

**RISK AND RETURN ANALYSIS OF JOINT VENTURE  
BANKS IN NEPAL**

**(With Reference to Everest Bank Ltd. And Nabil Bank Ltd.)**

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### **RECOMMENDATION**

This is to certify that the thesis

Submitted by

**Kamal Karki**

Entitled

**RISK AND RETURN ANALYSIS OF JOINT VENTURE BANKS IN NEPAL**

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Has been prepared as approved by this department in the prescribed format of faculty of management. This thesis is forwarded for examination.

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Prof. Bhawani Shankar Acharya  
Chairperson, Research Committee  
Thesis Supervisor

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Prof. Dr. Bhoj Raj Aryal  
Head of the Department

Date: .....

## **VIVA- VOCE SHEET**

We have conducted the Vice- Voce examination of this thesis

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And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the Degree of Master in Business Studies (M.B.S.)

### **VIVA- VOCE COMMITTEE**

Chairperson, Research Committee&

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# CHAPTER-I

## INTRODUCTION

### 1.1 Background of the Study

The stock market is one of the leading sectors of the economy concerned with the finance. Today capital market have been established for rising the fund for issuing the securities .Both the primary and secondary markets has been established for stock exchange.

An investors purchase securities for getting return. So, return is the main factor of investment but it involves risk. It can be said that risk and return are main factor of investment. Normally finance deals with the risk and return on the monetary terms of an investment. Return is the primary motive or reward for waiting and compensation for risk bearing. Many researchers have proved that most of the investors are risk averter. So, we come to the conclusion that investor invest their belongings in opportunities where there is higher return with lower level of risk.

Risk is defined as the chance of financial loss, more formally, the variability of the actual return from the expected return associated with a given assets. The greater the variability of the return, the higher risk has been projected. “Risk” is defined in Webster’s dictionary as a hazard; a peril; exposure to loss injury “(Weston and Brigham, 1996). Therefore, risk refers to the chance that some unfavorable event might occur. Risk is the product of uncertainty whose magnitude depends upon of the degree of variability in uncertain cash flows. Most people view risk is the manner just described as a chance of loss.

In reality, risk occurs when the outcomes of a particular activity or events cannot be ascertained. By their nature, investments are categorized into two: - More risky and less risky. The common stock is investment is a risky investment out of various investments. The government bonds are less risky than other categories of the investments. Investor gets fixed interest on return in bonds but in common stocks investors get dividend which depends on profit of company and is not fixed.

When company earns profit it gives dividend their investors but if company doesn't earn profit investors do not get dividend. There is an uncertainty of future return whose main source is the price fluctuation of the stock. The stock price may decrease due to the economic factors such as inflation, interest rate strength of dollar, economic growth of the nation etc. The stock prices are also affected by legal environment and political environment of the nation. The dividend received by the investors directly contributes to the return but at the same time reduce the amount of earnings reinvested by the firm resulting limited potential growth. So, mainly the risk of a stock investment can be measured by its prices volatility and degree of uncertainty of dividend fluctuation.

Generally, investment is risk. There are assets having great returns with the least amount of risk but investors must be able to identify the securities having low risk but high return. One way in which investor reduce the risk is by spreading their capital across a range of investment. This is the principle of diversification of not putting all 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 they need proper attention to run successfully. Banks should be established and conducted after analyzing the various factors.

Normally banks play at public money, that is why people pay their attention whatever 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. Although there are various types of banks, only commercial banks are considered here, for the purpose of present study. They are the hearts of the modern financial system.

In Nepal, organized banking system is a relatively recent phenomenon. The process was started after the establishment of Nepal Bank Ltd.in 1994 B.S. This is the first financial institution of the nation.

Rastriya Banijya Bank founded in 2022 B.S. followed the process and many other joint venture banks (JVBS) were established after 2040 B.S. in 2041 B.S the first joint venture bank (JVBS) under the name of NABIL. Bank Limited (formally call as

Nepal Arab Bank Ltd.) was incorporated. In 2043 B.S., the Second JVBS “Nepal Indosuez Bank Ltd. (NIBL)” was established. In the same year, Nepal Grind lay's Bank Ltd (Now Standard Chartered Bank Nepal Ltd.) in the form of JVBS was also established. But more JVBS were come into existence after the initiation of government policy of economic liberalization and privatization in 2049 B.S. They are Himalayan Bank Ltd .(2049),Nepal SBI Bank Ltd.(2050),Nepal Bangladesh Bank Ltd.(2051),Everest Bank Ltd.(2051)). These JVBS came into existence to accelerate the pace of economic development and financial system of the nation.

### **1.1.1 Profile of Sample Joint Venture Banks**

There are no. of 7 joint venture banks in Nepal. Here the study is introduced 2 sample joint venture banks.

#### **Everest Bank Limited (EBL)**

Everest bank Limited was established in 1994 A.D. under the company act 1964 A.D. EBL started its operation with an objective of extending its professionalized and efficient banking service to the various segment of the society under the commercial bank Act 1974. It is a joint venture between Punjab National Bank (PNB) is the largest Public Sector Bank of India. Everest Bank was listed in NEPSE on 07/04/1996 AD).The corporate office of Everest Bank Limited is in New Baneshwor of Kathmandu. The local Nepalese promoters hold 50% stock in the bank's equity, while 20% of equity is contributed by joint Venture partner PNB and remaining 30% is held by the public sector. The banks Authorized capital is Rs. 5000 million and issued and paid up capital are Rs.2137.388 million. (Basnet, Lekha Bahadur.(2016)

#### **NABIL Bank Limited (NABIL)**

Nepal Arab Bank Limited (NABIL) is the nation's first private sector bank commencing its business since July 1984 A.D with an objective of extending international standard modern banking services to the various sectors of the society under the commercial bank Act 2031(1974) and the company Act 2021(1965) and it was listed in NEPSE in 1986 A.D. (08/09/2042, B.S.). Dubai bank Ltd (DBL) was the initial foreign joint venture partner with 50 percent of equity share of NABIL. The shares owned by DBL were transferred to Emirates Bank International Ltd (EBIL), Dubai. Later on EBIL sold its entire 50% equity holding to National Bank Ltd.

Bangladesh (NBLB). Now, NBLB is managing the bank in accordance with the technical service agreement signed between both banks on June 1991. Authorized Capital is Rs.3700 million and issued & paid up capital both are Rs.3657.654 million.

(Shrestha, Dipendra.2011)

## **1.2 Focus of the study**

In this study, investment decision depends upon two factors i.e. risk and return. The return we could define as the reward for bearing risk and return is the most important outcomes from an investment. Return from stock can be of holding period return; return from speculation or from stock can be of holding period return, return from speculation or from short sell, capital gain and dividend gain etc. but return to investor is ever followed by risk, which is known as the occurrence of unfavorable outcomes and is ever followed by risk, which is known as the occurrence of unfavorable outcomes and is ever harmful for business.

In Nepal many times, investor invests their money without analyzing risk and return on common stock due to lack of knowledge about risk and return. On the other hand the increasing number of the banks and financial institution has created a competitive environment in financial sectors. Those to get maximum return from a minimum level of risk , the investor should diversify its investment by the means of the study is to measure and analysis the financial performance of joint Venture Banks, their risk and return to make sound and suitable investment decision.

## **1.3 Statement of the Problems**

Every investor should make rational investment decision. For this purpose, knowledge of analysis of common stock with using risk, return and portfolio analysis tools are very essential. Risk, return and portfolio analysis is the most important and essential tools in the area of investment because by using risk, return and portfolio analysis, a rational investor could found the less risky and the higher profitable investment of the different investment alternatives from the security market. Similarly, investor's attitude and perceptions are also play vital role for rational investment decision, which are influenced by the knowledge and access to the data required for analysis. Whenever, the investors cannot analyze risk, return and portfolio while making stock investment decision, they should not be secured from the risk.

In the Nepalese context, many investors are interested to invest their valuable money on the common stock of financial institution like joint venture Banks. But due to the lack of proper information about the norms of security market, process of selling and buying of stock, price fluctuation and risk and return analysis, the potential investors are manipulated or exploited by the financial institution and other intermediaries. Sometimes, they think that investing in common stock is intolerably hazardous, Due to this, many investors afraid to invest into stocks. This is the main problem that does not allow gearing up the capital market of the nation. In the Nepal, we look that the most of the investors invest their funds in a single securities with using their own guess, hunches and on the basis of looking past trends of stock price which may create maximum risk and uncertainty of profit for the invest. So every investor has to diversify his or her investment in the different bank's common stock with estimating optimal portfolio to minimize the risk and to maximize the return. Without diversify their investable fund into different sectors, they could not make the regular income. The main problem is that the general public cannot perfectly analyze the risk, return and portfolio analysis of common stock of JVBs in Nepal.

Theory says that the stock price in market is guided by the intrinsic value, which is calculated aid of company's required rate of return and growth. In the efficient market condition, stock price is equal to intrinsic value since the buyer and seller are fully aware of the facts and figures of the company. Therefore, one can say that market price and financial performance are correlated but condition here is totally different from that. Whatever the theory depicted that is not applicable in our context, where most of the investors do not know to interpret the information so they can make an irrational decision, regarding transaction of stocks. People assume more risk in stock investment than its real risk. Therefore, the stock price in Nepal is determined more by others factors like courage and faith. Thus, to boost the confidence of the investors, there are necessary to available clear & simple technique to analyze risk, return and optimal portfolio in the investment time to make sound decision.

Considering the above in mind, following problems are identified which are to be researched.

1. What is the comparative risk positions of selected banks?
2. What is the ratio of systematic and unsystematic risk from the total risk?



### 3. What is the portfolio construction within the selected banks?

Investment on common stock is the main sources of fund for the companies. The investors are the sources of the revenue as a customer for the stockbrokers and financial institutions and ultimately they are the backbone of the economic development of the nation. Thus, the financial institutions should make every policy and plan to encourage potential investors for invest in common stock. For this, there is great need of such institutions, which can provide valuable information that accelerates the stock investment and market efficiency.

#### **1.4 Objective of the study**

The general level of objective of this study is to assess the risk and return on financial assets investment of two commercial joint venture banks. The specific objectives of the study are as follow:-

1. To evaluate the comparative risk position of the selected banks.
2. To analyze the systematic and unsystematic risk of the selected banks.
3. To calculate the portfolio position of the selected banks.

#### **1.5 Significance of the study**

In the investment world, the investment analysis of any organization flashes its investment policy. The investment policy makes a good impact on the economy of the country. The success and the prosperity of any investor rely heaving upon the successful investment policy if it's available resources in to the profitable sectors. But due to lack of knowledge investor are investing their valuable funds through trail error approach.

So it is necessary to establish clear vision about the return from investing in securities.

This research attempt to clearly concrete picture of different aspect of risk and return, which is beneficial to the investors for taking right investment decision.

The study is significant for individual investors who are willing trade in securities of the firms. This is also provides some knowledge about the Nepalese stock market development along with providing ideas to minimize the risk on the investment. The

finding and conclusions of the study may be a helpful guide in making their investment decisions.

This research study gives information about Nepalese stock market and may contribute in the analytical power of the investor. However, in Nepalese context, Very few studies are made. The study has been more significant for exploring and increasing stock investment. The main significances of the study are:

1. This study provides some knowledge about the Nepalese stock market developments along with providing ideas to minimize the risk on stock investment.
2. This study also provides the information to the investor that assets are risky or not risky.
3. This study is beneficial for all the persons who are directly related to the Nepalese stock market.

#### **1.6 Limitation of the study.**

Following the possible limitations are as follows: -

1. This study covers only the period of five years from 2010/2011 to 2014/2015 years.
2. Only two joint venture banks has been taken under the study which may quality of the generalization.
3. The study is based on secondary data which may act as on limitation as the reliability of the data affects the research.

#### **1.7 Organization of the study**

This study is organized over the altogether five chapters. A brief outline of this chapter is as follows.

Chapter 1 “ Introduction” : it introduces the general background of the study, focus of the study, statement of the problems, objectives of the study, significance of the study, limitation of the study and organization of the study are considered .

In chapter 2 “Review of literature”: this chapter has been separated for the brief review of literature available. It covers the review of related books, Articles, previous

thesis etc. conceptual framework about risk, return and portfolio has been defined in this chapter.

In chapter 3 “Research Methodology”: this chapter consist subtopics Research design, population and sample, data collection techniques, tools for analysis and methods of Presentation and analysis respectively.

In chapter 4 “Data presentation, analysis and interpretation”: This part of the study is the main body of the research work. In this section, data are collected from various relevant sources and present and analyze by using various statistical and financial methods.

At last chapter 5 “Summery, conclusion and recommendation”: this chapter is follow by the basis findings from the research work, summary, conclusion and recommendation. The annexes and bibliography has been incorporated at the end of this study.

In the beginning of the study Recommendation, Viva-Voce sheet, Declaration, Acknowledgement, Table of Content and Abbreviation are presented and Bibliography and Appendix are included.

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

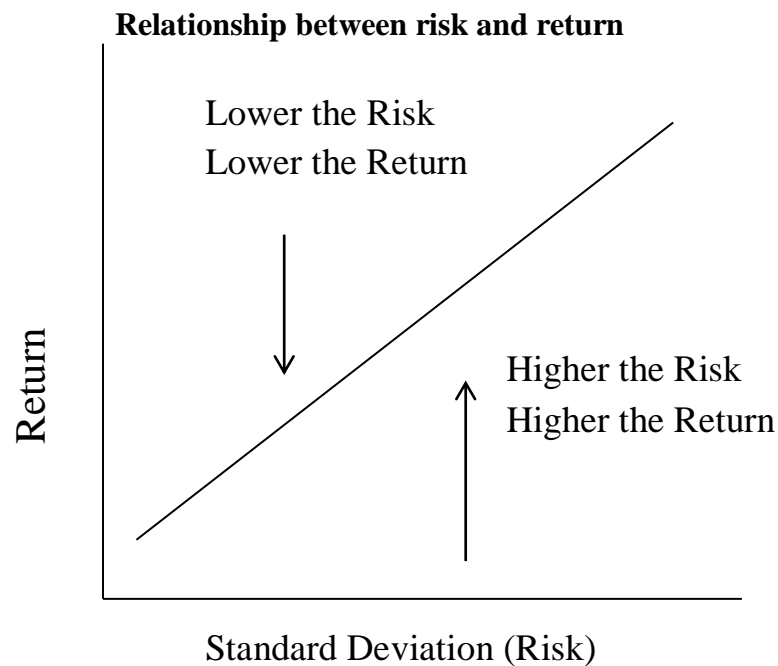
Risk and Return analysis of the stock has been the focal point and the key aspect in the capital market. The risk and return aspect and the formation of the optimal portfolio have become the major task for investment process. The essential of the modern portfolio theory are to avoid risk and calculate risk premium that investors need for involving in the risky investment. With the analysis of major risk and return the investor can quantify their tradeoff between risk and return.

#### **2.2 Investment Risk and Return**

Investment return and the relationship between risk and return are described by investor's perception about risk and their demand for compensation. No investors like to invest in risky assets unless one is assured of adequate compensation for the acceptance of risk. Hence, risk plays a crucial role in the analysis of the investments. It is the investors required risk premium that established a link between risk and return. In the market dominated by rational investor's higher risk has been command by rational premium and the trade-off between the two assume a linear relationship between risks and return premium. Risks and return are two interconnected and interdependent factors.

Generally, there is positive relationship between risk and return. it means an investor usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a riskier asset will pay. A higher average rate of return, it is usually. The reason is that investor is risk averse. As a result, high risk assets most offer investors high return to induce them to make this riskier investment. Naturally, investors are likely to prefer more return and less risk. it means investors could not choose an investment that guarantee less return when investment promising higher return in the same level of risk class are readily available. Risk and return relationship shown by the following figure.

**Figure 2.1**



## **2.3 Conceptual Framework**

### **2.3.1 Concept of Risk**

Risk is defined as uncertainty in investment return or variability of the actual return from the expected return associated with the given assets as a rational investor he/she must choose to invest in those which has been provides a better return with minimum risk and that has been maximize his or her utility. Investor can borrow at a risk free rate and the combined the borrow money with initial funds to invest in all risky in assets. Instead of investing in all or none of these assets class he/she must choose to diversify the total investment in different portfolio.

Risk defined must generally in a probability of occurrence of unfavorable outcomes but risk have different meaning in different context. In our context two measures developed from the probability distribution have been used as initial measure return and risk. They are mean and standard deviation of the probability distribution (Weston and Brigham, 1996).

Risk is uncertainty associate with any investment that is, risk is the possibility that the actual return on an investment has been different from its expected return. A vitally important concept in the finance is the idea that investment that carries a higher risk

as the potential of higher return. For example, a zero risk investment, such as us treasury securities, has a low rate of return, while a stock in start-up has the potential to make an investor very wealthy, but also the potential to loss entire investment certain type of risk are easier to quantify then others. To the extent that risk is quantifiable, it is general calculated as the standard deviation on an investment average return.

Each investor has a different risk tolerance. Some major of control over their return they required higher expected return to compensate them for taking greater risk. Investor having higher risk tolerance level would like to take chance with the risky but high growth potential investment. They enjoy risk and are willing to give up some return to take some risk there are other investors who fall between conservative and high risk who invest partially in conservative outlet and partially and riskier assets.

### **2.3.2 Measurement of risk**

Measurement of risk can be done by several financial tools, and following are some important financial tools for measuring risk.

#### **a) Standard deviation**

“Standard deviation is another parameter of rate of return distribution measurement. It measures the tightness or variability of set of outcomes. In another words, standard deviation measures the magnitude of the difference between best possible return and worst possible return. Thus, it measures the degree of risk of common stock, because the tightness of the probability distribution associated with possible outcomes. In general, the width of a probability distribution indicates the amount scatter, or variability, of possible outcomes. Therefore, the higher the probability distribution of expected returns, the less is its variability. Thus, the smaller the risk associated with the investment.” (Weston and Brigham, 1996).

#### **b) Coefficient of variation**

Standard deviation is absolute measure of risk whereas coefficient of variation is relative measure of risk. Risk is measured by standard deviation and risk per unit is of expected return is measure by coefficient of variation is denoted by CV. Greater the CV the greater relative risk of investment. Coefficient of variation is calculated to

compare the variability in return of two alternative investments. Hence it is useful to compare the investments having different expected return and different level of risk (Van Horne & Wachowicz, 2001).

### **c) Beta Coefficient**

The beta coefficient is the relative measure or indicator of systematic risk which indicates the level of systematic risk of particular investment based on the market variance. It may be used for ranking the systematic risk of different assets. If beta is large than 1, then assets are more volatile than the market, which is called aggressive assets. If beta is less than 1, then assets are considered as defensive assets as its price fluctuation are less volatile than market. On the other hand, if the beta is equal to 1, then the assets is said to be average as its price move proportional to the market changes. Beta of market is always 1.

### **2.3.3 Sources of Risk**

Different factors may contribute to investment uncertainty. The uncertainty makes investment risky. The sources of uncertainty that contribute to investment risk are as follows (Bhattarai, 2011)

#### **1. Liquidity Risk**

Liquidity risk is associated with uncertainty created by the inability to sell the investment quickly for cash. The return variability increase if price discounts and sales commission are to be given in order to liquidate assets in time. The less the liquidity, the greater has been the risk.

#### **2. Interest Rate Risk**

It is the potential variability of a return caused by changes in the market interest rates. Market interest rate influences the value of an asset and hence its return. If the market interest rates rise, the value of an asset (bond) decrease. A higher interest rate means a higher discount rate and a higher discount rate causes a lower present value on any asset.

### **3. Default Risk**

The degree of default risk is closely related to the financial condition of the company issuing the security and the security is ranked in claim on assets in the event of a default or bankruptcy.

### **4. Convertibility Risk**

It is that portion of the total variability of return from a convertible bond or convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock at a time or under terms harmful to the investor's best interests.

### **5. Bull Bear Market Risk**

The various market forces move securities price upward and downward. The upward trend of market price (Bull Market) and downward trend of market price (Bear Market) create long lasting sources of investment risk.

### **6. Industry Risk**

Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make ups and downs to the industry. Some of the factors which affect all the firms in an industry may be the industry's life cycle, international tariffs or quotas, industry related taxes and availability of industry related raw materials.

### **7. Political Risk**

Political risk is the portion assets total variability of return caused by changes in the political environment. The current Nepalese environment has made a significant impact on the investment to increase losses.

### **8. Purchasing Power Risk**

Purchasing power risk is the variability of return and investor suffers because of inflation. Economists measure the rate of inflation by using a price index. The consumer price Index (CPI) is a popular price index in the United States. The percentage change in the CPI is widely followed measure, of the rate the inflation.



## 9. Management Risk

Management risk is defined as the variability of return caused by a firm's management and board of directors. Though many top executive earn princely salaries, occupy luxurious offices, and wield enormous power within their organization, they are mortal and capable of making mistake or a poor decision. Furthermore, error made by business managers can harms those who have invested in their firms. Forecasting management error is difficult work that may not be worth the effort and, as a result, imparts needlessly skeptical outlook. Agency theory provides investors with an opportunity to replace skepticism with the informed insight as they endeavor to analyze subjective management risk.

### 2.3.4 Types of Risk

Total risk can be divided into two parts as one is systematic risk and another unsystematic risk according to CAPM (capital assets pricing model).

#### 1. Systematic Risk

Systematic risk refers to that portion of total risk which occurs due to the market factors. It is also known as market risk. Most systematic risk is either economic or political-inflation is the most significant systematic risk because its lower the real return. Systematic risk is market risk that affects all investments. The change in economic, political and sociological environment like high inflation, recession, impact of political factors, wars, depression etc. are the sources of systematic risk. It is also called un-diversifiable risk and un-avoidable risk. This risk is cannot controlled by management. It can be written as:

$$\text{Systematic Risk} = \frac{COV_{jm}}{\delta_m}$$

Where,

$COV_{jm}$  = Covariance of stock j and Market Return

$\delta_m$  = Standard Deviation of the market

#### 2. Unsystematic Risk

Unsystematic risk refers to that portion of total variability of the return caused due to unique factors, which relating to that firms or industry in terms of management

failure, labor strikes, raw material scarcity etc. specifically, unsystematic risk affects specific companies, such as bad management, lawsuits, and labor trouble. Unsystematic risk can be diversified or controlled by management so it is also known as diversifiable risk. It can be written as:

$$\text{Unsystematic Risk} = \frac{\delta_j - \text{COV}_{jm}}{\delta_m}$$

Where,

$\delta_j$  = Standard Deviation of Stock j

### 2.3.5 Concept of Return

“Return is defined as the dividend yield plus the capital gain or loss. The relationship between different levels of return on their relative frequencies is called a probability distribution; we could formulate a probability distribution for the relative frequency of a firm annual return by analyzing its historical return over the previous year. But we know that history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for the individual company. We can form a probability distribution based on historical data plus the analysis for the economy and the outlook for the industry the outlook for the firm in its industry and another factors” (Van Horne and Wachowicz, 2001).

The return is reward for undertaking the investment. In other words return is income received in investment. It is the expectation of getting some reward for leaving its liquidity. A financial instrument, such as a stock or bond, may be interest or dividend and may appreciate in price in secondary market. Hence, investment return equals income received minus its cost. Income received would include any current income, such as dividend and interest payment, plus any capital gain or loss if the instrument is sold in the secondary market or if any principal payment is greater or less than its initial cost (Ghimire, Kandel and Sapkota, 2014)

Return can be defined as the gain or loss for a security in a particular period, consisting of income plus capital gain relative to investment; it is usually quoted as percentage. The general rule is more risk investor takes the greater the potential for higher return (Philip, 2002).

### 2.3.6 Measurement of Return

a) Single period rate of return: If certain securities are brought and hold for certain period, there has been some return which is known as Single period rate of return. It is also known as Holding period return. If the investor sold the investment in more than the purchase price then he/she has been in capital gain or if sold less than the purchase price it has been capital loss. So, single period rate of return is the profit or loss through the change in the price of assets. Holding period return is calculated as:

b) Annualized Rate of return

i) Arithmetic mean return (AM): The arithmetic mean for a single investment is the weighted rate of return of each rate of return.

Arithmetic Mean

$$\text{HPR} = \frac{\sum_{t=1}^n \text{HPR}_t}{n}$$

ii) Geometric mean return (GM): The multi period or compounded rate of return is called Geometric mean return. Geometric mean HPR gives elastic result as it considers reinvestment opportunity. It is given by,

Geometric Mean

$$\text{HPR}_g = \left( \prod_{t=1}^n \text{HPR}_t \right)^{1/n} - 1$$

c) Expected Rate of Return

The expected rate of return or Holding period return is based upon the expected cash receipts over the holding period and expected ending or selling price. The expected return is unknown future return. Unless the rate of return is guaranteed, most investors recognize that several rates of returns are possible. Investors summarize these possible rates of return into a single number called the expected rate of return. If the investor describes the possible variables that will include each possible rate of return and assign probabilities to those outcomes, the expected rate of return should equal the weighted average of the various probabilities (Ghimire, Kandel and Sapkota, 2014)

If the probability distribution is given the expected rate of return for any assets is the weighted average rate of return using probability of each rate of return as the weight. And it is given by,

$$E(R_j) = \sum R_j \times P_j$$

Where,

P = probabilities Occurrence

If probability distribution is not given (Arithmetic Average): if return creating circumstance cannot be explain in possibility, expected rate of return is determined on the basis of real return of any assets in the past. In such condition arithmetic average rate of return is assume as:

$$\overline{E(R_j)} = \frac{\sum R_j}{N}$$

Where,

$E(R_j)$  = Expected rate of return on common stock 'j'

n = Number of years that the return is taken.

$\sum$  = Sign of summation.

$R_j$  = Return on stock 'j'

#### **2.4 Capital Assets Pricing Model (CAPM)**

The capital Assets Pricing Model (CAPM) was introduced by Treynor (1961), Sharpe (1964) and Lintner (1965). It is economic theories that describe the relationship between risk and expected return that is used in the pricing of risky securities. The CAPM suggest that, any investor can create a portfolio of assets that will eliminate virtually all diversifiable risk, the only relevant risk is non-diversifiable risk, and therefore, the investment decision and the pricing of capital assets should be based on the undiversifiable risk. CAPM says that expected return of a security or a portfolio equals the rate on a risk-free rate of return plus a risk premium multiplied by assets systematic risk.

CAPM is the model for the pricing of Capital Asset, or securities through the systematic risk and its respective required rate of return. In other words, for the

pricing of capital assets, the investors should evaluate only the systematic risk because investors are not compensated by extra return for bearing unsystematic risk. When investor's holds market portfolio, each individual asset in the portfolio entails specific risk, but through diversification, the investor's net exposure is just the systematic risk of the market portfolio. The CAPM is calculated according to the following formula:

$$E(R_j) = R_F + (E(R_m) - R_F)B_j$$

Where,

$E(R_j)$ =Required rate of return on asset j

$R_F$ =Risk free rate of return

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

$B_j$ =Market risk or Beta of asset j

According to CAPM the total risk is divided into two parts. They are systematic and unsystematic risk. Beta coefficient is the index of systematic risk; Beta is a measure that arises from between the return on stock and return on stock. Unsystematic risk is measured by standard deviation.

“Based on behavior of the risk averse investor, there is implied an equilibrium relationship between risk and expected return to provide a return commensurate with its unavoidable risk. This is simply the risk that cannot be avoided by diversification, to greater the unavoidable risk of security, the greater the return that investors will expect from the security (Van Horne, 1997).

Assumption of Capital Assets Pricing Model

1. All assets can be freely traded.
2. This would apparently confirm the model's inference that high beta (risk) shares produce high returns and low beta (risk) shares produce low returns.
3. All investors operate with the same planning horizon (usually one person).
4. Investors can hold long or short positions in all assets they trade.

5. Investors are indifferent between any two asset portfolios with identical means and variance (or investors have quadratic utility function/all asset returns are normal so that means and variance characterize the distributions).
6. There are no taxes or transaction costs.
7. All investors have identical perceptions regarding the expected returns, volatilities and correlations of available risky investments.
8. All investors are risk averse.
9. The market portfolio is efficient and is measurable.

## **2.5 Concept of Portfolio**

It is economic theory that describes the combination of the more than single security to minimize the risk for stable return. The portfolio theory was developed by Harry M. Markowitz on 1952. The theory says that don't put all eggs in a single basket.

Investment of fund into different assets rather than investing in single assets is called portfolio. It means investors tend to hold combination of assets. This combination of more than one security held by investor is known as portfolio. Putting or investing all money in single assets is too much riskier if the respective assets fall in a default or liquidation. So an individual investor who wants to reduce the degree of risk of holding the stock in portfolio are not interested in the risk and return on a particular single stock. So spreading the money in more than one asset can be defined as the investment in portfolio.

“Most financial assets neither are nor held in isolation; rather, they are held as parts of portfolios. Banks, pension funds, insurance companies, mutual funds, and other financial institutions are required by law to hold diversified portfolios. Even individual investors-at least those whose securities holding constitute a significant part of their total wealth-generally hold stock portfolios, not the stock of only one firm. This begins the case, from an investor's standpoint the fact that a particular stock goes up or down is not very important; what is important is the return on his or her portfolio, and the portfolio's risk. Logically, then, the risk and return of an individual security should be analyzed in terms of how that securities affects the risk and return of the portfolio in which it is held.” (Weston & Brigham; 1996).

## 2.6 Portfolio Risk and Return

### 2.6.1 Portfolio Return

The expected return of a portfolio is the weighted average expected return of the individual assets included in the portfolio. The weight represents the fraction of total fund invested in each assets included in the portfolio and the sum of total weight must be equal to one (Ghimire, Kandel and Sapkota, 2014).

The expected return of portfolio is calculated by using following equation.

$$\text{Portfolio Return } (R_p) = W_A * R_A + W_B * R_B + \dots + W_Z * R_Z$$

Where,

R<sub>p</sub> = Return on Portfolio

W<sub>A</sub> = Weight or Proportion of Asset 'A'

W<sub>B</sub> = Weight or Proportion of Asset 'B'

R<sub>A</sub> = Expected Return of Asset 'A'

R<sub>B</sub> = Expected Return of Asset 'B'

### 2.6.2 Portfolio Risk

The calculation of the risk of the portfolio is not as straight forward as the calculation of the return. in order to calculate the portfolio risk, attention should be placed not only in the riskiness and weight of individual assets which are included in the portfolio but also on how the return of two asset move together. Such association can be measured either by calculating covariance or by correlation co-efficient. The total risk of portfolio measure by either the variance or its square root, the standard deviation of returns. (Ghimire, Kandel and Sapkota, 2014).

Calculation of risk for two assets portfolio;

$$\delta_p = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COVAB W_A W_B}$$

Where,

$\delta_p$  = Portfolio Risk

$w_A$  = weight or Proportion of Asset 'A'

$w_B$  = Weight or Proportion of Asset 'B'

$\delta_A$  = Standard Deviation of Asset 'A'

$\delta_B$  = Standard Deviation of Asset 'B'

$COV_{AB}$  = Covariance between Asset 'A' and Asset 'B'

## **2.7 Review of Journal and Articles**

In the field of finance in Nepal it is very difficult to get advanced and research based journal. There are very limited numbers of journals available in the subject of management. However, the available studies which are related to the Nepalese stock market and foreign well known published journals of finance have been reviewed here.

An article of JitendraDangol (2009) "A survey of stock market reaction to public information", concluded that;

1. Shares of commercial banks, development banks and finance companies were more popular among the Nepalese investors.
2. Based on the follow of new information most of respondents have been found to have strong belief on impact of new information of price movements.
3. Capital appreciation is the main important motive behind investing in the common stock.

Edwin j. Elton (1999), published an article on "Expected Return, Realized Returns and Assets Pricing Tests" in this study he points out the fundamental issues in finance like that what the factors are that affect expected return on assets, the sensitivity of expected return to those factors, and the reward for bearing this sensitivity. There is a long history of testing in this area and it is clearly one of the most investigated assess in finance.

Almost all of the testing being aware of using realized returns as a process for expected returns. The sue of a average realized relies on a belief that information surprises tent to out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, he believes that there is ample



evidence that there is ample evidence that this belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk free rate (1973 to 1984, A.D. ). There are periods longer than 50 years in which risky long term bonds on average underperform the risk free rate [1927 to 1981 (A.D. )]. Having a risky asset with expected return above the risk free rate is an extremely weak condition for realized returns to be an appropriate proxy for expected return, and 10 and 50 years is an awfully long time for such a weak condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30% per year while Asian Markets have had negative returns (Elton, 1999:26).

K.C (2008), published an article on the topic “Development of stock market and economic growth in Nepal” published in business age and magazine he concluded to improve the situation of the country in order for investor to be eager to invest more confidently. He points out that the investors have lost their confidence on the secondary market not only because the existing few listed companies are not performing well but also due to fear of internal unrest that could further deteriorate the economic conditions of the country. He recommended increasing opportunities to invest in the secondary market.

Acharya and Dhungana (2002) on the title of “Expected return, realized return and assets pricing” is also relevant in our research. In this chapter the writer mentioned that “almost all of the testing I am aware of involve using realized return as proxy for expected return relies on a belief that information surprise trend to cancel over the period of study and realized return are therefore an unbiased estimate of expected returns. However, I believe that here is sample evidence that is belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk free rate of return (1973 to 1984). There are periods longer than 50 years in which risky long term bonds on average underperform the risk free (1927 to 1981). Having risky assets with expected returns above the risk free rate is an extremely weak condition for realized returns to be an appropriate proxy for expected returns and 10 and 50 years is an awfully long time for such a weak condition not to be satisfied.

## **2.8 Review of Thesis**

Basnet (2010), Conducted a study on the topic “*Risk and Return Analysis of Joint Venture Banks in Nepal*”. The main objective of this study is to find the condition of risk and return analysis of common stock investment. The other specific objective of this study was as follow:-

To examine the return associated with common stock investment in JVBs, To analyze the common stock of listed joint venture banks in mispriced, To examine systematic and unsystematic risk associated with common stock of joint venture banks.

### **Major Findings of the Study:**

Expected return of NABIL is highest i.e. 33.31% and NBBL has lowest expected rate of return i.e. 6.33%. EBL has second position in expected rate of return i.e.26.19%. SCBNL has 21.80% expected rate of return and 31.29% as standard deviation. NBBL also has maximum standard deviation of 82.43%. NABIL has second rank in terms of standard deviation of 54.03%. Coefficient of variation of NBBL is highest i.e. 1302.3 concludes as most risky assets. Similarly HBL has also CV of 423.68 and resulted as risky assets. Expected rate of return of market 12.79% and standard deviation is 40.61% with C.V. of 317.5. Standard deviation is the segregate the total risk and here NBBL has variance of 0.6794 where systematic risk is 0.5038 and unsystematic portion is 0.1736. Similarly, NABIL has second large portion of total risk where systematic risk is 0.0940 and unsystematic risk is 0.1979. The unsystematic risk is diversifiable risk and could be eliminated through diversification.

Coefficient of determination is the proportion of systematic risk to the total risk. Coefficient of determination of EBL and SCBNL, have highest portion of that risk. Sharpe's portfolio performance measures use the standard deviation of return as the measure of total risk. Here, portfolio SCBNL (A) has best performance measure as it has highest risk premium i.e. 0.5393 and portfolio NBBL (F) has worst performance as it has lowest risk premium i.e. 0.0158.

Wagle (2011), Conducted a study on the topic of “*Risk and Return Analysis of Leading Commercial Banks in Nepal (With Reference of NIBL, NABIL & HBL)*”. The main objective of this study is to evaluate the risk and return on common stock investment of listed commercial banks in Nepal”. The specific objectives of the study were as follow:

To analyze systematic risk of the selected commercial banks. To analyze the unsystematic risk of the selected commercial banks. To analyze the risk and return of selected commercial banks. To analyze whether the common stocks of selected banks are overpriced or underpriced. To analyze if there is any significance difference between expected return and overall market return. To provide the valuable suggestion about the risk and returns on stocks of the commercial banks.

**The major Findings of the study:**

The return is the income received on a stock investment which is usually expressed in percentage. Average rate on common stock of NAIBL is maximum (17.51%) since average rate of return of NIBL and HBL is 9.48% and 8.22% respectively. In another side, all the three banks required rate of return is higher than the average rate of return, so all commercial bank's stock are overpriced. Their stock value has been decreased in the near future. Beta coefficient explains the sensitivity of volatility of the stock with market. Higher the beta higher the volatility. In this context, common stock of NABIL is most volatile i.e. 1.5537 and common stock of HBL is the lowest volatile i.e. 0.8552. we find that NABIL has aggressive type of common stock. From the view point of SR and USR, the NABIL bank has high portion of USR risk i.e. 31.05% which can be minimized from internal management, whereas HBL has high portion of SR i.e. 91.54%. This cannot be minimized from internal management. NIBL best among this bank due to its highest proportion of USR. Risk is the variability return which is measured in terms of standard deviation (SD). On the basis of S.D, common stock of NABIL is more risky since it has high S.D i.e. 69.80%. S.D of HBL is less risky because of its lowest S.D of 37.51%. On the other hand, we know that C.V is more rational basis of investment decision which measures the risk per unit of return. On the basis of C.V, NABIL is the best among all other banks. NABIL bank has 3.9863 unit of risk per unit of return.

Panthi(2012), Conducted a study on the topic "Risk and Return Analysis of joint venture bank in Nepal with reference to six joint venture banks" the main objective of the study was to estimate an optimal portfolio among investment in shares of Joint Venture Banks. However, other specific objectives of this study were as follows:-

To analyze comparative risk and return position of JVBs. To study systematic and unsystematic risk associate with securities of JVBs. To analyze the risk and return

relationship of individual stock of JVBs with that of market. To indicate the suggestive measures to investors.

**Major findings of the study:**

The average rate of return, standard deviation, variance and coefficient of variation showed that EBL has the highest expected rate of return and HBL has the lowest. Again EBL is the one with the highest standard deviation and variance which implies that the stock of EBL is high risk, HBL has the lowest level of risk. On the other hand, risk per unit of return is highest for NSBI bank and lowest for HBL. Beta coefficient and total risk of JVBs, NBBL has the highest beta coefficient which implies that the stock of NBBL is highly market sensitive. Lowest and a positive correlation of HBL shows that the risk of HBL is diversifiable to some extent. SCBL has the highest systematic risk which means that a high portion of the risk of SCBL is undiversifiable. Likewise, the weight of systematic risk of EBL is the lowest which indicates that a high portion of the risk of EBL can be diversified but not eliminated. In case of unsystematic risk, NABIL has the lowest and EBL has the highest USR which means that SCBL internal risks cannot be easily diversified while EBL internal risk can be easily diversified.

Oli (2013), conducted a study on the topic “*A Study on Risk and Return Analysis on Common Stock Investment of Nepalese Insurance Companies*”. The major objectives of the study were as follows.

To analyze risk and return on investment in common stock of insurance companies. To determine the relation of each insurance company with the industry index. To evaluate common stock's price under CAPM method.

**Major Findings of this Study:**

Expected rate of return of insurance sector is 1.55% with standard deviation of 24.47% and coefficient of variation of insurance index is 3.16. The common stock of SIL, NLIC and UIC are underpriced and the common stock of NLICL and SICL are overpriced. From the analysis of optimal portfolio creation between SIC and UIC it is found that the optimal portfolio is made if investment is made into 50% and 50% of SICL and UIC common stock. The proportion of systematic risk and unsystematic risk on total risk of NLICL has 24.54% and 75.46%, NLIC has 8.91% and 91.09%, SIC

has 30.54% and 69.46%, SICL has 58.05% and 49.95 and UIC has 40.17% and 59.83% respectively.

Bajracharya(2014), Conducted a study on the topic “Risk and Return Analysis of commercial Banks in Nepal; with special reference of three commercial banks”.

The main objectives of the study:

To examine the systematic and unsystematic risk of selected commercial banks. To analyze level of risk and return of selected commercial banks. Various factors affecting the risk and returns of commercial banks. Current position of banking sector regarding risk and return.

**The major finding of the study:**

Expected return on the commercial banks by taking the data of five years the highest expected return among the commercial under this study is Everest Bank Ltd. which is 36.90% whereas Kumari Bank Ltd. has lowest expected return of 15.97%. Standard deviation or risk of commercial banks by taking data of five years, highest risk among the three commercial banks under this study is KBL which is 66.80% and NIBL is the least risk as it consist 55.56%. There is no perfect positive and perfect negative correlation coefficient between the stocks of two banks. All three sampled commercial banks relation with NEPSE Index shows positive relation. In terms correlation of coefficient, EBL has the highest positive relation i.e. 97.89% and NIBL has the minimum positive relation i.e. 93.84% with the NEPSE index. All 3 sampled commercial banks have USR which can be diversifiable. The highest USR is 4.14% of KBL and where as USR of EBL is 1.569%. KBL consist of 40.18% of SR from total risk whereas it's the lowest of NIBL is 27.17%.

Giri (2015), conducted a study on the topic of “A comparative Analysis of Performance of Investment in Common Stock Including Risk and Return With Reference of SCBNL, HBL and EBL)”. The main objective of this study is to analyze the performance of the stock in terms of risk and return of listed commercial banks. However, the specific objectives of the study were as follow:

To provide the brief view of the present Nepalese Stock Market. To analyze the risk involved in the common stock investment of the sampled commercial banks. To

evaluate returns and risk proportion of investment of stock of sampled commercial banks. To know the weather stock of selected commercial banks are overpriced, underpriced or equilibrium price. To provide the valuable suggestion about the risk and returns on stocks of the commercial banks.

### **The major Findings of the study:**

According to the calculated of actual rate of return and required rate of return of Everest bank found to higher, so the stock of EBL is undervalued. The remaining two bank HBL and SCB have actual return less than the required rate of return so the stock price of those banks is overvalued. Standard Deviation of Everest bank is 33.70% which is higher of all the selected banks for the study. The Standard Deviation of HBL and SCB are 21.35% and 24.98% respectively. Depending upon this parameter i.e. S.D., SCB stock is less risky. Number of listed companies under NEPSE, shows the decreasing trend with negative percentage change, which indicates decreasing interest of public towards the establishment of companies in the country.

### **2.9 Research Gap**

There is a lot of research done by different researcher on the topic of “Risk and Return Analysis of commercial Banks” there is fundamental different between those and this present one. This research has further tried to identify the overprice, under price or correctly price of securities which plays significant role to make rational decision to investors for sold of securities or purchase of securities or no purchase no sold of securities and this research also tried to risk and return relationship of stock with market which is not done by previous researcher.

## **CHAPTER-III**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

In this study observed data which are based on the historical data, has been analyzed with using both statistical and financial tools. Results are present in simple way by using graph, diagrams and tables. In this chapter the following aspects of research is discussed.

#### **3.2 Research Design**

The present study is mainly base on recent historical data which is collected from various secondary sources. The research study covers five years of period from the F/Y 2010/11 to 2014/15. This study uses descriptive research design. It relates with the study of risk and return analysis of joint venture Banks the basis of available information. Financial analysis with various statistical and financial tools has been use for analysis aspect.

#### **3.3 Population and Sample Size**

Currently in our country, there are 28 commercial banks are running of the out of them there are seven joint venture banks. This study is based on risk and return analysis of the two joint venture banks in Nepal. Thus, this research covers two joint venture banks using the simple random method of sample method.

Population size = 7

Sample size = 2(28.5714%)

#### **3.4 Data Collection Procedure**

This study is based on secondary data concerned joint venture banks, Nepal Rasta Bank, Securities Board of Nepal (SEBON), and different library provider data. The review of literature of the proposed study is based on the text books, journals websites. During the study period, informal opening survey also taken with the individual investor, related joint venture banks of officials, Nepal Stock Exchange (NEPSE) etc.

### **3.5 Tools for Analysis**

The financial and statistical tools are applied in order to analyzed the performance of joint venture banks.

#### **Financial Tools**

The study using following financial tools:

1. Market price of share
2. Dividend per share
3. Holding period rate of return on common Stock
4. Expected rate of return on common stock
5. Required rate of return
6. Return on market
7. Systematic risk
8. Unsystematic risk
9. Portfolio risk and return

#### **Statistical tools**

1. Standard deviation
2. Coefficient of variation
3. Beta coefficient
4. Correlation coefficient

#### **3.5.1 Market Price of Share (MPS)**

Market price of share is one of the major data of this study. Market price of stock for a particular year should have represented the average price of the year but, for the simplicity, price of stock for the closing data of fiscal years are taken as the market price of stocks for the particular years and these data are taken from annual reports of respective joint venture banks. Each year closing price is taken as the market price of stock which has time period of one year and study has focused in annual basis. It may be very closer result if it is used average price that represents the price of whole year but it is very difficult to obtain the real average. To get the real average, volume and price of each transaction of the stock and the duration of the time of each transaction in the whole year are necessary. But, it is very hard and difficult to include all the information. In this regard, it is very difficult to use average price as a market price of



stock. Thus, the closing price of each year is used as the market price of the stock (MPS).

### 3.5.2 Dividend (DPS)

Dividend is the portion of net income that is provided to shareholders as a part of their investment. The total amount of dividend out of earning available to shareholder if distributed, the equity stock's portion is said dividend per share (DPS). It can be expressed as follows:

$$DPS = \frac{\text{Total amount of dividend paid}}{\text{Number of common stock outstanding}}$$

If the company declares only the cash dividend, it is easy to calculate the dividend amount. But, if company declares only the stock dividend (Bonus share), it is difficult to obtain the amount that really shareholders have gained. In such a condition, they get extra number of shares as a dividend and simultaneous the price of stock declined due to the increased numbers of outstanding stocks. To get real amount of dividend, following model has been used.

Total dividend = cash dividend + stock dividend% X next year's MPS

W here,

MPS = Market Price per ShareIt

it is denoted by symbol as "D"

### 3.5.3 Holding Period Rate of Return on Common Stock

Holding period return is the income received plus any change in market price of stock usually expressed as a percent of the beginning market price of the investment. It is denoted by 'HPRj'.

Mathematically,

$$HPR_J = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$$

Where,

R= Return on common stock investment.

D<sub>t</sub>= Cash dividend received at t period.

P<sub>t</sub>= Price of stock at t period.

P<sub>t-1</sub> = Price of stock at t-1 period.

### 3.5.4 Expected Rate of Return on Common Stock

One of the main objectives of the study is to determine the expected rate of return on common stock investment. The expected rate of return is unknown future return. The expected rate of return is based upon the expected cash receipts over the holding period and expected ending price of stock. It is denoted by E(R<sub>j</sub>).

Symbolically,

$$\overline{E(R_j)} = \frac{\sum R_j}{N}$$

Where,

E(R<sub>j</sub>) =Expected rate of return on common stock 'j'

n =Number of years that the return is taken.

∑ = Sign of summation.

R<sub>j</sub> = Return on stock 'j'

Using probabilities,

$$\overline{(R_j)} = \sum R_j \times P_j$$

Where,

P= probabilities Occurrence

### 3.5.5 Required Rate of Return

Required rate of return is minimum expected rate of return needed to induce an investor his/her fund. It is always more than risk less rate of return. Normally, when an individual investment is given higher return, i.e. realized rate of return than its required rate of return, this type of investment is known as underpriced investment. Such underpriced assets should be purchased. On other hand, if realized rate of return

is less than the required rate of return of a particular asset, it is said to overpriced assets, such assets should be sold. (Bhattarai, 2014).

The required rate of return is calculated by using following formula.

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

Where,

$E(R_j)$  = Required rate of return for stocks j

$R_f$  = Risk free rate of return

$E(R_m)$  = Expected return for market Portfolio

$\beta_j$  = An index of systematic risk of stock j (beta coefficient)

### 3.5.6 Return on Market (R<sub>m</sub>)

It is the percentage increase in NEPSE index. Market return is the average return of the market as a whole. It is calculated as:

$$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

$R_M$  = Return on market

$N_{it}$  = NEPSE index at 't' time

$NI_{t-1}$  = NEPSE index at 't-1' time

### 3.5.7 Systematic Risk

Systematic risk occurs due to the change in macro-economic factors like, inflation rate, interest rate, trade cycle as well as due to the external factors like political, economic, sociological, technological etc change. Systematic risk cannot be eliminating by allocating capital to a diversified portfolio of investments. It is also known as undiversifiable risk. A statistical measure of systematic risk is:

- a. Proportion of systematic Risk =  $\rho^2 j_m$

Where,

$\rho_{jm}^2$  = correlation between assets j and market

$$\text{Systematic Risk} = \sigma_m^2 * \beta_j^2$$

Where,

$\sigma_m^2$  =variance of market

$\beta_j^2$ = Beta of assets j or portfolio

### 3.5.8 Unsystematic Risk

Unsystematic risk is unique to an organization and occurs through the events like, labour strikes, management errors, inventions, advertising campaigns, availability or raw materials etc. An efficient diversified portfolio of securities can be successfully eliminated most of the unsystematic risk can be calculated by using the following formula:

a. Proportion of Unsystematic Risk =  $1 - \rho_{jm}^2$

Where,

$\rho_{jm}^2$ = Correlation between assets j and market.

b. Unsystematic Risk= total risk-systematic risk

$$= \sigma_j^2 - \sigma_m^2 * \beta_j^2$$

### 3.5.9 Portfolio Risk and Return

Portfolio is the combination of investments in various securities. It is making investment in more than one alternative at the same time. Investors have different types of opportunity but they have limited resource for investment so that investors have to choose that investment opportunity which maximizes return for a given level of risk or minimized risk for a given level of returns. Thus, the combination of investment is called portfolio.

#### 3.5.9.1 Portfolio Risk

Portfolio risks means that risks which is created while investing in more than one asset together. The portfolio risk is main influenced by three components, one is riskiness of the securities included in the portfolio, and another is proportion of fund

invested in individual securities included in the portfolio and last is covariance or correlation coefficient between the returns of securities. It can be computed by using the following formula.

For two assets

$$\delta_p = \sqrt{W_A^2 \delta_A^2 + W_B^2 \delta_B^2 + 2COV_{AB} W_A W_B}$$

Where,

$\delta_p$  = Portfolio Risk

$w_A$  = weight or Proportion of Asset 'A'

$W_B$  = Weight or Proportion of Asset 'B'

$\delta_A$  = Standard Deviation of Asset 'A'

$\delta_B$  = Standard Deviation of Asset 'B'

$COV_{AB}$  = Covariance between Asset 'A' and Asset 'B'

### 3.5.9.2 Portfolio Return

The portfolio expected return is the weighted average expected return of the individual assets included in the portfolio. The weights are the proportions of the investor's wealth in each asset.

$$\text{Portfolio Return (Rp)} = W_A * R_A + W_B * R_B + \dots + W_N * R_N$$

Where,

$R_p$  = Return on portfolio

$W_A$  = Weight or Proportion of Asset 'A'

$W_B$  = Weight or Proportion of Assets 'B'

$R_A$  = expected return assets 'A'

$R_B$  = Expected Return of Asset 'B'

### 3.5.9.3 Minimum Risky Portfolio

It refers to the combination of the assets at which risk of the portfolio is minimized. It gives proportion of investment in two different assets give minimum risk. It is calculated by using following formula:

$$W_A = \frac{\sigma_B^2 - \text{Cov}_{AB}}{\sigma_A^2 + \sigma_B^2 - 2\text{Cov}_{AB}}$$

$$W_A + W_B = 1$$

$$W_B = 1 - W_A$$

Where,

$W_A$  = Optimal weight to invest in stock A

$W_B$  = Optimal weight to invest in stock B

$\delta_A^2$  = Variance of Stock A

$\delta_B^2$  = Variance of Stock B

$\text{COV}_{AB}$  = Covariance of returns of stock A and B.

### 3.5.10 Standard Deviation (S.D)

Standard deviation is the absolute measure of dispersion. Absolute measure of dispersion or variation items around their average value it is the statistical measure of the variability of a set of observations. The square root the variance of the rate of return is called the standard deviation of the rate of return. It is denoted by sigma sign ( $\sigma$ ). S.d is calculated as follows:

When probability is not given

$$\delta_j = \sqrt{\frac{(R_j - \bar{R}_j)^2}{n-1}}$$

When probability is given

$$\delta_j = \sqrt{\sum P_s (R_j - \bar{R}_j)^2}$$

Where,

$R_j$  = Rate of return of individual assets

$(\overline{R_j})$  = Expected Return of Assets 'J'

$\sigma_j$  = Standard Deviation of the returns on stocks j during the time period n

$P_s$  = probability of occurrence

n = no. of years

### 3.5.11 Coefficient of variation (C.V)

Standard deviation is the absolute measure of risk of return whereas coefficient of variation is a relative measure of risk of return. It measures the percentage of risk to return or per unit of risk in terms of per unit of return. It is denoted by C.V. Greater the CV the greater relative risk of the investment. Coefficient of Variation is calculated to compare to compare the variability in returns of two alternative investments. Hence, it is useful to compare the investments having different expected return and different level of risk.

Symbolically,

$$C.V. = \frac{\sigma_j}{R_j}$$

### 3.5.12 Beta coefficient ( $\beta$ )

Beta coefficient is the relative measure or indicator of systematic risk which indicate the level of systematic risk of particular investment based on the market variance. It also measure volatility of the asset compared to the general market. A high beta indicates a high level of risk and vice-versa. Assets with betas greater than 1 are classified is more risky (aggressive) as its price fluctuations more volatile than the market and the assets with betas less than 1 or market beta as less risky (defensive) in comparison with market risk as its price fluctuations less volatile than the market . On other hand, if the beta is equal to 1 then assets is said to be average as its price move proportionate to the market change. Beta is calculated by the following formula,

$$\beta_j = \frac{COV_{R_i R_m}}{\sigma_m^2}$$

Where,

$$\text{COV}(R_j, R_m) = \frac{\sum(R_j - \overline{R_j})(R_m - \overline{R_m})}{n - 1}$$

$\beta_j =$  Beta co-efficient for stock 'j'.

$\text{Cov}_{jm}$  = covariance between stock of j and market.

$\delta_m^2$  = Variance of market return.

### 3.5.13 Correlation Coefficient

The correlation coefficient measures the direction of relationship between two sets of figures. The correlation measures the degree of relationship of movement of securities return. Correlation and covariance are closely related. It always ranges from +1 to -1. Correlation can be calculated by using the following equation.

$$\text{Cov}_j = \sigma_i \sigma_j \rho_{ij}$$

$$\rho_{ij} = \frac{\text{Cov}_{ij}}{\sigma_i \sigma_j}$$

Where,

$\sigma_i$  and  $\sigma_j$  are the standard deviations of returns for assets i and j and  $\rho_{ij}$  is correlation coefficient for asset i and j. there are various cases of correlation and risk condition which are presented below.

#### i) Perfectly Positive Correlation ( $\rho_{ij} = +1$ )

Return on two perfectly positive correlated stocks would move up and down together and portfolio of two such stocks would be exactly as risk if the portfolio consists of perfectly positive correlated stocks.

#### ii) Perfectly Negative Correlation ( $\rho_{ij} = -1$ )

Returns on two perfectly negative correlated stock would move perfectly together put in exactly opposite in directions. In this condition, risk can be completely eliminated perfect negative correlation almost never found in the real world.

#### iii) No Relation between Return ( $\rho_{ij} = 0$ )

When the correlation between two stocks is exactly zero, there is no relationship



between the return they are independent of each other. In this condition some risk can be reduced.

## **CHAPTER-IV**

### **PRESENTATION AND ANALYSIS OF DATA**

The chapter Data presentation and analysis is the main body of the study. The purpose of this chapter is tabulated, analyzed and interpreted the collected data to achieve the objectives of the study in an understandable manner. On the background of various reading and literature review in the preceding chapter, it is tried to analyzed and explore the Risk and Return analysis on common stock with taking a special reference with joint venture banks of Nepal. In this course of analysis, data gathered from various sources has been presented in the tabular and shown in diagram form. The data has been analyzed by using financial and statistical tools.

#### **4.1 Analysis of Individual Joint Venture Banks**

The Study is focused on analyzing the common stock of Joint Venture Banks. There are currently 7 Joint Venture Banks in Nepal. Among the listed joint venture banks only two joint venture banks are taken as sample namely,

1. Everest Bank Limited(EBL)
2. Nabil Bank Limited(NABIL)

##### **4.1.1 Everest Bank Limited (EBL)**

The following table shows the data of Everest bank that include market price, dividend data, earning per share, price earnings ratio relationship between closing price, EPS and DPS is shown in the diagram

#### 4.1.1.1 Tabulation of MPS, EPS, P/E Ratio and Dividend Data of EBL

**Table 4.1**

##### **MPS, EPS, P/E Ratio and Dividend Data of EBL**

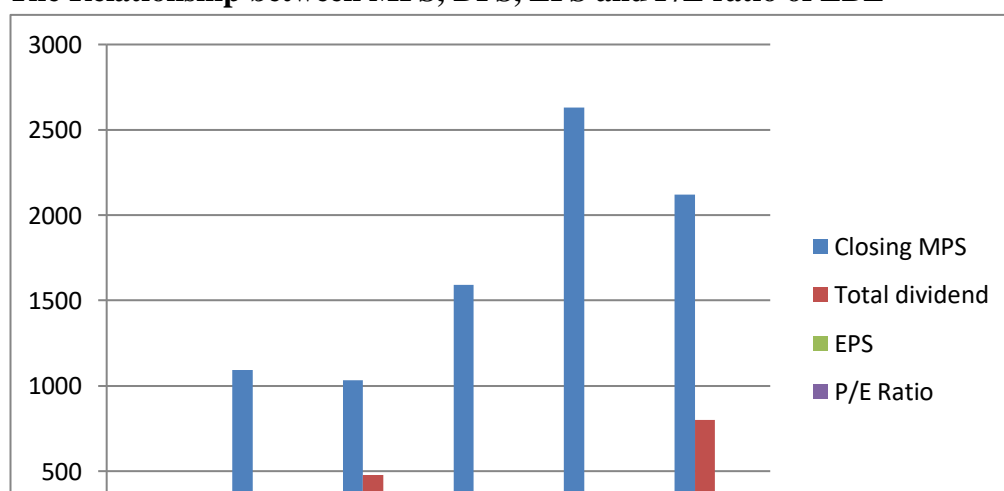
<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs)</b>	<b>Stock Dividend in %</b>	<b>Total dividend</b>	<b>EPS (Rs.)</b>	<b>P/E Ratio</b>
2010/11	1094	50	10	153.3	83.18	13.15
2011/12	1033	1.58	30	478.88	88.55	11.66
2012/13	1591	50	10	313.10	91.88	17.32
2013/14	2631	50	12	304.52	86.04	30.58
2014/15	2120	5	30	800.96	78.04	27.17

**Source: Annual Report of EBL, from the F/Y 2010/2015**

The closing market price is higher in 2013/14. The bank has distributed cash dividend ranging from Rs. 1.58 to Rs. 50 per share every year. EBL has distributed higher stock dividend of Rs 30 in year 2011/12 and 2014/15. The highest total dividend is in year 2014/15 of Rs. 800.96 and the lowest is in 2010/11 of Rs. 153.3 respectively. From the above table we can conclude that the P/E ratio is maximum when MPS is also maximum.

**Figure 4.1**

##### **The Relationship between MPS, DPS, EPS and P/E ratio of EBL**



Amount  
in (Rs.)

#### Fiscal Year

From the figure no 4.1, it shows that the closing market price is the highest in fiscal year 2013/14 because in this F/Y company distributed highest dividend 62% where 50% cash dividend and 12% stock dividend. The MPS is Lower in F/Y 2011/12 because total dividend distributed by the company is lower in comparative other F/Y. EPS is increased from F/Y 2010/11 to 2013/14 due to increase in net income. P/E ratio is used to Judge the financial performance of firm. The P/E ratio is fluctuating in each year. P/E ratio is maximum where MPS also maximum and vice-versa.

**Table 4.2**

#### **Tabulation of calculated Expected Return, Standard Deviation and C.V of EBL**

Expected Rate of Return ( $\bar{R}_j$ )	38.91%
Standard Deviation ( $\delta$ )	46.94%
Co-efficient Variation (C.V)	1.2064

**Source: Annex-2**

According to the table, the expected rate of return of EBL is 38.91% with the Standard Deviation of 46.94% and coefficient of Variation of EBL is 1.2064. This indicates that the investors needs to sacrifice 1.2064 unit of risk for per unit return.

#### **4.1.2 Nabil Bank Limited (NBL)**

The table below shows the data of Nabil bank limited that includes market price, dividend data, earning per share, price earnings ratio and relationship between closing price, EPS and DPS is shown in the diagram.

#### 4.1.2.1 Tabulation of MPS, EPS, P/E Ratio and Dividend Data of NABIL

**Table 4.3**

**MPS, EPS, P/E Ratio and Dividend Data of NABIL**

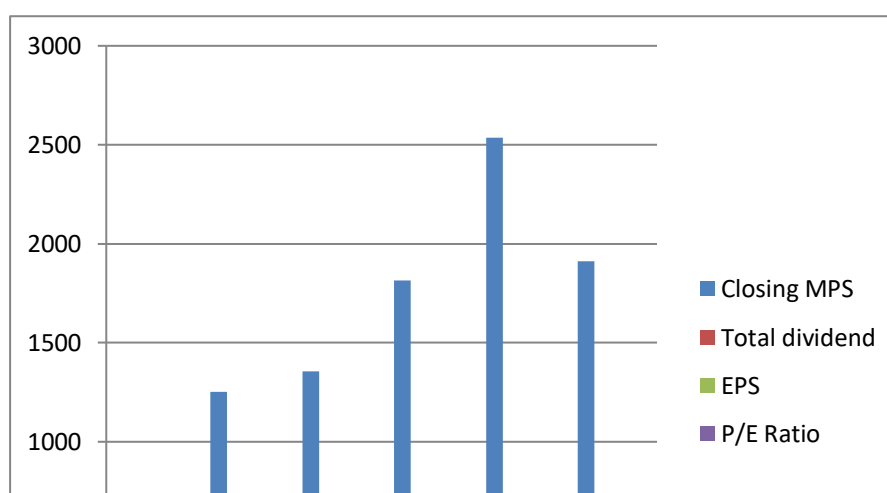
<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs)</b>	<b>Stock Dividend in %</b>	<b>Total dividend</b>	<b>EPS (Rs.)</b>	<b>P/E Ratio</b>
2010/11	1252	30	-	30	70.67	17.72
2011/12	1355	40	20	403	83.23	16.28
2012/13	1815	40	25	673.75	95.15	19.08
2013/14	2535	45	20	427	83.68	30.29
2014/15	1910	6.84	30	655.90	57.24	33.37

**Source: Annual Report of NABIL**

The closing market price is highest in 2013/14. The bank has distributed cash dividend ranging from Rs. 6.84 to Rs. 45 per share every year. EBL has distributed highest stock dividend of Rs 30 in year 2014/15. The highest total dividend is in year 2012/13 of Rs.673.75 and the lowest is in 2010/11 of Rs. 30 respectively. The P/E ratio is increasing from fiscal year 2011/12 to 2014/15.

**Figure 4.2**

**The Relationship between MPS, DPS, EPS and P/E ratio of NABIL**



Amount  
in (Rs.)

Fiscal Year

From the above figure we can observe that, the closing price is highest in 2013/14 because company distributed 65% total dividend where 45% cash and 20% stock and MPS is lower in F/Y 2010/11 because of the total dividend distributed by company is also lower i.e. 30% where 30% cash dividend and zero stock dividend. The P/E ratio is maximum in F/Y 2014/15 because the EPS is highly decreased as comparative to other year.

**Table 4.4**

**Tabulation of calculated Expected Return, Standard Deviation and C.V of  
NABIL**

Expected Rate of Return ( $\bar{R}_j$ )	28.45%
Standard Deviation ( $\delta$ )	51.76%
Co-efficient Variation (C.V)	1.8193

**Source: Annex-2**

According to above table, the expected rate of return of NABIL is 28.45% with the Standard Deviation of 46.29% and coefficient of Variation of EBL is 1.6271. This indicates that the investors need to sacrifice 1.6271 unit of risk for per unit return.

#### **4.2 Analysis of Market Movement**

##### **Market Index (NEPSE Index)**

There is only one stock exchange in Nepal on market risk and return. The program has been started by government to return capital converted securities. Stock exchange center Nepal 1993 has been working a non- profit organization opening under the securities exchange Act 1983 overall market movement of the country is represented by market index or NEPSE index. The return and risk of market is the average return

and risk of all the securities available in the market. The market assuming the lowest risk provides the best return.

**Table 4.5**

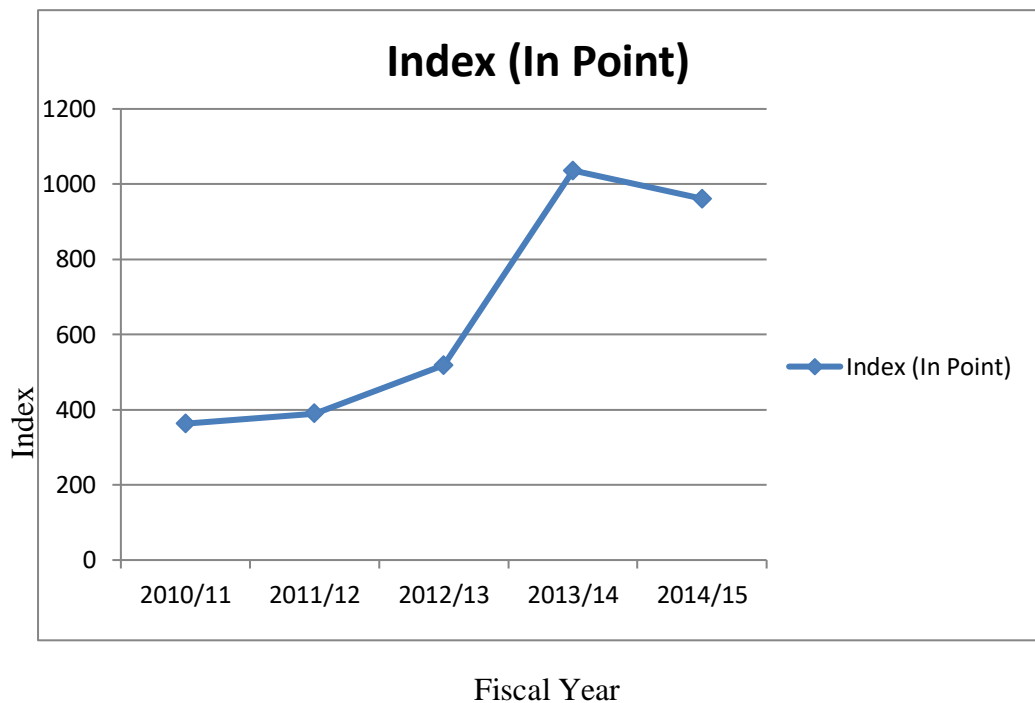
**NEPSE Index Movement**

<b>Fiscal Year</b>	<b>Index (In Point)</b>
2010/11	362.85
2011/12	389.74
2012/13	518
2013/14	1036.11
2014/15	961.23

Source: [http:// www.nepalstoks.com](http://www.nepalstoks.com) downloads.

**Figure 4.3**

**Movement of NEPSE Index**



Above diagram shows the trend line of NEPSE index movement from F/Y 2010/11 to 2014/15. This shows the increasing upward NEPSE index from F/Y 2010 to 2013/14 but then after, the market movement went downward and NEPSE index falls to 961.23 point in F/Y 2014/15.

#### 4.2.1 Expected Return, S.D and C.V of Overall Market

**Table 4.6**

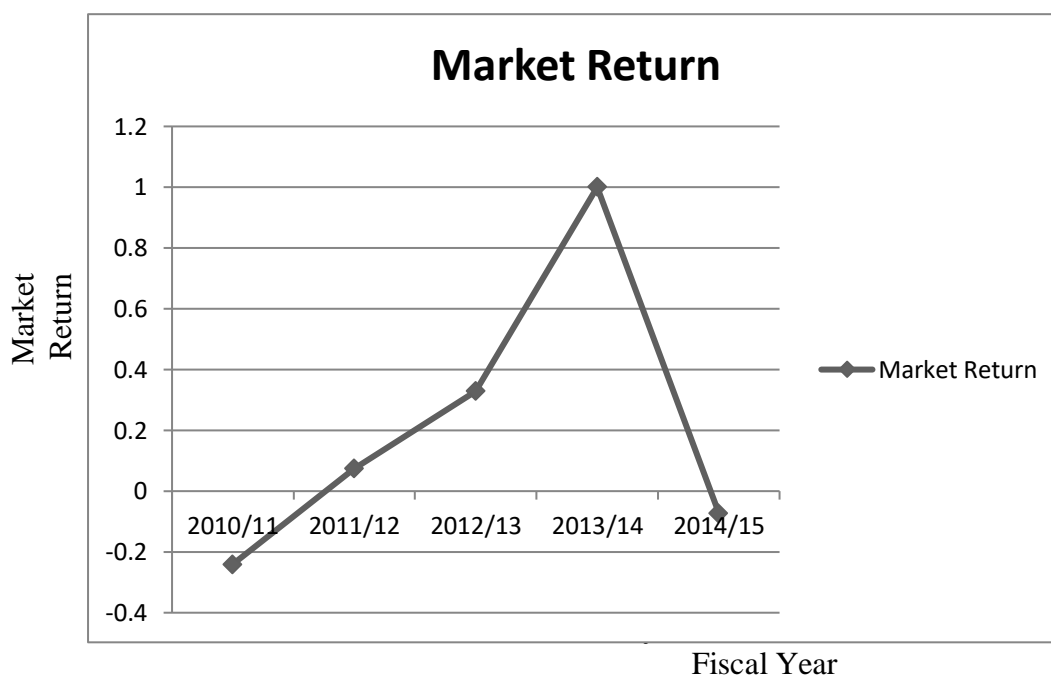
**Expected Return, S.D and C.V of Overall market Return**

Statistical Tools					Value
Expected Return					0.2181
Standard Deviation					0.4846
Coefficient of Variation					2.2219
Fiscal Year	2010/11	2011/12	2012/13	2013/14	2014/15
Market Return	-0.2404	0.0741	0.3291	1.0002	-0.0723

**Source: Annex-3**

**Figure 4.4**

**Movement of Market Return**



The above diagram shows that the realized return of market is negative in F/Y 2010/11 (i.e. -24.04%), but after positive trend up to Fiscal year 2013/14. The highest realized return on market is 100.02% in Fiscal Year 2013/14. Again in Fiscal Year 2014/15, market return becomes negative.



### 4.3 Comparative Analysis of Sample Joint Venture Bank Based on Expected Return, Standard Deviation and C.V

**Table 4.7**

#### Expected Rate of Return, Standard Deviation and C.V of Sample Banks

S.N	Banks	Expected Return	Standard Deviation	C.V
1	EBL	38.91%	46.94%	1.2064
3	NABIL	28.45%	51.76%	1.8193

**Source: Annex-2**

Table shows the comparison of Expected Return, Standard Deviation and coefficient of Variation between 2 joint Venture Banks. The statistical results imply that over the study period, EBL has the highest expected return i.e. 38.91%. The Lowest expected return is 28.45% which is observed of NABIL. Based on Standard Deviation securities of sample banks, the standard deviation of the return on shares of EBL is the lowest one. Looking at the Coefficient of Variation, the shares of the EBL has the lowest risk per unit of return; the highest is at NABIL. Investment in EBL is the most desirable than NABIL because for 1 unit of return, investors should bear only 1.2064 unit of risk.

### 4.4 Market Capitalization

On the basis of market capitalization at the end of 2014/15, size of each bank is presented in table. Nabil Bank Ltd has the highest market capitalization with Rs.69815.51 million and Everest Bank Ltd has the lowest market capitalization with Rs41818.86 million.

**Table 4.8**  
**Market Capitalization of Sample Banks**

(Rs. In Million)

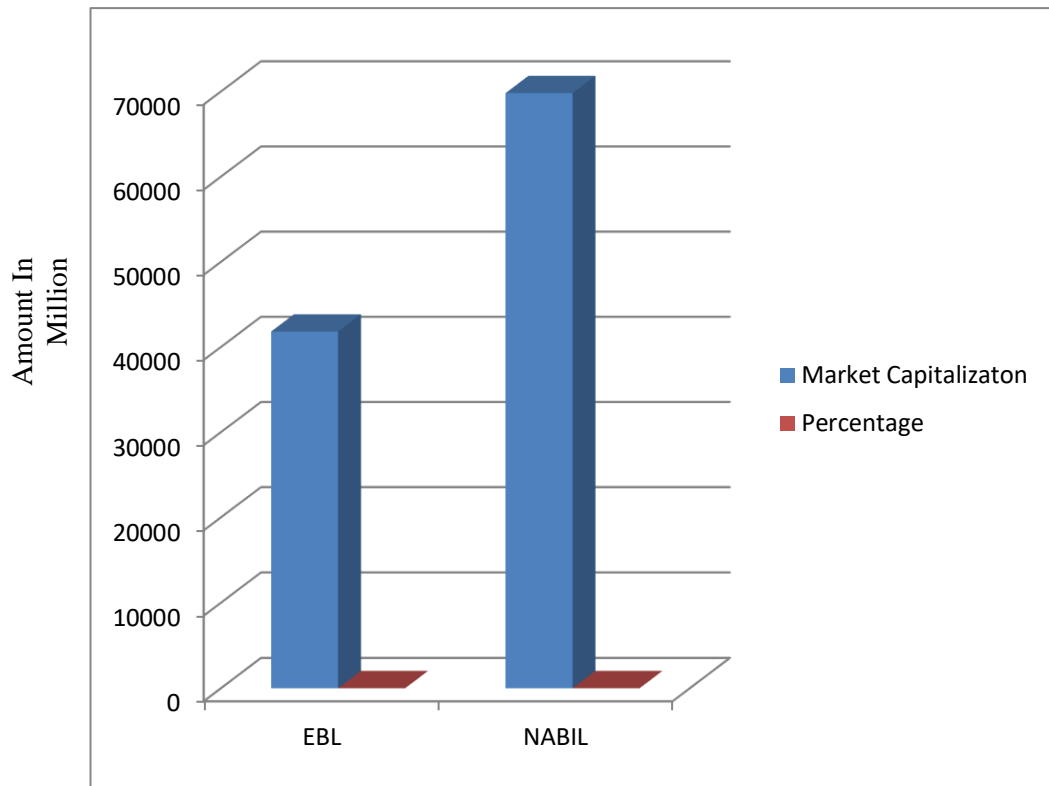
Bank	Market Capitalization	Percentage
EBL	41818.86	37.49%
NABIL	69815.51	62.51%
<b>Total</b>	111634.37	100%

**Source: Trading Report of SEBON, 2014/15**

Comparative proportion of market capitalization of Joint Venture Banks is shown in following figure.

**Figure 4.5**

**Comparative Proportion of Market Capitalization of Sample Joint Venture Banks**



The above Figure shows the share of each bank in the market. NABIL is in the highest position by occupying 44.98% of share in the market among others.

**4.5 Market Sensitivity Analysis (Beta Coefficient Analysis)**

Market sensitivity of the stock is explained by its beta Coefficient. Beta coefficient measures how much systematic risk on the assets has. It measures the responsiveness of a security movement in the market and shows the volatility of the stock which cannot be diversifiable. Beta coefficient of market always equal to 1.

**Table 4.9**

**Beta Coefficient of Two Joint Venture Banks**

S.N	Sample Banks	Beta( $\beta$ )	Types of Stock
1	EBL	0.8254	Defensive
2	NABIL	0.7849	Defensive

**Source: Annex-4**

According to table, the beta of EBL and NABIL are 0.8254 and 0.7849 respectively which is less than 1. These are less sensitive with market as the beta is positive. It means if the banking sector return rise, the stock returns of all two banks will also rises. If the banking return rises by 1%, then the stock return of EBL and NABIL will rise by 0.8254% and 0.7849% respectively and vice-versa. EBL has the highest beta coefficient than NABIL, that means its stocks price moves more sensitive than NABIL bank. The stock of NABIL has the lowest beta than EBL which means its stocks are less sensitive than NABIL. Thus, comparing the beta coefficient of two joint venture banks, we conclude that stock of EBL is more risky and stock of NABIL is less risky.

**4.6 Analysis of Required Rate of Return**

Price evaluation determines the overpriced, underpriced and correctly price of the stock. The comparison required returns and expected rate of return give the result of overpriced, underpriced and correctly price of stock. There are three conditions of price evaluation, they are as follows:-

Expected rate of return  $>$  Required rate of return = Under price

Expected rate of return = Required rate of return = Correct price

Expected rate of return  $<$  Required rate of return = Over price

For the price evaluation, we have to calculate the required rate of return. The required rate of return can be calculated as

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

## Where

$R_f$  = Risk Free Rate of Return

$E(R_m)$  = Expected Market Rate of Return

In the above equation the risk-free rate of return ( $R_f$ ) is needed to determine. The interest rate of treasury- bill issued by Nepal Rastra Bank is taken as  $R_f$  in Nepal. As given in annual report of NRB, fiscal year 2014/15, the weighted average interest rate of 91 days treasury-bill remained at 8.27%. Hence requirement for the equation are:

$R_f$ =Risk free Rate of Return=8.27%

$(\overline{R_m})$ =Expected Market Rate of Return =21.81%

**Table 4.10**

### Required Rate of Return, Expected Rate of Return and Price Evaluation

<b>Banks</b>	<b>Beta</b>	<b><math>E(R_j)=R_f + [E(R_m)-R_f]\beta_j</math></b>	<b>Expected Return</b>	<b>Price Evaluation</b>
<b>EBL</b>	0.8254	19.45%	38.91%	Underpriced
<b>NABIL</b>	0.7849	18.90%	28.45%	Underpriced

From the above table, stocks of EBL and NABIL are underpriced. So the stocks of EBL and NABIL are in demand and investment opportunities. The investors can gain from buying the underpriced stocks because such underpriced of stocks will increase. Therefore, the investors should purchase underpriced stocks. The stocks of underpriced should purchase because the price of underpriced stocks will increased.

### 4.7 Analysis of Systematic Risk and Unsystematic Risk of Sampled Banks

The total risk of sampled joint venture banks can be classified into systematic and unsystematic risk. We can further partition the total risk which is shown in the table below in percentage basis.

**Table 4.11**

**Partition of SR and USR in total risk of 3 Sampled Banks**

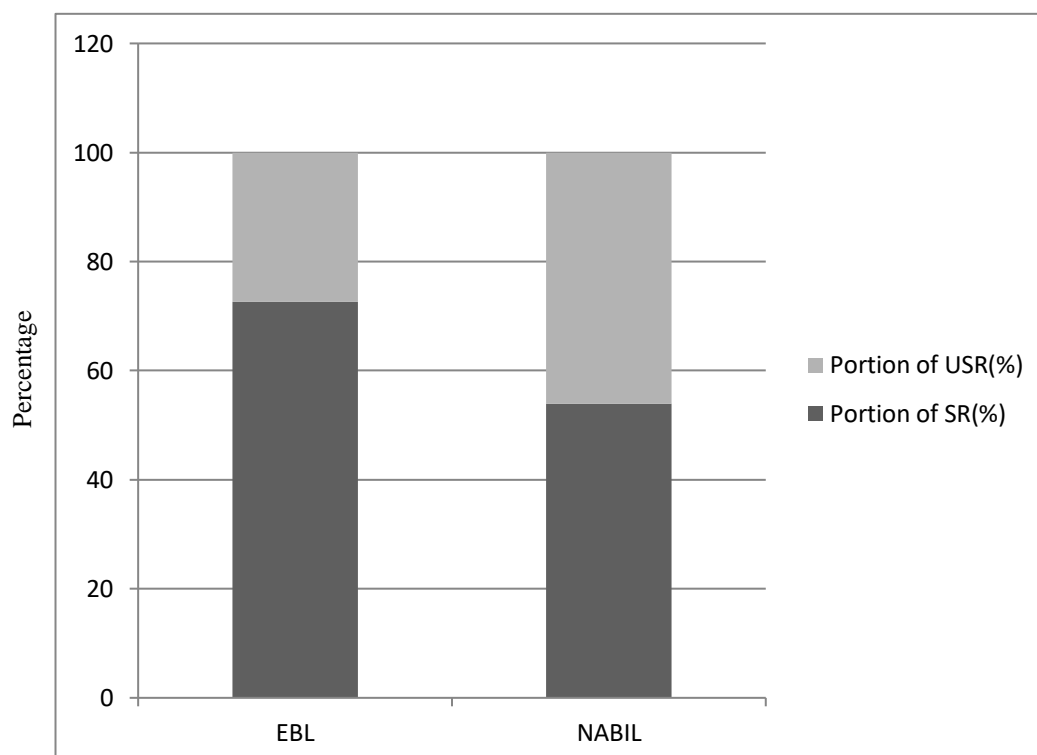
S.N.	Bank	Portion of SR (%)	Portion of USR (%)
1	EBL	72.61	27.39
2	NABIL	53.99	46.01

**Source: Annex-6**

Table shows that partition of total risk into two part i.e. systematic risk and unsystematic risk, NABIL stock has lowest systematic risk and more portion of unsystematic risk which shows that its poor management capability because unsystematic risk arises from internal factors which can be eliminated. Two sampled Joint Venture Banks have more SR than USR. The table shows clearly that sampled banks are efficient enough to manage and diversify its internal affairs and hence their unsystematic risk is less compared to systematic risk but because of market risk or macro-economic factors like inflation, interest rate, political instability, etc., their systematic risk which cannot be diversified, is more. EBL is the best than NABIL, so I have chosen EBL because its unsystematic risk is less than NABIL i.e. 27.39%.

**Figure 4.6**

**Partition of SR and USR in Total Risk of 2 Sampled Banks**



The diagram shows that selected three Joint Venture Banks have greater SR than USR. The unsystematic risk can be eliminated from the portfolio creation at investment but systematic risk cannot be diversifiable. From the calculation SCBNL has the highest SR (i.e. 88.61%) and the lowest USR (i.e. 11.39%), and NABIL has the lowest SR (i.e.53.99%) and highest USR (i.e.46.01%).

#### 4.8 Portfolio Analysis

A portfolio is the combination of different investment assets. Portfolio theory was proposed by Harry M. Markowitz which give the concept the diversification of risk by investing total fund in more than a single asset. Markowitz diversification helps the investor to attain a higher level or expected utility than with any other risk reduction technique. In a very simple way we can understand it as not keeping all the eggs in a single basket. The risk of individual securities can be reduced with losing considerable return. The main objective of portfolio is reduction of unsystematic risk from which investor can take more benefit by making efficient portfolio. Therefore a brief analysis of risk and return is extended in portfolio context. The portfolio expected return is straight forward weighted average of return on individual stock. The total weighted of a portfolio must be equal to 1 or 100%. The details of calculation of portfolio risk and return are shown in annex respectively.

**Table 4.12**

#### Investment Proportion

#### Portfolio Return and Portfolio Standard Deviation between EBL and NABIL

Weight of EBL	Weight of NABIL	Portfolio Return( $R_p$ )	Portfolio risk( $\delta_p$ )
54.92%	45.08%	34.19%	48.84%

**Source: Annex-8**

Tables show that the portfolio return and portfolio risk of sample banks. if 54.92% invested in EBL and 45.08% in NABIL then the portfolio return has been 34.19% and portfolio standard deviation has been 48.84%.

In conclusion, to be optimal portfolio, 54.92% should be invested in EBL and rest i.e. 45.08% should be invested in NABIL having the portfolio return as 34.19% with Risk 48.84% which is the optimal combination of portfolio combinations.

**Table 4.13**

**Tabulation of Measure Findings**

<b>Result</b>	<b>EBL</b>	<b>NABIL</b>
Expected Rate of Return ( $\bar{R}_j$ )	38.91%	28.45%
Standard Deviation ( $\delta$ )	46.94%	51.76%
Coefficient of Variation (C.V)	1.2064	1.8193
Correlation of Coefficient with market ( $\rho_{im}$ )	0.8520	0.7348
Beta Coefficient( $\beta$ )	0.8254	0.7849
Proportion of Systematic Risk (SR)	72.61%	53.99%
Proportion of Unsystematic Risk (USR)	27.39%	46.01%

#### **4.9 Major Findings of the Study**

Based on the analysis of data and their interpretation, the major findings of the study in relation to objectives set could be summarized as follows:

1. The common stock of sampled joint venture banks has evaluated in terms of risk and return. EBL has the highest rate of return with 38.91% and NABIL has the lowest rate of return with 28.45%.
2. Standard deviation is the strong statistical device to measure the total risk involve in the investment that consist both of market risk and diversifiable risk. NABIL has the highest 51.76% of risk or standard deviation while EBL has the least risk as it consists of 46.94%.
3. Expected rate of return and standard deviation cannot give the appropriate comparison. So, we have to consider coefficient of variation. Coefficient of variation of NABIL is highest i.e. 1.8193 conclude as most risky assets. Similarly, EBL has less coefficient of variation i.e. 1.2064 conclude as less risky assets.
4. From the analysis of correlation coefficient of stock, there is no perfect positive and perfect negative correlation coefficient between the stocks of two banks. Sampled joint venture bank relation with NEPSE index show positive relation. In terms of correlation of coefficient, NABIL has highest positive

relation i.e.85.20% and NABIL has the minimum positive relation i.e. 73.48% with the NEPSE index.

5. Sampled Joint Venture Banks have Unsystematic Risk which can be diversifiable. The systematic risk of EBL has the highest i.e.72.61% and the lowest is 53.99% of NABIL. In case of unsystematic Risk NABIL is the highest one i.e. 46.01% and lowest is 27.39% of EBL.
6. From the analysis of market capitalization of two joint venture bank of Nepal, the market capitalization of EBL, and NABIL is 37.49% and 62.51% respectively in fiscal year 2014/15. The NABIL has capitalized greater amount of money in the market i.e. Rs.69815.51 million and lowest amount of capitalized by EBL i.e. Rs. 41818.86 million.
7. Beta is the index of systematic risk. beta coefficient of two sampled Joint venture bank have less than 1 which is called defensive type of assets. These assets are less sensitive to the market. Stock of EBL has the highest beta i.e.0.8254 and lowest is 0.7849 of the NABIL.
8. The expected rate of return is higher than the required rate of return of EBL and NABIL. It shows that the EBL and NABIL have stock with good investment opportunity and all stocks in the demand. Since stock price of EBL and NABIL are underpriced. Investors can gain profit from buying those underpriced stocks. Those underpriced stock's price will increase in the future. Therefore, investor should purchase such underpriced stock.
9. From the analysis of correlation coefficient of stocks between sampled banks, sample Joint Venture Bank relation with each other is positive relation. Correlation of coefficient between EBL and NABIL has the positive relation i.e. 0.9787.
10. From the analysis of market risk and return, the expected rate of return is 21.81% and Standard deviation is 48.46%. Similarly, the coefficient of variation is 2.2219.
11. if 54.92% investment in EBL and 45.08% in NABIL then the portfolio return has been i.e. 34.19% and portfolio standard deviation has been 48.84%.



## **CHAPTER-V**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

The last chapter of this study explains the overall analysis of the topic Risk and Return analysis. The chapter consists of three sections, the first section provides the summary of the study, and the second section draws the conclusion of the study. Finally, the third section proposes recommendation to readers on the basis of findings.

#### **5.1 Summary**

Risk and Return, a new complex concept, is also foundation of modern investment decision. Here, risk is defined as the variability of the return of a period. The greater the variability of the return the riskier the investment would be where as an investment involves the sacrifice of current rupees for future rupees or rewards that future rupees or reward is called the return. It includes both current income and capital gain or losses that arise due to the increase on price of security (common stock). So to maximize the security price, the financial manager must learn to assess two key determinants: risk and return. It becomes easier when there is existence of developed and healthy stock market.

Investors of common stock are ultimate owner of the company, who are ultimately associated with the risk and return. At present, every investment has the risk factors. Investors have minimized the risk and maximize the return. For this, investor consciously examine the behavior of stock return and ultimate risk associated with it and then invests their fund in efficient portfolio from which they can realize higher return with lower risk.

This study mainly aims to examine the risk and return associate with common stock investment of selected Joint venture Banks. The specific objectives of this study are to analyze the risk and return associated with the common stock of Joint Venture Banks.

Although many studies are already conducted to evaluate the risk and return on common stock investment of some banks, with this study is based on 2 selected sampled of 7 joint venture banks listed in NEPSE. And financial statement is available for at last 5 years of study periods of mentioned banks. This research work is based on secondary data provided by SEBON, NEPSE and other publication related to source of information.

While analyzing risk and return in brief review of literature for the present study has been made and theoretical review and related studies where fundamental concept has been prepared to facilitate the study more accurate and effective. The study has included research methodology to fulfill the objective of present study. To analyze the expected rate of return, standard deviation, coefficient of variation has been calculated on the basis of major finding. Based on the derived conclusion a very useful recommendation has been made

## **5.2 Conclusions**

From the above calculation, tables, graphs and figures, the following conclusion have been drawn. But, all these conclusions completely based on sample study.

EBL has the highest Expected rate of return with 38.91% and NABIL has the lowest expected rate of return with 28.45%. So, investors can get the highest expected rate of return in EBL. Only expected rate of return cannot give the appropriate comparison between the assets, for that investors have to consider both risk and return and C.V. so investors must be decided to invest by observing C.V where NABIL has highest C.V and conclude as most risky assets. Considering the market risk and return, the expected rate of return of overall market is 21.81% which is lowest from the expected rate of return of EBL and NABIL and the standard deviation of market is 48.46% and C.V is 2.2219. Correlation coefficient measures the degree of relationship between two stocks. Correlation coefficient always lies between -1 to +1. A value +1 represents of perfectly positive correlation and -1 represents perfectly negative correlation of the market and it is beneficial to diversify the risk. The total risk of assets can be divided into systematic and unsystematic risk. Systematic risk cannot be diversifiable but unsystematic risk can. This study shows that NABIL has high proportion of unsystematic risk i.e.46.01% and EBL has high proportion of systematic risk i.e. 72.61% which cannot be minimized.

The beta itself measures the index of systematic risk of stock and it is found that two sampled Joint Venture Banks stock is defensive type of assets. Between these two JVB stock of NABIL is the high and stock of EBL has the low defensive assets. The expected rate of return of EBL and NABIL is more than the required rate of return. so, these stocks are underpriced. We conclude that investor has beneficial by investing their fund in these underpriced stocks. If 54.92% investment in EBL and 45.08% in

NABIL then the portfolio return has been 34.19% and portfolio standard deviation has been 48.84%.

### **5.3 Recommendations**

Based on the above study and conclusion, the following recommendation and suggestions are prescribed.

1. Investors who want to have high return should invest in EBL because the return on stock of this company is higher and C.V is lower in comparison to NABIL bank.
2. Both EBL and NABIL may have some internal risk factors such as management error, invention, advertising campaigns and shift in consumer test etc. so, to reduce the systematic risk EBL and NABIL have to improve their management to reduce USR.
3. Investors are recommended to purchases those stocks whose required rate of return are less than expected rate of return. Thus, investors are suggested to follow long position strategy and purchase underprice stocks of EBL and NABIL.
4. Investors need to diversify their fund to reduce the risk. Proper construction of portfolio will reduce considerable potential loss, which can be defined in terms of the risk but portfolio construction is dynamic and difficult job. Thus, the investor should select the stock that have higher return and negative correlation or zero correlation between banks and sector. The portfolio revision is also necessary at certain interval time to get best return at lower risk.
5. It is suggested to public investors not to directly invest their saving in to shares before conducting proper analysis. They should at least analyze or get suggestions from expert about the financial position and level of risk and return prior to taking an investment decision.
6. Expected return recommends that banking sector common stocks are the best option for the investment as they are providing attractive rate of return.
7. It is recommended not to follow the general trend of buying and selling of the securities when it is going up and down because it is risky strategy. The

decision should be based on fact and figures rather used institution and go blindly.

8. The development of stock market is also depending on political stability of the nation. So, government should be stable for the development of stock market.
9. NEPSE needs to modernize the trading system and effective information channel to investors' attraction towards the investments.
10. Government should amend the rules and regulations regarding the stock market in time-to-time ensure the protections of individual investor's right. Such amendment is essential to make the act effectiveness with the pace of time and need to follow the implementation and supervision of rules and regulation to make sure the objective is achieved.

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## ANNEXURE

### Annex-1

#### Calculation of Total Dividend

**Total dividend in Rs= cash dividend+ % of stock dividend X Next year's MPS**

#### Everest Bank Limited

<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs)</b>	<b>Stock Dividend in %</b>	<b>Total dividend (Rs)</b>
2010/11	1094	50	10	$50+10\%*1033=153.3$
2011/12	1033	1.58	30	$1.58+30\%*1591=478.88$
2012/13	1591	50	10	$50+10\%*2631=313.10$
2013/14	2631	50	12	$50+12\%*2120=304.52$
2014/15	2120	5	30	$5+30\%*2653.19=800.96$
2015/16	2653.19	-	-	-

#### Nabil Bank Limited

<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs)</b>	<b>Stock Dividend in %</b>	<b>Total dividend (Rs)</b>
2010/11	1252	30	-	$30+0\%*1355=30$
2011/12	1355	40	20	$40+20\%*1815=403$
2012/13	1815	40	25	$40+25\%*2535=673.75$
2013/14	2535	45	20	$45+20\%*1910=427$
2014/15	1910	6.84	30	$6.84+30\%*2163.52=655.90$
2015/16	2163.52	-	-	-



## Annex-2

### Calculation of Expected Return ( $\bar{R}_j$ ), Standard Deviation( $\delta$ ) and C.V

Expected Return, S.D and C.V of EBL`

Fiscal Year	Closing price (MPS)	Total Dividend (D)	$R_j = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2009/10	1630	-	-	-	-
2010/11	1094	153.3	-0.2348	-0.6239	0.3893
2011/12	1033	478.88	0.3819	-0.0072	0.0001
2012/13	1591	313.10	0.8433	0.4542	0.2063
2013/14	2631	304.52	0.8451	0.4560	0.2079
2014/15	2120	800.96	0.1102	-0.2789	0.0778
		Total	$\sum R_j = 1.9457$		$\sum (R_j - \bar{R}_j)^2 = 0.8814$

$$\text{Expected Rate of Return } (\bar{R}_j) = \frac{\sum R_j}{N}$$

$$= \frac{1.9457}{5} = 0.3891 \text{ or } 38.91\%$$

Calculation of  $R_j$  for each fiscal year of EBL

F/Y	2010/11	$\frac{153.3 + 1094 - 1630}{1630}$	= -0.2348
	2011/12	$\frac{478.88 + 1033 - 1094}{1094}$	= 0.3819
	2012/13	$\frac{313.10 + 1591 - 1033}{1033}$	= 0.8433
	2013/14	$\frac{304.52 + 2631 - 1591}{1591}$	= 0.8451
	2014/15	$\frac{800.96 + 2120 - 2631}{2631}$	= 0.1102

For Standard Deviation

$$(\delta_j) = \sqrt{\frac{\sum(R_j - \bar{R}_j)^2}{N-1}} = \sqrt{\frac{0.8814}{5-1}} = 0.4694 \text{ or } 46.94\%$$

For Coefficient of Variation

$$C.V = \frac{\delta_j}{R_j} = \frac{0.4694}{0.3891} = 1.2064$$

**Expected Return, S.D and C.V of NABIL**

Fiscal Year	Closing price (MPS)	Total Dividend (D)	$R_j = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2009/10	2384	-	-	-	-
2010/11	1252	30	-0.4622	-0.7467	0.5576
2011/12	1355	403	0.4041	0.1196	0.0143
2012/13	1815	673.75	0.8367	0.5522	0.3049
2013/14	2535	427	0.6319	0.3474	0.1207
2014/15	1910	655.90	0.0122	-0.2723	0.0741
		Total	$\sum R_j = 1.4227$		$\sum (R_j - \bar{R}_j)^2 = 1.0716$

$$\text{Expected Rate of Return } (\bar{R}_j) = \frac{\sum R_j}{N}$$

$$= \frac{1.4227}{5} = 0.2845 \text{ or } 28.45\%$$

Calculation of  $R_j$  for each fiscal year of NABIL

F/Y	2010/11	$\frac{30+1252-2384}{2384}$	= -0.4622
	2011/12	$\frac{403+1355-1252}{1252}$	= 0.4041
	2012/13	$\frac{673.75+1815-1355}{1355}$	= 0.8367

$$2013/14 \quad \frac{427+2535-1815}{1815} = 0.6319$$

$$2014/15 \quad \frac{655.90+1910-2535}{2535} = 0.0122$$

**For Standard Deviation**

$$(\delta_j) = \sqrt{\frac{\sum(R_j - \bar{R}_j)^2}{N-1}} = \sqrt{\frac{1.0716}{5-1}} = 0.5176 \text{ or } 51.76\%$$

**For Coefficient of Variation**

$$C.V = \frac{\delta_j}{R_j} = \frac{0.5176}{0.2845} = 1.8193$$

**Annex -3**

**Calculation of Expected Return, S.D and C.V. of Market (NEPSE)**

Fiscal Year	NI	$R_m = \frac{NI_{t+1} - NI_t}{NI_t}$	$(R_m - \bar{R}_M)$	$(R_m - \bar{R}_M)^2$
2009/10	477.73	-	-	-
2010/11	362.85	-0.2404	-0.4585	0.2102
2011/12	389.74	0.0741	-0.144	0.0207
2012/13	518	0.3291	0.111	0.0123
2013/14	1036.11	1.0002	0.7821	0.6117
2014/15	961.23	-0.0723	-0.2904	0.0843
		$\sum R_m = 1.0907$		$\sum (R_m - \bar{R}_M)^2 = 0.9392$

$$\text{Expected Rate of Return } (\bar{R}_m) = \frac{\sum R_m}{N} = \frac{1.0907}{5} = 0.2181 \text{ or } 21.81\%$$

**Calculation of  $R_m$  for each Fiscal Year of NEPSE**

$$\text{Fiscal Year } 2010/11 \quad \frac{362.85 - 477.73}{477.73} = -0.2404$$

$$2011/12 \quad \frac{389.74 - 362.85}{362.85} = 0.0741$$

$$\begin{aligned}
2012/13 & \quad \frac{518-389.74}{385} = 0.3291 \\
2013/14 & \quad \frac{1036.11-518}{518} = 1.0002 \\
2014/15 & \quad \frac{961.23-1036.11}{1036.11} = -0.0723
\end{aligned}$$

Standard Deviation

$$\delta_m = \sqrt{\frac{\sum(R_m - \bar{R}_M)^2}{N-1}} = \sqrt{\frac{0.9392}{5-1}} = 0.4846 \text{ or } 48.46\%$$

$$\text{Coefficient of Variation (C.V)} = \frac{\delta_m}{\bar{R}_m} = \frac{0.4846}{0.2181} = 2.2219$$

#### Annex-4

### Calculation of Co-Variance, Co-relation of Coefficient and Beta Coefficient of Sample Banks

EBL and Market

Fiscal Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_M)$	$(R_j - \bar{R}_j) (R_m - \bar{R}_M)$
2010/11	-0.6239	-0.4585	0.2861
2011/12	-0.0072	-0.144	0.0010
2012/13	0.4542	0.111	0.0504
2013/14	0.4560	0.7821	0.3566
2014/15	-0.2789	-0.2904	0.0810
			$\sum(R_j - \bar{R}_j) (R_m - \bar{R}_M) = 0.7751$

Now,

$$COV_{(R_j R_m)} = \frac{\sum(R_j - \bar{R}_j) (R_m - \bar{R}_M)}{N-1} = \frac{0.7751}{5-1} = 0.1938$$

Co-relation Coefficient between EBL and Market

$$r_{jm} = \frac{COV_{jm}}{\delta_j \delta_m} = \frac{0.1938}{0.4694 * 0.4468} = 0.8520$$

Beta Coefficient between EBL and Market

$$\beta_j = \frac{COV_{jm}}{\delta_m^2} = \frac{0.1938}{0.2348} = 0.8254$$

NABIL and Market

Fiscal Year	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_M)$	$(R_j - \bar{R}_j) (R_m - \bar{R}_M)$
2010/11	-0.7467	-0.4585	0.3424
2011/12	0.1196	-0.144	-0.0172
2012/13	0.5522	0.111	0.0613
2013/14	0.3474	0.7821	0.2717
2014/15	-0.2723	-0.2904	0.0791
			$\sum (R_j - \bar{R}_j) (R_m - \bar{R}_M) = 0.7372$

Now,

$$COV_{(R_j R_m)} = \frac{\sum (R_j - \bar{R}_j) (R_m - \bar{R}_M)}{N-1} = \frac{0.7372}{5-1} = 0.1843$$

Co-relation Coefficient between NABIL and Market

$$r_{jm} = \frac{COV_{jm}}{\delta_j \delta_m} = \frac{0.1843}{0.5176 * 0.4846} = 0.7348$$

Beta Coefficient between NABIL and Market

$$\beta_j = \frac{COV_{jm}}{\delta_m^2} = \frac{0.1843}{0.2348} = 0.7849$$

## Calculation of Covariance between EBL and NABIL

### EBL and NABIL

Fiscal Year	$(R_{EBL} - \overline{R_{EBL}})$	$(R_{NABIL} - \overline{R_{NABIL}})$	$(R_{EBL} - \overline{R_{EBL}}) (R_{NABIL} - \overline{R_{NABIL}})$
2010/11	-0.6239	-0.7467	0.4659
2011/12	-0.0072	0.1196	-0.0009
2012/13	0.4542	0.5522	0.2508
2013/14	0.4560	0.3474	0.1584
2014/15	-0.2789	-0.2723	0.0759
			$\sum (R_{EBL} - \overline{R_{EBL}}) (R_{NABIL} - \overline{R_{NABIL}}) = 0.9502$

Covariance between EBL and NABIL

$$COV(R_{EBL}, R_{NABIL}) = \frac{\sum (R_{EBL} - \overline{R_{EBL}}) (R_{NABIL} - \overline{R_{NABIL}})}{N-1} = \frac{0.9502}{5-1} = 0.2375$$

### Annex-5

#### Calculation of Correlation Coefficient between EBL and NABIL

S.N	Portfolio	$COV_{ij}$	$\delta_i$	$\delta_j$	$\rho_{ij}$
2	EBL and NABIL	0.2378	0.4694	0.5176	0.9787

We have,

$$\rho_{ij} = \frac{COV_{ij}}{\delta_i \delta_j}$$

## Annex-6

### Calculation of Systematic and Unsystematic Risk of Individual Bank

Sample Banks	Beta( $\beta_j$ )	Variance of Banks( $\delta_j$ )	Systematic Risk $= \frac{\beta_j^2 * \delta_m^2}{\delta_j^2}$	Unsystematic Risk=1-S.R
EBL	0.8254	0.2203	0.7261	0.2739
NABIL	0.7849	0.2679	0.5399	0.4601

# Market Variance ( $\delta_m^2$ )= (0.4846)<sup>2</sup> = 0.2348

## Annex-7

### Calculation of Optimal Portfolio from Sample Banks

#### Calculation of Proportion of Investment in EBL and NABIL for Portfolio Creation

$$W_{EBL} = \frac{\delta_{NABIL}^2 - COV(R_{EBL}, R_{NABIL})}{\delta_{EBL}^2 + \delta_{NABIL}^2 - 2COV(R_{EBL}, R_{NABIL})}$$

$$= \frac{(51.76)^2 - 23.75}{(46.94)^2 + (51.76)^2 - 2 * 23.75} = \frac{2655.3476}{4834.9612} = 0.5492 = 54.92\%$$

$$W_{NABIL} = 1 - W_{EBL} = 1 - 0.5492 = 0.4508 \text{ or } 45.08\%$$

Again,

Calculation of Portfolio Return and Standard Deviation

$$(R_p) = W_{EBL} \overline{R_{EBL}} + W_{NABIL} \overline{R_{NABIL}}$$

$$= 0.5492 \times 0.3891 + 0.4508 \times 0.2845$$

$$= 0.3419 \text{ or } 34.19\%$$

$$(\delta_p) = \sqrt{\delta_{EBL}^2 W_{EBL}^2 + \delta_{NABIL}^2 W_{NABIL}^2 + 2COV(R_{EBL}, R_{NABIL})(W_{EBL} W_{NABIL})}$$

$$= \sqrt{(0.4694)^2 * (0.5492)^2 + (0.5176)^2 * (0.4508)^2 + 2 * 0.2375 * 0.5492 * 0.4508}$$

$$= 0.4884 \text{ or } 48.84\%$$