

**RISK AND RETURN ANALYSIS ON COMMON STOCK INVESTMENT**  
(An Analysis of Listed Commercial Banks)



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## **RECOMMENDATION**

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## **DECLARATION**

I hereby declare that the work reported in this thesis entitled "**RISK AND RETURN ANALYSIS ON COMMON STOCK INVESTMENT**" of listed commercial banks of Nepal submitted to office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the master's Degree in Business Studies (MBS) under the supervision of Associate Professor **Dr. Shilu Manadhar Bajracharya** of Shankar Dev Campus.

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## List of Acronyms

ANOVA	:	Analysis of Variance
BOAN	:	Bank of Asia Nepal Ltd
BOKL	:	Bank of Kathmandu Ltd
BS	:	Bikram Sambat
CAPM	:	Capital Assets Pricing Model
CV	:	Coefficient of Variance
CZBIL	:	Citizens Bank International Ltd
DCBL	:	DCBL Bank
EBL	:	Everest Bank Ltd
ERR	:	Expected Rate of Return
GBL	:	Global Bank Ltd
HBL	:	Himalayan Bank Ltd.
JVB	:	Joint Venture Bank
KBL	:	Kumari Bank Ltd
KMBF	:	KIST Bank Ltd
LBL	:	Laxmi Bank Ltd.
LUBL	:	Lumbini Bank Ltd.
MBL	:	Machhachapuchhre Bank Ltd
MBS	:	Master of Business Studies
NABIL	:	Nabil Bank Ltd.
NBB	:	Nepal Bangladesh Bank Ltd.
NCCB	:	Nepal Credit & Com. Bank
NEPSE	:	Nepal Stock Exchange
NGO	:	Non – Government Organization
NIB	:	Nepal Investment Bank Ltd.
NICB	:	Nepal Industrial & Co. Bank Ltd.
NIDC	:	Nepal Industrial Development Corporation
NMBF	:	NMB Bank Ltd
NRB	:	Nepal Rastra Bank
RFR	:	Risk Free Rate
RRR	:	Require Rate of Return
SBI	:	Nepal SBI Bank Ltd.
SBL	:	Siddhartha Bank Ltd
SCB	:	Standard Chartered Bank Ltd.
SD	:	Standard Deviation
SEBO	:	Security Board
SML	:	Security Market Line
SSB	:	Sum of Squares between Samples
SSW	:	Sum of Squares within Samples
TSS	:	Total Sum of Squares
TU	:	Tribhuvan University
UNDP	:	United Nation Development Program
WB	:	World Bank



# CHAPTER – I

## *INTRODUCTION*

### **1.1 Background of the Study**

Nepal is one of the least developed countries in the world. More than 80 percent of total population is still in the rural areas and most of them are deprived from the minimum basic requirement of human livelihood. Most of the youths of rural areas, considered backbone for development, are going overseas for employment because of hard life, lack of opportunities, poor facilities and infrastructure, lack of skill based education and minimal or no role of government in the rural areas.

Nepal is in the bottom rung of low – income group countries in the world as per World Bank recent report. Half of the populations are still living below poverty and struggling to fulfill their basic needs. There is varied in percentage of people living in poverty in reports published by different sectors, it is believed that it is more than 30 percent.

To uplift the living standard of Nepalese people from this dire situation is necessary to maintain high economic growth in the country. Nepal is suffering from political instability, insecurity, mismanagement, lawlessness, theft etc. Political leaders and parties are dividing and unable to build of common consensus. No end is visible and frustration mounting after the election of constituent assembly in 2008. For the growth of the economy it is necessary to develop the financial sector and business enterprises. These are the foundation pillar of the overall development of the country.

In today's world, where most of the managerial decision is based on financial analysis, stock market as important part of finance and it expected to develop the country's financial sector.

Financial analysis covers the acquisition, utilization, control and administration of the fund. In a capitalistic economy, expansion of stock market represents the development of a country's financial sector and speed of the nation's economic growth.

In recent years due to the number of factors individual, business organization, government and institutions have rarely a balanced budget. Some of them always earn more than what they consume and other earns less than what they consume. Thus, there is no equilibrium in income and expenditure. Similarly, the people have different perceptions towards risk-return and the individual enterprising ability. This disequilibrium in income and expenditure in the one hand and perception towards risk taking and enterprising ability on the other necessitated a mechanism to transfer financial resources from one unit to other of the society. The advents of security markets have successfully served this purpose of fund transfer from one unit to other.

Security markets bring buyers and sellers of securities in one place. Stock markets have both opportunities and threats. To squeeze the opportunities and be safe from seen and unseen threats, it's important to have well-informed knowledge of securities market and its activities and mechanism.

To promote and protect the interest of investor by regulating the securities market, Security Exchange Board Nepal (SEBO) was established in May, 1993 (Jestha, 2050). It has the responsibility to develop the security markets in Nepal.

SEBO's general objectives and functional responsibilities are as follows;

1. To promote and protect the interest of investor regulating the issuance, sale and distribution of securities and purchase, sale and exchange of securities.
2. To supervise, look after and monitor the activities of the stock exchange and of other related firms carrying securities business.
3. To provide contribution to the development of capital market by making securities transactions fair, healthy, efficient and responsible.

As a developing regulator of the capital market, SEBO is basically relying on government's financial assistance in order to move towards a self-funded institution. It has created a revolving fund from which it generates income that helps to cover part of its operating expenses. Registration of corporate securities, renewal of license of stock exchange and registration as well as renewal of the license of market intermediaries are the other sources of income.

NEPSE is the only stock exchange in the country. It is owned by the government, Nepal Rasta Bank (The Central Bank) and Nepal Industrial Development Corporation (NIDC). There is small portion of ownership holding of its member. Securities business persons such as stockbrokers, market makers and securities dealer should registered in SEBO and must get membership from the stock exchange to conduct securities business. Similarly, the issuance activities also have to get registration in stock exchange for the transaction in market.

Risk plays a central role in investment analysis. Investors often as about the total risk they will be assuming in an investment and like to know if the risk premium provided as enough. But, they are also concerned about many other issues. First of all, it is necessary to see if the total risk associated with a single asset is relevant for them. Second, they need to know the actual contribution of an asset's risk to portfolio risk. Financial market refers to money market and capital market. Money market may be defined as short – term financial assets market, which facilitates liquidity and marketability of securities. It includes the market for debt instrument having maturity of less than one year. The functions of money market interest rates reflecting the demand and supply of funds in the competitive market. The instruments used in money market are treasury bills, negotiable certificate of deposit, municipal bonds, baker acceptance etc.

In Nepalese context, some financial institutions have been involved in capital market. They are Nepal Rastra Bank, Commercial Banks, Agricultural Development Bank, Nepal Industrial Development Corporation, Employees Provident Fund, Citizen Investment Trust, Finance, Development Banks, Cooperatives Agencies, Non – government Organization (NGO'S) and some hotels manufacturing and trading agencies etc.

These institutions play a vital role for the development of capital market. Like money market, Nepalese capital markets are also classified in organized and un-organized sectors. Government agencies and other institutions, which are already mentioned above categorized in organized sectors, they provide long term fund for the development of the agriculture, industrial and commercial sectors by investing in stock, debenture and government bonds individual investor, merchants and private sectors also helps for the development of capital markets. Rural areas are still dominated by unorganized sectors. It implies that mass poverty and exploitation form higher classes are still found in these areas.

Common stocks are easier to describe but hard to analysis. Common stock represents equity or ownership position in a corporation. Hence, common stock is known as risky security. It is regarded as most expensive form of long term financing. This is because dividends are not far deductible and it is risky security. Investing is a process of making decision today whose result will not be known until tomorrow. The motivation for investment in stock market is desired to increase the wealth.

Generally, investment is risk. The assets having great returns with the least amount of risk, investor must try to identify the securities having low risk with high return. One way in which investor can reduce the risk is by spreading their capital across a range of investment. This is the principle of diversification of not putting the eggs in one basket. Diversification involves constructing the investor's portfolio in such a manner that risk is minimized.

Banks are one of the major players in the economic growth of the country and hence it needs proper attention to run successfully. Banks should be established and conducted after analyzing the various factors.

Normally banks plays at public money that is why people pay their attention whether their money is properly utilized or not and running at profit or loss. The existence of profit to any business firm is the basic factor if there is no profit a business firm becomes unable to provide its facilities in the long run.

Though the various types of banks are in the market, only the commercial banks are taken for the purpose of this study. They are the hearts of the modern financial system.

In Nepal, organized banking system is a relatively recent phenomenon. The process was started by established of Nepal Bank Ltd. in 1994 B.S. This is the first financial institution of the nation. Rastriya Banijya Bank founded in 2022B.S. followed by many other joint venture banks (JVBS).

JVBS were established after 2040 B.S. In 2041 B.S. the first Joint Venture Banks (JVBS) under the name of Nepal Arab Bank Limited (NABIL) was incorporated. In 2043 B.S. the second JVBS "Nepal Indosuez Bank Ltd now known as Nepal Investment Bank (NIBL)" was established. In the same year, Nepal Grindlay's Bank Ltd (now Standard Chartered Bank Ltd) in the form of JVB was also established. But more JVBS were come to existence when government adopted the policy of economic liberalization and privatization in 2049B.S. They are Himalayan Bank Ltd. (2049), Nepal SBI Bank Ltd (2050), Nepal Bangladesh Bank Ltd (2051), Everest Bank Ltd (2051) and Bank of Katmandu (2052). These JVBS came into existence to accelerate the pace of economic development and financial system of the nation.

## **1.2 Focus of the Study**

Financial analysis is a key mechanism to take managerial decision. Financial analysis is a combination of investment, financing and dividend. All investors invest their fund to get more return but lack of knowledge they incurred loss. Investor must consider all related factors before making an investment. This study will primarily focus on analyzing risk and return on common stock of randomly selected sample from commercial banks.

## **1.3 Statement of the Problem**

In comparison to the development and growth of capital market the investors' attitude and knowledge does not seem to have changed significantly. They do not have sufficient knowledge about risk and return. There are no separate institutions to provide required information to make rational decision and on the other hand lacks of proper policy discourage the investors.

Investors need to have proper knowledge about investment opportunities. They must be able to analyze the associated risk and return of individual stock. This will help to increase market efficiency. The investor must need to tactfully design his investment and financing activities in a manner to maximize the market values of shares. There are no specific sources to predict and get information about the future risk and return in securities of particular company in Nepal. The concept of portfolio investment should be known and exercise by the Nepalese investor, which helps them to minimize the risks in investment.

In Nepal, the major hindrance for the market efficiency is due to lack of skills, knowledge, resources and lack of technology requires to analyze of risk and return of individual and portfolio stock.

The researcher has envisioned the following as research problems for the study;

- What is the compensation of risk bearing?
- How to know about the magnitude of risk?
- What are the basic criteria for evaluating favorable returns from the stocks holding?

## 1.4 Objective of the Study

The main objective of this study is to analyze risk and returns in common stock investment of selected commercial banks.

The objectives of study are as follows;

- To estimate risk and return of a common stock and their portfolio.
- To analyze risk and return relationship of individual stock with that of market.
- To examine risk and return in common stock of listed commercial.
- To provide information to the investors on investing in stocks.

## 1.5 Significance of the Study

Generally the public companies obtain funds from the public investors through financial market. The long run objective of every company is to maximize shareholders wealth, where as the investors seek to get good returns from their investment.

In context of Nepal, there is lack of wider investment opportunities that provides good rate of return. So, there has been huge amount of unutilized saving funds with general public. Increasing trend of MPS of public companies, mainly Joint Venture Commercial Bank attracts the investors. Therefore they are investing their saving funds in common stock of public companies with the expectation of higher yield. But, there is lack of awareness and limited knowledge about the actual financial conditions of the companies and degree of risk involved in their investment.

Further, this research will attempt to clarify concrete pictures of different aspect of risk and return, which will be beneficial to the investors for taking right investment decision.

This study is not only to fulfill the requirement of Master of Business Studies course at T.U., but also to provide more knowledge about the Nepalese stock market developments aware the general public about the associated risk in stocks and encourage them to invest profitable stocks.

## 1.6 Statement of Hypothesis

To get inference of the study the following hypotheses will be tested.

**Null Hypothesis ( $H_0$ ):** There is no significance difference between average return of common stock of listed commercial banks and the market return.

**Alternative Hypothesis ( $H_1$ ):** There is significance difference between average return of common stock of listed commercial banks and the market return.

## **1.7 Limitations of the Study**

The following are some limitations of the study.

- It only covers five years data.
- This study will confine to five commercial banks only.
- This study focuses only on analysis of risk and return of stock excludes other components.
- The secondary data will be used for the study.
- The study focuses on the quantitative aspect of stocks only, won't study the qualitative aspects.
- Some degree of differences found in the data from NEPSE and sample companies.

## **1.8 Chapter Scheme**

This study has been broadly divided into five chapters, which are as follows.

### **Chapter-1 Introduction**

It includes background of the study, statement of the problem, objective of the study, significance of the study, hypothesis of the study and limitation of the study.

### **Chapter-2 Review of Literature**

It consists of the review of literature, conceptual framework and review of related journals, books and previous studies relevant to study.

### **Chapter -3 Research methodology**

It comprises research design, population and sample, source of data, data collection procedure, analytical tools, description, comparison and so on.

### **Chapter – 4 Data Presentation and Analysis**

This chapter attempts to analyze and evaluate the data with help of analytical tools and interpret the result.

### **Chapter –5 Summary, Conclusion and Recommendation**

It sums up the results obtained through analysis and provide reasonable recommendation as per the result of the study.

## **CHAPTER – II**

### ***REVIEW OF LITERATURE***

This study is focused on common stock investment and its impact on risk and return. Theoretical aspect of risk and return is explored in this chapter. The main objective of reviewing the literature is to develop some understanding in the research area, to see what extra contribution can be made and to achieve some ideas for developing a research design. In this part, previous studies related with this field are reviewed as valuable foundation for current study and it is simply the summary and paraphrase of the previous study. This chapter reviews some basic academic course books, journals and other related studies.

#### **2.1 Conceptual Framework**

The center point of this study is risk and return analysis on common stock investment of some commercial banks. This section reviews the meaning and definitions of different concepts and terms used in this study.

##### **2.1.1 Common Stock**

Common stock is an ownership security. It is a source of long term financing. The common stock certificates are legal documents that give an evidence of ownership in a company that is organized as a corporation. Common stocks are marketable financial instruments. Sole proprietorships and partnerships are other forms of business organizations, but only corporations can issue common stock.

When investors buy common stock, they receive certificate of ownership as a proof of there being part owners of the company. The certificate states the number of share purchased and their par value. Common stock is the first security of corporation to be issued and, in the event of bankruptcy, the last to be reimbursed. Each share of stock is fractions of the rights and privilege that belongs to the owners of a business.

Stockholders return on investment is less certain than the return to lender or a preferred stockholder. On the other hand the common stock can be authorized with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the differences between par price they paid and the par value. (Van Horne, pg.560, 1990)

The main characteristics of common stock are as follows:

**a) Priority to assets and earnings**

Common Stocks holders have a residual claim on the earnings and assets of their corporation.

**b) Par value stock no par value stock**

Owners of common stock in a corporation are referred to as shareholders or stockholders. They receive stock certificates for the shares they own. There is often a stated value on each stock certificate called the par value. The par value of each share of most common stock in Nepal is NRs.100.

**c) Authorized, issued and outstanding shares**

The corporate charter of a company specifies the number of authorized shares of common stock that the company can issue maximum without amending its charter.

**d) Voting rights**

The common shareholder's right to vote in the affairs of the company. In most of the common stock each shareholder casts one vote in one share. A proxy is a temporary transfer of the right to vote.

**e) Maturity**

The capital obtained from this source is called as fixed capital. This cannot be redeemed in the mid life of the organization.

**f) Capital in excess of par value**

Capital in excess of par value often called capital surplus or additional paid in capital usually refers to the amounts directly contributed to equity capital in excess of the par value.

**g) Retained earnings**

Retained earnings are the balance sheet account that indicates the total amount of earnings that is retained in the business. These earnings have been reinvested in the firm.

**h) The book value per share**

The book value of each common stock is equal to the net worth or common equity ( common stock holder's equity ), consisting of sum of common stock, retained earnings, and paid in capital, divided by the number of shares of common stock outstanding.

**i) Stock certificate**

Stock certificate is usually registered with the name, address and holding of the investor included on the corporation books, which represented the ownership of a firm's stock.

**j) Ownership rights**

Common stockholders are owners of the firm they often have voting right that permits them to select the firm's director and to vote on special issue.



**As owners, Common Stockholders are entitled to following rights and privileges.**

**a) Control**

Common Stock has voting rights that can be used corporate directors who, in turn appoint the corporate officers.

**b) Preemptive Rights**

Preemptive rights give existing shareholders the first options to purchase a proportionate interest in a new issue of a corporation stock. The purpose of this provision is to protect stockholder against a loss of voting, control and dilution in the value of their shares. The preemptive right is usually satisfied but the use of right offering.

**c) Liquidation Rights**

As owners rather than creditors, common stockholders receive no priority in the distribution of assets resulting from liquidation of a corporation. Typically, Common stock holders will be paid little at last if surplus after satisfying third parties liabilities and preferred stockholders.

**d) Rights to income distribution of additional shares**

Common stockholders have no legal rights to receive income distribution from the corporation. As a practical matter, however, the board of directors may declare cash and stock dividends to the stockholders, provided the financial resources are available, even for periods when the corporation has experienced a loss.

**2.1.2 Return**

Return is the reward for uncertainty of risk. The concept of return has different meaning to different investor. Return is the main attraction for investors to invest in risky securities as stock accepting a varying degree of risk tolerance. Return is the total gain or loss experienced on investment over a given period of time.

Some investors seek immediate cash inflows and give less value to long term return such investor might purchase the stock of such firms that pays large cash dividends .Other investors are concerned primarily with growth of sales, earning and capital appreciation.

When people buy common stock they give up current consumption in the hope of attaining future consumption. They expect to collect dividend and eventually sell the stock at a profit. "The benefit associated includes the cash dividends paid during the year together with an appreciation in market price, or capital gain realized at the end of the year. Returns are defined as the dividend yields plus the capital gain or loss. The relationship between levels of return on their relative frequencies is called probability distribution. It can formulate a probability distribution for the relative frequency of a firm annual return by analyzing its historical return over the previous year. But history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for individual company, it can form a probability distribution based on historical data plus the analysis for the outlook for the economy, the outlook for the industry and the outlook for the firm in its industry and another factors.

The after tax increase in the value of the initial investment is the investment return, the increase in value can come from two source: a direct cash payment to the investor or an increase in market value of the investment relative to the original purchase price. An investment single period rate of return denoted 'r' is simply the total return an investor would receive during the investment period or holding period stated as a percentage of the investments price at the start of the holding period.

$$R = \frac{(P_t - P_0) + D_t}{P_0}$$

Where,

R = Single period rate of return

P<sub>t</sub> = Market price at the end of period 't'

P<sub>0</sub> = Current market price at purchase price

D<sub>t</sub> = Cash dividend received during the period 't'

(P<sub>t</sub>-P<sub>0</sub>) = Income from price appreciation (or losses from depreciation) sometimes called capital gain (or losses).

Above formula can be used to determine both actual single period return as well as expected return. Holding period's returns are often calculated for periods other than one year. Many holding periods returns over periods shorter or longer than year are annualized. In general, if the length of the holding period is not specified, it is assumed to be one year.

### 2.1.3 Risk on Common Stock

Risk is defined in Webster's Dictionary as a hazard; a peril: exposure or loss or injury. Thus, for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stocks for really, any stock, you are taking a risk in the hope of making an appreciable return.

Risk is the uncertainty associated with the end – of –period value of an investment. Risk is the possibility or chance of meeting danger or suffering loss. Uncertainties and risks are the facts of life to the common stock holders. Uncertainty and risk is perceived by different people in different ways. Some perceived uncertainty as simply a lack of defines outcomes. It is anything that could happen at any time, which may be favorable or unfavorable. Other people consider risk as a chance of happening some unfavorable event or danger of losing some value. The terminology uncertainty and risk are often used interchangeably.

Although it is not quite clear what previously uncertainty and risk means. Authorities in the fields of finance and people concern about finance do agree that risk is the product of uncertainty. If we interpret uncertainty as a future outcome which is hundred percent sure to happen, uncertainty is then just the opposite of certainty that refers to all possible future outcomes none of which is known for sure to happen. Risk in the other hand is the product of all potential outcomes expressed with probability associated with each of them and it is measured in terms of the degree of variability in the probability distribution of such outcome. Risk defines most generally is the probability of the occurrence of unfavorable outcomes. But risk has different meanings on the different context.

In our context, two - measure development from the probability distribution have been used as initial measures of return and risk. There are the mean and the standard deviation of the provability distribution.

The standard deviations can sometimes mislead in comparing the risk on uncertainty, surrounding alternative of they differ size. To adjust the size, or scale, problem, that standard deviation can be divided by the expected return computed the co-efficient of variation (C. V.). Thus the coefficient of variation measures relatives' dispersion.

Uncertainty and risk are treated separately in financial analysis. The practice is to translate the uncertainty into the mathematical value, which represents the best estimate of all uncertainty, is taken care by calculating the expected value of all possible uncertain outcomes. But risk is treated differently. Although risk arises form uncertainty it magnitude depends upon the degree of variability in the uncertain cash flows, and it is measured in terms of standard deviation.

### **Source of Investment Risk**

Every investment has uncertainties. Uncertainties make future investment returns risky. The sources of uncertainty that contribute to investment risk are as follows:

#### **a. Interest rate risk**

It is the potential variability of return caused by changes in the market interest rates. If market interest rates rise, then, investments values and market prices will fall, and vice versa. The variability of return that results is interest risk. This interest affects the prices of bonds, stocks etc.

#### **b. Purchasing power risk**

It is the variability of return an investor suffers because of inflation. Inflation (or a rise in general prices over time) seems to be the normal way of life in most countries today. However, when inflation takes place, financial assets, (such as cash, stocks and bonds) may lose their ability to command the same amount of real goods and services they did in the past. To put this way, the real rate of return or financial assets may not adequately compensate the holder of financial assets for inflation.

#### **c. Bull – Bear material risk**

This risk arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index arises fairly consistently from a low point, called a trough, for a period of time, this upwards trend is called bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period of during which the market declines to the next through is called bear market.

#### **d. Default risk**

It is the portion of an investment's total risk that results from changes in the financial integrity of the investment.

**e. Liquidity risk**

It is the portion of an asset's total variability of return that results from price discounts given or sales commission paid in order to sell the assets without delay. Perfectly liquid assets are highly marketable and suffer no liquidation costs. Non-liquid assets are not readily marketable either price discounts must be given or sales commissions must be paid, or both of these costs must be incurred by the seller.

**f. Call ability risk**

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. 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.

**g. Convertibility risk**

Convertibility risk is that portion of the total variability of return from a convertible bond or a convertible preferred stock.

**h. Political risk**

The portion of an asset's total variability of return caused by changes in the political environment (eg. a new tax law) that affects the asset's market value is called political risk.

**i. Industry risk**

An industry is a group of companies that compete with each other to market a homogenous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms which make up an industry.

**2.1.4 Investment**

An investment involves the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and is certain. The reward comes later and is uncertain. Investment generally involves real assets or financial assets. Real assets are tangible, material things such as buildings, machinery, factories and textbooks.

Financial assets are pieces of paper representing an indirect claim to real assets held by someone else, real assets are generally less liquid than financial assets. Returns to real assets are frequently more difficult to measure accurately. But our principal concern is with financial assets. Investment is an exchange of financial claim stocks and bonds etc. investment is the employment of funds with the aim of achieving additional 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 future. Investment involves long – term commitment and waiting for a reward.

There are basically following concepts of investments

1. Economic investment – that is, an economist's definition of investment.
2. Investment in a general or extended sense, which is used by "the man of the street"

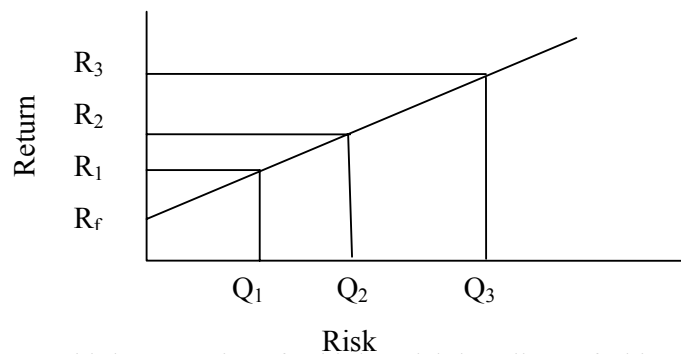
The sense in which it is going to be varying much interested namely financial investment.

### 2.1.5 Relationship between Risk and Return

Investors are generally risk averse. This implies that risky investment must offer higher expected return than less risky investment in order to make the people buy and hold them. The risk aversion attitude of investors portfolio theory was developed and being very important subject in the field of finance. Any individual investment may differ substantially from the adverse risk and return statistics. That is why it is prudent to investigate any assets before investing.

The relationship between the risk and return is described by investors' perception about risk and their demand for compensation. No investors will like to invest in risky assets unless he is assured of adequate compensation for the assumption of risk. Therefore it is the investors required risk premiums that establish a link between risk and return. In a market dominated by rational investor higher risk will command by rational premium and the trade- off between the two assumptions, a linear relationship between risk and risk premium. The observe difference in both the levels and variability of the rates of return across securities are indicative of the underlying risk return relation in the market.

**Figure 2.1 Relationship between risk and return**



The figure represents a higher premium for higher risk in a linear fashion indicating a premium of  $(R_1 - R_f)$  for  $Q_1$  degree of risk  $(R_2 - R_1)$  for  $Q_2$  degree of risk and so on. The assumption of linear relationship states the risk premium increases in decrease in proportion to change in level of risk.  $R_f$  stands for return on risk free security. The partial interest is the difference in rates of return across securities, since they provide valuable clues to the market's trade- off between risks and return scientific progress in any field depends on accrued measurement. Many measurement are interesting in them, by their most important scientific role is to test the validity of theory. Since most financial theory is focused on an explanation of the level, structure and behavior of rates of return, their accurate measurement is essential if the theory is to be tested and improved.

Rational investors would agree that an investment's required return should increase as the risk of investment increase. Most investors would also agree how the expected rate of return should be calculated. But, when the discussion turns to risk the debate begins.

### 2.1.6 Portfolio Analysis

Portfolios of assets usually offer the advantage of reducing risk through diversification. A portfolio is a combination of investment assets. The portfolio is the holding of securities and investment in financial assets i.e. bond, stock. Portfolio management is related to the efficient portfolio investment in financial assets.

A portfolio is defined as a combination of assets. Portfolio theory deals with the selection of optimal portfolios; that is a portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Since portfolio theory has been developed most thoroughly for financial assets – stocks and bonds. However, extensions of financial assets portfolio theory to physical assets are readily made and centrality the concepts are relevant in capital budgeting.

The rate of return on portfolio is always a weighted average of the returns of the individual securities in the portfolio. A fundamental aspect of portfolio theory is the idea that the riskiness inherent in any single assets held in a portfolio analysis is performed to develop a portfolio that has the maximum return whatever level of risk an investor thinks appropriate. If portfolio is being constructed they can reduce unsystematic risk without losing consideration return. Therefore, we need to extend our analysis of risk and return to portfolio position. Portfolio theory, originally proposed by Harry M. Markowitz is based on the assumption that the utility of the investor is a function of two factors: mean return and variance or its square root, the standard deviation of return. Hence it is also referred as the mean variance portfolio theory or two- parameter portfolio theory (Chandra, 1994).

There influences reduce portfolio risk in relation to the standard deviation of individual securities in isolation:

- Extend to which the correlation between the returns from the individual securities is less than one,
- Number of the securities in the portfolio, and
- Proportion or weights of the individual securities in the portfolio in relation to their correlation among one another.

### 2.1.7 Capital Assets Pricing Model

CAPM is a model that describes the relationship between risk and expected return in this model, a security's expected return is the risk free rate plus a premium based on the systematic risk of the security. The SML equation as suggested for the computation of expected rate of return on common stock. This model is a under:

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

Where,

$K_r$  = required rate of Return or Equilibrium rate of return for stock j.

$R_f$  = Risk free rate of return

$E(R_m)$  = Expected Return for the Market Portfolio

$\beta_j$  = An index of systematic risk of stock j

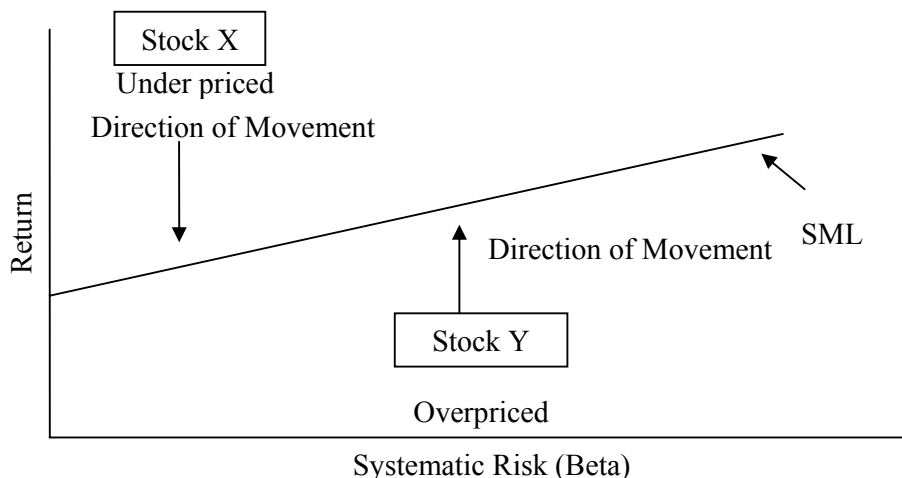
It means the sensitivity of stock's returns. It changes in returns on the market portfolio. The beta of portfolio is simply a weighted average of the individual stock beta in the portfolio.

If beta is 1 (one) then required return is simply the average return for all situations that is the return on market portfolio: otherwise, the higher the beta, higher the premium and the total return required. A relatively high beta does not however, guarantee a relatively high return. The actual return depends partly on the behavior of the market, when acts as a proxy for general economic factors.

Premium is the amount of return that investors demand for holding a risky security such as stock. A financial economist, William Sharp is one of the creators of the "Capital Assets Pricing Model ", a theory which began a quest to identify the tendency portfolio. In fact of the CAPM as it called is very useful tool. It has been taken as a prescription for the investment portfolio, as well as a tool for estimating an expected rate of return. Comparisons between the expected rates of return and require rate of return can analyze the stock to be under priced and over priced. And when these two returns are equal than it is said to be market equilibrium i.e. all stocks lie on the security market line (SML). The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return. The security market line clearly shows that return A is the increasing function risk. Furthermore it is only market risk that affects return. The investor receives no added return for bearing diversifiable risk.

Stocks that are overpriced lie below the SML and if the stocks are under priced then it lies above the SML diagram 2.2 shows the security market with overpriced and under priced stocks.

**Figure 2.2 under –priced and overpriced stocks during Temporary Market Disequilibria**



Above diagram clarifies that stock X being under priced, its expected rate of return is greater than required rate of return. And stock Y is expected to provide lower return than the required or expected rate to compensate the systematic risk. Investors seek the opportunities to invest in stock X for superior return.

"Investing in stock X should rush to buy it. This action could drive the price up and the Expected return down. How long would this continue? It would continue until the market line. In the case of stock Y investor holding this stock would sell it recognizing that they could obtain a larger return for the same amount of systematic risk with other stocks. Thus selling pressure would drive Y's market price down and its expected return up until the expected return was on the SML.

Few people quarrel with the idea that the investors require some extra return for taking risk. That is why common stocks require higher return than government Treasury bill (which is assumed to be risk free, because of taxing power the governments enjoy). No one would want to invest in risky common stock if they offered only the same expected return as bills.

Investors do appear to be concerned principally with the risk that they can not eliminate by diversification. If this were not so, we find that stocks increase whenever two companies merge to spread their risk, and we should find that investment companies which invest in share of other firm are more highly valued than the shares they hold. But we don't observe either phenomenon. A merger undertaken just to spread risk doesn't increase stock prices and investment companies are no more highly valued than the stock held.

The capital assets pricing model capture these ideas in a simple way. That is why many financial managers find it the most convenient tool for coming to the decision with the slippery motion of risk. And this is why economists often use the CAPM to demonstrate important ideas in finance even when there are otherwise to prove these ideas. But this does not mean the CAPM is ultimate truth.

## **2.2 Review of Related Studies**

Various researchers have analyzed the class of stochastic volatility diffusions for assets returns to encompass poison jumps of time varying intensity. Any reasonably descriptive continuous – time index returns must allow for discrete jumps as well as stochastic volatility with a pronounced negative relationship between return and volatility innovations. They also tend that dominant empirical characteristics of the return process appear to be priced by the option market. Their analysis indicates a general correspondence between the evidence extracted from daily equity and the stylized features of the corresponding options market prices.

They conclude that much assets and derivative pricing theory is based on diffusions models for primary securities. Yet, there are very few estimates of satisfactory continuous time models for equity returns. The objectives of the paper is to identify a class of jump - diffusions that are successful in approximating the S&P 500 returns dynamics and therefore should constitute an adequate basis for continuous time assets pricing applications. They also explore alternative models both within and outside of the popular fine class. Estimation is performed by careful implementation of the



EMM that provides powerful model diagnostic and specification tests. Finally, they explore the relationship between their estimated models and option prices. They contrast those of their parameter estimated that are invariant to adjustments for volatility a hump risk to those reported in the option literature, and provide a qualitative comparison of the pricing implications of their estimate system and the stylized evidence from actual option data.

They find that every variant of their stochastic volatility diffusions without jumps fails to jointly accommodate the prominent characteristics of the daily S&P 500 returns. Further, ever specification that does not incorporate a strong negative correlation between return innovations and diffusions volatility fails as well. In contrast, two versions of our SVJDS that incorporate discrete jumps and stochastic volatility, with return innovations and diffusion volatility strongly and negatively correlated, accommodate the main features of the daily S&P 500 returns. This is true not only of the models estimated union sub samples. The models therefore appear to get structurally stable. Finally, they find that those parameter estimates that ate invariant to adjust mints for volatility and jump risk generally are similar to those reported in the option literature and they documented that small risk premium suffice to produce pronounced patterns in Black and Scholes option implied volatilities markets. Thus, the main characteristics of the stock price process by option data independently identified as highly significant components of the underlying S and P 500 returns dynamics (Tobern G. Anderson, Luca Benzoni and Jesper Lund, 2002).

The return factors in emerging markets are qualitatively similarly to these in developed markets. Small stocks outperform growth stocks and emerging markets stocks exhibit momentum. There is no evidence that local market beats are associated with average returns. A Bayesian analysis or premiums in developed and emerging markets shows that, unless one has strong prior beliefs to the contrary, the empirical evidence favors the 4 hypothesis that size, momentum and value strategies are compensated the relationship between expected returns and share turnover, and examines the turnover characteristics of the local returns factors portfolios. There is no evidence of a relation between expected return and turnover, in emerging markets. However, beta, size momentum, and value are positively cross sectional correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity (Rouwenhourst K. Greet, 1999)

For the sake of simplicity, the return on the security could be regarded as being linearly related to a single index like the market index. Theoretically, the market index should consist of all the securities trading on the market. However, a popular average can be treated as a surrogate for the market index. Acceptance of idea of a market index, Sharpe argued, would obviate the need for calculating thousand of co-variances between individual securities, because any movement in securities could be attributed to movements in a single underlying factor being measured by the index. The simplification of the Markowitz model has come to be known as the market model or simple model index (SIM).

The desirability of any securities is directly related to its excess return to beta ratio. Where average return is the expected return on the securities, risk less rate of interest is the return on a risk less asset, the beta is the expected change in the rate of return on security associated with a one percent change in the market return. If securities are ranked by excess return to beta from highest to lowest, the ranking represents the desirability of any securities inclusion in a portfolio. The number of securities selected depends on a unique cut off rate such that all securities with higher ratio of excess return will be included and all securities with lower rate excluded. (Bhalla, V. K., 2004)

## **2.3 Review of Thesis**

Lila Nath Pandey (2003) in his study "**A study on Risk and Return Analysis of Common Stock Investment**" concluded that without proper analysis of individual security, industry and overall market, it is almost impossible to beat the stock market. From his analysis, Kathmandu Finance Ltd. seems undoubtedly the best for investment from the viewpoint of expected return and coefficient of variation and Citizen Investment Trust has a lesser beta coefficient from the viewpoint of market sensitivity.

JB Sapkota (2004) in his study "**Risk and Return Analysis in Common Stock Investment**" concluded that banking industry is the biggest one in terms of market capitalization and turnover. He has performed an analysis of risk and return on common stock investment with special reference to banking industry. The study is focused on common stock of commercial banks. The main objective of the study is to analyze the risk and return of the common stocks in Nepalese stock market.

SK Mishra (2002) in his study "**Risk and Return on Common Stock Investment of Commercial Banks in Nepal**" concluded that the relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risky assets unless s/he is assured of adequate compensation for the acceptance of risk. He further concluded that banking sector is the best for the investment in common stock.

The researcher found a couple of studies in the area and these studies are more helpful to build the basic concept regarding common stock investment. However, it was noticed that they are diverted from the factual study and most of them drawn subjective conclusions rather than giving factual insights. They were more focused on the risk and returns of individual bank. The researcher in this study tries to analyze the risk and return of individual bank as well as make comparison with overall market return. Researcher also tries to analyze and find out the portfolio investment benefit among selected commercial banks and give insight on portfolio investment risk and return from portfolio investment. Researcher further attempts to find whether the market price of selected commercial banks at NEPSE is under priced or overpriced. Researcher analyses six years data for more concrete results.

## CHAPTER – III

### RESEARCH METHODOLOGY

Research methodology is also the major part of the thesis. It describes the method and process applied in the entire aspect of the study. Research methodology concerns to data collection procedures, focus of data, tabulation and processing of the data and analysis method. It is composed of both technical and logical aspect. Detail research methods are explained in the following way.

#### 3.1 Research Design

The study is based on descriptive and analytical research design. The study is concern on recent historical data, which is based on recent historical data and covers six years periods. It deals with the common stocks of the commercial banks on the basis of available information. The main objective of this study is to find out how the returns can be maximized in terms of investment of common stocks of the selected companies. To achieve these objectives, both the analytical and descriptive research design has been adopted. It is composed of both technical and logical aspect.

#### 3.2 Population and Sample

The population of the study is the commercial banks of Nepal, which have been listed in the Nepal Stock Exchange (NEPSE). Form among the population, the researcher selected five listed commercial banks by using random sampling method. As there are twenty-one commercial banks listed in NEPSE, our sample size is 23.80% of the total population.

Listed Commercial Banks in Nepal Stock Exchange as of 19 June 2009					
S.No.	Companies Name	Stock Symbol	Listed Shares	Paid up Value	Total Paid up Value
1	Nabil Bank Ltd.	NABIL	9,657,470	100	965,747,000
2	Nepal Investment Bank Ltd.	NIB	24,070,689	100	2,407,068,900
3	Standard Chartered Bank Ltd.	SCB	9,319,664	100	931,966,400
4	Himalayan Bank Ltd.	HBL	12,162,150	100	1,216,215,000
5	Nepal SBI Bank Limited	SBI	8,734,791	100	873,479,100
6	Nepal Bangladesh Bank Ltd.	NBB	18,228,509	100	1,822,850,900
7	Everest Bank Ltd	EBL	6,388,200	100	638,820,000
8	Bank of Kathmandu	BOK	8,443,979	100	844,397,900
9	Nepal Ind. & Co. Bank Ltd.	NICB	11,404,800	100	1,140,480,000
10	Machhachapuchhre Bank Ltd	MBL	13,146,420	100	1,314,642,000
11	Laxmi Bank Limited	LBL	10,980,861	100	1,098,086,100
12	Kumari Bank Ltd	KBL	10,782,720	100	1,078,272,000
13	Lumbini Bank Ltd.	LUBL	9,995,000	100	999,500,000

14	Nepal Credit & Com. Bank	NCCB	13,908,900	100	1,390,890,000
15	Siddhartha Bank Limited	SBL	8,280,000	100	828,000,000
16	NMB Bank Ltd.	NMBF	11,000,000	100	1,100,000,000
17	Bank of Asia Nepal Limited	BOAN	10,000,000	100	1,000,000,000
18	Citizens Bank International Ltd	CZBIL	10,000,000	100	1,000,000,000
19	KIST Bank Limited	KMBF	20,000,000	100	2,000,000,000
20	DCBL Bank Ltd.	DCBL	11,074,560	100	1,107,456,000
21	Global Bank Limited	GBL	10,000,000	100	1,000,000,000
<b>Total</b>			<b>247,578,713</b>	<b>2,100</b>	<b>24,757,871,300</b>

### 3.3 Sample of the Study

NABIL Bank Ltd. (NABIL)  
Nepal Investment Bank Ltd. (NIB)  
Nepal SBI Bank Ltd. (SBI)  
Nepal Industrial & Co. Bank Ltd. (NICB)  
Everest Bank Ltd. (EBL)

### 3.4 Sources of Data

The study will review the available secondary information of past six consecutive years, which are listed as follows.

- Annual report of selected banks approved by an AGM,
- Magazine, newspaper, books and documents,
- Published books, journals related to commercial banks,
- Government reports, bulletin and other published statement of related field and
- Previous studied made in the field.

### 3.5 Method of Data Analysis

Both financial and statistical tools will be used for analyzing the collected data.

#### Financial tools

Average rate of return  
Standard Deviation  
Beta coefficient  
Portfolio risk  
Portfolio return

#### Statistical Tools

Hypothesis Testing

## Financial Tools

### Average Rate of Return (ARR)

Average rate of return can be easily calculated using sum of return divided by no. of year. Symbolically, average rate of return can be expressed as follows:-

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

Where,

$\sum$  = Sign of summation

n = no. of years that the return is taken.

$r_A$  = Return of stock

### Single period rate of return of common stock

Single period return may be defined as the change in value PLUS any cash distributions expressed as a percentage of the beginning of period investment value. An investor can obtain two kinds of income from an investment in a share of stock or a bond. They are as follows:

1. Income from price appreciation (or losses from price depreciation), sometimes called capital gains (or losses). This quantity denoted  $p_t - p_{t-1}$ .
2. Cash how income from cash dividend or coupon interest payments, represented by the convention  $C_t$ .

Sum of these two sources of income (or loss) equals the total return and can be express in percentage as follows:-

Single Period rate of return,  $r_t = \frac{\text{Price Change} + \text{cash Dividend}}{\text{Purchase price at start of the period}}$

$$r_t = \frac{(p_t - p_{t-1}) + D_t}{P_{t-1}}$$

Where as,

$P_t$  = Ending stock price.

$D_t$  = Cash dividend received at time t.

$P_{t-1}$  = Starting stock price.

### Expected rate of return of common stock

This rate is obtained by arithmetic mean of the past year's return. This study aims to find out the expected return on the investment in common stock. Symbolically, expected rate of return of common stock r can be expressed as follows:-

$$i. \quad E(r_A) = \frac{\sum r_A}{n}$$

Where,

$\Sigma$  = Sign of summation

n = No. of years that the return is taken.

$E(r_A)$  = Expected rate of return in stock A.

$$ii. \text{ Expected value } E(r) = \sum_{t=1}^T r_t p_t$$

$$= P_1 r_1 + p_2 r_2 + \dots \dots \dots p_t r_t$$

Where as,

$r_t$  = The  $t^{\text{th}}$  rate of return from a probability distribution.

$P_t$  = Probability that the  $t^{\text{th}}$  rate of return will take place.

T = Possible rates of return.

### **Standard Deviation**

It is a statistical concept and is widely used to measure risk from holding single assets. It is a statistical measure of the variability of a distribution of return around its mean. This is a measure of the dispersion of forecast return when such returns approximately a normal probability distribution.

The standard deviation is derived so that a high standard deviation represents a large dispersion of the total risk of the assets. It is the square root of the variance and measures the systematic risk of stock investment. Symbolically, ( $\sigma$ ) can be expressed as follows:

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

Where,

$\sigma$  = Standard deviation of return on stock j.

$R_j$  = Rate of return of stock j.

$\bar{R}_j$  = Average rate of return of stock j.

n = Time Period.

$$\text{Variance} = \text{Var}(r_j) = \sigma_j^2$$

### **Beta Coefficient (b)**

The beta coefficient is an idea of systematic risk. It may be used for ranking the systematic risk of different assets. It is an index of the degree of movement of an assets return in response to a change in the market return. An asset's historical returns are used in finding the asset's beta coefficient.

Market sensitivity of stock is explained in terms of beta coefficient. Higher the beta the sensitivity and reaction to the market movement is greater. Market beta serves as a benchmark or a measuring scale for the evaluation of risk of individual stocks. For an individual stock, the beta could be less than 1, equals to 1 or more than 1 depending upon the volatility of that stocks return relative to market returns. Beta coefficient can be expressed as follows.

$$\text{Beta coefficient } (b_i) = \frac{\text{cov}(r_i, r_m)}{\sigma_m^2}$$

Where as,

- cov( $r_i, r_m$ ) = Covariance of the return on assets i, and market portfolio.
- $\sigma_m^2$  = Variance of the return on the market portfolio.
- $r_m$  = Required rate of return on the market portfolio of securities.

### **Portfolio Risk ( $\sigma_p$ )**

Expected risk on a portfolio is a function of the proportions investment in the components and the risk ness of the component and correlation of returns on the component securities. It is measured by standard deviation and calculated by using this formula.

Portfolio Risk ( $\sigma_p$ )

$$\sigma_p = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B r_{AB} \sigma_A \sigma_B}$$

Where as,

- $\sigma_p$  = Portfolio Risk
- $W_A$  = The proportion of the portfolio devoted by security 'A'
- $W_B$  = The proportion of the portfolio devoted by security 'B'
- $\sigma_A$  = Standard Deviation of security 'A'
- $\sigma_B$  = standard deviation of security 'B'
- $r_{AB}$  = Correlation between the securities A and B.

Portfolio Return  $E(r_p)$

$$E(rp) = \sum_{j=1}^n W_j \times R_j$$

In a two – Security portfolio, the portfolio return will be:

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

Where as,

- $E(r_p)$  = Expected return on portfolio.
- $W_i$  = The fraction of the value of the portfolio invested in the  $i^{\text{th}}$  assets.
- $W_j$  = The fraction of the value of the portfolio invested in the  $j^{\text{th}}$  assets.
- $R_i$  = The expected rate of return from the  $i^{\text{th}}$  assets.
- $R_j$  = The expected rate of return from the  $j^{\text{th}}$  assets
- (The sum of the  $W_i$  and  $W_j$  should be 1 or 100%)

## Statistical Tools

### Tools of Testing Hypothesis

One of the important applications of statistical inference is 'test of hypothesis'. In testing of hypothesis, an assumption is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observe the difference between the sample mean and the population hypothesized value, and test whether the difference is significant or insignificant. Smaller the difference, the sample mean is close to the hypothesis value, and, larger the difference the hypothesized value has low chance to be correct.

#### T- Test:

The sampling distribution of sample mean when the sample size is large (most commonly  $n > 30$ ) is normally distributed with mean  $\mu$  and standard deviation  $\sigma$ . But, what about the situation when sample size is less than 30?

The student's t- distribution states that if the sample size is less than 30, the sampling distribution of the sample mean follows student's t – distribution. In order to test the significance of an observed samples return and beta the following procedure is applied.

**Null Hypothesis;  $H_0$ :**  $R_m = R_j$  i.e., there is no significance difference between average return of common stock of listed commercial banks and market return.

**Alternative Hypothesis:  $H_1$ :**  $R_m \neq R_j$  i.e., there is significance difference between average return of common stock of listed commercial banks and market return.

It is applied for hypothesis testing 1<sup>st</sup> to test whether there is any significance difference between average mean of commercial bank with market or not. If the test is 'test of significance for a single mean' the test statistics (t) is given by:

$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{n}}}$$

Here,  $\bar{X} = \frac{x}{n}$

Where,

t = Student's t test statistics

$\bar{X}$  = Arithmetic mean of sample statistics

$\mu$  = Arithmetic mean of population parameter

s = Estimated standard deviation of population parameter which is given by as

$$s = \sqrt{\frac{(x - \bar{x})^2}{n - 1}}$$

n = Sample size



## Analysis of variance (ANOVA)

When we have to test the significance of the differences between two sample means, t- test is suitable. But when we need to test the significance of the differences between more two – sample means, f distribution is suitable technique, called the "Analysis of Variance". Using ANOVA technique we will be able to make inferences about whether the samples are drawn from populations having the same mean.

The assumptions made in ANOVA are:

- a. The population for each sample must be normally distributed with same mean and variances (in large sample this assumption is not necessary).
- b. All the samples must be randomly selected and independent.

### One – way analysis of variance

The basic concept of ANOVA is to test whether the samples have same mean. One – way analysis of variance is one if we study the effect of only one factor at a time and the hypothesis is to test the difference in average value due to the factor is insignificant.

The whole analysis of ANOVA is finally presented in the ANOVA table.

#### **One – way ANOVA table**

Sources of variance	d. f.	Sum of Squares	Mean Sum of square	F - ratio
Between samples	K- 1	SSC	$MSS = \frac{SSB}{K - 1}$	$\frac{MSS}{MSE} = F_{cal}$
Within sample	N-K	SSE	$MSE = \frac{SSW}{N - K}$	
Total	N-1	TSS		

The decision of the computed value of F is less than its calculated value  $H_0$  accepted otherwise  $H_0$  is rejected.

## CHAPTER – IV

### DATA PRESENTATION AND ANALYSIS

In this section raw form of data about selected banks, which were collected from various sources, are changed to an understandable form using tools as mentioned in the previous chapter i.e. research methodology. This chapter is core of this study that is fully related to analysis and interprets various outcomes. The analysis of data consists of organizing; tabulating and performing risk return analysis of a common stock.

#### 4.1 Analysis

In the end of mid July 2008, there were 25 "A" class commercial banks licensed by Nepal Rastra Bank (NRB). Out of them, 21 banks are listed in NEPSE. Five commercial banks were taken as sample of the study out of 21 listed commercial banks.

They are NABIL Bank Limited (NABIL), Nepal Investment Bank Limited (NIB), Nepal SBI Bank Limited (SBI), Nepal Industrial and Commercial Bank Limited (NICB), and Everest Bank Limited (EBL). Common stock of each listed commercial banks; their risk and return analysis were included in this study.

#### 4.2 Inter – Firm Comparison

According to the result obtain from the analysis done above; a comparative analysis of return, total risk and risk per unit is performed here. Average returns, standard deviation of the return (risk) and coefficient of Variance of each bank for the year 2059/60 to 2064/65 are given in the table no. 4.1.

**Table 4.1**  
**Average Return, SD and CV of selected five commercial banks.**

S.N.	Companies	Average Return	Standard deviation (σ)	Coefficient of Variance (C.V)	Remarks		
					Return	Risk	C.V.
1.	NABIL	72.89	75.75	1.0392	Highest	Highest	
2.	NIB	51.00	56.45	1.1069			
3.	SBI	48.07	75.29	1.5663	Lowest		Highest
4.	NICB	61.83	61.58	0.9959			
5.	EBL	67.85	42.41	0.6251		Lowest	Lowest
		301.64					

$$\text{Selected Banks Average Returns } \bar{R} = \frac{\Sigma R}{n} = \frac{301.64}{5} = 60.33\%$$

The table no. 4.1 shows that average return, standard deviation, coefficient of Variance of NABIL is 72.89%, 75.75%, 1.0392, average return, standard deviation, coefficient of Variance of NIB is 51.00%, 56.45%, 1.1069, average return, standard deviation, coefficient of variance of SBI is 48.07%, 75.29%, 1.5663, average return, standard deviation, coefficient of Variance of NICB is 61.83%, 61.58%, 0.9959, average return, standard deviation, coefficient of variance of EBL is 67.85%, 42.41%, 0.6251. Investor can get the highest return from the investment made in the NABIL and lowest return from the investment made in the SBI, NABIL has the highest total risk as compare to other banks where as EBL has lowest total risk. Similarly, SBI has the higher degree of risk per unit of share where as EBL has lowest per unit risk, i.e. EBL has lowest coefficient of Variance.

NABIL is higher risk and hence it has higher average return on investment, which is in line with the established financial norms of higher return, higher risk. But for other banks, this principle does not hold good as the returns on the investment were also affected by non- financial factors such as: political instability, conflict etc.

For taking a wise an investment decision on a single common stock (security), coefficient of Variance is the more indicator than others,

### 4.3 Analysis of Market Risk and Return

In Nepal, there is only stock market called Nepal Stock Exchange Ltd. (NEPSE). The overall market movement is represented by market index (i.e. NEPSE index). The NEPSE index is adjusted and changed continuously with this NEPSE base market portfolio return, its standard deviation and coefficient of Variance is presented below.

**Table 4.2**  
**Calculation of Realized Rate of Return, SD, Average Return and C.V. of Overall Market**

Fiscal Year	NEPSE index	$R_m = \frac{NEPSE_t - NEPSE_{t-1}}{NEPSE_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2058/59	227.5	-	-	-
2059/60	204.9	-0.09934	-0.43435	0.18866
2060/61	222.04	0.08365	-0.25136	0.06318
2061/62	286.67	0.29107	-0.04393	0.00193
2062/63	300.05	0.04667	-0.28833	0.08314
2063/64	683.95	1.27945	0.94445	0.89198
2064/65	963.36	0.40852	0.07352	0.00540
	$\Sigma$	<b>0.33501</b>		<b>1.23429</b>

$$\text{Average Return } (\bar{R}_m) = \frac{\Sigma R_m}{n} = \frac{2.01003}{6} = 0.33501$$

$$\text{Standard deviation } \sigma_m = \sqrt{\frac{\sum(R_m - \bar{R}_m)^2}{n-1}} = \sqrt{\frac{1.23429}{6.1}} = \sqrt{\frac{1.23429}{5}} = 0.4968$$

$$\text{Variance } \sigma_m^2 = 0.4968 \times 0.4968 = 0.2468$$

$$= \frac{\sigma_m}{R_m} \times 100\%$$

$$\begin{aligned} \text{Co-efficient of Variance (CV)} &= \frac{0.4968}{0.33501} \times 100\% \\ &= 148.29 \end{aligned}$$

#### 4.4 Market Sensitivity Analysis

Market sensitivity of stock is explained by terms of beta coefficient can be used for an additional ranking of the systematic risk of asset. Higher the beta represents greater the sensitivity and higher the reaction to the market movement and vice – versa. Percentage of risk that is correlated with market is said to be systematic risk, which cannot be eliminated through the means of diversification.

**Table 4.3**  
**Beta coefficient of the common stock of NABIL**

Fiscal year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]$
2059/60	-0.6003	-0.4344	0.2608
2060/61	-0.2893	-0.2514	0.0727
2061/62	-0.1539	-0.0439	0.0068
2062/63	-0.1840	-0.2883	0.0530
2063/64	1.5122	0.9445	1.4283
2064/65	-0.2844	0.0735	-0.0209
		Σ	<b>1.8007</b>

We have covariance of stock (j) and market (m)

$$\begin{aligned} COV(R_j, R_m) &= \frac{\sum[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{n-1} \\ &= \frac{1.8007}{6-1} \\ &= \frac{1.8007}{5} \\ &= 0.3601 \end{aligned}$$

$$\begin{aligned}
 b_j &= \frac{Cov(R_j R_m)}{\sigma_m^2} \\
 &= \frac{0.3601}{0.2468} \\
 &= 1.4591
 \end{aligned}$$

This is an aggressive investment.

Where,

n = number of observation

$\sigma_m^2$  = variance of market return

$R_j$  = return of stock 'j' (i.e. NABIL)

**Table 4.4**  
**Beta coefficient of the common stock of NIB**

Fiscal year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]$
2059/60	-0.4369	-0.4344	0.1898
2060/61	-0.3080	-0.2514	0.0774
2061/62	-0.6449	-0.0439	0.0283
2062/63	0.8571	-0.2883	-0.2471
2063/64	0.3530	0.9445	0.3334
2064/65	0.1796	0.0735	0.0132
$\Sigma$			<b>0.3950</b>

We have covariance of stock (j) and market (m)

$$\begin{aligned}
 COV(R_j R_m) &= \frac{\sum [(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{n - 1} \\
 &= \frac{0.3950}{6 - 1} \\
 &= \frac{0.3950}{5} \\
 &= 0.079
 \end{aligned}$$

$$\begin{aligned}
 b_j &= \frac{Cov(R_j R_m)}{\sigma_m^2} \\
 &= \frac{0.079}{0.2468} \\
 &= 0.3201
 \end{aligned}$$

This is a defensive type investment.

Where,

n = number of observation

$\sigma_m^2$  = variance of market return

$R_j$  = return of stock 'j' (i.e. NIB)

**Table 4.5**  
**Beta coefficient of the common stock of SBI**

Fiscal year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]$
2059/60	-0.8248	-0.4344	0.3583
2060/61	-0.2767	-0.2514	0.0696
2061/62	-0.3894	-0.0439	0.0171
2062/63	0.3611	-0.2883	-0.1041
2063/64	1.3256	0.9445	1.2520
2064/65	-0.1958	0.0735	-0.0144
	$\Sigma$		<b>1.5785</b>

We have covariance of stock (j) and market (m)

$$\begin{aligned}
 COV(R_j R_m) &= \frac{\sum [(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{n - 1} \\
 &= \frac{1.5785}{6 - 1} \\
 &= \frac{1.5785}{5} \\
 &= 0.3157
 \end{aligned}$$

$$\begin{aligned}
 b_j &= \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} \\
 &= \frac{0.3157}{0.2468} \\
 &= 1.2792
 \end{aligned}$$

This is an aggressive investment.

Where,

n = number of observation

$\sigma_m^2$  = variance of market return

$R_j$  = return of stock 'j' (i.e. SBI)

**Table 4.6**  
**Beta coefficient of the common stock of NICB**

Fiscal year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]$
2059/60	-0.7203	-0.4344	0.3129
2060/61	-0.6274	-0.2514	0.1577
2061/62	0.5615	-0.0439	-0.0246
2062/63	-0.021	-0.2883	0.0061
2063/64	0.8169	0.9445	0.7716
2064/65	-0.0286	0.0735	-0.0021
		$\Sigma$	<b>1.2215</b>

We have covariance of stock (j) and market (m)

$$\begin{aligned}
 \text{COV}(R_j, R_m) &= \frac{\sum [(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{n-1} \\
 &= \frac{1.2215}{6-1} \\
 &= \frac{1.2215}{5} \\
 &= 0.2443
 \end{aligned}$$

$$\begin{aligned}
 b_j &= \frac{Cov(R_j R_m)}{\sigma_m^2} \\
 &= \frac{0.2443}{0.2468} \\
 &= 0.9899
 \end{aligned}$$

This is an average market risk investment.

Where,

n = number of observation

$\sigma_m^2$  = variance of market return

$R_j$  = return of stock 'j' (i.e. NICB)

**Table 4.7**

**Beta coefficient of the common stock of EBL**

Fiscal year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)$	$[(R_j - \bar{R}_j)(R_m - \bar{R}_m)]$
2059/60	-0.5303	-0.4344	0.2304
2060/61	-0.1055	-0.2514	0.0265
2061/62	0.0065	-0.0439	-0.0003
2062/63	-0.0647	-0.2883	0.0187
2063/64	0.7723	0.9445	0.7294
2064/65	-0.0783	0.0735	-0.0058
		Σ	<b>0.9989</b>

We have covariance of stock (j) and market (m)

$$\begin{aligned}
 COV(\mathbf{R}_j R_m) &= \frac{\sum [(R_j - \bar{R}_j)(R_m - \bar{R}_m)]}{n - 1} \\
 &= \frac{0.9989}{6 - 1} \\
 &= \frac{0.9989}{5} \\
 &= 0.1998
 \end{aligned}$$



$$b_j = \frac{Cov(R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.1998}{0.2468}$$

$$= 0.8096$$

This is a defensive type investment.

Where,

n = number of observation

$\sigma_m^2$  = variance of market return

$R_j$  = return of stock 'j' (i.e. EBL)

**Table 4.8**

**Beta Co-efficient of Studied Five Commercial Banks**

SN	Commercial Banks	Beta (b)
1	NABIL	1.4591
2	NIB	0.3201
3	SBI	1.2792
4	NICB	0.9899
5	EBL	0.8096

For an individual stock, the beta could be less than, equal to or more than depending upon the volatility of that stock's return relative to the market return. The different values of beta are defined as: the beta equals to 1 implies, the average market risk and commands the average market risk premium. The beta less than 1 implies that stock's return is less sensitive to market fluctuation and such stock is considered to be the defensive type. The beta greater than 1 implies the opposite case of beta less than 1.

**Table 4.9**  
**ERR, RRR and Price Evaluation**

SN	Commercial Bank	$R_f$	Beta ( $b_j$ )	$R_m$	ERR	$RRR = R_f + (R_m - R_f) b_j$	Price evaluation
1	NABIL	4.21	1.4591	33.50	72.89	46.95	Under Priced
2	NIB	4.21	0.3201	33.50	51.00	43.59	Under Priced
3	SBI	4.21	1.2792	33.50	48.07	41.68	Under Priced
4	NICB	4.21	0.9899	33.50	61.83	33.20	Under Priced
5	EBL	4.21	0.8096	33.50	67.85	27.92	Under Priced

Source: - NRB,  $R_f$  = Risk Free Rate

If the required rates of return is higher than expected rate of return, the stocks is said the overpriced and an investor sold the hold stock or may involved in short selling strategy. If the expected return is higher than the required rate of return, the stock is said to be under priced security and an investor make buying strategy for this type of stock.

According to the above result, all five commercial bank's stocks are recommended to buy due to their common stock are under priced.

The beta coefficient from the above calculation is greater than 1 for 2 banks (i.e. 1.4591 of NABIL and 1.2792 of SBI and similarly the beta coefficient of these banks are less than (i.e. 0.3201 of NIB, 0.9899 of NICB and 0.8096 of EBL). The stock of two commercial banks is highly sensitive with market return. Beta value of 1.4591 of NABIL, 0.3201 of NIB, 1.2792 of SBI, 0.9899 of NICB and 0.8096 of EBL indicate that if market return rise by one percent, the return of stocks of above banks will also rise by the number equal to beta value and vice- versa.

#### **4.5 Portfolio Analysis**

The portfolio is the holding of securities and investment financial assets i.e. bond, stock. A portfolio is a combination of investment assets. Portfolio management is related to efficient portfolio investment in financial assets. If portfolio is being constructed they can reduce unsystematic risk without loosing considerable return. The portfolio analysis is performed to develop a portfolio that has the maximum return at whatever level of risk an investor thinks appropriate. Therefore, we need to extend our analysis risk and return to portfolio context.

The average return on a portfolio is simply the weighted average of the average return on the individual assets in the portfolio with the weight being the function of the total portfolio invested in each asset. The weights are equal to the proportion of total funds invested in each security (the sum of weight must be 1 or 100%).

The analysis is based on two assets portfolio and three analyses are presented in the chapter.

Now, taking first two commercial banks (i.e. NABIL and NIB), NABIL stock is symbolized as 'A' and NIB stock is symbolized as 'B'

**Table 4.10**  
**Calculation of Cov (R<sub>A</sub>R<sub>B</sub>) of Stocks A & B**

Fiscal year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$[(R_A - \bar{R}_A)(R_B - \bar{R}_B)]$
2059/60	-0.6003	-0.4369	0.2623
2060/61	-0.2897	-0.3080	0.0892
2061/62	-0.1539	-0.6449	0.0993
2062/63	-0.1840	0.8571	-0.01577
2063/64	1.5122	0.3530	0.5338
2064/65	-0.2844	0.1796	-0.0511
		$\Sigma$	<b>0.9177</b>

We have,

$$\begin{aligned}
 COV(R_A R_B) &= \frac{\sum [(R_A - \bar{R}_A)(R_B - \bar{R}_B)]}{n-1} \\
 &= \frac{0.9177}{6-1} \\
 &= \frac{0.9177}{5} \\
 &= 0.1835 \\
 r_{AB} &= \frac{Cov(R_A R_B)}{\sigma_A \sigma_B} \\
 &= \frac{0.1835}{0.7575 \times 0.5645} \\
 &= \frac{0.1835}{0.4276} \\
 &= 0.4291
 \end{aligned}$$

The optimal portfolio weight of stock A and B, which minimized the risk, is given below;

$$\begin{aligned}
 W_A &= \frac{\sigma_B^2 - Cov(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2Cov(R_A R_B)} \\
 W_B &= 1 - W_A
 \end{aligned}$$

$W_A$  = optimal weight to invest in stock of NABIL

$W_B$  = optimal weight to invest in stock of NIB

$\sigma_A^2$  = Variance of NABIL

$\sigma_B^2$  = Variance of NIB

$$\begin{aligned}
W_A &= \frac{0.3187 - 0.1835}{0.5738 + 0.3187 - 2 \times 0.1835} \\
&= \frac{0.3187 - 0.1835}{0.8925 - 0.3670} \\
&= \frac{0.1352}{0.5255} \\
&= 0.2573 \\
W_B &= 1 - W_A \\
&= 1 - 0.2573 \\
&= 0.7427
\end{aligned}$$

As we know that the portion of stock 'A' in the portfolio is constructed with 26% of NABIL and 74% (100 - 26) % = 74% of NIB common stock that will minimize risk and be ideal proportion.

### **Portfolio Return**

It is a combination of two or more securities or assets and portfolio return is simply a weighted average of the average returns on individual stock returns.

$$\begin{aligned}
R_p &= W_A \overline{R_A} + W_B \overline{R_B} \\
&= 0.2573 \times 0.7289 + 0.7427 \times 0.51 \\
&= 0.1875 + 0.3788 \\
&= 0.5663 \\
&= 56.63\%
\end{aligned}$$

Where,  $R_p$  = average return on portfolio of stock A & B

$\overline{R_A}$  = average return of NABIL

$\overline{R_B}$  = average return of NIB

### **Portfolio Risk**

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using this formula,

$$\begin{aligned}
\sigma_P &= \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B Cov_{AB}} \\
&= \sqrt{(0.2573)^2 \times 0.5738 + (0.7427)^2 \times 0.3187 + 2 \times 0.2573 \times 0.7427 \times 0.1835} \\
&= \sqrt{0.0380 + 0.1758 + 0.0702} \\
&= \sqrt{0.2840} \\
&= 0.5329
\end{aligned}$$

Where,

$\sigma_P$  = the standard deviation of portfolio return of stock A & B.

Even though, the portfolio combination given the reduction in risk, it doesn't give the realized magnitude in risk reduction. So the portfolio is not preferable as expectation.

Again taking first and fifth commercial banks (i.e. NABIL and Everest) NABIL stock is symbolized as 'A' and Everest stock is symbolized as 'E'.

**Table 4.11**  
**Calculation of Cov ( $R_A - \bar{R}_A$ ) of Stock A and E**

<b>Fiscal year</b>	$(R_A - \bar{R}_A)$	$(R_E - \bar{R}_E)$	$[(R_A - \bar{R}_A)(R_E - \bar{R}_E)]$
2059/60	-0.6003	-0.5303	0.3183
2060/61	-0.2897	-0.1055	0.0306
2061/62	-0.1539	0.0065	-0.0010
2062/63	-0.1840	-0.0647	0.0119
2063/64	1.5122	0.7723	1.1679
2064/65	-0.2844	-0.0783	0.0223
		$\Sigma$	<b>1.5500</b>

We have,

$$\begin{aligned}
 COV(R_A R_E) &= \frac{\sum [(R_A - \bar{R}_A)(R_E - \bar{R}_E)]}{n-1} \\
 &= \frac{1.5500}{6-1} \\
 &= \frac{1.5500}{5} \\
 &= 0.3100
 \end{aligned}$$

$$\begin{aligned}
 r_{AE} &= \frac{Cov(R_A R_E)}{\sigma_A \sigma_E} \\
 &= \frac{0.3100}{0.7575 \times 0.4241} \\
 &= \frac{0.3100}{0.3213} \\
 &= 0.9595
 \end{aligned}$$

The optimal portfolio weight of stock A and B, which minimized the risk, is given below;

$$W_A = \frac{\sigma_E^2 - Cov(R_A R_E)}{\sigma_A^2 + \sigma_E^2 - 2Cov(R_A R_E)}$$

$$W_E = 1 - W_A$$

$W_A$  = optimal weight to invest in stock of NABIL

$W_E$  = optimal weight to invest in stock of EBL

$\sigma_A^2$  = Variance of NABIL

$\sigma_E^2$  = Variance of EBL

$$\begin{aligned} W_A &= \frac{0.1799 - 0.3100}{0.5738 + 0.1799 - 2 \times 0.3100} \\ &= \frac{0.1799 - 0.3100}{0.7537 - 0.6200} \\ &= \frac{-0.1301}{0.1337} \\ &= -0.9731 \end{aligned}$$

$$\begin{aligned} W_E &= 1 - W_A \\ &= 1 - (-0.9731) \\ &= 1.9731 \end{aligned}$$

We know that the portion of stock 'A' in the portfolio is constructed with -97% of NABIL and 197% (100 - (-97) % = 197% of EBL common stock that will minimize risk and be ideal proportion.

### **Portfolio Return**

It is a combination of two or more securities or assets and portfolio return is simply a weighted average of the average returns on individual stock returns.

$$\begin{aligned} R_p &= W_A \overline{R_A} + W_E \overline{R_E} \\ &= -0.9731 \times 0.7289 + 1.9731 \times 0.6785 \\ &= -0.7093 + 1.3387 \\ &= 0.6294 \\ &= 62.94\% \end{aligned}$$

Where,  $R_p$  = average return on portfolio of stock A & E

$\overline{R_A}$  = average return of NABIL

$\overline{R_E}$  = average return of EBL

### **Portfolio Risk**

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using this formula,

$$\begin{aligned}
\sigma_P &= \sqrt{W_A^2 \sigma_A^2 + W_E^2 \sigma_E^2 + 2W_A W_E \text{Cov}_{AE}} \\
&= \sqrt{(-0.9731)^2 \times 0.5738 + (1.9731)^2 \times 0.1799 + 2 \times -0.9731 \times 1.9731 \times 0.3100} \\
&= \sqrt{0.5433 + 0.7004 - 1.1904} \\
&= \sqrt{0.0533} \\
&= 0.2309
\end{aligned}$$

Where,

$\sigma_P$  = the standard deviation of portfolio return of stock A & B.

Now, taking second and fifth commercial banks (i.e. NIB and EBL), NIB stock is symbolized as 'B' and Everest Stock is symbolized as 'E'

**Table 4.12**

**Calculation of Cov ( $R_B - \bar{R}_B$ ) of Stock B and E**

Fiscal year	$(R_B - \bar{R}_B)$	$(R_E - \bar{R}_E)$	$[(R_B - \bar{R}_B)(R_E - \bar{R}_E)]$
2059/60	-0.4369	-0.5303	0.2317
2060/61	-0.3080	-0.1055	0.0325
2061/62	-0.6449	0.0065	-0.0042
2062/63	0.8571	-0.0647	-0.0555
2063/64	0.3530	0.7723	0.2726
2064/65	0.1796	-0.0783	-0.0141
		$\Sigma$	<b>0.4630</b>

We have,

$$\begin{aligned}
\text{COV}(R_B R_E) &= \frac{\sum [(R_B - \bar{R}_B)(R_E - \bar{R}_E)]}{n-1} \\
&= \frac{0.4630}{6-1} \\
&= \frac{0.4630}{5} \\
&= 0.0926 \\
r_{BE} &= \frac{\text{Cov}(R_B R_E)}{\sigma_B \sigma_E} \\
&= \frac{0.0926}{0.5645 \times 0.4241} \\
&= \frac{0.0926}{0.2394} \\
&= 0.3868
\end{aligned}$$

The optimal portfolio weight of stock A and B, which minimized the risk, is given below;

$$W_B = \frac{\sigma_E^2 - Cov(R_B R_E)}{\sigma_B^2 + \sigma_E^2 - 2Cov(R_B R_E)}$$

$$W_E = 1 - W_B$$

$W_B$  = optimal weight to invest in stock of NIB

$W_E$  = optimal weight to invest in stock of EBL

$\sigma_B^2$  = Variance of NIB

$\sigma_E^2$  = Variance of EBL

$$\begin{aligned} W_B &= \frac{0.1799 - 0.0926}{0.3187 + 0.1799 - 2 \times 0.0926} \\ &= \frac{0.1799 - 0.0926}{0.4986 - 0.1852} \\ &= \frac{0.0873}{0.3134} \\ &= 2.7856 \end{aligned}$$

$$\begin{aligned} W_E &= 1 - W_B \\ &= 1 - 2.7856 \\ &= -1.7856 \end{aligned}$$

As we know that the portion of stock 'A' in the portfolio is constructed with 278.56% of NIB and -178.56% (100 - 278.56) % = -178.56% of EBL common stock that will minimize risk and be ideal proportion.

### **Portfolio Return**

It is a combination of two or more securities or assets and portfolio return is simply a weighted average of the average returns on individual stock returns.

$$\begin{aligned} R_P &= W_B \overline{R_B} + W_E \overline{R_E} \\ &= 2.7856 \times 0.51 + (-1.7856) \times 0.6785 \\ &= 1.4207 - 1.2115 \\ &= 0.2092 \\ &= 20.92\% \end{aligned}$$

Where,  $\overline{R_P}$  = average return on portfolio of stock B & E

$\overline{R_B}$  = average return of NIB

$\overline{R_E}$  = average return of EBL

### **Portfolio Risk**

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using this formula,



$$\begin{aligned}
\sigma_P &= \sqrt{W_B^2 \sigma_B^2 + W_E^2 \sigma_E^2 + 2W_B W_E \text{Cov}_{BE}} \\
&= \sqrt{(2.7856)^2 \times 0.3187 + (-1.7856)^2 \times 0.1799 + 2 \times 2.7856 \times (-1.7856) \times 0.0926} \\
&= \sqrt{2.4730 + 0.5736 - 0.9212} \\
&= \sqrt{2.1254} \\
&= 1.4579
\end{aligned}$$

Where,

$\sigma_P$  = the standard deviation of portfolio return of stock A & B.

## 4.6 T- Test

### Hypothesis – 1:

Formulation of Hypothesis

**Null hypothesis (H<sub>0</sub>):** There is no significance difference between average return of common stock of listed commercial banks and market return.

**Alternative hypothesis (H<sub>1</sub>):** There is significance difference between average return of common stock of listed commercial banks and market return.

Computation of test statistics: 
$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{n}}}$$

Where,

$\bar{X}$  = Average return of selected five commercial banks  
(i.e.  $0.7289+0.51+0.4807+0.6183+0.6785=3.0129/5 = 0.6026$ )  
 $\mu$  = Average rate of return of overall market (i.e. 0.3350)  
n = no. of observation  
S = Standard deviation of selected commercial banks  
(i.e.  $0.7575+0.5645+0.7529+0.6158+0.4241=3.1148/5=0.623$ )

$$\begin{aligned}
t &= \frac{0.6026 - 0.3350}{\frac{0.623}{\sqrt{5}}} \\
&= \frac{0.2676}{0.279} \\
&= 0.9591
\end{aligned}$$

Tabulated value of t at 5% level of significance for 4 = (5-1) degree of freedom is 2.776.

**Decision:** since the calculated value of  $t$  is 0.9591, which is less than tabulated value of  $t = 2.776$  the null hypothesis is accepted i.e. there is no significance difference between average return of common stock of listed commercial banks and market return.

**Hypothesis – 2:**

**Hypothesis formulation**

**Null Hypothesis (H<sub>0</sub>):**  $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$  i.e. there is no significant difference in average return of common stock of selected commercial banks.

**Alternative Hypothesis (H<sub>1</sub>):**  $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5$  i.e. there is a significant different in average return of common stock of selected commercial banks.

**Table 4.13**  
**Computation of Test Statistic**

Holding Period Return						Sum of Square				
FY	NABIL (X <sub>1</sub> )	NIB (X <sub>2</sub> )	SBI (X <sub>3</sub> )	NICB (X <sub>4</sub> )	EBL (X <sub>5</sub> )	(X <sub>1</sub> ) <sup>2</sup>	(X <sub>2</sub> ) <sup>2</sup>	(X <sub>3</sub> ) <sup>2</sup>	(X <sub>4</sub> ) <sup>2</sup>	(X <sub>5</sub> ) <sup>2</sup>
059/60	0.1286	0.0724	-0.3441	-0.1020	0.1481	0.0165	0.0052	0.1184	0.0104	0.0219
060/61	0.4392	0.2013	0.2039	-0.0091	0.5730	0.1929	0.0405	0.0416	0.0001	0.3283
061/62	0.5750	-0.1356	0.0912	1.1798	0.6850	0.3306	0.0184	0.0083	1.3919	0.4692
062/63	0.5449	1.3664	0.8418	0.6162	0.6138	0.2969	1.8670	0.7086	0.3797	0.3768
063/64	2.2411	0.8623	1.8063	1.4352	1.4508	5.0225	0.7436	3.2627	2.0598	2.1048
064/65	0.4445	0.6889	0.2849	0.5897	0.6002	0.1976	0.4746	0.0812	0.3477	0.3602
Total	4.3733	3.0557	2.8840	3.7098	4.0709	6.0571	3.1493	4.2208	4.1897	3.6613

Hence, Total no. of observation (N) = 30

$$\text{Grand Total } (T) = \sum X_1 + \sum X_2 + \sum X_3 + \sum X_4 + \sum X_5 = 18.0937$$

$$\text{Correlation Factor } (C.F.) = \frac{T^2}{N} = \frac{(18.0937)^2}{30} = 10.91$$

Sum of Square between return (SSC)

$$\begin{aligned}
 &= \frac{(\sum X_1)^2}{n_1} + \frac{(\sum X_2)^2}{n_2} + \frac{(\sum X_3)^2}{n_3} + \frac{(\sum X_4)^2}{n_4} + \frac{(\sum X_5)^2}{n_5} - C.F \\
 &= \frac{(4.3733)^2}{6} + \frac{(3.0557)^2}{6} + \frac{(2.884)^2}{6} + \frac{(3.7098)^2}{6} + \frac{(4.0709)^2}{6} - 10.91 \\
 &= 11.1859 - 10.91 \\
 &= 0.2759
 \end{aligned}$$

**Total Sum of Square (TSS)**

$$\begin{aligned}
 (TSS) &= \sum X^2_1 + \sum X^2_2 + \sum X^2_3 + \sum X^2_4 + \sum X^2_5 - C.F. \\
 &= 6.0571 + 3.1493 + 4.2208 + 4.1897 + 3.6613 - 10.91 \\
 &= 21.2782 - 10.91 \\
 &= 10.36
 \end{aligned}$$

$$\begin{aligned}
 \text{Sum of Square within Return (SSE)} &= TSS - SSC \\
 &= 10.36 - 0.2759 \\
 &= 10.08
 \end{aligned}$$

**Table 4.14**  
**ANOVA Table**

Source of Variance	Sum of Squares	Degree of Freedom (d.f.)	Mean Sum of Squares	F - ratio
Between Return	SSC = 0.2759	K-1 = 5-1=4	$MSS = \frac{0.2759}{4}$ $= 0.069$	$F = \frac{MSS}{MSE}$ $= \frac{0.069}{0.4032}$ $= 0.1711$
Within Return	SSE = 10.08	N-K = 30-5 =25	$MSE = \frac{10.08}{25}$ $= 0.4032$	
		N-1=30-1=29		

Tabulated value for  $V_1 = 4$  and  $V_2 = 25$  at 5% of level of significance is equal to 2.76.

Decision: Since calculated value of F i.e. 0.1711 is less than tabulated value of F i.e.2.87,  $H_0$  is accepted i.e. there is no significance difference between the average return of common stocks of selected commercial banks.

## 4.7 Major Finding of the Study

On the basis of the above analysis and presentations the major findings of the study are as follows.

- ◆ NABIL's common stock is yielding the highest rate of return with 72.89% whereas it is the lowest 48.07% in case of SBI. The other banks rates of return are 67.85%, 61.83% and 51.00% of EBL, NICB and NIB respectively.
- ◆ The selected commercial banks average return is 60.33%, which is higher than NIB and SBI whereas NABIIIL, NICB and EBL are higher rate of return than average of five commercial banks.
- ◆ NABIL's common stock consists of the highest 75.75% risk, which is the riskiest whereas EBL's stock is the least risky as is consist of only 42.41% risk.
- ◆ The higher risk of common stock may have greater possible return.
- ◆ With the coefficient of Variance analysis it is clearly depicted that there is the highest percentage of per unit risk for SBI whereas it is the lowest for EBL.
- ◆ NABIL's stock is more aggressive i.e. market sensitive, to the market changes as evaluated by the highest beta coefficient of 1.4591. Similarly, SBI's stock is also sensitive to the market with beta coefficient of 1.2792. However, the stocks of NIB, NICB and EBL are defensive type to market and their respective beta coefficient are 0.3201, .9899 and 8096 i.e. means this securities are less affected by market changes.
- ◆ The first hypothesis is based on the test of significance of single means. (i.e. Banks return and market return). The study was found that the null hypothesis is accepted at 5% level of significance, which means average return of commercial banks is equal to market return.
- ◆ The second hypothesis is based on the test of significance of different means (i.e. different commercial banks return). The study was found that the null hypothesis is accepted at 5% level of significance, which means there is no significant difference between the average return of common stock of listed commercial banks.
- ◆ Average return of common stock of selected commercial banks is equal to the market return- hypothesis 1 i.e. evaluated by t-test.
- ◆ There is no significant difference in average return of common stock of selected commercial banks – hypothesis 2 i.e. evaluated by F-test.

# CHAPTER – V

## ***SUMMARY, CONCLUSION AND RECOMMENDATION***

### **5.1 Summary**

Central focus of finance is trade-off between risk and return. And its major part stock market has greatest glamour, not only for the professional or institutional investors, but for the individual or private too. Risk and return is getting highlight in financial management. Financial ratios have been used for centuries as a rule of thumb to aid in understanding trade-off between risk and return. Development in the field of finance has led to the application of many new concepts and models to deal with various issue related to corporate financial management.

Investors have varying perception towards risk and enterprising activity. Investors would want their investment to yield favorable return. Hence they invest in those opportunities which has certain degree of risk is associate with it. Finance mostly deals on the monetary risk and return, which is the most affecting matter for an individual to a large corporation.

Investors sacrifice their current cash in securities in anticipation of higher future benefits than in risk of free sector. An investor seeking common stock investment usually pays the price for the stock based on his estimation about future dividends and growth in stock price. However, in case of imperfect capital market so many financial and non – financial factors play a great role in price determination.

It can be said that the rate of return on investment is a function of many factors including the real cost of money, inflation, risk etc. the investors willingly offer more capital at higher rate of return, whereas users of capital always show their readiness to use more capital at lower rate. Common stock is a source of capital, which is considered to be riskier, and lifeblood of stock market. Therefore investment in common stock is very sensitive regarding risk. Dividends to common stock holders are only paid if the firm makes an operating profit after tax and preference shareholders dividend. The company can return the principal in case of its liquidation only to the extent of the residual assets after satisfying to all of its preference shareholders. Beside this the investors have to sacrifice the return on their investment in common stock, which would be earned investing elsewhere.

The main objectives of the study are to analyze the risk and return of common stocks in Nepalese context that's why is focused on the common stock of listed commercial banks of Nepal. The study has taken a sample of listed five commercial banks as reference to analyze the risk and return in common stock investment, while analyzing the risk and return, brief reviews of related studies has been performed. Tables, graphs and diagrams are used to present the results of the analysis.

Secondary data are collected from NEPSE, previous studies, NRB publications and publications of selected commercial banks journals, books and Internet. Other types of information are collected through personal visit to the executives and officers of the companies and official of security board of Nepal (SEBON) and NEPSE.

## **5.2 Conclusion**

In general, majority of the stock investment has been taking place without base the logical financial evaluation, for most of the investors it is the blind game. Many people have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps the fear of the unknown. This study enables investors to put the return they can expect and the risks they may take into better perspective.

Nepalese stock market is in emerging stage and very new phenomenon to majority of the people though in recent years they have shown participation in stock investment due to growing commercial banks in the country. Our stock market is not sensitive to international stock markets. Its development is getting acceleration after multiparty system in country, since 2046 B.S. It takes place after economic liberalization in national economy since 1992. But due to the lack of proper information and poor knowledge, Nepalese individual investors cannot analyze the securities as well as market properly. This study may helps to have some understanding about stock investment, returns and associated risk there on.

## **5.3 Recommendations**

Based on the study and inference made by statistical and financial analyses researcher would like to recommend d the following.

Stock market investment is a risky job as there is a chance of more returns that of expected as well as there is also a chance of heavy loss. So, it should invest spare money in the stock market that do not need for other commitments. The stock market is undoubtedly risky in the short term and investor needs to be prepared for it. Private investors should try and work out their attitude towards risk of various investment strategies.

One of the most important things to consider when choosing investment strength is the balance between risk and return that you are comfortable with.

All the commercial banks required rate of return is less than expected, which means that they are under priced; therefore it may be beneficial to the investors who are going to purchase the selected companies' common stock.

It's further recommended to get the information about stock investment with expert, join investor clubs, make habits to study the economic page of news paper and up-to-date information about the particular companies you may think to invest or already bought the stock rather take blind decision.

The beta coefficients of commercial banks are 1.4591, 0.3201, 1.2792, 0.9899 and 0.8096 NABIL, NIB, SBI, NICB and EBL respectively. Higher the beta coefficient the investment is more aggressive and vice versa. Since the beta coefficient three

banks they are NIB, NICB and EBL are less than one and stocks of these banks are market defensive type investment and less affected by market changes and only two banks i.e. NABIL'S and SBI has beta coefficient more than one and these two are aggressive investment. Among selected five commercial banks NABIL investment is more aggressive because its beta coefficient is highest i.e. 1.4591. Therefore investors should take more considerations while buying the share of NABIL. However, NABIL's investment gives more return than other four banks i.e. average return of NABIL's is highest among others.

Government needs to amend the rules and regulation regarding stock market and to make the policy that protects the individual investors' right. On the other hand, government needs to implement such rules properly and to monitor them time – to – time. Further government should implement those plans, which enacted for at least five years.

Information is also a free advertisement. If private investors and even any public ask for any information welcome them heartily. If you are holding your facts you are losing your future and you are reducing your business unseemly.

The coefficient of variation shows the risk per unit of return and it provides a more meaningful basis for comparison. While considering the C.V. of commercial banks it is found that three bank's per unit risk is much higher. Among them SBI has the highest C.V. i.e. 1.5663 and it is the lowest in case of EBL that is 0.6251. This seems that there exists the highest risk i.e. 1.5663 per unit of return for SBI. Therefore it indicates that EBL should be more favorable for the investors because the risk per unit of return is less than among selected other four commercial banks.

It is recommended not follow the general trend of buying the securities when it is going up and sell those securities which is going down that is risky strategy. It will be to make decision based on fact and figures rather use intuition and go blindly.

It is further recommended not to fully based on these studies as it's only provides inferences based on six years data of selected commercial banks and only represent the small proportion of the market. It's only provided the basis for logical judgment.

The researcher recommends study on the portfolio optimization i.e. Markowitz Model and further developed by William F. Sharpe, in common stock investment.

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- [www.nepalstock.com](http://www.nepalstock.com) Web site of Nepal Stock Exchange
- [www.nibl.com.np](http://www.nibl.com.np) Web site of Nepal Investment Bank Limited
- [www.nicbank.com.np](http://www.nicbank.com.np), Website of Nepal Industrial & Commercial Bank Limited
- [www.nrb.org.np](http://www.nrb.org.np), Web site of Nepal Rastra Bank
- [www.nsbl.com.np](http://www.nsbl.com.np), Web site of Nepal SBI Bank Limited

## ANNEX- 1

### NABIL Bank Ltd.

Nabil bank was established in 2041 BS (1994 AD). The bank has Rs. 1,600,000,000/- authorized capital, Rs. 689,216,000/- issued capital and Rs. 689,216,000/- paid up capital as of the end of fiscal year 2064/65. The total numbers of shareholder are 5076 and par value per share is Rs. 100. The bank was listed on stock exchange in 2042/08/09 (1986).

**Table 1**

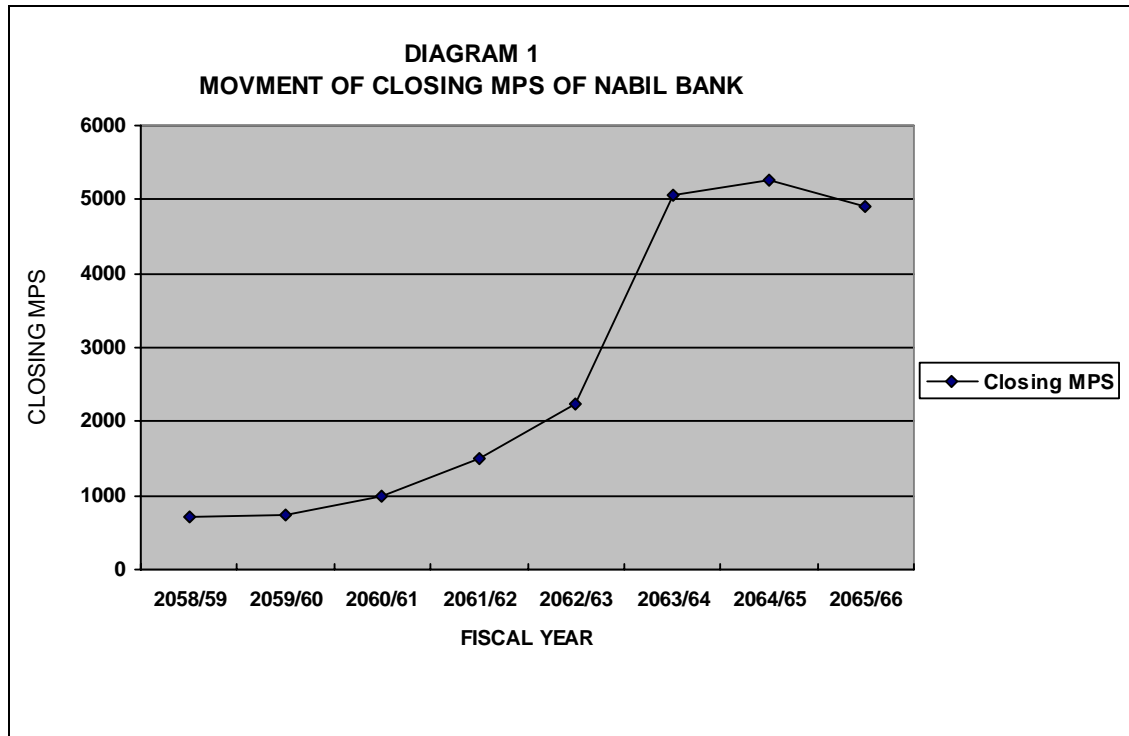
### Market price per share (MPS) and dividend of NABIL Bank for FY 058/59 – 064/65

Fiscal year	Closing MPS	Cash dividend	Stock Dividend %	Total dividend <sup>1</sup>
2058/59	700	-	-	0
2059/60	740	50	0	50
2060/61	1000	65	0	65
2061/62	1505	70	0	70
2062/63	2240	85	0	85
2063/64	5050	100	40	2210.00
2064/65	5275	60	40	2019.60
2065/66	4899	0	0	0

Nabil has maximum closing MPS in fiscal year 2064/65 at Rs. 5,275 and minimum in fiscal year 2058/59 at Rs. 700.

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<sup>1</sup> Total Dividend Amount = Cash Dividend + % Stock Dividend X Next years MPS



**Table no. 2**

**Average Rate of Return, SD and CV of NABIL Bank Ltd., Nepal**

Fiscal Year	Closing MPS	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2058/59	700	-	-	-	-
2059/60	740	50	0.1286	-0.6003	0.3603
2060/61	1000	65	0.4392	-0.2897	0.0839
2061/62	1505	70	0.5750	-0.1539	0.0237
2062/63	2240	85	0.5449	-0.1840	0.0339
2063/64	5050	2210	2.2411	1.5122	2.2868
2064/65	5275	2019.6	0.4445	-0.2844	0.0809
		$\Sigma$	<b>4.3732</b>		<b>2.8694</b>

$$\begin{aligned}
 \text{Average Return } (\bar{R}) &= \frac{\sum R}{n} \\
 &= \frac{4.3732}{6} \\
 &= 0.7289
 \end{aligned}$$

### Standard Deviation (SD)

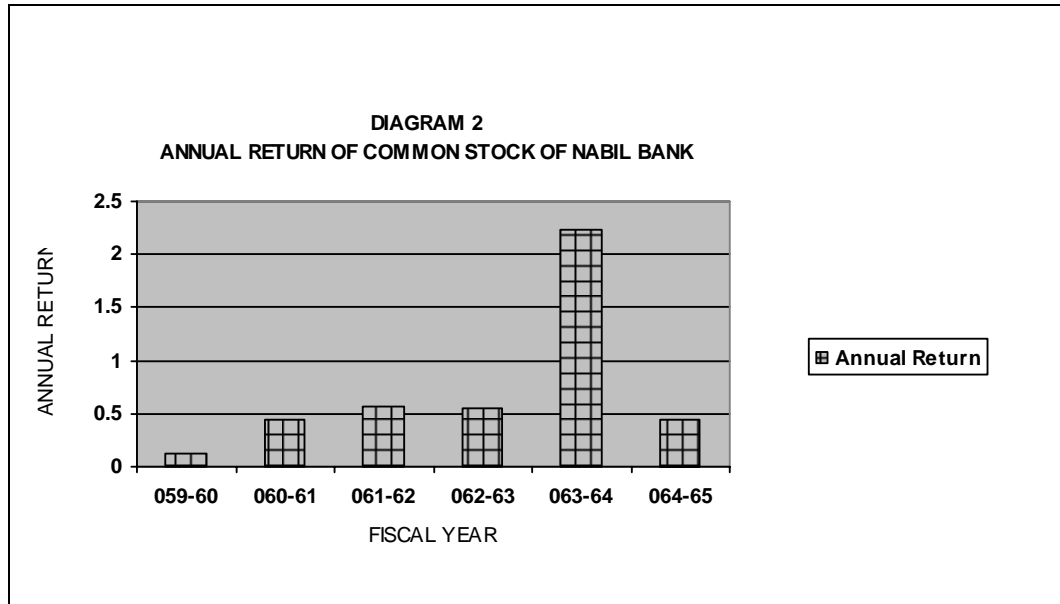
$$\begin{aligned}SD(\sigma) &= \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} \\&= \sqrt{\frac{2.8694}{6-1}} \\&= \sqrt{\frac{2.8694}{5}} \\&= 0.7575\end{aligned}$$

### Variance

$$Var = \sigma^2 = 0.7575 \times 0.7575 = 0.5738$$

### Coefficient of Variance (CV)

$$\begin{aligned}CV &= \frac{\sigma}{R} \times 100 \\&= \frac{0.7575}{0.7289} \times 100 \\&= 103.92\%\end{aligned}$$



The annual rate of return on share of Nabil was at maximum in the fiscal year 063-64 with 2.2411, which is the most profitable year to the shareholders, while fiscal year 059-60 is the least profitable year with annual rate of return 0.1286.

## ANNEX - 2

### Nepal Investment Bank Ltd.

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world. The Credit Agricole Indosuez sold its share to the group of companies comprising of bankers, professionals, industrialists and businessmen on April 2002.

The name of the bank has changed to Nepal Investment Bank Ltd. after divestment of of share of Credit Agricole Indosuez in 2002. The banks has an authorized capital of Rs. 2,000,000,000, issued capital of Rs. 1,203,915,400 and paid of capital Rs. 1,203,915,400 at the end of fiscal year 2064/65. The bank has following shareholding structure.

- A group of companies holding 50% of the capital
- Rashtriya Banijya Bank holding 15% of the Capital.
- Rashtriya Beema Sansthan holding the same percentage.
- The remaining 20% being held by the General Public.

The bank is actively trading their share at Nepal Stock Exchange.

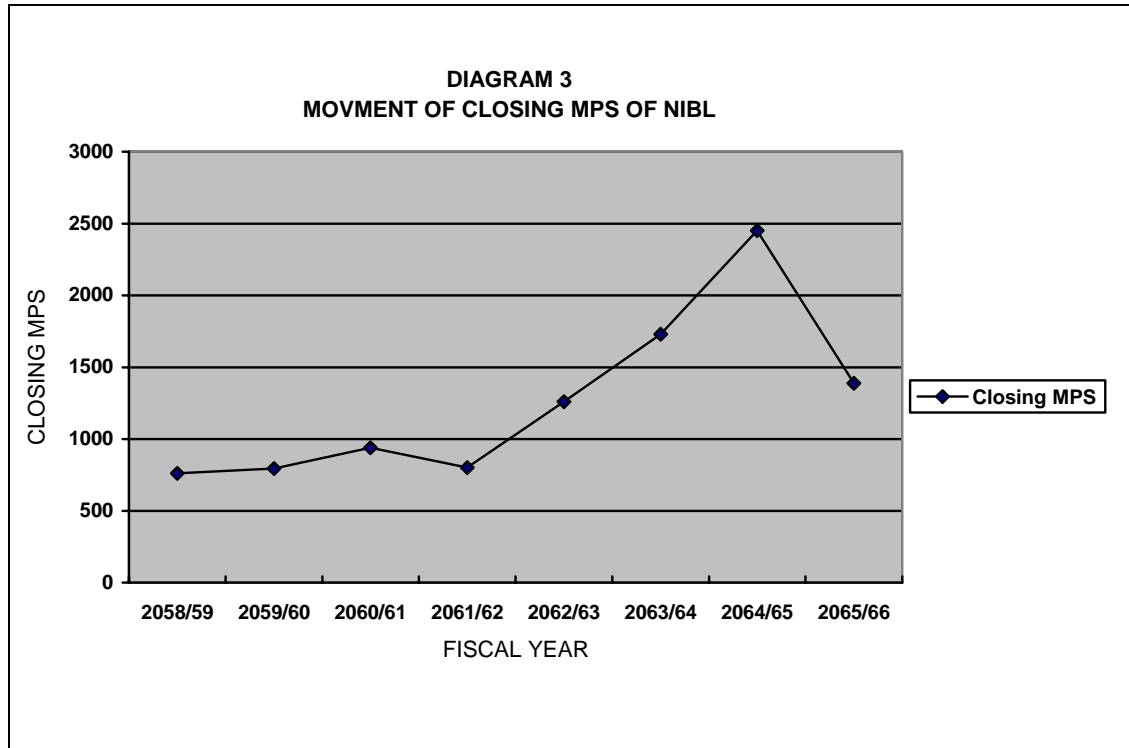
**Table 3**

#### Market price per share (MPS) and Dividend of NIBL for FY 058/59 – 064/65

Fiscal year	Closing MPS	Cash dividend %	Stock Dividend %	Total dividend <sup>2</sup>
2058/59	760	-	-	-
2059/60	795	20	0	20
2060/61	940	15	0	15
2061/62	800	12.5	0	12.5
2062/63	1260	20	35.46	633.10
2063/64	1729	5	25	617.5
2064/65	2450	7.5	33.33	470.12
2065/66	1388	0	0	

NIBL has the highest closing MPS in fiscal year 2064/65 at Rs. 2,450 and minimum in fiscal year 2058/59 at Rs. 760.

<sup>2</sup> Total Dividend Amount = Cash Dividend + % Stock Dividend X Next years MPS



**Table no. 4**

**Average Rate of Return, SD and CV of NIBL**

Fiscal Year	Closing MPS	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2058/59	760	-	-	-	-
2059/60	795	20	0.0724	-0.4369	0.1909
2060/61	940	15	0.2013	-0.3080	0.0949
2061/62	800	12.5	-0.1356	-0.6449	0.4159
2062/63	1260	633.1	1.3664	0.8571	0.7346
2063/64	1729	617.5	0.8623	0.3530	0.1246
2064/65	2450	470.12	0.6889	0.1796	0.0323
$\Sigma$			<b>3.0556</b>		<b>1.5932</b>

$$\begin{aligned} \text{Average Return } (\bar{R}) &= \frac{\sum R}{n} \\ &= \frac{3.0556}{6} \\ &= 0.51 \end{aligned}$$

### Standard Deviation (SD)

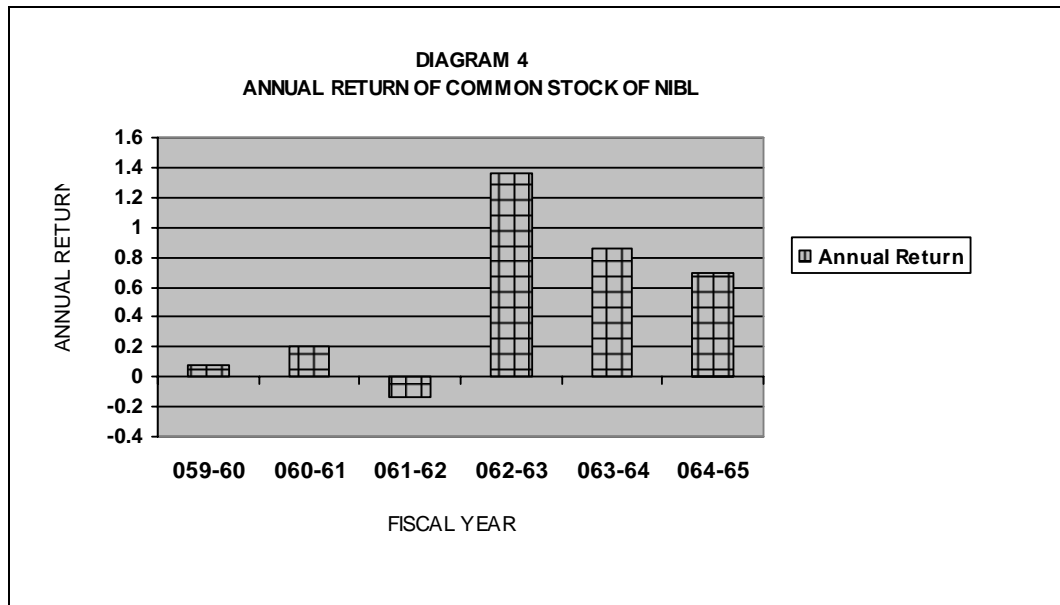
$$\begin{aligned}SD(\sigma) &= \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} \\&= \sqrt{\frac{1.5932}{6-1}} \\&= \sqrt{\frac{1.5932}{5}} \\&= 0.5645\end{aligned}$$

### Variance

$$Var = \sigma^2 = 0.5645 \times 0.5645 = 0.3187$$

### Coefficient of Variance (CV)

$$\begin{aligned}CV &= \frac{\sigma}{R} \times 100 \\&= \frac{0.5645}{0.51} \times 100 \\&= 110.69\%\end{aligned}$$



The annual rate of return on share of NIBL was at maximum in the fiscal year 062-63 with 1.3664, which is the most profitable year to the shareholders, while it was negative with -0.1356 in fiscal year 061-62.

## ANNEX - 3

### Nepal SBI Bank Ltd.

Nepal SBI Bank Ltd. (NSBL) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India, Employees Provident Fund and Agricultural Development Bank of Nepal through a Memorandum of Understanding signed on 17th July 1992. NSBL was incorporated on April 28, 1993. NSBL commenced operation with effect from July 7, 1993. The bank has an Authorized Capital of Rs. 1,000,000,000, issued capital Rs. 877,500,000 and paid of capital Rs. 874,527,840. The local promoters are Employees Provident Fund and Agricultural Development Bank/Nepal. The management team and the Managing Director who is also the CEO of the Bank are deputed by State Bank of India. Fifty percent of the total share capital of the Bank is held by the State Bank of India, Fifteen percent is held by the Employees Provident Fund, Five percent is held by the Agricultural Development Bank Nepal and thirty percent is held by the general public. The bank has been actively trading at Nepal Stock Exchange.

The bank has 15 branches as of fiscal year 2064/65 and other 15 branches are in line to open during fiscal year 2065/66.

**Table no. 5**

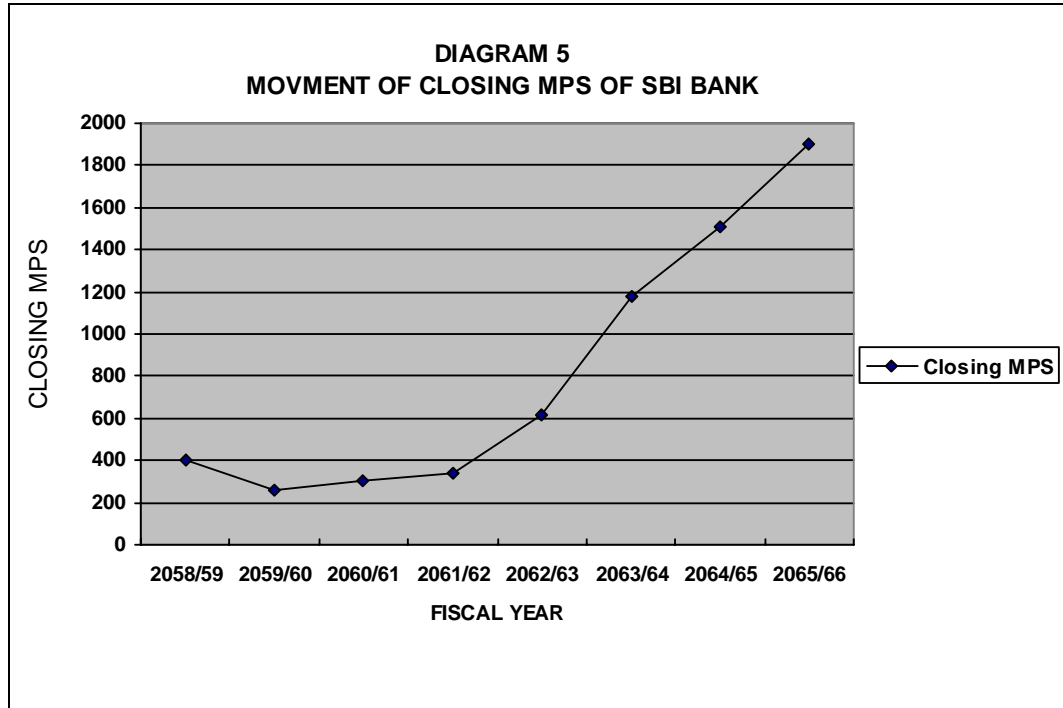
#### Market price per share (MPS) and dividend of SBI Bank for FY 058/59 – 064/65

Fiscal year	Closing MPS	Cash dividend %	Stock Dividend %	Total dividend <sup>3</sup>
2058/59	401	-	-	-
2059/60	255	8	0	8
2060/61	307	-	-	-
2061/62	335	-	-	-
2062/63	612	5	-	5
2063/64	1176	12.59	35	541.44
2064/65	1511	-	-	-
2065/66	1900	-	-	-

SBI bank has maximum closing MPS in fiscal year 2065/66 at Rs. 1,900 and minimum in fiscal year 2059/60 at Rs. 255.

<sup>3</sup> Total Dividend Amount = Cash Dividend + % Stock Dividend X Next years MPS





**Table no. 6**  
**Average Rate of Return, SD and CV of SBI Bank Ltd., Nepal**

Fiscal Year	Closing MPS	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2058/59	401	-	-	-	-
2059/60	255	8	-0.3441	-0.8248	0.6803
2060/61	307	0	0.2039	-0.2767	0.0766
2061/62	335	0	0.0912	-0.3894	0.1517
2062/63	612	5	0.8418	0.3611	0.1304
2063/64	1176	541.44	1.8063	1.3256	1.7573
2064/65	1511	0	0.2849	-0.1958	0.0383
		$\Sigma$	<b>2.8839</b>		<b>2.8346</b>

$$\begin{aligned} \text{Average Return } (\bar{R}) &= \frac{\sum R}{n} \\ &= \frac{2.8839}{6} \\ &= 0.4807 \end{aligned}$$

### Standard Deviation (SD)

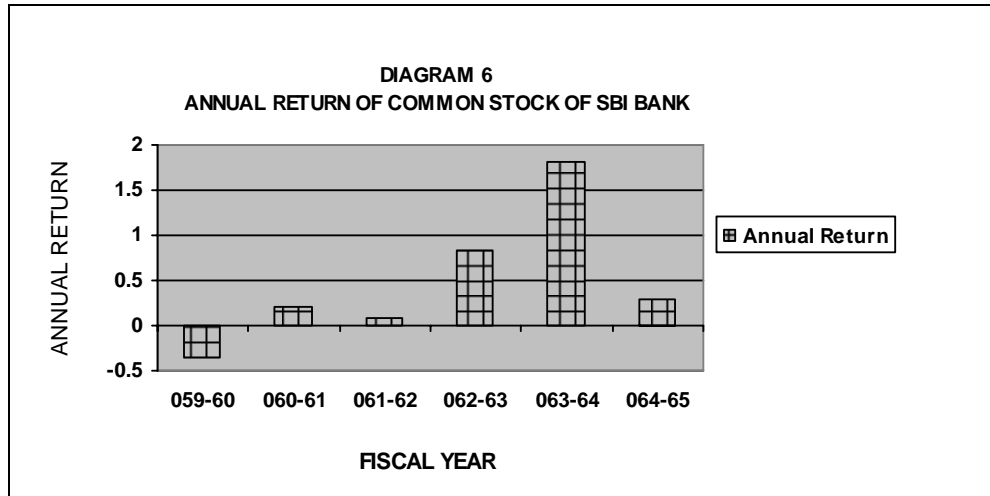
$$\begin{aligned}SD(\sigma) &= \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} \\&= \sqrt{\frac{2.8346}{6-1}} \\&= \sqrt{\frac{2.8346}{5}} \\&= 0.7529\end{aligned}$$

### Variance

$$Var = \sigma^2 = 0.7529 \times 0.7529 = 0.5669$$

### Coefficient of Variance (CV)

$$\begin{aligned}CV &= \frac{\sigma}{R} \times 100 \\&= \frac{0.7529}{0.4807} \times 100 \\&= 156.63\%\end{aligned}$$



The annual rate of return on share of Nepal SBI bank was at maximum in the fiscal year 063-64 with 1.8063, which is the most profitable year to the shareholders, while the bank had negative return on fiscal year 059-60 with annual rate of return -0.3441.

## ANNEX - 4

### Nepal Industrial & Commercial Bank Ltd.

Nepal Industrial & Commercial Bank Limited (NIC Bank) commenced its operation on 21 July 1998 from Biratnagar. The bank has Rs. 1,600,000,000/- authorized capital, Rs. 950,400,000/- issued capital and Rs. 943,877,100/- paid up capital as of the end of fiscal year 2064/65. The Bank was promoted by some of the prominent business houses of the country. The current shareholding pattern of the Bank constitutes of promoters holding 65% of the shares while 35% is held by general public. NIC Bank is one of the most widely-held Banking companies in Nepal, with over 32,000 shareholders. The shares of the Bank are actively traded in Nepal Stock Exchange with current market capitalization of about NPR 10,699 million.

Within 10 years of commencing business, the Bank has grown rapidly with 16 branches throughout the country. The Bank has been awarded the "Bank of the Year 2007-Nepal" by the world-renowned financial publication of The Financial Times, U.K.-The Banker. NIC is the first commercial Bank in Nepal to have received ISO 9001:2000 certification for quality management system. Furthermore, NIC Bank became the 1st Bank in Nepal to be provided a line of credit by International Finance Corporation (IFC), an arm of World Bank Group under its Global Trade Finance Program, enabling the Bank's Letter of Credit and Guarantee To be accepted/confirmed by more than 200 banks worldwide.

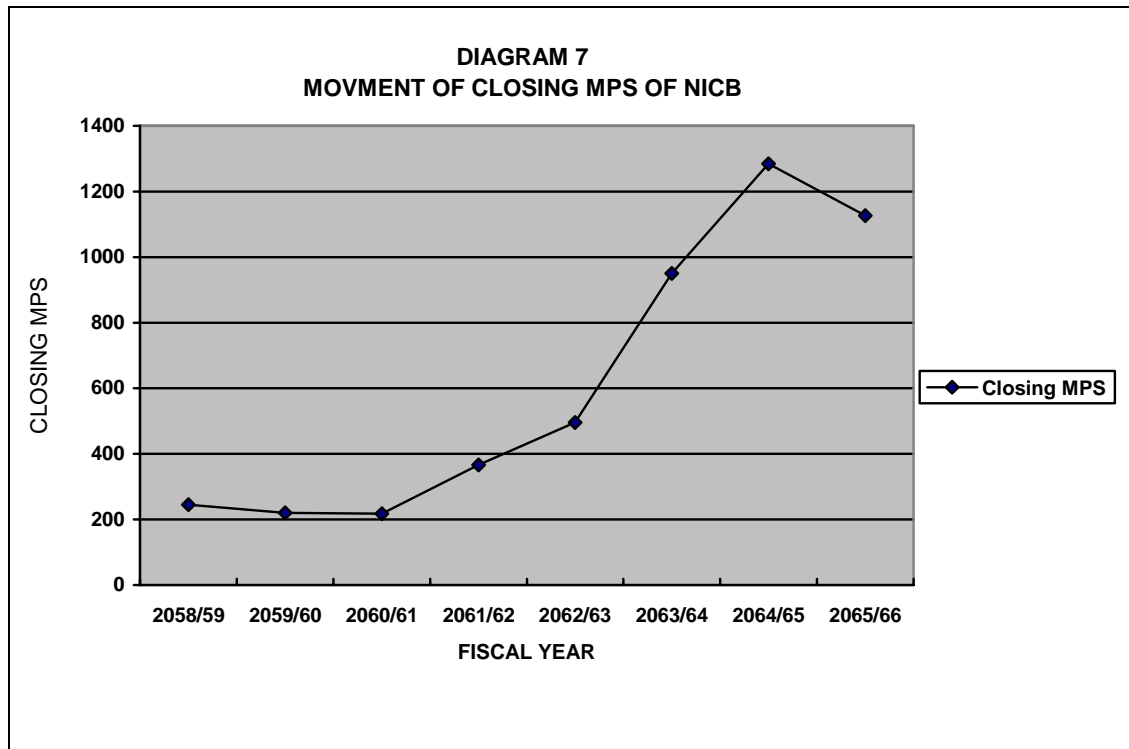
Table no. 7

#### Market price per share (MPS) and dividend of NICB for FY 058/59 – 064/65

Fiscal year	Closing MPS	Cash dividend %	Stock Dividend %	Total dividend <sup>4</sup>
2058/59	245	-	-	-
2059/60	220	-	-	-
2060/61	218	-	-	-
2061/62	366	10	20	109.20
2062/63	496	0.53	10	95.53
2063/64	950	1.05	20	257.85
2064/65	1284	1.05	20	226.25
2065/66	1126	-	-	-

NIC bank has maximum closing MPS in fiscal year 2064/65 at Rs. 1,284 and minimum in fiscal year 2060/61 at Rs. 218.

<sup>4</sup> Total Dividend Amount = Cash Dividend + % Stock Dividend X Next years MPS



**Table no. 7**

**Average Rate of Return, SD and CV of NICB**

Fiscal Year	Closing MPS	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2058/59	245	-	-	-	-
2059/60	220	0	-0.1020	-0.7203	0.5189
2060/61	218	0	-0.0091	-0.6274	0.3936
2061/62	366	109.2	1.1798	0.5615	0.3153
2062/63	496	95.53	0.6162	-0.0021	0.0000
2063/64	950	257.85	1.4352	0.8169	0.6673
2064/65	1284	226.25	0.5897	-0.0286	0.0008
		$\Sigma$	<b>3.7098</b>		<b>1.8959</b>

$$\begin{aligned}
 \text{Average Return } (\bar{R}) &= \frac{\sum R}{n} \\
 &= \frac{3.7098}{6} \\
 &= 0.6183
 \end{aligned}$$

### Standard Deviation (SD)

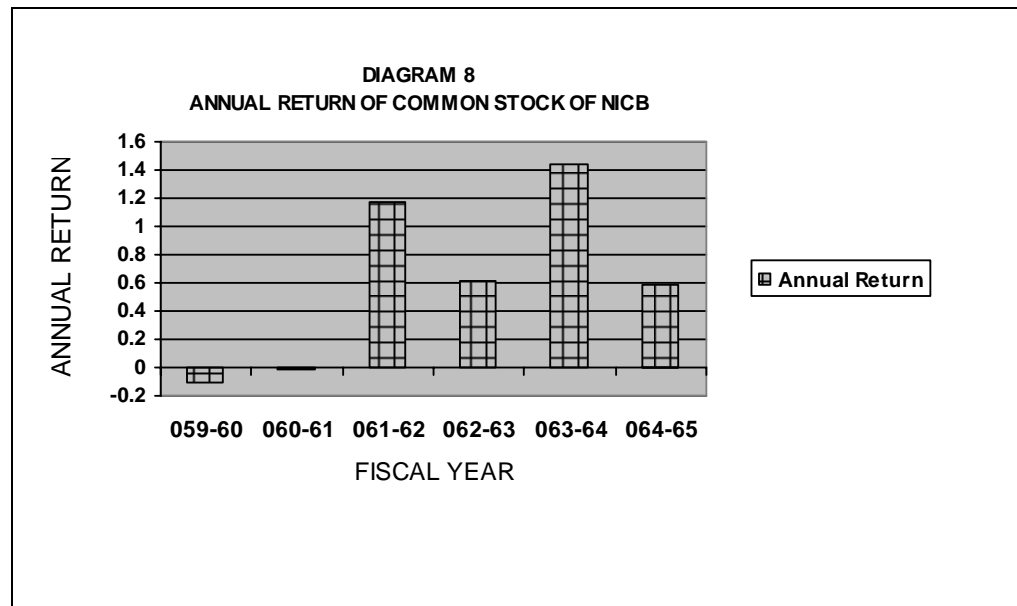
$$\begin{aligned}SD(\sigma) &= \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} \\&= \sqrt{\frac{1.8959}{6-1}} \\&= \sqrt{\frac{1.8959}{5}} \\&= 0.6158\end{aligned}$$

### Variance

$$Var = \sigma^2 = 0.6158 \times 0.6158 = 0.3792$$

### Coefficient of Variance (CV)

$$\begin{aligned}CV &= \frac{\sigma}{R} \times 100 \\&= \frac{0.6158}{0.6183} \times 100 \\&= 99.59\%\end{aligned}$$



The annual rate of return on share of NICB was at maximum in the fiscal year 063-64 with 1.4352, this is the most profitable year to its shareholders, while fiscal year 059-60 is the year of negative return with annual rate of return -0.1020.

## ANNEX – 5

### Everest Bank Limited

Everest Bank Limited (EBL) started its operations in 1994 joint venture with Punjab National Bank (PNB), holding 20% equity in the bank, is the largest nationalized bank in India with its presence virtually in all the important centers at India. The bank has Rs. 1,000,000,000/- authorized capital, Rs. 843,200,000/- issued capital and Rs. 831,400,000/- paid up capital as of the end of fiscal year 2064/65.

The bank is providing customer-friendly services through its 35, one representative office in India and over 250 correspondent banks across the globe. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS). EBL was one of the first banks to introduce Any Branch Banking System (ABBS) in Nepal.

The bank has been conferred with “Bank of the Year 2006, Nepal” by the banker, a publication of financial times, London. The bank was bestowed with the “NICCI Excellence award” by Nepal India chamber of commerce for its spectacular performance under finance sector. EBL has pioneered in extending various customer friendly products such as Home Loan, Education Loan, EBL Flexi Loan, EBL Property Plus (Future Lease Rental), Home Equity Loan, Vehicle Loan, Loan Against Share, Loan Against Life Insurance Policy and Loan for Professionals. EBL has introduced Mobile Vehicle Banking system to serve the segment deprived of proper banking facilities through its Birtamod Branch, which is the first of its kind.

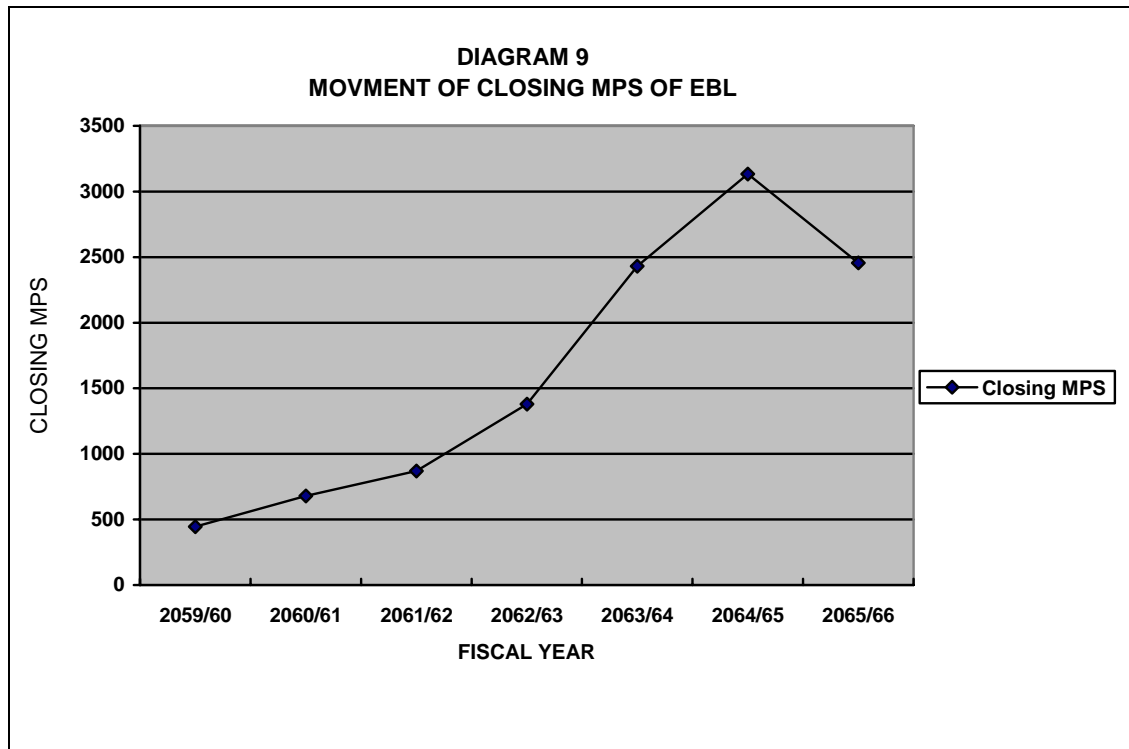
**Table no. 9**

#### Market price per share (MPS) and dividend of EBL for FY 058/59 – 064/65

Fiscal year	Closing MPS	Cash dividend %	Stock Dividend %	Total dividend <sup>5</sup>
2058/59	405	-	20	89
2059/60	445	20	-	20
2060/61	680	20	-	20
2061/62	870	-	20	275.80
2062/63	1379	25	-	25
2063/64	2430	10	30	949.60
2064/65	3132	20	30	756.50
2065/66	2455	-	-	-

EBL has maximum closing MPS in fiscal year 2064/65 at Rs. 3,132 and minimum in fiscal year 2058/59 at Rs. 405.

<sup>5</sup> Total Dividend Amount = Cash Dividend + % Stock Dividend X Next years MPS



**Table no. 8**  
**Average Rate of Return, SD and CV of EBL.**

Fiscal Year	Closing MPS	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2058/59	405	-	-	-	-
2059/60	445	20	0.1481	-0.5303	0.2813
2060/61	680	20	0.5730	-0.1055	0.0111
2061/62	870	275.8	0.6850	0.0065	0.0000
2062/63	1379	25	0.6138	-0.0647	0.0042
2063/64	2430	949.6	1.4508	0.7723	0.5964
2064/65	3132	756.5	0.6002	-0.0783	0.0061
		$\Sigma$	<b>4.0709</b>		<b>0.8991</b>

$$\begin{aligned}
 \text{Average Return } (\bar{R}) &= \frac{\sum R}{n} \\
 &= \frac{4.0709}{6} \\
 &= 0.6785
 \end{aligned}$$

### Standard Deviation (SD)

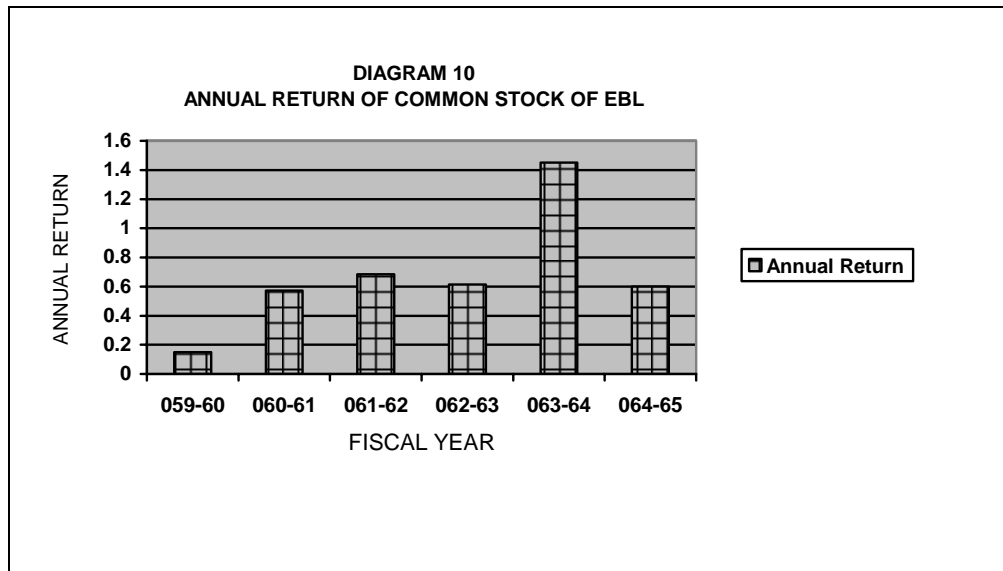
$$\begin{aligned}SD(\sigma) &= \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} \\&= \sqrt{\frac{0.8991}{6-1}} \\&= \sqrt{\frac{0.8991}{5}} \\&= 0.4241\end{aligned}$$

### Variance

$$Var = \sigma^2 = 0.4241 \times 0.4241 = 0.1799$$

### Coefficient of Variance (CV)

$$\begin{aligned}CV &= \frac{\sigma}{R} \times 100 \\&= \frac{0.4241}{0.6785} \times 100 \\&= 62.51\%\end{aligned}$$



The annual rate of return on share of EBL was at maximum in the fiscal year 063-645 with 1.4508, this is the most profitable year to its shareholders, while fiscal year 059-60 is the least profitable year with annual rate of return 0.1481.