

CHAPTER I

INTRODUCTION

1.1 Background of the Study

In context of Nepal, the development of financial system is relatively recent. Nepal Rastra Bank was established as the nation's Central Bank under the NRB Act 1955 A.D, with the major objectives of supervising, promoting and directing the functions of commercial bank activities. Banks are the essential part of the business activity which is established to safeguard people's money and thereby using the money in making loans and investments. There are several commercial banks operating inside and outside the valley. Every bank invests its money in some profitable financial sector, which may result in profitable business in the long run. An investment is the commitment of money that is expected to generate additional money. Human nature doesn't satisfy for whatever he/she has at present, tends to sacrifice the current resources. Whenever we talk about the return risk too much not be avoided, because in every type of return, risk is involved. Every investment entails some degree of risk, it requires at present certain sacrifice for a future uncertain benefits. The growth of an individual's or firm's resources is not possible until and unless it in some profitable sector.

The term bank is either derived from Old Italian word, 'banca' or from a French word 'banque' both means a Bench or Money Exchange Table. In older days, European money lenders or money changers used to display (show) coins of different countries in big quantity on benches or tables for the purpose of lending or exchanging. So a bank is a financial institution which deals with deposits and advances and other related services.

Banking system is the heart beat of every economic system, and many factors affect and determine its performance. Banks are most frequently established in corporate form and they are owned by individuals, governments or a combination of private and government interest. Bank is a financial institution, which deals with money by accepting various types of deposits, disbursing loan and rendering various types of financial services. Bank is an establishment which makes to individuals such advances of money or other means

of payment as may require and safety made and to which individuals entrust money or means of payment not required by them for use.

Banking sector plays a vital role for the economic development of the countries. Banks provides opportunities to people for participation in the development process of the country via issuing shares which will be owned by them, accepting deposits from them and mobilizing and investing such accumulated resources in the field of agriculture, trade, commerce, industry, tourism, hydro electricity projects etc, which helps to built industrial environment and creates employment and investment opportunities for the people. In this way the nation's economy will secure a proper means to sustainable growth. It is clear that good banking system is essential for industrial and economic development of the country.

According to Peter Rose, "Bank is a financial intermediary accepting deposits and granting loans; offers the widest menu of services of any financial institutions."

The more developed financial system of the world characteristically falls into three parts: The Central Bank, The Commercial Bank and Financial Institution. They are known as financial intermediaries. Capital formation is one of the important factors in economic development. The capital formation leads to increase in the size of national output, income and employment, solving the problem of inflation and balance of payments and making the economy free from the burden of foreign debts. Domestic capital formulation helps in making a country self-sustainable. According to classical economists, one of the main factors, which helped capital formulation, was the accumulation of capital. Profit made by the business community constituted the major part of the savings of the community and what was assumed to be invested.

Nowadays, modern banking institutions have been accelerating the pace of economic growth. And the most important problem of developing is the slow rate of economic development. Economic development generally mean the development of leading sectors of the economic like agriculture, industry, trade and commerce etc. the development of these sectors requires a regular and commercial banks as reservoirs for supplying and controlling the stream of that fuel. Hence important and contribution of commercial

banks as one of the important components of economic development of a country is immense. Hence, it is clear that the banks are extremely useful and indispensable for a modern community. In this context, even the developed countries have had their economic development with their strong base of banking system.

The concept of banking existed even in the ancient history when the ancient goldsmiths kept people's gold and valuables in their custody. Under such arrangements, the depositors would leave their gold for safekeeping and were given receipts by the goldsmith. Whenever the receipt was presented, the depositors would get back their gold and valuables after paying a small amount as fee for safe keeping and serving. Now we have 28 (Class "A") commercial banks, 73 (Class "B") development banks, 48 (Class "C") financial companies, 41 (Class "D") micro finance financial institution are established so far in Nepal.

The entry barriers of such banks were not that simple because foreign venture banks were preferred over indigenously managed private banks. With the introduction of the licensing policy, a number of joint venture commercial banks came into existence. The basic objective to allow foreign banks to open a joint venture with Nepal was mainly to develop the banking sector, to create healthy competition, to further develop the already existing old banks, and to introduce new technological efficiency in the banking sector.

Banks are always faced with different types of risks that may have a potentially negative effect on their business. Risk-taking is an inherent element of banking and, indeed, profits are in part the reward for successful risk taking in business. On the other hand, excessive and poorly managed risk can lead to losses and thus endanger the safety of a bank's depositors. Risks are considered warranted when they are understandable, measurable, controllable and within a bank's capacity to readily withstand adverse results. Sound risk management systems enable managers of banks to take risks knowingly, reduce risks where appropriate and strive to prepare for a future, which by its nature cannot be predicted.

Risk is the chance that an investment's actual return will be different from what was expected. High levels of risk are typically associated with high potential returns. Risk and

Return analysis is concerned to identify the sustainable position of financial sector. Risk and return is the basic concept in the corporate finance and it guides the modern theories and principle as well as it assists in taking various financial and qualitative financial decisions. The relationship between risk and return can be defined by the investors' perception about risk and demand for compensation. No investor will take any investment position in risky assets unless they are convinced of adequate compensation for the percept risks. In fact, there is positive relation between risk and return. Risk has been defined as the chance that the actual return deviation from the expected return and risk is the percept fact of life that is the product of uncertainty and its magnitude depend upon the degree of variability in future's uncertain cash flows. Risk and return is an indication of opportunity of losing investment value. It is insensible to talk about returns without talking about risks because investment decision involves the tradeoff between risk and return and the tradeoff between these two variables is positive. There is positive relation between risk and return. Thus an investor, in general, can attain more return through the selection of dominating assets that involves high risks.

1.2 Profile of the Selected Bank

I. Nepal Investment Bank Limited

Nepal Investment Bank Ltd., previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding percent of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one of the largest banking group in the world.

Later, in 2002 a group of Nepalese companies comprising of bankers, professionals, industrialists and businessmen acquired the 50percent shareholding of Credit Agricole Indosuez in Nepal Indosuez Bank Ltd., and accordingly the name of the Bank also changed to Nepal Investment Bank Ltd.

The bank has adopted good corporate governance practices prescribed by the Nepal Rastra Bank as well as other relevant statues such as Companies Act 2006 and Bank and Financial Institution Act 2006.

II. Standard Chartered Bank Nepal Limited

Standard Chartered Bank Nepal Limited is one of the most recognized banks in Nepal established as a JVB. Earlier it was known as “Nepal Grind Lays Bank”. SCBNL has been in operation in Nepal since 1987 A.D. when it was initially registered as a joint venture operation. Today the bank is an integral part of Standard Chartered Group having an ownership of 75 percent in the company with 25 percent shares owned by the Nepalese public. The bank enjoys the status of largest international bank currently operating in Nepal.

Standard Chartered has a history of over 150 years in banking and operates in many of the world’s fastest growing market with an extensive global network of over 1700 branches (including subsidiaries, associates and joint ventures) in over 70 countries in the Asia Pacific Region, South Asia, The Middle East, Africa, The United Kingdom and The America. As one of the world’s most international banks, Standard Chartered employs almost 87,000 people, representing over 115 nationalities, worldwide. This diversity lies at the heart of the Bank’s values and supports the Bank’s growth as the world increasingly becomes one market.

It is the first Bank in Nepal that has implemented the Anti-Money Laundering policy and applied the 'Know Your Customer' procedure on all the customer accounts. With 19 points of representation, 26 ATMs across the country and with more than 550 local staff, SCBNL is in a position to serve its clients and customers through an extensive domestic network. In addition, the global network of Standard Chartered Group gives the bank a unique opportunity to provide truly international banking services in Nepal.

III. Himalayan Bank Ltd.

Himalayan Bank was established in 1993 in joint venture with Habib Bank Limited of Pakistan. Despite the tough competition in the Nepalese Banking sector, Himalayan Bank has been able to maintain a lead in the primary banking activities- Loans and Deposits. Products such as Premium Savings Account, HBL Proprietary Card and Millionaire Deposit Scheme besides services such as ATMs and Tele-banking were first introduced by HBL. HBL introduced several new products and services. Millionaire Deposit

Scheme, Small and Medium Enterprises Loan, Pre-paid Visa Card, International Travel Quota Credit Card, Consumer Finance through Credit Card and online TOEFL, SAT, IELTS, etc. fee payment facility are some of the products and services.

HBL also has a dedicated offsite 'Disaster Recovery Management System'. Looking at the number of Nepalese workers abroad and their need for formal money transfer channel; HBL has developed exclusive and proprietary online money transfer software-HimalRemitTM. By deputing our own staff with technical tie-ups with local exchange houses and banks, in the Middle East and Gulf region, HBL is the biggest inward remittance handling Bank in Nepal. All this only reflects that HBL has an outside-in rather than inside-out approach where Customers' needs and wants stand first.

IV. Everest Bank Ltd.

Everest Bank Limited is a name you can depend on for professionalized & efficient banking services. Founded in 1994, the Bank has been one of the leading banks of the country and has been catering its services to various segments of the society. With clients from all walks of life, the Bank has helped develop the nation corporately, agriculturally & industrially.

Punjab National Bank (PNB), joint venture partner (holding 20% equity) is the largest nationalized bank in India having presence virtually in all important centers. Owing to its performance during the year 2012-13, the Bank earned many laurels & accolades in recognition to its service & overall performance. As a joint-venture partner, PNB has been providing top management support to EBL under Technical Service Agreement.

The bank has been conferred with "Bank of the Year 2006, Nepal" by the Banker, a publication of financial times, London.

Everest Bank Limited provides customer-friendly services through its wide Network connected through ABBS system, which enables customers for operational transactions from any branches. The bank has 64 Branches, 94 ATM Counters, 2 extension counter & 26 Revenue Collection Counters (as on 19th November 2017) across the country making it a very efficient and accessible bank for its customers, anytime, anywhere.

1.3 Statement of the Problem

Due to high competition in the market, commercial banks are providing more loan and advances against their client's insufficient deposit. Unsecured loan and investment may cause the liquidation of the commercial banks. If the collected funds are wrongly invested without thinking any financial risk, business risk and other risks, the bank cannot make profits and may even lost its existence. Many investors do not know how to make investment and how to calculate risk and return on their investment. On the basis statement, the study is to seek the following questions.

- What is the level of systematic risk of commercial banks?
- What is the level of unsystematic risk of commercial banks?
- What is the level of risk and return of listed commercial banks?

1.4 Objectives of the Study

The basic objective of this study is to highlight the analysis of the risk and return of listed commercial banks in Nepal. The specific objectives of the study are as follows:

- To analyze the systematic risk of commercial banks.
- To analyze the unsystematic risk of commercial banks.
- To analyze the risk and return of commercial banks.

1.5 Significance of Study

The investors seek to get good return in future but they don't have knowledge to analyze the risk and return in order to make investment. Mainly, the study is important for commercial banks, researchers, scholars, investors, government and many other parties. Due to the instability in political condition of Nepal, investors are afraid to make investment, which increases the huge amount of unutilized saving funds with general public. How much risk is involved in their investment? What is the real financial condition of the banks that they think to invest money? The investors must have the knowledge of risk and return analysis while making right investment decision. The business of banking is to measure, manage and accept risk. This study is beneficial to the

researchers, professors, graduates, undergraduates, and existing as well as potential investors.

1.6 Organization of the Study

The study has been organized into the following five chapters:

Chapter I: Introduction

It contains the introductory part of the study. This chapter describes the general background of the study, statement of the problem, objective of the study, significance of the study, limitation of the study and organization of the study.

Chapter II: Review of Literature

This chapter deals with review of literature. It includes a discussion on the conceptual framework and review of the major studies. Therefore it includes conceptual framework along with the review of major books, journal, research works and thesis, etc.

Chapter III: Research Methodology

This chapter indicates research design, population and sample procedure, and source of data and analysis of data. This deals with the nature and sources of data, list of the selected companies, model of analysis, meaning and definition of Statistical tools, data analysis tools and limitation of the methodology.

Chapter IV: Data Presentation and Analysis

The main part of research is data presentation and analysis. This chapter deals with analysis and interpretation of the both primary and secondary data by using financial and statistical tools described in chapter three. This chapter also includes the major findings of the study.

Chapter V: Summary, Conclusion and Recommendations

This chapter deals with summary of the study held, the conclusion made, major finding of the study and the possible suggestions. Thereafter bibliography, annexes are incorporated at the end of the study.

CHAPTER-II

REVIEW OF LITERATURE

2.1 Introduction

The main focus of the study is to analyze risk and return of the commercial banks of Nepal. This chapter is devoted to theoretical analysis and brief review of related and pertinent literature available. For the review study, the researcher uses different books, reports, journals; research studies published by various institutions, unpublished dissertations submitted by master level students have been reviewed.

This chapter presents the conceptual review of risk including different types of risk that exist in banking business. This chapter deals with literatures relevant to this study. It is divided into following categories:

- Conceptual framework which consists concepts of banking history, commercial banks, investment, risk, return, etc,
- Review of books, journals an articles related to commercial banks,
- Review of previous thesis

2.1.1 History of Banking System in Nepal

The history of banking in Nepal is believed to be started from the time of Prime Minister Ranoddip Singh in 1877 A.D. He introduced many financial and economic reforms. The Tejaratha Adda was established at that time and its basic purpose was to provide credit facilities to the general public at a very concessional interest rate.

But the real banking started with the established of Nepal Bank Limited as first commercial bank in 1937 A.D. which was founded by Judda Samsher and was inaugurated by Late King Tribhuvan Bir Bikram Shah Dev. NBL was established as a semi government bank with the authorized capital of Rs. 10 million and the paid-up capital of Rs. 892 thousand. Its main function was to provide loans and accept deposits. With the established of NBL the beginning of an era of formal banking in Nepal was

marked. Until mid -1940s, only metallic coins were used as medium of exchange. So the Nepal Government (His Majesty Government on that time) felt the need of separate institution or body to issue national currencies and promote financial organization in the country.

Nepal Bank Ltd. remained the only financial institution of the country until the foundation of Nepal Rastra Bank in 1956 A.D. Due to the absence of the central bank, NBL has to play the role of central bank and operate the function of central bank. Hence, the Nepal Rastra Bank Act 1955 was formulated, which was approved by Nepal Government accordingly, the NRB was established in 1956 A.D. as the central bank of Nepal. NRB makes various guidelines for the banking sector of the country. Similarly, Rastriya Banijya Bank was established in 1965 A.D. as the second commercial bank of Nepal. The financial shapes for these two commercial banks have a tremendous impact on the economy. This is the reason why these banks still exist in spite of their bad position.

As the agriculture is the basic occupation of major Nepalese, the development of this sector plays in the prime role in the economy. So, separate Agricultural Development Bank was established in 1968 A.D. This is the first institution in agricultural financing. For more than two decades, no more banks have been established in the country.

In mid-1980s, study finds that the two largest state-owned banks of Nepal, NBL and RBB are short of capital due to imprudent and risky lending decision and weak recoveries. It was revealed that NBL and RBB which represent half of total banking assets are financially insolvent, a huge negative net worth and on the verge of collapse. A serious financial crisis brought World Bank to rescue the conditional economic assistance. Hence, the barriers which were forwarded for entry of Joint Venture Banks were removed, interest rate were regularized and private sectors were allowed to establish financial institution. In 1984 A.D. Nepal Arab Bank was established as first joint venture bank under commercial bank act 1974 and company act 1964. And Standard Chartered Bank Nepal Limited was established in 1987 A.D. These two banks were established

before the restoration of Multi Party Democracy. As Multi Party Democracy was restored in 1990 A.D. which aid in growth and increment in numbers of commercial and JVBs.

After declaring free economy and privatization policy, the government of Nepal encouraged the foreign banks for joint venture in Nepal. For the development of banking system in Nepal, NRB refresh and change in financial sector policies, regulations and institutional development. Government emphasized the role of the private sector for the investment in the financial sector. These policies opened the doors for foreigners to enter into banking sector in Nepal under Joint Venture. Thereafter, JVBs like Himalayan Bank Ltd., Nepal SBI Bank Ltd., Nepal Bangladesh Bank Ltd., and Everest Bank Ltd. were established.

Today, the banking sector is more liberalized and modernized and systematic managed. There are various types of bank working in modern banking system in Nepal. It includes central, development, commercial, financial, co-operative and Micro Credit banks. Technology is changing day by day and changed technology affects the traditional method of the service of bank.

2.1.2 Investment

An investment is an asset or item that is purchased with the hope that it will generate income or will appreciate in the future. In an economic sense, an investment is the purchase of goods that are not consumed today but are used in the future to create wealth. In finance, an investment is a monetary asset purchased with the idea that the asset will provide income in the future or will be sold at a higher price for a profit. Investment generally involves real assets or financial assets. Real assets are tangible, material things such as building, machinery and factory and text book. Financial asset are pieces of paper representing an indirect claim to real assets held by someone else. Real assets are generally less liquid then financial assets. Returns to real assets are frequently more difficult to measure accurately. But our principal concern is with financial assets. Investment is an exchange of financial claim stocks and bonds etc. Investment is the employment of funds with the aim of achieving additional income or growth in value. It

involves the commitment of resources that have been saved or put away from current consumption in the hope that some benefits will accrue in future.

Investment is the commitment of money or capital to purchase financial instruments or other assets in order to gain profitable returns in the form of interest, income (dividend) or appreciation of the value of the instrument. Investment is involved in many areas of the economy, such as business, management and finance no matter for households, firms or governments. An Investment involves the choice by an individual or organization such as a pension fund, after some analysis or thought, to place or lend money in a vehicle, instrument or asset, such as property, commodity, stock, bond, financial derivatives (e.g. futures or options), or the foreign asset dominated in foreign currency, that has certain level of risk and provides the possibility of generating returns over a period of time.

Investment comes with the risk of the loss of the principal sum. The Investment that has not been thoroughly analyzed can be highly risky with respect to the Investment owner because the possibility of losing money is not within the owner's control, but the Investment depends within owner's mind whether the purpose is for dealing the resource to someone else for economic purpose or not.

In the case of Investment, rather than store the goods produced or its money equivalent, the investor chooses to use that goods either to create a durable consumer or producer goods to another in exchange for either interest or a share of the profits. In the first case, the individual creates durable consumer goods, hoping the services from the goods will make his life better. In the second case, the individual becomes an entrepreneur using the resource to produce goods and services for others in the hope of a profitable sale. The third case describes a leader, and the fourth describes an investor in a share of the business. In each case, the consumer obtains a durable asset or investment and accounts for that asset by recording an equivalent liability. As time passes, and both prices and interest rates change, the value of the asset and liability also change.

2.1.3 Investment Process

The investment process describes how an investor makes decision to invest, so that it minimizes the risk by making a portfolio which raises the value of investment. The investment process is as follows:

I. Set Investment Policy

It is rightly said that genuine idea can make a great difference, so implies to policy. Policy is the only thing that differs from one institution to another. A bad or incorrect policy may lead to collapse of institution and a good policy to boom thus well identified and judged policy is the foremost prerequisite for any investor on an institution. Thus, to set investment policy is essential. This step deal while making investment, investor must identify the securities which have low risk and higher return.

II. Perform Security Analysis

Security analysis involves examining a number of individual securities within the broad categories of financial assets. The purpose of such examinations is to identify the price of securities whether they are underpriced or overpriced, their expected return and risk and so on.

III. Construct a Portfolio

Construction of portfolio involves identification of specific securities in which to invest, along with the proportion of investable wealth to be put into each security. The purpose of constructing portfolio by investor is to maximize return at whatever level of risk.

IV. Revise the Portfolio

Portfolio revision involves both realizing that the currently held portfolio is not optimal and specifying another portfolio to hold with superior risk-return characteristics. The investor must balance the cost of moving to the new portfolio against the benefits of the revision.

V. Evaluate the Portfolio Performance

Evaluate the portfolio performance involves determination of the actual performance of a portfolio in terms of risk and return and compares the performance with that of an appropriate “benchmark” portfolio.

2.1.4 Concept of Risk

Different investors defined risk as different ways: Risk is defined, as the likelihood that the actual return from an investment will be less than the forecast return. Stated differently, it is the variability of return from investment.

Risk is defined in Webster’s Dictionary “as a hazard a profit exposure to loss or injury “thus for most risk refers to chance that some unfavorable event will occur. If we engage in the skydiving we are taking a chance with our life. If we bet on the horses, we are risking our money. If we invest in speculative stocks (or rally any stock), we are taking a risk in the hope of making an appreciable return.

Risk is the possibility of loss, injury, or other adverse or unwelcome circumstance; a chance or situation involving such a possibility. Risk is an uncertain event or condition that, if it occurs, has an effect on at least one objective. Most people view risk is the manner. In reality, risk occurs when we cannot be certain about the outcome of a particularly activity or event. So we are not sure that will occur in the future consequently, risk result from the fact that an action such as investing can produce, more than one outcome in future. (Wikipedia, 2009)

In the basic sense risk is the chance of financial loss. Assets having greater chances of loss are viewed as more risky than these with lesser chance of loss. More formally, the term is used interchangeably with uncertainly to refer the variability of returns associated with a given asset.

2.1.5 Sources of Risk

An investment is commitment of money that is expected to generate additional money. Every investment entails some degree of risk; it requires a person's certain sacrifices for future uncertain benefit.

The primary risk factors that create investment uncertainties are as follows:

I. Interest Rate Risk

Interest rate risk is defined as the potential variability of return caused by change in market interest rate. In interest rate risk, if market interest rates rise, then investment values and market prices will fall and vice-versa. This interest rate risk affects the prices of bonds, stocks, real estate gold, futures contracts and other investments as well.

Asset transformation function is the key functions of financial institution. It involves buying primary securities or assets and issuing secondary securities or liabilities to fund assets purchase. The primary security purchased by financial institutions often has maturity and liquidity characteristics which are different from those of secondary security that financial institutions sell. In mismatching the maturities of assets and liabilities as part of their asset transformation function (Francis, 1995: 23).

II. Purchasing Power Risk

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

III. Bull-Bear Market Risk

Bull-Bear market risk arises from the variability of market returns resulting from alternating bull and bear market forces. Market risk is incurred in the trading of assets and liabilities due to changes in market forces like interest rates, exchange rates. Furthermore, market risk is the risk related to uncertainty on the earning on its trading portfolios caused by changes in the market condition. The various market forces make

securities price upward and downward. The upward trend of market price (Bull Market) and downward trend of market price (Bear Market) create a long lasting source of investment at risk. (Francis, 1995: 24)

IV. Management Risk

Management risk is defined as the variability of return caused by a decision made by a firm's management and board of directors. Furthermore, errors made by business manager can harm those who invested in their firms. Forecasting management error is difficult work that may not be worth the effort and, as a result, Agency theory provides investors with an opportunity to replace skepticism with informed insight as they endeavor to analyze subjective management risk.

V. Default Risk

Default risk is that portion of an investments total risk that results from changes in the financial integrity of the investment. For example, when a company that issues securities either further away from bankruptcy or closer to it, the changes in the firm's financial integrity will be reflected in the market prices of its securities. The variability of return that investors experience as a result changes in the creditworthiness of a firm in which they invested is their default risk. Default risk is probability that the borrower is unable to fulfill the term promised under the loan agreement. It is that portion of investments total risks that result from changes in the financial integrity of the investment (Francis, 1995: 24).

VI. Liquidity Risk

Liquidity risk is sudden surges in liability withdrawal may leave as financial institution in a position of having to liquidate assets in a very short period of time and at low prices. Liquidity risks arises when its liability holders such as depositor or insurance policy maker etc demand immediate cash for the financial claim they hold with financial institution or when holders of loan commitment or credit line suddenly exercise their right to borrow or draw down their right of loan commitments that situation financial

institutions must either borrow additional funds or sell assets to meet the demands for the withdrawal of funds (Francis, 1995: 24)

VII. Callability Risk

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. Issuers like the call provision because it allows them to buy back outstanding preferred stock and/or bond with funds from a newer issue if market interest rates drop below the level being paid on the outstanding securities. There is a chance of creating callability risk (Francis, 1995: 24).

That portion of a security's total variability of returns that derives from the possibility that the issue may be called is the callability risk. Callability risk commands a risk premium that comes in the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increases.

VIII. Convertibility Risk

Callability risk and convertibility risks are in two aspects. First, both are contractual stipulations that are included in the terms of the original security issue. Second, both of these provisions affect the variability of return from the affected security. Convertibility risk is that portion of the variability of return from a convertible that the investment may be converted into the issuer's common stocks at a time or under terms to the investor's best interest (Francis, 1995: 24).

IX. Political Risk

Political risk arises from the exploitation of a politically weak group for the benefits of a politically strong group, with the efforts of various groups to improve their relative positions increasing the variability of return from the affected assets. Regardless of whether the changes that cause political risk are by economic interests, the resulting variability of return is called political risk (Francis, Jack Clark, 1995: 25).

X. Industry Risk

An industry may be viewed as a group of companies that compete with each other to market homogeneous products. Industry risk is that portion of risk that can be an investment variability of return caused by events that affects the product and firms that make up an industry (Francis, 1995: 24).

The stage of the industry's lifecycle, international and or quotes on the product produced by an industry, product or industry related taxes industry with labor union problems, environmental restrictions, raw material availability and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalties, the prices of the securities issued by competing trend to rise and together.

XI. Total Risk

The sources of risk that are reviewed above are the major sources of investment risk, but by no means do they make up an exhaustive if all the uncertainties or sources of risk are added together, it will give the total risk or total variability of return.

2.1.6 Types of Risk

There are two types of risk in securities market

I. Systematic Risk

II. Unsystematic Risk

I. Systematic Risk

Systematic risk is that part of total risk, which is caused by market factors such as inflation, interest rate change, changes of investors expectation about the economic performance etc. The systematic risk is that portion of total variability of return caused by market factors that simultaneously affect the prices of all securities. Such risk are market factors related in order word, it arises from the changes in the economy and market condition for example high inflation, recession, and impact of political factors, which are beyond the control of company management. It affects all firms in the market. The systematic nature of price changes makes them immune so much of the risk reduction

effects of diversification. Thus, such systematic risk is also called as undiversifiable risk. The systematic risk is rewarded in the form of risk premium. Sometimes systematic risk is called market risk. Systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at most a small number of assets. The principle of diversification has an important implication to diversified investor, only systematic risk matter. It follows that in deciding whether or not to buy a particular individual asset, a diversified investor will only be concerned with that assets systematic risk. This is a key observation and it allows us to say great deal about the risks and returns on individual assets. Some of the sources of systematic risk include:

- Interest rate changes
 - Changes in purchasing power
 - Changes in investor's expectation about the overall performance of the economy.
- Because diversification cannot eliminate systematic risk, this type of risk is the predominant determinant of the individual security risk premium. This risk is also called beta risk (Weston and Brigham, 1982:89).

II. Unsystematic Risk

Unsystematic risk is one that affects a single assets or a small group of assets. Such risk is caused by factors specific to a particular firm. The unsystematic is that portion of total risk which is unique to the firm that issued the securities. They are non-market factors related. In other word, it arises from the project or firm's specific factors such as efficiencies of management, failure in new product production, employee or labor strikes, lawsuits, advertising campaigns, shift in consumer taste and any other event that is unique to the company. It is inherent individual company or projects. They cause unsystematic variability in the market value of the assets. Since unsystematic risk affect one firm or at most a few firms, they must be forecasted separately for each firm and for each individual incident. Unsystematic security price movements are statistically independent for each other, and so they may be averaged to zero when different assets are combined to form a diversified portfolio. Therefore, such unsystematic risk is also called as diversifiable risk. It is the variability in the security's return caused by such factors as:

- Management capability and decisions

- The availability of the raw materials
- The unique effects of government regulations such as pollution control
- The effect of foreign competition
- The particular levels of financial and operating leverage of the firm employees
(Weston and Brigham, 1982:89)

2.1.7 Financial Risk

Entrepreneurial activities and risk-taking are inextricably linked to each other. Risk-taking is an essential component of doing business considering basically every entrepreneurial activity is exposed to a greater or lesser degree of uncertainty. One can think of risk as the uncertainty about the future demand for products and services, changes in the business environment and competition and production technologies. In addition to these general business risks, there also exist risks that are caused by the capital structure of a company such as market risks, credit risks, operational risks and liquidity risks.

Risk is discussed in the context of banks and other financial institutions. Following the regulatory approach in the global banking industry, the three major risk categories are market risk, credit risk as well as operational risk. Nevertheless they do not form an exhaustive list of possible risks affecting a financial institution, as various other risks such as reputation risk, strategic risk, liquidity risk and model risk may occur. Particularly, the latter two (i.e. liquidity risk and model risk) have received a lot of attention recently and thus will be briefly discussed as well.

Market Risk

- According to McNeil, Frey and Embrechts (2005) the best known type of risk in banking is market risk, which is the risk of change in the value of a financial security (e.g. a derivative instrument) due to changes in the value of their underlying, such as stock prices, bond prices, exchange rates and commodity prices. In other words, it is risk that changes in financial market prices and rates, which will reduce the value of a security or a portfolio. Market risk usually arises from both unhedged positions as

well as imperfect hedged. M.Crouhy, (2005) distinguish four major types of market risks:

- Interest-Rate Risk is caused by changes in the market interest rate. Usually the value of fixed-income securities such as bonds is highly dependent on those interest rates. For instance, when market interest rates raise, the value of owning an instrument offering fixed interests payments falls. Moreover, J.C.Hull (2007) emphasizes that managing interest-rate risk is more complex than managing the risk arising from other market variables such as equity prices, exchange rates and commodity prices. On account of the many different interest rates in a given currency, e.g. treasury rates, interbank borrowing and lending rates, mortgage rates etc. These tend to move together, but are normally not perfectly correlated. Furthermore the term structure is only known with certainty for a few specific maturity dates, while the other maturities must be calculated by interpolation.
- Equity-Price Risk is associated with the volatility of stock prices. The general market risk of equity refers to the sensitivity of the value of a security to change in the market portfolio. According to the portfolio theory, the market risk, i.e. the systematic risk, cannot be eliminated through portfolio diversification, whereas the unsystematic risk can be completely diversified away.
- Foreign-Exchange Risk arises from open or imperfectly hedged positions in a particular foreign currency. These positions may arise due to natural consequences of business operations such as cross-border investments. The major drivers of foreign-exchange risk are imperfect correlations in the movement of currency prices and fluctuations in international interest rates. Therefore, one of the major risk factors large multinational corporations are exposed to, are foreign exchange volatilities, which may on the one hand diminish returns from cross-border investments or on the other hand increase them.
- Commodity-Price Risk differs considerably from interest-rate and foreign-exchange risk, as commodities are usually traded in markets where the supply of most commodities lies in the hands of a just few market participants, which may result in liquidity issues often followed by exacerbating high levels of price volatility. Moreover, storage costs heavily affect commodity prices which vary considerably

across commodity markets (e.g. from gold, to electricity, to wheat) on the one hand and on the other hand the benefit of having a certain commodity on stock provides a convenience yield.

Credit Risk

Another important risk category is credit risk: The risk that a change in the creditworthiness of counterparty affects the value of a security or a portfolio. Not receiving all promised repayments on outstanding investments such as loans and bonds due to default of the debtor, is the extreme cases. When a company goes bankrupt, the counterparty usually loses the part of the market value that cannot be recovered following the insolvency. The amount expected to be lost is normally called the loss given default whereas the recovery rate is defined as the market value immediately after default (J.C.Hull, 2007).

A change in the creditworthiness usually does not imply a default, but rather that the probability of a default increases. A deterioration of the credit rating leads to a loss for the creditor since a higher marked yield is required to compensate for the increased risk which results in a value decline of the debts (e.g. bonds). M.Crouhy, (2005) stressed that institutions are also exposed to the risk that counterparty might be downgraded by a rating agency. Rating agencies such as Moody's and Standard & Poor (S&P) provide ratings that describe the creditworthiness of corporate bonds and therefore provide information about default probabilities. If a company is downgraded by a rating agency due to a negative long-term change in the company's creditworthiness, the value of the counterparty's securities diminishes.

Operational Risk

A further important risk category recently receiving a lot of attention is operational risk. Operational risk is not only more complex to quantify than market and credit risk but also more difficult to manage as it is a necessary part of doing business. J.C.Hull (2007) mentions that there are many different definitions to operational risk and that it is tempting to consider it as a residual risk category, covering any risk faced by a bank that

is not either market or credit risk. Nevertheless, this definition of operational risk might be too broad. To define it straightforward, as its name implies, it is the risk arising from operations. Thus, the risk relates to potential losses resulting from inadequate systems, management failures, faulty controls, frauds, and human errors.

According to the Basel Committee on Banking Supervision (2004) operational risk is defined “as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”. Apparently the regulator includes, besides the impact of internal risks, the impact of external risks such as natural disasters (e.g. earthquakes and fires).

Operational risk is not independent from other financial risks. Operational risk losses are for instance frequently contingent on market movements, which enhance the complexity of their classification. One can relate it to a trader taking huge risk in order to receive a tremendous bonus at the end of the year. If – as a result of adverse market movements – the bank suffers huge losses, the risk that led to it can be classified as either operational or market risk, depending on whether the trader was allowed to take that much risk or not.

Model Risk and Liquidity Risk

While banks have always been exposed to threats such as bank robberies and white-collar frauds, one of today’s most serious threats is caused by the valuation of complex derivative products, which has come to be known as model risk. Since Black, Scholes and Merton in 1973 published their famous option-pricing model, there has been a tremendous increase in the complexity of valuation theories. These models allow for a pricing of a huge number of financial innovations such as caps, floors, credit derivatives, and other exotic products. As a negative side effect to the rise in complexity of financial products, the accompanying model risk has increased as well. For instance, E. Derman, (2004) emphasizes in his book “My Life as a Quant” that this increase was essentially caused by the nature of the models used in finance. In principle, most of these applied models, including the Black-Scholes option-pricing model, have been derived from models encountered in physics. While models of physics are highly accurate, models of

finance describe the behavior of market variables which in turn unlike in physics depend on the actions of human beings. Therefore, the models are at best approximate descriptions of the market variables. As a result the use of such models in finance is always accompanied – to a greater or lesser extent – by model risk.

J.C.Hull (2007) mentions two main types of model risk. The first type concerns the risk that a valuation model could provide wrong prices, which can lead to an investor to buy or sell a product at a price that is either too high or too low. The second type relates to models that are used to assess risk exposure and to derive an appropriate hedging strategy in order to mitigate losses. For instance, a company may use a wrong or inadequate model to hedge its positions against an adverse movement of the underlying assets. It, however, is important to bear in mind that a theoretical valuation model is only essential for pricing products that are relatively or even completely illiquid. If there is an active market for a product, market prices are usually the best indicator of an asset's value and therefore pricing models only play a minor role.

The risk that a firm does not have enough cash and cash equivalents in order to meet its financial obligations as well as the risk of not having enough buyers or sellers on the market is known as liquidity risk. M.Crouhy (2005), distinguished two dimensions of liquidity risk, namely funding liquidity risk and asset liquidity risk. Funding liquidity risk relates to a firm's ability to raise the required cash to meet its liabilities. Asset liquidity risk, on the other hand, arises if an institution cannot execute a transaction at the prevailing market price due respectively to a lack of supply and demand.

2.1.8 Risk Management

Risk management is a widely recognized discipline or practice that can be applied across many business boundaries. It is beyond dispute that the future cannot be exactly predicted, as it is always uncertain to a certain degree. However, the risk that is caused by this uncertainty can be managed. Risk management is therefore how financial institutions actively select the overall level of risk that, given their risk taking ability, is optimal for them. Yet it is important to note that risk management also encompasses the duality of the term risk, as risk management is not only about risk reduction. Risk Management

requires having practices in place to identify and then monitor risks; convenient access to dependable, current information about risk; the correct balance of control in place to deal with the risks; and decision-making processes that are supported by a framework of risk analysis and evaluation.

McNeil (2005), a bank's attitude to risk is rather active than defensive, as bankers actively and willingly take on risk in order to benefit from return opportunities. Risk management can therefore be seen as the core competence of a bank. Bankers are using their expertise, market position and capital structure to manage risks by restructuring and transferring them to various market participants.

M.Crouhy (2005), on one hand refers risk management to be widely acknowledged as one of the most creative forces in the world's financial markets. An example, is the rapid development of the huge market for credit derivatives, which emphasize the dispersion of risk (i.e. the credit risk exposure) of an institution to those who are willing, and presumably able, to bear it.

On the other hand, M.Crouhy (2005), mention extraordinary failures in risk management such as Long-Term Capital Management and the string of financial scandals associated with the millennial boom in equity and technology markets (e.g. Enron and WorldCom). These are only a few examples of where risk management has not been able to prevent market disruptions and business accounting scandals.

The reason for this ambiguity lies in the ambivalent nature of the new techniques in risk management. They enhance market liquidity leading to a far more flexible, efficient and resilient financial system. At the same time, however, they are according to N.Instefjord (2005), also a potential threat to bank stability and may expose a financial institution to even more risk.

Today's risk management has changed compared to traditional risk management, which was basically identifying, measuring, managing, and minimizing risk. The role of today's risk management has changed from minimizing risk to efficient capital allocation and become more important, as it can increase business profitability by allocating capital and the entrepreneurial attention on the areas with the highest risk and return ratio.

Risk Management Process

Risk Management is a discipline at the core of every bank and encompasses all activities that affect its risk profile. It involves identification, measurement, monitoring and controlling risks to ensure that:

- The individuals who take or manage risks clearly understand it.
- The organization's Risk exposure is within the limits established by Board of Directors.
- Risk taking Decisions are in line with the business strategy and objectives set by Board of Directors.
- The expected payoffs compensate for the risks taken.
- Risk taking decisions are explicit and clear.
- Sufficient capital as a buffer is available to take risk.

Each situation is unique, in terms of roles and capabilities of individuals and the structure, activities and objectives of the bank. Risk management practices considered suitable for one bank may be unsatisfactory for another. Because of the vast diversity in risk that banks take, there is no single prescribed risk management system that works for all. Moreover, in the context of a particular bank, the definition of a sound or adequate risk management system is ever changing, as new technology accommodates innovation and better information and as market efficiency grows. Each bank should tailor its risk management program to its needs and circumstances. To remain competitive, banks must adapt and constantly improve their process.

A sound risk management system should have the following elements:

- Active board and senior management oversight
- Adequate policies, procedures and limits
- Adequate risk measurement, monitoring and management information system;
and
- Comprehensive internal controls.

It should not be understood that risk management is only limited to the individual(s), who are responsible for overall risk management function. Business lines are equally responsible for the risks they are taking. Because the line personnel can understand the risks of their activities and any lack of accountability on their part may hinder the sound and effective risk management.

Financial Risk Management

An important issue is whether there should be any investment in risk management in the first place. Assuming frictionless markets, in equilibrium all risks should be appropriately priced. Hence, if there were no capital market imperfections, Modigliani and Miller's Proposition I – the so-called capital structure irrelevance theorem – would apply and the problem of capital allocation would be nonexistent. As a result there would be no reason of why a financial institution would want to manage risk at all. Yet, financial markets are neither frictionless nor are they always in equilibrium.

As an example, a fundamental role of banks and other financial institutions is to invest in illiquid financial assets (e.g. loans to small or medium sized companies). These assets cannot be traded frictionless in the capital markets, due to their information intensive nature. In fact, financial institutions and banks, in particular, face market imperfections such as costs of financial distress, transactions costs and regulatory constraints, with the consequence that risk management, capital structure and capital budgeting are interdependent (Copeland, 2005).

Consequently, there indeed exist various reasons in reality for managing risk. As stated by McNeil (2005), most stakeholders, including shareholders, management and regulators, have an incentive in the management of risk, since it is usually beneficial for a financial institution. Modern society relies on a smooth functioning of the financial system. It is therefore common in best interest to regulate and manage the risk imperiling such systems in order to avoid systemic risk, which in extreme situations may disrupt the normal functioning of the entire financial system. The literature provides various other examples which are in favor of investments in risk management, such as it reduces the

costs of financial-distress and also the costs of taxes. Reader interested in a more comprehensive overview may refer Froot and Stein (1995).

2.1.9 Risk Measurement

A central issue in modern risk management is measuring and quantifying risk. To set risk limits as well as determining adequate risk capital as a cushion a financial institution requires against unexpected future losses, belong to the most important functions of risk measurement.

Various methods exist to measure these risks, all with the target of capturing the variation of a company's performance. J. Bessis (2002) distinguishes three categories of risk measures.

- Volatility captures the standard deviation of a target variable around its mean. The standard deviation is the square root of the average squared deviation of a target variable from its expected value. Since volatility captures both upside and downside variations, it is a symmetric risk measure which assigns the same amount of risk to deviations above and below the mean. Therefore, volatility lacks in providing a complete picture of risk in the case the target variable has an asymmetric distribution.
- Sensitivity captures the deviation of a target variable due to a movement of a single underlying parameter. Sensitivities are normally market risk related as they relate value changes to market parameters such as interest-rate risk. Among all sensitivity measures, the most famous ones are the Duration for bond portfolios and the Greeks for portfolios of derivative instruments. Even though these measures provide useful information regarding the robustness of a portfolio with respect to certain events, they fail to quantify the overall riskiness of a position. Furthermore, they cause problems when risks need to be aggregated (McNeil, 2005).
- Downside Risk Measures are – unlike the volatility – asymmetric risk measures which focus on adverse deviations of a target variable only. The lower partial moments (LPMs) of order and the quantile-risk measures such as the Value-at-Risk and the expected shortfall (ES) are the most widely used downside risk measures, Value-at-Risk being the most prominent one.

These downside risk measures focus exclusively on extreme downside moves of the risk factors, rather than considering both upside gains and downside losses. This makes downside risk measures intuitively the most reasonable risk measure, as they are consistent with the human natural asymmetric perception of risk. Measures based on the concept of downside risk are useful in particular when the target variable has a highly skewed distribution, given that skewed distributions need more than the first two statistic moments to be adequately specified. However, if the distribution of a variable is symmetric and not asymmetric, downside risk measures do not provide a more comprehensive picture than the symmetric volatility measure. Unfortunately, the calculation of most downside risk measures is fairly complex, especially when considering derivative financial products with asymmetric payoffs. Already Markowitz (1959) recognized the limitations of the mean-variance approach and suggested to use downside risk measures rather than the volatility measure. Recent risk management literature has focused on downside risk measures such as the Value-at-Risk, whereas average risk measures, in particular the volatility measure, play a minor role (Martellini, Priaulet & Priaulet, 2003). Intuitively this makes sense, as in risk management it is usually most important to obtain a feeling of what deteriorating a financial situation can become in the case certain risk factors turn out to be adverse.

Approaches of Risk Measurement

In order to provide a comprehensive overview of this subject, it is useful to refer to a slightly different approach mentioned by McNeil et al. (2005), which give an overview of existing techniques to measure risk in financial institutions. Moreover, these approaches are grouped into four different categories:

- The Notional-Amount Approach is the oldest approach quantifying the risk of a portfolio of risky assets. The calculation of the risk is fairly simple and the sum up of the notional values is weighted by each security's risk factor class. However, even though this approach seems to be crude, McNeil (2005) mention that some "variants of this approach are still in use in the standardized approach of the Basel Committee rules on banking regulation".

- Factor-Sensitivity Measures are an approach identical to the risk measure category sensitivity mentioned above. A further explanation is therefore not necessary.
- Risk Measures Based on a Loss Distribution are the most popular approach, being that most modern risk measures are based on a profit and loss (P&L) distribution. A P&L distribution tries to provide an accurate picture of the existing risk in a portfolio or even of the financial institution's overall position in risky assets. The P&L distribution is the distribution of the change in value. Since the focus is on the probability of the occurrence of large losses or more formal the upper tail of the loss distribution, it is according to McNeil et al. (2005) common to drop the P from P&L and to simply use the term loss distribution. Both variance and Value-at-Risk are based on such a loss distribution and accordingly rely on historic data.
- Scenario-Based Risk Measures are a rather new approach to measure the risk of a portfolio, even though it actually pre-dates Value-at-Risk modeling approach. As a matter of fact, the first commercial application of scenario stress testing was already established in the 1980s with the Chicago Mercantile Exchange to determine its margin requirements. The risk of a portfolio is measured by considering possible future scenarios (i.e. risk-factor changes) such as a rise in the exchange rate and a simultaneous drop in an underlying stock. The total portfolio risk is then defined as the maximum loss of the portfolio taking all scenarios into consideration. This corresponds more or less to a sensitivity analysis that examines the loss profile of a portfolio, by considering a number of changes in certain risk factors. Given the tremendous number of possible historical and hypothetical scenarios, it is important to distinguish between the major risks drivers of a portfolio and the minor ones. Commonly, these major risk factors are based on the market risk since these risk factors are relatively easy to obtain, especially as compared with credit risk and operational risk.

Today, loss distributions are the most popular approach to quantify risk. Yet, when working with loss distributions, two major problems emerge. First, loss distributions are based on historical asset returns. This historical data might be of limited use in predicting future risks. Second, it is difficult to accurately estimate loss distributions; in particular for large portfolios whereas their calculation becomes extremely complex. Nevertheless,

these issues are according to McNeil (2005) not arguments against the use of loss distributions. Rather, it is important to improve the way these loss distributions are estimated and to use more caution when applying risk measures based on loss distributions.

Besides the approaches presented above, another approach, the Extreme Value Theory (EVT) has received a lot of attention recently. EVT provides a framework to formalize the study of behavior in the tails of a distribution. Similar to the scenario stress tests, EVT tries to capture extreme events (also referred to as low probability events) that according to the loss distribution have a probability of virtually zero percent. For instance, a move of five standard deviations in a market variable is such a rare event that under the assumption of normally distribution this should occur only once every 7'000 years. Yet, they actually do occur from time to time.

Best example is the subprime crisis that began in mid-2007, revealing that the current regulatory capital framework for banks does not capture some key risks. Moreover, the crisis showed that a quantile-based estimation of risk capital usually cannot cover the extreme losses that can incur in unexpected exceptional circumstances. As a result, new approaches have been developed in the last years that look beyond volatility and Value-at-Risk. (Alexander, 2008b; Haan and Ferreira, 2006).

Return

Return is the reward for uncertainty or risk. The concept of return has different meaning to different investors. The rate of return from capital investment is a concept that has different meaning to different investors. Some competitors seek near term cash inflow and give less value to more distant returns. Return can be expressed by cash dividend or capital gain or loss. Still some investors measure return using financial ratios.

Return shows financial position of any organization. The company position may be better if it has high return. Return is the reward for an investor from his/her investment. Investors want to maximize expected return subject to their tolerance for risk. Return is the motivating force and it is the key method available to investors in comparing alternative investments. Realized return and expected return are two terms, which are

often used, is the language of investment. Realized return is after the fact return, return that was earned or it is history.

Returns are defined as the dividend yields plus the capital gain or loss. The relationship between levels of return on their relative frequencies is called probability distribution. It can formulate a probability distribution for the relative frequency of a firm annual return by analyzing its historical return over the previous year. But history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for individual company, it can form a probability distribution based on historical data based on historical data plus the analysis for the economy and outlook for the economy and the outlook for the industry, the outlook for the firm in its industry and another factors.

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

$$r = \frac{(P_1 - P_0) + D_1}{P_0}$$

Where,

r = single period of return

P₁ = market price at the end of period '1'

P₀ = current market price at the purchase price

D₁ = cash dividend received during the period '1'

(P₁ - P₀) = Income from price appreciation (or losses from depreciation) sometimes called capital gain (or losses).

Probability Distribution of Return

When we expect return in the future, we talk about chances to earn some possible returns. The possibility or the chances are known as probabilities. Probabilities are assigned on two different bases: objective probability and subjective probability. Objective probabilities are assigned on the basis of past data or relative frequency distribution and subjective probabilities are based on a financial analyst's best guesses about the future returns. Subjective probability is also known as judgmental probability. Whatever techniques are followed to assign the probabilities, the main thing is that, the probabilities are the foundation of the quantitative analysis of risk and return.

Relationship between Risk and Return

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

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

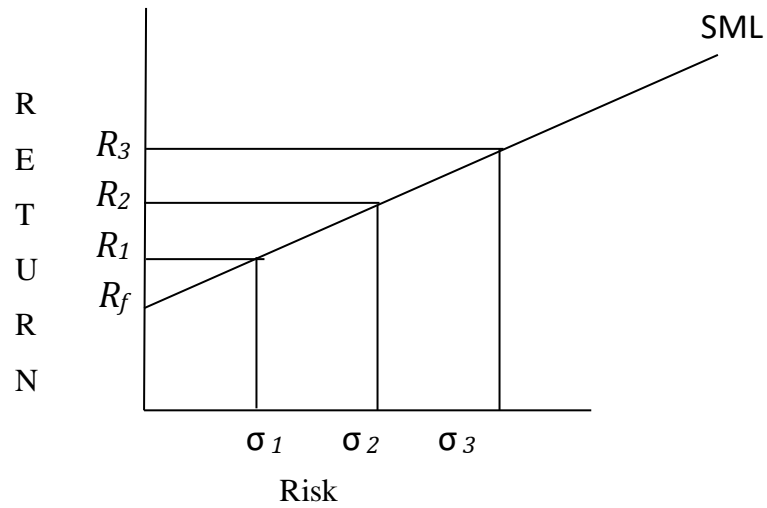


Figure 2.1

Relationship between Risk and Return

The figure represents a higher premium for a higher risk in a linear fashion indicating a premium of $(R_1 - R_f)$ for σ_1 degree of risk $(R_2 - R_f)$ for σ_2 degree of risk and so on. Risk premium will be change in increase or decrease in proportion of risk. R_f stands for return on risk free security. The partial interest is the diff SML n rates of return across sacrifice, since provide valuable clues to the market's tradeoff between risk and return.

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

Capital Assets Pricing Model (CAPM)

A model that describe the relationship between risks and expected (required) return. It was developed by William F. Sharpe, who was awarded the 1990 Nobel Prize for economics. In this model, a security expected (required) return is the risk free rates plus a premium based on the systematic risk of the securities.

Assumption of the CAPM

Capital market theory (CMT) uses portfolio theory as its starting point: thus, the assumption underlying portfolio theory also pertains to the CAPM and the CAPM appears less realistic than the portfolio theory assumptions.

- Investors evaluate portfolio by looking at the expected return and standard deviation of the portfolio over one period horizon.
- Individual assets are infinitely divisible, meaning that an investor can buy a fraction of a share if he/she so desires.
- There is a risk-free rate at which an investor may either i.e. invest money or borrow money.
- Taxes and transaction costs do not exist. That is, there are no tax effects, costs of acquiring information or transacting costs associated with buying or selling securities. These are often referred to as perfect market assumptions. Markets are assumed to be complete; therefore, the same investment opportunities are available to all investors.
- All investors have a common investment horizon, whether it is one month, three months, one year, or whatever.
- The risk-free rate is the same for all investors.
- Information is freely and instantly available to all investors.
- The capital market is in a state of equilibrium; there are no underpricing or overpricing. If such a situation exists, the price will move to correct this equilibrium situation.
- Investors have homogeneous expectations, meaning that they have the same perceptions in regard to the expected returns, standard deviations, and covariance of securities.

The relationship between an asset's return and its systematic risk can be expressed by the CAPM, which is also called the security market line (SML). The CAPM is a model for pricing an individual security or a portfolio. For individual securities, we make use of the security market line (SML) and its relation to expected return and market-related risk or systematic risk (beta) to show how the market must price individual securities in relation to

their security risk class. The SML enables us to calculate the reward-to-risk ratio for any security in relation to that of the overall market. The equation for the SML is;

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

Where,

$E(R_i)$ = Required rate of return,

R_f = Risk-free rate,

$E(R_m)$ = Expected return on the market,

$[E(R_m) - R_f]$ = Market premium or risk premium,

β_i = Beta or systematic risk.

β_m = 1

M = Market risk

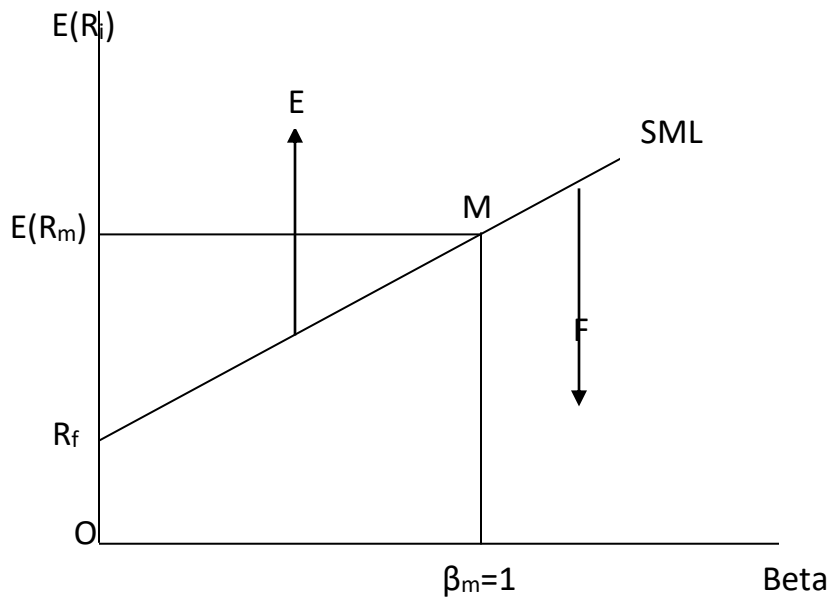


Figure: 2.2

The CAPM or Security Market Line

In the above figure, two assets are listed i.e. E and F. Share E lies above the SML, its expected return is greater than its required return, share E is undervalued. Share F lies below SML, its expected return is less than its required return, share F is overvalued.

2.2 Review of Journal

The effort has been made in this present section to examine and review the some related articles published in different economic journals, Bulletins, magazines and newspapers. Financial economics has been defined as the application of economic theory to financial markets. It is a large body of theory including such well-known models as modern portfolio theory (Markowitz 1962), the capital asset pricing model (CAPM), although these models are included in institute of faculty education (1995), their acceptance or use a controversial.

Kupper (2003) has made a study to identify the different types of risk and prescribes the method to handle those risks. The study has identified three types of risk in the banking business (i.e. credit risk, market risk and operation risk). According to his study, credit risk has almost 70 percent of shares in total banking risks. The typical credit risk share of total capital is 80 percent in Wholesale Banking, 50 percent on Personal Banking and 10 percent on financial market.

Kupper has presented the role of a bank's risk management function in the context of the need to break the vicious cycle of risk. The cycle refers to the process by which a bank assumes uneconomic risks and by definition, key large losses. As a consequence, the risk appetite of the bank is reduced, lending and trading risks are foregone and the bank loses market share. In turn, the bank adopts an aggressive marketing strategy to regain market share and the cycle starts over. Kupper's vicious cycle describes the risk taking practices observed in the industry time and time again.

Akhigbe and Whyte (2004) in their research paper "The Gramm-Leach Bitley Act" of 1999: Risk Implications for Financial Service industry has focused on risk implication of banking and private sectors. The research paper has included many other studies, some of the studies find that bank expansion into banking activities can effect of events that permitted only limited entry by banks into non-banking activities. The study is conducted on systematic, unsystematic and total risk. Such risk are calculated by using statistical tools i.e. variance, standard deviation, 1-statistical and signed rank which is recently used

by Amifrud Delong and Saunders (2002). The study has included 340 banks for the samples size. Then they pariton two sub samples as 46 large banks and 294 small banks. The major findings of the study is that evidence of significant decline in systematic risks for banks securities and insurance companies securities but a significant increase in total and unsystematic risks for the banks and insurance companies. This study has included five years period date. The study also found that banks and insurance companies are less risky than securities business. Security firm can be explained by their ability to diversify less risky banking and insurance activities. The research paper result suggests that regulators should carefully monitor and supervise banking activities in the new era of financial modernization to mitigate adverse effect from the increase risk.

Pagario's (2001) has a study on How Theories of Financial Intermediation of Corporate Risk-Management Influence Bank's Risk-Taking Behavior. This paper has based on the relation of risk taking and risk management behavior from both a corporate finance and banking prospective. That data set covers the period from 1986-94, 1986-90 and 1991-94 but overall time of study is 9years. In this study, the researcher has used mathematical tools that are the model beta, standard deviation, total risk (systematic and unsystematic), interest rate risk. The main objective of the study is to examine the rationales for risk taking and risk management behavior for both corporate finance and banking sectors. After combining the theoretical insights from the corporate finance and banking literatures related hedging and risk taking, the paper reviewed empirical tests on these theories to determine which of these theories are best supported by the data.

Managerial incentives appear to be the most consistently supported rationale for describing hoe banks manage risk, in particular, moderate/high level of equity ownership reduced bank risk while positive amounts of stock option grants increase bank risk taking behavior. The empirical results suggest hedgable risks such as interest rate risk represents only one dimension of the risk management problems. This implies empirical tests of theory of corporate of risk management need to consider individual sub-components of total risk and the bank's ability to trade these risks in a competent financial market.

Berkovitz and Brien's (2002) in their research paper "How Accurate is values-At-Risk Models at Commercial Banks?" have focused on the first direct evidence on the performance of value-at-risk model for trading firms. The results shows that the VAR forecasts for six large commercial banks have exceeded nominal coverage levels over the past two years and for some banks, we substantially removed VARs from the lower range of trading P & L, While such conservative estimates higher levels of capital coverage for trading risk, the reported VARs are less useful as a measure of actual portfolio risk.

They have used standard deviation, mean, correlation coefficient, VAR correlation coefficient, Beach Mark Model and portfolio model. To a certain extent, the study is limited by the fact that banks only forecast a single percentage of the portfolio distribution. Significantly more could be learned about the empirical performance of internal valuation models if density forecasts were recorded. Density forecast evaluation techniques describes in Diebold, Gunther and Tay (1998) and Berkovitz (2001) which provides researchers with substantially more information to assess the dimensions in which models need improvements and those in which models do well.

Banking and financial service are among the fastest growing industries in developed world and are also emerging as cornerstones for other developing and underdeveloped nations as well. Bank primary function is to trade risk. Risk cannot be avoided by the bank but can only be managed. There exist two types of risk. The first is the diversifiable risk of the firm specific, risk which can be mitigated by maintaining an optimum and diversified portfolio. This is due to the fact when one sector does optimum and diversified portfolio. Thus depositors must have the knowledge of the sectors in which three banks have make the lending. The second is un-diversifiable risk and it is correlated across borrower, countries and industries. Such risk is not under control of the firm and bank.

According to Thapa risk management of the banks is not only crucial for optimum tradeoff between risk and portfolio but is also one of the deciding factors for overall business investment lending to growth of economy. Managing risk not only needs show professionalism at the organization level but appropriate environment is also need to develop. Some of the major environment problems Nepalese banking sector is under

government intervention, relatively work regulatory frame, if we consider the international standard, merger corporate governance and the biggest of all is lack of professionalism. The only solution to mitigate the banking risk is to develop the badly needed commitment eradication of corrupt environment especially in the disbursement of lending, and formulate prudent and conductive regulatory frame work.

Shrestha (2010) highlighted the different aspect of risk. As per his view as the effective risk management central to good banking, the tradeoff between risk and return is one of the term and concludes effective credit risk management allows a bank to reduce risk and potential Net Profit. It also offers the benefits once the banks have understand their risk and their costs, they will be able to determine their most profitable business. Thus price products must be charged according to their risks. Therefore, the bank must have an explicit credit risk strategy and supported by organizational charges, risk measurement techniques and fresh credit process and system. There are four crucial areas that management should focus on:

- Credit sanctioning and monitoring process
- Approaches to collateral
- Risk arise from new business opportunity
- Concentration on correlated risk factors

As part from these, the bank management should regularly review all assets quality issues including portfolio composition, big borrower exposures and development in risk management policy and process. Author is hopeful that the bankers adopt good risk management practices and will be able to reap both strategic and operational benefits.

Rana (2013) described in article, “Risk management in banks: Touch and challenging”. Based on the global, regional and our in-country experience of the last few years, it is obvious that success/sustainability or failure of banks largely depends on how well various risk are managed under a highly competitive, challenging and fast-changing business environment. The saying “survival of the fittest” appears true for banking

business under this kind of environment. Accordingly, banks have a lesson to learn from the past and manage the risks in line with the changing business and risk environment.

Banking business by nature involves tradeoff between risk and return. Over-emphasis on return at the cost of increased level of risk beyond a limit is not appropriate from the risk management prospective. Similarly, from a business perspective, inability to take calculated risk for achieving best returns is also not a good situation. The ideal situation is to manage the business by achieving best returns and at the same time to manage the risks well. Banks should continuously strive for a fine balance between risk and return.

Proper risk management helps in keeping the bank's financial results and reputation intact. It also helps in ensuring stake holder's expectations e.g. shareholders get return on investment, employees get reward in line with their contribution and regulatory requirements are met as prescribed. If the banks fail to manage their risks properly, it not only impacts the related banks and their stakeholders but also the country's economy.

In line with the importance of risk management, banks are expected to have a well defined Risk Management Framework approved by their boards. The framework ideally covers policies, procedures, roles, responsibilities, accountability, monitoring and reporting mechanisms including independent checks and control. Similarly, banks should have a setup that coordinates overall risk management activities across the banks. Such roles can be performed by a dedicated manager, separates department or a committee depending on the size and complexity of the business. The risk management function should be independent of the day-to-day business and operational activities.

The risk management process follows four simple steps i.e. Risk identification, Risk Assessment, Risk Mitigation and Control and Risk Monitoring. These steps not necessarily follow an order; rather they occur simultaneously in real-life situations. A bank manager may have to be involved in any steps of risk management at any time. Similarly, these steps are supplementary and inter-related with each other in supporting the complete risk management process.

Hence, the importance of risk management is manifold in banking business; we have been witnesses to the past and have seen banking failures and subsequent regulatory

stringencies. It is a must for the banks to have an effective framework and system of risk management and the Board and Senior Management need to play a supporting role and must maintain an oversight in this matter. Monitoring, reporting and control, including independent audit reviews need to be in place. Risk management culture needs to be embedded among all staff members so that it becomes a state of mind and a way of life.

Yimka (2016) attempts to investigate risk management and financial performance of selected ten commercial banks in Nigeria. The study examines the role of credit risk management in value creation process among commercial banks in Nigeria. The study reviews the concepts, theories, legal acts and standards relating to the credit risk management and then develops a conceptual model with four antecedents to credit risk, such as antecedents are loan and advance loss provision, total loan and advances, nonperforming loan and total asset on accounting Return on Equity (ROE) and Return on Asset (ROA). The panel data come from ten commercial banks listed on Nigeria Stock Exchange (NSE) between 2006 and 2015. The results reveal that credit risk management has significant effect on financial performance of commercial banks and further recommend that maintaining minimum level of non-performing loans vis-à-vis provision for loans and advances will enhance financial performance through its positive effect on return on equity.

Based on the analysis and findings thereof, the study concludes that the credit risk management measures considered in this study is relevant in determining financial performance of banks as financial institutions. Reduced share of non-performing loans and advances in provision for loans and advances losses enhances financial performance via increased return on equity. More proportion of total loans and advances that turn out to be non-performing dwindling return on equity and reduces financial performance. Financial performance is enhanced when increased portion of total assets goes into loans and advances. Increased provision for loan and advances limits financial performance. Therefore, the study concludes that credit risk management has significant effect on financial performance of the banks. At the 5 percentage level of significance, overall effect on financial performance of the credit risk management measures in the study is found to be significant. Based on the findings summarized above, and the conclusion

thereof, the researchers therefore recommend that, banks maintain minimum level of non-performing loans vis-a-vis provision for loans and advances; minimize provision for loan and advances losses as a share of total loans and advances that would enhance return on equity and strengthen their financial performance; maintain proper proportion of total assets that goes into loans and advances.

2.3 Review of Relevant Thesis

Several studies have been conducted on Risk and Return and other related subjects of different institutions and banks. Some of them, which are relevant for this study, are presented below:

Shrestha (2003) has studied on “*Risk and return analysis on common stock investment of banking sectors in Nepal*”. The main objective of the study was to analyze the systematic and unsystematic risk associated with security. The study covered the date of 6 years period from 1996-2001.

In the study, the researcher has used analytical tools like return of common stock expected return, standard deviation, beta coefficient, CAPM, coefficient of determinants and hypothesis testing (t-test). The major findings of this study are NBBL’s common stock is yielding the highest realized rate of return with 71.80 percent whereas it is the lowest 28.60 percent in case of NIB Ltd. The banking industry average 47.55 percent, the commercial banks NBBK, BOKL and EBL, rate of return 71.80 percent, 67.60 percent, and 65.60 percent respectively. All the commercial banks required rate of return is less than expected rate of return which means that they are all underpriced. Therefore, it will be beneficial to the investors who are going to purchase the shares of these companies. It was found from the study that the common stock investment in banking sectors is beneficial instead of other financial sectors.

Tamang (2003) has studied on “*Risk and return analysis of commercial banks in Nepal*”. The main objective of the study is to determine whether the share of commercial banks are correctly priced or not analyzing the rate of return using capital asset pricing

model and also to measure the systematic and unsystematic risk of the commercial banks. This study has used mathematical tools like market model, single period return, expected rate of return, standard deviation, coefficient of variation, beta coefficient. The study has taken the five years data from 1996-2001. The major finding of the study is that the rate of return of Nepal Arab Bank Ltd is the highest one among the shares of commercial banks that is 95.59 percent and Bank of Kathmandu has the lowest of 35.81 percent. Nepal Arab Bank has the highest unsystematic risk but the total risk or variance of Nepal Bangladesh is the highest of 10 percent. From the study, it was also found that the shares of Nepalese commercial banks are heavily traded in Nepse but none of these shares are correctly priced.

Lamichhane (2006) has studied on “*Risk and return analysis of commercial banks of Nepal*”. The main objective of the study is to analyze the risk and return of the listed commercial banks by analyzing their systematic risk, unsystematic risk average and year and return and risk premium. The study has covered the data of 10 years period from 1995/96 to 2004/05. This study has used the financial tools such as capital asset pricing model (CAPM) risk premium and statistical tools such as expected rate of return, standard deviation, coefficient of variation, beta coefficient and correlation coefficient to measure and analyze the risk and return of the commercial banks of Nepal.

The study found that among the sampled banks EBL, has the highest and NIB has the lowest return, whereas EBL has the highest and HBL has the lowest standard deviation i.e. risk. The coefficient of variation of NABIL is the highest and that of HBL is the lowest. According to CAPM theory, all the sampled commercial banks are underpriced. This study also analyzed that the systematic risk of NABIL, HBL, NIB and EBL is 0.0859, 0.0946, 0.2097 and 0.1932 respectively whereas the unsystematic risk is 0.296, 0.1329, 0.2097 and 0.3263 respectively.

This study analyzed and concluded that the coefficient of variation of banking sector is lower than that of capital market which shows that the banking sector is less risky than other sectors and it is beneficial for the investors to invest in the shares of banking sectors, Among the commercial banks, the stock of HBL is less risky whereas that of

EBL, is most risky. But it is also concluded that none of the share price are at equilibrium as all the sampled banks average rate of return is more than the required rate of return.

Although a number of articles and research works have been published and conducted about commercial banks, these studies are not related with the risk and return of commercial banks based on the common stock prices. Realizing the gap of this part, this topic has been selected for the study and will be helpful for the students, commercial banks, researcher and investors to explore the matters regarding the risk and return of the commercial banks of Nepal. It may encourage for the further study to cover the aspects not covered by this thesis.

Upadhyaya (2001) *“Risk and Return on Common Stock Investment of Commercial Banks in Nepal”*. This study has taken eight commercial of banks with covering five years period 1994/95 to 1998/99. The main objectives of the study were to assess the risk associated with returns on common stock investment of the listed commercial banks on the basis of selective financial tools to evaluate common stocks of listed commercial banks in terms of risk and return and analyze the volatility of common stocks and other relevant variables as an affecting factor in portfolio construction of common stocks.

This study found the various finding but there are some important findings are given below:

- Common stock of Nepal Grindlays Bank Ltd. is most risky and of SBI is least risky. This proves ‘high risk high return’.
- Regarding the market volatility, EBL’s common stock is more volatile which has beta value of 3.941 and NIBL’s common stock is least volatile which has beta value of 0.875. Others are also volatile.
- All the stocks of commercial banks are overpriced. NGBL stock has maximum difference of expected rate of return and required rate of return.
- Most of the Nepalese private investors invest in single security. Some of the investors use their fund in two or more securities. But it is found that they don’t make any analysis of portfolio before selecting. They invest their fund in different securities on

the basis of expectation and assumption of individual security rather than analysis of the effect of portfolio.

- Portfolio standard deviation is less than individual standard deviation. So the portfolio approach of investment is better way to get the maximum return.

Paudel (2002) studied entitled “*Investing in Shares of Commercial Banks in Nepal*”: An assessment of Risk and Return Elements is found to be relevant in the context of the study. This study conducted with the objective of whether the shares of commercial banks were correctly priced by analyzing the realized rates of returns and the required rates of return using CAPM.

The study was based on the data of shares of seven sample commercial banks from Mid July 1996 to mid July 2001. For the purpose of analyzing risk characteristics of the shares of those commercial banks, standard deviation, the coefficient of variation, the correlation coefficient between the returns of individual bank’s share and the return on market portfolio and the beta coefficient were used. Average return on the 91-days Treasury bill was taken as a proxy of the risk free rate of return.

On the basis of this study, it was found that the shares of BOK offered the highest realized rate of return. It was also found that none of the share prices were in equilibrium. Based on the standard deviation of the returns on shares, the share of EBL could be considered as high-risk security and the standard deviation of the returns on shares of HBL was the lowest one. On the basis of CV, the shares of BOK had the lowest risk per unit of return, the highest being with the shares of NABIL. It was also observed that the systematic risk was negative with the shares of NABIL. Therefore, the total risk on the returns on shares of NABIL was due to company specific characteristics rather than market pervasive. Returns on all the shares except NABIL had positive correlation with the returns on market. Most of the shares appeared to be defensive as beta coefficients are less than one. Only the return on shares of BOK had beta coefficients of greater than one, indicating that the share was more risky than the market.

This study concluded, “The shares of commercial banks in Nepal are heavily traded in the stock market and therefore, these shares play a key role in the determination of stock

exchange indicators. All the shares produced higher rate of return than the return on market portfolio. However, risk-return characteristics do not seem to be the same for all the shares reviewed". The study further concludes, "Most of the shares fall under the category of defensive stocks, except the shares of BOK. From the analysis, it appears that none of the shares are correctly priced".

Thapa (2003) studied entitled "*Analysis of Risk and Return on Common Stock Investment of Insurance Companies*". The relevant objective of the study was to analyze risk and return and other relevant variables that help in making decisions.

The study is based on secondary data of five insurance companies covering five years data commencing from 2053/54 to 2057/58. The major findings of the study were as;

- Because of the higher expected return associated with the common stock, Nepalese investors are attracted towards it.
- The standard deviation which measures the risk of an asset shows that most of the companies are risky. As higher risk must be associated with higher return, it is so only in the case of Everest Insurance Company and Himalayan General Insurance Company where as united Insurance Company are premier Insurance Company are providing higher return at lower risk.
- The beta coefficient, which is the measure of systematic risk, reveals that Nepal Insurance Company has highest beta and premier Insurance Company has least beta.

Pamane and Vikpossi (2010) "*An Analysis of the Relationship between Risk and Expected Return in the BRVM Stock Exchange: Test of the CAPM*" "One of the most important concepts in investment theory is the relationship between risk and return. This relationship drives the theoretical foundation of many investment models such as the well known Capital Asset Pricing Model which predicts that the expected return on an asset above the risk-free rate is linearly related to the non-diversifiable risk measured by its beta. This study examines the Capital Asset Pricing Model (CAPM) and test it validity for the WAEMU space stock market called BRVM (BOURSE REGIONALE DES VALEURS MOBILIERES) using monthly stock returns from 17 companies listed on the

stock exchange for the period of January 2000 to December 2008. Combining Black, Jensen and Scholes with Fama and Macbeth methods of testing the CAPM, the whole period was divided into four sub-periods and stock's betas used instead of portfolio's betas due to the small size of the sample. The CAPM's prediction for the intercept is that it should equal zero and the slope should equal the excess returns on the market portfolio. The results of the study refute the above hypothesis about the slope and offer evidence against the CAPM for all the sub-period and even for the whole period. The tests conducted to examine the nonlinearity of the relationship between return and betas support the hypothesis that the expected return-beta relationship is linear. Additionally, this paper investigates whether the CAPM adequately captures all-important determinants of returns including the residual variance of stocks. The results demonstrate that residual risk has no effect on the expected returns of stocks for the whole period and the entire sub-periods except for the last period of 2003-2008 which shows that returns are affected by non-systematic risks during that specific period, justifying the fact that the operating activities of the firms have an impact on their stocks returns. Keywords: CAPM, beta, BRVM stock exchange, risk, expected return.

Gupta (2011) has conducted a study on "*Risk and Return Analyze of Commercial Bank of Nepal*" by taking five banks as sample. Analytical tools like rate of return, standard deviation, coefficient of variance, correlation coefficient and optimal weight have been used. According to this study, the main objectives are to analyze portfolio of risk and return and the correlation between returns of commercial banks and also to describe the risk and return that directly affects the commercial banks. The major findings of the study are generally public have least understanding about the risk of the investments which may be due to poor education, lack of adequate information, etc., that may obstruct the development of stock market. The study covered five years period.

Tichareva (2012) This research analysis "*Risk adjusted performance measures in a South African Property Finance Business*". This is performed through the application of the Treynor, Sharpe and Jensen measures, which are risk adjusted performance measures in finance, to banking. Conclusions are drawn on whether risk adjusted performance

measures lead to materially different results on ranking of performance when compared with traditional measures such as return on equity and return on assets. The research also discusses the strategic decisions that would result from using risk adjusted performance measures. The study contrasts risk adjusted performance measures with non-risk adjusted traditional performance measures in a Property Finance business within the banking sector in South Africa. Following a literature review, the research proposes that risk adjusted performance measures, when compared with traditional non-risk based performance measures such as return on equity and return on assets, lead to different results on performance ranking of business units or activities within a business unit. Both quantitative and qualitative approaches to research are undertaken. We chose Nedbank Corporate Property Finance as a case study because of the simplicity for the researcher to access financial data for the quantitative part of the research and interviewees for the qualitative part of the research. The key findings in this research are that there are differences in performance rankings between traditional measures of performance and risk adjusted measures. Business activities that perform better on non-risk adjusted basis are not necessarily the best performing on a risk adjusted basis. Hypothesis testing also shows that the differences in performance rankings are material.

Linn (2015) has studied “*Risk and Return in Equity and Options Markets*” about the relationship between prices of risk in options and equity markets within the context of a specific model, what we observe in the data rarely fits any single option pricing model with perfect precision. There seems to be little consensus on a single option pricing model with superior performance above all others. The purpose of this thesis is to empirically investigate the risk-return relation in options markets directly, without resorting to the use of option pricing models based upon relative pricing of options in terms of their underlying. Options markets provide a rich cross-section of data with which to study how investors price assets because they vary across firms, strikes and maturity. As a result, options data provides additional and complimentary information beyond the information contained in stocks. Using these facts, in this thesis I empirically investigate the risk-return relationship across stock option, index option and equity markets. In Chapter I of the thesis I empirically show how to use options data to better

estimate the cross-sectional price of market-wide volatility risk. I furthermore compare the price of volatility implicit in the cross-section of stock returns with the price implicit in the cross-section of option returns. In the same chapter I exploit the fact that options can be used to study the term structure properties of risk and return by examining the volatility risk and return tradeoff in options of different times to maturity. In Chapter II, based upon the paper "Pricing Kernel Monotonicity and Conditional Information," co-authored with Sophie Shive and Tyler Shumway, I use data on index options and the underlying index to extract estimates of stochastic discount factors. We propose a new method for non-parametrically estimating the stochastic discount factor. Our method improves upon existing methods by aligning information sets available to investors at each time in our sample and taking these into consideration in our estimation scheme. Empirical results suggest that this may be the solution to a well known anomaly in the literature whereby non-parametric estimates of the pricing kernel tend to be non-monotonic in market returns.

Bhattacharya (2016) *“Risk and Return Profile Analysis of selected Mutual Fund Product of Indian Mutual Fund Industry”* Mutual fund is an investment vehicle which well known for diversification of risk. The core of mutual fund lies in the basket of securities in which the corpus of a fund is invested. Professionals are employed to minimize the risk at an expected level of return. The level of risk of a scheme depends on the securities in which the corpus is invested. The present study attempted to access the risk associated with 25 selected equity diversified mutual fund schemes from five different fund houses. These fund houses are the leading players of the Indian mutual fund industry in terms of Asset under Management.

2.4 Research Gap

Research gap is the difference between previous work done and the present research work. Earlier works conducted by the previous researchers are very useful and appreciated by personnel in various related field. The suggestions and recommendations given by the previous researchers help to improve and increase the necessary data for the related topic. There has been lot of research works and studies undertaken to examine the

risk and return of commercial banks. But the purpose of study is quite different from the previous studies in terms of the time period it covers.

The study has been conducted taking Nepal Investment Bank Ltd, Standard Chartered Bank Ltd, Himalayan Bank Ltd and Everest Bank Ltd. For the analysis purpose this study mostly used Correlation Coefficient, Standard Deviation and Coefficient of Variance suggested by (Sinkey) in book “ Commercial bank and Financial Management.” Therefore, this study is useful to the concern bank as well as different persons: such as shareholders, investors, policy makers, stockbrokers, state of government, etc. During literature review, no previous studies were found which assessed the risk that arises from non performing loans of the bank. This study focuses on analyzing the risk and return of the concerned banks. Therefore there is research gap and this study is conducted to fulfill the mentioned gap.

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Introduction

“Research Methodology, is composed of two words, “Research” and “Methodology”. Research is a systematic and organized effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well thought activities of gathering, recording, analyzing and interpreting that data with the purpose of finding answers to the problem. Thus the entire process by which we attempt to solve problems is called research, while “Methodology” is the research method used to test the hypothesis. A systematic methodology is required to pick and actual result of any study. Research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objective in views. It indicates the method and process employed in the entire aspect of the study. “Research methodology is a way to systematically solve the research problem”. (Kothari, 1990)

This chapter deals with the methodology that adopted in analysis of the data for the study. The population and sample, sources and data collection technique, data analysis tool, the hypothesis to be tested and various limitations which are associated with the study have been discussed in this chapter. The justification on the present study cannot be obtained without help of proper research methodology. The research methodology used in present study is briefly mentioned below.

3.2 Research Design

“Research Design is a controlling part for the collection of the data and it helps to collect the accurate information, which is related to the research topic. Research design is the plan structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance through the analysis of data”. (Kothari, 1990)

The first step of the study is to collect necessary information and data concerning to

study. Therefore research design means, the definite procedure and technique, which guides the study and propound ways of doing research. In this way a descriptive and analytical survey will be done. The justification for the choice of these methods is preferred because it concludes reliable data and information covering a long time and avoids numerous complex variables.

The method of the study is quantitative approach. Financial and statistical tools such as Mean, coefficient of variation, standard deviation, correlation and beta coefficient analysis are applied to analyze the data collected from annual reports of the commercial banks.

3.3 Population and Sample

Population refers to the industries of the same nature and its services and product in general and sample is the part of population which represents population with regards to the study. The total number of commercial banks in Nepal is the population of the study. Thus, here only four Commercial Banks are taken out as a sample on the basis of Earning per share, Net profit: Nepal Investment Bank Limited, Standard Chartered Bank Limited, Himalayan Bank Limited, Everest Bank Limited. Similarly, financial statements of four CBs for eight years research period have been taken as sample for the same purpose.

3.4 Types and Sources of Data

To achieve the objective of the study, secondary data has been used. The secondary data has been collected through various published and unpublished documents of the concerned authorities. The sources of secondary data are as follows:

- Journals, newspaper and magazines
- Unpublished master degree thesis related to this research
- Books related to financial managements
- Different websites.

3.5 Data Collection Techniques

In order to collect the data, annual reports published by banks NRB, economic report and other published statistical data has been used, and to obtain the additional information, informal talks and procedures has been used. Similarly, information may be collected from bulleting, booklets, and journals published from relevant banks and other external sources also have been used.

The secondary data are those which have already been collected by someone and already been passed through the statistical process. Thus, the sources of secondary data would be journals, newspapers; government material related to the study, master degree thesis related to this research, book related to financial management and different websites. Hence, data collection procedures consist both the way of data collection procedures

The study is mainly based on secondary data however primary data have been taken with the individual investor, NEPSE staff and stockbrokers. The secondary data are collected mainly from sources like annual reports, prospectus published bulletins, news paper, journal internet and other sources. Secondary data are collected from various publications of concerning organizations from NEPSE and even from Websites of various banks. The research work has covered a period of eight years i.e., FY 2008/09 to FY 2015/2016.

3.6 Data Analysis Tools

For the achievement of the study various financial and statistical tools can be applied. The analysis of data has been done according to the pattern of available data. The descriptions of financial as well as statistical tools are as follows:

3.6.1 Financial Tools

The financial tools are used to find the financial strength, weakness, opportunity and threats of a firm. An analysis of financial statements helps to take managerial and financial decisions. In this study, various financial tools have been employed for the sake of analysis. The basic tool for financial analysis will be ratio analysis and another is statistical tool.

Financial analysis is the process of identifying the financial strength and weakness of firm by properly establishing relationship between the items of balance sheet, which represents a snapshot of the firm's financial position at a movement in time and next, income statement that depicts a summary of the firm's profitability overtime (Van Horne, 2000)

Ratio analysis has been accepted as the most dominant financial tools to analyze and interpret the financial statements. The relationship between two figures expressed mathematically is known as financial ratio. It is the systematic use of ratio to interpret the financial statement so that the strength and weakness of the firms as well as its historical performance and current financial conditions can be determined. Thus ratio is defined as "the indicated quotient of two mathematically expresses and the relationship between two or more things." For this study, ratios are categorized into the following major headings.

Ratio Analysis

This ratio is used to measure the return of the sampled organizations in the following ways.

1. Return on Assets (ROA)

Return on assets gives an idea as to how efficient management is at using its assets to generate earnings. Return on assets ratio illustrates how well management is employing the organization's total assets to make a profit. The higher the return on assets number, the better, because the organization is earning more money on less investment.

Symbolically:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

2. Return on Equity (ROE)

The return on equity measures how much the shareholders earned for their investment in the organization. The higher the ratio percentage, the more efficient management is in utilizing its equity base and the better return is to investors

Symbolically:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

3.6.2 Statistical Tools

The statistical tool is essential to measure the relationship of two or more variable. It is the mathematical technique used to facilitate the analysis and interpretation of the performances of the organizations. It helps to compare the performance, strengthen, weakness of the organizations. It also helps to present the data, show the relation and deviation or differences of variables of organizations, in this study, the following statistical tools are used:

1. Arithmetic Mean

Arithmetic meant or simply a 'Mean' of a set of observation is the sum of all the observation divided by the number of observation (Bajracharya, 1996). It is the best value, which represent to the whole group. Mean is the arithmetic average of a variable. It has been used to compute the company wise average rate of return in terms of return on assets and return on equity. Arithmetic mean of a series is given by:

$$\text{Arithmetic Mean}(\bar{X}) = \frac{\sum X}{N}$$

Where, $\sum X$ = Sum of the variable X'

N = Total No of observations.

2. Standard Deviation

It is a statistical measure of the variability of a distribution of return around its mean. The standard deviation is the absolute measures of dispersion in which the drawbacks present in other measures of dispersion are removed. It is said to be the best measure of dispersion as it satisfies most of the requisites of a good measure of dispersion (Bajracharya, 1996). Standard deviation is defined as the positive square root of the mean of square of the deviation takes from the arithmetic mean measure the

unsystematic risk. It is widely used to measure risk from holding a single asset. It measures the absolute dispersion. Higher the standard deviation higher will be the variability and vice versa.

Dispersion measures the variation of the data from the central value. In other word, it helps to analyze the quality of data regarding its variability. It can be:

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

where,

σ_j = standard deviation of returns on stock j during the time period n.

R_j = Probability distribution of the observation

\bar{R}_j = Expected rate of return on stock j.

N = Number of years that the returns are taken

3. Coefficient of Variation

Standard deviation is the absolute measure of dispersion. The relative measure of dispersion based on the standard deviation is known as the coefficient of standard deviation (Bajracharya, 1996). It is independent of unit. It measures the risk per unit of return. So, two distributions can bitterly be compared with the help of C.V for their variability. Less the C.V, more will be the uniformity, consistency etc. and more the C.V less will be the uniformity, consistency etc. it is calculated as under:-

$$\text{Coefficient of variation (CV)} = \frac{\sigma_j}{\bar{R}_j}$$

Where,

CV = Coefficient of variation of stock

σ_j = Standard deviation of returns on stock j.

\bar{R}_j = Expected rate of return on stock j.

4. Beta (β)

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio. Higher the beta, higher the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less than equal or more than 1, but the beta for market will be always 1.

Symbolically,

Beta

$$B_j = \frac{\text{COV}_{R_j, R_m}}{\sigma_m^2}$$

where,

B_j = Beta coefficient of stock j

$\text{Cov } R_j, R_m$ = Covariance between R_j and R_m , and equal to

$$\text{Cov. } R_j, R_m = \frac{(\sum R_j - \bar{R}_j)(R_m - \bar{R}_m)}{N-1}$$

σ_m^2 = Variance of market return.

5. Correlation Coefficient (r)

Correlation coefficient is defined as the association between the dependent variable and independent variable. It is a method of determining the relationship between these two variables. If the two variables are so related change in the value of independent variable cause the change in the value of dependent variable then it is said to have correlation coefficient.

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{\{N\sum x^2 - (\sum x)^2\}} \sqrt{\{N\sum y^2 - (\sum y)^2\}}}$$

The Karl Pearson Coefficient of Correlation always falls between -1 to +1. The value of correlation coefficient in -1 signifies the negative correlation and +1 signifies the positive correlation coefficient. The following general rules are mentioned for interpreting the value of r .

When $r = 1$, there is positive perfect correlation between the two variables.

When $r = -1$, there is a negatively perfect correlation between the two variables.

When $r = 0$, the variables are uncorrelated.

Near the value of r to $+1$, closer will be the relationship between two variables and nearer the value of r to 0 , lesser will be the relationship.

6. Diversifiable Risk / Unsystematic Risk

Diversifiable Risk is also known as unsystematic risk. This type of risk is unique to an organization and can be largely eliminated by holding a diversified portfolio of investment. It is caused through factors specific to a particular firm such as efficiencies of management, failure in new product production, employee or labor strikes, lawsuits, advertising campaigns, and any other event that is unique to the company. It can be calculated as:

$$\text{Unsystematic Risk} = \text{Total Risk} - \text{Systematic Risk}$$

7. Undiversifiable Risk / Systematic Risk

Undiversifiable risk is also known as systematic risk. The systematic risk is that portion of total variability of return caused by market factors that simultaneously affect the prices of all securities. Such risk are market factors related in order word, it arises from the changes in the economy and market condition for example high inflation, recession, and impact of political factors, which are beyond the control of company management. It can be calculated as:

$$\text{Systematic Risk} = b_j^2 \sigma_m^2$$

where,

b_j = Beta coefficient of stock j

σ_m^2 = Variance of market return.

3.7 Limitations of the Study

To complete the research, we follow the different books, journals, articles and online data. Thus, reliability of the study is based on those things. In context of Nepal, problem of reliable data is the major problem for research study. Every study has limitations due to different factors of institutions, time-period taken, reliability of statistical data, tools and variances. Some of the basic limitation of the study may be as follows:

- The study is based on data and information provided by the banks.
- The study covers recent five years data.
- The study largely may be depends upon the published documents such as balance sheet, profit and loss account statements, etc.
- Statistical and financial techniques are used for risk analysis.
- The study concerned only with the analysis of risk and return of the banks.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter deals with the presentation and analysis of relevant data of the commercial banks of Nepal in order to fulfill the objectives of the study. To obtain the best result, the data have been analyzed according to the research methodology as mentioned in third chapter.

The purpose of this chapter is to introduce to the mechanics of data analysis and interpretation. Data analysis is the relationships or differences supporting or conflicting with original or new hypothesis should be subjected to statistical test of significance to determine with what validity data can be served to indicate any conclusion.

In this chapter, data collected from secondary sources are presented and analyzed by using financial and statistical tools and its findings have been discussed in this chapter. The various data in respect of different heading are analyzed one by one. The main purpose of this chapter is to study, evaluate and analyze those major financial performances, which are mainly related to the liquidity management of commercial banks.

1. Risk and return on the basis of Return on Assets Ratio

Return on assets ratio measures the profitability with respect to the total assets invested in commercial banks. The higher the return, the more efficient management is in utilizing its assets. It is best to compare it against a company's previous ROA numbers or the ROA of a similar company. The ROA figure gives investors an idea of how effectively the company is converting the money it has to invest into net income. The higher the ROA number, the better, because the company is earning more money on less investment. The return is measure by arithmetic mean (\bar{X}), total risk is measure by standard deviation (σ)

and coefficient of variation (C.V) calculates risk per unit which is presented under this topic.

The table (4.1) shows the risk and return on the basis of return on assets under commercial banks like Nepal Investment Bank Limited (NIBL), Standard Chartered Bank Nepal Limited (SCBNL), Himalayan Bank Limited (HBL), and Everest Bank Limited (EBL).

Table 4.1
Risk and Return on the basis of Return on Assets (%) under commercial banks

Fiscal Year	NIBL (%)	SCBNL (%)	HBL (%)	EBL (%)
2008/09	1.70	2.53	1.03	1.73
2009/10	2.20	2.70	1.19	2.01
2010/11	2.02	2.55	1.91	2.01
2011/12	1.60	2.80	1.76	1.95
2012/13	2.62	2.67	1.54	2.24
2013/14	2.25	2.51	1.30	2.20
2014/15	1.88	2.01	1.34	1.59
2015/16	1.97	1.98	1.94	1.52
Total	0.16240	0.19750	0.12010	0.15250
Mean	0.02030	0.02469	0.01501	0.01906
S.D	0.00326	0.00308	0.00341	0.00268
C.V	16.075	12.486	22.708	14.040

Sources: Annual Report of Sample Banks/Appendices- II

Table 4.1 shows that the relationship of mean return, standard deviation and covariance of four banks for 8 consecutive years. The mean ratio of NIBL, SCBNL, HBL and EBL are 0.02030, 0.02469, 0.01501, and 0.01906 respectively. Among these four banks, SCBNL has the highest mean ratio whereas NIBL, HBL and EBL have the lower ratio.

It indicated that SCBNL is mobilizing its fund more satisfactorily than NIBL, HBL and EBL. It can be interpreted as SCBNL has highest degree of investment in risky assets and

NIBL, HBL and EBL have the lowest in comparison with SCBNL.

The low ratio shows low productivity and high degree of safety in liquidity and vice versa.

The standard deviations of four banks are 0.00326, 0.00308, 0.00341, and 0.00268 respectively and CVs are 16.075 Percent, 12.486 Percent, 22.708 Percent and 14.040 Percent respectively.

It can be interpreted that HBL has highest degree of deviation and highest degree of variation.

The graphical presentation of the four banks during the study.

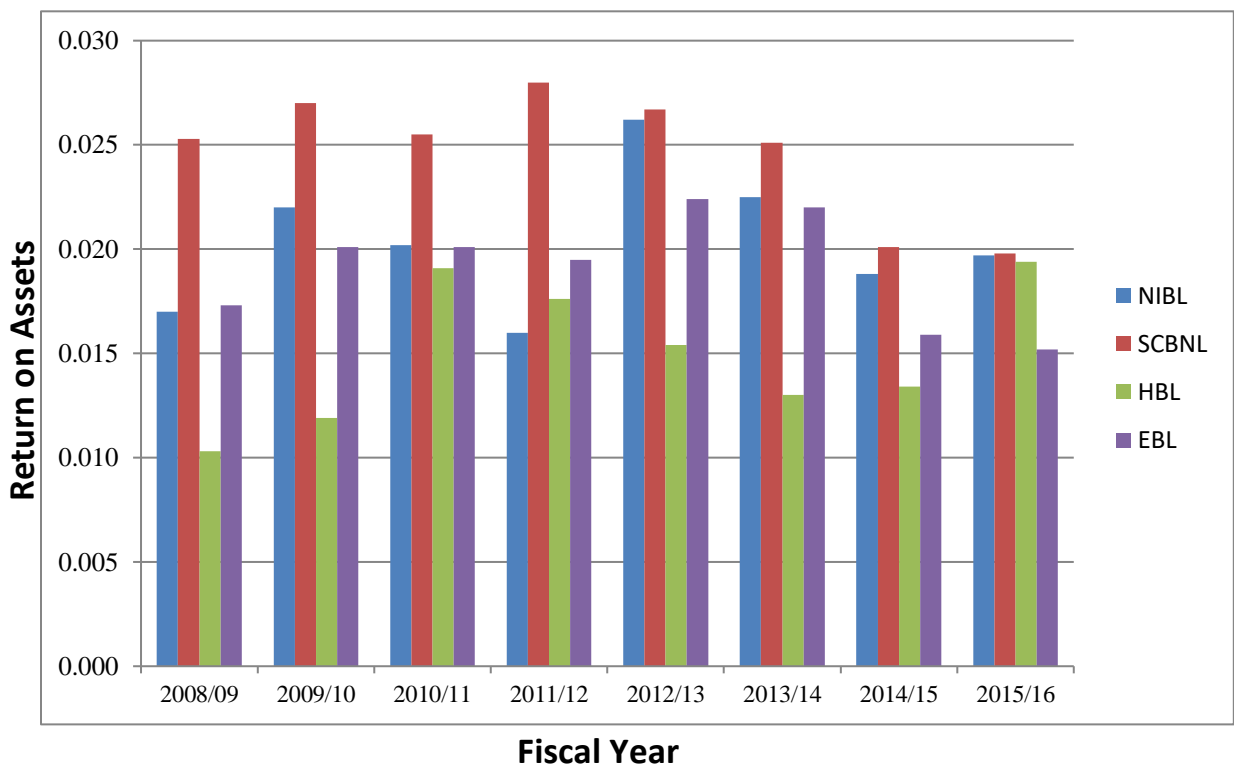


Figure: 4.1

Risk and Return on the basis of Return on Assets (%) under commercial banks

2. Risk and return on the basis of Return on Equity Ratio

The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

The table (4.2) shows the risk and return on the basis of return on equity under commercial banks like Nepal Investment Bank Limited (NIBL), Standard Chartered Bank Nepal Limited (SCBNL), Himalayan Bank Limited (HBL), and Everest Bank Limited (EBL).

Table 4.2
Risk and Return on the basis of Return on Equity (%) of Commercial Banks

Fiscal Year	NIBL (%)	SCBNL (%)	HBL (%)	EBL (%)
2008/09	23.05	33.58	6.06	28.96
2009/10	27.61	32.22	14.79	30.17
2010/11	22.80	30.43	22.35	31.53
2011/12	17.18	28.36	20.70	27.15
2012/13	27.28	26.38	17.81	31.52
2013/14	24.47	26.27	15.77	29.04
2014/15	20.00	22.03	15.98	23.25
2015/16	15.66	17.18	21.94	20.61
Total	1.7805	2.1645	1.3540	2.2223
Mean	0.2226	0.2706	0.1693	0.2778
S.D	0.0438	0.0543	0.0527	0.0395
C.V	19.666	20.059	31.140	14.210

Sources: Annual Report of Sample Banks/Appendices-III

Table 4.2 shows that the relationship of mean return, standard deviation and coefficient of variation of four banks for 8 consecutive years. The mean ratio of NIBL, SCBNL, HBL and EBL are 0.2226, 0.2706, 0.1693 and 0.2778 respectively. Among these four banks, EBL has the highest mean ratio whereas NIBL, SCBNL, and HBL have the lower ratio.

The mean return of EBL is 0.2778 percent, which are higher than others with lowest standard deviation and coefficient of variation i.e. 0.0395 and 14.210 which seem EBL has better financial performance. The mean return and standard deviation of HBL are

0.1693, 0.0527 respectively, which are lower than others with highest coefficient of variation i.e. 31.140. So, HBL has lower financial performance.

The mean return of NIBL and SCBNL are 0.2226 and 0.2706 respectively, the standard deviation of NIBL and SCBNL are 0.0438 and 0.0543 respectively and the coefficient of variation of NIBL and SCBNL are 19.666 and 20.059 percent risk respectively. The above table shows higher the risk, higher the return and lower the risks lower the return is justified.

The graphical presentation of the four banks during the study.

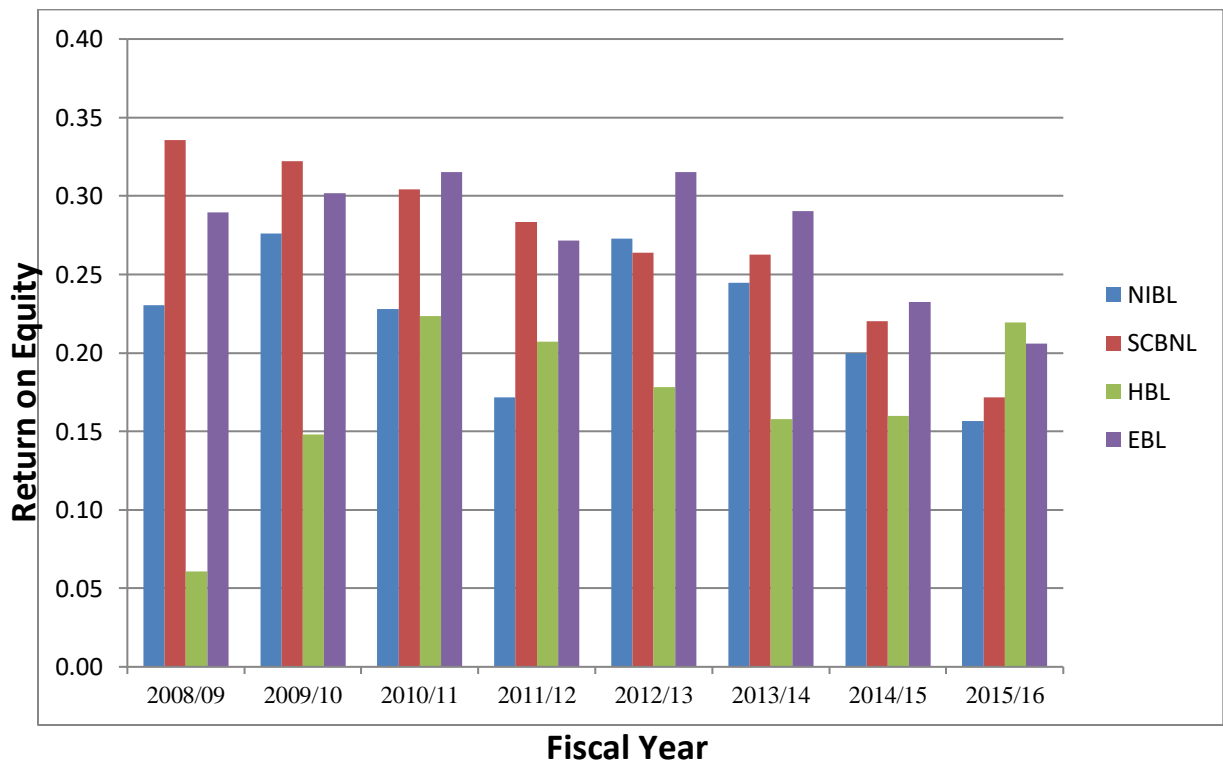


Figure 4.2

Risk and Return on the basis of Return on Equity (%) under commercial banks

4.2 Portfolio Analysis

Analyzing elements of a firm's product mix to determine the optimum allocation of its resources is portfolio analysis. It includes portfolio risk comparison with weighted average risk and portfolio return.

1. Portfolio Risk and Return on the basis of Return on Assets

Portfolio risk and return on the basis of return on assets are presented in the table below, which represents correlation, respective weight, average return and risk, portfolio risk and return calculated under different banks.

The given Table 4.3 represents portfolio risk and return on the basis of return on assets of commercial banks.

Table 4.3

Portfolio Risk and Return on the basis of Return on Assets under Commercial Banks

Combination of Banks	Correlation	Respective Weight (%)	Average Return (%)	Portfolio Return (%)	Average Risk (%)	Portfolio Risk (%)
NIBL and SCBNL	0.14458	0.47,0.53	2.25	2.26187	0.3173	0.22408
NIBL and HBL	-0.04662	0.52,0.48	1.77	1.77717	0.3336	0.23573
NIBL and EBL	0.63484	0.40,0.60	1.97	1.95601	0.2970	0.20694
SCBNL and HBL	-0.16707	0.55,0.45	1.99	2.03355	0.3246	0.22863
SCBNL and EBL	0.77799	0.75,0.25	2.19	2.33032	0.2879	0.24154
HBL and EBL	-0.09420	0.61,0.39	1.70	1.65663	0.3043	0.23386

Source: - Appendix-II

The portfolio result present in Table 4.3 indicate the combination of banks such as NIBL and HBL, SCBNL and HBL, HBL and EBL, shows negative correlation i.e. -0.04662, -0.16707 and -0.09420 whereas other combination of banks such as NIBL and SCBNL, NIBL and EBL, SCBNL and EBL shows positive correlation i.e. 0.14458, 0.63484, 0.77799 respectively in terms of return on assets. The risk are highly diversified, the combination of banks which have negative correlation in comparison to positive correlated firms.

The combination of NIBL and SCBNL, SCBNL and HBL, SCBNL and EBL, shows portfolio return is higher than average return whereas the combination of NIBL and HBL,

NIBL and EBL, HBL and EBL shows portfolio return is lower than average return. The portfolio risk of all combination of banks is less than average risk.

2. Portfolio Risk and Return on the basis of Return on Equity

Portfolio risk and return on the basis of return on equity are presented in the table below, which represents correlation, respective weight, average return and risk and portfolio risk and return calculated under different banks.

The given Table 4.4 represents portfolio risk and return on the basis of return on equity of commercial banks.

Table 4.4

Portfolio Risk and Return on the basis of Return on Equity under Commercial Banks

Combination of Banks	Correlation	Respective Weight (%)	Average Return (%)	Portfolio Return (%)	Average Risk (%)	Portfolio Risk (%)
NIBL and SCBNL	0.59772	0.60, 0.40	24.66	24.14778	4.9020	3.40706
NIBL and HBL	-0.40455	0.59,0.41	19.59	20.08026	4.8237	3.36710
NIBL and EBL	0.81086	0.44, 0.56	25.02	25.30172	4.1621	2.93139
SCBNL and HBL	-0.51516	0.48, 0.52	21.99	21.84223	5.3489	3.78092
SCBNL and EBL	0.81308	0.52,0.48	27.42	27.39655	4.6873	3.42050
HBL and EBL	0.12380	0.56, 0.44	22.35	21.69073	4.6089	3.42688

Source: - Appendix-III

Based on the table 4.4, the combination of banks such as NIBL and HBL and SCBNL and HBL shows negative correlation i.e. -0.40455 and -0.51516 respectively, whereas the other combination of banks such as NIBL and SCBNL, NIBL and EBL, SCBNL and EBL and HBL and EBL shows positive correlation i.e. 0.59772, 0.81086, 0.81308 and 0.12380 respectively, in terms of return on equity. The risk has highly diversified the combination of banks which have negative correlation rather than the combination banks which have positive correlation.

The portfolio return of NIBL and HBL and NIBL and EBL are higher than average return, whereas the portfolio return of NIBL and SCBNL, SCBNL and HBL, SCBNL and EBL, and HBL and EBL are lower than average return. The portfolio risk of all combination of banks is lower than average risk.

4.3 Analysis of Market Sensitivity

Market sensitivity of stock is explained by term of beta coefficient. Higher the beta greater is the sensitivity and higher the reaction to the market movement and vice-versa. Beta measures the systematic risk, which cannot be eliminated through the means of diversification. Some of benchmark betas follow:

B=0.5 stock is only half as volatile

B= 1.0 stock is of average risk

B= 2.0 is twice as risky as the average stock

Stock's beta coefficient determines how it affects the riskiness of a diversified portfolio.

Beta is the most relevant measure of a stocks risk.

Beta coefficient of market is always 1. This statement can be proved as follows:

$$\beta = \frac{\text{Cov } R_j R_m}{\sigma_m^2}$$

where,

$\text{Cov } R_j R_m$ = covariance between market return and stock return.

Hence,

$$\beta_m = \frac{\text{Cov } R_m R_m}{\sigma_m^2} = 1$$

Hence: Beta coefficient of market is always equal to 1.

4.3.1 Analysis of Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j) of NIBL

Table 4.5

Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j)

Fiscal Year	(R_j - \bar{R}_j)	(R_m - \bar{R}_m)	(R_j - \bar{R}_j) (R_m - \bar{R}_m)
2008/09	-0.19645	-0.18943	0.03721
2009/10	-0.56154	-0.55169	0.30980
2010/11	-0.28333	-0.42990	0.12180
2011/12	-0.15460	-0.11532	0.01783
2012/13	0.72136	0.14051	0.10136
2013/14	0.33416	0.80951	0.27051
2014/15	-0.45065	-0.26170	0.11793
2015/16	0.59105	0.59802	0.35346
Total			1.32990

Source: - Appendix-IV and V

The detail calculation of (R_j - \bar{R}_j) and (R_m - \bar{R}_m)² for each fiscal year are given in Annex.

$$\begin{aligned} \text{Co- variance (Cov}_{jm}) &= \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{N-1} \\ &= 0.1662 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient (R}_{jm}) &= \frac{N\sum j\sum m - (\sum j)(\sum m)}{\sqrt{\{N\sum j^2 - (\sum j)^2\}} \sqrt{\{N\sum m^2 - (\sum m)^2\}}} \\ &= 0.8104 \end{aligned}$$

Beta of NIBL

$$\begin{aligned} \text{Beta (b}_j) &= \frac{\text{Cov } R_j R_m}{\sigma_m^2} \\ &= \frac{0.1662}{0.2342} \\ &= 0.7098 \end{aligned}$$

$$\begin{aligned} \text{Systematic Risk} &= b_j^2 \sigma_m^2 \\ &= 0.7098^2 \times 0.2342 \\ &= 0.1179 \end{aligned}$$

Unsystematic Risk = Total Risk – Systematic Risk

$$\begin{aligned}
 &= \sigma_j - b_j^2 \sigma_m^2 \\
 &= 0.4844 - 0.1179 \\
 &= 0.3664
 \end{aligned}$$

Here, the covariance is 0.1662, correlation of coefficient is 0.8104 and beta-coefficients is 0.7098 of NIBL with comparing of the market which seems good enough for the general investors to invest in this sector.

4.3.2 Analysis of Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j) of SCBNL

Table 4.6

Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j)

Fiscal Year	(R _j - \bar{R}_j)	(R _m - \bar{R}_m)	(R _j - \bar{R}_j) (R _m - \bar{R}_m)
2008/09	-0.30294	-0.18943	0.05739
2009/10	-0.45728	-0.55169	0.25227
2010/11	-0.47952	-0.42990	0.20615
2011/12	0.14625	-0.11532	-0.01687
2012/13	0.11340	0.14051	0.01593
2013/14	0.87321	0.80951	0.70687
2014/15	-0.47541	-0.26170	0.12441
2015/16	0.58229	0.59802	0.34822
Total			1.69438

The detail calculation of (R_j - \bar{R}_j) and (R_m - \bar{R}_m) for each fiscal year are given in Annex.

$$\begin{aligned}
 \text{Co- variance (Cov}_{jm}) &= \frac{(R_j - \bar{R}_j) (R_m - \bar{R}_m)}{N-1} \\
 &= 0.2118
 \end{aligned}$$

$$\begin{aligned}
 \text{Correlation of coefficient (R}_{jm}) &= \frac{\text{Cov}_{jm}}{\sigma_j \sigma_m} \\
 &= 0.9618
 \end{aligned}$$

Beta of SCBNL

$$\text{Beta (b}_j) = \frac{\text{Cov } R_j R_m}{\sigma_m^2}$$

$$= \frac{0.2118}{0.2342}$$

$$= 0.9043$$

$$\text{Systematic Risk} = b_j^2 \sigma_m^2$$

$$= 0.9043^2 \times 0.2342$$

$$= 0.1915$$

$$\text{Unsystematic Risk} = \text{Total Risk} - \text{Systematic Risk}$$

$$= \sigma_j - b_j^2 \sigma_m^2$$

$$= 0.51997678 - 0.1915$$

$$= 0.3285$$

Here, the covariance is 0.2118, correlation of coefficient is 0.9618 and beta-coefficients is 0.9043 of SCBNL with comparing of the market.

4.3.3 Analysis of Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j) of HBL

Table 4.7

Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j) of HBL

Fiscal Year	(R _j - \bar{R}_j)	(R _m - \bar{R}_m)	(R _j - \bar{R}_j) (R _m - \bar{R}_m)
2008/09	-0.12928	-0.18943	0.02449
2009/10	-0.61075	-0.55169	0.33695
2010/11	-0.30596	-0.42990	0.13153
2011/12	0.15877	-0.11532	-0.01831
2012/13	0.04989	0.14051	0.00701
2013/14	0.29633	0.80951	0.23988
2014/15	-0.20388	-0.26170	0.05336
2015/16	0.74489	0.59802	0.44546
Total			1.22037

The detail calculation of (R_j - \bar{R}_j) and (R_m - \bar{R}_m) for each fiscal year are given in Annex.

$$\text{Covariance (Cov}_{jm}) = \frac{(R_j - \bar{R}_j) (R_m - \bar{R}_m)}{N-1}$$

$$= 0.1525$$

$$\begin{aligned} \text{Correlation of coefficient (R}_{jm}) &= \frac{\text{Cov}_{jm}}{\sigma_j \sigma_m} \\ &= 0.8718 \end{aligned}$$

Beta of HBL

$$\begin{aligned} \text{Beta}(b_j) &= \frac{\text{Cov } R_j R_m}{\sigma_m^2} \\ &= \frac{0.1525}{0.2342} \\ &= 0.6513 \end{aligned}$$

$$\begin{aligned} \text{Systematic Risk} &= b_j^2 \sigma_m^2 \\ &= 0.6513^2 \times 0.2342 \\ &= 0.0994 \end{aligned}$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= \sigma_j - b_j^2 \sigma_m^2 \\ &= 0.4132 - 0.0994 \\ &= 0.3139 \end{aligned}$$

Here the covariance is 0.1525, correlation of coefficient is 0.8718 and beta-coefficients is 0.6513 of HBL with comparing of the market which seems good enough for the general investors to invest in this bank.

4.3.4 Analysis of Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j) of EBL

Table 4.8
Co-Variance (Cov_{jm}), Correlation of coefficient (R_{jm}) and Beta (B_j)

Fiscal Year	(R _j - \bar{R}_j)	(R _m - \bar{R}_m)	(R _j - \bar{R}_j) (R _m - \bar{R}_m)
2008/09	-0.39029	-0.18943	0.07393
2009/10	-0.52715	-0.55169	0.29082
2010/11	-0.38354	-0.42990	0.16488
2011/12	-0.43113	-0.11532	0.04972
2012/13	0.91997	0.14051	0.12926
2013/14	1.09023	0.80951	0.88255
2014/15	-0.54422	-0.26170	0.14242
2015/16	0.26613	0.59802	0.15915
Total			1.89274

The detail calculation of $(R_j - \bar{R}_j)$ and $(R_m - \bar{R}_m)$ for each fiscal year are given in Annex.

$$\begin{aligned} \text{Co- variance (Cov}_{jm}) &= \frac{(R_j - \bar{R}_j)(R_m - \bar{R}_m)}{N-1} \\ &= 0.2366 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient (R}_{jm}) &= \frac{\text{Cov}_{jm}}{\sigma_j \sigma_m} \\ &= 0.8309 \end{aligned}$$

Beta of EBL

$$\begin{aligned} \text{Beta (b}_j) &= \frac{\text{Cov } R_j R_m}{\sigma_m^2} \\ &= \frac{0.2366}{0.2342} \\ &= 1.0101 \end{aligned}$$

$$\begin{aligned} \text{Systematic Risk} &= b_j^2 \sigma_m^2 \\ &= 1.0101^2 \times 0.2342 \\ &= 0.23899 \end{aligned}$$

$$\begin{aligned} \text{Unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ &= \sigma_j - b_j^2 \sigma_m^2 \\ &= 0.6724 - 0.2390 \\ &= 0.4334 \end{aligned}$$

Here the covariance is 0.2366, correlation of coefficient is 0.8309 and beta-coefficients is 1.0101 of EBL with comparing of the market which seems good enough for the general investors to invest in this bank.

4.4 Comparison of Co-variance, correlation coefficient and the Beta between the Sampled Banks

The following table shows the Co-variance, correlation coefficient and the Beta between the sampled banks in various years under studied.

Table 4.9

Covariance, correlation coefficient and Beta of the Sampled Banks

S.N	Bank	Covariance	Correlation	Beta	Remarks
1	NIBL	0.1662	0.8104	0.7098	
2	SCBNL	0.2118	0.9619	0.9043	
3	HBL	0.1525	0.8718	0.6513	Lowest Beta, lowest covariance and moderate correlation
4	EBL	0.2366	0.8309	1.0101	Highest beta

According to the table 4.15 shown the highest covariance is 0.2366 of EBL and Lowest Covariance is 0.1525 of HBL. The correlation of coefficient between bank and market of SCBNL is highest i.e. 0.9619 and lowest is 0.8104 of NIBL .The EBL have highest beta coefficient i.e. 1.0101.

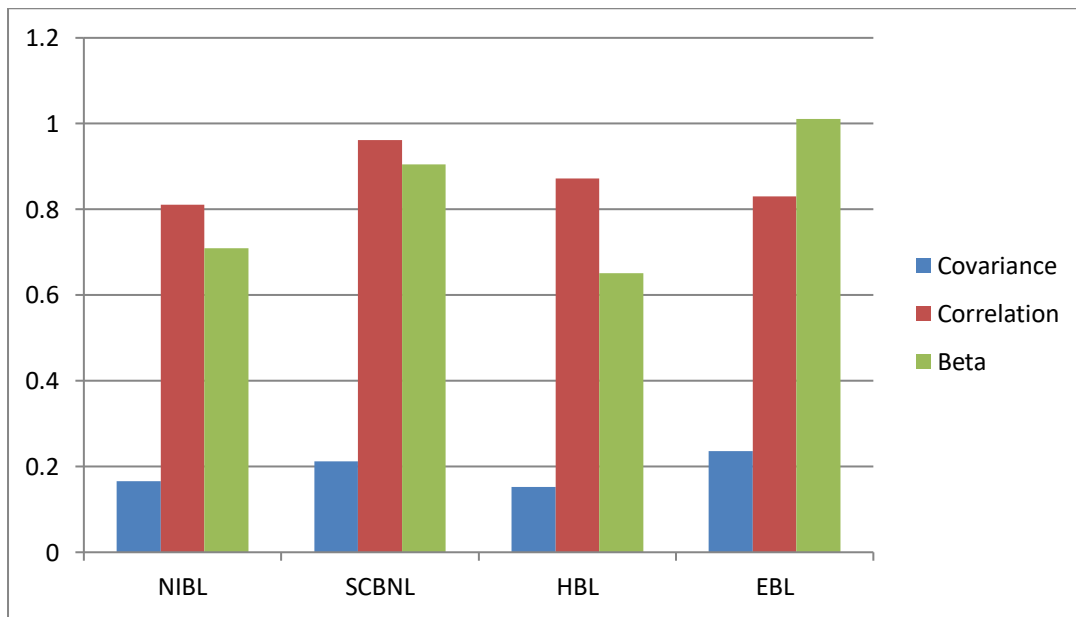


Figure 4.3

Co-variance, Correlation Coefficient and Beta between the Sampled Banks

By observing the figure 4.3, the comparison of the sampled banks in terms of covariance and Beta can be clearly seen. It clarifies covariance, correlation and beta coefficient of each individual bank.

4.5 Risk Analysis

Here, we analyze the level of risk of the selected sampled banks. For analyzing the risk, standard deviation, coefficient of variance, systematic risks, unsystematic risk and the beta coefficient have been calculated for each sampled banks based on the available data. Standard deviation measures the total risk that includes both systematic risks that can't be diversified and unsystematic risk which can be diversified. The coefficient variance is also calculated as the standard deviation may not be the appropriate measure of risk in case of different rate of returns of companies under consideration. It measures the risk per unit of return. The beta coefficient measures the market sensitivity of the stock of sampled commercial bank under study. Here, it is assumed that the beta coefficient of the market is always equal to 1.

The study and analysis of level of risks of selected sample banks along with their average rate of return over the period of study has been presented below:

4.5.1 Risk Analysis of NIBL bank

Table 4.10
Risk Analysis of NIBL

Indicators	Results of NIBL Bank
Average rate of return	19.6449
Standard deviation	0.4844
Coefficient of Variance	2.4658
Covariance	0.1662
Correlation	0.8104
Beta	0.7098
Systematic Risk	0.1180
Unsystematic Risk	0.3664

From the above table, it is clear that the average return of NIBL Bank is 19.6449 percent and has the total risk of 0.4844 as indicated by its standard deviation. Out of its total risk

0.1180 is a systematic risk that can't be diversified whereas 0.3664 is an unsystematic risk which can be diversified in the future. The coefficient of variance is also calculated that measured the risk per unit of return which is 2.4658 in case of NIBL Bank over the period of study. It has the beta coefficient of 0.7098 which indicates that the stock of NIBL is less volatile than the market as the beta coefficient is less than 1.

4.5.2 Risk analysis of SCBNL Bank

Table 4.11
Risk Analysis of SCBNL

Indicators	Results of SCBNL Bank
Average rate of return	30.2941
Standard deviation	0.51997
Coefficient of Variance	1.7164
Covariance	0.2118
Correlation	0.9619
Beta	0.9043
Systematic Risk	0.1915
Unsystematic Risk	0.3285

From the above table, the average return of SCBNL Bank is 30.2941 percent and has the total risk of 0.51997 as indicated by its standard deviation. Out of its total risk 0.1915 is a systematic risk that can't be diversified whereas 0.3285 is an unsystematic risk which can be diversified in the future. The coefficient of variance is also calculated that measured the risk per unit of return which is 1.7164 in case of SCBNL Bank over the period of study. It has the beta coefficient of 0.9043 which indicates that the stock of SCBNL is less volatile than the market as the beta coefficient is less than 1.

4.5.3. Risk Analysis of HBL Bank

Table 4.12
Risk Analysis of HBL

Indicators	Results of HBL Bank
Average rate of return	12.9284
Standard deviation	0.4132
Coefficient of Variance	3.1963
Covariance	0.1525
Correlation	0.8718
Beta	0.6513
Systematic Risk	0.0994
Unsystematic Risk	0.3139

From the above table, the average return of HBL Bank is 12.9284 percent and has the total risk of 0.4132 as indicated by its standard deviation. Out of its total risk 0.0994 is a systematic risk that can't be diversified whereas 0.3139 is an unsystematic risk which can be diversified in the future. The coefficient of variance is also calculated that measured the risk per unit of return which is 3.1963 in case of HBL Bank over the period of study. It has the beta coefficient of 0.6513 which indicates that the stock of HBL has positive correlation with the market.

4.5.4 Risk Analysis of EBL Bank

Table 4.13
Risk Analysis of EBL

Indicators	Results of EBL Bank
Average rate of return	39.0288
Standard deviation	0.6724
Coefficient of Variance	1.7229
Covariance	0.2366
Correlation	0.8309
Beta	1.0101
Systematic Risk	0.23899
Unsystematic Risk	0.43343

From the above table, the average return of EBL Bank is 39.0288 percent and has the total risk of 0.6724 as indicated by its standard deviation. Out of its total risk 0.23899 is a

systematic risk that can't be diversified whereas 0.43343 is an unsystematic risk which can be diversified in the future. The coefficient of variance is also calculated that measured the risk per unit of return which is 1.7229 in case of EBL Bank over the period of study. It has the beta coefficient of 1.0101 which indicates that the stock of EBL is average to the market changes as the beta coefficient is equals 1.

4.6 Comparative Risk Analysis of Sampled Banks

The Comparative analysis of risk involved in the sampled commercial banks over the study period is presented below with the help of the table:

Table4.14
Comparative Risk Analysis of Sampled Banks

Banks	Average Return	Standard Deviation	Coefficient of Variance	COV	Correlation	Beta	Systematic Risk	Unsystematic Risk
NIBL	19.6449	0.4844	2.4658	0.1662	0.8104	0.7098	0.1180	0.3664
SCBNL	30.2941	0.51997	1.7164	0.2118	0.9619	0.9043	0.1915	0.3285
HBL	12.9284	0.4132	3.1963	0.1525	0.8718	0.6513	0.0994	0.3139
EBL	39.0288	0.6724	1.7229	0.2366	0.8309	1.0101	0.23899	0.43343

From the above table, it is clear that among the sampled banks EBL has the highest average return of 39.0288 percent that involves the highest level of risk of 0.6724 over the period of study. Thus, it resembles the fact that higher the risk, higher the return. It also has the highest beta of 1.0101 which indicates that the stock of EBL is highly sensitive to the market changes as compared to the other sampled banks whereas, HBL bank has the lowest level of risk along with the lowest return of 12.9284 percent. Its beta is also less than one which indicates that its stock price is less sensitive to the market changes. There is not much scope of reducing the risk involves in HBL banks as it has the level of unsystematic risk of only 0.3139 but that of EBL can be reduced to some extent as EBL has the unsystematic risk of 0.4334. Among these sampled banks, SCBNL has the second highest return with the moderate level of risk of 0.51997 which is the second

highest level of risk among the sampled banks. Even the beta coefficient of SCBNL bank is 0.1915 which is not as high as that of EBL or not as less as that of HBL bank. Thus, SCBNL bank look more attractive than any other sampled banks even though it is not providing highest amount of return because it is not highly risky and sensitive as EBL nor it is as low risky and insensitive as HBL bank. It is providing reasonable return with reasonable level of risk involved.

4.7 Major Findings of the Study

This study enables investors to keep the returns they can expect and the risk they may take into better perspective.

On the basis of Return on assets

- The mean return of SCBNL is 2.4688 percent which is higher than others and have moderate standard deviation and coefficient of variation i.e. 0.3082 percent and 12.486 percent risks.
- When total risk is considered, HBL with 0.3409 percent showed highest risk whereas EBL with 0.2676 percent showed lowest risk.
- Among selected banks, the combination of SCBNL and HBL has highest negative correlation i.e. -0.1671 which diversified more risk than others combination of banks.
- The portfolio risk was diversified in all combination of banks.
- Among all combination of banks, the portfolio return of NIBL and EBL have moderate portfolio return and lower portfolio risk i.e. 1.9560 percent and 0.2069 percent.

On the basis of Return on Equity

- Among selected banks, EBL has highest mean return i.e. 27.7788 percent lowest standard deviation and coefficient of variation i.e. 3.9473 percent and 14.210 percent risks.
- The combination of SCBNL and HBL has highest negative correlation i.e. -0.5152 which diversified more risk than all combination of banks.
- The portfolio risk reduced in all combination.

- The combination of NIBL and SCBNL has moderate portfolio return i.e. 22.3017 percent, with lowest portfolio risk i.e. 2.9314 percent.

As per the analysis of data, following major findings have been obtained. The return is the income received on a stock investment, which is usually expressed in percentage. Expected return of is maximum (39.03 percent) of EBL bank. Similarly expected return of NIBL, SCBNL and HBL are 19.64 percent, 30.29 percent and 12.93 percent respectively.

Risk is the variability of returns which is measured in terms of standard deviation. On the basis of standard deviation, stock of EBL is most risky since it has high S.D i.e. 0.6724. Stock of HBL has least risk because of its low S.D of 0.4132.

On the other hand we know that C.V is more rational basis of investment decision. This measures the risk per unit of return. On the basis of CV, common stock of EBL is best among all other banks. SCBNL has 1.7164 unit of risk per 1 unit of return. But common stock of HBL has the highest risk per unit of return i.e. 3.1963 units.

Systematic risk of NIBL, SCBNL, HBL and EBL are 0.1180, 0.1915, 0.0994 and 0.23899 respectively. And unsystematic risk of NIBL, SCBNL, HBL and EBL are 0.3664, 0.3285, 0.3139 and 0.43343 respectively.

Most of the investors invest only keeping the return in the mind but they are found unable to calculate the risk factors of the security. Most of the Nepalese private investors invest in single security. Some of the investors use their fund in two or more securities. They invest their fund in different securities on the basis of expectation and assumption of individual securities rather than analysis of the effect of portfolio.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter focuses on major findings of the research and factors that affecting the facts. This will give the way to find the weakness and strengths of the Nepalese banks. So the recommendations on the basis of the findings are determined and suggestions are presented on the areas of improvement to improve the performance of the banks.

5.2 Summary

Banking industry plays the vital role in the process of development. They not only influence the structure of the economy but also overall development process of a country. Commercial banks are legally formed financial institution, which accept deposits and makes loan for commercial and non commercial purpose. Main focus of this study is to analyze the risk and return of commercial banks. Almost the investors are risk averters. Analyzing risk and return gives the idea to the investors for the proper investment of their fund to get maximum return bearing minimum risk. Hence, this study is mainly focused on 4 banks: Nepal Investment Bank Ltd, Standard Chartered Bank Nepal Ltd, Himalayan Bank Ltd and Everest Bank Ltd.

The main focus point of the study is the current condition of commercial banks regarding the risk position. So the objective of the study is to evaluate the risk and return of the commercial banks. For the detail analysis of commercial banks in Nepal, in this study, Nepal's four Commercial Banks data are collected through secondary sources and different data analysis tools are used. The study has been divided into five chapters. And took secondary data of last eight consecutive years.

In the first chapter, brief background of the study, significance of the study, statement of problem, objectives of the study, brief introduction of the sample banks, significance of the study and limitations of the study are included.

In the second chapter, review of literature has been made which includes conceptual review, review of major studies. During the study, different books, journals, articles, previous studies, websites, reports are reviewed.

Third chapter consists of research design, population and sample analysis tools. The data are collected from secondary sources for the study. The secondary data are collected from annual reports of sample banks and Nepal Rastra Bank. After collecting the data from different source, it is analyzed by using different financial and statistical tools and techniques.

An attempt has been made to fulfill the objectives of the research work in the chapter four. In this chapter all the secondary data are compiled, processed and tabulated. Graphical representation was used for better presentation of data. The researcher attempted to analyze the risk and return of commercial banks of Nepal on the basis of return on assets and return on equity by arithmetic mean, standard deviation and coefficient of variation of eight years of research period.

In the chapter five, the summary, conclusion and recommendations are included. The summary of the study, conclusion drawn from the study are presented and necessary suggestions are given to the sample banks, Nepal Rastra Bank and Government for the better management of risk.

5.3 Conclusions

This study covers four Commercial Banks (i.e., NIBL, SCBNL, HBL and EBL) and their audited data only for the last eight years from 2008/09 to 2015/16 have been taken for the study. The available secondary data has been analyzed using various financial and statistical tools. So, the reliability of conclusion of this study is determined on the accuracy of secondary data.

The result of risk and return analysis lead to important conclusion.

Among these four banks, SCBNL has the highest mean ratio whereas NIBL, HBL and EBL have the lower ratio. It indicated that SCBNL is mobilizing its fund more satisfactorily than NIBL, HBL and EBL. It can be interpreted as SCBNL has highest degree of investment in risky assets and NIBL, HBL and EBL have the lowest in comparison with SCBNL. The low ratio shows low productivity and high degree of safety in liquidity and vice versa.

The coefficient of variance of NIBL, SCBNL, HBL and EBL are 16.075 percent, 12.486 percent, 22.708 percent and 14.040 percent respectively. Among them, HBL has the highest coefficient of variance and SCBNL has the lowest coefficient of variance. The higher the coefficient of variance, the greater the level of dispersion around the mean. The lower the value of the coefficient of variance the more precise the estimate.

Whereas, EBL has the highest mean ratio whereas NIBL, SCBNL, and HBL have the lower ratio. The mean return of EBL is 0.2778, which are higher than others with lowest standard deviation and coefficient of variation i.e. 0.0395 and 14.210 which seem EBL has better financial performance on the basis of return on equity. The mean return and standard deviation of HBL are 0.1693, 0.0527 respectively, which are lower than others with highest coefficient of variation i.e. 31.140. So, HBL has lower financial performance.

The mean return of NIBL and SCBNL are 0.2226 and 0.2706 respectively, the standard deviation of NIBL and SCBNL are 0.0438 and 0.0543 respectively and the coefficient of variation of NIBL and SCBNL are 19.666 percent and 20.059 percent risk respectively. It can be interpreted that SCBNL has highest degree of deviation and highest degree of variation. The relationship between risk and return, if risk decreased than return also decreased and if risk increased than return also increased.

While portfolio analysis is considered, the portfolio risk is less than average risk, which showed investing in combination of banks reduced more risk than individuals on the basis of return on assets and on the basis of equity.

The negative correlation coefficient of combination of banks diversified more risk than positive correlation of coefficient on the basis of return on assets and return on equity ratios.

The expected return of these four banks NIBL, SCBNL, HBL and EBL for the period of the study are 0.1964, 0.3029, 0.1293 and 0.3903 respectively. Similarly, deviation and coefficient of variance of NIBL, SCBNL, HBL and EBL are 0.4844, 0.5199, 0.4132, 0.6724 and 2.4658, 1.7164, 3.1963, and 1.7229 respectively.

The expected return, standard deviation and coefficient of variance of market index are 0.1894, 0.4840, and 2.4658. The Covariance, correlation of coefficient and beta coefficient of NIBL bank with market index 0.1662, 0.8104, and 0.3435 respectively which seems good enough for the general investors to invest in this sector. The Covariance, correlation of coefficient and beta coefficient of SCBNL bank with market index were 0.2118, 0.9619, and 0.9043 respectively .which seems good enough for the general investors to invest in this sector. The Covariance, correlation of coefficient and beta coefficient of HBL and EBL bank with market index are 0.1525, 0.8718 and 0.6513 and 0.2366, 0.8309 and 1.0101 respectively.

The systematic risk of NIBL, SCBNL, HBL and EBL are 0.0571, 0.1915, 0.0994 and 0.23899 respectively and unsystematic risk is 0.4273, 0.3285, 0.3139 and 0.4334 respectively.

5.4 Recommendation

On the basis of major findings drawn on the previous chapters and the conclusion made in this chapter, the following suggestions and recommendations have been given to the concerned banks for proper management of risk.

Generally, it is believed that higher the return, higher will be the risk. Investment risks are better covered through a large and diversified portfolio. Investors need to diversify their funds to reduce risk. Proper construction of portfolio will reduce considerable potential loss which can be defined in terms of risk. Efficient portfolio depends on market

movement. For the portfolio construction select the firm that have higher return with negative correlated firm.

The return on assets ratio of HBL is lowest among the four sample banks. So, HBL is to recommend increasing net profit to get better financial performance.

The return on equity ratio of HBL and NIBL are lowest among sample banks. So, HBL and NIBL are recommended to manage share and increase net profit to achieve better performance.

The covariance and beta-coefficient of the commercial banking sector with that of the market are also good enough for the general investors to invest in this sector. The result of correlation between risk and return is insignificant. The result is unsatisfactory because the sample size of the study is too small and the data for the study is used from annual report and website which may not be sufficient so it is suggested that for the further researcher will recommend including sufficient sample size.

In Nepalese context, following points are recommended for reducing the risk.

- Inefficient management system, lack of transparency and slow decision making caused low return with high risk of the firms. So, such types of firms are recommended to change their policy and strategy to make quick decision.
- This study suggests constructing an efficient risk and return analysis to minimize risk and to get sustainable future expected returns. Investors have to choose those firms which have higher returns, minimum proportion of systematic risk and negative correlation to make efficient portfolio.
- Analysis of personal risk, attitude, needs and requirements will be helpful before making an investment in stock market. Investors should make several discussions with stock holder before reaching at the decision. Investors should make their decision on the basis of reliable information rather than the imagination and rumors.
- Satisfied employees are the backbone of the banks. So necessary steps should be forwarded to develop satisfied and obedient employees, which may reduce the problems of bank defaulters and corruptions. Every person means the bank staff

must know their responsibility of their work rather than their selfishness. They must have strong commitment and support the rule and regulations.

- Preventive measures should be taken in order to minimize the credit risk. Banks are recommended to develop sophisticated information system and taking adequate information about borrowers from Credit Information Bureau (CIB). It will help to protect for lending to black listed borrowers.

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APPENDICES

Appendix 'I'

**List of variable of four commercial banks relating net income, shareholders equity
and total assets for the periods 2008/2009 to 2015/2016**

Fiscal Year	Banks	Net Income	Net Worth	Total Assets
2008/09	NIBL	900,619,072	3,907,840,000	53,010,803,126
2009/10	NIBL	1,265,949,588	4,585,393,000	57,305,413,482
2010/11	NIBL	1,176,641,031	5,159,760,000	58,356,827,501
2011/12	NIBL	1,039,275,613	6,049,941,000	65,756,231,954
2012/13	NIBL	1,915,027,932	7,020,644,000	73,152,154,761
2013/14	NIBL	1,939,612,344	7,925,479,000	86,173,927,574
2014/15	NIBL	1,961,852,380	9,806,953,000	104,345,436,413
2015/16	NIBL	2,550,883,563	16,287,752,000	129,782,705,314
2008/09	SCBNL	1,025,114,536	3,052,470,000	40,587,468,009
2009/10	SCBNL	1,085,871,694	3,369,709,000	40,213,319,926
2010/11	SCBNL	1,119,171,286	3,677,777,000	43,810,519,664
2011/12	SCBNL	1,168,967,497	4,122,169,000	41,677,052,360
2012/13	SCBNL	1,217,940,754	4,617,574,000	45,631,100,342
2013/14	SCBNL	1,336,589,187	5,088,091,000	53,324,102,172
2014/15	SCBNL	1,310,351,917	5,948,555,000	65,059,044,079
2015/16	SCBNL	1,292,494,632	7,524,175,000	65,185,732,479
2008/09	HBL	188,998,637	3,119,881,000	18,386,412,982
2009/10	HBL	508,798,193	3,439,205,000	42,717,124,613
2010/11	HBL	893,115,143	3,995,478,000	46,736,203,884
2011/12	HBL	958,638,260	4,632,010,000	54,364,427,882
2012/13	HBL	943,697,990	5,299,708,000	61,152,965,353
2013/14	HBL	959,107,241	6,083,411,000	73,589,845,698
2014/15	HBL	1,112,285,716	6,958,900,000	82,801,550,614
2015/16	HBL	1,935,907,634	8,823,769,000	99,863,008,080

2008/09	SCBNL	638,732,757	2,205,400,000	36,916,848,654
2009/10	SCBNL	831,765,632	2,757,100,000	41,382,760,711
2010/11	SCBNL	931,303,628	2,953,500,000	46,236,212,262
2011/12	SCBNL	1,090,564,222	4,017,300,000	55,813,129,057
2012/13	SCBNL	1,471,117,291	4,667,800,000	65,741,150,457
2013/14	SCBNL	1,549,698,560	5,337,100,000	70,445,082,845
2014/15	SCBNL	1,574,352,443	6,770,400,000	99,167,293,661
2015/16	SCBNL	1,730,207,025	8,394,100,000	113,885,046,402

Sources: Annual Report of Sample Banks

Appendix – ‘II’

Calculation of mean, standard deviation, coefficient of variation, correlation coefficients, optimal weight, portfolio risk and return on return on assets.

Return on assets of NIBL in 2008/2009

$$(\text{ROA}_{\text{NIBL in 2008/2009}}) = \frac{\text{Net Income}}{\text{Total Assets}}$$

$$(\text{ROA}_{\text{NIBL in 2008/2009}}) = \frac{900619072}{53010803126}$$

$$\therefore (\text{ROA}_{\text{NIBL in 2008/2009}}) = 0.016989$$

Or, 1.70% and so on.

Arithmetic mean of NIBL

$$\bar{X}_{\text{NIBL}} = \frac{\sum x}{N}$$

$$\bar{X}_{\text{NIBL}} = \frac{1.70+2.20+2.02+1.60+2.62+2.25+1.88+1.97}{8}$$

$$\therefore \bar{X}_{\text{NIBL}} = 2.03\% \text{ and so on.}$$

Standard Deviation of NIBL

$$\sigma_{\text{NIBL}} = \sqrt{\frac{\sum (X - \bar{X})^2}{N-1}}$$

$$\sigma_{\text{NIBL}} = \sqrt{\frac{0.00007454}{7}}$$

$$\therefore \sigma_{\text{NIBL}} = 0.003263 \text{ and so on.}$$

Coefficient of variation of NIBL

$$(C.V_{NIBL}) = \frac{\sigma}{\bar{X}}$$

$$(C.V_{NIBL}) = \frac{0.003263}{2.03}$$

$$(C.V_{NIBL}) = 0.001607 \text{ or and so on.}$$

Correlation Coefficient between NIBL and SCBNL

$$(r_{NIBL,SCBNL}) = \frac{Cov_{(NIBL,SCBNL)}}{\sigma_{NIBL}\sigma_{SCBNL}}$$

Where,

$$\begin{aligned} Cov_{(NIBL,SCBNL)} &= \frac{\sum(X_{NIBL} - \bar{X}_{NIBL})(Y_{SCBNL} - \bar{Y}_{SCBNL})}{N - 1} \\ &= \frac{0.001018}{7} \end{aligned}$$

$$\therefore Cov_{(NIBL,SCBNL)} = 1.4543E-06 \text{ and so on.}$$

$$(r_{NIBL,SCBNL}) = \frac{1.45429E-06}{1.00586E-05}$$

$$\therefore (r_{NIBL,SCBNL}) = 0.144581821 \text{ and so on.}$$

Optimal weight of NIBL

$$\begin{aligned} (W_{NIBL}) &= \frac{\sigma_{SCBNL}^2 - Cov_{NIBL,SCBNL}}{\sigma_{NIBL}^2 + \sigma_{SCBNL}^2 - 2Cov_{NIBL,SCBNL}} \\ &= \frac{(0.0031)^2 - (1.4543E - 06)}{(0.003263)^2 + (0.0031)^2 - 2(1.4543E - 06)} \end{aligned}$$

$$\therefore (W_{NIBL}) = 0.47 \text{ or } 47\% \text{ and so on.}$$

Weight of SCBNL

$$(W_{SCBNL}) = 1 - (W_{NIBL})$$

$$= 1 - 0.47$$

$$\therefore (W_{SCBNL}) = 0.53 \text{ or } 53\% \text{ and so on.}$$

Return on portfolio of NIBL and SCBNL

$$R_p = W_{NIBL} \bar{X}_{NIBL} + W_{SCBNL} \bar{X}_{SCBNL}$$

$$= 0.47 \times 2.03 + 0.53 \times 2.47$$

$$\therefore R_p = 2.2632\% \text{ and so on.}$$

Standard Deviation of NIBL and SCBNL on Portfolio

$$\sigma_p = \sqrt{[W_{NIBL}^2 \sigma_{NIBL}^2 + W_{SCBNL}^2 \sigma_{SCBNL}^2 + 2\text{Cov}_{NIBL,SCBNL} W_{NIBL} W_{SCBNL}]}$$

$$= \sqrt{[0.47 \times 0.003263^2 + 0.53^2 \times 0.0031^2 + 2(1.4543E - 04) \times 0.47 \times 0.53]}$$

$$\therefore \sigma_p = 0.22408\% \text{ and so on.}$$

Appendix 'III'

Calculation of mean, standard deviation, coefficient of variation, correlation coefficient, optimal weight, portfolio return and risk under Return on Equity

Return on Equity of NIBL in 2008/2009

$$\begin{aligned}(\text{ROE}_{\text{NIBL in 2008/2009}}) &= \frac{\text{Net Income}}{\text{Shareholder's equity}} \\ &= \frac{900619072}{3907840000}\end{aligned}$$

$$\therefore (\text{ROE}_{\text{NIBL in 2008/2009}}) = 0.2305$$

or, 23.05% and so on.

Arithmetic mean of NIBL

$$\begin{aligned}\bar{X}_{\text{NIBL}} &= \frac{\sum X}{N} \\ &= \frac{23.05+27.61+22.80+17.18+27.28+24.47+20+15.66}{8}\end{aligned}$$

$$\therefore \bar{X}_{\text{NIBL}} = 0.2226$$

or, 22.26% and so on.

Standard Deviation of NIBL

$$\begin{aligned}\sigma_{\text{NIBL}} &= \sqrt{\frac{\sum(X-\bar{X})^2}{N-1}} \\ \sigma_{\text{NIBL}} &= \sqrt{\frac{0.013409659}{7}}\end{aligned}$$

$$\therefore \sigma_{\text{NIBL}} = 0.043768 \text{ and so on.}$$

Coefficient of variation of NIBL

$$\begin{aligned}
C.V_{NIBL} &= \frac{\sigma}{\bar{X}} \\
&= \frac{0.043768}{0.2226}
\end{aligned}$$

$\therefore C.V_{NIBL} = 0.19665$ and so on.

Correlation Coefficient between NIBL and SCBNL

$$r_{NIBL,SCBNL} = \frac{Cov_{(NIBL,SCBNL)}}{\sigma_{NIBL}\sigma_{SCBNL}}$$

Where,

$$\begin{aligned}
Cov_{(NIBL,SCBNL)} &= \frac{\sum(X_{NIBL} - \bar{X}_{NIBL})(X_{SCBNL} - \bar{X}_{SCBNL})}{N-1} \\
&= \frac{0.993887875}{7}
\end{aligned}$$

$\therefore Cov_{(NIBL,SCBNL)} = 0.0014198$ and so on.

$$r_{NIBL,SCBNL} = \frac{0.0014198}{0.002375}$$

$\therefore r_{NIBL,SCBNL} = 0.5977$ and so on.

Optimal weight of NIBL

$$\begin{aligned}
W_{NIBL} &= \frac{\sigma_{SCBNL}^2 - Cov_{NIBL,SCBNL}}{\sigma_{NIBL}^2 + \sigma_{SCBNL}^2 - 2Cov_{NIBL,SCBNL}} \\
&= \frac{(0.054272)^2 - (0.0014198)}{(0.043768)^2 + (0.054272)^2 - 2(0.0014198)}
\end{aligned}$$

= 0.60 or 60% and so on.

Weight of SCBNL

$$W_{SCBNL} = 1 - W_{NIBL}$$

$$= 1 - 0.60$$

$\therefore W_{SCBNL} = 0.40$ or 40% and so on.

Return on portfolio of NIBL and SCBNL

$$R_p = W_{NIBL} \bar{X}_{NIBL} + W_{SCBNL} \bar{X}_{SCBNL}$$

$$= 0.60 \times 22.26 + 0.40 \times 27.06$$

$\therefore R_p = 24.18\%$ and so on.

Standard Deviation of NIBL and SCBNL on Portfolio

$$\sigma_p = \sqrt{[W_{NIBL}^2 \sigma_{NIBL}^2 + W_{SCBNL}^2 \sigma_{SCBNL}^2 + 2Cov_{NIBL,SCBNL} W_{NIBL} W_{SCBNL}]}$$

$$= \sqrt{[0.60^2 \times 0.043768^2 + 0.40^2 \times 0.054272^2 + 2(0.0014198) \times 0.60 \times 0.40]}$$

$\therefore \sigma_p = 3.4071\%$ and so on.

APPENDIX-IV

Calculation of R
Nepal Investment Bank Limited (NIBL)

Fiscal Year	MPS (in RS)	Total Dividend	R
2008/09	1388	277.6	0
2009/10	705	176.25	-0.36509366
2010/11	515	128.75	-0.086879433
2011/12	511	25.55	0.04184466
2012/13	784	196.00	0.917808219
2013/14	960	240	0.530612245
2014/15	704	11.968	-0.2542
2015/16	1040	218.4	0.7875
Total			1.571592032

Where,

R is calculation with the use of following formula.

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

The detail calculations of R for each fiscal year:

FY 2009/10

$$R = \frac{176.25 + 705 - 1388}{1388} = -0.36509366$$

FY 2010/11

$$R = \frac{128.75 + 515 - 705}{705} = -0.086879433$$

FY 2011/12

$$R = \frac{25.55 + 511 - 515}{515} = 0.04184466$$

FY 2012/13

$$R = \frac{196.25 + 784 - 511}{511} = 0.917808219$$

FY 2013/14

$$R = \frac{240+960-784}{784} = -0.530612245$$

FY 2014/15

$$R = \frac{11.968+704-960}{960} = -0.2542$$

FY 2015/16

$$R = \frac{218.4+1040-704}{704} = 0.7875$$

$$\text{Expected Return } (\bar{R}) = \frac{\sum R}{N} = \frac{1.57159}{8} = 0.19645$$

APPENDIX -V

Market Index

Fiscal Year	NEPSE Index (NI)	R _m
2008/09	749.1	0
2009/10	477.73	-0.36226138
2010/11	362.85	-0.240470559
2011/12	389.74	0.074107758
2012/13	518.33	0.329937907
2013/14	1036.11	0.9989389
2014/15	961.23	-0.072270319
2015/16	1718.15	0.787449414
Total		1.515431721

Expected Return

$$(R_m) = \frac{\text{Ending Index} - \text{Beginning Index}}{\text{Beginning Index}}$$

Fiscal Year 2009/10

$$(R_m) = \frac{477.73 - 749.1}{749.1} = -0.36226138$$

Fiscal Year 2010/11

$$= \frac{362.85 - 477.73}{477.73} = -0.240470559$$

Fiscal Year 2011/12

$$= \frac{389.74 - 362.85}{362.85} = 0.074107758$$

Fiscal Year 2012/13

$$= \frac{518.33 - 389.74}{389.74} = 0.329937907$$

Fiscal Year 2013/14

$$= \frac{1036.11 - 518.33}{518.33} = 0.9989389$$

Fiscal Year 2014/15

$$= \frac{961.23 - 1036.11}{1036.11} = -0.072270319$$

Fiscal Year 2015/16

$$= \frac{1718.15 - 961.23}{961.23} = 0.787449414$$

$$(\bar{R}_m) = \frac{\sum R_m}{N} = \frac{1.5154}{8} = 0.18943$$