets portfolio assets. Return from the investment plus any change in market price usually expressed as a percent of the beginning market price of the investment. Return is generally understood as a reward or receipt as cash inflow of an investment. The term return from a capital investment is a concept that has different meaning to different investors. Some investor regard it as a short-term cash inflow while other perceive it as a high growth rate and higher growth rate of return in the long run. Still other measures it in term of financial ratio such as return on investment or return on equity. Return consists of current yield and capital gain. Current yield is the cash flow divided by beginning price and capital gain means increment in the value of investment. Cash flow refers to the cash received in the regular interval (dividend for stockholder and interest for debt-holder). Capital gain means the value of increment in the investment; However sometime there may be loss in the value of investment, known as capital loss.

Investment may be done on only one project or asset, known as single asset or portfolio asset. Investment may be on one or more than one asset at a time. The investment done on an asset is known as single asset investment and the investment done on more than one asset at a time is known as portfolio asset. Return can be classified and studied in various terminologies that are as follows:

Single period return

The return earned for a single period is known as single period return. It measures increment or decrement of the investor's wealth. The single period returns is simply any cash payment received due to ownership, plus the change in the market price divided by the begging price. The holding period return measure is useful with an investment horizon of one year or less. "The return on an investment

is measured as the total gain or loss expressed on behalf of the owners oven a given period of time. It is commonly stated as the change in value plus any cash distribution, experienced as a percentage of the beginning of period investment value"[4]. Investor can obtain two kinds of income from an investment in asset.

1. Cash flow income (cash dividend for stock holder, coupon interest payment for debt-holder.)
2. Income from price appreciation or losses from price depreciation termed as capital gain or losses.

Notationally,

Single period return is expressed as:

$$\text{Return} = \frac{\text{Cash inflow (If any) + change of asset in price}}{\text{Beginning price of an asset}}$$

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

Where,

R = actual (or expected) return when ' t ' refers to a particular time period in the past (future).
CF_t = cash dividend (or coupon interest) at the end of time period ' t '.
P_t = ending market price of investment.
P_{t-1} = beginning market price of investment.

From the above formula, we can say that single period rate of return is the composite of current yield and capital gain yield.

Single period rate of return = current yield + capital yield.

The above formula can be utilized to determine single period return when the figures are based on the historical data as well as expected

[4] Lawrence Gitman, "Principle of managerial" since 5th edition, warper & row publisher New York 211,988

one period return when the investment is based on future cash flow and prices.

For longer period, it is better to calculate rate of return as on investments yield (or internal rate of return) as we did in the last chapter. The yield calculation is present value based and thus considers the time value of money.

Expected rate of return

The rate of return that is expected in the future is known as expected rate of return. The expected rate of return is the weighted average possible returns with the weights being the probabilities of occurrence. The expected rate of return is based upon the future cash receipt. "The expected rate of return is a weighted average of the possible out comes with each out comes weight being equal to its probability of occurrence"[5]. Generally, the expected rate of return is applied on stock to earn over a future period because the interest rate on debt is mostly fixed.

The expected rate of return expresses what investors expect to receive from the stock as a rate or return in the course of the next period. The expected rate of return is considered as the rate of discount that equates the present value of stock with present value of the stream of expected future dividend.

Many investment decisions are based on future expectations. If the investors can describe the possible variables that will influence each of the possible rates of return and assign probabilities to these outcomes, the expected rate of return will be equal to the weighted average of the various probabilities. Probability distributions are used to describe possible outcomes. They are used to assign individual probabilities from zero to one, to each possible outcome, not exceeding the total probability to be one.

[5] Eugene F. Brigham, *fundamentals of Finance* 2nd edition, The Dryden Press, India, New Delhi: Pg-98, 1980

The expected rate of return is calculated by adding all the product of expected value under each situation with their expected probability of occurrence.

Notationally,

$\bar{R}$ or E(R) = $\sum_{i=1}^{n} P_i R_i$

Or,

$\bar{R}$ or, E(R) = $P_1R_1 + P_2R_2 + P_3R_3 + \ldots + P_nR_n$

Where,

E(R) or $\bar{R}$ = expected rate of return
R_i = Return on the i_{th} possibility
P_i = Probability that the return R_i will occur
P_n = Total no of possibilities of future outcome

The above formulae are based on the probability distribution. The probability of occurrence serves as the foundation for the expected rate of return. However, the future events are uncertain. So, the assignment of probabilities to the future event is a difficult task.

If the probability of possible outcomes is uncertain, the expected rate of return may be wrong and it may mislead or confuse the investors. So, in case, the future outcomes are not sure, another method is applied to obtain the expected rate of return known as average rate of return. Under the method, the historical or past data are used and they are assumed to have equal probability distribution to calculate the average rate of return. The total average return for the period is added and is divided by the total number of years to acquire the expected rate of return.

E(R) or, $\bar{R}$ = $\sum_{i=1}^{n} R_i = \frac{R_1 + R_2 + R_3 + \ldots R_n}{n}$

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 since, the same rate of return will not always remain this dynamic world the expected rate of return may lose its accuracy. So the expected rate of return based upon the past average rate of return may not be regarded as a proper indicator of expected rate of return.

Required rate of return

Although the required rate of return and expected rate of return seems to be same, however, there is difference between them. Expected rate of return as discussed earlier, is the expected rate of return that may be more or less then the actual rate of return. Required rate of return is that rate of return that an investor must earn on their investment. It is the minimum rate of return that investor must earn. The required rate of return when compared to the expected rate of return must be equal or less than the expected rate of return. If the expected rate of return will be greater than the required rate of return, the investor will try to purchase the investment and this will drive the price upward and vice versa. It is said to be correctly priced or equilibrium price when the expected rate of return equal to the required return. Equilibrium price generally exist for a given investment because securities prices adjust rapidly to new developments. Changes in the equilibrium price can be brought about.

i. By a change in risk aversion
ii. By a change in risk free rate
iii. By a change in the stock's beta coefficient value
iv. Change in the stock's expected growth rate.

Return on single asset

When an investor invests only in one asset, the return generated from the single asset is known as return on single asset. The investor studies and compares all the available alternative assets and selects the best one for investment. The return on single asset may be on the basis of holding period return. The rate of return on single asset under this method is based upon the total return realized in the form

of cash receipt and capital gain divided by the initially investment amount. The return on single asset may be on the basis of expected rate of return also where the different probabilities of outcomes are multiplied to their respective expected return and finally they are added together.

Return on portfolio assets

The Portfolio is the combination of two or more than two assets. Since the investment on only one asset is risky, the investor prefers to diversify their investment into different assets. This activity of diversifying the investment in more than an asset is known as portfolio. Portfolio is the act of keeping the eggs in different basket. The damage of an egg may damage the other eggs also. When the portfolio assets means combination of different assets, the return on portfolio assets study means the return generated through portfolio investment. 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 weights reflect the proportion of the portfolio or wealth invested in each asset.

The objective of the portfolio is to maximize return or minimize the risk. The other reasons for portfolio are to earn regular return, stable income, appreciation of capital, ever liquidity, early marketability, safety of investment and for the benefits. The expected return of a portfolio is simply a weighted average of the expected returns of the securities comprising that portfolio. The weights are equal to the proportion of the total funds invested in each security (the weights must sum to 100 percent). The general formulae for the expected return on a portfolio is as follows:

$$\overline{R_p} = \sum_{j=1}^{n} W_j R_j$$

Where,

W_j	=	the proportion, or weights of the total funds invested in security j
R_j	=	expected return for the security j
n	=	total number of different securities existing in the portfolio.

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

Weight may be in positive or negative

In a two-security portfolio, the portfolio return will be

$$\overline{R}_p = W_A \times \overline{R}_A + W_B \times \overline{R}_B$$

Where,

W_A = The fraction of the total value of the portfolio invested in the A asset or $(1 - W_A)$

W_B = The fraction of the total value of the portfolio invested in the B asset or $(1 - W_B)$

R_A = The expected rate of return from the asset A

R_B = The expected rate of return from the asset B

Return can be assigned on the basis of risk. On the basis of riskiness of an asset, return can be divided into two parts:

1) Risk free rate of return
2) Market rate of return

1) Risk free rate of return

Risk free rate of return is that rate of return that is sure to be received. Generally, the government issues treasury note and the rate of interest provided on the security is known as risk free rate of return. It is hundred percent sure that the government will pay the rate of interest so it is known as risk free rate of return. Generally, the risk free rate of return is lower than the market rate of return.

2) Market rate of return

The risk free rate is sure rate of return. The market rate of return is based on the risk free rate of return. But since there is a tough competition in the market, the risk is also prevailing in the market. So, the market rate of return gives higher rate of return than the risk free

rate of return. Actually, market rate of return constitutes of risk free rate and market risk premium.

2.2.2 Risk

The risk is the chance of happening an unfavorable event. It is the variability of return from those that are expected. Risk is defined in Webster's as " a hazard; a peril; exposure to loss or inquiry". Thus, risk refers to the probability of occurring some unfavorable situation. Although the term risk is used in our daily life and is felt by every individual, no one has been able to give the universal acceptance definition of risk. Different person perceives the risk in different way and they define according to their own experience and perception. Risk may be defined, as the likelihood that the actual return from an investment will be less than the forecast return. It refers to the chances some unfavorable events will occur. In real world, we cannot predict or forecast the future. Therefore, every investment has some degree of risk. Risk exists because of the inability of the decision maker to make perfect forecast. Forecast cannot be made with perfection or certainty since the future events on which they depend are uncertain in this dynamic world. Risk while some investor considers it as the variables of return from those that are expected, the other perceives it as a fluctuation in market price of the investment. Some consider it as an uncertainty of return. The investors also view the risk as an uncertainty of whether the invested amount will be returned or not. Risk can be considered as the possibility that the actual return from the investment will deviate from an expected risk.

"Risk can be defined as a financial loss or more formally the variability of returns associated with a given asset"[6].

"The riskness of an asset is defined in terms of the likely variability of future returns from the assets"[7].

[6] Lawrence Gitman, *principle of Managerial Finance*, 5th edition, Warper & Row Publishers, New York. Pg-211,1988
[7] Basu Sharma, *financial Management,* 1st edition, Taleju Prakashan Kathmandu, Nepal. Pg-290, 2001

Risk is a measure of uncertainty about the outcome from a given event. The greater the variability of possible outcomes, on the high side and low side, the greater will be the risk. Risk can be defined as the variability of possible returns around the expected return of an investment. For some investments this variability can be quite small and for some investments this variability can be high since investment alternatives have different types of risk. Each investor have their own attitude towards the risk and low much can he or she tolerate. "The risk as the term with reference to investment decision may be defined as the variability in the working life in relation to the estimating returns as forecast at the end of time of the initial capital budgeting decision"[8].

In this way, risk is expressed in different ways. Some express it as loss or enquiry or damage, uncertainty, returns votality, variability of return, outcomes variation, dispersion of return and so on. The term used by the people is only different, the meaning is same. Different person perceives risk in different way and they define according to their own perception and experiences. Thus, risk is what the risk bearer and investor experience believes.

2.2.2.1 Measurement of risk

The measurement of risk has always been a subject for debate in the investment industry. Risk is sometimes distinguished from uncertainty. Risk is referred to a situation where the probability distribution or the cash flow on investment proposal is known. On the other hand, it there is no information to formulate a probability distribution of the cash flows, the situation is known as uncertainty.

Probability assignment

Probability may be described as a measure of some one's about the likelihood that an event will occur. If the event is certain to occur, we say that it has a probability of occurring. If an event is certain not to occur, we say that its probability of occurring is zero. Probabilities can be used to assess more precisely the risk involved in an asset. A

[8] M.Y. Khan & P.K. Jain, *Management Accounting*, 2nd edition, Tata Mc Graw Hill Publishing Co, New Delhi, India. Pg-64,1980

probability distribution may consist of only a few estimates. One commonly used form employs only the high, low and best guess estimates, or optimistic, most likely and pessimistic estimates. Probabilities can also be the possible outcomes (for returns) from an investment. The tighter the probability distribution of expected future returns, the smaller the risk of a given investor. Risk can be measured in the following terms:

Standard deviation

Standard deviation is the absolute measure of risk. Standard deviation is a statistical measure of the variability of distribution around its mean. It is the square root of the variance. It is commonly used measure of risk. Standard deviation measures the deviation or variance root about the expected rate of return of each of the possible rate of return. The smaller the standard deviation, tighter the probability distribution and accordingly, the lower will be riskness of an investment.

In statistical terms, standard deviation is defined as the square root of the mean of the squared deviation, where deviation is the difference between an outcome and the expected mean value of all outcomes. Further to calculate the value of standard deviation, weight is assigned to the square of each deviation by its probability of occurrence. The greater is the standard deviation of a probability distribution, the greater is the dispersion of outcome around the expected values. Standard deviation is a measure that indicates the degree of uncertainty of a return and is one important measure of risk. Smaller the standard deviation, lower the risk, higher the standard deviation, higher the risk.

Symbolically,

$$\delta = \sqrt{\sum_{t=1}^{n} \left(R - \overline{R}\right)^2 X \quad P_i}$$

Where,
R = Rate of return
$\overline{R}$ = expected rate of return
P_i = Probability

Coefficient of variation

Coefficient of variation is a relative measure of risk. It may be defined as the standard deviation of the probability distribution divided by its expected rate of return. CV measures the risk per unit.

Mathematically,

$$CV = \frac{\delta}{E(R)} \quad \text{or} \quad \frac{\delta}{\bar{R}}$$

Where,

CV = coefficient of variation
δ = Standard deviation of return
E (R) = Expected rate of return
R = Average rate of return

Coefficient of variation is a useful measure of risk to compare the project, which have same standard deviation but different expected value, different standard deviation but same expected value. Since, the CV shows the risk per unit of return, it provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. Higher the coefficient of variation indicates that distribution has more volatility of return, which signifies the higher risk and lower coefficient of variation indicates the less volatility of return, which states the lower risk.

Variance

Variance means the variation of return from the expected return. It is the volatility of return. Variance is the square of standard deviation. When the mean return is subtracted from the actual return and squared of standard deviation to multiply with the respective

probability, the summed result is understood as the variation of return. It is also known as total risk.

$$\text{Var}(R) = \sum_{i=1}^{n} P_i [R_i - E(R_i)]^2$$

Where,

Var (R)	⟶	Variance of the return
R_i	⟶	Rate of return for the i^{th} possibility
$E(R_i)$	⟶	Expected rate of return
P_i	⟶	Probability of occurring R_i return
n	⟶	Total no of possibilities

Types of risk

Risk can be divided on the basis of its avoidance. Total risk consists of systematic risk (non-diversifiable) and unsystematic risk (diversifiable). Systematic risk is the risk; one has to bear it while the unsystematic risk is the risk that can be eliminated by managerial efficiency. Both type of risk are dealt as under:

Systematic risk:

Systematic risk is the risk caused by different factor that affect the overall market- such as changes in the nations economy, tax reforms made by a state or a change in world energy situation." Systematic risk is the variability of return on stocks or portfolios associated with change in return on market as a whole"[9]. The beta coefficient is an index of systematic risk. Beta measures the diversifiable risk. This is a modern scientific technique of measuring a security's risk. It is an indicator of the relationship between an individual investment return and the general market return.

[9] James C. Van Horne & John M. Wachowitz Jr., *Fundamentals of Financial Management*, 9th edition, Prentice Hall of India Pvt. Ltd, New Delhi, Pg-100, 1997

By definition, the beta for market portfolio β_m is 1. An investment which has a beta of suppose, 1.5 indicates the stock has greater fluctuation than the market portfolio. In simple word, we can say that if the return on market portfolio is expected to increase by 10 %. The return on the security with a beta of 1.5 is expected to increase by 15 %. (10 * 1.5). On the other hand, a security that has a beta of, suppose, 0.9 fluctuates less than the market portfolio. If the market portfolio return is expected to rise by 10 %, the return on the security with beta of 0.9 is expected to rise by 9 % (0.9*10 %). Individual security's' beta generally fall between the range of 0.60 to 1.80 and rarely, if ever, assume a negative value.

In this way, beta indicates the relation between an individual investment return and the market return. It is also used for ranking the different assets' systematic risk. Statistically, beta is defined as the covariance of the return of an individual stock with the market proxy' portfolio return divided by the variance of the markets' proxy return. In statistical terms the beta describes the tendency of an individual stock to cover with the market.

Major sources of systematic risk

Systematic risks are to be borne by the investor at any cost. So it is also known as undiversifiable risk. The investor expects certain additional return form the investment to compensate the systematic risk. What causes the systematic risk is understood as the sources of systematic risk. There are various causes and sources of systematic risk, however mainly market risk, interest risk and purchasing power risk are the sources of systematic risk.

Market risk

It is often found that the stocks price fall from period to period even in the case when there is rise in the earning. The price of the stock fluctuates widely within a short span of time even in the situation when the earnings are unchanged. This situation is happened because of the change in investor's attitude towards equities in general or toward certain types or groups of securities in particular.

The market risk is referred to the variability in return on most common stocks that are caused by the changes in investor's expectation.

An investor reacts to the events and this will affect the market risk. Investor evaluates the tangible and intangible events. Situations like political and economical change are the example of tangible events whereas intangible events are related to the market psychology. Market risk is the responses to real events, but the instability of investors when acts collectively lead to overreaction. And when this reaction becomes cumulative, it is will cause excessive selling, pushing prices down far out of the line than the basic value.

Interest rate risk

Due to the fluctuation in the general level of interest rate, the uncertainty of future market value and its size of future income become uncertain which is known as interest rate risk. The main cause of interest rate risk lies in the fact that as the rate of interest paid on the govt. securities change (rise or fall), the rates of returns demanded on alternative investment securities like stocks and bonds issued in the private sector also changes (rises or falls). In other words, as the rate of return from the risk- free securities change, the return from the more risk -prone issuers (private issuers) will also change.

Purchasing power risk

When the market risk and interest rate risk considers the uncertainty of the amount of the current rupees to be received by an investor, the purchasing power risk concentrates on the uncertainty on the purchasing power of the amounts to be received. The purchasing power risk is the risk on Investment cause due to inflation or deflation of money. The rising in price of goods and services or decrement in the value of money is known as inflation and the decrement in the price of goods and services or increment in the value of money is known as deflation.

Unsystematic risk

Those type of risk that can be avoidable is understood as an unsystematic risk. Unsystematic risk is that part of the total risk that can be diversified and it usually arises due to the managerial inefficiency. It is also understood as a standard error. Risk arising due to internal reason of the organization is an unsystematic risk. Labour strikes, lockouts etc are of unsystematic risk.

Unsystematic risk is the variability of return on stocks or portfolios not explained by general market movements. It is avoidable through diversification. This sort of risk is unique to a market company or industry; it is independent of economic, political and other factor that affects all securities in a systematic manner. For most stocks unsystematic risks accounts for between 60 to 75 percent of the stocks total risk or standard deviation.

The unsystematic risk comprises of business risk and financial risk. Business risk is related with the assets efficiency. Business risk is the probability that the company or industry lack it competencies with its acquired assets. Financial risk is related with the financial aspect of the company. It is the risk of being insolvency and the volatility in earning per share arised due to the implication of financial leverage. The interest and the principal amount of payment to debt holders must be timely paid. The chance of being unable to clear these liabilities is known as financial risk.

Unsystematic risk = Financial risk + Business risk.

Unsystematic risk ⟶ arise due to the company or industry
Financial risk ⟶ arise due to the financial leverage
Business risk ⟶ arise due to the assets operational problem

Attitude towards risk

Of course, every investors desires to avoid risk. The investor is risk free when he or she invests in risk free investment. But when the investment is to be made, one has to assume certain level of risk. Investors like to enjoy the higher return but try to prohibit risk. The investment without risk is regarded as risk free assets. If it is so then why does all the investor not invest only in risk free asset? The answer to this question is that because the rate of return from the risky assets is also higher simultaneously. It means that to gain the higher rate of return, higher risk is also to be assumed. What is the attitude towards the risk is often an interesting subject to study. General assumption of an attitude towards the risk is higher the risk, higher the return and vice versa.

The attitude of an investor towards the risk is determined by the composition of certainty equivalent (CE) and expected monetary value of a risky investment. Certainty equivalent is the amount of cash an investor requires with certainty at a point of time to make the individual indifferent between that certain amount and an amount expected to be received with risk at some point of time. Investors are divided into three groups based upon the risk preferences or their attitude 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:

Certainty equivalent (CE) >expected value $\rightarrow$ risk preference is present.

Certainty equivalent (CE) = expected value ⟶ risk indifference is present.
Certainty equivalent (CE) < expected value ⟶ risk averse is present.

According to economics whether an investor is risk averse, risk seeker or risk neutral can be classified in the following way:

"Alternatively, individual is said to be risk averse if the utility of expected wealth is greater than the expected utility of wealth i.e.

U [E (W)] > E [U (W)] ⟶ Risk aversion.

If the utility of expected wealth is equal to the expected utility of wealth, the investor is said to be the risk neutral. i.e.

U [E (W)] = E [U (W)] ⟶ Risk neutrality.

Finally, an investor is said to be risk seeking if the utility of expected wealth is less than expected utility of wealth i.e.

U [E (W)] < E [U (W)] ⟶ Risk seeking."

Normally, it is accepted that investors are, by and large, risk averse. It implies that risky investment must offer higher expected returns than less risky investments. For risk averse investors the difference between certainty equivalent and the expected value of an investment constitutes a risk premium; this is additional expected return that the risky investment must offer to the investor in order for those investors to accept the risky investment.

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. Portfolio theory, CAPM (capital assets pricing model) and APT (arbitrage pricing theory) are the most common and important theories of risk and return. The theories are described under the following heads***:***

Portfolio theory

The process of selecting an optimum portfolio is known as portfolio theory. As discussed in the earlier section, portfolio is the combination of two or more than two assets. Portfolio means investing in more than one asset that satisfies the following objective:

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

Harry Markotwitz, first introduced the portfolio theory in 1952 A.D., which states how a risk averse investor minimizes risk by performing an optimum portfolio. Markowitz portfolio principle is based upon some certain assumptions:

- Risk aversion: Investors are risk averse. They prefer lower risk to higher risk and higher return to lower return.
- Return: The return expected from any asset or portfolio is the mean value of probability distribution of future return.
- Risk: The variability of return from the expected return is the risk that is to be beared by an investor.
- Utility: The determinant factor of risk and return is the utility curve or indifference curve that states the investors bearing high risk requires more return than the low risk bearing investor.
- Principle of dominance: The investor follows the principle of dominance. i.e. if there is same level of return, lower risk is preferred and their level of risk, higher return is preferred.

Portfolio return

The return gained from the investment in two or more than two asset or investment is known as portfolio return. Portfolio return means the weighted average of return and proportion of investment on assets. Portfolio return always depends upon the individual rate of return and the ratio of investment in those assets. 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 weights reflect the proportion of the portfolio or wealth invested in each asset.

Mathematically,

$$E(R_P) = \sum_{i=1}^{n} W_j R_j$$

Where,

W_j = the proportion, or weights of the total funds invested in security j

R_j = expected return for the security j

n = total number of different securities existing in the portfolio.

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

Weight may be in positive or negative
In a two-security portfolio, the portfolio return will be

$$E(R_p) = W_A \times E(R_A) + W_B \times E(R_B)$$

Where,

WA = The fraction of the total value of the portfolio invested in the A asset or $(1 - W_A)$

W_B = The fraction of the total value of the portfolio invested in the B asset or $(1 - W_B)$

$E(R_A)$ = The expected rate of return from the asset A

$E(R_B)$ = The expected rate of return from the asset B

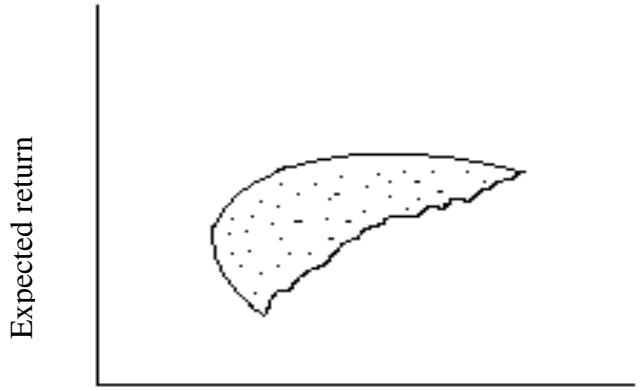
Portfolio risk

The risk arised from the investment in more than one asset is known as portfolio risk. In other words, the variation in expected return from investing in two or more than two assets is known as portfolio risk. Thus the portfolio risk depends upon the three basic factors. The first one being individual risk of an asset, second one being the proportion or weight of investment in each asset and the third is the relation

between the co-movement of return of assets among the portfolio known as co-variance or correlation. Portfolio return means only the weighted average of return and proportion of investment but portfolio risk means the combination of individual asset risk, proportion of investment and nature of return of those assets forming portfolio. Portfolio risk is the variance of portfolio return. The variance of the portfolio reflects not only the variance of the assets that make up the portfolio but also how the returns of the assets that comprise of the portfolio, vary or move together. The nature of such co-movement of return is called co-variance.

Portfolio selection
(Determination of portfolio opportunities or attainable set of portfolio)

Figure No. 1



Risk minimizing portfolio

It is a difficult task to determine the amount of money to investment to form a portfolio. The ratio of investment on each asset that minimizes the risk to its lowest form is known as risk minimizing portfolio. The ratio of investment is known as optimum weight.

In case of two assets, the percentage or weight of fund invested is obtained by,

$$W_A = \frac{(\delta_B)^2 - \rho_{AB}\,\delta_A\,\delta_B}{(\delta_A)^2 + (\delta_B)^2 - 2\rho_{AB}\,\delta_A\,\delta_B} \quad \textbf{OR} \quad \frac{(\delta_B)^2 - COV_{AB}}{(\delta_A)^2 + (\delta_B)^2 - 2COV_{AB}}$$

Where,

δ_B ⟶ Standard deviation of asset B
δ_A ⟶ Standard deviation of asset A
ρ_{AB} ⟶ Correlation coefficient between the returns of assets A and B.
$(\delta_A)^2$ ⟶ Variance of return of asset A
$(\delta_B)^2$ ⟶ Variance of return of asset BMSS
COV_{AB} ⟶ Covariance between the return of asset A and B

W_B ⟶ $1 - W_A$

OR

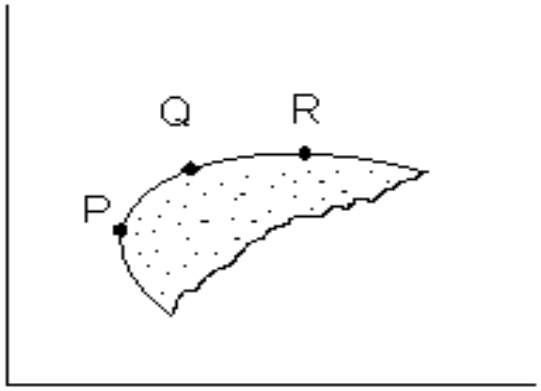
$$W_B = \frac{(\delta_A)^2 - \rho_{AB}\,\delta_A\,\delta_B}{(\delta_A)^2 + (\delta_B)^2 - 2\rho_{AB}\,\delta_A\,\delta_B} \quad \text{OR} \quad \frac{(\delta_A)^2 - COV_{AB}}{(\delta_A)^2 + (\delta_B)^2 - 2COV_{AB}}$$

When it is clear that the portfolio helps to minimize the risk, the investor's looks for the assets combination that can be attainable. From the available assets, the limitless number of portfolio can be performed. Each possible portfolio will have an expected rate of return and risk. The hypothetical set of all possible portfolios is called the portfolio opportunity set or attainable set as shown in the above figure.

Determination of efficient frontier or portfolio

In the portfolio theory, the principle of dominance exists and the portfolio, which has the highest expected returns for a given level of risk and the minimum risk for a given level of return, is called an efficient portfolio.

Figure No. 2



From the figure the three portfolios (P, Q and R) are regarded as the dominant assets. In the figure, line PR is the efficient frontier and it represents the locus of all portfolios, which have the highest return for a given level of risk. Portfolios that lie below the efficient frontiers are the dominated portfolios. Portfolios that lie to the left side of the efficient frontier are not possible because they lie outside the attainable set. Portfolios to the right side of the efficient frontier are inefficient because some other portfolios could provide either a higher return with the same degree of risk or lower risk for the same level of return.

Comparing among the efficient frontier P, Q and R, portfolio R has low risk with low return. Portfolio R has high risk and low return as compared to portfolio Q. Thus, portfolio Q dominates the portfolio R because the Portfolio Q has lower risk in comparison to portfolio R.

After the analysis it is obvious that both the portfolio P and Q are equally efficient. Portfolio P has low risk with low return while portfolio Q has high risk for high return. It depends upon the preference of the investor to choose among this portfolio.

CAPM (Capital assets pricing model)

CAPM is the model that describes the relationship between risk and return. In this model, a security's return (expected or required) is the risk free rate plus a premium based on the systematic risk of the security. For a risk averse investor, there is an implied equilibrium

relationship between risk and expected return for each security. In market equilibrium, a compensation for systematic risk is provided to the expected return. The relationship states that greater the systematic risk, greater will an investor expect from the investment. This CAPM model was developed in 1960's by William Sharpe. The model is simple in concept and has real world applicability. Like any model, this one is a simplification of reality. It allows drawing certain implications about risk and the sizes of risk premium required compensating for bearing the risk. Some assumptions of the model are follows:

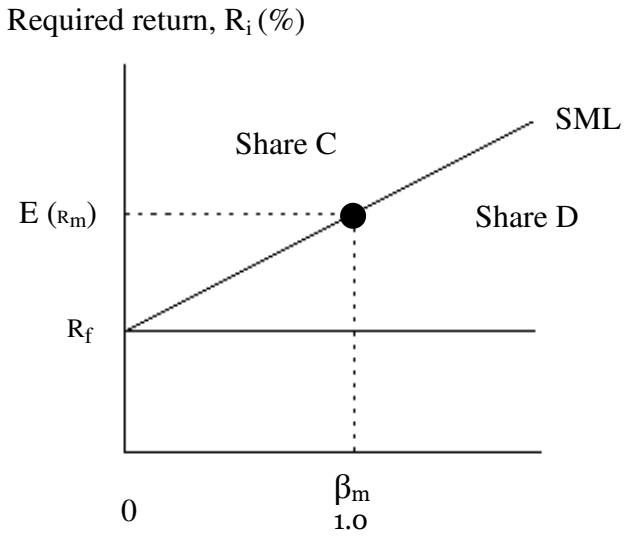
- Capital markets are efficient: It means that the investors are well informed, transactions cost are low, there are negligible restrictions on investments and no investor is large enough to affect the market price of investment.

- Investors are risk averse and they evaluate portfolios based on expected return and standard deviation of the portfolio.
- Investors can buy a fraction of investment according to their convenience.
- Same risk free rate is prevalent for all investors can lend or borrow unlimited amount of money at a risk free rate.
- Capital markets are always in equilibrium. If not, they tend to be at equilibrium.
- There is no unanticipated change in inflation and interest rates.
- For CAPM, it is the world without tax.

The security market line (SML)

SML is a line that describes the linear relationship between expected rate of return for individual assets (and portfolios) and systematic risk, as measured by beta. The CAPM is an equilibrium model for measuring the risk and return trade-off for all assets including both efficient and inefficient portfolios. A figure of the CAPM is presented as under:

Figure No. 3



In the equilibrium when supply and demand and prices remain stables expected return and required return for the share should be equal, $E(R_j) = R_j$ and its price would be stable. Equilibrium will generally exist for a given stock because security prices adjust rapidly to new developments. Changes in the equilibrium can be brought about (i) by change in risk aversion (ii) by change in the risk free rate (iii) by changes in the stock's beta coefficient, or (iv) by change in the stock's expected growth rate.

Share C lies above the SML, it is expected to offer a return greater than that required by the market for that level of risk: its expected return is greater than its required return, $E(R_j) > R_j$. Share C is undervalued or under priced. Alternatively share D lies below the SML, it is expected to provide a return below that required by the market for that corresponding level of risk. When the expected rate of return is greater than the required rate, investor will try to purchase shares of the stock; this will drive the price upward. If the expected rate of return is less than the required rater, investor's will desire to sell the stock; there will also be a tendency for the price decline.

The expected rate of return on SML can be presented in the following equation

$$E(R_i) = R_f + (\overline{R}_m - R_f)\,\beta_i$$

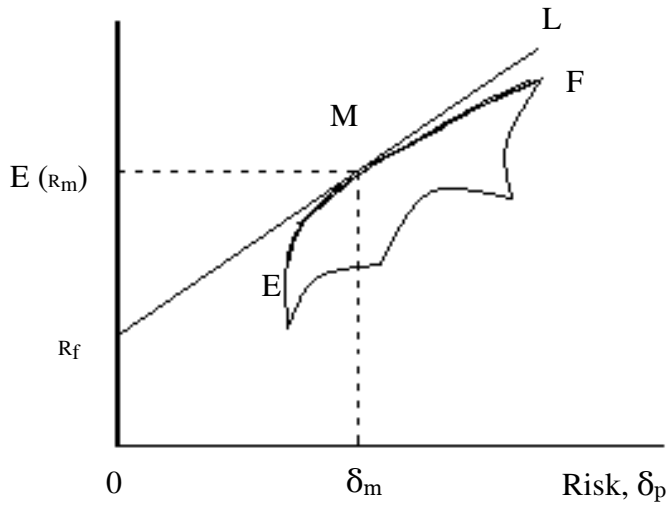
Where,

$E(R_i)$	⟶	The expected return for an assets
R_f	⟶	Risk-free rate of return
R_m	⟶	Expected market return
β_i	⟶	Systematic risk of an asset.

Capital market theory (CML)

CML represents the equilibrium relationship between the risk (δ) and return (expected) for the efficient portfolios. CML is the theory of risk and return used to describe the relationship between the risk and return in a market portfolio and the risk free rate of return - thereby defining widely held conception of the price of risk and the price of immediate consumption. The theory describes the price as a reward to the seller. In fact when a risk-free asset is introduced into Markotwitz portfolio analysis, the efficient frontier change from a curve to a straight line. This new efficient frontier is called a capital market line (CML).

Figure No. 4



The CML starts with the risk free asset (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, investors on the CML will hold both the risk free asset and the risky portfolio.

Since these investors are holding part of their investment in R_f, they are lending at the risk free rate. 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 they invest those funds more in risky portfolio (M) by utilizing leverage. All portfolios on the line between M and L represent borrowing portfolio. Portfolio M is called the market portfolio and contains all assets.

Form the above figure; R_fML represents the risk-return trade-off for efficient portfolio. This shows the capital market equilibrium relationship between risk and return for efficient portfolios consisting of various combinations of the risk free assets and the market portfolio. If investors invest in risky securities they must receive a risk premium to compensate for the additional risk. Risk premium is an excess return over the risk free rate, expected for incurring the risk-associated with the market portfolio. The slope of CML can be represented as follows:

$$\text{Slope of CML} = \frac{R_m - R_f}{\delta_m}$$

Slope of the CML is said to be the market price of 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

$$R_p = R_f + \frac{R_m - R_f}{\delta_m}$$

Relationship of SML and CML

After the separate study of SML and CML, the relationship between these two approaches can also be established. CML and SML are only the different drawings of the same market equilibrium. SML is used to explain the required rate of return of all securities whether or not they are efficient and presents a unique relationship between

systematic risk and expected return. On the other hand, CML is used to explain the required return only for those efficient portfolios that are perfectly correlated with the market portfolio because those assets fall on the CML.

The relationship between SML and CML can be expressed from the following equation:

Equation of CML

$$CML = E(R_p) = R_f + \frac{[E(R_m) - R_f]}{\delta_m} \delta(R_p)$$

Equation of SML

$$SML = E(R_i) = R_f + [E(R_m) - R_f] \beta_i$$

Considering the definition,

$$\beta_i = \frac{Cov(R_i, R_m)}{VAR(R_m)}$$

SML equation can be expressed as,

$$SML = E(R_i) = \frac{[E(R_m) - R_f]}{\delta_m} \quad \frac{Cov(R_i, R_m)}{\delta_m}$$

An Arbitrage pricing theory

Arbitrage pricing theory (APT) is a theory where the price of an asset depends on the multiple factors and arbitrage efficiency prevails. Arbitrage pricing theory is based on the law of one price and envisages that the same product can't be sold for two different prices. If this situation happens then the arbiter will buy the product from the cheaper market to sell those goods for the higher price in the market.

The more demand at cheaper price will tend to increase the price of a product and the more supply for the higher price will tend to decrease the price of a product of higher price market. As a result of which, the same price will prevail in the market.

Originally developed by Stephen A. Ross, this theory is based on the idea that in competitive financial markets, arbitrage will assure equilibrium pricing according to risk and return. Arbitrage simply means finding two things that are essentially the same and buying the cheaper and selling the more expensive. This means that in the equilibrium situation, the law of one price can be stated in the way that assets with the same level of risks are equivalent investments and therefore the expected rate of return of those investments must be same or equal.

This theory is perhaps the most important challenge to the capital asset pricing model (CAPM). In the CAPM, only the single factor underlying in all assets determines return on the market portfolio. But the APT theory suggests that there is more than one factor that affects the return and those needs to be considered for assessing the return.

2.3 Review of related studies

There are some previous studies based upon the theoretical concept about the nature of relationship between the risk and return. Stigler Hypothesized the differences in according rates of return could be explained by differences in business risk. The commitment was based upon the study of entrepreneur who would require higher rate of return in industries, which has higher risk and vice-versa. Stigler committed the task in 1963. After seventeen years, in 1980; Bowman had tested the correctness of the Stigler hypothesis. Risk, in terms of variance and return, in terms of mean return of 387 companies were tested based upon the return on equity. The companies were selected from 11 industries and the time period for 1972 to 1976. The coefficient of correlation was found to be negative in 10 out of 11 industries.

Mr. Ashok kumar Rai (2003) had performed the study on the position of risk, return and investment of Nepalese financial institutions. Banking sector, insurance sector and finance sector were taken for the study. Altogether, fifteen samples were taken under the study. The risk was measured in terms of CV and return in terms of mean return. The study is based upon six profitability ratios. The study concludes of being inverse to the proposition " higher the risk, higher the return and vice versa".

Mr. Umakant Dulal (2001) had studied the position of risk and return of Nepalese companies. The profitability ratios served as a basis for the measurement of risk and return. Risk was expressed in terms of standard deviation and coefficient of variation of the profitability ratios. The study justified opposition to the proverb " higher the risk, higher the return and vice versa".

CHAPTER- III

RESEARCH METHODOLOGY

3.1. Introduction:

Research methodology is a step-by-step attempt to solve the research problem. It shows the way to solve the research problem systematically. To acquire the research objective, a good research methodology has to be followed. Research methodology basically describes the method, process, tool and technique applied in the entire process of a scientific research. "Research methodology is a way to systematically solve the research problem"[10]. The basic objective of the study is to gain an insight into the risk and return position of the selected financial institutions, which requires various steps to be followed before ascertaining the objective. Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objective in view.

The research methodology adopted in this study, to accomplish the objective of the study on the risk and return analysis of 'A' graded financial institution constitutes of: research design, population and sample, nature and type of data (sources of data, data collection procedure, data processing procedure), techniques of analysis, analytical tools and limitations of research methodology.

3.2. Research design:

The research design is the strategy to accomplish the research, which gives a framework to collect and analyze the data for the study. The research design focuses on the data collection methods, the tools utilized for the research and the sampling plan to be followed. After identifying what the researcher wants to know and what has to be dealt with in order to obtain the required information, research

[10] C.R. Kothari, *Research Methodology, Methods and Techniques*, 2nd edition, Wishwa Prakashan, New Delhi, India, Pg-10, 2000.

design describes the general plan for collecting, analyzing and evaluating the data. It is also an integrated system that guides the researcher in formulating, implementing and controlling the study. "A research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to the research questions and control variance"[11].

The research design is thus an integrated frame that guides the researcher to plan and execute the research work. The research design is the plan and structure supported by the strategy of investigation conceived in order to obtain answers to the research queries and to control the variance.

The research study attempts to analyze the position of risk and return of the selected financial institutions. For the analysis, data are obtained from website of the individual banks www.everestbankltd.com, www.nabilbank.com *and* www.standardchartered.com/np. The pattern of return and its volatility (risk) are analyzed in the study. The trend of return of each institution is also studied. More than that, the relationship between the mean return, standard deviation and the coefficient of variation is examined to find whether the relationship between these variables in the study is positive or negative. The test of correlation and analysis of variance are also done in this study. Therefore, the research design used in the study is basically descriptive cum analytical in nature.

3.3. Population and Sample:

Population is the combination of each unit. The word population as used in the study denotes the aggregate from which the sample is to be taken. Population is the universe about which the study aims to inquire. Population may be finite or infinite. A finite population is one in which the number of the items is determinable. An infinite is that in which the number of items cannot be determined. Our study has finite population. In many cases, the study of the whole population is neither feasible nor desirable. In this case, samples are taken for the

[11] Wolf & Pant, *A Hand Book For Social Science Research And Thesis Writing*, Buddha Academic Enterprises Pvt. Ltd., Kathmandu, Nepal, Pg-50, 2000.

study. Sample is the representative of the population. It is that part of universe which the researcher selects for the purpose of investigation. The sample should exhibit the characteristics of the population. It should be a small population. 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.

For our purpose, the financial statements of all the 'A' graded financial institutions are regarded as population. There are seventeen 'A' graded financial institutions till the research work. Among these eight institutions are taken as sample for the study, namely NABIL, SCBNL and EBL. These samples are selected according to the judgmental and convenience sampling.

3.4 Nature and type of data

It is the data on which the analysis is done, evaluated and the results are obtained. Data is the foundation on which the research is performed. One of the most difficult problems in research is obtaining the desired data.

3.4.1 Sources of data

There are two sources from which the data can be collected, namely, the primary source of data. A primary source is one that itself collects the data; primary data are those, which are collected at fresh and for the first time and those happen to be original in character. The researcher directly goes to the field and collects necessary information for the study by observation, interview with the concerned one.

Secondary data source is one that makes available data that were collected by some other agency. Secondary data are those, which have already been passed through the statistical process. They are collected from various published and unpublished sources and were used by other researchers earlier.

The study is mainly based on the data tabulated from financial statements of the selected banks for the study for the period of five years i.e. FY 2003/04 to 2007/08 which have been derived from website of the respective banks. Moreover, the annual reports of the concerned institutions, trading reports published by NSE, magazines, related websites were consulted. Therefore, the data for the study have been primarily secondary in nature.

3.4.2 Data collection procedure

In the course of preparation for the research work, the data regarded as appropriate for the study was obtained through direct computer print out from the website of the respective banks. Consequently, the P/L a/c, B/S was collected in the same manner. Also the concerned institutions were visited to get the annual reports; other published reports and for the other required information's that was the part of the study.

3.4.3 Data processing procedure

After collecting the data, researcher has to process the data in order to make it easy for the presentation and analysis of the study. In this context, the data have been processed and recasted in condensed form. Thereafter, they 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. After that the calculation of risk and return were also carried out. The trend equation and the trend value were also computed. After this, the relationship between the risks and return are also worked out. Finally, applying the student's t-test and ANOVA respectively tested the relevancy of correlationship and the analysis of variance.

3.5 Techniques of analysis

For this study descriptive and inferential techniques are applied as techniques of analysis. Descriptive analysis is based on the various profitability ratios, which are arranged in the tabular form. The standard deviation and coefficient of variation have been used to analyze the variability of these ratios. The trends of return, trend

equation with their predicted values are also computed. Apart from this, Karl Pearson's coefficient of correlation is also calculated to describe the nature of relationship between risk and return.

For the inferential analysis, null and alternative hypothesis were formulated and tested in student's t-test and ANOVA. If the calculated t-value were 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 ratio was more than the calculated value, at 5 % level of significance with (2, 7) 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 secure the precise findings of the study. All those tools, which are utilized for the analysis and interpretation of the data is known as analytical tools. There are two types of analytical tools applied in the study. They are:

i. Statistical tools
ii. Financial tools

i. Statistical tools

Statistical tools include arithmetic mean, standard deviation, coefficient of variation, Karl Pearson's coefficient of correlation, student's t-test and ANOVA.

Arithmetic Mean

Arithmetic Mean is the most popular and widely used measure for representing the entire data by one value and which is also known as average. Adding all the items together and then dividing this total by the number of items added, the value of mean is determined. Mean is used in this study to find out the average of the different profitability ratios applied.

The arithmetic mean is symbolically represented as below:

$$\overline{X} = \frac{X_1 + X_2 + X_3 + \ldots X_n}{N}$$

$$\overline{X} = \frac{\sum X}{N}$$

Where,

$\overline{X}$	⟶	Arithmetic Mean
$X_1 + X_2 + X_3 \ldots X_n$	⟶	Values of variables.
ΣX	⟶	Sum of the values of variable X
N	⟶	Number of observations.

Standard Deviation

Standard deviation is the absolute measure of dispersion. Absolute measure of dispersion means that dispersion or variation of the items around their expected value i.e. arithmetic mean. Standard deviation is also regarded as root mean square deviation because it is the square root of the mean of the squared deviations from the arithmetic mean.

Symbolically,

$$\delta = \sqrt{\frac{\sum \left(X - \overline{X}\right)^2}{N-1}}$$

Where,

δ	⟶	Standard deviation.
$\sum \left(X - \overline{X}\right)^2$	⟶	Sum of the square of mean deviation
N	⟶	No of observations.

Coefficient of variation

Coefficient of variation is the relative measure of dispersion. Relative measure of dispersion is the ratio of the measure of absolute dispersion to an appropriate average.

As it is not appropriate through standard deviation, the comparison of the variability of two or more distributions is made easy by coefficient of variation. It reflects the risk per unit and provides a quick summary of the relative trade-off between risk and return. It is computed by dividing the standard deviation by arithmetic mean.
Mathematically,

$$CV = \frac{\delta}{\overline{X}}$$

Where,

δ ⟶ Standard deviation
$\overline{X}$ ⟶ Arithmetic Mean

The series for which the coefficient of variation is greater is said to be more variable or less consistent or less uniform or less homogeneous and vice versa.

Analysis of Variance

Analysis of variance or ANOVA is a statistical technique developed by R.A. Fisher designed specially to test whether the mean value of more than two quantitative populations are equal. It tests the null hypothesis that two or more sample come from population with equal means and are different only due to sampling error.

The F-test mechanism is used in analysis of variance. This technique is used in the present study to test the null hypothesis that the mean values of the various parameters of five-year sample of FY 2003/04 to FY 2007/08 of the selected banks are equal and come from the same sample or similar population.

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

Step 1. Formulate null and alternative hypothesis.

H_0: $U_1 = U_2 = \ldots U_K$ i.e. the arithmetic mean of the population from which k sample are drawn are equal to one another.

H_A: $U_1 \neq U_2 \neq \ldots U_K$ i.e. the arithmetic mean of the population from which k sample are drawn are not equal to one another.

Step 2. Compute variance between the samples using the following procedure:

a) Compute the mean of each sample i.e. $\overline{X}$
b) Compute the grand mean (M)

$$M = \frac{\overline{X}_1 + \overline{X_2} + \ldots\ldots\ldots\ldots \overline{X_K}}{N_1 + N_2 \ldots\ldots\ldots\ldots + N_k}$$

c) Compute the deviation of the sample mean from the grand means and square these deviations and multiply by the sample size. This will give sum of squares in columns (SSC)
d) Compute the mean square between the samples (MSC)

$$\text{MSC} = \frac{\text{SSC}}{\text{K-1}}$$

Where

K ⟶ No of samples
K-1 ⟶ Degrees of freedom

Step 3. Compute variance within the sample using the following procedure:

a) Compute the mean value of each sample.
b) Sum the squares of deviation of various sample items from their mean.
c) Repeat (b) for all samples and obtain the total of sum squares of the deviation of various samples from their respective means (SSE)
d) Calculate the mean square within the samples (MSE)

$$MSE = \frac{SSE}{N-K}$$

e) Calculate the total sum of squares of variations

$$SST = SSC + SSE$$

Step 4. Prepare the ANOVA table

Where
SS ⟶ Sum of Squares
df ⟶ Degrees of freedom
MS ⟶ Mean square

$$F\text{-ratio} = \frac{\text{Larger estimate of variance}}{\text{Smaller estimate of variance}}$$

Step 5. Make Decision.

If the computed value of F is less than their critical values say at 5 % level of significance, H_o is accepted otherwise H_1 is accepted

Source of variation	**SS**	**df**	**MS**	**F-ratio**	**Result**
Between Samples	SSC	K-1	MSC = SSC/K-1		
Within Samples	SSE	N-K	MSE = SSE/N-K		
Total	SST	N-1			

Karl Pearson's Coefficient of Correlation:

Correlation is an analysis of the covariation between two or more variables. If two or more quantities vary in such a way that movements in the other accompany movements in one, these quantities are said to be correlated. It is a statistical device that helps to analyze the co-movement between two or more variables. The correlation coefficient however only helps to determine the extent to

which two variables are correlated but does not tell us about the cause and effect of the relationship. Even if there is a high degree of correlation between two variables one cannot say with certainty, which one is the cause and which one is the effect.

There are various methods of ascertaining whether two variables are correlated or not such as Scatter Diagram, Graphic Method, Concurrent Deviation Method and Karl Pearson's Coefficient of correlation. Among these methods, Karl Pearson's Coefficient of Correlation is widely used in practice.

This study makes use of the Karl Pearson's Coefficient of Correlation to achieve its objective of measuring and testing correlation between risk and return.

The Pearson's Coefficient of Correlation is mathematically expressed as:

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

Where,

r	⟶	Karl Pearson's coefficient of correlation.
N	⟶	No of observations.
ΣX	⟶	Sum of the values of variable X.
ΣY	⟶	Sum of the values of variable Y.
ΣXY	⟶	Sum of the multiplied values of variable X and Y.
ΣX^2	⟶	Sum of the squared values of variable X
ΣY^2	⟶	Sum of the squared values of variable Y
$(\Sigma X)^2$	⟶	Squared the sum of the values of variable X
$(\Sigma Y)^2$	⟶	Squared the sum of the values of variable Y

The value of the coefficient of correlation as obtained by the above formulae must always lie between ± 1.

Student's t-test:

The correlations between the variables are analyzed by using the Karl Pearson's coefficient of correlation. Henceforth, after the computation of correlation coefficient, an attempt is made to clarify whether there is significant statistical relationship between the risk and return as shown by the correlation coefficient. For this purpose the present study has applied student's t-test for testing the significance of the coefficient of correlation.

The student's t-test is used to test the hypothesis that the correlation coefficient of the population is zero. i.e. the population of the variables in question is uncorrelated.

Using the formula, the value of 't' can be calculated as follows:

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

Where,

t	⟶	Student's t-value.
r	⟶	Coefficient of correlation
n	⟶	No of observations.

The tabulated value is based on n-2 degrees of freedom at 5 % level of significance or alternatively at 95% level of confidence. If the calculated value of t exceeds the tabulated value of 0.05 for (n-2) degrees of freedom, the null hypothesis is rejected, which imply that the value of "r" is significant i.e. there is statistical significant relationship between the variables under consideration at 95% level of significance. If the calculated value of $t < t_{0.05}$, the data are consistent with the hypothesis of an uncorrelated population.

ii. Financial tools

Financial tools are applied to find the rate of return. From this return, the risk (standard deviation and CV) is calculated. The risk and return are calculated from the various profitability ratios as under:

1. Net profit to Operating Income

This ratio is also known as net profit margin or net profit ratio (NPR). It shows the relationship between net profit and operating income. It indicates the management's ability to generate net profit in terms of operating income. NPR is generally expressed in terms of percentage.

Symbolically,

$$\text{Net profit to operating income ratio (NPR)} = \frac{\text{Net profit}}{\text{Operating Income}} \times 100$$

2. Net profit to working fund ratio

The ratio is also known as return on assets (ROA). The return on assets ratio shows the relationship between net profit and total assets. Net profit is the end result of the business operation of the bank. The ratio examines how well the assets have contributed to earn the net profit. It is obtained when operating expenses and income tax are deducted from gross profit. The ratio is generally expressed in percentage.

Symbolically,

$$\text{Net profit to working fund ratio} = \frac{\text{Net profit}}{\text{Working Fund}} \times 100$$

3. Net profit to net worth ratio

This ratio is also known as return on equity (ROE). It shows the relationship between net profit and net worth. It reflects the extent to which the bank has been able to provide a satisfactory return to its equity holders. It provides the answer to the question," Has the bank used the resources of owners properly?"

Symbolically,

$$\text{Net profit to net worth ratio (ROA)} = \frac{\text{Net profit X 100}}{\text{Net worth}}$$

4. Interest earned to Working fund ratio

The ratio expresses the relationship of working fund (or total assets) and interest earned by the institution. The ratio expresses the amount of interest earned by the institution by utilizing the total asset in percentage. The amount of interest earned is divided by the amount of total asset and the result is multiplied by hundred to get the ratio.

Symbolically,

$$\text{Interest earned to working fund ratio} = \frac{\text{Interest earned X100}}{\text{Working fund}}$$

5. Earning yield

The relationship between the earning per share (EY) and market price per share (MPS) can be expressed in a ratio known as earning yield (EY). Generally, the rise in the earning leads to increase in the market price of a share also. Dividing the EPS with MPS and multiplying the result by hundred efficiency of earning yield can be expressed in percentage basis.

Mathematically,

$$\text{Earning yield} = \frac{\text{Earning price per share X 100}}{\text{Market price per share}}$$

6. Dividend yield

Dividend is a part of earning. Market price of a share means the transaction value of a share in the general market. The relationship between these two financial figures can be expressed as dividend

yield. When the market price per share (MPS) divides the dividend per share (DPS) and the quotient is multiplied by hundred the result is the dividend yield expressed in percentage basis.

Mathematically,

$$\text{Dividend yield (DY)} = \frac{\text{Dividend per share (DPS) X 100}}{\text{Market price per share (MPS)}}$$

7. Price earning ratio

The reciprocal of earning yield is understood as the price earning ratio. When the market price per share (MPS) is divided by Earning per share (EPS), the quotient is known as price earning ratio. How many times is the Market price greater then the earning price of a share? Is answered by Price earning ratio (P/E ratio). P/E ratio is generally expressed in times.

Mathematically,

$$\text{Price earning ratio} = \frac{\text{Market price per share}}{\text{Earning per share}}$$

3.7 Limitations of the methodology

Although the researcher always attempts to get into the depth of the fact, there always exist some loopholes in the practical life that are considered as limitations of the study. The limitations of this methodology can be categorized under the following heads:

1. The study is solely based on the financial statements of the bank as given in the various annual reports for the period of five years i.e. from FY 2003/04 to FY 2007/08. However, the amounts given in these financial statements are in the round figures of thousand of rupees. Therefore, the result may vary.

2. The profitability ratio analysis, which too is used as a tool for determining risk and return, has its own limitation, which is listed below:

- It is difficult to decide on an appropriate basis of comparison.
- The change in price-level also makes the interpretation of the ratios paralyzed.
- The ratios do not give any indications of the future as it is calculated from the past financial statements.

3. The arithmetic mean as a statistical tool of data analysis depends upon each and every item of the series; extreme items may be very small and very large items. This unduly distorts the precise value of the mean and as such the analysis.

4. The trend analysis as a statistical tool of data analysis ignores the impact of cyclical and irregular variation, as predications are based only on long-term variations. Hence, the trend analysis is inflexible.

5. The Karl Pearson's coefficient of correlation as a statistical tool of data analysis always assumes linear relationship between the variables regardless of the fact whether, that assumption is correct or not. Hence, extreme values unduly affect the value of the coefficient of correlation.

6. The test of statistical significance (i.e. Student's t-test of coefficient of correlation and ANOVA) though indicates that a difference has statistical significance, they not however tell us why the difference exists. Nonetheless, they suggest the need for further investigation in order to reach definite conclusions.

CHAPTER- IV

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

This chapter presents all the data collected from various sources. The data are presented in a tabular and graphical form to analyze and interpret systematically. The data are diagnosed, selected, formatted, and calculated before giving them tabular and graphical shape. After presenting the data in a tabular and graphical form, they are analyzed and interpreted. The data applied for the study are of five fiscal years (FY 2003/04 to 2007/08) in order to assess the position of risk and return of the 'A' graded financial institutions. For the purpose, the data are analyzed and interpreted in two ways, descriptively and inferentially.

Descriptive analysis is carried out to determine the risk- return position of the selected financial institution using different profitability ratios. The measurement of central tendency (arithmetic mean) and dispersion (standard deviation and coefficient of variation) are applied to assess the return and risk respectively. The time series analysis (trend analysis) is devoted to examine the trend and trend equation of return of each institution under study.

The inferential analysis is applied to make inter-bank analysis on risk and return position based on Analysis of Variance (ANOVA), Karl Pearson's correlation coefficient and student's t-test of the correlation coefficient.

4.2 Presentation, interpretation and analysis of data

The presentation and analysis of data can be systematically divided into two groups. The 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:

- According to descriptive analysis.
- According to inferential analysis.

4.2.1 Presentation, interpretation and analysis of data according descriptive analysis

Presentation, interpretation and analysis of data, according to descriptive analysis are devoted with a view to determine the risk-return position of all the selected banks under study. The trend of return is also presented under the descriptive analysis. Various profitability ratios and trend analysis serve as a basis of inter-bank comparison of risk and return. The descriptive analysis can also be divided into two groups to make the study more easy and clear. The two groups are of Presentation, interpretation and analysis of data is according to:

- Descriptive analysis based on profitability ratio.
- Descriptive analysis based on trend analysis.

4.2.1.1 Presentation, interpretation and analysis of data according to descriptive analysis based on profitability ratio

The presentation, interpretation and analysis of data, according to descriptive analysis based on various profitability ratios are studied in this section of the study. They are based on the eight profitability ratios that are already presented in the previous chapter. The presentation, interpretation and analysis of data according to

descriptive analysis based on these profitability ratios are described systematically as under:

4.2.1.1(A) Analysis of risk and return position of all the selected financial institutions based on net profit margin

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.1

Table showing the position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (based on NPR in percent)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	CV
NABIL	43.33	43.40	46.73	45.53	44.69	44.74	1.44	3.22
SCBNL	42.52	41.94	46.45	44.39	46.16	44.29	2.05	4.63
EBL	30.75	30.70	35.84	35.23	37.29	33.96	3.05	8.98

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table demonstrates the status of risk and return based on the net profit ratio (i.e. net profit to operating income). As earlier, return is represented by mean return (notation as $\overline{X}$) and the risk is represented by coefficient of variation (notation as CV).

According to the table, NABIL has the highest rate of return with 44.74% followed by SCBNL with 44.29%. The lowest earning bank is EBL with 33.96 %. On the other hand, EBL has the highest risk with 8.98 % of C.V. which indicates that the NPR of of EBL is more fluctuating as comparison to SCBNL and NABIL. And NABIL has the lowest risk having a C.V. of 3.22% which indicates the NPR of NABIL is less fluctuating as comparison to SCBNL and EBL.

The above result doesn't support the saying " higher the risk, higher the return and vice versa ". In fact, the above analysis reveals the uncommon saying "lower the risk, higher the return".

4.2.1.1(B) Analysis of risk and return position of all the selected financial institutions based on return on assets.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.2

Table showing the position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (based on ROA in percent)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	2.72	3.02	2.84	2.47	2.01	2.61	0.39	14.93
SCBNL	2.27	2.43	2.56	2.42	2.46	2.43	0.10	4.12
EBL	1.49	1.45	1.49	1.38	1.66	1.49	0.10	6.69

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table states the position of risk and return based on the net income to working fund ratio. Mean return ($\overline{X}$) represents the position of return and the coefficient of variation (C.V.) represents the position of risk.

NABIL has the highest return of 2.61% followed by SCBNL and EBL of 2.43% and 1.49 respectively. Concerning the risk position, NABIL has the highest risk of 14.93 % (CV) which indicates that the ROA of NABIL is more fluctuating as comparison to SCBNL and EBL. Whereas the risk of EBL is 6.69 % and of SCBNL is 4.12% (CV) which indicates that the ROA of SCBNL is least fluctuating as comparison to NABIL and EBL.

From the above analysis, we conclude that the table does not support fully the saying "higher the risk, higher the return and vice versa". NABIL supports while EBL does not support the above saying.

4.2.1.1(C) Analysis of risk and return position of all the selected financial institutions based on return on equity.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.3

Table showing the position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (Based on the ROE in percent.)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	30.77	31.29	33.88	32.76	30.63	31.87	1.41	4.42
SCBNL	35.96	34.07	37.55	32.68	32.85	34.62	2.10	6.07
EBL	26.57	24.66	28.84	26.79	28.54	27.08	1.69	6.24

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table exhibits the position of return and risk based on return on equity ratio of the selected 'A' graded financial institutions. Return is represented by mean return ($\overline{X}$) and the risk is represented by coefficient of variation (CV).

Concentrating on the table, one can observe that SCBNL has topped in generating the return. The bank has earned 34.62 % as mean return. The bank followed by in generating the return is NABIL having the return of 31.87 %. EBL has the lowest return of 27.08 %. We can also find the risk position from the same table. EBL has the highest risk position with a CV of 6.24% which indicates that the ROE of EBL is more fluctuating as comparison to SCBNL and NABIL. And the

NABIL has the lowest risk with a CV of 4.42 % which indicates the ROE of NABIL is least fluctuating as comparison to SCBNL and EBL.

From the above interpretation, it can be justified that the result doesn't support the saying " higher the risk, higher the return and vice versa". Although, the table doesn't justify the belief " higher the risk, lower the return, however; it supports the proposition, "lower the risk, higher the return "except EBL.

4.2.1.1(D) Analysis of risk and return position of all the selected financial institutions based on interest earned to working fund.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.4

Table showing the position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (based on the interest earned to working fund ratio in percent)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	5.98	6.22	5.87	5.83	5.33	5.84	0.33	5.65
SCBNL	4.41	4.78	4.62	4.94	4.77	4.70	0.20	4.25
EBL	6.84	6.10	5.66	5.34	5.70	5.93	0.58	9.78

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above-presented table throws light on the state of risk and return of the selected 'A' graded financial institutions based on the interest

earned to working fund ratio for the period of five years. As mentioned before, risk and return are represented by coefficient of variation (CV) and mean return ($\overline{X}$) respectively.

Going through the table, one can point out that EBL has the highest return of 5.93 %. NABIL has the second highest return of 5.84 % and SCBNL has lowest return of 4.70 % only. Going through the risk side of the institution, EBL has the highest risk and SCBNL has the lowest risk. EBL has 9.78 % as CV and SCBNL has only 4.25 % as CV. Which also indicates that the interest earned to working fund ratio of EBL is more fluctuating as comparison to SCBNL and NABIL. Whereas the interest earned to working fund ratio of SCBNL is least fluctuating as comparison to NABIL and EBL.

The above table reveals and supports the saying " higher the risk higher the return". Likewise, it agrees to the proposition "Lower the return Lower the risk"

4.2.1.1(E) Analysis of risk and return position of all the selected financial institutions based on earning yield.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.5

Table showing the risk and return of the selected banks for the FY 2003/04 to 2007/08. (based on EY in percent)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	9.26	7.01	5.77	2.71	2.05	5.36	3.00	55.96
SCBNL	8.23	6.10	4.66	2.84	1.93	4.75	2.53	53.25
EBL	6.70	3.73	3.93	2.58	2.93	3.98	1.62	40.74

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table shows the position of risk and returns of the selected 'A' graded financial institution for the period of five years, based on the earning yield ratio. As usually, return and are represented by mean return for the period ($\overline{X}$) and coefficient of variation (CV) respectively.

Looking at the table, one can easily point out that once again NABIL tops the position with 5.36% as a return. SCBNL has 4.75% as return keeping itself as a second best performer. EBL has the lowest return of 3.96%. Regarding the risk, NABIL has the highest risk with a CV of 55.96% which also indicate EY of NABIL is more fluctuating then SCBNL and EBL. The EBL has the lowest risk supported by a CV of 40.74 % which also indicate EY of this bank is least fluctuating as comparison to NABIL and SCBNL.

From the above analysis, once again supports the proverb "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 dividend yield.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.6

Table showing the Position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (on the basis of DY in percent)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	6.50	4.65	3.79	1.98	1.14	3.61	2.14	59.24
SCBNL	6.30	5.12	3.44	1.36	1.17	3.48	2.26	64.97
EBL	2.94	0.00	1.81	0.41	0.64	1.16	1.20	103.37

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table demonstrates the risk and return position of the selected 'A' graded financial institutions based on the dividend per share to market price per share (Dividend yield). As in the general case, return is revealed by mean return ($\overline{X}$) for the period of the study and the risk is reflected by coefficient of the variation (CV).

After the careful study of the table, it once again interprets that NABIL has the highest rate of return with 3.61 %. The bank followed by is SCBNL with 3.48 %. The EBL earns the lowest return of 1.16 % only. While concentrating towards the risk position, EBL has the largest scale of risk with 103.37 % of CV that is the highest CV of this whole study % which also indicate DY of EBL is more fluctuating then NABIL and SCBNL. Further, the table demonstrates that NABIL has the lowest risk with a CV of 59.24 % only which indicates the DY of NABIL is least fluctuating as comparison to SCBNL and EBL.

From the above microanalysis, the conclusion on the risk and return can be interpretive as follows:" higher the return, lower the risk" while the above analysis supports the unusual proverb" Higher the risk lower the return as concerned with EBL.

4.2.1.1 (G) Analysis of risk and return position of all the selected financial institutions based on price earning ratio.

All the selected banks risk (represented by CV) and return (represented by mean return) is depicted in the following table and below the table, the interpretation and analysis are discussed as under:

Table No. 1.7

Table showing the position of risk and return of the selected banks for the FY 2003/04 to 2007/08. (based on P/E ratio in times)

BANKS	2003/04	2004/05	2005/06	2006/07	2007/08	$\overline{X}$	δ	cv
NABIL	10.80	14.27	17.34	36.84	48.70	25.59	16.40	64.09
SCBNL	12.16	16.38	21.47	35.25	51.77	27.41	16.16	58.96
EBL	14.92	16.05	21.97	30.99	34.11	23.61	8.66	36.69

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above prescribed table schedules the position of risk and return of the selected "A" graded financial institutions for the period of five year based on the P/E ratio (market price per share to earning per share) ratio. As mentioned earlier, return is represented by mean return ($\overline{X}$) for period and the risk by coefficient of variation (CV) that measure the per unit risk in terms of return.

Concentrating to the table, it focuses that SCBNL has the highest return of 27.41 times followed by NABIL with the return of 25.59 times. The lowest earning bank in respect to the P/E ratio is EBL having the return rate of 23.61 times only. Likewise, it also prescribes that the NABIL has the highest risk with a CV of 64.09 % which indicate its P/E ratio is more fluctuating then SCBNL and EBL. The EBL has the lowest risk with a CV of 36.69% which indicate its P/E ratio is least fluctuating then other.

From the above diagnosis, it highlights the most commonly heard slogan "higher the risk, higher the return" as concerned with NABIL and EBL.

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

Trend is the flow chart of any variable based on the time period. Trend analysis is the study of time series that shows the direction of flow of the variable depending upon the time. In this section, the presentation, interpretation and analysis of data, according to descriptive analysis are discussed. The trend of return (acquired by profitability ratio) is shown in the table. The trend equation and predicted (or trend) values of each of the selected banks are presented in the tabular form (table no. 2.1 to table no.2.7)

Moreover, the graphical presentations of those values are also presented below the table to identify the nature of the trend (positive or negative) easily.

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) Analyzing the trend of return of the selected financial institutions (regarding net profit margin as a rate of return).

The trend of return, trend equation and the predicted (or 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.

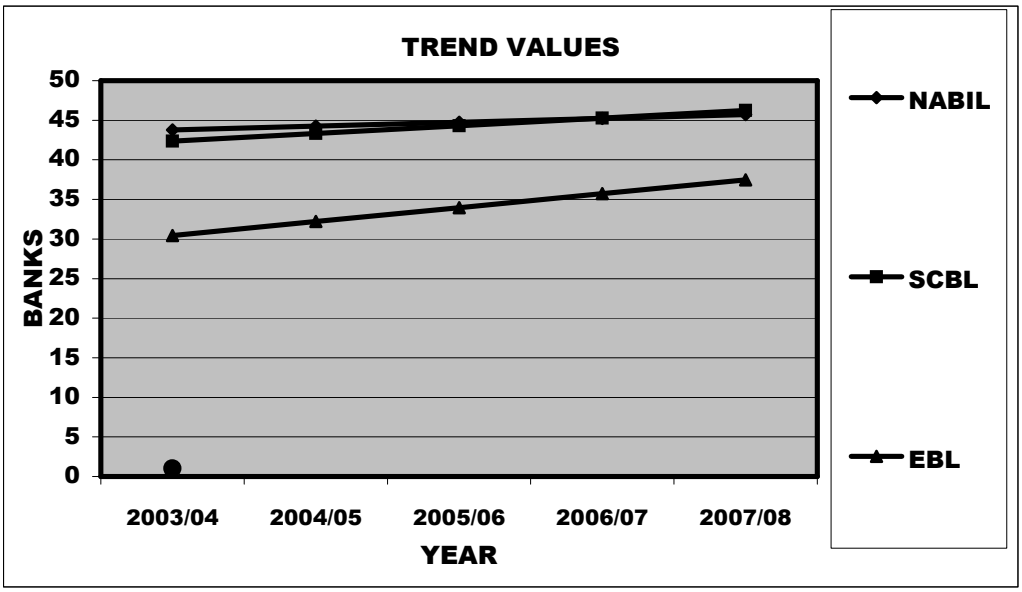
Table No. 2.1

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 (based on net profit margin).

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=44.74+0.484X	43.77	44.25	44.74	45.22	45.71
SCBNL	Y=44.29+0.973X	42.35	43.32	44.29	45.27	46.24
EBL	Y=33.96+1.761X	30.44	32.2	33.96	35.72	37.48

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.1



The above table and figure shows the trend of return, based on NPR of the selected financial institutions. The predicated value of the banks for the five years is also presented with both type of trend (positive and negative) are prevalent in the institution.

All the banks have a positive trend value. EBL has the highest growth trend rate of 1.761 times per year which also indicates Net Profit Margin of its increase each year by 1.761 times. SCBNL follows the bank with a positive trend rate of 0.973 times per year with NABIL having the lowest trend rate of 0.484 times per year.

4.2.1.2 (B) Analyzing the trend of return of the selected financial institutions (regarding return on assets as a rate of return).

The trend of return, trend equation and the predicted (or 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.

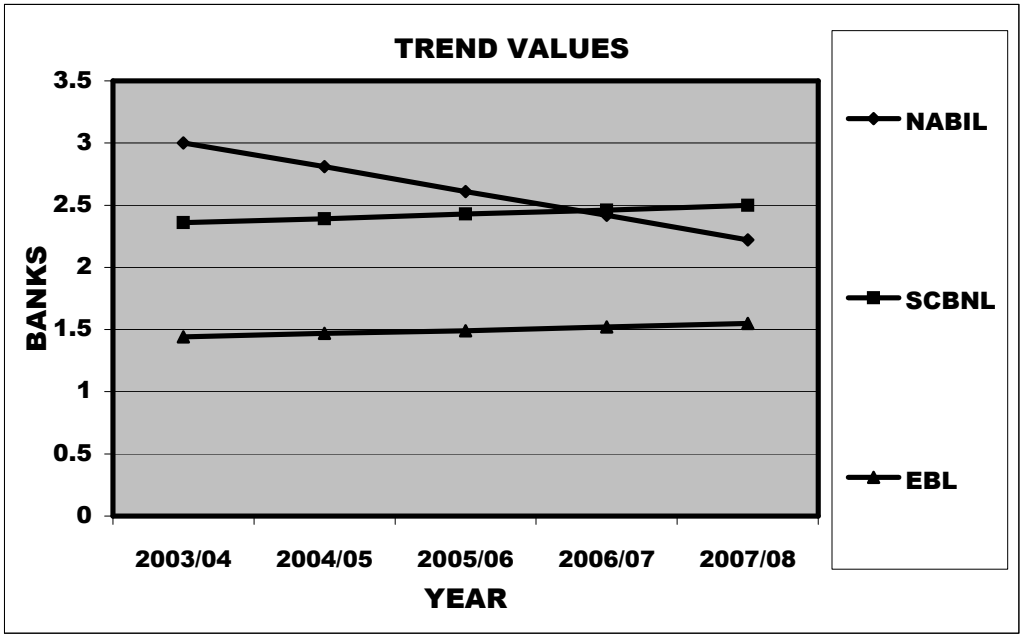
Table No. 2.2

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 (based on return on assets)

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=2.61 -0.196X	3.00	2.81	2.61	2.42	2.22
SCBNL	Y=2.43+0.035X	2.36	2.39	2.43	2.46	2.5
EBL	Y=1.49+0.027X	1.44	1.47	1.49	1.52	1.55

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.2



The above table and figure highlights the position of trend of returns (based on ROA) of the selected 'A' graded financial institutions of the country. The trend equation is also presented in the table. The trend values for the period of five years are shown in the table and figure.

Going through the table and figure, it can be pointed that NABIL have declining trend. SCBNL and EBL is the bank that earns the return with a positive growth trend. SCBNL has the highest positive growth trend of 0.035 times per year which also indicates ROA of its increase each year by 0.035 times. EBL has the second highest growth trend of 0.027 times per year. Regarding the negative trend, NABIL has the declining trend score of 0.196 times per year. Saying in other words it indicates that the ROA of NABIL will decrease by 0.196 times per year.

4.2.1.2 (C) Analyzing the trend of return of the selected financial institutions (regarding return on equity as a rate of return).

The trend of return, trend equation and the predicted (or 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.

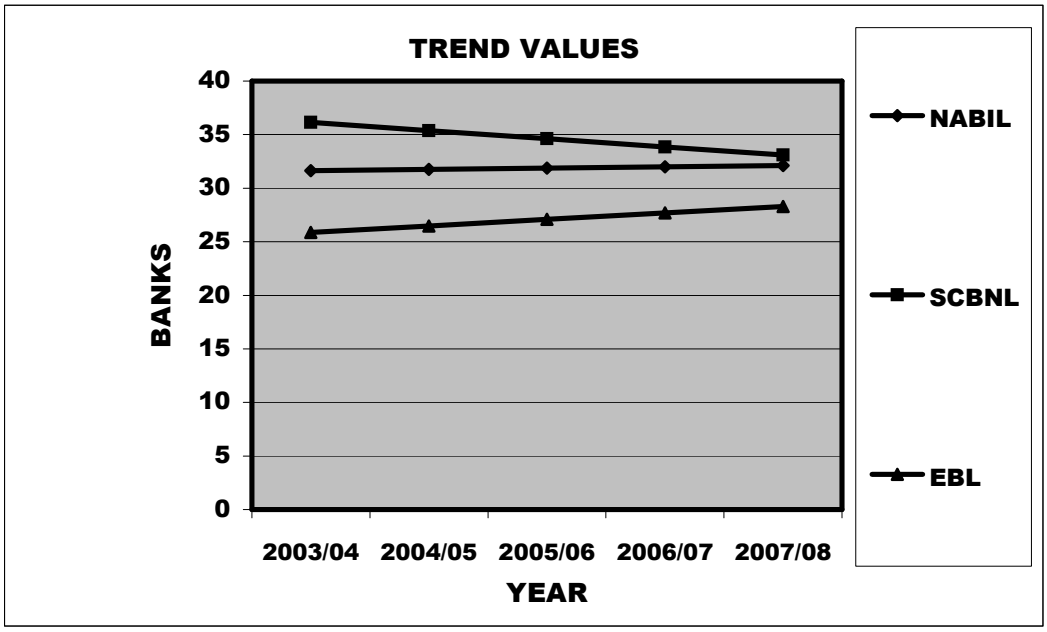
Table No. 2.3

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 based on return on equity.

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=31.87+0.120X	31.63	31.75	31.87	31.99	32.11
SCBNL	Y=34.62 -0.760X	36.14	35.38	34.62	33.86	33.1
EBL	Y=27.08+0.605X	25.87	26.47	27.08	27.68	28.29

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.3



The above table and figure shows the trend of gearing the profit (based on ROE). The predicted values of the selected bank for the five years are also presented along with their respective trend equation. The calculated trend equation signals that there are both type of trend (negative and positive) prevailing in the financial institutions of the country.

It is obvious from the table that NABIL and EBL have positive trend rate of 0.12 and 0.605 times per year respectively. This also indicates which also indicates ROE of those banks increase each year by 0.12 and 0605 times each year. Similarly, SCBNL have the negative trend rate of 0.76 which indicates ROE of SCBNL decrease by 0.76 times each year.

4.2.1.2 (D) Analyzing the trend of return of the selected financial institutions (regarding interest earned to working fund ratio).

The trend of return, trend equation and the predicted (or 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.

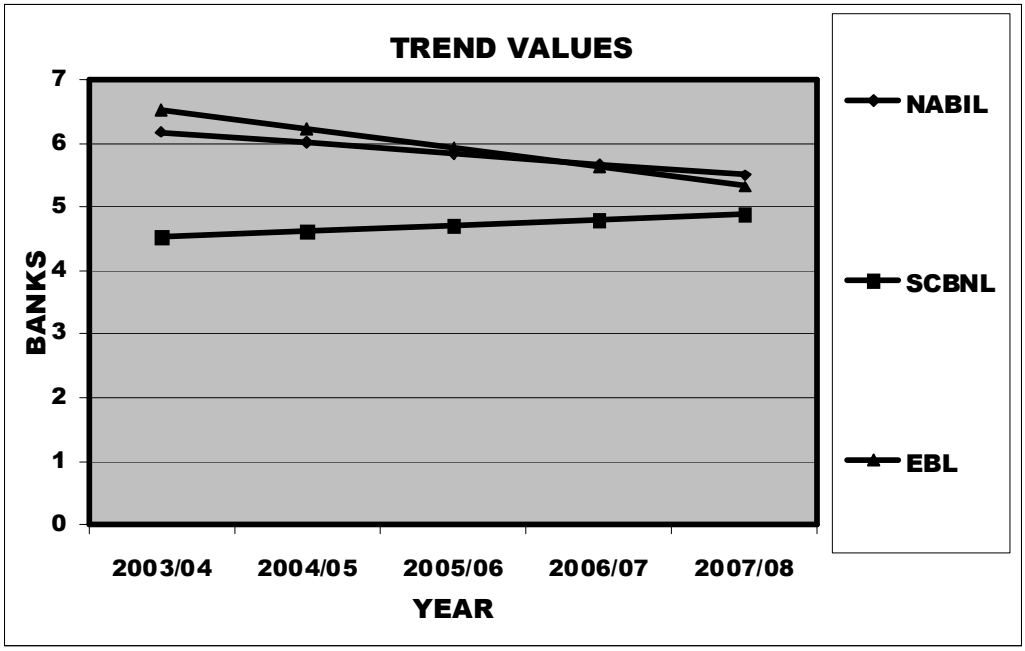
Table No. 2.4

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 (based on the interest earning to working fund ratio).

BANKS	TREND EQUATION $Y = a + bx$	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=5.84 -0.170X	6.18	6.01	5.84	5.67	5.5
SCBNL	Y=4.70+0.089X	4.52	4.61	4.7	4.79	4.88
EBL	Y=5.93 -0.303X	6.53	6.23	5.93	5.63	5.32

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.4



The table and figure shows the trend equation of each selected financial institutions based on the interest earning to working fund ratio. The predicated values of the respective institutions for five fiscal years are also shown in the table and figure. The predicated values are computed by using the respective trend equation. The trend equation exhibits that there are both type of trend, positive and negative found among these institutions.

It is obvious from the table that SCBNL have positive trend rate of 0.089 times per year which also indicates interest earning to working fund ratio of its increase each year by 0.089 times. Similarly, NABIL and EBL have the negative trend rate of 0.17 and 0.303 which indicates that the interest earning to working fund ratio of these banks will decrease each year by 0.17 and 0.303 times respectively.

4.2.1.2 (E) Analyzing the trend of return of the selected financial institutions (regarding earning yield ratio).

The trend of return, trend equation and the predicted (or 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.

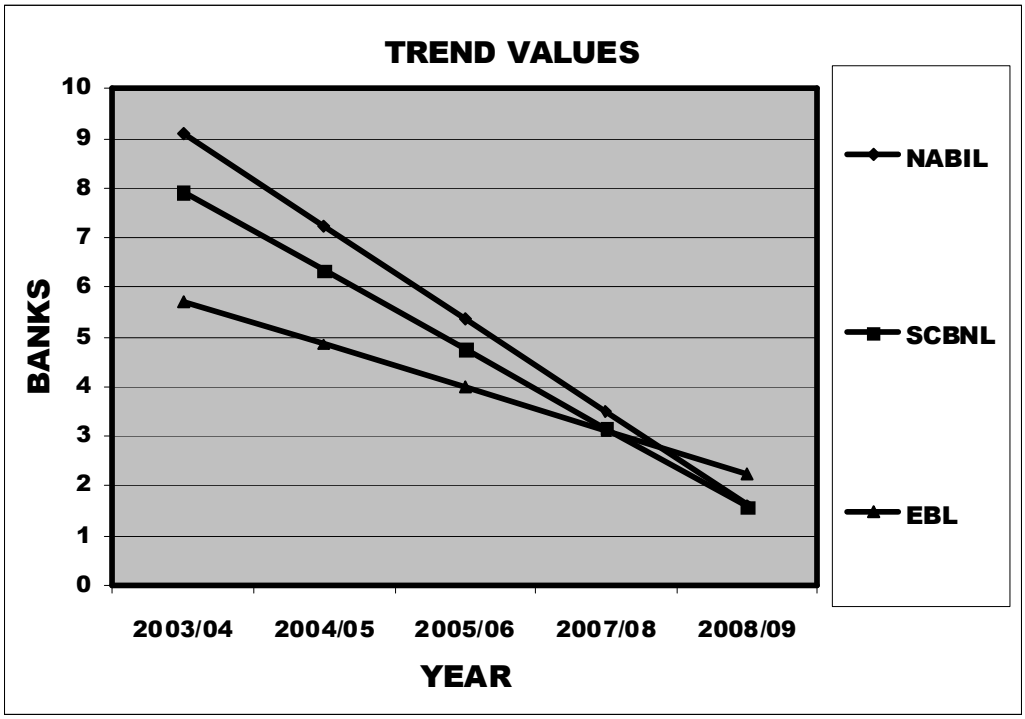
Table No. 2.5

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 (based on the earning yield ratio).

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=5.36-1.871X	9.1	7.23	5.36	3.49	1.62
SCBNL	Y=4.75-1.586X	7.92	6.34	4.75	3.17	1.58
EBL	Y=3.98-0.869X	5.71	4.85	3.98	3.11	2.24

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.5



The above table and figure presents the trend equations of the return (based on EY ratio) of the selected banks under study. The predicated values of different five fiscal years are also presented in the same table that is calculated by using the trend equation. The institutions has negative trend only.

Going through the table and graph, all the banks NABIL, SCBNL and EBL have negative trend of 1.871, 1.586 and 0.869 times per year which also indicates that the EY ratio of these banks will decrease by 1.871, 1.586 and 0.869 times per year respectively.

4.2.1.2 (F) Analyzing the trend of return of the selected financial institutions (regarding dividend yield ratio).

The trend of return, trend equation and the predicted (or 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.

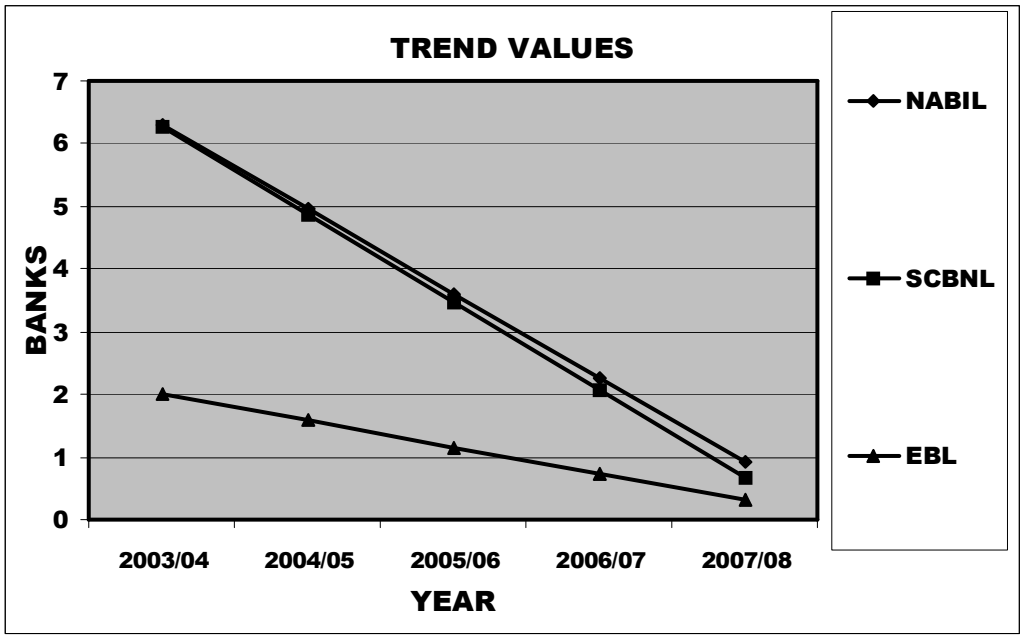
Table No. 2.6

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 (based on the dividend yield).

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=3.61-1.340X	6.29	4.95	3.61	2.27	0.93
SCBNL	Y=3.48-1.403X	6.28	4.88	3.48	2.08	0.67
EBL	Y=1.16-0.419X	2	1.58	1.16	0.74	0.32

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.6



The above presented table and graph exhibits the trend of return on the basis of dividend yield of the selected financial institutions. The predicated values are also presented that are calculated by using the

trend equation. The table exhibits only negative trend of the selected institutions.

Going through the table and graph, all the banks NABIL, SCBNL and EBL have negative trend of 1.34, 1.403 and 0.419 times per year which also indicates that the DY of NABIL, SCBNL and EBL will decrease by 1.34, 1.403 and 0.419 times per year respectively.

4.2.1.2 (G) Analyzing the trend of return of the selected financial institutions (regarding price earning ratio).

The trend of return, trend equation and the predicted (or 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.

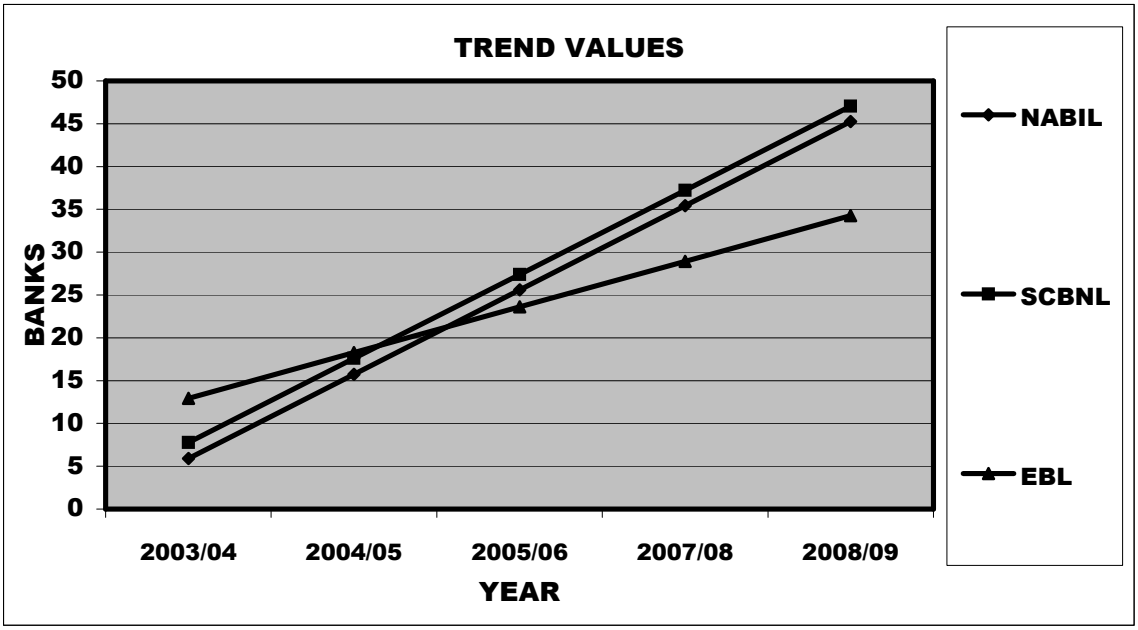
Table No. 2.7

Table showing the Trend equation and trend values of return of the selected banks for the FY 2003/04 to 2007/08 based on the price earning yield

BANKS	TREND EQUATION Y = a + bx	PREDICTED VALUES				
		2003/04	2004/05	2005/06	2006/07	2007/08
NABIL	Y=25.59+9.838X	5.91	15.75	25.59	35.43	45.26
SCBNL	Y=27.41+9.810X	7.79	17.6	27.41	37.22	47.03
EBL	Y=23.61+5.332X	12.94	18.27	23.61	28.94	34.27

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

Figure no. 5.7



The above table and figure demonstrate the trend of return on the basis of P/E ratio of the 'A' graded financial institutions of the country. The predicated values of the different five fiscal years are also presented in the same table. It can be seen that the selected institutions have positive and negative trend among them.

All the banks have a positive trend value. NABIL has the highest growth trend rate of 9.838 times per year which indicates that P/E yield of this bank will increase by 9.838 times per year. Similarly, SCBNL follows the bank with a positive trend rate of 9.81 times per year with EBL having the lowest trend rate of 5.332 times per year which also indicates the P/E yield of SCBNL and EBL will increase by 9.81 and 5.332 times per year respectively.

4.2.2 Presentation and analysis of data according to Inferential Analysis

The presentation and analysis of data according to inferential analysis includes the study of correlationship between the risk and return and their significance as well. Applying student's t-test tests the significance of correlation. Moreover, the significant difference among the mean values of profitability ratio of the selected banks under the study is also tested, applying the analysis of variance (ANOVA). The hypothesis is formulated, presented and tested for the purpose. On

the basis of the tests applied in the study, the section can be divided into two parts as follows:

- Presentation and analysis of data, according to inferential analysis based on analysis of variance (ANOVA) or F-test.
- Presentation and analysis of data, according to inferential analysis based on correlationship study and t-test.

4.2.2.1 Presentation and analysis of data, according to inferential analysis based on ANOVA or F-test.

The test of significant difference among the mean values of various profitability ratios of the selected institutions is worked out in this sub section. 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 (2, 12) 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) Tests based on the basis of net profit ratio.

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

H_o: There is no significant difference among the mean values of net profit ratio of the selected institutions under study.

H_A: There is significant difference among the mean values of net profit ratio of the selected institutions under study.

Table No. 3.1

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	371.67	2	185.83		
Within samples	62.32	12	5.19		
Total	433.99	14		35.78	**Significant**

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

It is apparent from the above table that the calculated value of f ratio at 5 % level of significance with degree of freedom of (2, 12) is 35.78 which is greater than the critical value of f, 3.89.the result confines that there is significant difference between the mean values of the net profit to operating income ratio between the groups. Thus, we conclude that the alternative hypothesis is accepted and the null hypothesis is rejected.

4.2.2.1 (B) Tests based on the basis of return on assets ratio.

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

H_o: There is no significant difference among the mean values of return on assets ratio the selected institutions under study.

H_A: There is significant difference among the mean values of return on assets ratio of the selected institutions under study.

Table No. 3.2

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	145.74	2	72.87		
Within samples	36.92	12	3.08		**Significant**
Total	182.66	14		23.69	

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

From the above table it is clear that the critical value of F at 5 % level of significance with a degree of freedom of (2,12) is lower than the calculated value of f at the same level of significance and degree of freedom, i.e. 3.89 is lesser than 23.69. It indicates that there is significant difference between the groups based on the mean value of the return on assets. So, the null hypothesis is rejected and the alternative hypothesis is accepted.

4.2.2.1 (C) Tests based on the basis of return on equity ratio.

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

H_o: There is no significant difference among the mean values of return on equity ratio the selected institutions under study.

H_A: There is significant difference among the mean values of return on equity ratio of the selected institutions under study.

Table No. 3.3

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	4.70	2	2.35		
Within samples	1.91	12	0.16		
Total	6.61	14		14.72	**Significant**

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

It is evident from the above table that the calculated value of F, 14.72 is greater than the critical value 3.89 at 5 % level of significance with a degree of freedom of (2,12). The result prescribes that there is significant difference between the mean values of the net profit to net worth ratio between the groups. Hence, we accept the alternative hypothesis and reject the null hypothesis.

4.2.2.1 (D) Tests based on the basis of return on interest earned to working fund ratio.

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

H_o: There is no significant difference among the mean values of interest earned to working fund ratio of the selected institutions under study.

H_A: There is significant difference among the mean values of interest earned to working fund ratio of the selected institutions under study.

Table No. 3.4

ANOVA Table showing the F-ratio (calculated) based on interest earned to working fund ratio.

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	3.59	2	1.80	30.99	**Significant**
Within samples	0.70	12	0.06		
Total	4.29	14			

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

It is apparent from the above table that the computed value of F is 30.99 at 5 % level of significance with a degree of freedom (2, 12). The computed value of f is greater than the critical value of F, 3.89 at the same level of significance and degree of freedom. The calculation justifies that there is significant difference between the mean values of interest earned to working fund ratio of the groups. The analysis suggests accepting the alternate hypothesis and rejecting the null hypothesis.

4.2.2.1 (E) Tests based on the basis of earning yield ratio.

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

H_o: There is no significant difference among the mean values of earning yield ratio of the selected institutions under study.

H_A: There is significant difference among the mean values of earning yield ratio of the selected institutions under study.

Table No. 3.5

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	4.82	2	2.41	0.40	**Non Significant**
Within samples	72.10	12	6.01		
Total	76.91	14			

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above table presents the calculated value of f at 5 % level of significance with a degree of freedom (2, 12). The computed value of

F is 0.40 that is less than the critical value of F, 3.89 . This signifies that there is no any significant difference between the mean values of the groups based on the earning yield ratio. So we accept the null hypothesis and reject the alternate hypothesis.

4.2.2.1 (F) Tests based on the basis of dividend yield ratio.

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

H_o: There is no significant difference among the mean values of dividend yield ratio of the selected institutions under study.

H_A: There is significant difference among the mean values of dividend yield ratio of the selected institutions under study.

Table No. 3.6

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	19.00	2	9.50	2.56	**Non Significant**
Within samples	44.51	12	3.71		
Total	63.51	14			

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

The above ANOVA table suggests that the computed value of F ratio is 2.56 at 5 % level of significance with a degree of freedom (2,12). The value of F is greater than the critical value of F, 3.89. So, there is no any significant difference between the mean values of the

dividend yield ratio between the groups. Hence, we accept the null hypothesis and reject the alternative hypothesis.

4.2.2.1 (G) Tests based on the basis of price earning ratio.

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

H_o: There is no significant difference among the mean values of price earning yield ratio of the selected institutions under study.

H_A: There is significant difference among the mean values of price earning dividend yield ratio of the selected institutions under study.

Table No. 3.7

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

Source of variation	Sum of squares	df	Mean square	F-ratio	Result
Between samples	36.14	2	18.07	0.09	**Non Significant**
Within samples	2420.71	12	201.73		
Total	2456.85	14			

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

On the basis of the above-presented ANOVA table, it is signified that the calculated value of F is 0.09 at 5% level of significance with a degree of freedom (2,12). This value is smaller than the critical value of F, 3.89 at the same level of significance and degree of freedom. The critical value of F is greater than the calculated value of F reveals

that there in 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.

In this section, computing the Karl Pearson's correlation coefficient the relationship and co-movement of the risk and return is identified. All the related calculation is shown in the table. After the calculation of correlation coefficient its significance is also tested applying the t-test. The calculation of t-test is presented just after the interpretation of correlation. The hypothesis is set out and the result of calculated t value is compared to the critical value of t at 5% level of significance with (n-2) degree of freedom. The significance of the correlationship is advocated on the acceptance and rejection of the null and alternative hypothesis.

4.2.2.2(A) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on net profit margin).

Table no. 4.1

Table showing the calculation of correlation between risk and return based on the net profit margin of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	44.74	3.22	2001.41	10.37	144.05
SCBNL	44.29	4.63	1961.83	21.44	205.07
EBL	33.96	8.98	1153.45	80.64	304.98
	ΣX = 122.99	ΣY = 16.83	ΣX^2 = 5116.69	ΣY^2 = 112.45	ΣXY = 654.10

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X\,654.10 - 122.99X16.83}{\sqrt{4X\,5116.69 - (122.99)^2}\ X\ \sqrt{4X112.45 - (16.83)^2}}$$

r = -0.97996

The calculated value of r (-0.97996) shows that there is negative relationship between the risk and return of the selected banks. It implies that the decrement in the risk (or return) causes to increment in return (or risk) and vice-versa. The result doesn't support 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:

1. **Hypothesis applied for the t-test**

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on NPR).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on NPR).

Calculation of t-value=

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

$$t = \frac{-0.97996}{\sqrt{(1 - (-0.97996)^2)}}\sqrt{3-2}$$

t= 4.9196

From the above calculation, it is clear that the critical value of t at 5 % level of significance with (n-2) degrees of freedom is less than the calculated value of t at the same level of significance with (n-2) degree of freedom (i.e. 4.9196<12.706). This justifies that there is no significant correlationship between the risk in terms of coefficient of variation and return in terms of mean return of the banks.

Thus the above analysis concludes that the alternative hypothesis is rejected and the null hypothesis is accepted.

4.2.2.2 (B) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on return on assets).

Table no. 4.2

Table showing the calculation of correlation between the risk and return based on the return on assets of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	2.61	14.93	6.83	222.9	39.01
SCBNL	2.43	4.12	5.89	16.97	10
EBL	1.49	6.69	2.23	44.76	10
	6.54	25.74	14.95	284.63	59.01
	ΣX = 6.54	ΣY = 25.74	ΣX^2 = 14.95	ΣY^2 = 284.63	ΣXY = 59.01

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X59.01 - 6.54X25.74}{\sqrt{4X14.95 - (6.54)^2}\ X\ \sqrt{4X284.63 - (25.74)^2}}$$

r = 0.434426

The calculated value of r (0.434426) 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. The result supports 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:

2. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on ROA).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on ROA).

Calculation of t-value;

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

$$t = \frac{0.434426}{\sqrt{(1 - (0.434426)^2)}}\sqrt{3-2}$$

t = 0.4823

The above calculation gives the calculated value of t, which is calculated by using the coefficient of correlation at 95 % level of significance with (n-2) degree of freedom. The computed value of t is

0.4823, which is smaller than the critical value of 12.706. It signifies that there is no significant correlationship between the risk and return.

From the above analysis, it is appropriate to reject the alternative hypothesis and accept the null hypothesis.

4.2.2.2(C) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on return on equity).

Table no. 4.3

Table showing the calculation of correlation between the risk and return based on the return on equity of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	31.87	4.42	1015.4	19.54	140.84
SCBNL	34.62	6.07	1198.84	36.84	210.17
EBL	27.08	6.24	733.29	38.94	168.97
	93.57	16.73	2947.53	95.32	519.98
	ΣX = 93.57	ΣY = 16.73	ΣX^2 = 2947.53	ΣY^2 = 95.32	ΣXY = 519.98

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X519.98 - 93.57X16.73}{\sqrt{4X2947.53 - (93.57)^2}\ X\ \sqrt{4X95.32 - (16.73)^2}}$$

r = -0.23629

The calculated value of r (-0.23629) shows that there is negative relationship between the risk and return of the selected banks. It implies that the decrement in the risk (or return) causes to increment in return (or risk) and vice-versa. The result doesn't support 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:

3. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on ROE).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on ROE).

Calculation of t-test

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

$$t = \frac{-0.23629}{\sqrt{(1 - (-0.23629)^2)}} \sqrt{3-2}$$

t = 0.2432

The above calculation gives the calculated value of t, which is calculated by using the coefficient of correlation at 95 % level of significance with (n-2) degree of freedom. The computed value of t is 0.2432, which is smaller than the critical value of 12.706. It signifies that there is no significant correlationship between the risk and return.

From the above analysis, it is appropriate to reject the alternative hypothesis and accept the null hypothesis

4.2.2.2(D) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on interest earned to working fund).

Table no. 4.4

Table showing the calculation of correlation between the risk and return based on the interest earned to working fund of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	5.84	5.65	34.16	31.92	33.02
SCBNL	4.70	4.25	22.11	18.06	19.98
EBL	5.93	9.78	35.15	95.65	57.98
	ΣX = 16.47	ΣY = 19.68	ΣX^2 = 91.42	ΣY^2 = 145.63	ΣXY = 110.98

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X110.98 - 16.47X19.68}{\sqrt{4X91.42 - (16.47)^2}\ X\ \sqrt{4X145.63 - (19.68)^2}}$$

r = 0.738847

The calculated value of r (0.738847) shows that there is a positive relationship between the risk and return of the selected banks. This implies that the increment in the risk (or return) causes the increment in return (or risk) and vice-versa. The result support 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:

4. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on earning interest to working fund ratio).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on interest earned to working fund ratio).

Calculation of t-test

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

$$t = \frac{0.738847}{\sqrt{(1 - (0.738847)^2)}} \sqrt{3-2}$$

t = 1.0964

The calculated value of t at 95 % level of confidence with (n-2) degree of freedom is 1.0964. The critical value of t at the same level of confidence and degree of freedom is 12.706. When we compare the figure it can be prescribed that critical value of t is greater than the calculated value of t. The result states that there is no any significant correlationship between the risk and return.

Hence, it is appropriate to reject the alternative hypothesis and accept the null hypothesis.

4.2.2.2(E) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on earning yield ratio).

Table no. 4.5.

Table showing the calculation of correlation between the risk and return based on earning yield of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	5.36	55.96	28.74	3131.52	300.02
SCBNL	4.75	53.25	22.58	2835.56	253.01
EBL	3.98	40.74	15.81	1659.75	162
	14.09	149.95	67.13	7626.83	715.03
	ΣX = 14.09	ΣY = 149.95	ΣX^2 = 67.13	ΣY^2 = 7626.83	ΣXY = 715.03

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X715.03 - 14.09X149.95}{\sqrt{4X67.13 - (14.09)^2}\ X\ \sqrt{4X7626.83 - (149.95)^2}}$$

r = 0.959027

The calculated value of r (0.959027) shows that there is positive relationship between the risk and return of the selected banks. It implies that an increase in the risk (or return) causes to an increase in return (or risk) and vice-versa. The result support 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:

5. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on earning yield ratio).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on earned yield ratio).

Calculation of t-test

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

$$t = \frac{0.959027}{\sqrt{(1 - (0.959027)^2)}} \sqrt{3-2}$$

t = 3.3852

In the above calculation, the calculated value of t is 3.3852 at 95 % level of significance with a (n-2) degrees of freedom. The critical value of t at the same level of significance and degrees of freedom is 12.706. After comparing 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 correlationship 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(F) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on dividend yield ratio).

Table no. 4.6

Table showing the calculation of correlation between the risk and the return based on dividend yield of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	3.61	59.24	13.05	3509.38	214.02
SCBNL	3.48	64.97	12.1	4221.1	225.99
EBL	1.16	103.37	1.35	10685.36	120
	8.25	227.58	26.5	18415.84	560.01
	ΣX = 8.25	ΣY = 227.58	ΣX^2 = 26.50	ΣY^2 = 18415.84	ΣXY = 560.01

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X560.01 - 8.25X227.58}{\sqrt{4X26.50 - (8.25)^2}\ X\ \sqrt{4X18415.84 - (227.58)^2}}$$

r = -0.99748

The calculated value of r (-0.99748) shows that there is negative relationship between the risk and return of the selected banks. It implies that the decrement in the risk (or return) causes to increment in return (or risk) and vice-versa. The result doesn't support 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:

6. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on dividend yield ratio).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on dividend yield ratio).

Calculation of t-test

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

$$t = \frac{-0.99748}{\sqrt{(1 - (-0.99748)^2)}} \sqrt{3-2}$$

t = 14.059

From the above calculation, the computed value of t is found to be 14.059 at 5 % level of significance with (n-2) degrees of freedom. The value is less than the critical value (12.706) of t at same level of significance with (n-2) degrees of freedom. So, it can be said that there is significant correlationship between the return in terms of mean return and risk in terms of coefficient of variation of the banks.

Therefore, we conclude that the null hypothesis is rejected and alternative hypothesis is accepted.

4.2.2.2(G) Showing the calculation of correlation coefficient between risk and return of the selected financial institution (based on price earning ratio).

Table no. 4.7

Table showing the calculation of correlation between the risk and return based on price earning ratio of the selected banks for the FY 2003/04 to 2007/08. (in percent)

BANKS	X Return	Y Risk	X^2	Y^2	XY
NABIL	25.59	64.09	654.78	4107.53	1639.98
SCBNL	27.41	58.96	751.11	3476.28	1615.88
EBL	23.61	36.69	557.22	1346.16	866.08
	ΣX = 76.60	ΣY = 159.74	ΣX^2 = 1963.11	ΣY^2 = 8929.97	ΣXY = 4121.94

SOURCE: Comparative B/S and P/L A/C statements of the respective banks during the period for 2003/04 to 2007/08 as given in Annual Report of individual banks.

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (X)^2}\ x\ \sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$

$$r = \frac{4X\,4121.94 - 76.60X159.74}{\sqrt{4X1963.11 - (76.60)^2}\ X\ \sqrt{4X8929.97 - (159.74)^2}}$$

r = 0.780406

The calculated value of r (0.780406) shows that there is positive relationship between the risk and return of the selected banks. It implies that the increment the risk (or return) causes to increment in return (or risk) and vice-versa. The result highlights 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:

7. Hypothesis applied for the t-test

H_o: There is no significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on price earning ratio).

H_A: There is significant correlationship between the risk, represented by CV and return, expressed by mean return of the selected institutions under the study (based on price earning ratio).

Calculation of t-test

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

$$t = \frac{0.780406}{\sqrt{1 - (0.780406)^2}} \sqrt{3-2}$$

t = 1.2481

The calculated value of t is 1.2481. The result is based at the 5 % level of significance with (n-2) degree of freedom. The critical value of t at 95 % level of confidence with (n-2) degree of freedom is 12.706. Since the critical value of t is greater than the calculated value of t, there doesn't exist significant correlationship between the risk and return. Hence, we reject the alternative hypothesis to accept the null hypothesis.

CHAPTER - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The last chapter deals with the three heading; summary, conclusion and recommendation. Summary of the study describes the contents and format of the study. The conclusions from the whole study are presented in the conclusion heading. Researcher feels free to express their own conclusion and make generalization. Lastly, the recommendation heading is dealt with. The recommendations are largely based upon the interpretation presented in the previous section of the study. Justification for this recommendations are related to the theory structure and finding.

5.2 Summary

Financial institutions play a vital role for the economic growth and development of the country. They promote and facilitate the trade and industry. They provide the loan to various sectors like; industrial sector, agricultural sector, service sector and government sector. The investment in such sector helps to create the employment opportunity and helps to alleviate the poverty. Regarding the fact, it is considered that the development of financial institutions is the development of the country. But the development of the financial institutions depends upon the efficient financial management. Various decisions are taken for the financial management relating to different aspect of the finance. Risk and return is one of the most important aspects of the financial decision. The stakeholders are interested to know about the risk-return position of the institution. They react adversely towards the risk. On the other hand, higher rate of return attracts the potential customer and helps to retain the current customer. Thus, the study is dedicated on the study of risk and return position of the selected institution which has been divided into five chapter starting with

introduction, review of literature, research methodology, presentation, interpretation and analysis of data and finally, summary, conslusion and recommendations. Various financial and statistical tools are applied for the study. The financial tools are used to calculate the rate of return and the risk associated with it. The trends of the return along with the trend equations are predicated. Similarly, the correlation between the risk and return are observed. Moreover, the relevance of the correlation is also tested to support the study. Analysis of variance is also examined in the study. The hypothesis is set out to confirm the findings of the study. All these tools and test help to draw the clear vision of the risk and return position of the ' A' graded financial institution.

5.3. Conclusion

After the analysis and interpretation of the data, conclusions have been drawn based on the study. As a follow-up to the analysis and interpretation of the data, conclusions are drawn as to know how well they assist in attempting to solve the problem and how well the purpose of the study is accomplished. Since the study involves both the descriptive as well as inferential analysis, the conclusions of the study have also been categorized into two heads:

Conclusions derived from the descriptive study
Conclusions derived from the inferential study

5.3.1. Conclusions derived from the descriptive study

Under the descriptive study the risk and return position of the banks were dealt, diagnosed and analyzed on the basis of various profitability ratios. So the conclusions are drawn on the basis of each of the profitability ratios as under:

5.3.1.1 Conclusions derived on the basis of profitability ratio analysis

On the basis of net profit to operating income ratio (net profit margin)

NABIL stands number one, on the basis of net profit margin. The bank has the highest return in terms of mean return and lowest risk in

terms of coefficient of variation. SCBNL stands number two as it has the highest return and lowest risk next to NABIL in terms of coefficient of variation. EBL stands last in terms of return and risk.

On the basis of net profit to working fund ratio (return on assets)

When we compare the banks in terms of net profit to working fund ratio, NABIL once again tops the chart with the highest return. However, NABIL has a highest risk in terms of coefficient of variation. SCBNL stands next to NABIL in terms of return but has the lowest risk in terms of coefficient of variation among the selected banks. EBL once again stands last in terms of return. However, EBL is less riskier than NABIL in terms of coefficient of variation

On the basis of net profit to net worth ratio (return on equity)

SCBNL has the highest return in terms of mean return while NABIL bears the lowest risk in terms of coefficient of variation with a highest return next to SCBNL.EBL is the bank that has the highest risk and lowest return among the selected banks.

On the basis of earning yield

On the basis of earning yield, EBL stands first in terms of highest return and last in terms of risk measured by coefficient of variation. NABIL follows EBL in terms of return. SCBNL has the lowest risk in terms of coefficient of variation and an uncommon scenario whereby SCBNL standing last in terms of return.

On the basis of dividend yield

Based on Dividend yield, NABIL is the best bank as it has the highest return bearing less risk in terms of coefficient of variation among the three selected banks. SCBNL stands next to NABIL in terms of return and risk. EBL has the lowest return with a highest risk in terms of coefficient of variation among the banks.

On the basis of interest earned to working fund ratio

EBL is the most attractive bank in terms of return position based on the interest earned to working fund ratio while SCBNL is the worst in terms of return. However, SCBNL has the lowest risk in terms of coefficient of variation. NABIL is next to EBL in terms of return while EBIL is the highest risk taker in terms of coefficient of variation among the selected banks.

On the basis of price earning ratio

NABIL has the highest risk in terms of coefficient of variation; in return, it generates the highest return next to SCBNL in terms of mean return. Accordingly, SCBNL has the highest return. If we consider the risk side of the bank, EBL is superior to the NABIL and SCBNL. However, if we concentrate towards the return side of the bank NABIL is the best one and EBL is the worst one based on the price-earning ratio.

5.3.1.2. Conclusions derived on the basis of trend analysis

Under the trend analysis, the returns of the various selected banks are studied to know the trend of their return. From the trend analysis various conclusions are made which are presented as under:

On the basis of net profit to operating income ratio

EBL has the highest positive trend followed by SCBNL and NABIL. So EBL is considered as the most attractive one on the basis of net profit margin.

On the basis of net profit to working fund ratio

SCBNL is the best one on the basis of return of assets. The bank has the highest positive trend. The EBL is at second place in terms of positive trend. NABIL has the negative trend and is regarded as the worst one.

On the basis of net profit to net worth ratio

EBL has the highest positive trend of gearing return on equity. So, the bank is the best one. NABIL is at second position with second highest positive trend. SCBNL has the negative trend of earning return on equity keeping itself in the last position.

On the basis of earning yield ratio

All the banks have negative trend. NABIL is worst bank with high negative earning yield trend followed by SCBNL and EBL.

On the basis of dividend yield ratio

On the basis of the dividend yield, SCBNL is the worst bank regarding the dividend yield due to its high negative trend. NABIL is at second place and EBL is the last one regarding negative trend.

On the basis of interest earned to working fund ratio

SCBNL is at first place with positive trend in respect to the interest earned to working fund ratio. Whereas the EBL has the highest negative trend followed by NABAIL.

On the basis of price-earning ratio

NABIL has the highest positive trend in terms of price earning ratio which is followed by SCBNL and EBL. So NABIL is considered as the most attractive one on the basis of price earning ratio.

5.3.2 Conclusions derived from the inferential study

Under the inferential study the correlation, t-test and analysis of variance (ANOVA) is dealt with. So the conclusions are also based on each of the statistical findings.

On the basis of correlation analysis

The correlation analysis was dealt with a view to find the relationship between the risk and return. The study showed that in majority of the cases the relationship between the risk and return is positive. All the

ratios except the price net profit ratio, return on return on equity and dividend yield showed a negative relationship which doesn't support the proposition, "higher the risk, higher the return and vice versa". The positive correlation of net profit to operating income, net profit to working fund, net profit to net worth, earning yield, dividend yield, interest earned to working fund states that higher the risk lower will be the return and vice versa. The positive correlationship of risk and return based upon the price earning ratio supports the proposition " higher the risk, higher the return and vice versa".

On the basis of students t-test

For the test of significance of the coefficient of the correlation between the risk, in terms of coefficient of variation and return in terms of mean return, the null hypothesis is accepted in all cases except dividend yield accepting the null hypothesis which suggests that there is no significant correlationship between the risk and return. Dividend yield accepts the alternative hypothesis which suggests that there is significant correlationship between the risk and return. In conclusion, findings suggest and supports that there is correlationship between the risk and return.

On the basis of Fisher's F-test

From the analysis of variance, F-test, it is found that the difference among the mean values of four profitability ratios (net profit to operating income, net profit to working fund, net profit to net worth, interest earned to working fund) and three profitability ratios (earning yield, dividend yield and price earning ration of all the selected financial institutions under study are found to be significant and non significant respectively.

5.4 Recommendations

Every bank has its own strategy, objective and policy. The selected banks under the study also have their own environment, strategy, target and goals. They operate according to their strategy maintaining the secrecy. Although the researcher does not have any legal authority to recommend to the selected banks under study, however; it is attempted to recommend with a view of suggestion based upon the findings of the study.

The inter-bank analysis based on the profitability ratios reveals that EBL needs to increase its net profit margin towards the positive trend because it has the lowest positive growth trend.

There is an increment in net profit amount of all the banks. The increasing trend of working fund of SCBNL and EBL effects in the return on assets margin. The return on equity of NABIL and EBL is in increasing trend while EBL is in decreasing trend. Hence, EBL must raise its return on equity.

All the banks have a negative trend of earning yield and dividend yield. So all the banks must initiate efforts to increase these yields.

EBL bears the highest risk in case of net profit margin, return on equity, earning yield and dividend yield. The bank has the lowest return tolerating the highest risk in case net profit margin, return on equity and dividend yield. This may affect the owners negatively. The owner who depends upon the dividend may lose their hope in the bank. The policy making top level management of the bank must give due attention to improve the performance of the bank in future.

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