

CHAPTER – I

INTRODUCTION

1.1 Background of the Study

Investment in Nepalese securities is characterized by investment habits of Nepalese investors. Nepal is a small landlocked country sandwiched between two giant countries India and China. Its shape is almost rectangular. The total area of Nepal is 1,47,181 sq. kms. About 91% of the total population of Nepal depends upon agriculture for their livelihood. Remaining is engaged in trade, industry and other sectors. Due to slow pace of economic development, Nepal remains poor and underdeveloped country where capital is not distributed evenly. Though there is potential for agricultural and industrial development, there is shortage of adequate capital and strong need for mobilization of funds. Even those available funds are idle. At the initial stages most people started to deposit their funds in the banks fixed deposit accounts. In return they would get interest that was enough for what their savings was. With the increase of banks and the decrease of investment market the percent banks give have slowly decreased. Nowadays people like to invest in the securities rather than deposit their funds.

The current state of Nepalese economy is characterized by unutilized natural resources, miserable agriculture, deficit trade, mass poverty, illiteracy, and so forth. Agriculture is the main occupation of almost village people but Nepal has not yet implemented scientific methods of agriculture. The natural resources available here have remained unutilized due to various reasons. However, it is regarded as one of the richest countries in the world in terms of natural resources. Majority of the Nepalese people are below poverty line. The living standard of

people is very low. Poverty, misery and conflict are dancing all around. The vicious circle of poverty is found here. The economic inequality is also great. While the country has been moving toward a market-friendly economy since the early 1990s, frequent changes in government and even the worsened security situation at present have obstructed the realization of policy reforms and delayed the implementation of development works.

Return is the main aim of investment and a certain degree of risk is associated with it. Finance mostly deals on the monetary risk and return, which is most affecting subject matter for an individual to large corporations. In recent years the field of finance has truly undergone a revolution and its one of the leading sector, stock market, has become a global phenomenon. Even in the least developed country like Nepal stock market is being one of the important part of the national economy, justification for encouragement of the stock market is taken not only on the ideological background but also on the assumption that stock market expansion is partly a natural progression of the development of a country financial sector as long-term economic growth proceeds.

“So far as the securities (stock) market is concerned, it is an important constituent of capital market. It has wide term embracing the buyers and sellers of securities and resale of corporate securities.” Stock market is a financial market, which probably has the greatest glamour and perhaps the least understood. Some observers consider it as a legalized heaven for gambling and many investors consider stock market investing as a game in which the sole purpose is picking winners. Having said this, stock market investment can be both rewarding and fun so long as sufficient time is given to appreciate its many facet and characteristics.

“The Nepalese capital market has been passing through the transaction phase over the past few decades after since independence. There are various Inconsistencies and hindrances existed on the way to smooth way of functioning of market not only that institutional bottlenecks are hampering the growth of capital, but at times, at the existing imperfect national characteristics phenomenon deeply noted in socioeconomic system has undermine the proper trading insecurities market. The arbitrary quoting of stock price without fundamental and technical justification made securities market not to look after the protection of investor.

The concept of financial institution in Nepal was introduced when the first commercial bank, Nepal bank limited was established in 1937. It was established under special banking act 1936 having elementary function of commercial bank. later in 1955 the central bank Nepal Rastra Bank was established with an objective of supervising ,protecting and directing the function of commercial banking activities. Another commercial bank fully owned by HMG/N, named as astray Brainy Bank got established in 1966.the establishment of joint venture bank gave a new horizon to the financial sector of the country. Since 1984 CB banks wee established under different times with company act and their shares were listed in Nepal stock exchange limited (NEPSE). The focus of the study is that commercial bank whose share is listed in NEPSE.

Banking sector is the most dynamic part of economy which collects unused funds and mobilizes it in needed areas. It is the heart of trade, commerce and industry. In Nepalese context, commercial banks have comparatively good performance among the public limited companies. Because most of the banks are counted with in the top ten positions among the listed companies on the basis of amount traded, number of transaction, market capitalization, etc. Most of the banks are established with collaboration of foreign well-known banks. As a public limited company, Nepal Bank Limited (NBL) is only one Nepalese commercial bank, which is listed

in NEPSE. Besides this oldest bank there are eight other joint venture banks, which are listed in NEPSE. As a public limited company a new CB bank, Nepal Credit And Commercial Bank securities are not listed in NEPSE yet. Besides these, a government bank, Rastriya Banijaya Bank, also plays a vital role in banking sector. In Nepal altogether there are 25 commercial banks mid April 2008.

The nature of bank fund and its payment depends upon day-to-day operation. Therefore, its operation of fund rising and investment of funds are of short-term nature. As long-term investments are associated with higher risk, banks are confined to make short-term investment only. R.W.Goldsmith suggests that significant of commercial banks is greater in countries of comparatively lower level of economic development. The shares of commercial banks in the net issues of all financial institution are much higher in such countries in the ones with higher stage of economic development.

In Nepal foreign joint venture banks perform better than Nepalese ones do. Because they have higher management efficiency and they can manage risk properly. Specifically, Nepalese banks have a high degree of internal firm specific risk. At the same time they have to bear more social obligation and government intervention than foreign banks. However, Nepalese bank have high potentialities to increase their performance by changing their risk attitude and by improving their internal management.

Risk is related to future and future is uncertain. But risk is manageable rather than uncertain. Company – specific risk and company's ability to service its debt burden are intimately related to the particular characteristics of the business in which the company operates. Moreover, they are affected by economic condition – apart management's ability to generate satisfactory operating performance.

There are different types of securities as treasury bills, long-term government bonds, long –term corporate bonds, common stocks etc. Among these securities this study concerns with common stocks.” Common stocks represent a commitment on the part of a Corporation to pay periodically whatever its board of directors seems appropriate as a cash dividend.”

Common – stockholders of a company are its ultimate owners. Collectively they own the company and it is assumed that ultimate risk is associated with ownership. So the common stock is risky security. But what is risky? Risk is like pornography. It’s hard to define but you know it when you see it. Investor invests in common stock for higher return. But their expected return may or may not change in realities. This uncertainty is major risk to investors in stock market investment.

The return is income received on an investment which is expressed as dividend plus any change in market price of share and usually expressed in percentage. Both market price of share and dividend are uncertain figures. So, the actual figure of return on investment in common stock may differ substantially from the expected return. The greater variability, the riskier the security is said to be. The market price of share of a company is driven both by fundamental business values ad stock market sentiment. For a given business, it is always worth attempting to identify which of those is driving its share price.

Generally investors are risk averse. They always seek higher return for more risk as risk premium. So the primary problem of investment is to identify the security, which has low risk and high return. Although, return cannot be increased substantially, risk can be reduced by diversification can eliminate the unsystematic risk, which is not explained by general market movement. Systematic risk, which is associated with change in return on the market as a whole, cannot be avoided

with change in return on the market as a whole, can not be avoided by the diversification.

A systematic investment process should be followed to win the stock market. Investment process describes how an investor should go about making decision with regard to what marketable to invest in, how extensive the investment should be, and when the investment should be made. A five-step procedure for making decisions forms the basis of the investment process.

1. Set investment policy
2. Perform security analysis
3. Construct a portfolio
4. Revise the portfolio
5. Evaluate the performance of the portfolio.

Setting investment policy involves determining the investor's objective and the amount of his or her ingestible wealth. But the study focuses on securities analysis and portfolio selection. Security analysis involves examining a number of individual securities within the broad categories of financial assets. There are many approaches in securities analysis. Portfolio construction involves identifying those specific assets in which to invest, as well as determining the proportion of the investors wealth to put into each one. Diversification involves constructing the investor's portfolio in such a manner that risk is minimized subject to certain restriction. Another step of portfolio revision concerns the periodic repetition of the previous three steps. That is over time the investor may change his or her investment objectives, which, in turn means that the currently held.

Portfolio may no longer be optimum. Portfolio performance evaluation involves determining periodically how the portfolio performs in terms of not only the return

earned, but also the risk experienced by the investor. Thus appropriate measures of return and risk as well as relevant standards are needed.

In Nepalese context, the institutional set up of securities market began along with the securities exchange center (Now Nepal Stock Exchange Ltd.) in 1976. In spite of considerable development there are still more potentialities to be explored for the development of stock market in Nepal. Most of the potential investors and the shareholder public themselves are unknown or least understood about risk-return behavior of stock.” most of the Nepalese investors are finding to visit in single security “due to lack of information and poor knowledge, market intermediates exploit investors. So, many investors are afraid to invest in stocks. People participation in securities investment and its dynamic trading plays a vital role in overall economic development. For this prose potential investors must be able to analyze risk and return of individual stock and portfolio as well. This will increase their confidence and ultimately increase stock investment and increase the degree of market efficiency, which is essential to spreading economic development of the nation.

1.2 Statement of the Problem

Nepal has adopted more liberal and open economic policies after the restoration of democracy. The open and liberal policy of government in financial sector has helped in establishing many banks and financial institutions in the country. These banks have contributed towards introducing new technology, new banking system and efficient service delivery in the country. These banks have been contributing in line with the thrust of economic liberalization and financial sector reform, i.e. making the financial system more competitive, efficient and profitable.

The number of commercial banks as well as financial companies has been set up at a rapid rate after the economic liberalization policy. At present, there are 17 commercial banks in Nepal. Among them, six Joint venture banks in collaboration with the foreign investment partner and remaining banks are fully owned by Nepalese investors due to liberalization of financial sector but the country is going to through an economic downtrend. The atmosphere in the market is gloomy. The recent economic slowdown has started affecting the performance of commercial banks. The effects of slowdown will be more in the forthcoming years. This will lead to an increase in the intensity of competition in the banking industry. Recently, in the context of Nepal, there is throat cut competition between the mushrooming Joint venture banks, commercial banks and other financial institutions. Many commercial banks have been operating with new schemes to attract the deposit from the limited depositors but due to the economic downtrend, the opportunity of investment is going to decreasing day by day. So they seem to be granting much loan advanced and other facilities against insufficient collateral of their clients. Unsecured loan and investment cause the liquidation of the commercial banks and financial institutions. Other side with the prevailing economics recession and political instability in the country, there has been lower investment in the productive sectors. The lower value of investment is causing lower growth of gross domestic product and hence foreign trade deficit is increasing day by day. Nepalese commercial banks are also affected by that economic disorder and are facing difficulties in furnishing loans and advance towards the profitable sectors. Those, now these days, the commercial banks do not seem to be capable to invest their fund in more profitable sectors where there is risk. They are found to more interest in less risk investment and liquid sectors i.e. treasury bills, development bounds, and national saving etc. As the result, they earn low profit. A better investment policy yields more profitability and sustainability in the face of risk and uncertainties. Those, the better investment policy are the must important tools of economic development for the country.

From viewing all above mention, it proves that bank has to invest its sources in different productive sectors of the investment alternatives to earn profit but there is uncertainty of profit, which creates risk to the organization. So every commercial bank or CB has to diversity their investment to minimize the risk to maximize the return. Without diversify its investment able fund into different sectors, investor could not make the regular income. As the result, maintenance of sound investment policy is impossible.

Therefore, this study mainly concerns with the risk and return on common stock practices by Nepalese CBs . In other words, the research seeks to find out the investment of CBs with the analysis of these banks market return and financial statements. The attempts have been made to sort out the answer to the following questions:

- How do the bank portfolio variables behave?
- How the investment decision is to be taken?
- Does the risk and return of CBs significantly?
- What are the comparative risk positions of CBs?
- Would portfolio construction with in the CBs be profitable?
- What are the existing situations of financial position of the CBs in Nepal?
- How does the portfolio investment manage by the CBs?

1.3 Objective of the Study

In Nepal, many investors are facing various problems in setting their investment policies, evaluating financial assets, constructing portfolio and revising and analyzing their portfolio performance. Thus, the main key objectives of this study revolve around the object of finding out risk minimizing tools and techniques in relation to certain financial as well as other constraints. In other words, the main and basic objectives of this study are to find out the condition of portfolio management, and to estimate an optimal portfolio among the common stock

investment of Nepalese CBs. However, the other objectives are given below in details.

- To evaluate the common stock of CBs in terms of risk & return.
- To analysis the comparative risks & returns position of CBs.
- To survey the existing situation of portfolio management of CBs in Nepal.
- To evaluate the financial performance of CBs.
- To determine whether the share of CBs in Nepal are overpriced or under priced by analyzing the risk & return characteristic of the individual bank.
- To study systematic & unsystematic risk associate with securities.
- To draw conclusion, make relevant suggestion and practical ideas and materialize recommendations based on analysis of data.

1.4 Significance of the Study

The investment analysis of any organization flashes its investment policy. The sound investment policy makes a good impact on the economic of the country. The success and the prosperity of any organization or institution rely heavily upon the successful investment policy of its available resources in to the profitable sectors. Successful formulation and effective implementation of investment policy is the prime requisition for the successful performance of any organization. But due to lack of knowledge investors are investing their valuable funds through trail and error approach. So, it is necessary to establish clear picture about the return from investing in securities after analysis the portfolio. Most of public investors i.e. existing and potential are not well known about the real financial strength and weakness of the public companies in which they are investing or going to invest their funds.

This study is focused on the risk and returns analysis of individual CB estimates an optimal portfolio among the common stock investment of CBs. Therefore, to

provide basic and necessary information about investment and investment process, the current study is forwarded. This current study will help to take an appropriate decision about how to set investment policies and how to analyze and evaluate the investment worthwhile over the different time period. Not only that, the focus of the study is on the analysis of risk, return, and portfolio, which will enable all the related investors to guide the investment, related activities. In the least, benefit of the study will receive by securities businessperson, issue manager, brokers, marketing manager and general investors.

The rapid expansion in quantum of fund raised, a number of investors in the primary market and increasing number of listed securities has speedily raised the market capitalization which is an indication of bright future of capital market of Nepal. Despite these efforts and development, whether the existing mechanism of capital market is able and efficient to provide equitable opportunities and give return to all interested investors or its activities are limited only to for a few clever and high income class investors? It is another question for which answer should be sought?

In a nutshell:

- Do Nepalese investors undertake risk and return analysis before making an investment in securities?
- Do they diversify available funds in different securities i.e. do they create portfolios consisting of different securities?
- If yes, do they adopt appropriate diversification technique?

These are the key issues in investment decisions for investors. Hence, this study deals with those problems in terms of risk and return characteristics, and portfolio concepts.

1.5 Limitation of the Study

Each study is conducted under some constraints and limitations. Likewise, this study is also limited by some common constraints. This study is based on the fundamental analysis of the common stocks of listed commercial banks in NEPSE. However, the specific limitations of the study are as follows:

- This study is mainly based on secondary data, which are published by related CBs. So the reliability depends on it.
- According to the nature of this study, time factor is main constraints. Thus, the analysis of this study is confined only based on risk, return and portfolio of CBs.
- The study covers a period of 5 fiscal years which will be tabulated & processed for drawing conclusion.
- Out of total 25 commercial banks only 5 commercial banks are taken into present study.
- As the investment environment is irrational, the portfolio construction and market may lead to false decision.

1.6 Scheme of the Study

This study has been organized over altogether five chapters. Starting from Introduction, Review of Literature, Research methodology, Presentation & Analysis of data and summary, to conclusion & Recommendation as get of the entire study. A brief outline of this chapter has been outlined as under.

The **First Chapter** entitled “*Introduction*” introduces the subject, present the research problem, reason for studying, objective of the study, along with limitation.

The **Second Chapter** entitled “*Review of Literature*” concerned with the study of risk return analysis have been reviews & presented.

The **Third Chapter** discussed the “*Research Methodology*” used in the study. It comprises research design, nature & source of data, data gathering method and analytical tools used.

The **Fourth Chapter** deals with the “*Presentation & Analysis of Data*” & scoring the empirical finding out the study through definite course of research methodology.

The **Last Chapter** i.e. “*Summary*” of the study, which is followed by the basic conclusion of the study based in the fourth chapter on the basic of these conclusion and recommendation has also been presented for consideration.

CHAPTER - II

REVIEW OF LITERATURE

Review of literature is the study of past research studies and relevant materials which helps to enhance the existing knowledge. Review of literature means reviewing past research studies and related materials so as to get in depth knowledge and derive further conclusions. Review of literature is basically a stock taking of available literature in the field of research. It supports the researcher to explore the relevant facts and true facts for the reporting purpose in the field of study. In the course of research, review of the existing literature would help to check the chances of duplication in the present study. Thus one can find what studies have been conducted and what remains to be done. During the review of this research reviews regarding conceptual or theoretical aspects of investment, risk and return and portfolio management have been made. For this, some relevant books, journals, newspapers, websites, magazines as well as latest masters' degree thesis have been reviewed.

This Chapter is divided into two parts.

1. Conceptual Framework
2. Review of Various Studies

2.1 Conceptual Framework

In this section an attempt has been made to form a sound theoretical background for the study. It covers meaning and concept of the topic on risk and return on common stock in more detail and descriptive way.

2.1.1. Definition of Investment

The word investment sounds very good & attractive that is why every individual in the world is interested in it. In Layman's sense, there is always a return if there is investment. This may be favorable as well as unfavorable to the investor's stand point.

Investment brings forth vision of profit, risk, speculation & wealth. For the uninformed, investing may result in disaster. In general sense; investment means to pay out money to get more. But in the broadest sense, investment means the sacrifice of current money for future money. Two different attributes are generally involved time & risk. The sacrifice takes place in the present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain (Sharpe, Alexander and Baily; 2003:1). Investment as utilization of saving for something that is expected to produce profit or benefits. Investment is employment of funds with the aim of achieving addition income or growth in value. It involves the commitment of resources that have been saved or put away from current consumption, in the hope that some benefits will accrue in the future. (Shrestha;2002:56) Investment generally involves real assets and financial assets. Real assets investment involves some kinds of tangible assets such as building, land, machinery, factory etc. and financial assets investment are pieces of paper representing an indirect claim to real assets held by someone else. Real assets are generally less liquid than financial assets.

According to Reilly " Investment is the current commitment of funds for a period of time to derive a future flow of funds that will compensate the investing unit for the time funds are committed, for the expected rate of inflation and also for uncertainty involved in the future flow of the funds."(Frank & Reilly;1986:254)

According to Gitman and Joehnk “Investment is any vehicle into which funds can be placed with the expectation that will preserve or increase in value and generated positive returns.”(Gitman and Joehnk; 1990:225)

F. Amling “Investment may be defined as the purchase by an individual or institutional investor of a financial or real asset that produces a return proportional to the risk assumed over some future investment period.”

Dr. Preeti Singh defined investment as “Investment is the employment of funds with the aim of achieving additional income or growth in value.”

“An investment may be defined as the current commitments of funds for a period of time to derive a future flow of funds that will compensate for investing unit for the time the funds are committed, for the expected rate of inflation and also for uncertainty involved in the future flow of funds.” There are two types of investment.

(i) Real Investment

Investments in some kind of tangible assets such as land, machinery, buildings, factory etc are real investment.

(ii) Financial Investment

Investments in financial securities such as stock, bonds, T-bills, option, warrants etc are financial investment. An investor invests in securities by analyzing the financial performance and capability of the organization. This research is concerned with financial investment.

Investment Process

The investment process involves the steps followed by an investor for making investment decisions. As per Sharpe, Alexander and Bailey, investment decision involves the following basic steps:

(i) Setting Investment Policy

The first step in the investment process is to determine the investment objectives and the amount of one's invest able wealth. The investor should be clear about the risk and return associated with the investment, setting clear investment policy involves the identification of the potential categories of financial assets for making rational investment.

(ii) Performing Securing Analysis

It involves the analysis of securities previously identified .The investor examines the previously identified securities whether they are mispriced. The main purpose of analysis is in terms of their price. The overpriced securities are sold and/or short sold. The under-priced securities are purchased. There are mainly two approaches to security analysis: Technical Analysis and Financial Analysis.

- Technical Analysis: Study of market price in an attempt to predict future price movement.
- Fundamental Analysis: Attempt to identify the real or true value of financial assets. Once real value is calculated it is compared with current market price to find whether security is under-priced or overpriced.

Current Market Price > Fundamental Value \Rightarrow Under-priced or Undervalued

Current Market Price < Fundamental Value \Rightarrow Over-priced or Overvalued.

(iii) Portfolio Construction

Portfolio construction involves identification of those assets in which to invest as well as determining the proportion of the investor's wealth to put into each one. Here, the issues of selectivity, timing and diversification need to be addressed by the investor. The main aim of constructing and revising the portfolio is to minimize the risk.

(iv) Portfolio Revision

This step is concerned with periodic review of above-mentioned 3 steps. Portfolio constructed in above step cannot serve all time. So the portfolio needs to be updated and revised. However, portfolio revision decision depends upon transaction cost, investment environment, needs and preference of investor.

(v) Portfolio Performance Evaluation

The return of the portfolio should be evaluated in terms of risk and other standards from time to time. The performance evaluation of portfolio is the periodic review of portfolio investment. Evaluation of underlying factors i.e. risk and return of the portfolio measures superiority and inferiority of the portfolio management.

2.1.2. Source of Investment Uncertainty (Francis: 7th edition: 3-10)

Every investment involves uncertainties that make future investment return risky. Some of the sources of uncertainty that contribute to investment risk are as follows.

Interest rate risk

It is the potential variability of return caused by changes in the market interest rates. Investment's present value of moves inversely with changes in the market interest rate i.e. if market interest rise then the investment's present value will fall.

$$\text{PV of investment} = \frac{1}{\text{InterestRate}}$$

Thus, the investment rate risk affects the prices of securities like stocks, bonds, real estate, gold, puts, calls, and other investments as well.

Purchasing power risk (Inflation risk)

It is the variability of return an investor suffers because of inflation. The rate of inflation is measured by consumer price index.

$$\text{Rate of inflation} = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$$

Where,

CPI_t = consumer price index in period t.

CPI_{t-1} = consumer price index in period t-1.

When inflation takes place, financial assets such as stocks, bonds, etc. may lose their ability to command the same amount of real goods and services they did in the past.

Market Risk

It is the risk that arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index rises fairly

consistently from low point, this upwards trend is called a bull market and when the security index declines from peak point to the next trough is called bear market. During bearish period the price of the stocks falls but in the bullish market that usually rise more than enough to compensate for the bear market lose. So, the alternating bull and bear market forces create a perennial source of investment risk.

Default Risk

Default risk is that portion of investment's total risk that resulting from changes in the financial integrity of the investment. In other words, default risk is the variability of return that investors experience as a result of changes in the credit worthiness of a firm in which they invested. Investors losses from default risk usually result from the securities prices falling as the financial integrity of a firm weaken. So, by the time bankruptcy occurs, the market prices of the firm's securities will already have declined to near zero.

Liquidity Risk

It is variability of return which results from price discounts given or sales commission paid in order to sell the asset with out delay. Perfectly liquid assets are highly marketable and suffer no liquidation costs but liquid assets are not readily marketable. Hence, liquid assets required large price discounts and sales commissions in order to affect a quick sell.

Call-ability Risk

The portion of a security's total variability of return that derives from the possibility that the issue may be called is the call-ability risk. Call-ability risk commands a risk premium that comes in the form of a slightly higher average rate of return.

Convertibility Risk

It is that portion of the total risk of return from a convertible bond or a convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock.

Political Risk

It is the risk that caused by changing in the political environment that affect the asset's market value. Political risks arise from the exploitation of a politically weak group for the benefit of a politically strong group, with the effects of various to improve their relative position increasing the variability of return from the affected asset. Regardless of whether the change that causes political risk is sought by political or by economic interests, the resulting variability of return is called political risk.

Industry Risk

Industry risk is the variability of return caused by events that affect the products and firms that make up an industry. The stage of the industry's life cycle, international tariffs, quotas, taxes, labour union problems, environmental restrictions, raw materials availability and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalities the prices of the securities issued by competing firms tend to rise and fall together.

Total Risk = Interest rate risk + Purchasing power risk + Market risk + Management risk + Default risk + Liquidity risk + Call-ability risk + Convertibility risk + Taxability risk + Political risk + Industry risk + Other risk factors.

2.1.3 Common Stock (Shares)

The study is focused on risk and return on common stock therefore light is thrown on common stock. Common Stock represents ownership position in a corporation.

The holders of common stocks, called shareholders or stockholders, are the legal owners of a company. The common stocks are issued by the firms to raise ownership capital and the investors buy them with the expectation that they receive a share of profit periodically the common stocks are the permanent and vital source of capital since they do not have a maturity date. It has a residual claim, in the sense that creditors and preference shareholders must be paid before common stockholders can receive any payment. In bankruptcy common stockholders are in the principal entitled only to assets remaining after all prior claimants have been satisfied. Thus risk is highest with common stock investment. When investor buys common stock they receive certificate of ownership as a proof of there being part of the company. The certificate states the number of shares purchased and their par value. (Bhatta; 2000:196) “Common stock has one important investment characteristics and one important speculative characteristic. Their investment value and average market price tend increase irregularly but persistently over the decades as their net worth builds through the reinvestment of undistributed earning. However, most of the time common stocks are subject to irrational and excessive price fluctuation in both directions, as the consequence of the ingrained tendency of most people to speculate or gamble, i.e. to give way to hope fear, and greed”. (Prasanna; 1995:25)

Features

Claim on Income: The common stockholders have a claim to residual income, which is earnings available for ordinary shareholders, after paying expenses, interest charges, taxes and preference dividend, if any. The income may be split into two parts, dividends and retained earnings. Dividends are immediate cash flow to shareholders, whereas retained earnings are reinvested in the business. A company is not under a legal obligation to distribute dividends out of the available earnings.

Claim to Assets: The common stockholders have a residual claim on the company's assets in case of liquidation. Out of the realized value of assets, first the claims of debt-holders and then preference shareholders are satisfied, and the remaining balance, if any, is paid to the common stockholders.

Right to control: The ordinary shareholders have the legal power to elect directors to the board. If the board fails to protect their interests, they can replace the directors. They are able to participate in the management of the company through their voting right and right to maintain proportionate ownership.

Voting Rights: The ordinary stockholders are required to vote in order to elect the directors and change the memorandum of association. For instance, if they want to change its authorized capital or the objectives of business, they need ordinary shareholders' approval.

Pre-emptive Right: The law grants the shareholders the right to purchase new shares in proportion to their current ownership. Thus the pre-emptive right entitles a stockholder to maintain his proportionate share ownership in the company. The stockholder's option to purchase, a stated number of new shares at a specified price during a given period, is called rights which can be exercised at a subscription price which is generally much below the current market price of shares.

Limited Liability: The common stockholders are the true owners of the company, but their liability is limited to the amount of their investment in shares. If a stockholder has already fully paid the issue price of shares purchased, he has nothing more to contribute in the event of financial distress or liquidation. The

limited liability feature of share encourages unwilling investors to invest their funds in the company which helps company to raise funds. (Pandey; 1995:905-908)

Most of the investors are wise to invest their saving funds in stocks, with the expectation of future cash inflow as dividends and maximization of value of their holdings in the market. The dividends and value of the firm are linked with the earning power of the firms, which ultimately affects the market price of shares. So, brief discussions have been presented in the following paragraphs, on earning per share, dividend per share, book value per share and market price per share.

2.1.4 Trade-off between Risk and Return

Risk and return are the instincts of investment. They are always positioned to each other. Investor should analyze the risk and return factor during investment. Without proper analysis of risk and return, there will be danger of loss investment, which is itself a risk. The risk and return relationship is unique to each investor. Risk and return relationship varies according to perception, risk bearing capacity and required rate of return from investment. Investor is always rational. He will not make investment in risky assets unless he is assured of adequate compensation for the assumption of risk. Investor requires risk premium on return. In competitive market, higher risk will command by premium and the trade off between these two assumes a linear relationship between risk and return premium. The trade off between risk and return will change with the passage of time but will always be positive because investors are risk averse. Investor requires higher expected rate of return to induce them to place their funds in riskier assets.

Return Risk and Return Trade Off

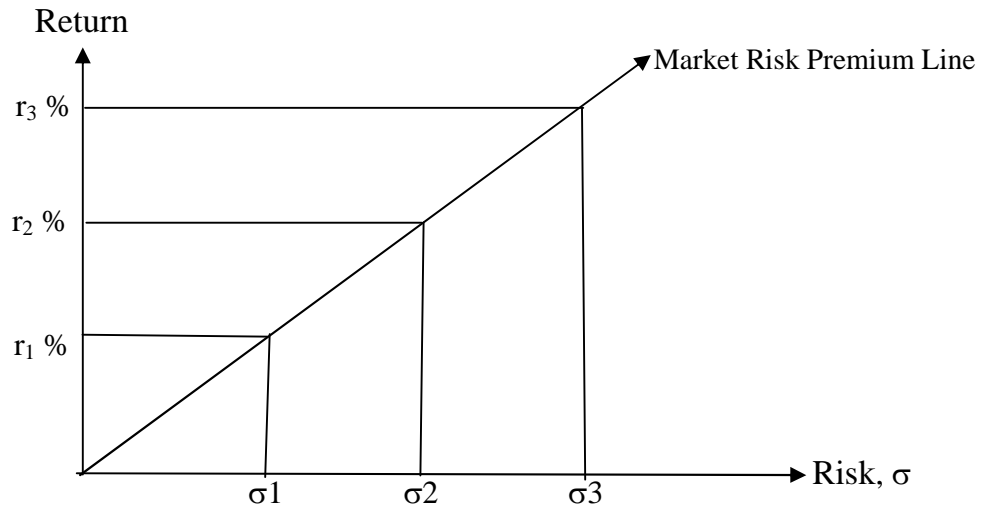


Figure: 2.1 – Positive Trade-off between Risk and Return

The Figure 2.1 represents a higher risk premium. For taking risk σ_1 , the expected return is r_1 when an investor assumes risk σ_2 , the return must be r_2 increasing the return (risk premium) by $r_2 - r_1$ for assuming more risk: $\sigma_2 - \sigma_1$. The assumption of linear relationship states that the risk premium must increase or decrease in proportion to a change in level of risk. It also indicates – higher the risk, higher the return and lower the risk, lower the return.

Utility Functions and Investors

Choice (Horne; 2000:58, 59)

The best mix of expected return and standard deviation for a security portfolio depends on the investors' utility function. If you are a risk averse investor who associate risk with

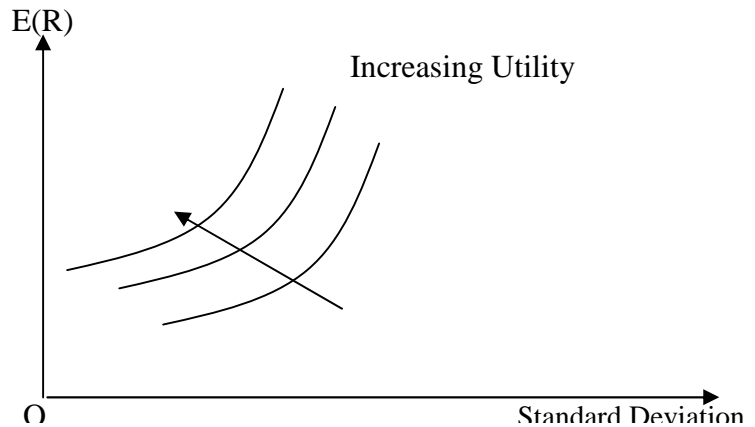


Figure – 2.2: Hypothetical Indifference Curves

divergence from expected value of return, your utility function might be depicted in figure2.2. The expected return is plotted on the vertical axis, while the standard

deviation is along the horizontal. The curves are known as indifference curves; the investor is indifferent between any combination of expected return and standard deviation on a particular curve. In other words, a curve is defined by those combinations of expected return and standard deviation that results in a fixed level of expected utility.

The greater the slope of indifference curves, the more averse the investor is to risk. In Fig. 2.2, each successive curve represents a higher level of expected utility. It is important to note that the exact shape of the indifference curves will not be the same for different investors. While the curves for all risk-averse investors will be upward sloping, a variety of shapes are possible, depending on the risk preferences of the individual. As an investor, you want to hold that portfolio of securities that places you on the highest indifference curve.

Investors are risk averse. As a result, high-risk assets must offer investors high returns to induce them to make the riskier investments.

2.1.5 Risk on Common stocks

“Risk is defined in Webster’s Dictionary as ‘a hazard: a peril: exposure to loss or injury’: thus, for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stocks (or, really, any stock), you are taking a risk in the hope of making an appreciable return.” (Weston, Besely and Brigham; 2003:182,183)

Risk is the unlooked for the unwanted event in the future; someone had said that risk was the sugar and salt of the life. “Risk, defined most generally, is the probability of the occurrence of unfavorable outcomes. But risk has different meanings in different contexts. In our context two measures developed from the probability distribution have been used as initial measures of return and risk. They

are the mean and standard deviation of the probability distribution.” (Weston and Brigham; 2000:183)

2.1.6 Standard Deviation

Standard deviation means a measure of the tightness, or variability of a set of outcomes. In other words Standard Deviation measures the magnitude of the difference between best possible return and worst possible return. Thus it measures the degree of risk of common stock. Because we have defined risk as the variability of returns, we can measure risky by examining the tightness of the probability distribution associated with the possible outcomes. In general, the width of a probability distribution indicates the amount of scatter, or variability, of the possible outcomes. Therefore, the tighter the probability distribution of expected returns, the less its variability - thus the smaller the risk associated with the investment. “The measure we probability use most often is the standard deviation. The symbol for which is σ . To calculate the standard deviation, we proceed as shown in Table, taking the following steps:

- We calculate the expected rate of return:

$$E(k) = \text{Pr}_1 k_1 + \text{Pr}_2 k_2 + \dots + \text{Pr}_n k_n = \sum_{i=1}^n \text{Pr}_i k_i$$

Where,

Pr = probability

k = expected rate of return

- First, we subtract the expected rate of return [E(k)] from each possible outcome (k_i) to obtain a set of deviations from (k):

$$\text{Deviation}_i = k_i - E(k)$$

Where,

$E(k)$ = expected rate of return

- Next, we square each deviation, multiply the result by the probability of occurrence for its related outcome, and then sum these products to obtain the variance of the probability distribution:

$$\sigma^2 = \sum_{i=1}^n [k_i - E(k)]^2 Pr_i$$

Where,

$E(k)$ = expected rate of return

$P(r)$ = probability

- Finally, we take the square root of the variance to obtain the standard deviation:

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^n [k_i - E(k)]^2 Pr_i}$$

Where,

$E(k)$ = expected rate of return

$P(r)$ = probability

σ = Standard deviation

Thus the standard deviation is a weighted average deviation from the expected value, and it gives an idea of how far above or below expected value and the actual value is likely to be.” (Weston, Besely and Brigham; 2003:182,183)

The standard deviation (σ) measures total risk of a stock and total risk comprises of Systematic risk and unsystematic risk. Systematic risk has its source factors that affect all marketable assets and thus cannot be diversified away. The sources of systematic risk are market-pervasive. The measure of systematic risk permits an investor to evaluate an asset's required rate of return relative to the systematic risk of the stock. Unsystematic (or company – specific or unique) risk can be reduced through diversification. The relationship among total risk, systematic risk and unsystematic risk are shown below.

Total Risk = $\sigma_j = \text{Systematic risk} + \text{Unsystematic risk}$; with systematic risk = $(\sigma_j)(\rho_{jm})$ and unsystematic risk = $(\sigma_j)(1-\rho_{jm})$. In this equation ρ_{jm} is the correlation coefficient between the return of a given stock (i) and the return on market portfolio.

2.1.7 Portfolio Risk and Return

Portfolio risk and return measured during the time interval is required. Two kinds of risk can be estimated the portfolio (a) market risk or systematic risk measured by its beta (b) total risk, measured by its standard deviation. The total risk is the combination of systematic risk and unsystematic risk. “Most financial assets neither are nor held in isolation; rather, they are held as parts of portfolios. Banks, pension funds, insurance companies, mutual funds, and other financial institutions are required by law to hold diversified portfolios. Even individual investors- at least those whose security holding constitute a significant part of their total wealth- generally hold stock portfolios, not the stock of only one firm. This begins the case, from an investor's standpoint the fact that a particular stock goes up or down is not very important; what is important is the return on his or her portfolio, and the portfolio's risk. Logically, then, the risk and return of an individual

security should be analyzed in terms of how that security affects the risk and return of the portfolio in which it is held.” (Weston & Brigham; 1992:183)

Portfolio Expected Return

The expected return of a portfolio should depend on the expected return of each of the securities contained in the portfolio. It also seems logical that the amounts invested in each security should be important. The portfolio return is the weighted average expected return of the individual stocks in the portfolio, with weights being the fraction of the total portfolio invested in each stock. The portfolio's expected return is defined in equation as follows;

$$R_p = W_1K_1 + W_2K_2 + \dots + W_nK_n$$

Where,

R_p = Portfolio expected return

W_1 = Weight for stock 1

W_2 = Weight for stock 2

K_1 = Expected return for stock 1

K_2 = Expected return for stock 2

Portfolio Risk

Portfolio risk is the risk as a whole for the specific portfolio. In total, what is the risk of wealth is the risk of portfolio. Calculation of portfolio risk is not as easy as portfolio return. The portfolio risk depends upon the risk of each security and the covariance of particular securities. Portfolio risk can be measured in terms of standard deviation and variance. The variance used to measure the risk of the portfolio. It is the square root of the standard deviation. The variance of a portfolio of assets depends on not only the variance portfolio but also how the assets track each other asset in the portfolio. This introduces the concept of covariance or correlation; that is to say the degree by which the returns of two assets vary or

change together. To determine the variance of a portfolio of assets, the sum of the weighted variances of the individual assets and the sum of the weighted covariance of the assets added together.

Measuring Portfolio Risk

The measurement of a portfolio risk is not as a straight forward as the calculation of a portfolio's expected return. In order to calculate the risk of a portfolio, consideration must be given not only to the risk of the individual assets in the portfolio and their relative weights but also to the extent to which the asset's returns move together. The degree to which the assets returns move together is measured by the covariance or correlation coefficient. By combining the measures of individual assets risk, relative asset weights and the co. movement of asset's return the risk of the portfolio can be estimated (Cheney and Moses;10th edition :653)

Individual's assets or securities are more risky than the portfolio. How is the risk of portfolio measured? As discussed above, risk is means used in terms of variance or standard deviation. However the standard of a portfolio is not simply the weighted average of standard deviation of individual securities. So, the portfolio risk is measured as;

Variance of portfolio

$$\sigma_p^2 = \sum_{i=1}^n \sum_{j=1}^n x_i x_j Cov_{ij}$$

Taking the square root of both sides the risk of the portfolio in term of its standard deviation is ;(Francis; 6th Edition: 236)

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

Where,

Cov_{ij} = Covariance between securities i and j.

$$Cov_{ij} = x_i x_j \rho_{ij}$$

ρ_{ij} = correlation coefficient between i and j.

x_i = weight of security i.

x_j = weight of security j.

Portfolio Risk In Case Of Two Assets

The standard deviation (risk) of return for two asset portfolio is given by;

$$\sigma_p = \sqrt{X_A^2 \times \sigma_A^2 + X_B^2 \times \sigma_B^2 + 2X_A \times X_B \times Cov_{AB}}$$

OR

$$\sigma_p = \sqrt{X_A^2 \times \sigma_A^2 + X_B^2 \times \sigma_B^2 + 2X_A \times X_B \times \sigma_A \times \sigma_B \times \rho_{AB}}$$

Where,

A and B are two securities held in a portfolio.

X_A, X_B = Weights of securities A and B.

σ_A, σ_B = Standard deviation of A and B.

ρ_{AB} = Correlation coefficient between A and B.

Cov_{AB} = Covariance between securities A and B.

2.1.8 Capital Asset Pricing Model (CAPM)

Capital Asset Pricing Model (CAPM) is a descriptive model of how assets are priced. The major implication of the model is that the expected return of an asset will be related to a measure of risk for that asset known as beta. The exact manner in which expected return and beta are related is specified by the CAPM.

“The capital assets pricing model states that the expected risk premium on each investment is proportional to its beta. This means that each investment should lie on the sloping security market line connecting Treasury bills and Market Portfolio.” (Myers and Brealey; 2003:200)

In market equilibrium, a security will be expected to provide a return commensurate with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The greater the unavoidable risk of a security, the greater the return that investors will expect from the security. The relationship between expected return and unavoidable risk, and the valuation of securities that follows, is the essence of the capital asset pricing model

(CAPM). This model was developed by William F. Sharpe (1990 Nobel Prize winner in economics) and John Lintner in the 1960s, and it has had important implications for finance ever since.

The CAPM used to calculate the required rate of return for stock j is:

$$E(R_j) = R_f + [E(R_m) - R_f] \beta_j$$

Where,

$E(R_j)$ = the expected or ex-ante return on the j^{th} risky asset

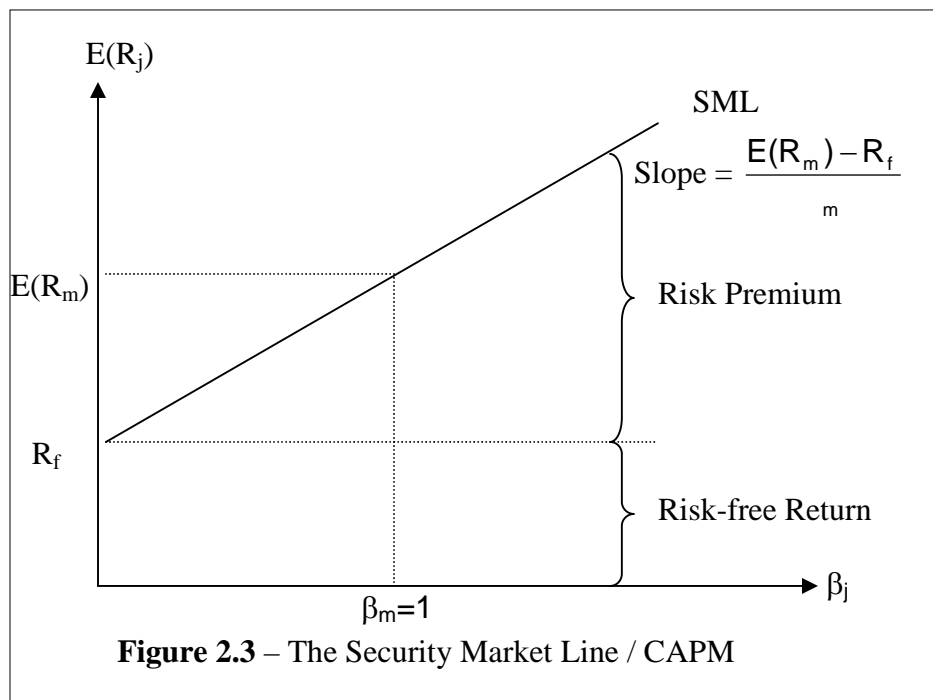
R_f = the rate of return on a risk less asset

$E(R_m)$ = the expected or ex ante return on the market portfolio

$\beta_j = \text{Cov}(R_j, R_m) / \text{Var}(R_m)$ = a measure of the undiversifiable risk of the j^{th} security.

The greater the beta of a security, the greater the risk and the greater the expected return required. Likewise, the lower the beta, the lower the risk, the more valuable it becomes and the lower the expected return required.

"In market equilibrium, the relationship between an individual security's expected rate of return and its systematic risk, as measured by beta, will be linear. The relationship is known as the security market line." (Horne; 2000:70) When the CAPM is graphed in a figure, it is called the Security Market Line (SML). In equilibrium, all securities must be priced so that they fall on the SML. The fact is that they have different variances, which are irrelevant for determining their expected return, because total risk contains a diversifiable component, which is not priced in market equilibrium. SML may be used to explain the required rate of return on all securities whether or not they are efficient. The SML provides a unique relationship between undiversifiable risk (measured by beta) and expected rate of return. Hence, if we can accurately measure the beta of a security, we can estimate its equilibrium risk-adjusted rate of return.



The CAPM or SML is an equilibrium theory of how to price and measure risk. It has many applications for capital budgeting, asset valuation, determination of cost of equity capital and the explaining risk in the structure of interest rates.

The logic of the SML equation is that the required return on any investment is the risk free return plus a risk adjustment factor. The risk adjustment factor is obtained by multiplying the risk premium required for the market return by the risky ness of the individual investment. If the returns on the individual investment fluctuate by exactly the same degree as the returns on the market as a whole, the beta for the security is one. In this situation, the required return on the individual investment is the same as the required return on the total market. The risk premium is measured by the slope of SML.

Assumptions of the CAPM (Cheney and Moses; 1995:71)

Capital market theory (CMT) uses portfolio theory; thus the assumptions underlying portfolio theory also pertain to the CAPM. The additional assumptions underlying CMT and the CAPM appear less realistic than the portfolio theory assumptions. The assumptions of CMT are as follows:

- All investors are risk-averse. Thus, all investors seek to be on the efficient frontier.
- There are no constraints on the amount of money that can be borrowed or lent. Borrowing and lending occur at the identical risk-free rate, R_f .
- All investors have identical beliefs about the expected returns and risks of assets and portfolios; that is all investors have homogeneous expectations.
- All investors have a common investment horizon, whether it be one month, three months, one year, or whatever.
- All the investments are infinitively divisible and marketable; that is, it is possible to buy or sell any portion of an asset or portfolio.
- Taxes and transaction costs do not exist. That is, there are no tax effects, costs of acquiring information or transaction costs associated with buying or selling securities. These are often referred to as perfect market assumptions. Markets are assumed to be competitive; therefore, the same investment opportunities are available to all investors.

- There are no unanticipated changes in inflation or interest rates.
- The capital markets are in a state of equilibrium or striving toward equilibrium. There are no under priced or overpriced securities; if under pricing or overpricing exists, the prices will move to correct this disequilibrium situation.

Under- and Over Valuations (Horne; 2000:71)

In market equilibrium, the CAPM implies an expected return-risk relationship for all individual securities (the security market line). If an individual security has an expected return-risk combination that places it above the security line, it will be undervalued in the market. That is, it provides an expected return in excess of that required by the market for the systematic risk involved: $\bar{R}_j > R_f + [E(R_m) - R_f] \beta_j$. As a result, the security will be attractive to investors. According to the theory, the increased demand will cause the price to rise until the expected return declines sufficiently for the security to lie on the security market line and, thereby, for $\bar{R}_j = R_f + [E(R_m) - R_f] \beta_j$. An overvalued security is characterized by an expected return-risk combination that places it below the security market line. This security is unattractive, and investors holding it will sell it and those not holding it will avoid it. The price will fall and expected return will rise until there is consistency with the security market line and with equilibrium pricing.

2.2.1 Review from Relevant Studies from Articles, Journals and Reports

In this section, effort has been made to examine and review of some related articles in different economic journals, magazines, newspapers and other related books and publication.

The journal of Finance, published bimonthly by American Finance Association for many decades is taken into account. In its recent volume of August 1999. An

article "Local Return Factors and Turnover in Emerging Stock Markets" by K. Greet Rouwenhorst has been reviewed here. Today the information highway or the Internet has become to the most easily accessible mediums to receive information in any subject matter. In the study period different books articles and well-known journals are taken into consideration that is spread out all over the world. Let us begin with the history of finance.

Financial economics is defined by Smith (1996) as the application of economic theory to financial markets. At is the long body of theory including such well known models as modern portfolio theory of Markowitz (1952) the Capital assets pricing model (CAPM) of Sharpe (1964) the Efficient market hypothesis of Samuelson (1965) and the option pricing model of Black and Scholes (1973). Although these models are all included in Institute of Faculty Education Ltd. (1995). Their acceptance or use is controversial.

There is growing empirical evidence that multiple factors are cross sectionally correlated with average returns in the United States. Measured over long time period small stock earns higher average returns than large stocks (Barr 1981). Fama, French (1992-1996) and Lakonishok, Shleifer, and Vishny (1994) show that value stocks with high book to market (B/M) earnings to one price (E/P) on cash flow to price (C/P) outperform growth stocks with low B/M, E/P, or C/P. Moreover, stocks with high prior performance to one year continue to outperform stocks with poor prior performance (Jaggedness and Titman (1993). The evidence that beta is also compensated for in average returns is weaker (Fama and French (1992), Kothari, Shleifer and Stougan (1995).

The interpretation of the evidence is strongly debated. Some believe that the premiums are a compensation for pervasive risk factors, others attribute them to firm characteristics or inefficiency in the way market incorporate information into

prices. Yet others argue that evidence that beat is also compensated for in average that the premium might be biased by survivorship or data snooping.

This paper examines the sources of return variation in emerging stock markets. From the perspective of collecting independent samples, Emerging market countries are particularly interesting because of their relative isolation from the capital markets of other countries. Compared to developed market, the second set of question of the paper includes (IV) is there a cross sectional relationship between liquidity and average returns in emerging markets? (v) Are the return factors in emerging market cross sectionally correlated with liquidity?

About the data Rouwenhorst stated that: as of April 1997 the Emerging Market Database (EMDB) of the IFC contains data on more than 2200 firms from 31 emerging market, but not all are included in the sample. Eleven countries are excluded because of insufficient return histories, which leave 1705 firms in the 20 countries that the IFC tracks for at least seven years. For some firm's monthly closing prices and dividends are available dating back to 1975 Starting at various points during 1980s the IFC Expanded its reporting to include monthly time series for price to book ratios, price earning ratios market capitalization, Trading volume, and the number of days per month that a stock is traded.

Total returns are calculated as the sum of the dividend return and price appreciation, using prices scaled by a capital adjustment factor which the IFC computes to correct for price effects associated with stock splits, stock dividends and right issues. Many emerging market have firms with multiple classes of shares carrying different ownership restrictions. Firms with multiple share classes of are treated as a single value weighted portfolio of the outstanding equity securities.

Mr. Shiva Raj Shrestha (1998), has given a short glimpse on article entitled “Portfolio Management in Commercial Banks; Theory and Practices”.

Mr. Shrestha in his article has highlighted the followings issues;

- The portfolio management becomes very important both for individuals and institutional investor.
- Investor would like to select better mix of investment assets subject on these aspects like, higher return that is comparable with alternatives according to the risk class of investor.
- Good liquidity with adequate safety on investment, maximum tax concession, economic efficient and effective mixes.

For fulfilling those aspects, the following strategies will be adopted.

- Do not hold any signal security i.e. try to have a portfolio of different securities.
- Choose such portfolio of securities, which ensure maximum return with minimum risk or less return for wealth maximizing objectives.

He has mention short transitory view on portfolio management in Nepalese commercial banks. Nowadays number of banks & financial institution are operating in this sector are having greater networks and access to national and international markets. They have to go with their portfolio management very seriously and superiority, to get success to increase their regular income as well as to enrich the quality service to their clients. In this competitive and market oriented open economy, each commercial banks and financial institution has to play a determining role by widening various opportunities for the sake of expanding provision of best service to their customers.

In this context he has presented two types of investment analysis techniques i.e. fundamentals analysis to consider any securities such as equity, debenture or bond and other money and capital market instrument. He has suggested that the banks having international joint venture network can also offer admittance to global financial markets. He has pointed out the requirement of skilled labors, proper management information system in joint venture banks and financial institution to get success in portfolio management and customer assurance.

According to Mr. Shrestha, the portfolio management activities of Nepalese commercial banks at present is in nascent stage. However, on the other hand most of the banks are doing such activities so far because of following reasons. Such as unawareness of the client about the service available, hesitation of taking risk by the client to use such facilities, lack of proper techniques to run such activities in the best and successful manner, less development of capital market and availability of few financial investment in the financial market.

He has given the following conclusion for smooth running and operation of commercial banks and financial institution.

- For surviving commercial banks should depend upon their own financial health and various activities.
- In order to develop and expand the portfolio management activities successfully, the investment management methodology of portfolio manger should reflect high standards and give their clients the benefits of global strengths, local insights and product philosophy.
- With the discipline and systematic approval to the selection of appropriate countries, financial assets and management of various risks

the portfolio manager could enhance the opportunity for each investor to earn supervisor returns over time.

- The Nepalese banks having greater network and access to national and international capital market have to go for portfolio management activities for the increment of their fee based income as well as to enrich the client base and contribute to the national economy.

Chandra Thapa (9th march 2003), published article on The Kathmandu Post daily of entitled “Managing a banking risk” by, in his article ha has accomplished the subsequent issues. Banking and financial service are among the fastest growing industries in developed world and are also emerging as cornerstones for other developing and undeveloped nations as well. Bank primary function is to trade risk. Risk cannot be avoided by the bank but can only be managed. There exist two types of risk. The first is the diversifiable risk or the firm specific risk which can be mitigated by maintaining an optimum and diversified portfolio. This is due to the fact that when one sector does not do well the growth in another might offset the risk. Thus, depositor must have the knowledge of the sectors in which there banks have make the lending. The second is undiversifiable risk and it is correlated across borrower, countries, and industries. Such risk is not under control of the firm and bank.

According to Mr. Thapa risk management of the banks is not only crucial for optimum trade off between risk and profitability but is also one of the deciding factors for overall business investment lending to growth of economy. Managing risk not only needs sheer professionalism at the organizational level but appropriate environments also need to develop. Some of the major environmental problems of Nepalese banking sector are under government intervention, relatively weak regulatory fame, if we consider the international standard, meager corporate

governance and the biggest of all is lack of professionalism. The only solution to mitigate the banking risk is to develop the badly needed commitment eradication of corrupt environment especially in the disbursement of lending, and formulate prudent and conducive regulatory frame work.

Prabhakar Ghimire (1999), has published an article in which he has mentioned that most of the commercial banks of Nepal are ready to pay the penalty in spite of investing on rural, priority sector, poverty stricken and deprived areas. In the directives of Nepal Rastra Bank it is clearly mentioned and directed that all the commercial banks (under NRB) should invest 12% of its total investments to the priority sectors. Out of this 12%, they should invest 3% to the lower class of countrymen. However these commercial banks are unable to meet the requirements of NRB.

In the light of above, foreign joint venture banks use to justify that they don't have any network among these priority areas. So, if investment is made to these areas, operation cost will be very high, that exceeds the penalty if investment won't be made. That is why they are interested in paying penalty rather than investing in priority sectors.

L.D. Mahat (28th April 2004), has published article on The Kathmandu Post daily of entitled "Efficient Banking" by, in his article he has accomplished, the efficiency of banks can be measured using different parameters. The concept of productivity and profitability can be applied while evaluating efficiency of banks. The term productivity refers to the relationship between the quantity of inputs employed and the quantity of outputs produced. An increase in productivity means that more output can be produced from the same inputs or the same outputs can be produced from fewer inputs. Interest expense to interest income ratio shows the

efficiency of banks in mobilizing resource at lower cost and investing in high yielding asset. In other words, it reflects the efficiency in use of funds.

According to Mr. Mahat, the analysis of operational efficiency of banks will help one in understanding the extent of vulnerability of banks under the changed scenario and deciding whom to bank upon. This may also help the inefficient banks to upgrade their efficiency and be winner in the situations developing due to slowdown in the economy. The regulators should also be concerned on the fact that the banks with unfavorable ratio may bring catastrophe in the banking industry.

Mr. Yogendra Timilsina has published an article on “Managing Investment Portfolio.” He is however, confronted with problems of managing investment portfolio particularly in times of economic slowdown like ours. A rational investor would like to diversify his investments in different classes of assets so as to minimize risks and earn a reasonable rate of return.

Commercial banks have continuously been reducing interest rates on deposits. Many depositors are exposed to the increasing risk of non-refund of their deposits because of the mismanagement in some of the banks and finance institutions and accumulation of huge non-performing assets with them.

Few depositors of cooperative societies lost their deposits because some of these cooperatives were closed down because of their inability to refund public deposits. An investor in days of crisis has to make an effort to minimize the risk and at least earn a reasonable rate of return on his aggregate investment.

An investment in equity share can earn dividend income as well as capital gain in the form of bonus share and right share until an investor holds it and capital profit

when he sells it in the stock market. As returns from equity investments have fluctuated within a very wide range, investors feel it much difficulty to balance risk and reward in their equity portfolio. As a matter of fact, investors in equity shares should invest for a reasonable long time frame in order to manage the risk. Making investment in fixed deposits with commercial banks is a normal practice among the common people. Normally fixed deposits with banks are considered risk-less, but they also are not 100% free of risk. You should select a bank to put your deposit therein, which has sound financial health and high credibility in banking business. In times of crisis if you select a sick bank deposit your money there is high probability that your money could be returned back.

An investor may have option of making investment in government bonds or debentures. In history we have examples that a government can nationalize the private property of its citizens, cancel out old currency notes, and can convert the new investment into some conditional instrument. But in democracy there is no probability that the government would default to repay money back. This is comparatively risk free investment, but yields low return.

An investor has to evaluate the risk and return of each of the investment alternatives and select an alternative, which has lower degree of risk and offer at least reasonable rate of return. One can draw a safe side conclusion to invest all the money he has only in government securities, but this is not a rational decision. An investor who doesn't try to maximize return by minimizing the possible risk is not a rational investor. On the other hand, one can place over-confidence on equity investment and assume high risk by investing the whole money in equity shares. Stock market these days is much dwindling and notoriously unpredictable; therefore this too is not a wise decision. Therefore, a portfolio, which consists of only one class of financial assets, is not a good portfolio.

2.2.2 Review From Unpublished Thesis

Gopal Prasad Bhatta (1995), had undertaken a study entitled “**Assessment of Performance of Listed Companies in Nepal**”. The major objective of the study was “to analyze the performance of listed companies in terms of expected rate of return and company specific risk, required rate of return, systematic risk and diversification of risk through portfolio context.”

Mr. Bhatta had used descriptive as well as analytical methodology to analyze the secondary data from 1987 to 1991 of 10 listed companies.

After analyzing the secondary data of selected companies, Mr. Bhatta had summarized, “Investors in Nepal have not yet practiced to invest in portfolio of securities. An analysis of two securities portfolio shows that the risk can be totally minimized if the correlation is perfectly negative. In this situation, the risk can be totally diversified but when there is perfectly positive correlation between the returns of the two securities, the risk is undiversifiable. The analysis shows some correlation has negative and some has positive one. Negative correlation between securities returns is preferred for diversification of risk.”

J.B. Sapkota (1999), has conducted research on “*Risk and Return Analysis in Common Stock Investment*” with special reference to banking industry relevant to this study. The major objective of the study was to analyze the risk and return of the common stocks in Nepalese stock market.

After analyzing the secondary data, Sapkota summarized, “Banking industry is the biggest one in terms of market capitalization and turnover. Expected return on the common stocks of Nepal Bank Limited is maximum (i.e. 66.99%) and common stock of SBI Bank Ltd. is found minimum. In this regard, common stock of Nepal Bank Ltd. is most risky and common stock of SBI Bank Ltd. is least risky. In the

context of industries, expected return of finance and insurance industry is found highest. Expected return of banking industry is 60.83%.”

Sudeep Upadhyaya (2001), had undertaken a study entitled “*Risk and Return on Common Stock Investment of Commercial Banks in Nepal*”. The main objectives of the study were to assess the risk associated with returns on common stock investment of the listed commercial banks on the basis of selective financial tools; to evaluate common stocks in terms of risk and return; to assess the risk compensating returns; and to analyze the volatility of common stocks and other relevant variables as an affecting factor in portfolio construction of common stocks.

In order to achieve the objectives, he had used five years secondary data from 1994/95 to 1998/99 of eight commercial banks as sample.

The major findings of his study are:

In general, most people see stock market investment as a black art that they know little about. Many people have unrealistically optimistic or pessimistic expectations about stock market investment or perhaps a fear of the unknown. Due to the lack of information and poor knowledge, Nepalese individual investors can not analyze the securities as well as market properly.

He further stated, “Expected return on the common stock of Nepal Grindlays Bank now renamed as SCBNL is maximum (i.e. 127.84%) which is very high rate of return. In reality this rate exists only due to the effect of unrealistic annual return because of the issue of bonus share and increase in share price at the same. Similarly expected return of the CS of Nepal SBI Bank Ltd. is found minimum. In the context of industries (or sector), expected return of “Others” sector is highest (i.e. 15.5 %). Manufacturing and production sector is the least performer.”

He also revealed, “Common stock of Nepal Grindlays Bank Limited now renamed as Standard Chartered Bank Nepal Ltd is most risky and of SBI is least risky. This proves the proverb ‘high risk – high return’. Regarding the market volatility, EBL’s common stock is more volatile which has beta value of 3.941 and NIBL’s common stock is least volatile which has beta value of 0.875. Others are also volatile. All the stocks of commercial banks are over-priced. NGBL stock has maximum difference of expected rate of return and required rate of return.”

Mr. Upadhyaya further summarized, “Most of the Nepalese private investors invest in single security. Some of the investors use their fund in two or more securities. But it is found that they don’t make any analysis of portfolio before selecting. They invest their fund in different securities on the basis of expectation and assumption of individual security rather than analysis of the effect of portfolio.”

According to him, “The correlation of returns between most of the banks is nearer to +1. It is not favorable to construct a portfolio. Only the correlation between NIBL’s CS return and NBBL and EBL CS return is found negative. Investor can reduce risks through holding the CS of NIBL and NBBL or EBL. Portfolio between the CS of NGBL and BBC is very advantageous as far as risk reduction is concerned. Here, portfolio standard deviation is less than individual standard deviation. Hence the portfolio approach of investment is better way to get the maximum return.”

Roopak Joshi (2002), undertook a thesis work entitled “*Investors’ Problems in Choice of Optimum Portfolio of Stocks in Nepal Stock Exchange*”. The study is related to this research since his study focused on the creation of optimum portfolio between the stocks of listed companies and the relevant objective of the study was “to try to find out the best portfolio of NEPSE to invest”.

Mr. Joshi used historical common stocks data in order to achieve the objectives. He had constructed two-asset and three-asset portfolio between *21 'A' Grade* stocks of listed companies. He had ignored those stocks, which were more variable in terms of covariance.

After analyzing the stocks, Mr. Joshi summarized, “Portfolio management is a new concept for Nepalese investors. Due to lack of sufficient information, proper investment is not possible. Proper investment needs huge information internal as well as external. The stock market of Nepal is also in growing stage only. The only one stock exchange located in Kathmandu. Traditional cry system for trading stocks, limited number of securities broker, lack of opportunity of investment and many reasons are there, which are acting as barrier of development of NEPSE.”

Mr. Joshi further stated that Nepalese investors don't know in which stock to make investment and how to construct a portfolio. Many brokers are not willing to provide information to the investors. Investors are trading the securities mostly under the pressure of brokers.

Mr. Joshi had further concluded regarding the portfolio that among the available opportunity sets, available set H seemed very attractive than other sets. Set H had the least covariance of all the available sets and was the optimum portfolio which consisted of stocks of Paschimanchal Finance Company (PFC) Ltd. and Citizen Investment Trust (CIT) in the proportion of 55 % and 45 % respectively.

CHAPTER - III

RESEARCH METHODOLOGY

This chapter mainly deals with the research methodology used to ascertain the study objectives. Under this, research design, population and sample, sample selection method, data collection and analysis techniques have been described.

3.1 Research Design

This study is based on recent five years historical data from F/Y 2002/03 to F\Y 2006/07. It deals with common stocks of 5 commercial banks, which have listed their shares in NEPSE to make them eligible for trading. Hence, it's a historical research. The common stocks under study have been analyzed in a descriptive and analytical way. It is more analytical and empirical and less descriptive.

3.2 Population and Sample

Sample of this study includes 5 commercial banks, which have listed their shares in NEPSE for trading in secondary market. At present, there are 134 companies that have listed their shares to make them eligible for trading in the secondary market of Nepal. There are total 25 commercial banks listed in NEPSE. The following commercial banks have been taken as sample for this study. The Sample banks are taken according to their growth rate. The selected three banks are established and other two banks are in growing stage which represents overall banks.

- 1) Standard Chartered Bank Ltd
- 2) Nabil Bank Ltd
- 3) Nepal Investment Bank Ltd
- 4) Everest Bank Ltd
- 5) Himalayan Bank Ltd

3.3 Sources of Data

The study is based on secondary data. Secondary data have been collected through various books, published annual/trading reports of NEPSE, SEBON and concerned companies. Especially the data have been derived from the official website of NEPSE – <http://www.nepalstock.com> and Annual Report of Securities Exchange Board of Nepal.

3.4 Data Collection Technique

The researcher has visited the different libraries, concerned companies, NEPSE, SEBO-N and other useful book stores; and collected related publications and periodicals. Official websites were searched in order to collect required information. Furthermore, secondary data related to common stocks of concerned companies have been downloaded from the official website of NEPSE, <http://www.nepalstock.com>.

3.5 Data Analysis Tools

Under this study, financial as well as statistical tools have been used to analyze the data and information.

3.5.1 Financial Tools

(a) Return and Risk Analysis of Individual Stocks

Dividend Per Share (DPS)

Dividend per share (DPS) is calculated using the following model:

$$\text{DPS} = \text{Cash Dividend} + \text{Stock Dividend}$$

Cash equivalent of stock dividend is calculated as:

$$\text{Cash Equivalent of Stock Dividend} = \text{SDR} \times \text{Next Year MPS}$$

where, SDR = Stock Dividend Ratio

Market Price of Share (P)

One of the principle measures of the value of the stock is market price of stock. It is denoted by P. Three price records are available in Nepal Stock Exchange Limited namely – High, Low and Closing Price. For our study purpose, closing prices of the stocks are taken since our study focuses on annual data.

Return on Common Stock (R)

Holding Period Return

Generally, single period return or holding period return is represented by R and expressed in terms of percentage basis. It is calculated as:

$$\text{HPR} = \frac{\text{Ending Price} - \text{Beginning Price} + \text{Cash Dividend}}{\text{Beginning Price}}$$

Symbolically,

$$\text{HPR} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}} = \text{Capital Gain} + \text{Dividend Yield}$$

Where, P_t = Price of a stock at time t

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

D_t = Dividend per share at time t

Average Return of Common Stock (R)

When probabilities of the return are given, the weighted average rate is known as the expected rate of return, represented by E(R). But when the historical data are used, then the arithmetic mean of the returns is known as average return on common stock, represented by \bar{R} . It is used as proxy for expected rate of return. It is computed as:

$$\text{Average Rate of Return on } j \text{ stock} = \frac{\text{Sum of returns of past years}}{\text{Number of years}}$$

Symbolically,

$$\bar{R} = \frac{\sum R_j}{n} \text{ where } \sum R_j = \text{Summation of annual returns on stock } j$$

n = Number of observations

Risk of Common Stock

Stock returns may be riskier or more volatile, but this concept is a difficult one to express simply. In Finance, a concept from Statistics called Standard Deviation is borrowed to measure the risk on returns of investment. Standard deviation is a summary measure about the average spread of observations around the mean. It is the square root of the variance. The standard deviation and the variance are equally acceptable and conceptually equivalent quantitative measures of an asset's total risk. It is computed as:

$$\text{Standard Deviation } (\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}}$$

(b) Risk and Return Analysis of Market

Return on Market

Annual return on market is the average return of market based on the index of market. It is denoted by R_m . Under this study, NEPSE index will be used. It is a value weighted index and comprises of all the stocks listed in NEPSE. The NEPSE index is used for the study.

$$\text{Annual Market Return } (R_m) = \frac{\text{Ending NEPSE Index} - \text{Beginning NEPSE Index}}{\text{Beginning NEPSE Index}}$$

Average Market Return (\bar{R}_m)

$$\bar{R}_m = \frac{\sum R_m}{n}$$

Where, $\sum R_m$ = Summation of annual market return

n = Number of observations

Risk of Market Return

Risk of market return is also measured by the standard deviation of the returns of market. The standard deviation of market returns is computed as:

$$\text{Standard Deviation } (\sigma_m) = \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{n-1}}$$

(c) Market Sensitivity Analysis

Covariance

The covariance measures how two variables co-vary. It is a measure of the absolute association between two variables. Here, how the returns of individual stocks and the market return co-vary will be measured by covariance between the return of individual stocks and market return. It is computed as:

$$\text{Cov}(R_j, R_m) = \frac{\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m)}{N} = \rho_{j,m} \sigma_j \sigma_m$$

If two variables are independent, their covariance is zero.

Correlation coefficients

Correlation coefficient is a measure of the relative association between two variables. It describes how much linear co-movement exists between two variables. Correlation between stock j and the market is computed as:

$$\rho_{j,m} = \frac{\text{Cov}(R_j, R_m)}{\sigma_j \sigma_m}$$

- If $\rho_{j,m}$ is positive, the returns on security j and market tend to be large at the same time and small at the same time.
- If $\rho_{j,m}$ is negative, relatively large return of security j is associated with relatively small return of market.
- If $\rho_{j,m}$ is zero, the return of security j is uncorrelated to the return on market. Movement on the return of security j appear unrelated to movements in the return of market.

Beta

Beta coefficients may be used for ranking the systematic risk of different assets. Beta coefficient of stock j is denoted by β_j . It is functionally related to the correlation and the covariance between the security and the market portfolio. It is computed as:

$$\beta_{j,m} = \frac{\text{Cov}(R_j, R_m)}{\text{Var}(R_m)}$$

where, $\text{Cov}(R_j, R_m)$ = covariance of returns of the j^{th} asset with the market

$\text{Var}(R_m)$ = variance of returns for the market portfolio

Individual stocks can be classified as aggressive or defensive or average on the basis of beta coefficients.

Beta Coefficient	Stock Classification	Degree of Risk
Less than 1	Defensive Stock	Less Risky than the Market
Exactly 1	Average Stock	Equally Risky as the Market
Greater than 1	Aggressive Stock	More Risky than the Market

(d) Analysis of Systematic and Unsystematic Risk

Systematic Risk

Total risk of any individual stock can be measured by variance or standard deviation. The total risk can be partitioned as (i) systematic and (ii) unsystematic. Systematic risk is that portion of total risk caused by market factors that simultaneously affect the prices of all securities and can not be avoided or diversified. Undiversifiable risk, market risk, beta risk are equally used terms. It is calculated as:

$$\text{Systematic Risk} = \beta_{jm}^2 \text{Var} (R_m)$$

Where, β_{jm} = Beta coefficient of stock j with market return

$\text{Var} (R_m)$ = Variance of market return.

The percentage of systematic risk is measured by the coefficient of determination.

$$\text{Proportion of Systematic Risk} = \frac{\text{Systematic Risk}}{\text{Total Risk}}$$

$$= \frac{\beta_{jm}^2 \text{Var} (R_m)}{\text{Var} (R_j)} = \frac{\beta_{jm}^2 \sigma_m^2}{\sigma_j^2} = \rho_{j,m}^2$$

Unsystematic Risk

Unsystematic risk is that portion of total risk of an individual stock that can be diversified away. It is also called diversifiable risk, company specific risk or non-market risk. It is calculated as:

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= \text{Var} (R_j) - \beta_{jm}^2 \text{Var} (R_m) \\ &= \sigma_j^2 - \beta_{jm}^2 \sigma_m^2 \end{aligned}$$

(e) Portfolio Analysis

Portfolio Return

Three asset portfolio returns of the companies is the weighted average return of the return of three assets based on the investment proportions. Three asset portfolio returns is calculated as:

$$\text{Portfolio Return } (R_p) = X_1 R_1 + X_2 R_2 + X_3 R_3$$

Here, X_1 , X_2 and X_3 represent the investment proportion in asset 1, 2 and 3 respectively. Likewise, R_1 , R_2 , R_3 represent the return of assets 1, 2 and 3 respectively.

Portfolio Risk

Total portfolio risk is measured by the variance of the portfolio's rate of return distribution. The risk (variance of returns) from a portfolio made up of n assets is calculated as:

$$\text{Portfolio Risk} = \text{Var}(R_p) = \sum_{i=1}^n \sum_{j=1}^n X_i X_j \rho_{ij} \sigma_i \sigma_j$$

where

X_i = proportion of investment in security i

X_j = proportion of investment in security j

ρ_{ij} = correlation coefficient between i and j securities

σ_i = standard deviation of security i

σ_j = standard deviation of security j

3.5.2 Statistical Tools

The process of analyzing and evaluating various data statistical tools has been used. In this study, statistical tools such as standard deviation, mean, coefficient of

variation, coefficient of correlation between different variables, trend analysis as well as hypothesis test have been used, which are as follows;

A. Arithmetical Mean

It represents the entire data by a single value. It provides the gist and gives the bird's eye view of the huge mass of unwieldy numerical data. It is calculated as:

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

Where:

$$\begin{aligned} \bar{X} &= \text{Arithmetic mean} \\ N &= \text{Number of observations} \\ \sum X &= \text{Sum of observations} \end{aligned}$$

B. Standard Deviation

Standard deviation is an important and widely used to measure dispersion. A standard deviation is the positive square root of the arithmetic mean of the squares of the deviations of the given observations from their arithmetic mean. It is denoted by the letter σ (sigma). In this study standard deviation of different ratios are calculated.

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

Where,

$$\sigma = \text{Standard Deviation}$$

$$\frac{\sum X^2}{N} = \text{Sum of Squares of Observation}$$

$$\left(\frac{\sum X}{N}\right)^2 = \text{Sum of Squares of Mean}$$

C. Coefficient of Variation

The Coefficient of variation is the most commonly used measure of relative variation. It is the relative measures of dispersion, comparable across distribution, which is defined as the ratio of the standard deviation to the mean expressed in percent. It is used in such problems where the researcher wants to compare the variability of data more than two years. A series with smaller C.V. is said to be less variable or more consistent or more homogeneous or more uniform or more stable than the others and vice versa. It is calculated as;

$$\text{Coefficient of variation} = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}}$$

Where,

$$\begin{aligned} \bar{X} &= \text{Mean} \\ \sigma &= \text{Standard Deviation} \\ \text{C.V.} &= \text{Coefficient of Variation} \end{aligned}$$

D. Coefficient of Correlation

Coefficient of correlation is the mathematical method of measuring the degree of association between the two variables i.e. one dependent and one independent. This analysis interprets and identifies the relationship between two or more variables. In the case of highly correlated variables, the effect of none variable may have effect on other correlated variable.

To find out those relationships, the following formula is used:

$$\text{Coefficient of correlation (r)} = \frac{\sum xy}{N \sqrt{x^2 y^2}}$$

Where, $x = (X - \bar{X})$, $y = (Y - \bar{Y})$

The result of coefficient is always between -1 to $+1$, when $r=+1$, it means there is significant relationship between two variables and when $r=-1$, It means there is no significant relationship between two variables.

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Appendix – 1

Calculations of Market return (R_m)

Year	NEPSE Index	Annual return (R _m)	R _m - \bar{R}_m	$(R_m - \bar{R}_m)^2$
2001/02	348.43			
2002/03	227.54	-34.70%	-40.25%	16.2006%
2003/04	204.86	-9.97%	-15.52%	2.4087%
2004/05	222.04	8.39%	2.84%	0.0807%
2005/06	286.67	29.11%	23.56%	5.5507%
2006/07	386.83	34.94%	29.39%	8.6377%
		$\sum R_m = 27.77$		$\sum (R_m - \bar{R}_m)^2 = 32.8784\%$

$$R_m = \frac{NI_{t+1} - NI_t}{NI_t} \quad \text{Where, } NI_{t+1} = \text{NEPSE Index at Year } t+1 \text{ and } NI_t = \text{NEPSE Index at Year } t.$$

$$\text{Average market return } (\bar{R}_m) = \frac{\sum R_m}{N} = \frac{27.77}{5} = 5.55 \%$$

$$\text{Variance of Market Return } \text{Var} (R_m) = \frac{\sum (R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196\%$$

$$\sigma_m = \sqrt{\text{Var}(R_m)} = \sqrt{8.2196} = 2.867\%$$

$$\text{C.V.} = \frac{\sigma_m}{\bar{R}_m} = \frac{2.867}{5.55} \times 100 = 51.66\%$$

Appendix –2

Firm-wise Calculation of Actual Rate of Return and Required Rate of Return

i. Risk and Return of NABIL

Year	Closing price	Dividend	Annual (R _j)%	$R_j - \bar{R}_j$	$(R_j - \bar{R}_j)^2$
2001/02	1500				
2002/03	735	40	-48.33%	-70.17	49.2383%
2003/04	735	30	4.08%	-17.76	3.1542%
2004/05	1000	50	42.86%	21.02	4.4184%
2005/06	1505	65	57%	35.16	12.3623%
2006/07	2240	70	53.59%	31.75	10.0806%
		$\sum R_j = 109.2\%$			$\sum (R_j - \bar{R}_j)^2 = 79.2538\%$

$$\text{Average Actual Rate of return } (\bar{R}_j) = \frac{\sum R_j}{N} = \frac{109.2}{5} = 21.84\%$$

$$\text{Variance } \text{Var} (R_j) = \frac{\sum (R_j - \bar{R}_j)^2}{N-1} = \frac{79.2538}{5-1} = 19.8135\%$$

$$\sigma_j = \sqrt{\text{Var}(R_j)} = \sqrt{19.8135} = 4.451\%$$

$$\text{C.V.} = \frac{\sigma}{\text{Mean}} = \frac{4.451}{21.84} \times 100 = 20.38\%$$

ii. Risk and Return of SCBNL

Year	Closing price	Dividend	Annual (R _j)%	R _j - \bar{R}_j	$(R_j - \bar{R}_j)^2$
2001/02	2144				
2002/03	1575	100	-21.88%	-43.58	18.9922%
2003/04	1640	100	10.48%	-11.22	1.2589%
2004/05	1745	110	13.11%	-8.59	0.7379%
2005/06	2345	110	40.69%	18.99	3.6062%
2006/07	3775	120	66.10%	44.4	19.7136%
		$\sum R_j = 108.5\%$			$\sum (R_j - \bar{R}_j)^2 = 44.3088\%$

$$\text{Average Actual Rate of return } (\bar{R}_j) = \frac{\sum R_j}{N} = \frac{108.5}{5} = 21.70\%$$

$$\text{Variance } \text{Var}(R_j) = \frac{\sum (R_j - \bar{R}_j)^2}{N-1} = \frac{44.3088}{5-1} = 11.0772\%$$

$$s_j = \sqrt{\text{Var}(R_j)} = \sqrt{11.0772} = 3.328\%$$

$$\text{C.V.} = \frac{s}{\text{Mean}} = \frac{3.328}{21.70} \times 100 = 15.33\%$$

iii. Risk and Return of EBL

Year	Closing price	Dividend	Annual (R _j)%	R _j - \bar{R}_j	(R _j - \bar{R}_j) ²
2001/02	750				
2002/03	430	0	-42.67%	-60.16	36.1923%
2003/04	445	20	8.14%	-9.35	0.8742%
2004/05	680	20	57.30%	39.81	15.8484%
2005/06	870	20	30.88%	13.39	1.7929%
2006/07	1379	20	60.80%	43.31	18.7576%
		$\sum R_j = 87.45\%$			$\sum (R_j - \bar{R}_j)^2 = 73.4654\%$

$$\text{Average Actual Rate of return } (\bar{R}_j) = \frac{\sum R_j}{N} = \frac{87.45}{5} = 17.49\%$$

$$\text{Variance } \text{Var}(R_j) = \frac{\sum (R_j - \bar{R}_j)^2}{N-1} = \frac{73.4654}{5-1} = 18.3664\%$$

$$j = \sqrt{\text{Var}(R_j)} = \sqrt{18.3664} = 4.286\%$$

$$\text{C.V.} = \frac{\dagger}{\text{Mean}} = \frac{4.286}{17.49} \times 100 = 24.5\%$$

iv. Risk and Return of NIBL

Year	Closing price	Dividend	Annual (R _j)%	R _j - \bar{R}_j	(R _j - \bar{R}_j) ²
2001/02	1150				
2002/03	760	0	-33.91%	-42.33	17.9183%
2003/04	795	30	8.55%	0.13	0.0002%
2004/05	940	20	20.75%	12.33	1.5203%
2005/06	800	15	-13.30%	-21.72	4.7176%
2006/07	1260	20	60%	51.58	26.6050%
		$\sum R_j = 42.09\%$			$\sum (R_j - \bar{R}_j)^2 = 50.7614\%$

$$\text{Average Actual Rate of return } (\bar{R}_j) = \frac{\sum R_j}{N} = \frac{42.09}{5} = 8.42\%$$

$$\text{Variance } \text{Var} (R_j) = \frac{\sum (R_j - \bar{R}_j)^2}{N-1} = \frac{50.7614}{5-1} = 12.6904\%$$

$$s_j = \sqrt{\text{Var} (R_j)} = \sqrt{12.6904} = 3.562\%$$

$$\text{C.V.} = \frac{s_j}{\text{Mean}} = \frac{3.562}{8.42} \times 100 = 42.30\%$$

v. Risk and Return of HBL

Year	Closing price	Dividend	Annual (R _j)%	R _j - \bar{R}_j	(R _j - \bar{R}_j) ²
2001/02	1500				
2002/03	1000	20	-32%	-29.49	8.6966%
2003/04	836	25	-13.9%	-11.39	1.2973%
2004/05	840	1.32	0.64%	3.15	0.0992%
2005/06	920	20	11.90%	14.41	2.0765%
2006/07	1100	11.5	20.82%	23.33	5.4429%
		$\sum R_j = -12.54\%$			$\sum (R_j - \bar{R}_j)^2 = 17.6125\%$

$$\text{Average Actual Rate of return } (\bar{R}_j) = \frac{\sum R_j}{N} = \frac{-12.54}{5} = -2.51\%$$

$$\text{Variance } \text{Var} (R_j) = \frac{\sum (R_j - \bar{R}_j)^2}{N-1} = \frac{17.6125}{5-1} = 4.4031\%$$

$$\sigma_j = \sqrt{\text{Var} (R_j)} = \sqrt{4.4031} = 2.098\%$$

$$\text{C.V.} = \frac{\sigma_j}{\text{Mean}} = \frac{2.098}{-2.51} \times 100 = -83.59\%$$

Appendix- 3

i. Calculation of Covariance and Beta Coefficient of NABIL

Year	Annual (R _j)%	R _j - \bar{R}_j	R _m - \bar{R}_m	(R _j - \bar{R}_j)(R _m - \bar{R}_m)
2002/03	-48.33%	-0.7017	-40.25%	28.2434%
2003/04	4.08%	-0.1776	-15.52%	2.764%
2004/05	42.86%	0.2102	2.84%	0.5970%
2005/06	57%	0.3516	23.56%	8.2837%
2006/07	53.59%	0.3175	29.39%	9.3313%
				$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 49.2118\%$

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{49.2118}{4} = 12.30\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{12.30}{8.2197} = 1.50\%$$

ii. Calculation of Covariance and Beta Coefficient of SCBNL

Year	Annual (R _j)%	R _j - \bar{R}_j	R _m - \bar{R}_m	(R _j - \bar{R}_j)(R _m - \bar{R}_m)
2002/03	-21.88%	-0.4358	-40.25%	17.5410%
2003/04	10.48%	-0.1122	-15.52%	1.7413%
2004/05	13.11%	-0.859	2.84%	-2.440%
2005/06	40.69%	0.1899	23.56%	4.4740%
2006/07	66.10%	0.444	29.39%	13.0492%
				$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 34.3655\%$

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{34.3655}{4} = 8.59\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{8.59}{8.2197} = 1.04\%$$

iii. Calculation of Covariance and Beta Coefficient of EBL

Year	Annual (R _j)%	R _j - \bar{R}_j	R _m - \bar{R}_m	(R _j - \bar{R}_j)(R _m - \bar{R}_m)
2002/03	-42.67%	-0.6016	-40.25%	24.2144
2003/04	8.14%	-0.0935	-15.52%	1.4511
2004/05	57.30%	0.3981	2.84%	1.1306
2005/06	30.88%	0.1339	23.56%	3.1547
2006/07	60.80%	0.4331	29.39%	12.7288
				$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 42.6796$

$$\text{COV}(R_j R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{42.6796}{4} = 10.67\%$$

$$S_j = \frac{\text{COV}(R_j R_m)}{\sigma_m^2} = \frac{10.67}{8.2197} = 1.30\%$$

iv. Calculation of Covariance and Beta Coefficient of NIBL

Year	Annual (R _j)%	R _j - \bar{R}_j	R _m - \bar{R}_m	(R _j - \bar{R}_j)(R _m - \bar{R}_m)
2002/03	-33.91%	-0.4233	-40.25%	17.0378
2003/04	8.55%	0.0013	-15.52%	-0.0202
2004/05	20.75%	0.1233	2.84%	0.3502
2005/06	-13.30%	-0.2172	23.56%	-5.1172
2006/07	60%	0.5158	29.39%	15.1594
				$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 27.41$

$$\text{COV}(R_j R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{27.41}{4} = 6.85\%$$

$$S_j = \frac{\text{COV}(R_j R_m)}{\sigma_m^2} = \frac{6.85}{8.2197} = 0.83\%$$

v. Calculation of Covariance and Beta Coefficient of HBL

Year	Annual (R _j)%	R _j - \bar{R}_j	R _m - \bar{R}_m	(R _j - \bar{R}_j)(R _m - \bar{R}_m)
2002/03	-32%	-0.2949	-40.25%	11.8697
2003/04	-13.9%	-0.1139	-15.52%	1.7677
2004/05	0.64%	0.0315	2.84%	0.0895
2005/06	11.90%	0.1441	23.56%	3.3950
2006/07	20.82%	0.2333	29.39%	6.8567
				$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 23.9786$

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{23.9786}{4} = 5.99\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{5.99}{8.2197} = 0.73\%$$

Appendix – 4

i. Calculation of Cov (RA, RB) of Stock A and B

Fiscal Year	$(R_A - \bar{R}_A)^*$	$(R_B - \bar{R}_B)^\#$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2002/03	-0.7017	-0.4358	0.3058
2003/04	-0.1776	-0.1122	0.0199
2004/05	0.2102	-0.0859	-0.0181
2005/06	0.3516	0.1899	0.0668
2006/07	0.3175	0.444	0.1409
		$\sum (R_A - \bar{R}_A)(R_B - \bar{R}_B) = \mathbf{0.5153}$	

$(R_A - \bar{R}_A)^*$ Data of NABIL

$(R_B - \bar{R}_B)^\#$ Data of SCBNL

$$\text{COV}(R_A R_B) = \frac{\left[(R_A - \bar{R}_A)(R_B - \bar{R}_B) \right]}{N-1} = \frac{0.5153}{4} = 0.12883 = 12.88\%$$

ii. Calculation of Cov (RA, RB) of Stock A and B

Fiscal Year	$(R_A - \bar{R}_A)^*$	$(R_B - \bar{R}_B)^\#$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2002/03	-0.6016	-0.4233	0.2547
2003/04	-0.0935	0.0013	-0.0001
2004/05	0.3981	0.1233	0.0491
2005/06	0.1339	-0.2172	-0.0291
2006/07	0.4331	0.5158	0.2234
		$\sum (R_A - \bar{R}_A)(R_B - \bar{R}_B) = \mathbf{0.4980}$	

$(R_A - \bar{R}_A)^*$ Data of EBL

$(R_B - \bar{R}_B)^\#$ Data of NIBL

$$\text{COV}(R_A R_B) = \frac{\left[(R_A - \bar{R}_A)(R_B - \bar{R}_B) \right]}{N-1} = \frac{0.4980}{4} = 0.1245 = 12.45\%$$

Appendix- 5

i. Calculation of Systematic Risk and Unsystematic Risk of NABIL

Year	$R_j - \bar{R}_j$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2002/03	-0.7017	-0.4025	1620.06	28.2434%
2003/04	-0.1776	-0.1552	240.87	2.764%
2004/05	0.2102	0.0284	8.07	0.5970%
2005/06	0.3516	0.2356	555.07	8.2837%
2006/07	0.3175	0.2939	863.77	9.3313%
		$\sum (R_m - \bar{R}_m)^2 = 32.8784$		$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 49.2118\%$

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{49.2118}{4} = 12.30\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{12.30}{8.2197} = 1.50\%$$

$$\text{Variance of Market Return } \text{Var}(R_m) = \frac{\sum (R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196$$

$$\begin{aligned} \text{Systematic Variance} &= \beta_j^2 \text{Var}(R_m) \\ &= (1.50)^2 \times 8.2196 \\ &= 18.49\% \end{aligned}$$

$$\text{Required Rate of Return, } E(R) = R_f + (\bar{R}_m - R_f) \times \beta_j = 3.98 + (5.55 - 3.98) \times 1.50 = 6.34\%$$

ii. Calculation of Systematic Risk and Unsystematic Risk of SCBNL

Year	$R_j - \bar{R}_j$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2002/03	-0.4358	-0.4025	1620.06	17.5410%
2003/04	-0.1122	-0.1552	240.87	1.7413%
2004/05	-0.859	0.0284	8.07	-2.440%
2005/06	0.1899	0.2356	555.07	4.4740%
2006/07	0.444	0.2939	863.77	13.0492%
		$\sum (R_m - \bar{R}_m)^2 = 32.8784$		$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 34.3655\%$

$$\text{COV}(R_j R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{34.3655}{4} = 8.59\%$$

$$S_j = \frac{\text{COV}(R_j R_m)}{\sigma_m^2} = \frac{8.59}{821.97} = 1.05\%$$

$$\text{Variance of Market Return } \text{Var}(R_m) = \frac{\sum (R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196$$

$$\begin{aligned} \text{Systematic Variance} &= \beta_j^2 \text{Var}(R_m) \\ &= (1.05)^2 \times 8.2196 \\ &= 9.06\% \end{aligned}$$

$$\text{Required Rate of Return, } E(R) = R_f + (\bar{R}_m - R_f) \times \beta_j = 3.98 + (5.55 - 3.98) \times 1.04 = 5.61\%$$

iii. Calculation of Systematic Risk and Unsystematic Risk of EBL

Year	$R_j - \bar{R}_j$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2002/03	-0.6016	-0.4025	1620.06	24.2144%
2003/04	-0.0935	-0.1552	240.87	1.4511%
2004/05	0.3981	0.0284	8.07	1.1306%
2005/06	0.1339	0.2356	555.07	3.1547%
2006/07	0.4331	0.2939	863.77	12.7288%
		$\sum (R_m - \bar{R}_m)^2 = 32.8784$		$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 42.6796\%$

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{42.6796}{4} = 10.67\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{10.67}{821.97} = 1.30\%$$

$$\text{Variance of Market Return } \text{Var}(R_m) = \frac{\sum(R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196$$

$$\begin{aligned} \text{Systematic Variance} &= \beta_j^2 \text{Var}(R_m) \\ &= (1.30)^2 \times 8.2196 \\ &= 13.89\% \end{aligned}$$

$$\text{Required Rate of Return, } E(R) = R_f + (\bar{R}_m - R_f) \times \beta_j = 3.98 + (5.55 - 3.98) \times 1.30 = 6.02\%$$

iv. Calculation of Systematic Risk and Unsystematic Risk of NIBL

Year	$R_j - \bar{R}_j$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2002/03	-0.4233	-0.4025	1620.06	17.03.78%
2003/04	0.0013	-0.1552	240.87	-0.0202%
2004/05	0.1233	0.0284	8.07	0.35.02%
2005/06	-0.2172	0.2356	555.07	-5.11.72%
2006/07	0.5158	0.2939	863.77	15.15.94%
		$\sum(R_m - \bar{R}_m)^2 = 32.8784$	$\sum(R_j - \bar{R}_j)(R_m - \bar{R}_m) = 27.41\%$	

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{27.41}{4} = 6.85\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{6.85}{821.97} = 0.833\%$$

$$\text{Variance of Market Return } \text{Var}(R_m) = \frac{\sum (R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196$$

$$\begin{aligned} \text{Systematic Variance} &= \beta_j^2 \text{Var}(R_m) \\ &= (0.833)^2 \times 8.2196 \\ &= 0.57\% \end{aligned}$$

$$\text{Required Rate of Return, } E(R) = R_f + (\bar{R}_m - R_f) \times \beta_j = 3.98 + (5.55 - 3.98) \times 0.83 = 5.28\%$$

v. Calculation of Systematic Risk and Unsystematic Risk of HBL

Year	$R_j - \bar{R}_j$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$	$(R_j - \bar{R}_j)(R_m - \bar{R}_m)$
2002/03	-0.2949	-0.4025	1620.06	11.86.97%
2003/04	-0.1139	-0.1552	240.87	1.7677%
2004/05	0.0315	0.0284	8.07	0.0895%
2005/06	0.1441	0.2356	555.07	3.3950%
2006/07	0.2333	0.2939	863.77	6.8567%
		$\sum (R_m - \bar{R}_m)^2 = 32.8784$	$\sum (R_j - \bar{R}_j)(R_m - \bar{R}_m) = 23.9786\%$	

$$\text{COV}(R_j, R_m) = \frac{[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{N-1} = \frac{23.9786}{4} = 5.99\%$$

$$S_j = \frac{\text{COV}(R_j, R_m)}{\sigma_m^2} = \frac{5.99}{821.97} = 0.7287\%$$

$$\text{Variance of Market Return } \text{Var}(R_m) = \frac{\sum (R_m - \bar{R}_m)^2}{N-1} = \frac{32.8784}{5-1} = 8.2196$$

$$\begin{aligned} \text{Systematic Variance} &= \beta_j^2 \text{Var}(R_m) \\ &= (0.7287)^2 \times 8.2196 \\ &= 4.36\% \end{aligned}$$

$$\text{Required Rate of Return, } E(R) = R_f + (\bar{R}_m - R_f) \times \beta = 3.98 + (5.55 - 3.98) \times 0.73 = 5.13\%$$

Appendix- 6

Fiscal Year	Holding Period Return					Sum of Square				
	NABIL X1	SCBNL X2	EBL X3	NIBL X4	HBL X5	X1 ²	X2 ²	X3 ²	X4 ²	X5 ²
2002/03	-0.4833	-0.2188	-0.4267	-0.3391	-0.32	0.2336	0.0479	0.1821	0.1150	0.1024
2003/04	0.0408	0.1048	0.0814	0.0855	-0.139	0.0017	0.0110	0.0066	0.0073	0.0193
2004/05	0.4286	0.1311	0.5730	0.2075	0.0064	0.1837	0.0172	0.3283	0.0431	0.0000
2005/06	0.57	0.4069	0.3088	-0.1330	0.1190	0.3249	0.1656	0.0954	0.0177	0.0142
2006/07	0.5359	0.6610	0.6080	0.60	0.2082	0.2872	0.4369	0.3697	0.3600	0.0433
Total	1.092	1.085	1.1445	0.4209	-0.1254	1.0310	0.6785	0.9820	0.5430	0.1793

Analysis of Variance for checking Hypothesis

$$\begin{aligned} \text{Grand Total (T)} &= \sum X_1 + \sum X_2 + \sum X_3 + \sum X_4 + \sum X_5 \\ &= 1.092 + 1.085 + 1.1445 + 0.4209 + (-0.1254) \\ &= 3.617 \end{aligned}$$

$$\text{Correlation Factor (C.F.)} = \frac{T^2}{n} = \frac{(3.617)^2}{25} = 0.5233$$

$$\begin{aligned} \text{SST} &= \sum X_1^2 + \sum X_2^2 + \sum X_3^2 + \sum X_4^2 + \sum X_5^2 - \text{C.F.} \\ &= 1.0310 + 0.6785 + 0.9820 + 0.5430 + 0.1793 - 0.5233 \\ &= 2.8905 \end{aligned}$$

$$\text{SSC} = \frac{(\sum X_1)^2}{n} + \frac{(\sum X_2)^2}{n} + \frac{(\sum X_3)^2}{n} + \frac{(\sum X_4)^2}{n} + \frac{(\sum X_5)^2}{n}$$

$$\begin{aligned} &1.092 + 1.085 + 1.1445 + 0.4209 + (-0.1254) \\ &= \frac{(1.092)^2}{5} + \frac{(1.085)^2}{5} + \frac{(1.1445)^2}{5} + \frac{(0.4209)^2}{5} + \frac{(-0.1254)^2}{5} - 0.5233 \end{aligned}$$

$$\begin{aligned} &= 0.2385 + 0.2354 + 0.2620 + 0.0354 + 0.0032 - 0.5233 \\ &= 0.2512 \end{aligned}$$

$$\begin{aligned} \text{SSE} &= \text{SST} - \text{SSC} \\ &= 2.8905 - 0.2512 = 2.6392 \end{aligned}$$