

**RISK AND RETURN ANALAYSIS OF COMMAN STOCK  
INVESTMENT OF SELECTED LISTED COMPANIES IN  
NEPAL**

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## **DECLARATION**

I hereby declare that the work reported in thesis entitled “**RISK AND RETURN ANALYSIS OF COMMON STOCK INVESTMENT OF SELECTED LISTED COMPANIES IN NEPAL**” submitted to Office of the Dean Tribhuvan University Kirtipur, Faculty of Management, is my original work done in the form of partial fulfillment of the requirement for the Master Degree of Business Studies under the supervision of Asso. Prof. Prakash Singh Pradhan of Shanker Dev Campus, T.U.

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Yedu Nath Niraula

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**Yedu Nath Niraula**

# CHAPTER – ONE

## INTERDUCTION

### 1.1 GENERAL BACKGROUND

Financial management is the managerial activity which is concerned with the planning and controlling of the firm's financial resources. Though it was a branch of economics till 1890, as a separate activity or discipline it is of recent origin. Still it has no unique body of knowledge of its own and draw heavily on economics for its theoretical concepts even today.

“Finance can be defined as the art and science of managing money. Virtually all individuals and organization earn or raise money and spend or invest it. Finance is concerned with the process, institutions, markets and instrument involved in the transfer of money among and between individuals and governments”. (Gitman, 1988:4)

“Financial management is defined as the process of decision making founded on the principle of maximizing shareholder's wealth”. (Pradhan, 2006:5)

In a broader sense, its scope covers all financial matters that affect the financial outcomes of the firm. Therefore, financial management is the process of financial decision making and it provides theories, practices and analytical techniques for decision making to maximize value and the areas of decision making include investment financing and dividend. Although it may be difficult to separate the finance function from production, marketing and other function, yet the function themselves can be rapidly identified. The function of raising funds, investing them in assets and distributing returns earned from assets to shareholders are respectively known as financing, investing and dividend decision.

“Managerial finance is a decision making process of those managerial decisions: investment decisions, financing decisions and current assets management decision”. (Paudel et al, 2007:7)

Finance function decision includes:

- Investing decision function

- Financing decision function
- Dividend decision function
- Liquidity decision function

Above these functions, investment function is the most vital part of business if appropriate investment plan or decision is made by manager, he\she will operate the business smoothly for a long time without any obstacles. Investment decision is the main part of the business it takes out the business towards the higher return as well as high risk. It depends upon the how well decision is made or not. Investment decision or capital budgeting involves the decision of allocation of capital or commitment of funds to long term assets that would yield benefit in future. Two important aspect of the investment decision are: (1) the evaluation of the prospective profitability of new investment and (2) the measurement of cut-off rate against that the prospective return of new investment could be compared. Future benefit of investment is difficult to measure and forecasted with certainty. Because of the uncertain future, investment decision involves risk. Therefore, investment proposal should be evaluated in terms of both expected rate of return and risk.

“Investment may be defined as the purchase by an individual or institutional investor of a financial or assets that produce a return proportional to the risk assumed over some future investment period”.(Amling,1987:145)

“Investment is a sacrifice of certain value for uncertain reward”.(Manandhar, et al,2009:2)

Most of the investment secured high return along with high risk. Every investor can minimize risk to get success in upcoming future. Risk exists because of the inability of the decision maker to make perfect forecast. Forecasts can't be made with perfection or certainty since the future events on which they depend are uncertain. An investment is not risky if we can specify a unique sequence of cash flow stream for it. But the whole troubles are that cash generated in future cannot forecast accurately because we can't anticipate the occurrence of the possible future uncertainty. We look the upcoming trend of profit and risk by analyzing the risk and return of past and present state.

This thesis report main emphasized investment on common stocks. Investment in financial asset like: common stock, bond preferred stock .etc. are called financial

investment. Investment in such type of tangible assets like gold, real estate etc. is called real investment. Financial investment refers to the investment in bonds, shares, T-bills, commercial papers etc. or investment on securities are called financial investment. Simply meaning of security is a legal document that shows an ownership interest. In other words, security is a piece of paper evidencing the investor's right to the assets. As there is an increment and development of industries, finances, banks, hotels and other companies which helps the growth and development of capital market took place. Capital market is an important factor that shows and supports the whole economic condition of the country. Industrialization plays a great role in the development and growth of the economic condition of the country. Industrialization is the backbone of the country to make a sound economic condition. There are a lot of examples as far as the rapid economic growth of the countries in lieu of industrialization. After the 18<sup>th</sup> century in industrial revolution, all the European countries were reached at the highest level of the economic condition. Now they have a good economic situation. Till the early 70's Korea, Malaysia, China, Japan have a very poor economic status as industrial revolution took place their economy started growing and now they have a very strong and well economy. Nepalese capital market is in a child phase but nowadays it is pushing up continuously. Capital market provides liquidity of securities and also provides the necessary funds to the investors by making transactions of all types of securities i.e. buying and selling. Major sources of capital are foreign capital, remittance and domestic saving. Domestic capital is the most stable source of capital for investment. After political change in 1990, Nepal has been following economic liberalization policy, privatization policy and foreign investment policy act for the purpose of industrial growth. But these policies are not adequate for rapid economic change. The development of professional entrepreneurs, professional management, government accountability and government's role towards implementation of policies help to develop capital and money market as well as industrial growth in the economy, industrial growth and capital market are part and parcel and it has a positive relation each other. In Nepal, capital market is the main factor by which provides capital to investors for transacting securities. There are different types of securities like T-bills, long term government bonds, long term corporate bonds, company stocks etc. Among these securities this study is concerned with common stock only. Common stock is

the recipient of the residual income of the corporation. Common stockholders are owner of the company. They get entitle of ownership in the day of purchasing shares. When industries are growing, there is automatically growing trading of securities. To regulate the trading securities, government established security exchange center (SEC) in 1976. In 1999 SEC was converted by Nepal government into NEPSE. NEPSE's shareholders are Nepal government, Nepal Rastra Bank, industrial Development Corporation and Licensed numbers. NEPSE is a non-profit organization operating under, security exchange Ac, 2040 B.S. NEPSE also have own Board of director to direct, control and monitor. All the companies must be listed in Nepal stock exchange for trading of their security in secondary market.

In the context of Nepal, capital market was developed since 1936 AD. After changing political situation in 2007, an industrial revolution took place within establishing Biratnagar Jute Mill in 1936. In 1937 AD Nepal Bank Limited was established for promoting banking and industrial sector. In the same year first industrial act was formulated, which was a favorable step to promote industries and capital market. For the first time Biratnagar Jute Mill issued its share to general public and than other companies followed the same trend which was added a brick to develop trend of trading securities market in Nepal. So the investment in common stocks is risky investment. If the investment is made on the risky sector i.e. common stock investment, it must generate the higher return as compensation for risk. The common stock investment is usually as dividend plus any changes in market price of shares i.e. capital gain, it is usually expressed in percentage. General investors are wants more return from investing in securities as risk premium. So that main primary problem in investment on securities is to identify the most appropriate securities, which has low risk and high return.

## **1.2 FOCUS OF THE STUDY**

“The key finance functions are investment, financing and dividend decision of an organization. Funds are raised from external financing sources and allocated for different uses. The flow of funds within the enterprises is monitored. Benefits to financing sources take from of returns, repayments, products and services, these functions must be

performed in business firms, government agencies and non-profit organization like” (Weston and Thomas, 1990:10).

This study is focused on the analysis of risk and return associated with the common stocks of commercial banks, finance companies and development banks listed in NEPSE index. All finances, development banks and commercial banks, out of nine companies are taken as sample. The sample includes four from commercial bank; three from finance companies and rest are the development banks. Analysis is made in this thesis regarding the price movement of shares and risk and return associated with them, risk and return on portfolio and movement of market. Short profile of the selected sample is given below:

### **1.2.1 Nabil Bank**

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its 51 points of representation across the kingdom and over 170 reputed correspondent banks across the globe. Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business. Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Bangalore India, Internet banking system and Telebanking system. Recently it has 47 bhranches around the country.

### **1.2.2 Everest Bank**

Catering to more than 5 lacs customers today, Everest Bank Limited (EBL) is a name you can depend on for professionalized and 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 since then. With clients from all walks of life, the bank has helped develop the nation corporately, agriculturally and industrially. So one can say with all earnestly that Everest Bank Limited is truly a Nepalese bank Punjab National Bank (PNB), our joint venture partner (holding 20% equity in the bank) is the largest nationalized bank in India. With its presence virtually in all the important centers at India and over 6000 ATM counters, Punjab National Bank offers a wide variety of banking services which include corporate and personal banking, industrial finance, agricultural finance, financing of trade and international banking. For its excellence in banking services, it was recently awarded the "Best Bank Award 2011" amongst all banks in India by the leading corporate magazine, Business India. Everest Bank Limited (EBL) provides customer-friendly services through its Branch Network and all its branches are connected through Anywhere Branch Banking System (ABBS), which enables customers for operational transactions from any branches. The bank has 48 Branches, 62 ATM Counters, 2 extension counter & 20 Revenue Collection across the country making it a very efficient and accessible bank for its customers, anytime, anywhere.

### **1.2.3 Nepal SBI Bank**

Nepal SBI Bank Ltd. (NSBL) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India, Employees Provident Fund and Agricultural Development Bank of Nepal through a Memorandum of Understanding signed on 17th July 1992. is held by a local partner viz. Employee Provident Fund (15%) and general public (30%). In terms of the Technical Services Agreement between SBI and the NSBL, the former provides management support to the bank through its expatriate officers including Managing Director who is also the CEO of the Bank. Central Management Committee (CENMAC) consisting of the Managing Director, Chief Operating Officer, Chief Financial Officer and Chief Credit Officer oversee the overall banking operations in the Bank. The Bank was established in July 1993 & is now having 538 Nepalese employees working in 50 branches, 6 extension counters, 2 Regional Offices & the Corporate Office. State Bank of India (SBI), with a 200 year history, is the largest commercial bank in India in terms of assets, deposits, profits, branches, customers and employees. The Government of India is the single

largest shareholder of this Fortune 500 entity with 61.58% ownership. SBI is ranked 60th in the list of Top 1000 Banks in the world by “The Banker” in July 2012. The origins of State Bank of India date back to 1806 when the Bank of Calcutta (later called the Bank of Bengal) was established. In 1921, the Bank of Bengal and two other banks (Bank of Madras and Bank of Bombay) were amalgamated to form the Imperial Bank of India. In 1955, the Reserve Bank of India acquired the controlling interests of the Imperial Bank of India and SBI was created by an act of Parliament to succeed the Imperial Bank of India.

#### **1.2.4 Nepal Investment Bank**

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world. With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen, had acquired on April 2002 the 50% shareholding of Credit Agricole Indosuez in Nepal Indosuez Bank Ltd. The name of the bank has been changed to Nepal Investment Bank Ltd. upon approval of bank’s Annual General Meeting, Nepal Rastra Bank and Company Registrar’s office with the following shareholding structure. A group of companies holding 50% of the capital Rashtriya Banijya Bank holding 15% of the Capital. Rashtriya Beema Sansthan holding the same percentage. The remaining 20% being held by the General Public (which means that NIBL is a Company listed on the Nepal Stock Exchange). We believe that NIBL, which is managed by a team of experienced bankers and professionals having proven track record, can offer you what you're looking for. We are sure that your choice of a bank will be guided among other things by its reliability and professionalism.

#### **1.2.5 ACE Development Bank**

Ace Development Bank Ltd. has been a leading player in the financial market of Nepal. It was founded in August 1995 as Ace Finance Company Ltd. and was

upgraded to Ace Development Bank Ltd., a full fledged category “B” development bank in 2007. Over the years, customers and regulators have been in appreciation of the many financial products and innovations developed by us. Our diversified risk asset portfolio has served the economy in every sector as have the wide choices of deposit account schemes. Our wholesale banking initiatives have assisted numerous commercial banks and private enterprises with risk management concerns such as debentures and rights. Our resolve to provide client-centric solutions and surpass the expectations of our stakeholders remains firm and unyielding. We are now in a position to provide various products to serve all our customers’ needs under one umbrella. We are now more competitive than ever with new products and innovations in the pipeline. Corporate Governance is another aspect which we strongly believe in. The Institute of Chartered Accountants of Nepal has awarded us the “Best Presented Account Award” for four years in a row. This shows the transparency and accuracy of our book of accounts. Our employees are all qualified with a minimum of a Bachelors’ Degree. All our managerial level personnel have a minimum of an MBA degree. Employees are constantly upgraded in seminars, workshops and training programs in the country and internationally. Ace Development Bank prides itself in having the highest productivity in ratio to its size.

### **1.2.6 Paschimanchal Development Bank**

Pashchimanchal Development Bank Limited (PDBL) is one of the ISO 9001: 2008 certified development bank established in 18th Chaitra 2059 situated in the Rupandehi District at Pushpalal Park - 8, Butwal. Within these years of operation period the bank has already established thirteen branches in different districts with highly motivated and qualified staffs.

### **1.2.7 International Leasing and Financing Limited**

ILFCO was initially established as a joint venture finance company with the Korean Industrial Leasing Co., Ltd. (KILC) which was founded as a subsidiary of the Korea

Development Bank in 1972. On March 2 1999, KILC merged with Korea Technology Finance Corporation (KTFC) under the restructuring program initiated by the Korea Development Bank (KDB), a common major shareholder of both KILC and KTFC, and thus emerged KDB Capital Corporation after this merger. KDB Capital Corporation is the largest leasing company in the Republic of Korea and one among the top three largest leasing companies within the Asian Continent. It has been participating in the management of ILFCO through the provision of technical know-how as a foreign partner since the very inception of the company. The Asian Development Bank (ADB) and National Life and General Insurance Company (NLGI) acted as the Nepalese promoters in initiating together the project to widen the scope of Nepalese financial activities. Today, ILFCO stands with its unique pride for being the key role player in introducing lease financing to Nepal. With the prime objective of providing the people of the nation with creative financing alternatives of international standards, it has been continuously rendering a variety of financial services according to the needs of the Nepalese people since its establishment. Date of Establishment - December 11, 1994 with the Office of the Company Registrar under the public company legislation of Nepal Date of Acquirement of Operating License - September 18, 1995 from the Central Bank of Nepal Date of Start of Operations - October 31, 1995.

### **1.2.8 Lumbini Finance Limited**

Lumbini Finance & Leasing Ltd. commonly known as LFLC is a public limited Finance and Leasing Company promoted by a group of highly committed and innovative persons. It is managed by a group of well experienced and professional managers having excellent leadership. The company has the right combination of dedicated service-oriented staffs for which one can always trust for an excellent service. It is registered in the Ministry of Industry and has obtained license from Nepal Rastra Bank (Central Bank of Nepal ) under the section 6(A) of Finance Companies Act 2042. LFLC is operating its business as per the guidelines of Nepal Rastra Bank, provisions of Finance companies Act 2042, companies ACT 2053 and other related Nepalese law. LFLC has started its operation from 12/03/052 and has shown a very encouraging trend in its nine years of operation. Our logo represents the symbol of continuity & reliability in the market. LFLC's share is

listed in Nepal stock Exchange (NEPSE quote: LFLC) & it is being traded in the market as A-grade share.

### **1.2.9 Kathmandu Finance Limited.**

Kathmandu Finance Limited (KAFAL) was established on 2051 B.S. It has been giving excellent services to its valuable customers for 18 years. Since the day of inception till date the motto of the finance has remained towards the better and easy service to the customer. The company has started its service with the paid up capital amount Rs. 2 Crore. Now the company has been able to raise the paid up capital amounted to Rs. 15.45 crore. The Profit, Net worth, collection of deposits and investments are in growing trend. The company is also able to abide by the rules and regulation of the regulatory bodies. It has been able to keep enough liquidity ratios. It is also succeed in providing the regular dividends to the shareholders.

### **1.3 STATEMENT OF THE PROBLEMS**

Security market and other institutional set up are yet to work towards providing knowledge and skills to investors. Investors are invested their funds on the basis of guess and hunch as they lack of knowledge and information about deal. Investors have to no other way beyond looking the past trend of the stock price at investment decision, due to lack of knowledge about stock behavior and risk and return of stock. Many investors are found investing their wealth only on single asset. It is therefore, investor necessary to build up knowledge of investment and analytical power of risk and return of common stock and portfolio investment.

So every investor should be well aware degree of risk in which they are going to make investment of their saving funds. There are few practices of analyzing this aspect in Nepalese context. Most of the investor seems to be investing their funds with blind eye without considering risk involved in the investment.

More specifically the research problems are:

- How should investor decide to invest based on risk and return?
- Does the risk and return vary significantly?

- What sort of relationship exists between risk and various financial variables to these sectors?
- How they know about the magnitude of risk?
- How can one make higher return through lower risk?
- What is risk and return of banking and finance companies?
- What are the certain criteria for evaluation that the stock they are holding will give them a favorable return?
- What should be the compensation had to receive for bearing risk?

#### **1.4 OBJECTIVE OF THE STUDY**

Generally investors are in the most of the case, curtailed from the information to be provided by companies. Various annual general meeting held by different public limited companies reveal a greater gap between discloser made in prospectus and actual result which are reported'. So that the main objective of the study is to analyze the risk and return and other relevant variables that help the investors to make investment decision on the securities of listed companies in NEPSE. Investment securities of Nepalese market have very much difficulty. Such types of difficulties are lack of adequate information about money market, capital market and proper analysis of risk and return of securities. Nepalese investors are invested their wealth without observing risk and return.

The specific objectives of the study are as follows:

- To analyze comparative risk and return position of selected banking and finance companies.
- To study the risk and holding period return associated with the investment.
- To examine risk and return of common stock of listed companies.
- To examine the movement of market price of share.
- To make investors able to evaluate the risk and return their probable investment by providing by effective tools along with their practical implications.

#### **1.5 SIGNIFICANCE OF THE STUDY**

Without appropriate knowledge and information investors are investing in securities with traditional model or trial and error approaches. So it is necessary to establish clear picture about the return from investing companies. Not only return but also risk and variation also is addressed. Risk and return is the most important factor influencing investment decision and process. This study strived for making investment constituents know well to diversify risk. Various interested parties can be benefited by the result of relationship of return to the various finance variables and then after to make decision regarding investment and finance. As this study is mainly focused upon risk and return of financial assets i.e. common stock, this will help to investor to guide their investment decision and set-up priorities on this respect.

This study also provides information about capital market in Nepal as well as risk and return of common stocks investment of Nepalese listed companies. Investors make their investment decision like buy, sell or hold the securities by the help of adequate information of risk and return and capital market. This study also helpful for any firm, while making dividend decision and issuing new shares as well as it will help all the persons who are directly or indirectly related to Nepalese capital market.

## **1.6 LIMITATION OF THE STUDY**

As every research has own limitation, there are some limitations of the study, which are as follows:

- The study only focus on analysis of risk and return associated with common stock investment of selected companies.
- Only selected companies are categorized into the main group i.e. successful and unsuccessful company. The categorized base is simply the DPS, EPS and other financial variables.
- For the analysis of risk, return and portfolio, the data of five years range (2063/64 to 2067/68) is taken into account.
- Main parts of the analysis and interpretation have been done on the basis of available secondary data and information. The validity or consistency of findings and conclusion depend upon the reliability of secondary data and information.

- All the data taken into analysis is secondary data and information.
- This study has limited criteria; this study doesn't analysis stock market impact due to external environment

## **1.7 ORGANIZATION OF THE STUDY**

This chapter has been broadly divided into five chapters, which are as follows:

### **Chapter 1 - Introduction**

It includes the general interdiction, statement of the problem, objective of the study, significance of the study, and limitation of the study.

### **Chapter 2 – Review of Literature**

It includes the review of literature, it contains review from books, journals, thesis and independent studies are taken into account.

### **Chapter 3 - Methodology**

It includes the research methodology. Research methodology covered the research design, data collection procedures, tools for analysis and method of analysis and presentation.

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

It includes the presentation and analysis of the data it is the main part of our research. It includes the data presentation, interpretation and analysis. In this chapter the risk and return of each selected companies is analyzed. The result obtained is compared with market returns and risk.

### **Chapter 5 - Summery and Conclusions**

This chapter includes the summary and conclusion of the research. And finally suggestions and recommendations are given.



## **CHAPTER – TWO**

### **REVIEW OF LITERATURE**

The study is divided into two parts one is conceptual framework and another is review of previous studies.

#### **2.1 CONCEPTUAL FRAMEWORK**

There are various national and international books regarding the risk and return, which are taken into consideration. The study mainly focus on the trade-off between risk and return, it emphasized the implication in the investment of common stock.

##### **2.1.1 RETURN**

Worldwide know that return/profit is outcome of investment which is achieved today or coming future. It is known as reward for risk – taking uncertainty bearing and consequence of dynamic change. A businessman or Investor plan design to make profits and are the primary measure of its success.

The rate of return from a capital investment is a concept that has different meanings to different investors. Some companies seek near-return cash inflow and give less value to more distant return. Such a firm might purchase the stock of other firms that pay large cash dividends other investors are concerned primarily with growth. They would seek projects others measure return using financial ratio. The might seek to invest in a company that has a high return on investment or equity. “Hampton 1986.

Total return = Dividend income + Capital gain

“Return is the changes in value of an assets plus any cash distribution, expressed as a percentage of the beginning of period investment value”. (Gitman, 1988:221)

Suppose the video concept company has several thousand shares of stock outstanding and you are a shareholder further purpose that you purchased some of the shares of stock in the company at the beginning of the year; it is new year end and you want to figure out

how well you have done on your investment in stocks, like that in bond or any other investment, comes in two forms.

First, over the year most companies pay dividends to shareholders. If the company is profitable, it generally will distribute some of its profits to the shareholders. Therefore, as the owner of shares of stock, you will receive some cash is called dividend, during the year. This cash called the income component of your return. In addition to the dividends, the other part of year return is the capital gain-or, if it is negative, the capital loss (negative capital gain) on the investment. Suppose at the end of the year, the company paid the dividend, you would have received dividend income. Suppose, lastly that at the end of the year the market price of the stock is push up, stock price is increased, you have a capital gain vice-versa you have a capital loss.( Panday 2008:156)

### **2.1.2 RETURN ON COMMON STOCKS**

The term returns maybe defined as the changing value plus any such receipt which is expressed as a percentage of the beginning period investment value. An investor can be obtaining two types of return from any investment in a share of stock or bonds. They are

- I. Income from price appreciation
- II. Cash income from cash dividend

“The return from holding in investment over some period, say a year, is simply any cash payments received due to ownership, plus the change in market price divided by the beginning price. Thus, the return comes from two sources: income and price appreciation”. (Brealey and MayersS, 1994:84)

### **2.1.3 HOLDING PERIOD RETURN**

“The return from an investment is the change in market price, plus any cash payments receive due to ownership, divided by the beginning price”. (Van Horne, Wachowich, 1995:90)

“The single period return is the basic random variable in investments analysis. This rate of return concept is important because it measure the speed of which the investor’s wealth increase or decreased. An investment’s single period rate of return denoted by  $r_j$  is simply the total return on investor would receive during the investment period or holding

period stated as percent of the investment's price at the start of holding period".(Francis,2000:45)

If an investor purchase a stock of any companies and holds it for certain period he/she can get return in two ways: one is increased in the value of that stock as compare to initial one. Another is direct cash payment. The increase in the value as called capital gain and direct cash payment is called dividend gain.

The return from holding an investment over some period is simply a cash payment received due to ownership plus the change in market price divided by the beginning price.

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

HPR<sub>t</sub> = Holding period of return during the t<sup>th</sup> period

P<sub>t</sub>= price (value) of assets at time t (beginning price)

P<sub>t+1</sub>= cash received from the assets investment in the time period of t+1.

D<sub>t</sub> = dividend/coupon interest received during the t period

#### **2.1.4 COMMON STOCK**

“Common stock holders are the owner of the corporation. As owners, common stock holder have certain rights, the most important are the right to participate in profit distribution, the right to vote etc. from the corporation viewpoint, common stock represents a fund raising device. From the investor's viewpoint, stock ownership gives the stockholders an opportunity to share in the profit when declared as dividend, opportunities to make money on appreciation in value of the securities and opportunity to vote for directors of the corporation”.(Bradley,1993:104)

“Common stockholders of a corporation are its residual owner their claim to income and assets comes after creditors and preferred stockholders have been paid full. As a result, stockholders return on investment is less certain that the return to lender or to a preferred stockholder. On the other hand, the share of a common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance” (Van Horne, 1997:560)

“Common stock represents the ownership position in a company. The holders of ordinary shares called shareholders or stockholders are the legal owners of the company. Ordinary shares are the source of permanent capital since they do not have a maturity date. For the capital contributed by shareholders by purchasing ordinary shares, they are entitled for dividends. The amount of rate of dividend is not fixed. The company’s board of directors decides it. An ordinary share is therefore, known as a variable income security” (Pandey, 2007:125)

## **2.1.5 COMMON STOCK VALUES**

Common stock values are either denoted by par value, book value or market value. These three terms are different and their rupee amount differs.

### **2.1.4.1 PAR VALUE**

The face value of one stock established at the time the stock is initially issued is known as par value. The par value of common stock remains unchanged unless and until the stock split or reverse split exists. Generally common stock carry Rs 100 par value.

### **2.1.4.2 BOOK VALUE**

The sum of the cumulative retained earnings and other entries such as common stock and capital contribution in excess of par value under stockholder’s equity is the book value of the equity.

### **2.1.4.3 MARKET VALUE**

The value of share in secondary market traded between investors and traders is the market value. Market value is the consequence of demand and supply.

It considers the earnings and dividends, capital market and company risk.

## **2.1.5 FEATURES OF ORDINARY SHARES (COMMON STOCK)**

Common stock has different types of features which are different from other securities. Common stock's features are generally linkage with shareholder's right and claim.

I. Claim on income:

Ordinary/common shareholders have low priority/residual ownership claim. They have claim to the residual income, which is earning available for common shareholders after paying operating expenses, interest & tax charges and preference dividend.

II. Par value:

Owners of common stock in any companies are referred to as shareholders. They receive stock certificates for the shares they own. There is often a stated value on each stock certificate called the par value.

III. Claim on assets:

Common shareholders also have residual claim on assets of their corporation at the time of liquidation.

IV. Voting right:

Common shareholders have voting right to elect the board of director (BOD). In most of the common stocks each shareholder casts one vote in one share.

V. Limited liability:

Every shareholder has nothing more liability or contributes In the event of financial distress liquidation, if the shareholders have already fully paid the issue price of the shares purchased.

VI. Preemptive right:

A privilege offered to existing shareholders for buying a specific number of additional shares of the company's stock before the stock is offered to outsiders for sale. Preemptive right provides the existing shareholder is made provision by company's charter or law.

### **2.1.6 REQUIRED RATE OF RETURN**

The required rate of return is the minimum rate of return that an investor expected from his/her investment in risky assets. The required rate of return on an individual securities investment is represent by a risk free rate of investment plus a risk premium. Hence

required rate of return is the minimum return that an investor expects at least not to suffer from loss. If investor goes to below the required rate of return he definitely suffer from loss.

If investors are invest in risky securities they must receive a risk premium to compensate for the added risk. Risk premium is an excess return over the risk free rate, expected for incurring the risk associated with the market portfolio. Risk premium is the difference in any particular period between the actual rate of return on a risky assets and the risk free rate. Formula of required rate of return is as follows:

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

Where,  $K_j$ = required rate of return

$R_f$ = risk free rate of return of stock j

$E R_m$ =expected rate of return of market portfolio

$\beta_j$ =beta coefficient of stock j

The return that an investor expects from his investment in the forthcoming future is called expected rate of return. An investor normally estimates his expected rate of return by analysis the trend of return of previous years.

### **2.1.7 RISK**

“Risk defined most generally the probability of the occurrence of unfavorable outcomes. But risk has different meanings in different contents. We are interested in the effects of risk on the evaluation of assets or securities-claims on assets. In this context, risk refers to the probabilities that the return and therefore, the values of net or security may have alternative outcomes” (Weston and Brigham, 1981:94) “Risk is associated with the variability of future return of the project. The greater the variability of the expected returns the riskier the project. Risk can, however be measured, as the likelihood that the actual return from an investment will be less than the forecasted return”. (Hampton, 2003:396) “Risk can be thought of as the possibility that the actual return from holding a security will deviate from the expected return. The greater the probability of its occurrence, the greater is said to be the risk of the security”. (Van Horne, 2005:94)

“Risk can be defined as the chance of receiving an actual return other than expected, which simply means there is variability in the returns or outcomes from the investment.

Therefore, investment can be measured by the variability of the investment return”. (Besley and Brigham, 2006:183)

### **2.1.8 MEATHOD OF MEASURING RISK**

Every investment has uncertainties. Uncertainties make future investment returns risky.

The sources of uncertainty that contribute to investment risk are as follows:

There are many ways to measure risk mainly three methods are commonly used.

#### **2.1.8.1 STANDARD DEVIATION ( $\sigma$ )**

“A statistical measure of possible of the variability of a distribution around its mean, It is the square root of the variance”. (Van Horne and Wachowich, 1996:91) This is the measure of the dispersion of forecast returns when such returns approximate a normal probability distribution. It is a statistical concept and is widely used to measure risk from holding a single asset. The standard deviations represents a largest dispersion of return and is a high risk, a low deviation is a small dispersion and represents a low risk.

It is the statistical measure of the variability of a set of observation it is measure of total risk. The smaller a variance shows the lower the risk of the stock and vice-versa. Standard deviation measure the risk of common stock. It is a statistical tool it measure the variability of individual stocks.

#### **2.1.8.2 BETA COEFFICIENT ( $\beta_j$ )**

“The beta coefficient is an index of systematic risk. If an investment has a beta greater than the market it will be classified as an ‘aggressive’ investment. If an investment has a beta which is less than the market than it is known as a ‘defensive’ investment. If an investment has a beta of 1 it is expected to fluctuate in line with market and called ‘neutral’ investment”. (Thapa and Koirala 2008:78) Beta coefficient is a tool of measuring the risk of securities. In the business world we can get two type of risk: (a) systematic and (b) unsystematic. The market (systematic) risk of a security is measured in terms of its sensitivity to the market movements. This sensitivity is referred to the securities beta ( $\beta_j$ ). Beat reflect the systematic risk which can’t be reduced. Investor can estimate unsystematic risk when they invest their wealth in an unsystematic (Well

diversified) market portfolio. A beta of 1.0 indicates average level of risk while more than 1.0 means that the security's return fluctuates more than that of market portfolio. A zero beta means no risk. Beta is a ratio of the covariance of returns of a security of return of the market portfolio.

### **2.1.8.3 SUBJECTIVE ESTIMATES**

A subjective risk measure occurs when qualitative rather than quantitative estimates are used to measure dispersion. As an example, an analyst may estimate that a proposal offers a low level of risk. This means that, in the analyst's view, the dispersion of return will be very wide. Similarly, a high risk level will be accompanied by a project whose forecast returns may vary a great deal (Hampton, 1998) "The portion of an asset's risk attributable to firm specific random events that can be eliminated through diversification". (Gitman, 1988:221)

### **2.1.9 SYSTEMATIC RISK**

"Systematic risk is the part of the total risk that can't be diversified away. The type of the risk arises because of the economy wide uncertainties and the tendency of individual securities to move together with changing the market. This part of risk cannot be reduced through diversification, and it is called systematic or market risk. Investors are exposed to market risk even when they hold well-diversified portfolios of securities". (Pandey, 1996:121)

The examples of systematic risk are.

- The government changes the interest rate policy.
- The government resorts to massive deficit financing.
- The inflation rate increases.

### **2.1.10 UNSYSTEMATIC RISK**

This type of risk can be reduced by efficient diversified portfolio. Diversifiable risk differs from one company to another company it is caused by events of particular firm.

The examples of unsystematic risk are:

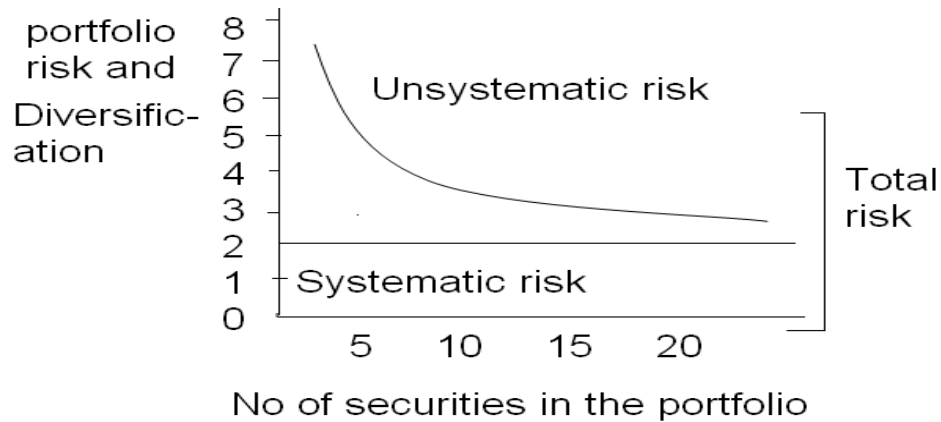
- Workers declare strike in the company.



- The R&D expert of the company leaves.
- A formidable competitor enters the market.

Figure No.2.1

**Total Risk= Systematic + Unsystematic**

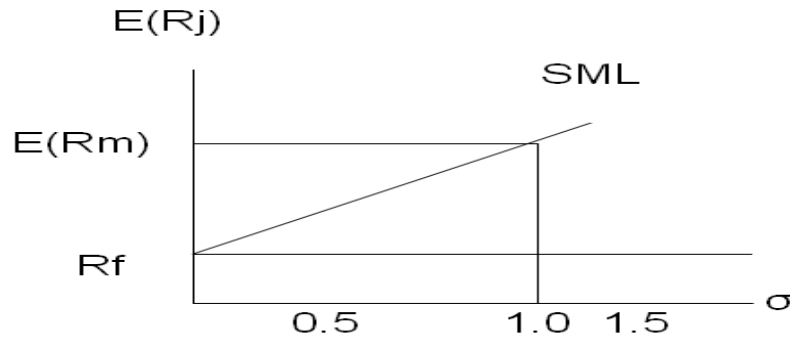


The figure also indicates that the standard deviation equals to the level of systematic risk when the number of securities in the portfolio becomes very large. As a result when the portfolio is broadly diversified it resembles to market portfolio which has only systematic risk. Thus, a well diversified portfolio contains only undiversifiable portion of the total risk. The market too prices only the undiversifiable risk.

### 2.1.11 SECURITY MARKET LINE (SML)

“The security market line (SML) equation shows the relationship between securities risk and rate of return. The return required for any security  $j$  is equal to risk free rate plus market risk premium times the securities beta” (Cheney and Moses, 1995:156) SML shows that the expected rate of return on a security is equal to a risk free rate plus the risk premium. The risk premium varies directly with systematic risk measured by beta. For given amount of systematic risk ( $\beta_j$ ), SML shows the prevailing rate of return. “A security’s beta of 1.0 indicates on average level of systematic risk. If the security’s beta is greater than 1.0, then it implies the security’s returns fluctuate more than the market returns. On the other hand, a beta less than 1.0 means that the security’s returns are less sensitive to the changing in the market price”. (Pandey, 1996:145)

Figure No.2.2



Total risk is divided into two parts: systematic risk and unsystematic. Unsystematic risk which can be eliminated through diversification and systematic risk which cannot be reduced. Since unsystematic risk can be totally eliminated without any cost, there is no price paid for it. Therefore, it will have no influence on the return of individual securities.

The equation for SML is:

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

Here,

$R_j$  = Expected return for an asset or stock  $j$

$R_f$  = Risk free rate

$E(R_m)$  = Expected market return

$\beta_j$  = beta of the asset or stock  $j$

### 2.1.12 PORTFOLIO THEORY AND RISK DIVERSIFICATION

The portfolio theory provides a normative approach to the investor's decision to investment in assets or securities under risk. It is based on the assumption that investors are risk averse. This implies that investors hold well- diversified portfolio instead of investing their entire wealth in a single assets or security. A portfolio is a bundle or combination of individual assets or securities. If investor holds a well- diversified portfolio, then his concern should be the expected return and risk of portfolio rather than individual assets or securities. The second assumption of the portfolio theory is that returns of securities are normally distributed. This means that the mean (the expected

value) and variance (standard deviation) analysis is the foundation of the portfolio decisions. The lower the correlation between the assets, the more the Markowitz diversification will be able to reduce the portfolio risk. The following figure 1, 2 and 3 are shows simply a diversification in investment.

Figure No.2.3

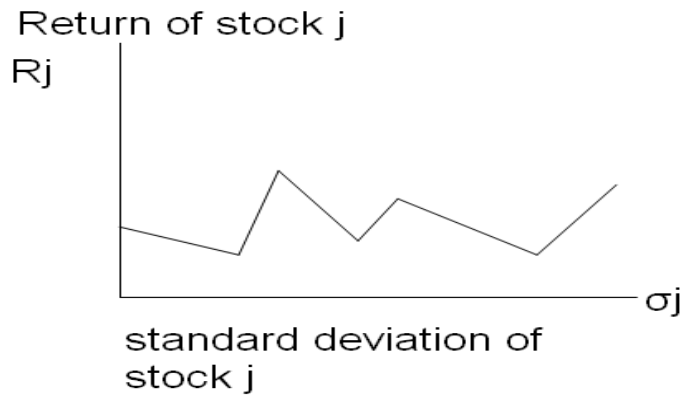


Figure No.2.4

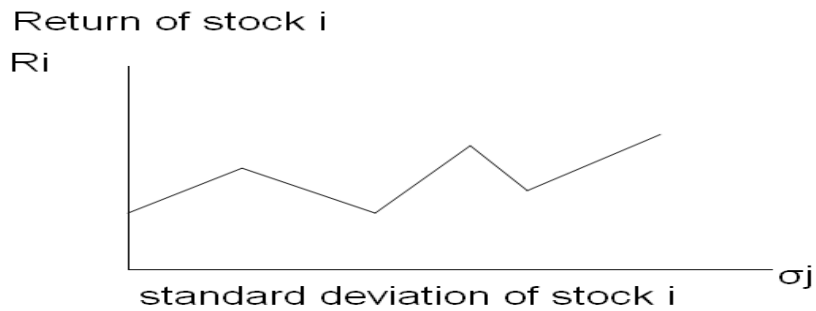
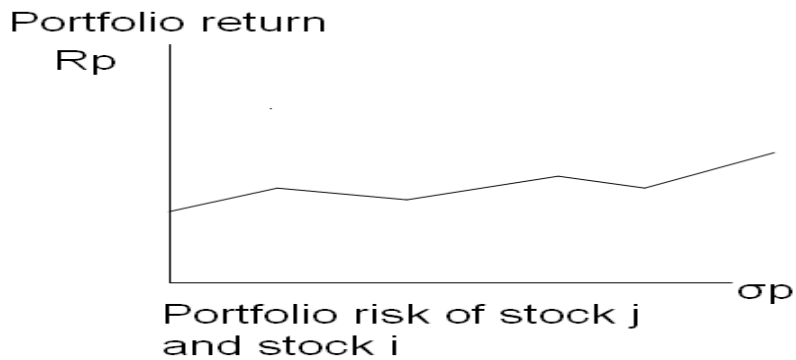


Figure No.2.5



These three diagrams clearly show simply a diversification method, risk can be diversified by investing different stocks or appropriate portfolio.

### **2.1.13 PORTFOLIO RETURN**

Portfolio is a bundle of combination of individual assets or securities. The return of a portfolio is equal to the weighted average return of the individual assets (or securities) in the portfolio with weights being equal to proportion of investment in each asset.

The return on a portfolio is simply a weighted average of the expected return on the individual securities in the portfolio with the weight being equal to proportion of investment in each asset.

### **2.1.14 PORTFOLIO RISK**

The portfolio risk depends on both the variances of the individual securities and the covariance between the two securities. The variance of a security measures the variability of an individual security's return. Covariance measures the relationship between the two securities for given variances of the individual securities, a positive relationship or covariance best two securities increase the variance of the entire portfolio. A negative relationship or covariance between the two securities decreases the variance of the entire portfolio. If one of your securities tends to go up when the other goes down, or vice-versa, your two securities are offsetting each other. You are achieving what use call a hedge in financier and the risk of your entire portfolio will be low. However, if both your securities rise and fall together, you are not hedging at all. Hence, the risk of your entire portfolio will be higher.

### **2.1.15 SOURCES OF INVESTMENT UNCERTAINTY**

We should know that present is certain but past will be uncertain. We invest today but return will be achieved in coming next upcoming days or years. Uncertainty makes future return of investment in today is more risky. The sources of uncertainty that contribute to investment risk are as follows:

#### **2.1.15.1 INTEREST RATE RISK**

It is defined as the potential variability of return caused by changes in the market interest rate. If the market interest rates goes up than investment's values and market prices will fall down and vice-versa. The movement/variability of return is caused by interest rate movement in the market. This type of interest rate movement affect the price of bonds, stocks etc.

#### **2.1.15.2 PURCHASING POWER RISK**

It is the variability of return of an investor suffers because of inflation. Inflation automatically reduces the purchasing power of investors. When inflation takes place, financial assets i.e. bonds, cash, stocks, may lose their ability to command the same amount of goods and services they did in the past. In other word, the real rate of return of financial assets may not adequately compensate the holder of financial assets for inflation.

#### **2.1.15.3 DEFAULT RISK**

It is the portion of an investment's total risk, the result come from changes in the financial integrity of the investment.

#### **2.1.15.4 CALLABILITY RISK**

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them for repurchase. The portion of a security's total variability of return that derives from possibility that issue may be called the call ability risk.

#### **2.1.15.5 CONVERTIBILITY RISK**

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

#### **2.1.15.6 POLITICAL RISK**

Political risk emerged from political environment changes. It affects the assets value and market price. Political environment includes these elements: tax, policy, legislative and judicial system of government.

#### **2.1.15.7 LIQUIDITY RISK**

Liquidity risk is that portion of an asset's total variability of return which result from price discount given or sales commission paid in order to sell the asset without delay.

#### **2.1.16 DIVIDEND**

Dividend is the outcome (profit) of the investment which the investor invest their wealth in shares or stock. A company's total net income can be divided into two parts: earning to be distributed to the equity shareholders and earning to be kept in the organization. Earnings that are distributed to the shareholders are known as dividend and earning which are kept in the organization are known as retained earnings. Dividend policy determines the division of earnings between payments to stockholders and investment in the firms.

#### **2.1.17 FORMS OF DIVIDEND**

The usual practice is to pay dividend in cash. In generally dividend is divided into two parts, one is cash and other is stock dividend. Dividend is the outcome of an investment of which investor invest their wealth in common stocks. A company's total net income can be divided into two parts: earning to be distributed to the equity shareholders are known as dividend and earning which are kept in the organization are known as retained earnings. Dividend policy determines the division of earnings between payments to stockholders and reinvestment in the firm.

Total dividend = cash dividend + stock dividend

##### **2.1.17.1 CASH DIVIDEND**

Most companies pay dividends in cash. Sometimes cash dividend may be supplemented by a bonus issue (stock dividend) A company should have enough cash in its bank account when cash dividends are declared. If the company does not have enough bank balance at the time of paying cash dividend, arrangements should be made to borrow funds. "When the company follows a stable dividend policy, it should prepare a cash

budget for the coming period to indicate the necessary funds which would be needed to meet the regular dividend payment of the company. It is relatively difficult to make cash planning in anticipation of dividend needs when an unstable policy is followed". (Pandey, 1996:275)

When the company distributes cash dividend it will be reduced cash account and reserve account of the company. It means, total assets and net worth of the company will be reduced itself. The market price of shares drops in most cases by the amount of the cash dividend distributed.

#### **2.1.17.2 BONUS SHARE/STOCK DIVIDEND**

"An issue of bonus share represents a distribution in addition to the cash dividend (known as stock dividend U.S.A) to the existing shareholders. This has the effect of increasing the number of outstanding shares of the company. The bonus shares are distributed proportionately". (Pandey, 2008:274)

#### **2.1.18 EXPECTED RETURN**

This is the return that an individual expects a stocks a stock to earn over the next period. Of course because this is only an expectation, the actual return may be higher or lower. An individual's expectation may simply be the average return per period a security has earned in the past.

Expected rate of common stock is obtained by arithmetic mean of the past years return.

#### **2.1.19 COEFFICIENT OF VARIATION (CV)**

Coefficient of variation is the ratio of the standard deviation to expected return expressed as percentage. The coefficient of variation measure of relative dispersion that is useful in comparing the risk of assets with differing expected return.

"Coefficient of variation is the "percentage variation in the mean". It is relative measure of dispersion, so it is independent of units of measurement. It always express in percentage". (Karl Pearson, 1989:176) CV is used to standardized the risk per unit of return i.e. measure the risk per rupee. The coefficient of variation should be used to

compare investments when both the standard deviations and the expected values differ. A project with a low CV has less risk per rupee than a project with a high CV.

#### **2.1.20 BETA COEFFICIENT ( $\beta_j$ )**

“The market risk of a security is measured in terms of its sensitivity to the market movements. This sensitivity is referred to as the security's beta ( $\beta$ ). Beta reflects the systematic risk which cannot be reduced, investor can eliminate unsystematic risk when they invest their wealth in well diversified market portfolio. A beta of 1 indicates average level of risk while more than 1.0 means that the security's return fluctuates more than that of market portfolio a zero beta means no risk. Beta is a ratio of the covariance of returns of a security; J and the market portfolio M, to the variance of return of the market portfolio” (Pndey, 2008:175) “Researchers have shown the best measure of risk of a security. The basic intuition of beta is that it measures the sensitivity of a change in the return of an individual security to the change in return of the market portfolio”. (Stephen and Wasterfield, 1997:75)

#### **2.1.21 BETA PORTFOLIO ( $\beta_p$ )**

Portfolio is the combination of two or more than two securities. Portfolio beta ( $\beta_p$ ) is the weighted average beta of total assets that are involved in a portfolio. A beta coefficient for a portfolio is the weighted average of all individual securities beta included in the portfolio. It is denoted as  $\beta_p$ .  $\beta_p$  reflects the volatility of portfolio returns in response to the market return.

#### **2.1.22 PORTFOLIO RETURN ( $R_p$ )**

Portfolio return is the weighted average of the expected returns on the individual securities. Return/profit are the outcome/output of the investment which will be expected every investor. Portfolio is the holding of securities and investment in financial assets i.e. bonds, stocks and others. The expected return on a portfolio, E ( $R_p$ ) is the weighted average of the expected returns on the individual assets in the portfolio with the weights being the fraction of the total portfolio invested in each asset.



### **2.1.23 PORTFOLIO RISK**

Portfolio risk is measured by a statistical tool standard deviation and variance .it as a function of proportions invested in the components. Portfolio risk is a function of the proportion invested in the components, the riskiness of the components and the correlation of returns on the components securities. A Portfolio risk depends on both the variances of the individual securities and the covariance between two securities. The variances of a security measure the variability of an individual security's return. Covariance measure the relationship between the securities for given variances of the individual securities, a positive relationship or covariance between two securities increase the variance of the entire portfolio. A negative relationship or covariance between the two securities decreases the variance of the entire portfolio. If one of your securities tends to go up when the other goes down or vice-versa, your two securities are offsetting each other.

### **2.1.24 CORRELATION COEFFICIENT ( $r_{AB}$ )**

“A standardized statistical measure of the linear relationship between two variables; its range is from -1(perfect negative correlation) through zero (no correlation), to +1 perfect correlation”. (Van Horne and Wachowich, 1996:97) The correlation is also measure the relationship between two assets. A project or investor can be reduced risk investing their assets in more than one asset. The risk diversification depends on the correlation between returns of securities.

The correlation coefficient will always lie between +1.0 and -1.0. If the correlation is positive, we can say that the variables are positively correlated. If it is negative, we say that they are negatively correlated and if it is zero, we say that they are uncorrelated.

- Perfectly positive correlation (+1)  
Risk cannot eliminate by diversification. Portfolio risk and return are linearly related.
- Positively negative correlation (-1)  
Total risk can be eliminated by diversification. Portfolio return increase and the portfolio risk decline as higher proportion than individual risk.
- Zero correlation (0)

There is no relationship between the return of the securities, they are independent each other. In this condition, some risk can be reduced.

- Intermediate correlation between two securities,  $\text{Cor}(AB)=\rho(AB)=0.75, 0.50$

Most of the stocks are positively correlated but not perfectly. In this condition risk can be maximum diversified but not eliminate it completely.

### **2.1.25 COVARIANCE**

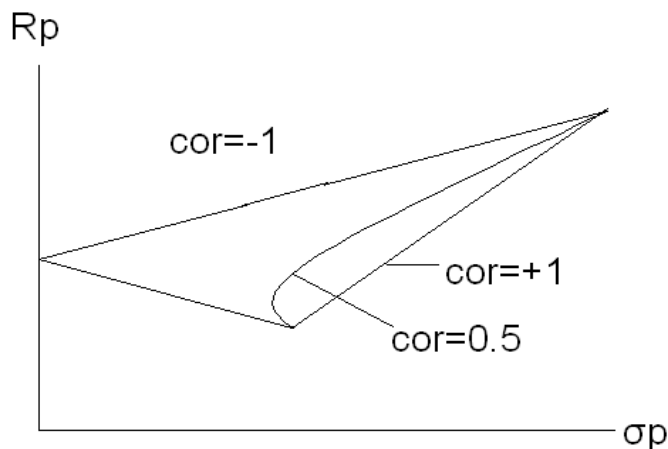
“Covariance is a measure of the degree in which two variables ‘move together’ time”. (Thapa and Bhattra, 2006:75) “A statistical measure of the degree which two variables e.g. Security, return) ‘move together’. A positive value means that, on average, they move in the same direction”. (Van Horne, Wachowich, 1989:145) “Covariance is a measure of the degree in which two variables move together over time”. (Van Horne and Wachowicz, 1996:94) A covariance between the rates of return for the assets that is positive indicates that the rate of return tends to move in the same direction at the same time. If covariance is negative the rate of return of the assets tend to move in the opposite direction and zero value of covariance means there is no relationship between two assets at all.

### **2.1.26 EFFICIENT PORTFOLIO**

“Portfolio management is the art of handling a pool of funds so that it not only preserves its original worth but also overtime appreciates in value and yields an adequate return consistent with the level of risk assumed”. (Choen, 1997:149) “Portfolio is the combination of investment assets. Portfolio is the holding of securities and investment in financial assets i.e. bonds, stocks. Portfolio management is related to the efficient portfolio investment in financial assets. Investors are risk-averse. They would choose portfolio which offers the highest return for the given level of risk. A portfolio is not efficient if there is another portfolio with a higher expected return and the same standard deviation. If your portfolio is not efficient you can increase the expected return without increasing the risk, decrease the risk without decreasing the expected return or obtain same combination of increased expected return and decreasing the risk by switching to a portfolio on the efficient frontier”. (Van Horne 1977:560) Here, we understand that

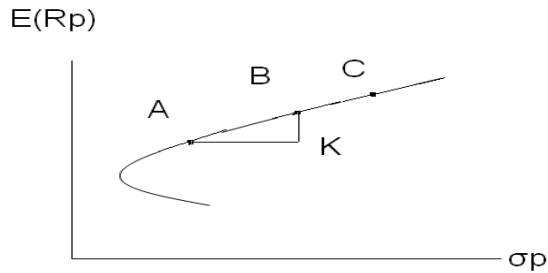
correlation between two or more securities. When two securities are perfectly positively correlated, the risk return relationship is shown by straight line AB. On other hand when two securities are negatively correlated, the risk return relationship is given by Line ACB. When two securities are not perfectly negatively or positively correlated, the risk return relationship is made by curve AEB. This curve AEB referred to the minimum variance portfolio opportunity set. We also know that the triangle AEB limits the set of opportunities.

Figure No.2.6



Portfolio A has minimum risk and minimum return. Portfolio B has high risk and high return, than C portfolio has high risk low return because proportionately higher increasing risk than proportionately increasing return. Thus, portfolio A and C dominated by portfolio B, risk-averse investor will prefer a portfolio which have highest expected return for a given level risk or prefer a portfolio with the lowest level of risk for a given level of expected return. In the portfolio theory, this is referred to as the principle of dominance. The portfolio which has the highest expected return for a given level of risk is called an efficient portfolio. The frontier formed by the set of efficient portfolios is called the efficient frontier. The line ABC is the efficient frontier. It represents the locus of all the portfolios which have the highest return for a given level of risk. All the others portfolio which lie outside the efficient frontier are inefficient portfolios.

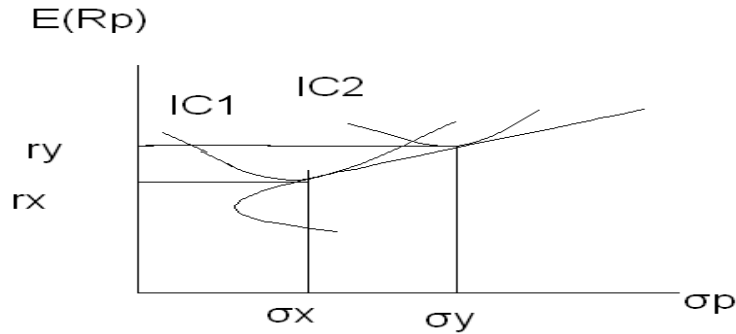
Figure No.2.7



Portfolios to the left side of the efficient frontier are not possible, because they lie outside the attainable set. Portfolios to the right of the efficient frontier are inefficient because some other portfolio could provide either a higher return with same degree of risk or a lower risk for the same rate of return. In the above figure, point B provides the higher rate of return than portfolio K with the same level of risk. Other hand portfolio A provides minimum/low risk than portfolio K as the same rate of return. The portfolios A, B and C are lies on the efficient frontier. Portfolio A has low risk and high return. Both portfolios A and B are equally efficient portfolio. A portfolio selection by investor will be depended on his risk-return preference.

Once the efficient frontier is determined, we now consider the selection of optimal portfolio. We know that different individual have different attitude towards the risk and return. It means different individual have different indifference curve. The following figure illustrates portfolio choices for two individuals who have different indifference curve because they have difference attitudes towards risk. The optimal portfolio for an investor is the point at which the efficient frontier is just tangent to the investor's indifference curve.

Figure No.2.8



The point X and Y have the same portfolio opportunity set but they have different attitude towards risk and hence different indifference curves and different optimal portfolio. Risk-averse investors will choose only those portfolios that lie on the efficient set. Individual X prefers lower risk for which he has willing to accept lower return. His optimal portfolio is given by point X. Similarly individual Y prefers higher risk because he wants higher return. His optimal portfolio is therefore given by point Y which makes the highest level of satisfaction, an investor can achieve maximum profit setting potential portfolio.

### 2.1.27 CAPITAL ASSET PRICING MODEL (CAPM)

“CAPM is on equilibrium model of the trade-off between expected portfolio return and unavoidable risk”. (Van Horne, 1997:561) Based on the behavior of risk-averse investors, there is an implied equilibrium relationship both risk and expected return for each security. In market equilibrium, a security is supposed to provide and expected return commensurate with its systematic risk, the risk that cannot be avoided by diversification. The greater the systematic risk of a security, the greater the return that investors will expect from the security. The relationship between expected return and systematic risk, and the valuation of securities that follows, is the essence of Nobel Laurate William Sharpe’s capital assets pricing model (CAPM). This model was developed the 1960s, and has had important implication for finance ever since. While other models also attempt to capture market behavior, the CAPM is simple in concept and has real world applicability. Like any model, this one is a simplification of reality. Nevertheless, it allows us to draw certain implication about risk and size of the risk premium necessary to compensate for

bearing risk. Because a complete and mathematically rigorous presentation of the model is beyond the scope of an introductory book, we shall concentrate on the general aspect of the model and its important implications. Certain corners have been cut in the interest of simplicity. As with any model, there are assumptions to be made. First we assume that capital markets are efficient in the investors are well informed, transaction cost are low, there are negligible restriction on investment and no investor is large enough to affect the market price of a stock. We also assume that investors are in general agreement about the likely performance of individual securities and that their expectations are based on a common holding period, say, one year period. There are two types of investment opportunities with which we will be concerned. The first is a risk free security whose return over the holding period is known with certainty. Frequently, the rate on short to intermediate term treasury securities is used as surrogate for the risk free rate. The second is the market portfolios of the common stocks. It is represented by all available common stocks and weighted according to their total aggregate market value outstanding. As the market portfolio is a somewhat unwieldy thing with which to work, most people use a surrogate such as S&P 500 Index. This broad based market-value-weighted index reflects performance of 500 major common stocks.

In the book “Investment analysis and portfolio management” written by the Prasanna Chandra has focused on capital assets pricing model. “The CAPM predict the relationship between the risk of an assets and its expected return. This relationship is very useful in the ways. First, it produces a benchmark for calculating various investments. For example, when we are analyzing a security we are interested in knowing whether the expected return from it is in line with its fair return as per the CAPM. SECOND, it helps us to make an informed guess about the return that can be expected from an asset that has not yet been traded in the market. For example, how should a firm price its initial public offering of a stock? Although the empirical evidence on the CAPM is mixed, it is widely use because of the valuable insight it offers and its accuracy is deemed satisfactory for most practical applications”.

Prasanna Chandra presents the following basic assumption of CAPM:

- i. Individuals are risk-averse.

- ii. Individuals seek to minimize the expected utility of their portfolio over a single period planning horizon.
- iii. Individuals have homogeneous expectation. They have identical subjective estimates of the means, variances and covariance among returns.
- iv. Individuals can borrow and lend freely at risk-less rate of interest.
- v. The market is perfect, there are no taxes and there are no transactions cost.
- vi. Securities are completely divisible, the market is competition.
- vii. The quantity of risk securities in the market is given.

Looking at these assumptions one may feel that the CAPM is unrealistic. However, the value of a model depends not on the realism of its assumptions, but on the validity of its conclusions. Extensive empirical analyst suggests that the conclusions of the CAPM are reasonably valid. The relevant risk for and individual assets is systematic risk (or market related risk) be caused non market risk can be eliminated by diversification. The relationship between an asset return and systematic risk can be expressed by the CAPM.

#### **2.1.28 DIVIDEND PER SHARE**

The net profit after taxes belongs to shareholders. But the income which they really receive is the amount of earning distributed as cash dividend. Therefore, a large number of present and potential investors may be interested in DPS, rather than EPS. DPS is the earnings distributed to ordinary shares outstanding.

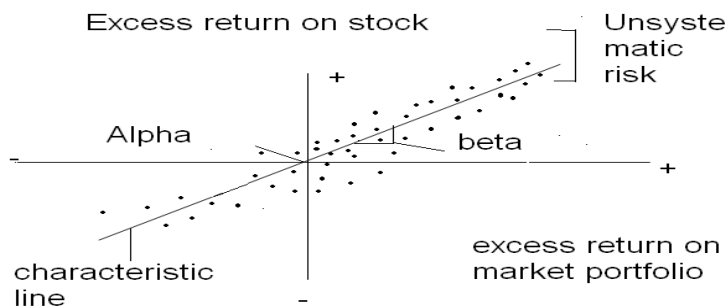
#### **2.1.29 SECURITIES**

In general, only a piece of paper represents the investor's rights to certain prospects or property and the condition under which he or she may exercise those rights. The piece of paper, serving on evidence of property rights, is called a security. It may transfer to another investor, and with it will go all its rights and conditions. Hence, the term of security can be understood as a legal representation of the right to receive prospective future benefits under stated conditions. The primarily tank of security analysis is to identify misplaced securities by determining their prospective future benefits, the conditions under which they will be received, and the likelihood of such conditions.

#### **2.1.30 THE CHARECTARISTIC LINE**

We are now a position to compare the expected return for the market portfolio. In our comparison it is useful to deal with returns in excess of the risk free ratio. The excess return is simply the expected returns less the risk-free return. A comparison excess returns for a specific stock with these for the market portfolio. The colored line is known as the security's characteristic line; it depicted the expected relationship between excess return for the stock and excess return for the market portfolios. The expected relationship may be based on the past experience, in which case actual excess return for the stock and for the market portfolio would be plotted on the graph and a regression line best characterized the historical relationship would be drawn. A line describes the relationship between an individual security return and return on the market portfolio. The slope of this line is beta.

The dispersion of the data points about the characteristic line is a measure of the unsystematic risk of the stock. The wider the relative distance of the points from the line, the greater the unsystematic risk of the stocks; this is to say that the stock's return has increasingly lower correlation, with the return on the market portfolio. The narrower dispersion, the higher the correlation and the lower the unsystematic risk. From efficient diversification for a portfolio 20 carefully selected stocks, the data points would hover closely around the characteristic line for the portfolio.



Beta is simply the slope (i.e. the changes in the excess return of the stock over the change in the excess return on the market portfolio) of the characteristic line. If the slope is 1, it means that excess return for the stocks vary proportionately with excess return for the market portfolio. In other word, the stock has the same systematic risk as the market as a whole. If the market goes up and provides an excess return of 5% for the month, we would



expect, an average, the stock's excess return to be 5% as well. A slope steeper than 1.0 means that the stock's excess return varies more than proportionately with the excess return of the market portfolio, Put another way, it has more unavoidable risk than the market as a whole. This type of investment called defensive.

### **2.1.31 MONEY MARKET**

Money market refers to that financial market in which securities with a short term and highly liquid debt securities are traded. Thus money market comprises the securities that have short maturity period. It is too much liquid, marketable and lower risk than other securities.

### **2.1.32 CAPITAL MARKET**

It means financial market by which long term securities are traded. The securities having life more than one year generally traded in the capital market. More specifically, long term instruments such as stocks issued by corporation are basically traded in capital market. The capital market experienced an impressive growth in the last two years. Improvement in the peace and security situation, the central bank policy to increase the paid-up capital of banks and financial institutions, market reform, institutional and infrastructural developments related to the capital market has contributed to this growth. The activities of both the primary and secondary

### **2.1.33 PRIMARY MARKET**

Primary market is the market in which corporations raise new capital. Market in which corporations raise funds by issuing new securities is called primary market it is the new securities market. These securities can either sold directly by the company or through underwriter the behalf of the company. In the FY 2007/08 the Security Board of Nepal (SEBON) granted permission to 71 companies for mobilization of Rs.11.56 billion while 33 companies got approval to mobilize Rs. 2.75 billion in the preceding year. The number of capital mobilizing companies and amount of capital mobilization has risen by 132.25 percent and 320.36 percent respectively. Following chart shows the capital mobilization trends in the last five years in the primary market.

### **2.1.34 SECONDARY MARKET**

The market where the existing and pre-developed securities are bought and sold is called secondary market. On the other hand, secondary market is the place where already issued securities are traded. It provides the liquidity of all securities will be traded in secondary market. Secondary market can be regarded as the center to convert stocks, bonds, and other securities into cash immediately. The Nepalese stock market continued to expand in the FY 2007/08 too. With the restoration of peace and a subsequent boost in investors' confidence, major indicators of the share market grew tremendously. Almost all the major indicators of the secondary market like amount of shares traded, number of listed shares, the number of transactions, annual turnover, total market capitalization of listed shares, markets capitalization and GDP ratio, turnover to market capitalization and the GDP ratios all increased in the review period.

### **2.1.35 MARKET CAPITALIZATION**

The total market capitalization of listed shares almost doubled to Rs.366.24 billion during the review year. The central bank's directive to increase the capital base of banks and financial institutions has a major impact on the market value of listed shares. Most of the companies opted to issue bonus and right shares to increase their capital base, which attracted lots of investors.

### **2.1.36 OTC MARKET STARTED**

NEPSE started the over-the-counter (OTC) market from 4 June 2008 to give shareholders a chance to sell or buy the shares of companies that are de-listed and that are not listed on NEPSE for failing

The shares of 43 companies can now be traded in the OTC market. But as per the request of Nepal Rastra Bank NEPSE has decided to restrict the shares trading of Nepal Bank Limited in the OTC, since shares trading of Nepal Bank Limited will have a negative impact on the ongoing Financial Sector Reform Project. In the OTC Market one does not have to go to brokers to trade shares; one can come to NEPSE and trade, paying a commission of two percent for transactions of up to Rs 25,000, 1.5 percent for

transactions of above Rs 25,000 but under Rs5, 00,000, and one per cent for transactions of over Rs 5, 00,000. However, no transaction has been made until the end of the fiscal year.

### **2.1.37 TRADING SYATEM AUTOMATED**

The Automated Trading System (ATS), an internationally compatible trading system was inaugurated by the then Finance Minister Dr. Ram Sharan Mahat on 24 August 2007. In order to adopt the ATS, NEPSE made an agreement with the British Company Comdaq Limited in November 2006 under the Asian Development Bank (ADB) loan assistance project--Corporate and Financial Governance (CFG)--at the cost of 300 thousand US dollars. The system has helped eliminate all possible human errors as seen in the open outcry trading procedures. Several international practices have been incorporated to make the system internationally compatible and modifications have also been made to customize the existing rules and regulations of the country. The following features are therefore found in the existing automated trading system.

#### **1. CLIENT MANAGEMENT**

Client Management enables a broker to create a client. Without creating a client the broker will not be allowed to place any order. The broker has to insert various details of the client, including a *client code*, which is a unique code for that particular client. After receiving an order, the broker has to place the order for that client on the First in First out (FIFO) basis of the order registered by the client's in the broker's office.

#### **2. ORDER**

It is an expression of interest to either buy or sell a specified quantity of stock either at a specified price or at the current market price. An order is given by a client to a licensed broker. There is an *order entry form* in the system through which a broker place the purchase or sells orders. Generally, four types of order can be placed in the system:

**Regular:** An order which is completed on the exchange and that confirms the order of lot size or greater than that.

**Odd-Lot:** An order which is completed on the exchange and that confirms the order less than lot size.

**Manual:** An order which is placed by brokers and is reported individually by the buying and selling brokers.

**Block:** An order which is placed by brokers and confirms to the minimum block trade quantity specified by the exchange and is reported individually by the buying and selling brokers.

### **3. Price**

It is the price, which the buyer quotes in his/her buy or sell order. The investors as usual can quote either *fixed price*, *price in range* or *market price*. If broker find the price within range they enter the details to execute the transactions. In the present system the order entry form on computer has been developed to indicate a price either in *limit* or *market*. If the price is given in fixed, brokers insert the fixed price and if it is given in range they insert the best price for their clients. Brokers must always attempt to execute transactions to protect their clients' interest. If investors are sellers brokers must attempt to execute transactions at higher prices and if investors are buyer brokers must attempt to buy at low prices. It is the negotiation process through which they execute the transactions. If the price is market then after brokers will execute orders at the market price, that is, they buy or sell the shares at market price.

### **TRADING HOUR EXTENDED**

From 19 December 2007 NEPSE has increased the trading hours by one hour due to an increasing trading pressure after the automation of trading. Initially, NEPSE opened its trading activities for only two hours. Now the trading floor opens from 12.00 noon to 15.00. NEPSE has expected that investors in general and small investors in particular will benefit from the increase in trading hours.

### **2.2 REVIEW FROM NATIONAL AND INTERNATIONAL JOURNALS**

In the topic of finance very few independent studies can be found. However, the available independent in national and international studies which are related to the stock market especially Nepalese stock market and about shareholders democracy, views expressed by

different persons in their articles regarding risk and return of common stocks of companies listed in NEPSE are presented or reviewed here in the topic. There is not enough journals related this topic i.e. risk and return analysis. There are very limited business magazines, which are hardly publish the topic related to the risk and return. Even listing underdevelopment countries our country's capital market is increasing day by day. Some magazines and books related to common stocks are published in the market. So review the risk and return of common stock some foreign and national book and journals are follows;

In many cases of the existing authoritarian mentality of management seems to have not considered the shareholders in deciding the managerial plans and policies. Top level decisions often by passes the interest of shareholder's right and expectations. The annual general meeting has become a platform for shareholders to express opinion and grievance in front of the management and board of directors. Many general meetings feedback reveal no serious response to the feeling of shareholders. It reflects unwillingness of the management and board of directors to change their traditionally held activities towards shareholders. (Shrestha, 1992:12)

Prof. Dr. Manohar Krishana Shrestha (1992) in the title of shareholders Democracy and Annual General Meeting Feedback. Where, Mr.Shrestha was critically analyzed the situation of common stock investors and situation that is not improving till date.

Mr. Shrestha's study has been divided into two parts. The first part includes view on the rights of the shareholders regarding how they can exercise then in democratic perspective and second part consists of feedback and the issues raised by shareholders at different annual general meeting of public limited companies and financial institutions.

In this study, he mentions that government is not interested in formulating separate act to protect the right of shareholders, although the size of shareholders population in Nepal has been growing constantly and he has viewed the need of separate act regarding the protection of shareholders right. Company and others acts relating to financial and industrial sector has provisioned rights of the shareholders as:

1. Voting right

2. Participation in general meeting
3. Right to getting information
4. Electing as a board of director
5. Transferring shares
6. Proxy representation
7. Participation in the profit and loss of the company

**The collective rights of the shareholders are:**

1. Amend the internal by laws
2. Inter into merger
3. Change amount of authorized capital
4. Authorized the sales of assets

Brennan and Henry have conducted a study about “international portfolio investment flows in journal of finance”. In the study they have constructed a portfolio between foreign as well as domestic market and find out whether the domestic investors are able to get quick information then foreign investors and take enough benefits from it. According to them, “the article develops the model of international equity portfolio investment flow based on difference in international endowments between foreign and domestic investors. It is shows that when domestic investors posses a cumulative information advantage over foreign investors period when the return on foreign asset is high and to sell when the return is low (Brennan Henry, Journal of Finance, 1997).

Prof. Dr. Radhe Shyam Pradhan and Mr. Surya B. Balampaki (2004) in the topic of "*fundamentals of stock return in Nepal*" is taken into consideration. This study is helpful to analyze stock's return from different aspects. This study is based on pooled cross sectional data of 40 listed companies in NEPSE Ltd and traded in the stock market. The study examines if dividend yield and total yield are related to earning yield, book market ratio and cash flow yield. Pradhan and Balampaki have summarized the following results.

- Earning yield and cash flow yield have significant positive impact on dividend yield and an significant impact on book to market value, whereas, size has negative impact on

dividend yield. In the case of earning yield and cash flow yield has been found to be more informative than earning yield.

- Capital gain yield is positive influenced by earning yield and size, whereas, the same is negatively influenced by book to market value and cash flow yield. Book to market value has been found to be statistically strong in predicting capital gain yield.
- Similarly, total yield is positively determined by earning yield and size, whereas, the same is negatively determined by book to market value has been found to be more informative than other variables.
- A positive relationship exists among earning yield, book to market value and cash flow yield. However, the size is negatively related to these three variables.(pradhan et al, 2004:22)

.“An interdiction to investment theory” yale, yale school of management

Large capitalization stocks, small capitalization stocks and international stocks. One these decision are reached, you will be ready to make selection among the various investment options. Lastly, once you have set up your investment portfolio you must monitor it, making changes when appropriate (American association of individual investors). The technical term for this is not putting all your eggs in one basket. In this way if you trip, you won't all the eggs. The certain of a portfolio by combining two assets that behave exactly the same way cannot reduce the portfolios overall risk below the risk of the least risk assets.

Elton noted that almost all of the testing involved using realized returns as a proxy for expected returns. The use of average relies on a belief that information surprises tend to out over this period of a study and realized return are therefore an unbiased estimate of expected returns. However, the author believed that there was ample evidence that this belief was misplaced. There are period's longer than 10 years during which stock market realized return are on average less than the risk free rate(1973 to1984). There are periods longer than 50 years in which risky long term bonds on average under performs the risk free rate (1927 to 19810). Hovering of risky asset with an expected return above the risk less rate is an extremely weak condition foe realized returns to be an appropriate proxy for expected return, and 11 and 50 years is an awfully long time for such a weak condition

no to be satisfied. In the recent past, the united state has had stock market returns of higher than 30 percent per year while Asian markets have had negative returns.

These days information highway or internet has becomes the most easily accessible mediums to gain in any subject matter in the study period different books and article have been consulted.

There is an article in business Age about outlook of Nepali share market. Which is “Fundamentally, the market is in a panic mood backed by dynamic trading pattern. Market psyche is abnormal. Investors are showing the most chaotic behavior since the inception of the Nepal Capital Market. Market confidence level is down and future outlook is much more uncertain. It is observed that the market is not only experiencing political measure but is also afraid of global economic disaster which is slowly hitting the sectors like remittance, foreign investment, real estate and so on, the so called ‘double digit growth’ dream shared by Maoist- led government has failed as the Asian Development Bank has forecasted Nepal’s GDP growth this year to be contained at 3% perhaps, we’ll see a crash in real estate sector backed by gloom in the company with poor confidence level of investors, Industrialists and general public. There is still possibility that quarterly earnings of F/s may miss exert forecast in their earnings this time. Analyzing these chaotic scenarios, we should expect some miracle in our economy before our stock market takes flight to bullish territory”. (Bhurtel et al, April 2009:61)

An article published by business age magazine of June 2001 entitled “Nepal share market an investor’s project” by Atma Ram Ghimire is review here. In this study he has printed out some important trends to our capital market. He has mentioned in his article many unbalanced factors like political instability etc. are the main cause of decreasing share price. According to him current share price are on declining process. The fluctuation in NEPSE is due to banking sector which price changes was due to availability bonus, dividend etc. when we analyze our stock market we find that all the component of the market are lame, weak and perhaps work for vested interest. The general public are also reckless their investment and booker organization is also unqualified and is a one man show. In addition to this board always favors companies and not the investors.



An article published in September 2004, entitled history trends to repeat it by R.Bhattra is review here. On the basis of three months data, R. Bhattra clears every major political event has caused significant change in the index. The financial analyst assume that the market price is a function of demand and supply of stocks and the commanding force behind the demand might be various factors like political, economic, financial, national and international events as well as the information disclosed by the companies. The various factors make the people either invest in the securities or disinvest. These decisions eventually result in the demand and supply of the stocks to go up or down.

The NEPSE index reached the peak of 545.82points on 23<sup>rd</sup> November 2010 before bearish. The pessimism of investors toward the investment through secondary market rose unexpectedly but the last few months bullish trend has aroused a hope in the investors that the history definitely will repeat itself in the stock market. Price of almost all companies stocks continued to rise. The share price of Machhapuchhre Bank Limited hovering long time around the face value has crossed Rs 140. Similarly, the share price of Bank of Kathmandu Ltd, which has hovering around Rs 200, now crossed Rs 300. Even the share price of virtually insolvent Necon Air Ltd, which was stagnant around Rs 20 for long time, has now crossed Rs 30. There are many such examples to confirm that repetition of history taking place in Nepal stock market. Stock market is very much unpredictable but the movement can somehow be forecasted on the basis of past pattern of price movement through the trend analysis.

NEPSE index during the month of August also reflected a continuous bullish trend of the past few months and repeated its political sensitiveness. The index skyrocketed in the first half of the month reaching 241.63 points on August 17. The unexpected increase of the share price of Banking and financial sector caused the index to go upward. One of the reasons increasing the price of such sector could be the disclosure of the annual account in audited financial performance of companies. Out of these companies that disclosed their performance, more than 95% have increased their operating profit over that of the previous fiscal year 2002/003. The Maoist called an indefinitely closure of major industries as well as or the indefinite blockade of the capital since August 17 and sensitiveness of NEPSE to the political upheaval was observed on August 18 in the index when it fell by 0.41. The index remained bearish falling down to 234.02 by August 24

and returned bullish when the indefinite blockade was called off. On the following day of the blockade being called off, the index increased by 1.79 points and continued on upward journey.

The movement of the last three months in NEPSE shows that every middle of the month recorded a fall in the index. Similarly, every major political event has caused significant change in the index.

The article in Business Age about market analysis (Chaudhary, December 2010) , this is “An analysis of the market in technical term through the moving average shows that the market is very weak with the supply for exchanging the demand. The 200 days simple moving average (SMA) price was overriding the market price. Market prices of the scripts traded were too lower than the 200 days SMA. The NEPSE index pulled down the SMA line throughout the period given the investors the impression that is still no hope for the market to rebound. Everyone is wondering why the market is going down even through there is a positive fundamentals indicator in the form of encouraging dividend declared by some companies. However, there seems to be a consensus that if political, macro economic and regulatory environment becomes stable, the investor’s confidence will be resorted and there be bulls around the street chasing the staff bears.

### **2.3 REVIEW OF THESIS**

Regarding various unpublished dissertations that were prepared for the partial fulfillment of MBS/MBA, and other faculties this study is basically related with risk and return of the common stock. However, risk and return is not a new concept for financial analysis, in the context of Nepal and some studies are made regarding this topic. In this study only relevant subject matters are reviewed which are as follows:

Satyal (2002) has a study on "*Risk and return analysis of listed companies for the analysis, among listed companies eight are taken into account*". Among them two are from banking sectors, two finance companies, two insurance companies, one trading and one manufacturing and processing company. The main objectives of the study were to

analyze risk, return and other relevant variables that help in making decision about investment on securities of the listed companies and to examine the movement of market price of share, also to provide suggestions on the basis of findings. He has used holding period return and expected rate or return to calculate the returns of the companies. Calculations of standard deviation, coefficient variation (CV) and beta were used to measure risk and CAPM for portfolio analysis. The expected return of Nepal investment bank is 36 percent, CV is 1.06 and risk is 38.3 percent. The beta of its share is 0.66. Expected return of Himalayan bank limited is 52.66 percent, risk is 29.3 and CV is 0.556. The beta is 1.567 so HBL is less risky than NIB. For the study, the researcher has taken 5 years period.

Shrestha (2003) has a study on "*Risk and return on common stock investment of banking sectors in Nepal*". The main objective of the study was to analysis the systematic and unsystematic risk associated with security. The study was covered six years data from 1996-2001. In this study, the researcher has used analytical tools i.e. return of common stock, expected return, standard deviation, beta coefficient, CAPM, coefficient of determinants and hypothesis (t-test). The major findings of his study are NBBL's common stock is yielding the highest realized rate of return with 71.80 percent where as it is the lowest 26.6 percent incase of NIB Ltd. The banking industry average 47.85 percent, the commercial banks NBBL, BOKL and EBL respectively rate of return are 71.8 percent, 67.6 percent and 65.6 percent. All the commercial banks required rate of return is less than expected rate of return which means that they are all under price therefore it will be beneficial to the investors who are going to purchase the companies' common stocks. From the study, it has found that investment in banking sectors is beneficial instead of other financial sectors.

Nirajan Pandit is about "*Risk and Return Analysis of Selected Listed Companies in NEPSE, (2005)*". This study conducted the following things:

- Most of the individual investors cannot analyze the risk and return of the security.

- The share price is determined by the market movement. The movement of the share price of the selected listed companies is increasing trend since fiscal year 2053/2054 to 2056/2057.
- Among the selected listed companies, HBL has the highest expected return and NIC has the lowest expected return.
- On the viewpoint of risk, NIDC has the highest standard deviation and NIC has the lowest standard deviation. On the other hand, the return of NSMCL is more volatile and NIB is less volatile because NIB has low CV whereas NSMCL has high CV.
- Most of the Nepalese investors are invest their funds in single assets.
- On the viewpoint of market capitalization, SCB Bank has the greatest weight and NFSC have the lowest weight among the selected listed companies.
- Portfolio combination of banking sector and finance sector (i.e. SBI and NFC), banking and insurance (i.e. NABPC and UIC) and finance and insurance sector (i.e. NIDC and NIC) are not effective because coefficient variation of these companies have positive or highly positively correlated.

Niraj Kumar Dhal, (June 2005) has conducted a study entitled “*Risk and Return Analysis in common stock investment*”. Mr. Niraj addresses the following findings regarding the risk and return analysis of different stocks.

- Nepalese stock market is in emerging state. Its development is accelerated after the political change in 1990. The successive government has adopted the policy of openness and liberalizations in national economy, which has affected positively in the development of common stock in Nepal. But due to the lack of information and poor knowledge, Nepalese investors cannot analyze the security as well as market.
- The higher risk of the common stock may have greater possible return.
- The higher return is seen with EBL where as the least return is seen with NABIL.
- The beta coefficients of five commercial banks have greater than 1. Therefore, such banks common stocks are more volatile than market.
- All the five listed commercial bank’s stocks are under priced.

- Correlation coefficient between NABIL and SCBL is positive (ie  $(r_{AB}) = 0.787$ ) that indicates there is high degree of positive correlation between them.
- All the five studied commercial banks stocks are under-priced therefore it is recommended that the investors need to buy these stocks.
- Investor should diversify their fund to reduce risk with the help of optimal portfolio concept. It is said that “beware of one product companies”. That means things can change, do not put all your eggs in one basket.
- Risk and return analysis is completely untouched are in Nepalese context. It is strongly suggested that further studies should be conducted on this topic and research should be conducted on this topic and research should include maximum number of sample.
- It is better to buy something that is going up and sell something that is going up and sell something that is going down. Adding more something is good makes it better. More of something is good makes things worse.
- Beta coefficient of five studied commercial banks is greater than 1. Therefore, such bank’s common stocks are more volatile than markets and hence the investor should think before the investment.

Sabina Shrestha, (2009), in her thesis paper “*Risk and return analysis of listed commercial banks*” concluded the following things:

- In comparison with inter industry, banking sectors is more profitable. So, the stocks of banking sector is found to have the highest return when it has the medium risk whereas manufacturing and processing sector is found to have the lowest return and lowest risk. Therefore the investors may buy the stocks of banking sectors considering risk and return factor. Comparison between the listed commercial banks, Himalayan bank is the best bank among other banks. Therefore the investor can get the highest return for investment. While analyzing individual security SCBNL seems to undoubtedly the best for investment with considering C.S of SCBNL may be the best investment opportunity for the investors while beta is higher than the market beta coefficient (i.e. 1). So, it is most aggressive type of stock. Hence it is prescribed to select the C.S of SCBNL of banking industry for individual stock investment.

- Analysis of personal risk attitude, needs and requirement will be helpful before making an investment decision in stock market. Investor should make several discussions with stockbroker before reaching at the decision. Investors should not invest only on imagination and rumors.
- All the commercial bank's stocks are under priced. When expected rate of return is higher than required rate of return than the bank's stocks are under priced and when the expected rate of return is lower than required rate of return than the bank's stocks are overpriced. So all the banks have stocks with good investment opportunity. All the stocks in demand, their stock's value will be increased in the near future providing the investors higher return. Since all the stocks are under priced, investors can gain from buying those stocks. These stocks are recommended to buy.
- Most of the investors invest only keeping the return in the mind but they are found unable to calculate the risk factor of the security. But it is found that they don't make any analysis of portfolio before selecting security. They invest their fund in different securities on the basic expectation and assumption of individual securities rather than analysis of the effect of the portfolio. It seems that they don't have knowledge of the risk diversification by using portfolio of their investments.
- One of the main significance of beta is in CAPM. CAPM is the model that describes the relationship between risk and required rate of return. Where risk free rate plus a premium based on the systematic risk of the security is required rate of return of the stocks. Comparison between expected rate of return and required rate of return identifying whether the stocks are overpriced or under priced. If required rate of return is lower than expected rate of return, stock is known as under priced and if required rate of return is greater than the expected rate of return, the stock is overpriced. This study shows that all the stocks of commercial banks, which are analyzed, are under priced. This means that their stock value will be increased in near future. All the stocks are in demand so investors can buy the common stock of any bank.

Prabhat Ram Upreti, (2011), "*Risk and return analysis of selected companies in Nepal*". He concluded the major findings which are as follows:

- Basically the study has focused on individual investors who are going to invest their wealth in banking sector. Moreover, other components of stock market are also considered to some extent. Based on this study, individual investor can invest their wealth on right stocks. On the basis of analysis, the following recommendations are prescribed.
- Risk and return of banking sector is very divergent. It is suggested to analyze risk and return since rely before investing in this sector. It is not analysis reliable to reach in a decision based on the risk and return. It is highly preferable to use CV to reach ideal investment alternatives. According to CV EBL is the best of all, as it has least CV.
- Aggressive investor plays the equity game actively and vigorously. In addition the general suggestion the aggressive equity investors should bear mind the following.
  1. Monitor the environment with keenness.
  2. Focus on investments you understand and ply own game.
  3. Invest in the selective in new issues.
  4. Anticipate earnings ahead of market.
  5. Take swift corrective action.
  6. Leverage your portfolio when you are bullish.
  7. Play need to growth shares.
  8. Beware of the games operators play.
- Nepal stock exchange needs to modernize the trading system and effective information channels. It needs to develop different program for private investors. These programs will contribute to increase investor's rationality as well as market efficiency.
- The listed companies should operate their activities smoothly. They should publish their annual reports and information timely and correctly which will help to the investor to take the investment decision on their common stocks.
- To provide different type of securities at the same place to investors, NEPSE should manage the trading of government securities. It will increase the opportunities for well diversification of funds to investors and it will also increase the private investor's participation in government securities.
- Conservative equity investors seek to minimize the investment risk as well as the time and effort devoted to portfolio management.

- Standard deviation gives idea as to total risk. But investors must concern with the systematic risk as measure by the given stock's beta. Systematic risk is only the risk, which is priced at market. Stock of EBL, has systematic risk greater than other while HBL has its beta least of all. Although there is chance of more return than of expected, there also a chance of heavy loss because stock market investment a risky job. So investors must be well aware of this fact and must be able to visualize and analyze the whole things. It is possible to beat the stock market but proper analysis of individual security, industry and overall market is always essential. General knowledge about economic, political and technological trend is advantageous.
- Investors need to diversify their funds to reduce risk. Efficient portfolio depends on market movement. For the portfolio construction investor should select the stocks that have higher return and negative correlation or moderate positive correlation between stocks of different companies and sector. Similar stocks cannot diversify risk properly. Investors should follow the following guidelines focus on fundamentals but keep an eye on technical, diversify moderately and periodically review and revise the portfolio. Investment or like higher return but risk is inevitable thing attached with return. To reduce risk, portfolio is ever evaluation from time to time is necessary. Managing portfolio construction for purpose, correlation of returns of the stocks of HBL and SCB are least of all and accordingly, are the best of all for portfolio construction.
- Before making an investment decision in stock, assessment of personal risk attitude, needs and requirements will always be helpful. To make several discussions with stock broker before reaching at the decision on the basis of reliable information rather than rumors and imagination will ultimately favor the investors. Investor should make their investment decision based on financial parameters of the banks. They not rush over the rumors.



## **2.4 Research Gap**

Previous researchers analyzed the Risk and Return by using secondary source of information in terms of Risk return practices. But actually speaking, risk can be determined by various factors which eventually affect the return. In this study Risk and Return of selected commercial is measuring by using secondary as well as primary data applying various statistical tools and Questionnaires. Among them, primary analysis in terms for risk and return may be the strong determinant for investing in banks. In present context, these are the heart issue in Nepalese commercial banks. Most of the investors are found to be investing in the share of banks only believing on whim and humors. The previous scholars could not submit the present facts. Present study tries to define risk and return analysis by applying those various facts and figures and determine the certain generalization. It can be very useful or important in this area. Thus, present study may be valuable piece of research work.

## **CHAPTER –THREE**

### **RESEARCH METHODOLOGY**

Research is a systematic and organized effort to investigate a specific problem that needs a solution. Research is undertaken not only to solve a problem existing in the work setting, but also to add or contribute to the general body of knowledge. Research is thus a knowledge process building process. With the opening up of new frontiers of knowledge through research, new concepts and theories are developed to explain verity and analyze the social phenomena.

Research methodology is defined as the scientific, organized and systematic method of solving the research problem. It helps to give the solution of the problems, like: how research is conducted scientifically? Research methodology describes why particular methods are used and why the other and others is/are not used and also explains the logic of selection of particular method. Hence research methodology gives the systematic solution of a research problem by providing the answers of the following questions.

- Why research study has been conducted?

- How the research the problem has been defined?
- How and why the hypothesis has been formulated?
- What types of information have been collected?
- Which methods of data collection have been adopted and why?
- Why a particular method of data analysis has been used?

The main objective of this study is to make the analysis of risk and return of selected listed companies. Thus this chapter is designed to meet the set objectives. The content refers to the approach of the research process from theoretical foundation to the collection and analysis of data. As most the data are quantitative study is based on scientific models.

### **3.1 RESEARCH DESIGN**

By research design we mean an overall framework or plan for the activities to be undertaken during the course of a research study. The research design serves as framework for the study, guiding the collection and analysis of the data, the research instrument to be utilized and the sampling plan to be followed. Specifically speaking research design describes the general plan for collecting, analyzing and evaluating data after identifying.

- What the researcher wants to know?
- What has to be dealt with in order to obtain the required information?

Research design is an integrated system that guides the researcher is formulating, implementing and controlling the date.

“Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall scheme or program of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data. The structure of the research is more specific. It is the outline, the scheme, the paradigm of the operation of the variables. When we draw diagrams that outline the variables and their relation and juxtaposition, we build structural schemes for accomplishing operational research purposes strategy, as used here is also more specific the plan. In the other words, strategy implies has the research objectives will be reached

and how the problems encountered in the research will be tackled". (Kerlinger, 1986: 275)

This research is based on recent historical data collection from NEPSE, security board and other different sources. So that simply it is called a historical research. On the other aspect the research design followed for this study is basically a descriptive and analytical one. The study covers the six years period from the fiscal year 2004 to 2009 of the selected listed companies. Some discussions have been made to interpret the existing secondary information, which have been analyzed by using analytical tools and techniques. It deals with the common stock of listed company on the basis of available information.

### **3.2 POPULATION AND SAMPLE**

Population refers to the entire group of people, events or things of interest that the researcher wishes to investigate. Sampling is the vital part of any research study. A sample is defined as a collection of items or elements from a population. Hence, a sample is only a portion or subset of the population. This study is based on commercial banks, Development banks and financial institutes listed in the NEPSE. Population is all listed commercial banks, insurance, finance, trading and processing, hotels and other companies. Till now numbers of listed companies are 227 on the February 4<sup>th</sup> 2012. Among them 27 are commercial Banks, 75 development banks 73 are finances companies, 4 are hotels, 18 are manufacturing and processing industries, 20 Insurance Company, 4 Hydropower, 4 Trading and remaining two are Nepal Doorsanchar company ltd and Nepal film development Ltd.

For this research total number of sample taken is nine. These are as follows:

- Himalayan Bank Limited (HBL)
- Everest Bank Limited (EBL)
- Nepal SBI Bank Limited (SBI)
- Nepal Investment Bank Limited (NIBL)
- ACE Development Bank Limited (ACEDBL)
- Pshchimanchal Development Bank Limited (PDBL)
- International Leasing and Finance Company (ILFC)

- Lumbini Finance Company (LFC)
- Dathmandu Finance Company (KFC)

Among them, four are commercial banks; two are development Banks and three are finance companies are taken.

### **3.3 SOURCES OF DATA**

Data may be obtained from several sources: it is not easy to list them in detail. Each research project has its own data needs and sources. However, the general classification of data sources has the following dimensions.

#### **3.3.1 PRIMARY SOURCES**

Primary data are original data by the researcher expressly to solve the problem under consideration. Such data have not been previously collected or assimilated for any other projects. Primary data can be collected through interviews, questionnaires, observations and experiments.

#### **3.3.2 SECONDARY SOURCES**

Secondary sources refer to those for already gathered by others. The sources of secondary data can be divided into two groups: Internal and External.

The internal secondary data are found within the company. Sources of such data include sales information, accounting data and internally gathered research reports. External secondary data collected from sources outside the company. Such sources may include books, periodicals, published reports, data services.

The study is mainly based upon the secondary data, the date related risk and return of commercial banks and financial companies are directly obtained from related banks and finance companies. The supplementary data and information are obtained from published official records of commercial banks, journals, other commercial banks, (SEC) security exchange center, and Nepal stock exchange. During the study the data has been taken with the NEPSE, Individual investors and brokers.

The data collection procedure is summarized below.

- Financial document provided by companies.
- Trading manual published by Nepal stock exchange limited.
- Related web sites.
- Related books
- Personal interviews
- Materials published in papers and magazines.
- Central library of T.U.
- Library of Shankar Dev campus.
- Library of Nepal commerce campus, Minbhawan.

### **3.4 HYPOTHESIS**

One of the important applications of statistical inference is Test of hypothesis. In testing of hypothesis, on assumptions is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observed the difference between the sample mean and the hypothesized population value, and, test whether the difference is significant or insignificant. Smaller the difference, the sample mean is close to the hypothesized value, and, larger the difference the hypothesized value has low chance to be correct. A tentative theory or supposition provisionally adopted to explain certain facts and to guide in the investigation of others (Webster). In simply, hypothesis means the presumption or quantitative statement of the population parameter which may be true or false.

The study tests the following hypothesis:

#### **3.4.1 HPTHESES - ONE**

This first hypothesis tests the average return of the selected listed companies and market returns are equal or not.

##### **3.4.1.1 FORMATION OF HYPOTHESIS**

Null hypothesis (H1):  $R_s = R_m$ , There is no significant difference between the average return of the common stock of selected companies and overall market portfolio return.

Alternative hypothesis (H1):  $R_s \neq R_m$

There is significant difference between the average return of the common stocks of selected companies and overall market portfolio return.

### **3.4.2 HYPOTHESIS -TWO**

This second hypothesis test the average beta coefficient of the stock selected listed companies and market beta is equal or not.

#### **3.4.2.1 FORMATION OF HYPOTHESIS**

Null hypothesis (H0):  $X_b = \beta_m$  or  $X_b = 1$ ,

There is no significant difference between the portfolio beta of selected companies and beta of market.

Alternative hypothesis: (H1):  $X_b \neq \beta_m$

There is significant difference between the portfolio beta of selected companies and beta of market.

### **3.4.3 HYPOTHESIS - THREE**

This hypothesis test the expected annual return of the selected listed companies has equal return or not.

#### **3.4.3.1 FORMATION OF HYPOTHESIS**

Null Hypothesis (H0):  $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7 = \mu_8 = \mu_9$  i.e. there is no significant different between in average return of common stock of selected listed companies.

Alternative Hypothesis (H1):  $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5 \neq \mu_6 \neq \mu_7 \neq \mu_8 \neq \mu_9$  i.e. there is significant difference between in average return of common stock of selected listed companies.

### **3.5 METHOD OF DATA ANALYSIS TOOLS**

The collected data are analyzed by using various financial and statistical tools which are as follows:

### 3.5.1 STANDARD DEVIATION ( $\sigma$ )

“A statistical measure of possible of the variability of a distribution around its mean, It is the square root of the variance”. (Van Horne and Wachowicz, 1996: 91)

This is the measure of the dispersion of forecast returns when such returns approximate a normal probability distribution. It is a statistical concept and is widely used to measure risk from holding a single asset. The standard deviations represents a largest dispersion of return and is a high risk, a low deviation is a small dispersion and represents a low risk.

It is the statistical measure of the variability of a set of observation it is measure of total risk. The smaller a variance shows the lower the risk of the stock and vice-versa.

If past data are used

$$\sigma = \sqrt{\frac{\sum_{j=1}^n [R_j - E(R_j)]^2}{n - 1}}$$

If probabilities are used

$$\sigma_j = \sqrt{\sum_{j=1}^n [R_j - E(R_j)]^2 P_j}$$

$\sigma_j$  = standard deviation of returns on common stock j during the time period n

$p_j$  = probability distribution of the observations(returns)

$E(R_j)$  =expected rate of return of stock j

$R_j$  = holding period return

### 3.5.2 BETA COEFFICIENT ( $\beta_j$ )

“The beta coefficient is an index of systematic risk. If an investment has a beta greater than the market it will be classified as an ‘aggressive’ investment. If an investment has a beta which is less than the market than it is known as a ‘defensive’ investment. If an investment has a beta of 1 it is expected to fluctuate in line with market and called ‘neutral’ investment” (Thapa and Koirala, 2006:140)



“Beta coefficient of a stock is the characteristic line between return for the stock those for the market”. (Paudel, Baral, Gautam and Rana, 2007:146)

Beta coefficient is a tool of measuring the risk of securities. In the business world we can get two type of risk: (a) systematic and (b) unsystematic. The market (systematic) risk of a security is measured in terms of its sensitivity to the market movements. This sensitivity is referred to the securities beta ( $\beta_j$ ). Beta reflects the systematic risk which can't be reduced. Investor can estimate unsystematic risk when they invest their wealth in an unsystematic (Well diversified) market portfolio. A beta of 1.0 indicates average level of risk while more than 1.0 means that the security's return fluctuates more than that of market portfolio. A zero beta means no risk. Beta is a ratio of the covariance of returns of a security of return of the market portfolio.

The formula of beta coefficient is follows:

$$\beta_j = \text{Cov}(j,m) / \sigma^2_m$$

Here,  $\beta_j$  = beta coefficient of stock j

$\text{Cov}(j,m)$  = covariance of stock j and market portfolio m

$\sigma^2_m$  = variance of market

### **3.5.3 DIVIDEND PER SHARE**

Most often net profit after taxes belong to shareholders. But the income which they really receive is the amount of earning distributed as cash dividends. Therefore a large number of present and potential investors may be interested in DPS rather than EPS. DPS is the earning distributed to ordinary shareholders divided by the number of ordinary shareholders.

$\text{DPS} = \text{Earning paid to shareholders} / \text{number of ordinary shares outstanding}$

### **3.5.4 EARNING PER SHARE**

The profitability of common shareholders investment is measured by EPS. EPS shows the profitability of a share. EPS is calculated by dividing the profit after taxes by the total number of common share outstanding.

$\text{EPS} = \text{Profit after taxes} / \text{number of common shares outstanding}$

### **3.5.5 MARKET PRICE OF THE STOCK**

There are three price records available in the trading report published by NEPSE. They are high, low and closing price of each year. Each year closing price has been taken as market price of the stock, which has specific time span of one year and the study has focus in annual basis. Closing price is used as market price of stock. The most remarkable thing is that market value in the secondary market is determined by the supply and demand.

### **3.5.6 RETURN ON COMMON STOCK (R<sub>j</sub>)**

The return is better known as reward from investment. It includes both current income and capital gains or losses that arise due to increase or decreases in the security price. Here, return is the income received on an investment plus any change in market price, usually expressed as a percent of the beginning market price of the investment. Symbolically return can be expressed as follows:

$$R_j = (P_{t+1} - P_t) + D_t / P_t$$

Here,

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

P<sub>t</sub> = price of the stock j at the beginning or t period

P<sub>t+1</sub> = price of the stock j at the ending or t+1 period

D<sub>t</sub> = dividend payment of the stock j at the t+1 period

### **3.5.7 EXPECTED RETURN**

The expected rate of return for any asset is the weighted average rate of return, using the probability of each rate of return as the weight. This is the return that an individual expects a stock to earn over the next period. Of course because this is only an expectation, the actual return may be higher or lower. An individual's expectation may simply be the average return per period a security has earned in the past.

Expected rate of common stock is obtained by arithmetic mean of the past years return. Symbolically, E(R<sub>j</sub>) can be expressed as follows.

If probability is used

$$E(R_j) = \sum_{j=1}^n R_j \cdot P_j$$

When probability distribution is not given

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

Where,  $E(R_j)$  = expected rate of return of stock j

$R_j$  = returns of stock

$P_j$  = probability distribution of security j

### 3.5.8 PORTFOLIO RISK

Portfolio risk is measured by a statistical tool standard deviation and variance. It is a function of proportions invested in the components. A portfolio risk is a function of the proportions invested in the components, the riskiness of the components and the correlation of returns on the components securities.

The portfolio risk depends on both the variances of the individual securities and the covariance between the two securities. The variance of a security measures the variability of an individual security's return. Covariance measures the relationship between the two securities for given variances of the individual securities, a positive relationship or covariance between two securities increases the variance of the entire portfolio. A negative relationship or covariance between the two securities decreases the variance of the entire portfolio. If one of your securities tends to go up when the other goes down, or vice-versa, your two securities are offsetting each other. You are achieving what is called a hedge in finance and the risk of your entire portfolio will be low. However, if both your securities rise and fall together, you are not hedging at all. Hence, the risk of your entire portfolio will be higher.

The portfolio risk is

$$\sigma_p = \sqrt{W^2_A \sigma^2_B + W^2_B \sigma^2_A + 2COV(AB)W_A \cdot W_B}$$

$$\text{Or, } \sigma^2_P = W^2_A \sigma^2_A + W^2_B \sigma^2_B + 2\rho(AB)\sigma_A \sigma_B W_A W_B$$

Where,  $\sigma_P$  = standard deviation of portfolio's return

$W_A$  = proportion of investment in asset A

WB = proportion of investment in asset B

COVAB= Covariance of the return between asset A and asset B

$\rho_{AB}$  = Correlation co-efficient between asset A and asset B

### 3.5.9 COEFFICIENT OF VARIATION (CV)

Coefficient of variation is the ratio of the standard deviation to expected return expressed as percentage. The coefficient of variation measure of relative dispersion that is useful in comparing the risk of assets with differing expected return.

“Coefficient of variation is the “percentage variation in the mean”. It is relative measure of dispersion, so it is independent of units of measurement. It always express in percentage”. (Karl Pearson, 1999:56) CV is used to standardized the risk per unit of return i.e. measure the risk per rupee. The coefficient of variation should be used to compare investments when both the standard deviations and the expected values differ. A project with a low CV has less risk per rupee than a project with a high CV.

$$CVA = \frac{\sigma A}{E(RA)} \text{ or } = \frac{\text{Standard deviation of stock A}}{\text{Expected return of stock A}}$$

Here,  $\sigma$  = standard deviation of stock A

E(RA) = Expected return of stock A

CVA = Co-efficient variation of stock A

### 3.5.10 BETA PORTFOLIO ( $\beta_p$ )

Portfolio is the combination of two or more than two securities. Portfolio beta ( $\beta_p$ ) is the weighted average beta of total assets that are involved in a portfolio. A beta coefficient for a portfolio is the weighted average of all individual securities beta included in the beta. It is denoted as  $\beta_p$ .

$$\beta_p = W_A \beta_A + W_B \beta_B + \dots + W_n \beta_n$$

Here,  $\beta_p$  reflects the volatility of portfolio returns in response to the market return.

$\beta_p$  = portfolio beta coefficient

WA = Proportion of investment in asset A

WB = Proportion of investment in asset B

### 3.5.11 PORTIFOLIO RETURN (Rp)

Portfolio return is the weighted average of the expected returns on the individual securities. Return /profit is the outcome/output of the investment which will be expected every investors. Portfolio is the holding of securities and investment in financial assets i.e. bonds, stocks and others. The expected return on a portfolio, E(Rp) is the weighted average of the expected returns on the individual assets in the portfolio with the weights being the fraction of the total portfolio invested in each asset.

The return on a certain portfolio is calculated by using following formula.

$$R_p = \sum_{i=1}^n W_j R_j \quad \text{OR}$$

$$R_p = W_A E(R_A) + W_B E(R_B) + \dots + W_n E(R_n)$$

Where, Rp = Portfolio return of stocks or assets

Wj= weight of amount to be invested in stock j

n= The number of stocks in portfolio

E(RA)= The expected return of stock A

### 3.5.12 CORRELATION COEFFICIENT (rAB)

“A standardized statistical measure of the linear relationship between two variables; its range is from -1(perfect negative correlation) through zero (no correlation), to +1 perfect correlation”. (Van Horne and Wachowich, 1996:97)

The correlation is also measure the relationship between two assets. A project or investor can be reduced risk investing their assets in more than one asset. The risk diversification depends on the correlation between returns of securities.

The correlation coefficient is expressed as follows:

$$r_{AB} = \frac{COV(r_{AB})}{\sigma_A \sigma_B}$$

Here, rAB = Correlation between return of stock A and stock B

COV (rArB) = Covariance between return of stock A and stock B

σA= standard deviation(risk) of stock A

σB= standard deviation(risk)of stock B

The correlation coefficient will always lie between +1.0 and -1.0. If the correlation is positive, we can say that the variables are positively correlated. If it is negative, we say that they are negatively correlated and if it is zero, we say that they are uncorrelated.

- Perfectly positive correlation (+1)  
Risk cannot eliminate by diversification. Portfolio risk and return are linearly related.
- Positively negative correlation (-1)  
Total risk can be eliminated by diversification. Portfolio return increase and the portfolio risk decline as higher proportion than individual risk.
- Zero correlation (0)  
There is no relationship between the return of the securities, they are independent each other. In this condition, some risk can be reduced.
- Intermediate correlation between two securities,

i.e.  $\text{Cor}(AB) = \rho(AB) = 0.75, 0.50$

Most of the stocks are positively correlated but not perfectly. In this condition risk can be maximum diversified but not eliminate it completely.

### 3.5.13 MINIMUM VARIANCE PORTFOLIO

It is the portfolio with lowest level of risk and maximizing level of profit with efficient frontier. It shows optimal weight of portfolio minimizing overall risk as well as to earn more profit. It can be, for two asset case, calculated as follows;

$$W_A = \frac{\sigma^2_B - \text{COV}(AB)}{\sigma^2_A + \sigma^2_B - 2\text{COV}(AB)}$$

Here,  $W_A$  = Optimal weight to invest in asset A

$W_B = 1 - W_A$  = Optimal weight to invest in asset B

### 3.6 STATISTICAL TOOL

One of the important applications of statistical inference is 'Test of hypotheses'. In testing of hypothesis, on assumptions is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observed the difference between the sample mean and the hypothesized population value, and, test whether the difference is significant or

insignificant. Smaller the difference, the sample mean is close to the hypothesized value, and, larger the difference the hypothesized value has low chance to be correct. A tentative theory or supposition provisionally adopted to explain certain facts and to guide in the investigation of others (Webster). In simply, hypothesis means the presumption or quantitative statement of the population parameter which may be true or false.

All the listed companies in the NEPSE index are population of this study. The sample is selected from listed companies which are less than 30 (i.e.  $N < 30$ ). The small sample distribution is called 'student distribution' or 't-distribution'. The student's t-distribution states that if the sample size is less than or equal to 30 (i.e.  $n < 30$ ), then the sampling distribution of the sample mean follows student t-distribution. In this study, sample size is less than 30, so that t-test is the best way for testing the hypothesis. It is applied for hypothesis testing firstly to test whether there is any significant difference between average mean of selected listed companies with market portfolio or not. Here, the study has used two type of testing method like; t-test and one way ANOVA test.

Test of significance of single mean for small sample

Test of significance of difference between independent sample means.

The following steps are used in the test of significance of single mean.

### **3.6.1 HYPOTHESIS –ONE**

This first hypothesis tests the average return of the selected listed companies and market returns are equal or not.

#### **Step-1 Formulation of hypothesis**

Null hypothesis:  $H_0: R_s = R_m$  i.e. there is no significant differences between the average return of common stock of listed companies and overall market return.

Alternative hypothesis,  $H_1: R_s \neq R_m$  i.e. there is significant difference between the average return of the common stock of listed companies and overall market return.

#### **2 Level of significance ( $\alpha$ )**

Use level of significance ( $\alpha$ ) = 5%, unless otherwise stated.

#### **Step -3 Type of test**

Since  $n < 30$ , apply t-test.

#### **Step- 4 Test statistics**

Under  $H_0$ : test statistics is;

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

#### **Step -5 Table value**

The tabulated value of t at  $\alpha$  (Alfa) % level of significance for (n-1) degree of freedom (d.f) is obtained from table according as whether alternative hypothesis is two tailed test or one tailed test.

#### **Step- 6 Decision**

If  $t_{cal} < t_{tab}$  then  $H_0$  is accepted and  $H_1$  is rejected.

If  $t_{cal} > t_{tab}$  then  $H_1$  is accepted and  $H_0$  is rejected.

### **3.6.2 HYPOTHESIS- TWO**

This second hypothesis test the average beta coefficient of the stock selected listed companies and market beta is equal or not. This hypothesis two is based on the test of significance for single mean.

#### **Step-1 Formulation of Hypothesis:**

Null hypothesis ( $H_0$ ):  $X_b = \beta_m$  or  $X_b = 1$ , i.e. there is no significant different between the portfolio beta of selected listed companies stocks and market beta.

Alternative hypothesis ( $H_1$ ):  $X_b \neq \beta_m$  i.e. there is significant different between the portfolio betas of selected listed companies stocks and market beta.

#### **Step- 2 Level of Significance**

Use level of significance ( $\alpha$ ) =5%, unless otherwise stated.



### Step-3 Type of Test

Since  $n < 30$ , so apply t-test

### Step-4 Test Statistics

Under the  $H_0$ : the test statistic is:

$$t = \frac{Xb - \beta m}{\frac{S}{\sqrt{n}}}$$

### Step-5 Table values

The tabulated value of t at 5% level of significance for (d.f.) degree of freedom (n-1)

### Step- 6 Decision

If  $t_{cal} < t_{tab}$  then  $H_0$  is accepted and  $H_1$  is rejected.

If  $t_{cal} > t_{tab}$  then  $H_1$  is accepted and  $H_0$  is rejected.

Where,  $Xb$  = average beta of selected company's stock

$\beta m$  =beta coefficient of market

$S$  = Standard deviation of beta of common stocks

$n$  = number of observation

### 3.6.3 HYPOTHESIS THREE

This hypothesis test the expected annual return of the selected listed companies has equal return or not.

Step -1 Formulation of Hypothesis

Null Hypothesis ( $H_0$ ):  $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7 = \mu_8 = \mu_9$  i.e. there is no significant different between in average return of common stock of selected listed companies.

Alternative Hypothesis ( $H_1$ ):  $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5 \neq \mu_6 \neq \mu_7 \neq \mu_8 \neq \mu_9$  i.e. there is significant difference between in average return of common stock of selected listed companies.

### Step -2 level of Significance

Let's level of significance ( $\alpha$ ) = 5%

### Step-3 Test Statistics

Under  $H_0$ , the one way ANOVA table F-test statistics is;

$$F = \frac{MSC}{MSE}$$

### Step-4 Draw the one way ANOVA table

One way ANNOVA table

Sources of variation	Sum of squares	Degree of freedom	Mean sum of square	F-ratio
Between sample (treatments)	SSC	(K-1)	MSC= SSC/K-1	F=MSC/MSW
Within sample (errors)	SSW	(N-K)	MSW= SSW/N-K	
Total	SST	(N-1)		

#### Step-4.1

Calculate the total T of all observation in all K samples. Thus

$$T = \sum X_1 + \sum X_2 + \dots + \sum X_k$$

#### Step -4.2

Find the correction factor by using the formula.

$$\text{Correction factor} = T^2/N$$

**Step -4.3**

Calculate the sum square of all the values (or observations) in k samples and subtract the correction factor  $T^2/N$  from this sum to obtain the total sum of squares (SST). Thus

$$SST = \sum X^2_1 + \sum X^2_2 + \dots + \sum X^2_K - T^2/N$$

**Step- 4.4**

Find the square of the sum of the values of each sample and divided each such squared value by the numbers of values in the corresponding sample and then calculate the total of all the results thus obtained and subtract the correction factor from this total. This final result gives the sum of square of deviation between the samples.

$$SSC = [(\sum X_1)^2/n_1 + (\sum X_2)^2/n_2 + \dots + (\sum X_k)^2/n_k] - T^2/N$$

**Step- 4.5**

Calculate SSW i.e. the sum of the squares within the samples by subtracting SSC from SST. Thus

$$SSW = SST - SSC$$

**Step -4.6**

To prepare ANOVA table to compute F-Ratio

**Step -5** Critical values

The tabulated value F at 5% level of significance for (K-1) and (N-K) level degree of freedom (d.f) i.e.  $F_{0.05, (k-1) (n-k)}$ .

**Step -6** Decision

Since calculated value of F is greater than tabulated value of F, the null hypothesis  $H_0$  is rejected and hence the alternative hypothesis  $H_1$  is accepted.

## **CHAPTER-FOUR**

### **DATA PRESENTATION AND ANALYSIS**

It is remembered that the data presentation and analysis chapter is the main body of the study. It includes all the collected data and their interpretation. In this study the data of market price of the shares of selected companies, stock dividend, cash dividend, market risk, NEPSE Index, market return and many other elected terms are presented and analyzed on the background of various readings and literature review in the preceding chapter. This study tried to analyze and diagnose the recent Nepalese stock market movement with taking special reference of selected listed companies of Nepal. Tables and figures are used to make the result more simple and clear.

#### **4.1 ANALYSIS OF BANKS**

In this thesis paper only 10 listed companies are analyzed separately. In the other word 10 companies listed in NEPSE are taken as sample. Their MPS, DPS and other related data are presented in table and analysis is made accordingly MPS, DPS and other related data are presented in table and analysis is made accordingly using appropriate tools.

#### 4.1.1 NEPAL INVESTMENT BANK LIMITED (NIBL)

Nepal investment bank is a joint venture bank established in 1985A.D. with the name of Nepal Indosuez Bank. Par value and paid-up value per share is Rs 100. Its total issued shares are 24070690. Its central office is at Durbar Marg, Kathmandu. This company was listed in NEPSE in 1987A.D. The data of market price per share and dividend per share are presented in following table. (Capital Structure: Appendix-3)

Table 4.1

#### MPS AND DPS OF NIBL

Fiscal year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (Stock Dividend)
	High	Low	Closing	Cash	Stock	Total	
063/64	1760	950	1760	15	2.5:1	807.00	40%
064/65	2856	1340	1980	25	2.23:1	817.00	45%
065/66	2730	1119	1760	12	2.296:1	404.04	43.56%
066/67	2300	1852	1495	15	2.236:1	712.67	46%
067/68	2563	1925	1560	18	2.322:1	625.23	44%

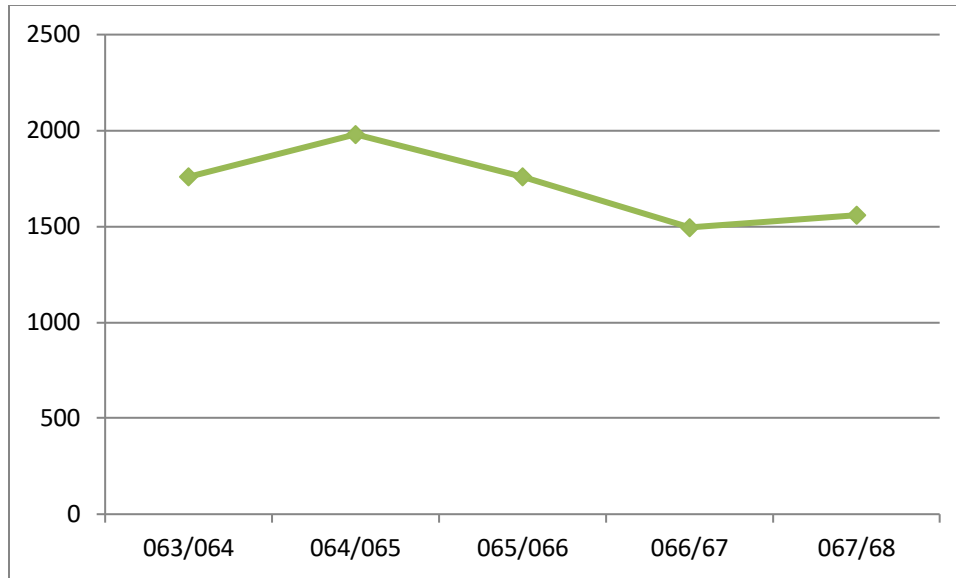
(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

Total dividend = cash dividend + next year market price x stock dividend

diagram 4.1

#### Annual market price movement of NIBL

MPS



### Fiscal Year

According to the diagram no. 4.1, the annual price movement of common stock of NIB in the fiscal year 2062/63 to fiscal year 2064/2065 is increasing after then it is decreasing. The lowest market price and highest market price of NIBL are Rs. 1560 and Rs. 1980 in the fiscal year 2064/65 and 2067/68 respectively.

Table 4.2

### Realized return , Expected Return, standard deviation and coefficient of variation of NIBL

Fiscal year	Closing price (MPS) (Rs.)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E] <sup>2</sup>
063/64	1760.0000	740.0000	0.9595	-0.5135	0.2637
064/65	1980.0000	574.2200	0.7491	-0.3031	0.0919
065/66	1760.0000	174.8000	-0.3621	0.8081	0.6530
066/67	1495.0000	166.0000	-0.3725	0.8185	0.6699
067/68	1560.0000	195.5500	0.0263	0.4197	0.1761
			$\Sigma R = 2.23$		$\Sigma [R - E]^2 = 1.8546$

(Source: Table 4.1 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{2.23}{5} = 0.4460$$

$$= 0.4460 * 100 = 44.60\%$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R - E(R))^2}{N - 1}} = \sqrt{\frac{1.8546}{5 - 1}} = 0.6808$$

$$= 0.6808 * 100 = 68.08\%$$

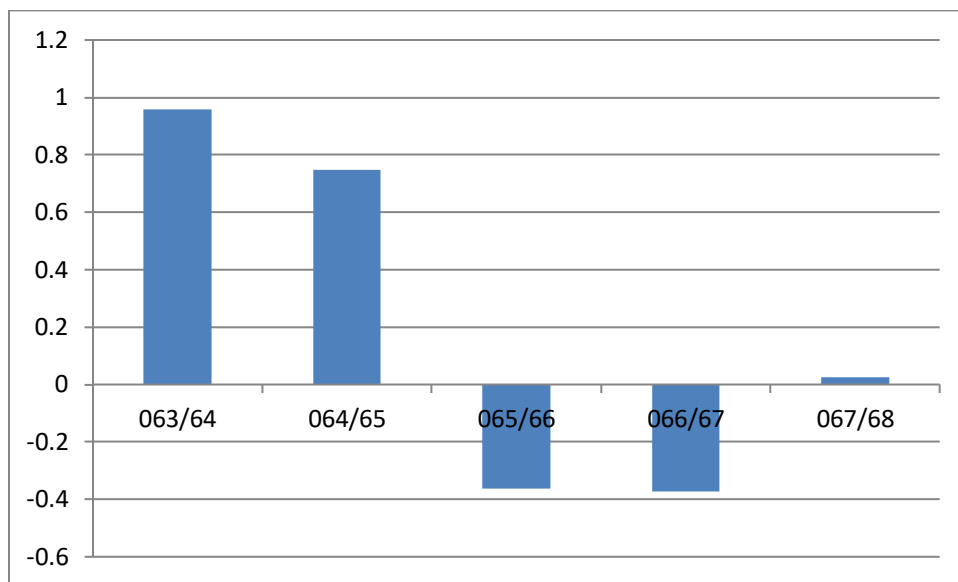
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.6808}{0.4460} = 1.5264$$

The risk and return of NIBL are 68.08% and 44.60% respectively. It shows that the return of NIBL has greater than risk or standard deviation. Coefficient variation if NIBL is 1.5264, it reflects that an investor has to bear risk of 1.5264 units to earn 1 unit of profit.

Diagram 4.2

**Annual return of common stock of NIBL**

**Return**



**Fiscal Year**

From diagram number 4.2, it is seen that the maximum return of common stock of NIBL is 0.9595 in the fiscal year 2063/2064 and the minimum return of common stock is become negative in the fiscal year 2065/2066 which is -0.3621. Annual return trend is decreasing in fiscal year 2063/2064 up to 2064/2065 and then negative trend up to fiscal year 2066/067 and after that it started to positive.

#### 4.1.2 NEPAL SBI BANK LIMITED (SBI)

Nepal SBI Bank was established under the commercial bank act 2031, in 2050 BS. The central office of the bank is at Durbar Marga, Kathmandu. Nepal SBI bank was listed its share on Nepal stock exchange in 2051/03/10 (17/01/1995 AD). Total numbers of shareholders are 8745280 on the date of 10/02/2012. (Capital Structure: Appendix-3)

Table .4.3

#### MPSAND DPS DATA OF SBI BANK LIMITED

Fiscal year	Market price per share			Dividend per share			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/064	1176	505	1176	12.59	2.1:1	731.67	47.59%
064/065	2660	1000	1511	-	2.375:1	-	42.11%
065/066	1938	1050	1900	2.11	2.375:1	295.61	32.5%
066/67	755	742	742	10	2.6	295.38	33.5%
067/68	602	588	588	11	2.1	291	30%

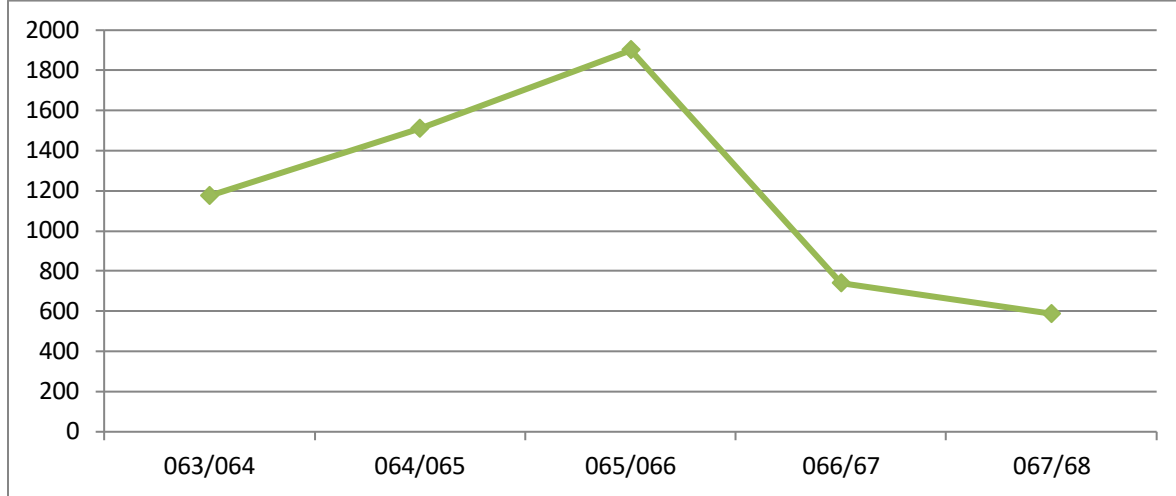
(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )



Diagram .4.3

**Annual market price movement of common stock of SBI**

**MPS**



**Fiscal Year**

From the diagram no.4.3 the highest market price and lowest market price of common stock of selected companies are Rs 1900 and Rs307 of SBI respectively. The trend of market price is consistently increasing from year 060/061 to 2065/2066 upwards.

In the figure 4.4 the annual return is increasing trend in year 2060/2061 to 2063/2064 then after comes down in year 064/065 and slowly start to increase in 2065/2066. In the fiscal year 2063/064 SIB have highest annual return and in year 061/062 is lowest than other fiscal year.

Table 4.4

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of SBI**

Fiscal year	Closing MPS(Rs)	Total dividend(Rs.)	R = $\frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)] -	[R-E(R)] <sup>2</sup>
063/064	1176	731.67	2.1171	-1.4560	2.1200

064/065	1511	-	0.2848	0.3763	0.1416
065/066	1900	295.61	0.453	0.2081	0.0433
066/67	742	295.38	0.1905	0.4705	0.2214
067/68	588	291	0.2600	0.4011	0.1609
Total			$\sum R=3.31$		$\sum(R-R)^2= 2.6872$

(Source: Table 4.3 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{3.31}{5} = 0.6611 \text{ or } 66.11\%$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R-E(R))^2}{N-1}} = \sqrt{\frac{2.6872}{5-4}} = 0.8196 \text{ or } 81.96\%$$

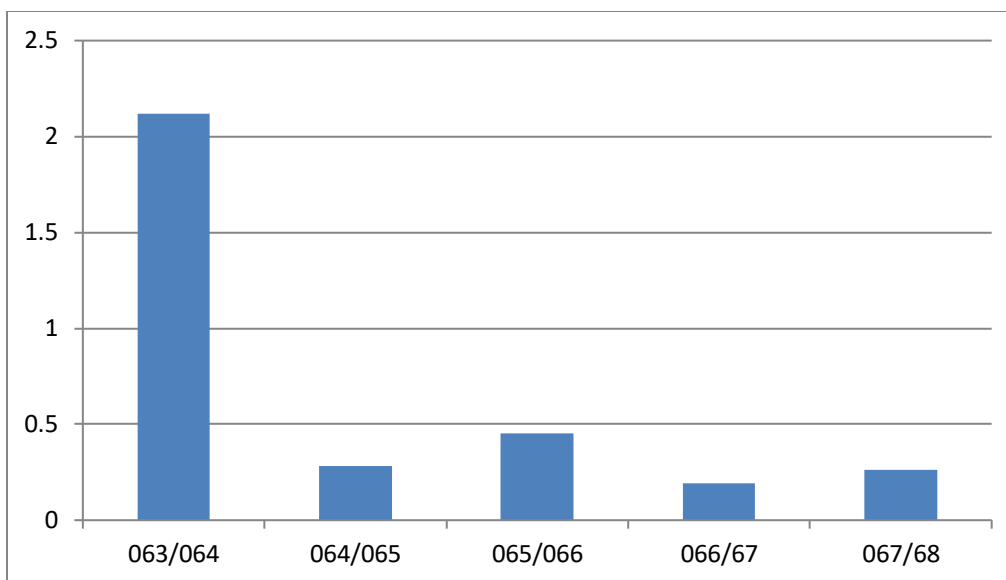
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.8196}{0.6611} = 1.2398 \text{ or } 123.98\%$$

Expected return of common stock of SBI is 0.6611 or 66.11% and its risk is 81.96%. The coefficient of variation is greater than 1 unit; therefore an investor has to bear risk of 1.2398 units to earn the return of 1 extra unit.

Diagram 4.4

### Annual return of common stock of SBI

**Rj**



### Fiscal Year

It is seen that maximum return obtained is 2.1171 or 211.71% in the fiscal year 2063/64 but later then it is ridiculous because the high decreased in return came down to 28.48% in the fiscal year 2064/65. Fiscal year 2065/66 has brought improved in return by 0.1682 or 16.82%. Similarly, in the fiscal year 2066/67 again return down and up in the fiscal year 2067/68.

### 4.1.3 HIMALAYAN BANK LIMITED (HBL)

Himalayan bank limited is a joint venture bank established under the company act of Nepal. Its head office of Nepal is located in Karmachari Sanchaya Kosh Building on the way of Tridevi Marg of Thamel. The bank was incorporated in 1992A.D.and was listed in the NEPSE in 1993. Himalayan Bank was established in 1993 in joint venture with Habib Bank Limited of Pakistan. 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. (Capital Structure: Appendix-3)

Table 4.5

### MPS, DPS AND EPS OF HIMALAYAN BANK LIMITED (HBL)

Fiscal year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (Stock Dividend)
	High	Low	Closing	Cash	Stock	Total	

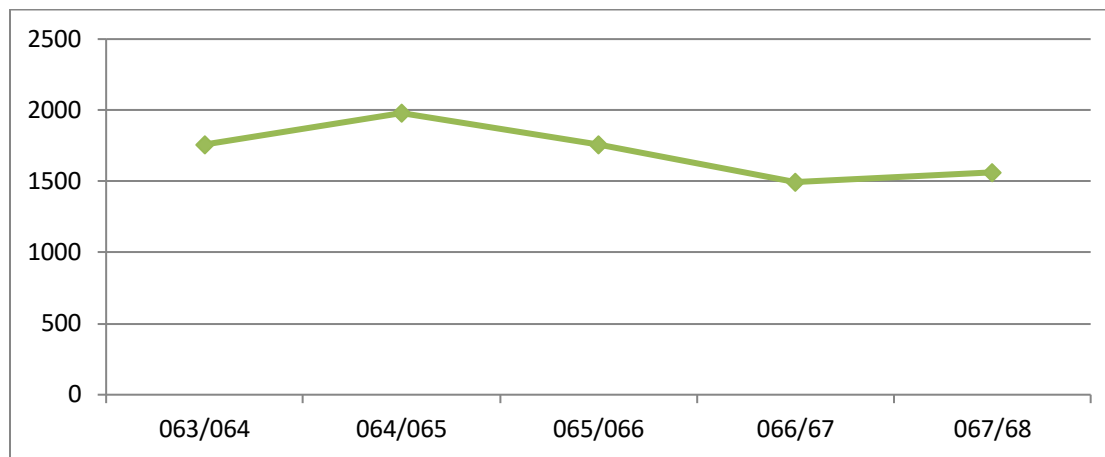
063/64	1760	950	1760	15	2.5:1	807.00	40%
064/65	2856	1340	1980	25	2.23:1	817.00	45%
065/66	2730	1119	1760	12	2.296:1	404.04	43.56%
066/67	2300	1852	1495	15	2.236:1	712.67	46%
067/68	2563	1925	1560	18	2.322:1	625.23	44%

(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

Diagram 4.5

**Annual market price movement of common stock of HBL**

**MPS**



**Fiscal Year**

In the figure or diagram no 4.5, price movement chart, it is clear that the share price of HBL slowly increase in the fiscal year 2062/063 to 2064/065, after that it is decreasing up to the fiscal year 2066/067. After the fiscal year 2066/067, it started to increase. Fiscal year 2064/2065 has highest market price of Rs1980 and fiscal year 2066/067 has the lowest market price of Rs. 1495.

Table 4.6

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of HBL**

Fiscal year	Closing price (MPS)	Total dividend	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E] <sup>2</sup>

063/64	1760	807.00	0.9595	-0.4798	0.2302
064/65	1980	817.00	0.7491	-0.2694	0.0726
065/66	1760	404.04	-0.3621	0.8419	0.7087
066/67	1495	712.67	0.5905	-0.1108	0.0123
067/68	1560	625.23	0.4617	0.0180	0.0003
			$\Sigma R=2.3987$		$\Sigma[R-E]^2=1.0241$

(Source: Table 4.5 and Appendix-4)

$$\text{Expected Rate of Return } E(R) = \sqrt{\frac{\Sigma(R)}{N}} = \sqrt{\frac{2.3987}{5}} = 0.4797 \text{ or } 47.97\%$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{\Sigma[R-E]^2}{N-1}} = \sqrt{\frac{1.0241}{5-1}} = 0.5060 \text{ } 50.60\%$$

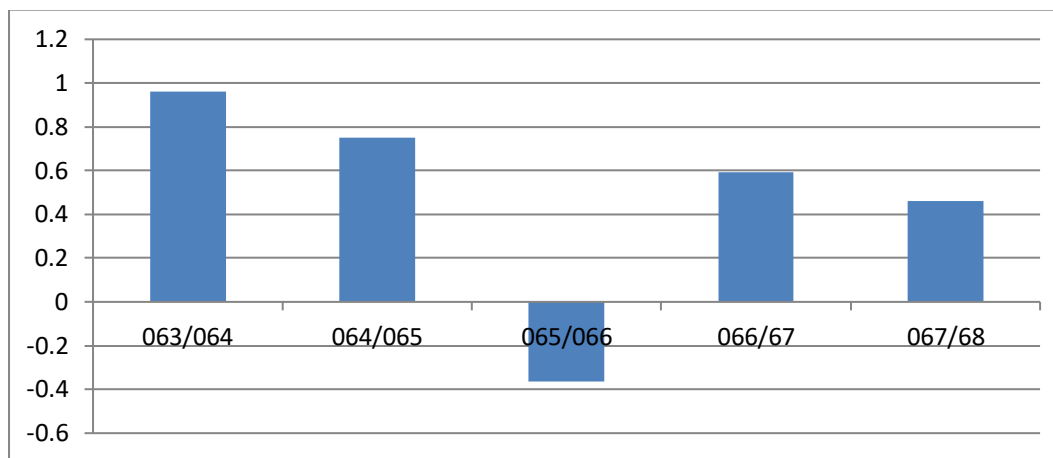
$$\text{Coefficient of Variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.5060}{0.4797} = 1.0548$$

The expected return and standard deviation or risk of the HBL is 47.97%, 50.60% respectively. Coefficient of variation is 1.0548. It shows that an investor have to faced 1.0548 unit of risk to earn 1unit of return. On the other word, an investor has to bear 105.48%risk to earn 100% profit which refers that the profit is less than return and it is the sign of taking off investment.

Diagram 4.6

**Annual return of common stock of HBL**

**Rj**



**Fiscal Year**

In the figure no.4.6 clearly shows that the return of common stock of HBL has positive given the almost fiscal year. In the first two fiscal years; 063/064 and 2064/065 and then it is letting negative return. HBL performance is good for the first two years but its performance seen sluggish for the third year but after that it recovering and again it is decreased.

#### 4.1.4 EVEREST BANK LIMITED (EBL)

Everest bank was established in 2049 B.S. and it was listed in the NEPSE in 12-25-2052 B.S. EBL's head office is situated on EBL House Ljimpat in Kathmandu. (Capital Structure: Appendix-3)

Table 4.7

#### MPS, DPS AND EPS OF EVEREST BANK LIMITED

Fiscal Year	Market price per share			Dividend per share			Remark (Stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/64	2430	1100	2430	10	3.333:1	949.6	30%
064/65	3195	1804	3132	20	3.333;1	756.5	30%
065/66	3672	1855	2455	30	3.333:1	510	30%
066/67	3665	1852	2458	35	3.333:1	754.47	30%
067/68	3255	1798	2398	37	3.333:1	756.54	30%

(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

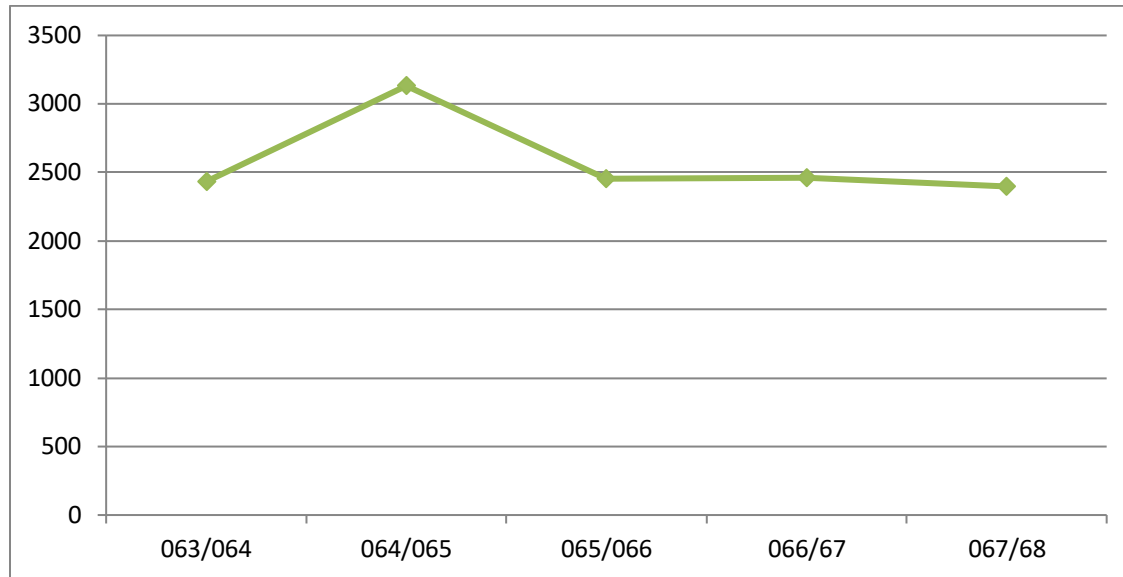
According to the diagram 4.7, annual stock price movement of EBL is first increasingly in the upward manner in the fiscal year 2062/2063 to 2064/2065 and decrease in the year 2065/2066 and again in the next year it is slightly increased and then it is decreasing. The highest market

price of EBL is Rs. 3132 and lowest price is Rs. 1379 in fiscal year 2065/2066 and 2060/2061 respectively.

Diagram 4.7

**Annual market price movement of common stock of EBL**

**MPS**



**Fiscal Year**

Table .4.8

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of**

**EBL**

Fiscal year	Closing MPS(Rs)	Total dividend	$R = \frac{(P_{t+1} - P_t)}{P_t}$	(R-R)	(R-R) <sup>2</sup>
063/64	2430	949.6	1.4507	-0.9887	0.9776
064/65	3132	756.5	0.6002	-0.1382	0.0191
065/66	2455	510	-0.3330	0.7950	0.6320
066/67	2458	754.47	0.3085	0.1535	0.0235

067/68	2398	756.54	0.2834	0.1786	0.0319
Total			2.3098		1.6841

(Source: Table 4.7 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{2.3098}{5} = 0.4620 \text{ or } 46.20\%$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R-E(R))^2}{N-1}} = \sqrt{\frac{1.6841}{5-1}} = 0.6488 \text{ or } 64.88\%$$

$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.6488}{0.4620} = 1.4043$$

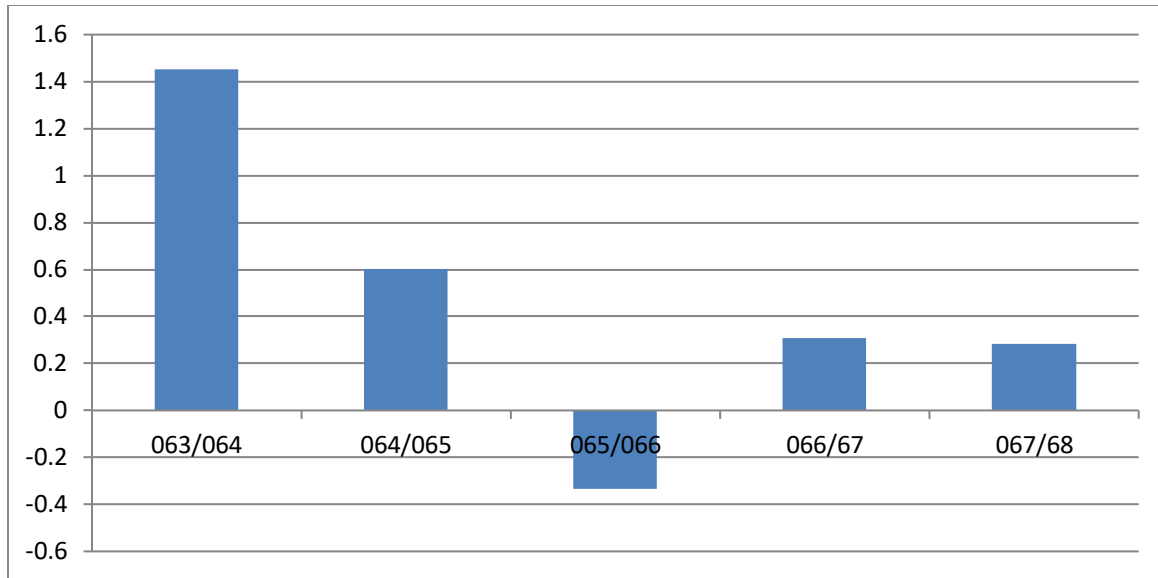
Here, the expected return and risk or standard deviation of common stock of EBL are 46.20% and 64.88% respectively. The coefficient of variation of Everest Bank Limited (EBL) is 1.4043 which indicates that an investor has to bear 1.4043 units of risk to earn 1 unit of risk.

Diagram 4.8

**Annual return of common stock of EBL**

**R<sub>j</sub>**





### **Fiscal Year**

In the above figure it is seen that the return of the fiscal year 2063/2064 has highest return of 145.07% and the year 2065/2066 has negative return of -33.30%. The trend of annual return of EBL is highest percentage growth in the year 2063/2064 than other fiscal year. Fiscal year 2065/2066 has negative annual return.

### **4.1.5 INTERNATIONAL LEASING AND FINANCE (ILF)**

International leasing and finance (ILF) was initially established as a joint venture finance company with the Korean Industrial leasing company pvt. Ltd. KILC which was founded as a subsidiary of the Korea Development Bank in 1972. Its head office in Nepal is situated in Kathmandu, New Baneshwor.

Table 4.9

### **MPS, DPS AND EPS OF ILFC**

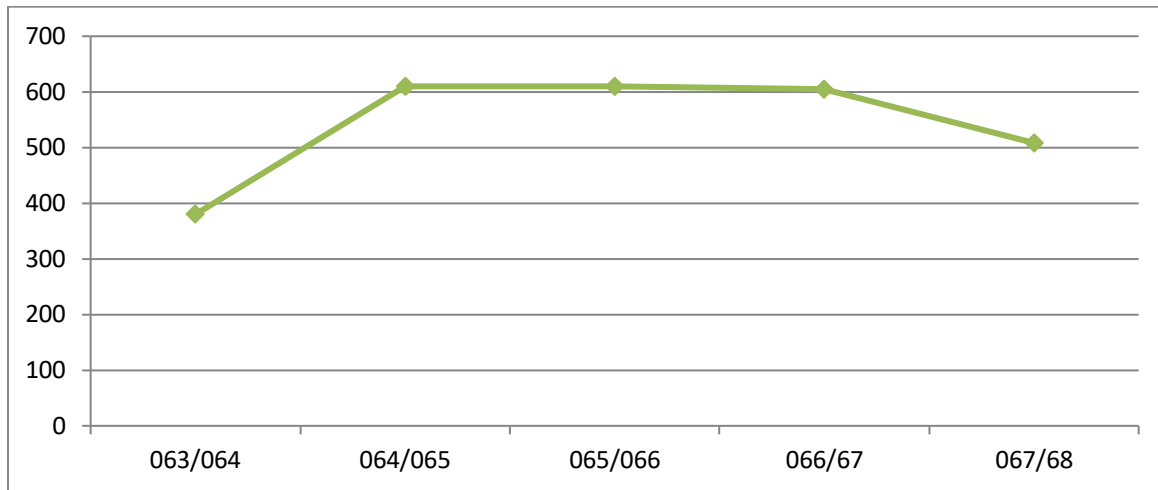
Fiscal year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/64	405	135	380	1.06	4.75:1	129.52	-
064/65	2000	380	610	-	-	-	21.06%
065/66	826	455	610	26.32	3.799:1	80.27	26.32%
066/67	605	605	605	30	4.239:1	149.84	30%
067/68	580	556	508	38	4.368:1	152.83	38%
Total							

(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

Diagram 4.9

**Annual market price movement of common stock of ILFC**

**MPS**



**Fiscal Year**

The diagram no. 4.9, annual market price movement of common stock of ILFC slowly increasing in fiscal year 2062/2063 to 2064/2065 and remains same the market price in fiscal year

2064/2065 and 2065/2066. And started to decrease in the fiscal year 2066/2067 to the fiscal year 2067/2068.

Table 4.10

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of ILFC**

Fiscal Year	Closing MPS (Rs.)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
063/064	380	129.52	2.4660	-1.7595	3.0959
064/065	610	-	0.6052	0.1013	0.0103
065/066	610	80.27	0.1315	0.5750	0.3306
066/67	605	149.84	0.2374	0.4690	0.2200
067/68	508	152.83	0.0923	0.6142	0.3772
Total			$\sum R = 3.5324$		$\sum (R - E(R))^2 = 4.0340$

(Source: Table 4.9 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{3.5324}{5} = 0.7065$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R - E(R))^2}{N - 1}} = \sqrt{\frac{4.0340}{5 - 1}} = 1.0042$$

$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{1.0042}{0.7065} = 1.4200$$

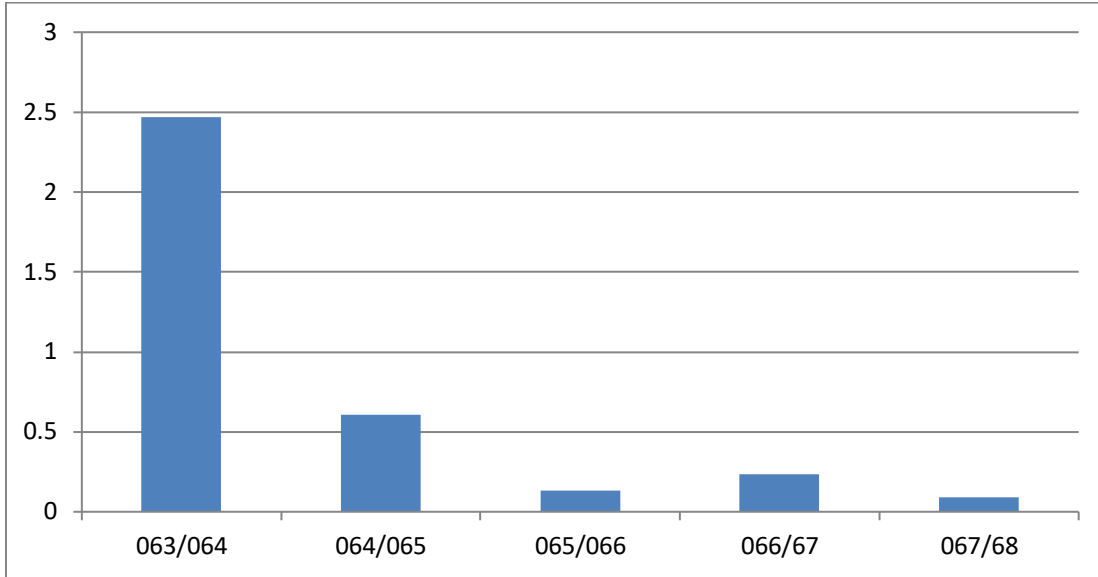
According to the figure No.4.10, the annual return of ILFC has greater in fiscal year 2067/2068 and lowest annual return in fiscal year 2067/2068 246.60% and 9.23% respectively. The trend of annual return of ILFC is increasing year 2062/2063 to 2063/2064 and then trend has been changed into decreased.

From above calculation it is found that the return of the common stock of ILFC is 0.7065 or 70.65% whereas risk of ILFC is 1.0042 i.e. 100.42%. The coefficient of variation is 1.4200 which shows that to earn 1 more unit return an investor has to bear 1.4200 unit of the risk.

Diagram 4.10

**Annual return of common stock of ILFC**

Rj



**Fiscal Year**

**4.1.6 KATHMANDU FINANCE LIMITED (KFL)**

Kathmandu Finance Limited (KFL) was established in 1994 A.D. (2051 B.S). Since 12 years of it's experienced in financial sector and the main objective has done lot of good deeds on the field of depositors, lenders and investors. Central office of this company is at Dillibazar-Radhemarg, Kathmandu. (Capital Structure: Appendix-3)

Table 4.11

**MPS AND DPS OF KATHMANDU FINANCE LIMITED (KFL)**

Fiscal year	Market price per share (Rs)			Dividend per share (Rs)			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/064	204	140	203	0.79	6.667:1	43.54	15%
064/065	285	213	285	-	-	-	

065/066	525	290	326	5	6.667:1	33.2	10%
066/67	620	605	620	9	7:1	93.15	15%
067/68	589	580	589	10.5	6.681:1	70.50	17%

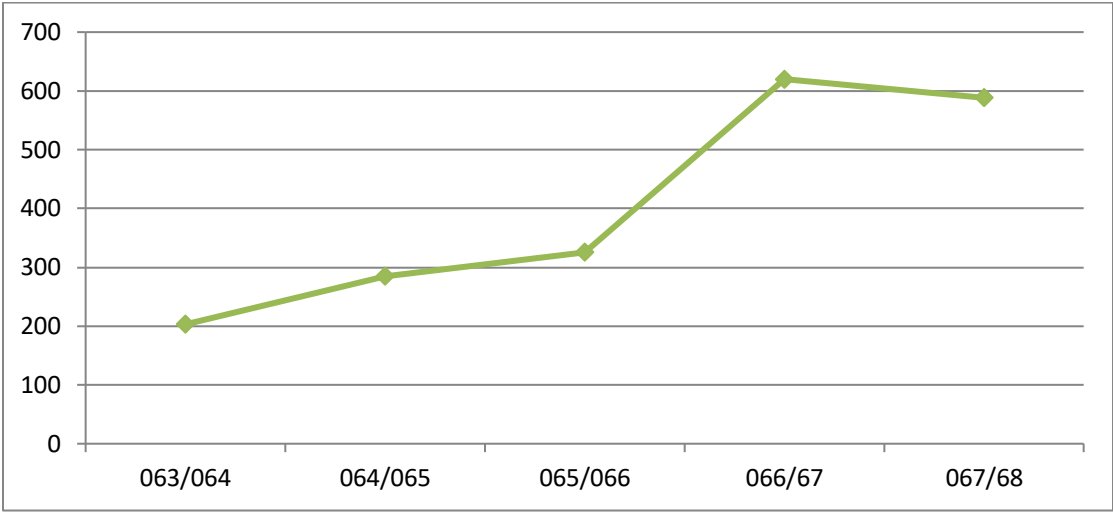
(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

In the diagram no.4.11, the market price movement chart, it is clear that the price trend of share of KFL is increasing from the fiscal year 2063/2064 to fiscal year 2066/2067 and decreased in the fiscal year 2067/2068 but not less than the back years of 2066/67.

Diagram 4.11

**Annual market price movement of common stock of KFL**

**MPS**



**Fiscal Year**

From the figure No.4.12, it is seen that the annual return of common stock of KFCL is highest in the fiscal year 2066/2067, 118.76%. The annual return of KFCL is decreasing from the fiscal year 2062/2063 up to 2065/2066 and then dramatically increased after the following years 2064/2065 and 2065/2066.

Table 4.12

**Realized return (R), Expected Return(R), standard deviation and coefficient variation of KFL**

Fiscal year	Closing MPS(Rs)	Total dividend (Rs)	R = $\frac{(P_{t+1} - P_t)}{P_t}$	(R-R)	(R-R) <sup>2</sup>
062/063	140	10	0.0869		
063/064	203	43.54	0.7610	-0.2057	0.0423
064/065	285	-	0.4039	0.1514	0.0229
065/066	326	33.2	0.2603	0.2950	0.0870
066/67	620	93.15	1.1876	-0.6323	0.3998
067/68	589	70.5	0.1637	0.3916	0.1533
Total			$\sum R=2.7765$		$\sum(R-R)^2=0.7054$

(Source: Table4.11 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{2.7765}{5} = 0.5553$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R-E(R))^2}{N-1}} = \sqrt{\frac{0.7054}{5-1}} = 0.4199$$

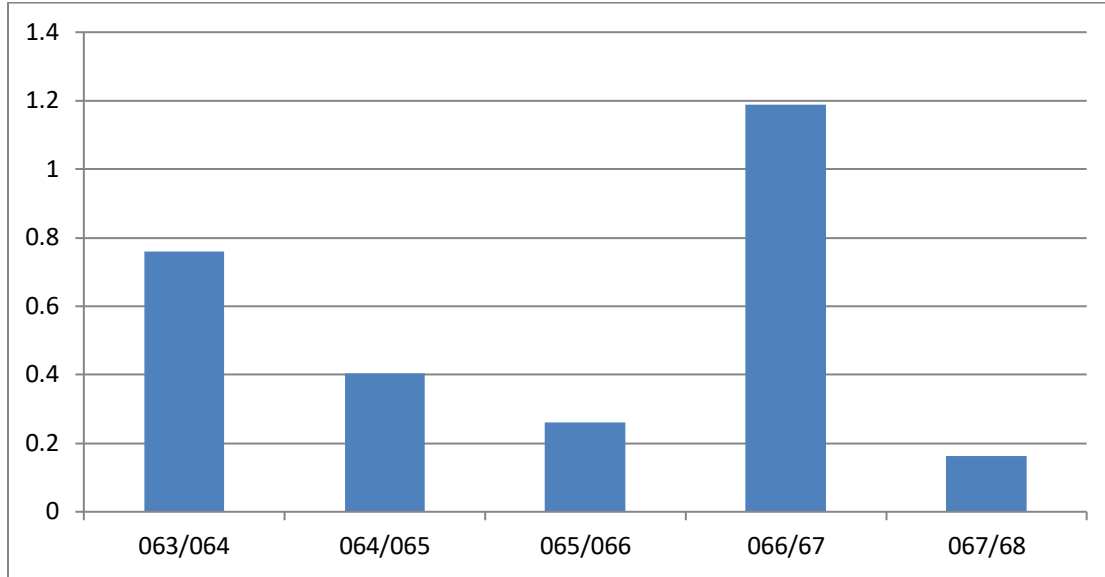
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.4199}{0.5553} = 0.7562$$

The expected return and risk of the Katmandu Finance company Limited (KFCL) are 55.53% and 41.99% respectively. Coefficient variation (CV) of KF is 0.7562; it means that to earn extra 1 unit an investor has to bear 0.7562 units of risk. So that investment of common stock of KFL is more risky job.

Diagram 4.12

**Annual return of common stock of KFC**

**Rj**



**Fiscal Year**

**4.1.7 LUMBANI FINANCE LIMITED (LFL)**

Lumbini Finance & Leasing Company Ltd. commonly known as LFC is a public limited Finance and Leasing Company promoted by a group of highly committed and innovative persons. Its main office is located in the way of Tridevi Marg Thamel. The company has the right combination of dedicated service-oriented staffs for which one can always trust for an excellent service. It is registered in the Ministry of Industry and has obtained license from Nepal Rastra Bank (Central Bank of Nepal) under the section 6(A) of Finance Companies Act 2042. LFC is operating its business as per the guidelines of Nepal Rastra Bank, provisions of Finance companies Act 2042, companies ACT 2053 and other related Nepalese law. LFC has started its operation from 12/03/052 and has shown a very encouraging trend in its nine years of operation.

Table 4.13

**MPS, DPS AND EPS OF LFL**

Fiscal year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/064	164	115	163	0.26	2:1	142.76	50%
064/065	285	160	285	-	1.9:1	295.25	52.63%
065/066	668	299	561	1.81	2.908:1	103.91	34.38%
066/67	250	250	250	3.5	3.567:1	88.73	30%
067/68	305	302	304	2.5	2.45:1	75.73	25%

(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

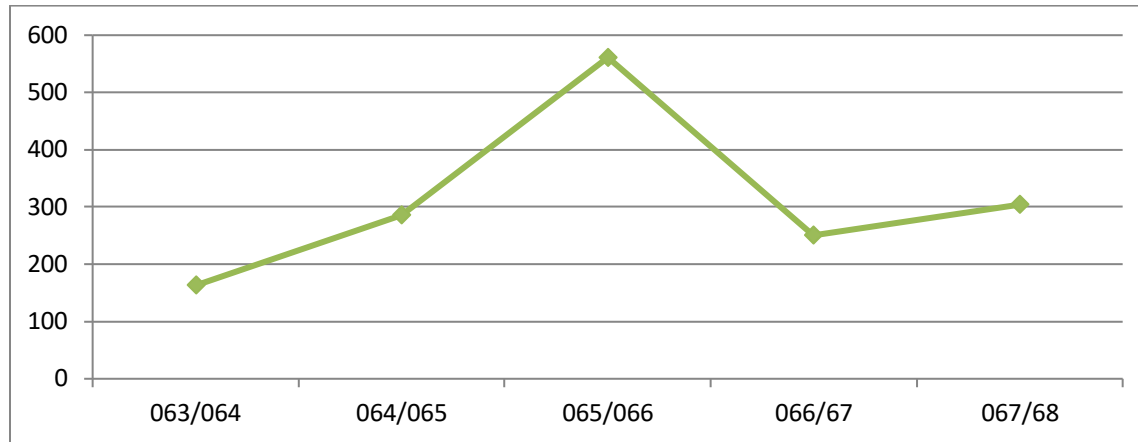
The diagram 4.13 shows that annual market price movement of common stock of LFL is increasing trend from the fiscal year 2062/2063 to 2065/2066. After the fiscal year 2065/2066 it is decreasing but in a decreasing rate compare with increasing rate of the previous year. The highest market price of LFL is Rs. 561 and lowest market price is Rs. 94 in the fiscal year 2065/2066 and 2062/2063 respectively.



Diagram 4.13

**Annual market price movement of common stock of LFL**

**MPS**



**Fiscal Year**

The diagram No.4.14, annual return is maximum in the fiscal year 2063/2064 and the negative in the fiscal year 2060/2062. Fiscal year 2060/2061 have zero annual return of Lumbini Finance Limited. The highest annual return and lowest annual return are 1.658 and 0 (zero) respectively in the fiscal year 2063/2064 and 2060/2061.

Table 4.14

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of LFL**

Fiscal year	Closing MPS(Rs)	Total dividend (Rs)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
063/064	163	142.76	1.6588	-0.5239	0.2745
064/065	285	295.25	2.5598	-1.4249	2.0305
065/066	561	103.92	1.3331	-0.1982	0.0393
066/67	250	88.73	-0.3962	1.5311	2.3442
067/68	304	75.73	0.5189	0.6160	0.3794
Total			$\sum R=5.6744$		$\sum (R-E(R))^2=5.0678$

(Source: Table 4.13 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{5.6744}{5} = 1.1349$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum(R - E(R))^2}{N-1}} = \sqrt{\frac{5.0678}{5-1}} = 1.1256$$

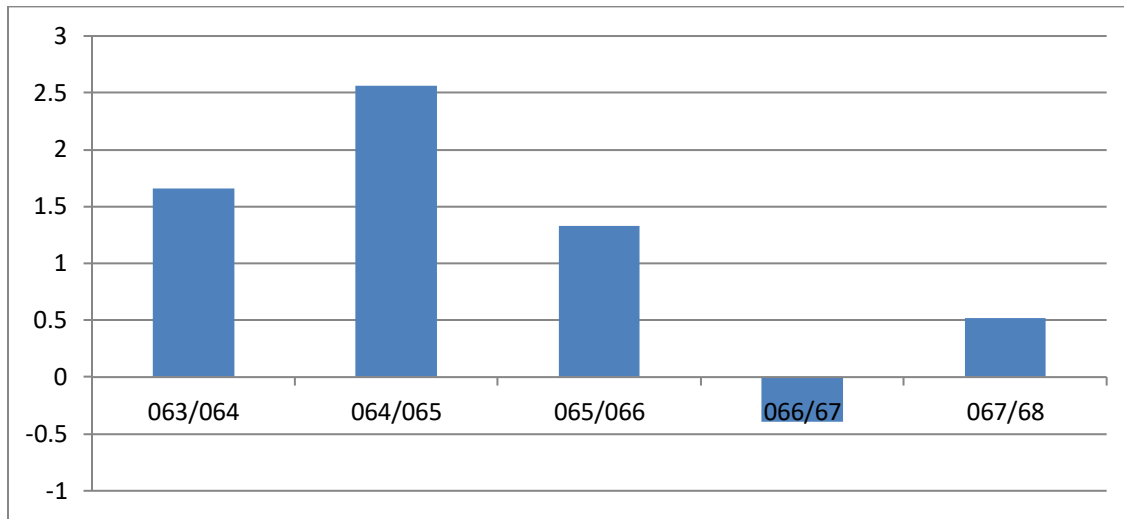
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{1.1256}{1.1349} = 0.9918$$

From table no. 4.14, after the calculation of risk and return of LFL it is found that the risk and return of LFL has more deviations. The risk and expected return of LFL is 112.56% and 113.49%. The coefficient (CV) of LFL is 0.9918; it means an investor has to bear risk of 0.9918 units for earning the return of 1 extra unit.

Diagram 4.14

**Annual return of common stock of LFL**

**R<sub>j</sub>**



**Fiscal Year**

**4.1.8 ACE DEVELOPMENT BANK LIMITED (ACEDBL)**

Ace Development Bank from Ace Finance Company Ltd., since inception in August 1995, has been a leading player in the financial market in Nepal. Over the past decade, which make

Ace the first development bank that uplift from finance company. (Capital Structure: Appendix-3).

In the diagram 4.15 the market price of stock of ACE Development Bank Limited has maximum in the fiscal year 2064/2065 and minimum market price is of Rs 173 in the fiscal year 2060/2061. The trend of market price movement is increasingly up to year 2060/2061 to 2064/2065 and decrease in the year 2065/2066.

Table 4.15  
**MPS, DPS AND EPS OF ACDDBL**

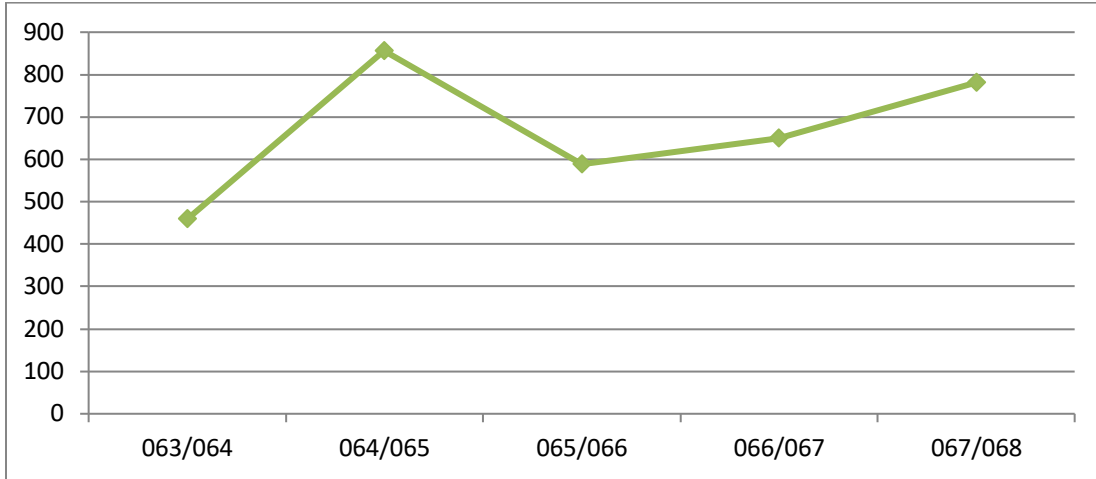
Fiscal Year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/064	525	320	459	5.26	19.011:1	50.28	5.26%
064/065	1519	500	856	0.53	9.497:1	62.45	10.53%
065/066	1476	465	588	5.5	-	5.5	-
066/67	280	280	650	6.5	8.651:1	96.6630	25.3261%
067/68	148	148	780	6.4	8.562:1	97.3256	27.325%

(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

Diagram 4.15

**Annual market price movement of common stock of ACEDBL**

**MPS**



**Fiscal Year**

Table 4.16

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of ACEDBL**

Fiscal year	Closing MPS(Rs)	Total dividend (Rs.)	$R = \frac{(Pt+1 - Pt)}{Pt}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
063/064	459	50.2800	0.5915	-0.2104	0.0443
064/065	856	62.4500	1.0009	-0.6198	0.3842
065/066	588	5.5000	-0.3066	0.6877	0.4729
066/067	650	96.6630	0.2698	0.1112	0.0124
067/068	780	97.3256	0.3497	0.0313	0.0010
Total			$\sum R = 1.9054$		$\sum (R - E(R))^2 = 0.9147$

(Source: Table 4.15 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{1.9054}{5} = 0.3811$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R - E(R))^2}{N - 1}} = \sqrt{\frac{0.9147}{5 - 1}} = 0.4782$$

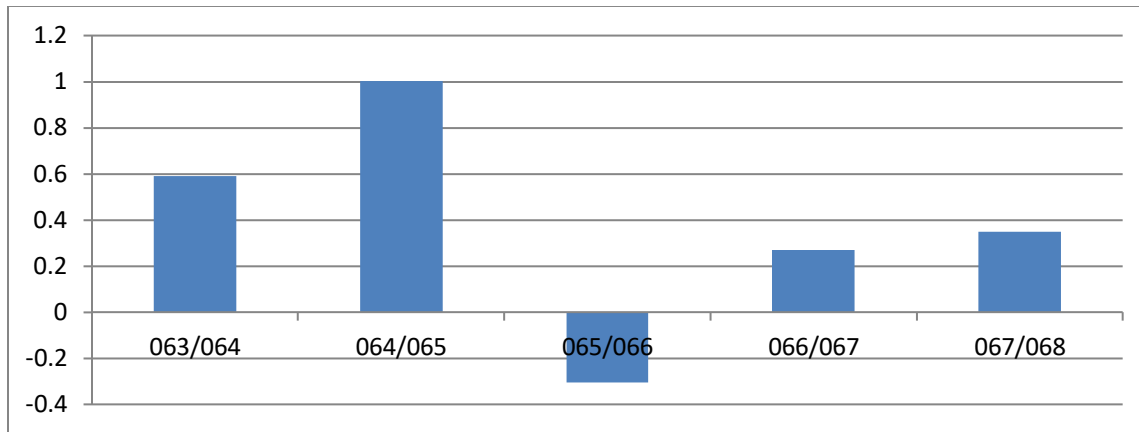
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.4782}{0.3811} = 1.25848$$

The table 4.16 shows that the ACEDBL's expected rate of return and standard deviation are 38.11% and 47.82% respectively. The risk of ACEDBL is pretty higher than return. Its coefficient of variation is 1.2548; it clearly shows that to earn 100% return will bear 125.48% risk in an investment. It shows that to invest on common stock of ADBL's is risky.

Diagram 4.16

**Annual return of common stock of ACEDBL**

**Rj**



**Fiscal Year**

In the figure or diagram No, 4.16, it seen that the annual return of ADBL is negative in the year 2065/2066 which is -30.66% because in this year the stock dividend was not provided. The highest return of ADBL is 100.09% in the fiscal year 2064/2065. The diagram represents the clear picture of return of ACE Development Bank. In this condition the bank have to use effectively internal and external resources to sustain for future and make more profit.

**4.1.9 PASCHHIMANCHAL DEVELOPMENT BANK LIMITED (PDBL)**

Paschimanchal Development Bank Limited got permission from the Nepal Rastra Bank since i.e. 18th Chaitra 2059 for performing financial related business. The banking transaction was started from 20th Chitra 2059. The objective of this bank is to provide the benefits or services to the

common citizens. Private banking like PDB is possible because of the economic globalization policy taken by the government of Nepal. (Capital Structure: Appendix-3).

Table 4.17

**MPS, DPS AND EPS OF PDBL**

Fiscal year	Market price per share (Rs.)			Dividend per share (Rs.)			Remark (stock dividend)
	High	Low	Closing	Cash	Stock	Total	
063/064	140	105	132	0.6	8.361:1	61.7	11.96%
064/065	511	132	511	5	-	5	-
065/066	1111	521	780	-	10:1	68	10%
066/67	680	680	680	4	8.123:1	72.9400	12%
067/68	790	785	560	3	9.235:1	96.0235	11%

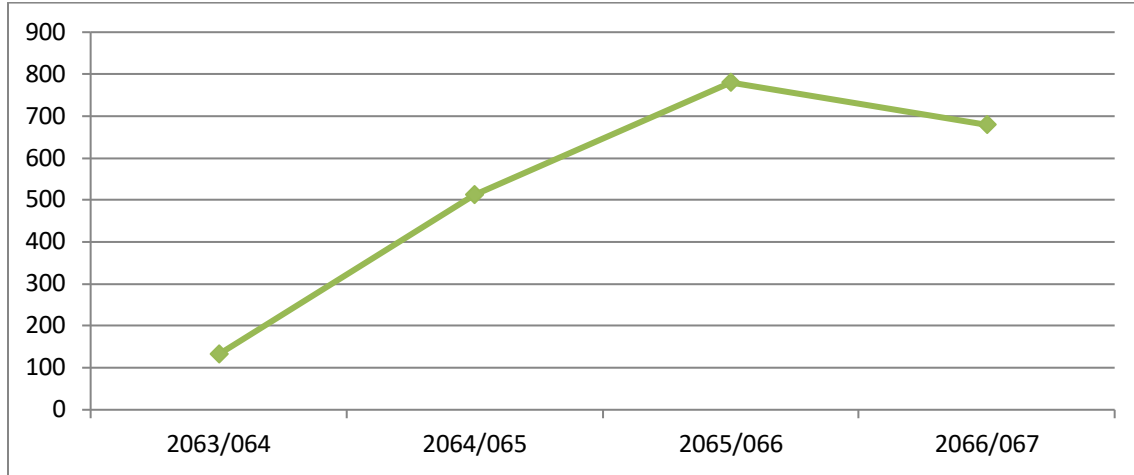
(Source: <http://www.nepalstock.com/companydetail.php?SB=NABIL#> and [http://www.sebon.gov.np/sebon/publications/annual\\_report.aspx](http://www.sebon.gov.np/sebon/publications/annual_report.aspx) )

From the figure No.4.17, the stock price movement of Pshimanchal Development Bank Limited tends to grow slowly in the first fiscal year 2062/2063 to 2065/2066. The fiscal year 2063/2064 has a little decrease in stock market price of PDBL. The stock market price of PDBL has increasing in the fiscal year 2064/2065 and 2065/2066, but it is decreasing dramatically by 30% approximately then after. The highest market price and lowest market price of PDBL's stock is Rs780 and Rs132 respectively.

Diagram 4.17

**Annual market price movement of common stock of PDBL**

MPS



Fiscal Year

Table 4.18

**Realized return (R), Expected Return(R), standard deviation and coefficient of variation of PDBL**

Fiscal year	Closing MPS(Rs)	Total dividend (Rs.)	$R = \frac{(Pt+1 - Pt)}{Pt}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
2063/064	132	61.7	0.2913	0.4557	0.2077
2064/065	511	5	2.9091	-2.1621	4.6746
2065/066	780	40	0.6046	0.1424	0.0203
2066/067	680	72.94	-0.0347	0.7817	0.6111
067/068	560	96.0235	-0.0353	0.7823	0.6119
Total			$\sum R = 3.7350$		$\sum (R - E(R))^2 = 6.1256$

(Source: Table 4.17 and Appendix-4)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{3.7350}{5} = 0.7470$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R - E(R))^2}{N - 1}} = \sqrt{\frac{6.1256}{5 - 1}} = 1.2375$$

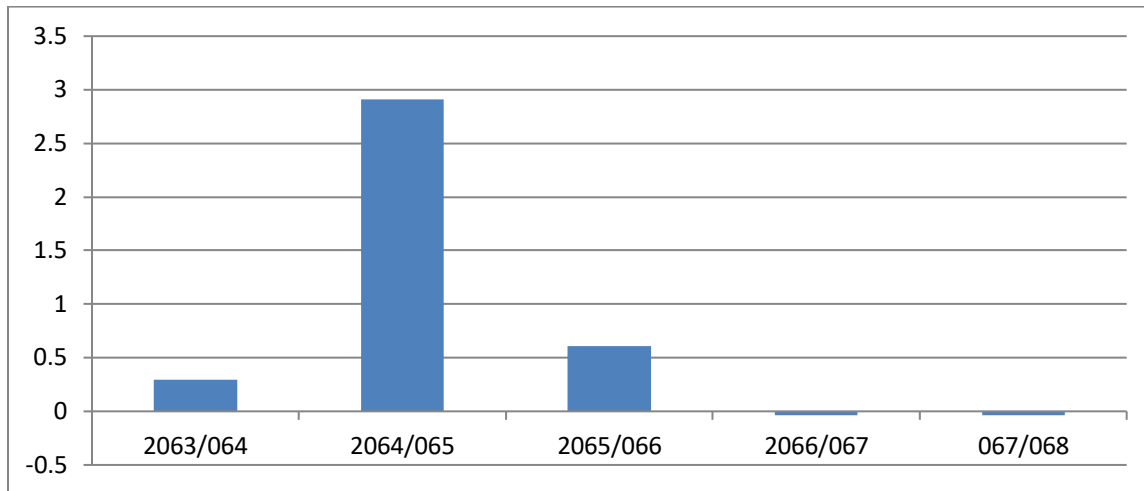
$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{1.2375}{0.7470} = 1.6566$$

The expected rate of return of PDBL is 74.70% and risk of PDBL is 123.75%. The CV of PDBL is 1.6566. PDBL's stock has high risk to invest it. The CV of PDBL has more than one, so it doesn't able to reduce the risk. Investors have to bear 1.6566 units of risk to earn 1 unit profit

Diagram 4.18

**Annual return of common stock of PDBL**

**Rj**



**Fiscal Year**

In the above figure No 4.18, the annual rate of return of PDBL is tends to grow slowly in the fiscal year 2062/2063 to 2063/2064 and grow too high in the fiscal year 2064/2065 is 29.13% to 290.9%. The highest annual rate of return is 290.9% and lowest rate of return is 0% in the fiscal year 2064/2065 and 2066/2067 and 2067/2068 respectively.

**4.2 MARKET RISK AND RETURN**

There is only one stock market in Nepal i.e. Nepal Stock Exchange (NEPSE). Overall market is represented by a single place. So, the market price of selected sample is representing by NEPSE Index. The expected market return, standard deviation and coefficient of variation (CV) are calculated in table No.4.19



Table 4.19

**Realized Rate of Return (R), Expected Rate of Return E (R<sub>m</sub>), Standard Deviation (σ) and Coefficient of Variation (CV) of NEPSE Index.**

Fiscal year	NEPSE INDEX(NI)	$R_m = \frac{(P_{t+1} - P_t)}{P_t}$	(R-R)	(R-R) <sup>2</sup>
2062/063	386.83	0.3494		
2063/064	683.95	0.7681	-0.5142	0.2644
2064/065	963.36	0.4085	-0.1546	0.0239
2065/066	749.1	-0.2224	0.4763	0.2268
2066/067	897.25	0.1978	0.0561	0.0031
2067/068	1002.5	0.1173	0.1366	0.0186
Total		$\sum R = 1.2693$		$\sum (R-R)^2 = 0.5370$

(Source: <http://www.nepalstock.com/companydetail.php?>)

$$\text{Expected rate of return } = E(R) = \frac{\sum R}{N} = \frac{1.2693}{5} = 0.2539$$

$$\text{Standard deviation } (\sigma) = \sqrt{\frac{\sum (R - E(R))^2}{N - 1}} = \sqrt{\frac{0.5370}{5 - 1}} = 0.3664$$

$$\text{Coefficient of variation (CV)} = \frac{\sigma}{E(R)} = \frac{0.3664}{0.2539} = 1.4431$$

**4.3 ANALYSIS OF MARKET SENSITIVITY**

Market sensitivity of the stock is explained by its beta coefficient. Higher the beta represents greater the sensitivity and higher the reaction to the market movement and vice-versa percentage of the risk, that is correlated with market is said to be systematic portion of the risk. In other word the beta is simply the slope of the characteristic line. It depicts sensitivity of the security's excess return of that of the market portfolio. Beta reflects the systematic risk which can't be reduced. Investor can estimate unsystematic risk when they invest their wealth in an unsystematic (Well diversified) market portfolio. A beta of 1.0 indicates average level of risk while more than 1.0 means that the security's return fluctuates more than that of market portfolio. A zero beta means no risk. Beta is a ratio of the covariance of returns of a security of return of the market portfolio.

The beta coefficient is defined by following equation

$$\beta_j = \frac{Cov(R_j, R_m)}{Var(R_m)} \text{ or } \frac{COV(R_j, R_m)}{\sigma^2 m}$$

Where,

Cov (R<sub>j</sub>, R<sub>m</sub>) =Covariance of return of the j assets with the market return

Var (R<sub>m</sub>) = variance of the return for the market portfolio. Cov (R<sub>j</sub>, R<sub>m</sub>) given by:

$$Cov(R_j, R_m) = \frac{[(R_j - E(R_j))][(R_m - E(R_m))]}{n-1}$$

Table 4.20

**Calculation of Beta Coefficient (bj) of Everest Bank Limited**

Fiscal year	(R <sub>j</sub> -E(R <sub>j</sub> ))	(R <sub>m</sub> -E(R <sub>m</sub> ))	(R <sub>j</sub> -E(R <sub>j</sub> ))- (R <sub>m</sub> -E(R <sub>m</sub> ))
062/063			
063/064	-0.5142	-0.1517	0.0780
064/065	-0.1546	-0.9887	0.1529
065/066	0.4763	-0.1382	-0.0658
066/067	0.0561	0.7950	0.0446
067/068	0.1366	0.1535	0.0210
TOTAL			0.2306

$$Cov (R_j, R_m) = \frac{[(R_j - E(R_j))][(R_m - E(R_m))]}{n-1} = 0.2306/5-1 = 0.0577$$

$$\beta_j = \frac{Cov(R_j, R_m)}{Var(R_m)} \text{ or } = \frac{COV(R_j, R_m)}{\sigma^2 m} = 0.0577/0.5370 = 0.1074$$

Where,

N= number of observation

$\sigma_m^2$ =variance of market return

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

**Table No.4.21**

**The table showing beta coefficient of each selected listed companies (from appendices)**

Serial No.	Company	Beta	Remark
1	HBL	0.3192	4
2	NIBL	0.3720	3
3	EBL	0.1074	9
4	SBI	0.4054	2
5	ILFC	0.5927	1
6	LFL	0.2632	5
7	KFC	0.1122	8
8	PDBL	0.1483	7
9	ADBL	0.2524	6

Above table  
the beta of  
listed  
companies.  
of common  
all selected

shows  
different  
The beta  
stock of

company is less than 1. It means their stock is lower sensitive with market. In this condition, 1% increase in market return moves up the all stock return by 0.3192%, 0.3720%, 0.1074%, 0.4054%, 0.5927%, 0.2632%, 0.1122%, 0.1483% and 0.2524% respectively and vice-versa. On the other part, stock of LFC's and PDBL's is positive but

#### **4.4 REQUIRED RATE OF RETURN (R), EXPECTED RATE OF RETURN E(R) AND PRICE VALUE ANALYSIS**

The required rate of return (R) of the common stock is equal to risk free rate of return plus risk premium. The risk premium equals to the difference between the expected market return and risk free return rate multiplied by the common stock's beta. The risk premium varies directly with systematic risk i.e. beta.

Thus, the equation of required rate of return is as follow:

$$R = RRR = E(R_j) = R_F + [E(R_m) - R_F]\beta$$

Comparison of required rate of return and expected rate of return gives the result, whether the stock is under-priced or over-priced. An investor buys these types of the stocks if the stocks priced are under priced and vice- versa. If required rate of return is more than expected rate of return the stock is said to be over priced. If required rate of return is less than expected rate of return, the stock is said to be under priced.

Overpriced	sell
Under priced	buy

For evaluation of under priced and overpriced, risk free rate of return for this study is assumed interest rate of Treasury bills issued by Nepal Rastra Bank. According to the treasury bills section of NRB, NRB issues the T-bills in each Tuesday. T-bills interest rate is determined by the open market i.e. demand and supply. NRB issues T-bills of 91 days and 364 days duration.

For the purpose of calculation of the risk free rate (Rf) is used for the fiscal year 2066/67 T-bills interest rate of 91 days has 7.236%.

So that, Risk free interest rate of 91 days Treasury bill is (Rf)= 7.236%

Hence,

Rf = Risk free rate of return

Rm = Market rate of return

Table 4.22

**Required rate of return and market rate of return**

S.No	Company Name	Risk free rate(Rf)	Beta coefficient (Bj)	Rm	Rj =RRR	ERR=E(Rj)
1	HBL	7.24%	0.3192	25.39%	47.97%	13.03%
2	EBL	7.24%	0.372	25.39%	46.20%	13.99%
3	SBI	7.24%	0.1074	25.39%	66.11%	9.19%
4	NIBL	7.24%	0.4054	25.39%	44.60%	14.60%
5	ADBL	7.24%	0.5927	25.39%	38.11%	18.00%
6	PDBL	7.24%	0.2632	25.39%	74.70%	12.01%
7	ILFC	7.24%	0.1122	25.39%	70.65%	9.27%
8	LFC	7.24%	0.1483	25.39%	113.49%	9.93%
9	KFL	7.24%	0.2524	25.39%	55.53%	11.82%

(Source: Appendix-1)

In the table No.4.23 shows the stocks of all companies are overpriced i.e. required rate of return of common stock is more than expected rate of return. Symbolically  $ERR < RRR$  or  $RRR > ERR$ .

Table 4.23

**Price Evaluation Table**

S.NO	Company Name	Rj =RRR	ERR=E(Rj)	Price situation	Decision
1	HBL	47.97%	13.03%	Overpriced	Sell (stock)
2	EBL	46.20%	13.99%	Overpriced	Sell (stock)
3	SBI	66.11%	9.19%	Overpriced	Sell (stock)
4	NIBL	44.60%	14.60%	Overpriced	Sell (stock)
5	ADBL	38.11%	18.00%	Overpriced	Sell (stock)
6	PDBL	74.70%	12.01%	Overpriced	Sell (stock)
7	ILFC	70.65%	9.27%	Overpriced	Sell (stock)

8	LFC	113.49%	9.93%	Overpriced	Sell (stock)
9	KFL	24.51%	25.12%	Overpriced	Sell (stock)

(Source: Table 4.22)

Table 4.24

**COMPARATIVE ANALYSIS OF SELECTED LISTED COMPANIES**

S.No.	Company Name	Return	Standard Deviation	Coefficient of Variation	Remark		
					Return	S.D	CV
1	HBL	0.4797	0.5060	1.0548			
2	EBL	0.4620	0.6488	1.4043			
3	SBI	0.6611	0.8196	1.2398			
4	NIBL	0.4466	0.6808	1.5264			
5	ADBL	0.3811	0.4782	1.25848			
6	PDBL	0.7470	1.2375	1.6566		High	High
7	ILFC	0.7065	1.0042	1.4200			
8	LFC	1.1349	1.1256	0.9918	High		
9	KFC	0.2451	0.4199	0.7562	Low	Low	Low

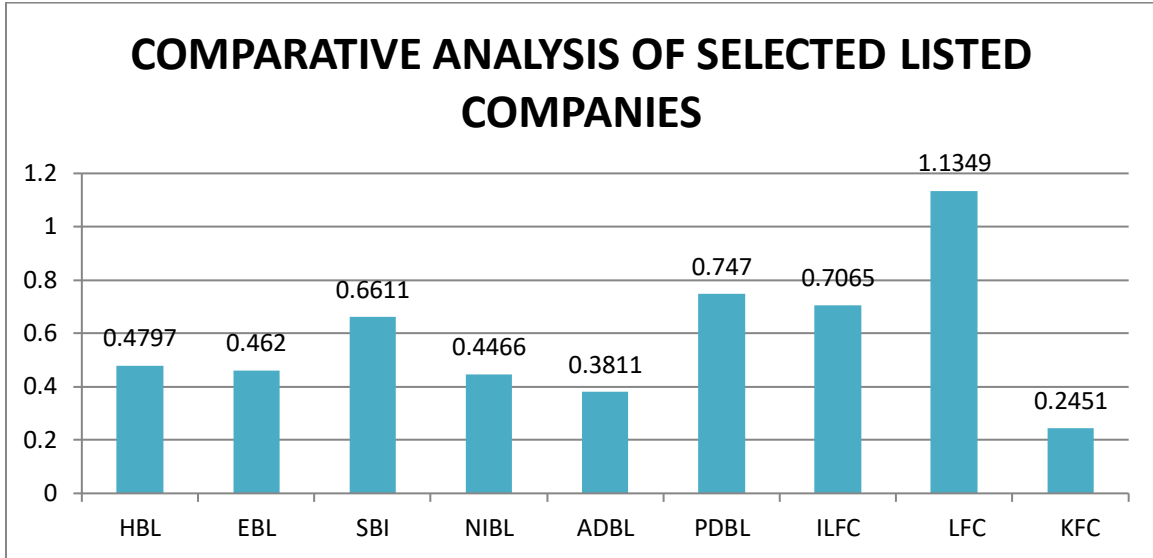
(Source: Table 4.22 and 4.23)

In this table number 4.21 clearly shows that the highest return has LFC (i.e.1.1349) and lowest return has KFC (i.e. 0.2451. on the other side, standard deviation or risk of KFC's common stocks has lower and PDBL's stock has higher. So the highest and lowest coefficient variations are 1.6566 and 0.7562 of PDBL's and KFC's respectively.

Diagram 4.19

**Expected return of selected listed companies**

**R<sub>j</sub>**



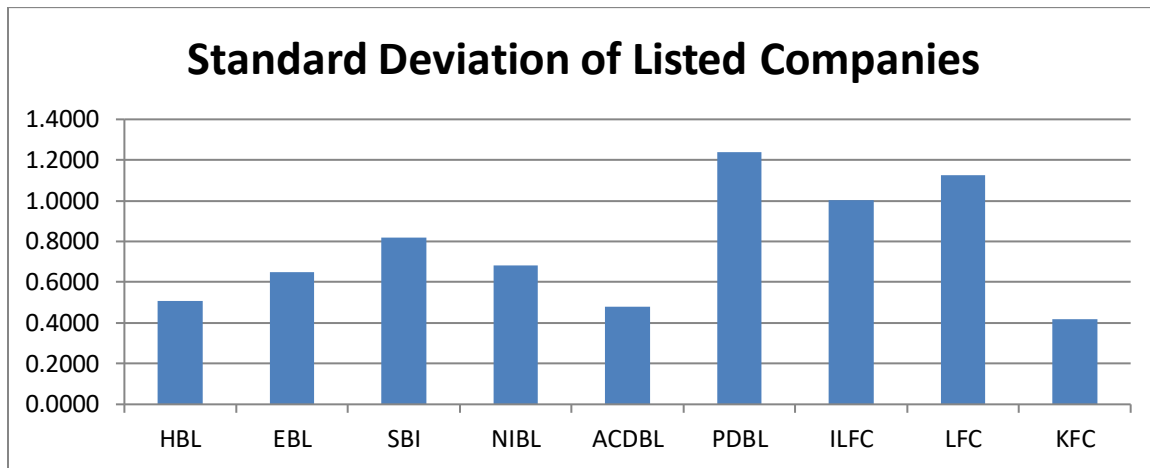
**Fiscal Year**

In the figure represents the return of the selected listed companies. It is found that the expected return of the common stock of LFC is highest as compared to other selected companies. The highest and lowest expected return of common stock of LFC and KFC are 113.49% and 24.51% respectively.

Diagram 4.20

**Standard deviation of selected listed companies**

**SD**



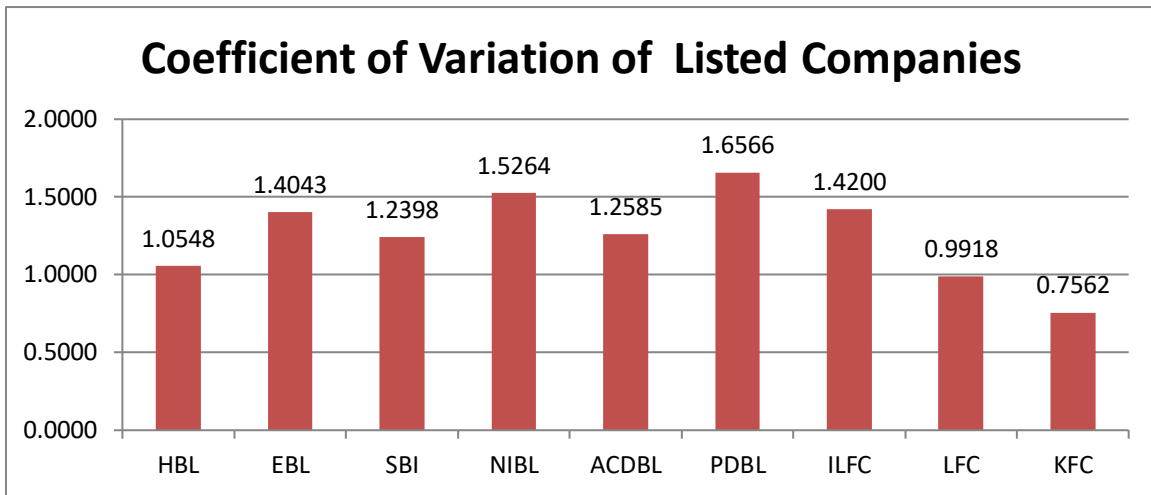
**Fiscal Year**

In the figure number 4.20, it is clearly shown that standard deviation (S.D) of PDBL is the highest and KFC have the lowest standard deviation. It represents that the PDBL have highest risk and KFC have lowest risk than other companies.

Diagram 4.21

**Coefficient of variation of selected listed companies**

CV



**Fiscal Year**

In figure 4.21 it is clearly shows that CV of PDBL is the highest and KFC is the lowest that means the return of PDBL is more volatile and return of KFC is less volatile than others company's return.

**4.5 INTER COMPANY COMPARISION ON THE BASIS OF MARKET CAPITALIZATION**

As per the latest trading report of NEPSE i.e. on the date 15<sup>th</sup> February 2010,the market capitalization of selected companies are presented below. Market capitalization is the total market value of specific time period of the company.



Table 4.25

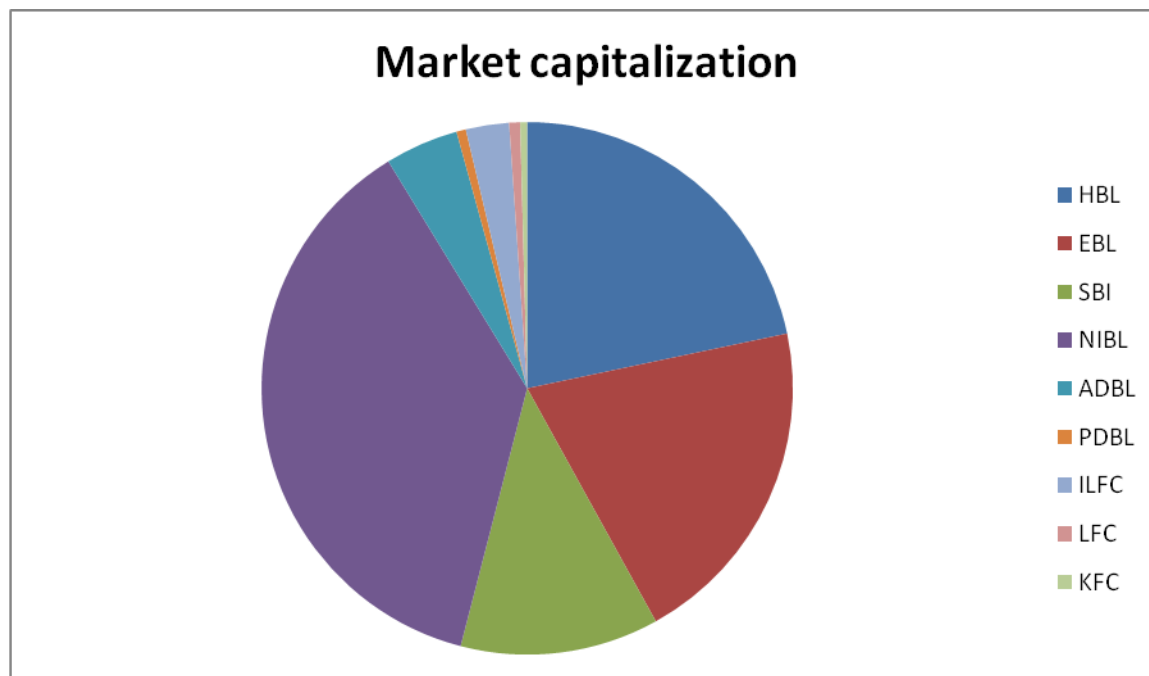
**MARKET CAPITALIZATION OF SELECTED LISTED COMPANIES AS 10<sup>th</sup>  
FEBRUARY 2012.**

Company Name	Rupees in million	Percentage of market capitalization
HBL	10945.935	21.6948%
EBL	10221.12	20.2583%
SBI	6095.46016	12.0812%
NIBL	18775.1382	37.2123%
ADBL	2251.392	4.4623%
PDBL	289.000	0.5728%
ILFC	1328.400	2.6328%
LFC	333.600	0.6612%
KFC	214.038	0.4242%
Total	50454.08336	100%

(Source:Appendi-3)

**Pie chart 4.1**

**Market capitalization of selected listed companies**



We have easily know about the market position of different companies from the pie-chart 4.1 but in this study take only nine different companies from three different sectors i.e. banking, finance and development banks. It clearly shows that NIBL has highest market capitalization value and KFC has lowest market capitalization value. It also shows that the market capitalization weight of banking sector is highest then other two sectors i.e. finance and development banks. On the other side, development bank's weight is more than finance companies.

#### **4.6 TESTING OF HYPOTHESIS**

In simply, hypothesis means the presumption or quantitative statement of the population parameter which may be true or false.

#### 4.6.1 HYPOTHESIS ONE

This first hypothesis tests the average return of the selected listed companies and market returns are equal or not.

##### Step-1 Formulation of Hypothesis:

Null Hypothesis (H0):  $R_s = R_m$ , i.e. there is no significant difference between the average return of common stock of selected listed companies and overall market return.

Alternative Hypothesis (H1):  $R_s \neq R_m$ , i.e. there is significant difference between the average return of selected listed companies and overall market return.

##### Step- 2 Level of Significance:

Use level of significance ( $\alpha$ ) =5%, unless otherwise stated.

##### Step-3 Type of Test:

Since  $n < 30$ , so apply t-test

##### Step -4 Test Statistics

Under the H0, Test statistics (t) is:

$$t = \frac{R_s - R_m}{\frac{S}{\sqrt{n}}} = \frac{0.5849 - 0.2338}{\frac{0.3805}{\sqrt{9}}} = 2.7682$$

##### Step-5 Table value

The tabulated value of t at 5% level of significance for (d.f) degree of freedom  $(n-1) = (9-1) = 8$  or  $t_{0.05,8} = 2.306$

##### Step -6 Decision

Hence, tabulated value is less than calculated value i.e.  $t_{tab} < t_{cal} = 2.306 < 2.7682$ , H1 is accepted and H0 is rejected. It means there is significant difference between average return of selected listed companies and market return.

Here,  $R_s$  = average return of the portfolio of common stock selected listed companies.

$R_m$  = average return of market

$n$  = number of observation

$S$  = Estimated standard deviation of common stock

#### 4.6.2 HYPOTHESIS TWO

This second hypothesis test the average beta coefficient of the stock selected listed companies and market beta is equal or not. This hypothesis two is based on the test of significance for single mean.

### **Step-1 Formulation of Hypothesis:**

Null hypothesis (H0):  $X_b = \beta_m$  or  $X_b = 1$ , i.e. there is no significant different between the portfolio beta of selected listed companies stocks and market beta.

Alternative hypothesis (H1):  $X_b \neq \beta_m$  i.e. there is significant different between the portfolio betas of selected listed companies stocks and market beta.

### **Step- 2 Level of Significance**

Use level of significance ( $\alpha$ ) = 5%, unless otherwise stated.

### **Step-3 Type of Test**

Since  $n < 30$ , so apply t-test

### **Step -4 Test Statistics**

Under the H0:

the test statistic is:

$$t = \frac{X_b - \beta_m}{\frac{S}{\sqrt{n}}} = \frac{0.2859 - 1}{\frac{0.2389}{\sqrt{9}}} = /8.9677/$$

### **Step -5 Table values**

The tabulated value of t at 5% level of significance for (d.f.) degree of freedom  $(n-1) = (9-1) = 8$  or  $t_{0.05,8} = 2.306$

### **Step -6 Decision**

Since the calculated value of t-test is less than tabulated value at 5% degree of freedom, H0 is accepted and H1 is rejected. It means that there is no significant different between average portfolio betas of selected listed companies and market beta.

Where,  $X_b$  = average beta of selected company's stock

$\beta_m$  = beta coefficient of market

S = Standard deviation of beta of common stocks

n = number of observation

## **4.6.3 HYPOTHESIS THREE**

This hypothesis test the expected annual return of the selected listed companies has equal return or not.

**Step -1 Formulation of Hypothesis**

Null Hypothesis (H0):  $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6 = \mu_7 = \mu_8 = \mu_9$  i.e. there is no significant different between in average return of common stock of selected listed companies.

Alternative Hypothesis (H1):  $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5 \neq \mu_6 \neq \mu_7 \neq \mu_8 \neq \mu_9$  i.e. there is significant difference between in average return of common stock of selected listed companies.

**Step -2 level of Significance**

Let's level of significance ( $\alpha$ ) = 5%

**Step -3 Test Statistics**

Under H0, the one way ANOVA table F-test statistics is;

$$F = \frac{NSC}{MSE}$$

$$= 0.5348$$

Here total number of observation (N) =45

Grand Total (T) =  $\sum X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 = 26.6378$

$$\text{Correction Factor} = (CF) = \frac{T^2}{N} = \frac{(26.6378)^2}{45} = 15.7683$$

**Sum of square between return (SSC)**

SSC=

$$SSC = \frac{\sum(X_1)^2}{n_1} + \frac{\sum(X_2)^2}{n_2} + \frac{\sum(X_3)^2}{n_3} + \frac{\sum(X_4)^2}{n_4} + \frac{\sum(X_5)^2}{n_5} + \frac{\sum(X_6)^2}{n_6} + \frac{\sum(X_7)^2}{n_7} + \frac{\sum(X_8)^2}{n_8} + \frac{\sum(X_9)^2}{n_9} -$$

CF

$$= \frac{(2.3987)^2}{5} + \frac{(2.3098)^2}{5} + \frac{(3.3054)^2}{5} + \frac{(1.0003)^2}{5} + \frac{(1.9053)^2}{5} + \frac{(3.7350)^2}{5} + \frac{(3.5324)^2}{5} + \frac{(5.6744)^2}{5} +$$

$$\frac{(2.7765)^2}{5} - CF$$

$$= 18.5962 - 15.7683$$

$$= 2.8279$$

Total sum of square (SST) =  $\sum X_1^2 + \sum X_2^2 + \sum X_3^2 + \sum X_4^2 + \sum X_5^2 + \sum X_6^2 + \sum X_7^2 + \sum X_8^2 + \sum X_9^2 - CF$

SST = 2.1748 + 2.7511 + 4.8723 + 1.7524 + 1.6408 + 8.9157 + 6.5296 + 11.50758 + 2.2477 - 15.7683

SST = 26.6231

Sum of square within sample return (SSR) = SST - SSC

SSR = 26.6231 - 2.8279

SSR = 23.7952

### ONE WAY ANOVA TABLE

Sources of variation	Sum of square	Degree of freedom	Mean of Sum Square	F- ratio
Between Return	SSC = 2.8279	K-1 = 9-1 = 8	2.8279/8 = 0.3535	F = 0.3535/0.6610 = 0.5348
Within Return	SSR = 23.7952	N-K = 45-9 = 36	23.7952/36 = 0.6610	
Total	26.6231	(N-1) = 45-1 = 44		

(Source: Appendix-2)

#### Step -4 Table value

At 5% level of significance with degree of freedom  $v_1 = (k-1) = (9-1) = 8$  and  $v_2 = (N- K) = (45-9) = 36$ , the tabulated value F (i.e.  $F_{0.05, 8, 36}$ ) is: 2.220

#### Step -5 Decision

Since  $F_{cal} < F_{tab}$ , (i.e.  $0.387 < 2.220$ ) so that  $H_0$  is accepted and  $H_1$  is rejected. Therefore, there is no significant difference between the average return of common stock of selected listed companies.

## 4.7 PORTFOLIO ANALYSIS

A portfolio is combination of different investment assets. The portfolio would be able to reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. Previous analysis to risk and return is based on the investment in single security. The

expected return of the securities comprising that portfolio the weights are equal to the proportion of total fund invested in each security.

Many researchers emphasize that many investors of Nepal are investing for single security. So for minimizing the risks, they should be investing in different sectors or securities, which are negatively correlated. They can reduce unsystematic risk dramatically without losing their return. Therefore it is necessary to analysis of risk and return to portfolio context.

#### 4.8 ANALYSIS OF RISK DIVERSIFICATION

The analysis is based on two assets portfolio and the tools for analysis are presented in the research methodology section. It is known that correlation between the returns of the two securities play a vital role in risk reduction by using portfolio construction if the correlation is perfectly positively or equal to 1, the portfolio cannot reduce the unsystematic risk. On the other hand, the correlation is perfectly negative or equal to -1, the proper combination of two securities or portfolio can reduce the unsystematic risk even up to zero.

Generally securities return of the same company or industry moves in the same direction. Therefore, correlation between the securities return of the same company may be highly positive. So that, the study takes portfolio of the common stock of HBL (let's suppose stock i) which is represented commercial banking sectors and common stock of ILFC (let's suppose stock j) which is represented finance sectors are used for analysis.

Table 4.26

Fiscal year	$(R_i - R_i)$	$(R_j - R_j)$	$(R_i - R_i) - (R_j - R_j)$	Remark
2062/63	-	-	-	From table No.4.6 and 4.10
2063/64	-0.4798	-1.7595	0.8442	

2064/65	-0.2694	0.1013	-0.0273
2065/66	0.8419	0.5750	0.4841
2066/67	-0.1108	0.4690	-0.0520
2067/68	0.0180	0.6142	0.0111
Total			1.2601

$$\text{Cov}(R_i, R_j) = \frac{[(R_i - E(R_i))][R_j - E(R_j)]}{n-1} = \frac{1.2301}{5-1} = 0.3075$$

$$r_{ij} = \frac{\text{COV}(R_i R_j)}{\sigma_i \sigma_j} = \frac{0.3075}{0.5060 * 1.0006} = 0.6073$$

Since the correlation between these securities is positive or less than 1 i.e. 0.6073 so the portfolio construction between these securities is moderately beneficial.

A portfolio of common stock of PDBL (let's suppose stock i) which represent the development banking sector and common stock of KFC (let's suppose stock j), which represented finance sector.

Table 4.27

Fiscal Year	(R <sub>i</sub> -R <sub>i</sub> )	(R <sub>j</sub> -R <sub>j</sub> )	[(R <sub>i</sub> -R <sub>i</sub> ) - (R <sub>j</sub> -R <sub>j</sub> )]	Remark
2062/63	-	-	-	From table No.4.12 and 4.18



2063/64	-0.2057	0.4557	-0.0937
2064/65	0.1514	-2.1621	-0.3273
2065/66	0.2950	0.1424	0.0420
2066/67	-0.6323	0.7817	-0.4943
2067/68	0.3916	0.7823	0.3063
Total			-0.5670

$$\text{Cov}(R_i, R_j) = \frac{[(R_i - E(R_i))][R_j - E(R_j)]}{n-1} = \frac{-0.5670}{5-1} = -0.1417$$

$$r_{ij} = \frac{\text{COV}(R_i R_j)}{\sigma_i \sigma_j} = \frac{-0.1417}{0.7562 * 1.2375} = -0.1514$$

From the table, the correlation between PDBL and KFC is negative. So this combination is somewhat not beneficial than other two combination.

Portfolio of common stock of NIBL (let's suppose stock i), which represented banking sector and common stock of ACDB (let' suppose stock j), which is represented in development banks are used for analysis.

Table 4.28

Fiscal year	(R <sub>i</sub> -R <sub>i</sub> )	(R <sub>j</sub> -R <sub>j</sub> )	(R <sub>i</sub> -R <sub>i</sub> ) - (R <sub>j</sub> -R <sub>j</sub> )	Remark
2062/63	-	-	-	From table No.4.2 and 4.16

2063/64	-0.5135	-0.2104	0.1080
2064/65	-0.3031	-0.6198	0.1879
2065/66	0.8081	0.6877	0.5557
2066/67	0.8185	0.1112	0.0910
2067/68	0.4197	0.0313	0.0131
Total			0.9558

$$\text{Cov}(R_i, R_j) = \frac{[(R_i - E(R_i))][R_j - E(R_j)]}{n-1} = \frac{0.9558}{5-1} = 0.2390$$

$$r_{ij} = \frac{\text{COV}(R_i R_j)}{\sigma_i \sigma_j} = \frac{0.2390}{0.6808 * 0.4782} = 0.7343$$

In the table no.4.28 shows the covariance portfolio of common stock of NIBL and ADBL (COV (R<sub>i</sub>, R<sub>j</sub>) and correlation (r<sub>ij</sub>) are positive i.e. 0.2390 and 0.7343 respectively. But this portfolio is not optimal combination to minimize risk and to achieve high return.

#### 4.9 THE PORTFOLIO OF STOCK i AND STOCK j, MINIMIZE THE RISK IN THE PORTFOLIO

$$W_i = \frac{\sigma_j^2 - \text{COV}(R_i, R_j)}{\sigma_j^2 + \sigma_i^2 - 2\text{COV}(R_i, R_j)}$$

$$= \frac{0.9147 - 0.2390}{1.8547 * 0.9174 - (2 * 0.2390)} = \frac{0.1804}{1.6965 - 0.4780} = \frac{0.6757}{1.2185} = 0.5545$$

$$W_j = 1 - W_i = 1 - (0.5545) = 0.4455$$

Since W<sub>i</sub> = 0.5545 and W<sub>j</sub> = 0.4455, this result indicate that an investor minimize the risk and earn optimal level of profit when he/ she invest 44.55% of wealth in stock j. W<sub>i</sub> = 0.5544 or 55.45% means, an investor should invest 55.45% of his/her investment money in stock i for the purpose of another beneficial stock i.e. j.

A combination of stock I and stock j which provides an investor optimal profit and minimize risk.

$$W_i = 0.5545$$

$$W_j = 1 - (0.5545) = 0.4455$$

$$R_p = W_i R_i + W_j R_j$$

$$\begin{aligned}
&= 0.5545 \times 0.4460 + 0.4455 \times 0.3811 \\
&= 0.2473 + 0.1698 \\
&= 0.4171
\end{aligned}$$

Portfolio risk is:

$$\begin{aligned}
\sigma_p &= \sqrt{(W_i^2 \sigma_i^2 + W_j^2 \sigma_j^2 + 2 \text{COV}(R_i, R_j) W_i W_j)} \\
&= \sqrt{(0.5545)^2 * (0.9174)^2 + (0.4455)^2 * (1.8574)^2 + 2(0.2390) * 0.5545 * 0.4455)} \\
&= \sqrt{0.2588 + 0.6847 + 0.1181} \\
&= 1.0322
\end{aligned}$$

Again, the portfolio of the common stock of KFC (let's suppose stock i) which is represented finance sector and common stock of PDBL (let's suppose stock j), which represented development banking sector. This is presented as follows:

Table 4.29

**Data entry for calculation of COV (R<sub>i</sub>,R<sub>j</sub>), correlation (r<sub>ij</sub>) and weight of stock i and stock j**

Fiscal year	(R <sub>i</sub> -R <sub>i</sub> )	(R <sub>j</sub> -R <sub>j</sub> )	(R <sub>i</sub> -R <sub>i</sub> ) - (R <sub>j</sub> -R <sub>j</sub> )
2062/63	-	-	-
2063/64	-0.2057	0.4557	-0.09373749
2064/65	0.1514	-2.1621	-0.32734194
2065/66	0.295	0.1424	0.042008
2066/67	-0.6323	0.7817	-0.49426891
2067/68	0.3916	0.7823	0.30634868
Total			-0.56699166

$$\text{Cov}(R_i, R_j) = \frac{[(R_i - E(R_i))][(R_j - E(R_j))]}{n-1} = \frac{-0.5670}{5-1} = -0.1418$$

$$r_{ij} = \frac{\text{COV}(R_i R_j)}{\sigma_i \sigma_j} = \frac{-0.1418}{0.4199 * 1.2375} = -0.2729$$

From the view point of correlation coefficient, it is t beneficial to divert the investment amount for these securities due to negative correlation i.e.-0.2729. This type of combination can reduce the risk of investment.

To minimize the risk and earn optimal profit, the optimal weight of stock i and stock j are calculated in following manner.

$$W_i = \frac{\sigma_j^2 - COV(R_i, R_j)}{\sigma_j^2 + \sigma_i^2 - 2COV(R_i, R_j)}$$

$$= \frac{6.1257 - (-0.1418)}{6.1257 * 0.7054 - 2(-0.1418)} = \frac{6.2675}{4.3211 + 0.2836} = 1.3611$$

For the purpose of minimizing the risk and earn optimal profit an investor should be necessary to invest on stock j is 136.11% and have to withdraw investment from stock i is 36.11%.

Portfolio Return:

$$R_p = W_i R_i + W_j R_j$$

$$= -0.3611 \times 0.5553 + 1.3611 \times 0.7470$$

$$= -0.2005 + 1.0167$$

$$= 0.8162$$

Portfolio Risk ( $\sigma_p$ ):

$$\sigma_p = \sqrt{(W_i^2 \sigma_i^2 + W_j^2 \sigma_j^2 + 2COV(R_i, R_j)W_i W_j)}$$

$$= \sqrt{(-0.3611)^2 (0.7054) + (1.3611)^2 (6.1257) + 2(-0.1418)(-0.3611)(1.3611)}$$

$$= \sqrt{0.0919 + 11.3484 + 0.1394} = 3.4028$$

The main theme of the study is to emphasize the significance of the portfolio construction. The portfolio construction NIBL and ADBL is not beneficial in the view point of correlation but in the view point of portfolio return and risk it is a little beneficial for investors. On the other portfolio PDBL and KFC also is not beneficial on the view point of correlation and portfolio return and risk. So it is better an investor could construct the portfolio considering the stocks and

other type of marketable securities such as corporate bond, government bond, and preference shares.

#### 4.10 CALCULATION OF SYSTEMATIC RISK AND UNSYSTEMATIC RISK

The theoretically correct measure of risk for single assets is its contribution to the market portfolio of all assets that is its covariance with the market portfolio. All other risk can be diversified away at no cost, at least in the world with any transaction costs (Weston and Copeland, 1990, p345). Systematic risk can be measured statistically by using ordinary least square simple linear regression analysis. A financial model called the characteristic line is used to measure both systematic and unsystematic risk. The equation for the characteristic line or regression line is:

Above characteristic line shows the relationship of one security with the market and is sometimes called a market model for a security. Ordinary least square regression formulated, so the error terms (eit) will out to zero. As a result, the characteristic line is normally written as  $r_i = a_i + b_i r_m$

The term  $a_i$  is called an alpha coefficient for security  $i$ , it measure the  $i$ th asset's rate of return when the market return  $r_m=0$ , then the term  $b_i$  is called the beta coefficient; it measure the slope of the characteristic line. Total risk can be measured by the variance of the returns denoted  $\text{Var}(r_i)$ . It measures the total risk by partitioned into systematic and unsystematic risk.

$$\begin{aligned}\text{Var}(r_i) &= \text{Total risk of the assets} \\ &= \text{Var}(a_i + b_i r_m + e_i) \text{ [substituting } a_i + b_i r_m + e_i \text{ for } r_i] \\ &= \text{Var}(b_i r_m) + \text{Var}(e) \text{ [since } \text{Var}(a_i) = 0] \\ &= b_i^2 \text{ var}(r_m) + \text{var}(e) \text{ [since } \text{var}(b_i r_m) = b_i^2 \text{ var}(r_m)]} \\ &= \text{Systematic risk} + \text{Unsystematic risk}\end{aligned}$$

For identification of proportion of systematic risk and unsystematic risk, variance and Beta of HBL is taken:

Total risk = Systematic risk + Unsystematic risk

Variance of HBL ( $\sigma^2$ ) =  $(0.5060)^2 = 0.2560$  (from table no. 4.5)

Beta of HBL ( $b_i$ ) = 0.3192

$$\text{Var}(r_m) = (0.3664)^2 = 0.1342$$

$$\text{Unsystematic risk} = \text{Var}(e)$$

$$0.2560 = 0.1342 \times (0.3192)^2 + \text{Unsystematic risk}$$

$$\text{Or, } 0.1639 = 0.0137 + \text{Unsystematic risk}$$

$$\text{Unsystematic risk} = 0.1639 - 0.0137$$

$$\text{Unsystematic risk} = 0.1502$$

$$\text{Here, Systematic risk} = 0.1639 - 0.1502 = 0.0137$$

$$\text{Proportion of systematic risk} = \frac{0.0137}{0.1639} = 0.0836 \text{ or } 8.36\%$$

$$\text{Proportion of unsystematic risk} = \frac{0.1502}{0.1639} = 0.9164 \text{ or } 91.64\%$$

Therefore, proportion of systematic risk is 8.36% and unsystematic risk is 91.64%. Here, the 8.36% risk is arise from external environment or factors of company and 91.64% risk is arise internal environment or on the accordance of the company's activities. The unsystematic risk 91.64%, which can be eliminated through diversification. The systematic risk 8.36%, which cannot be reduce forming appropriate portfolio.

#### 4.11 Major Findings

- Some of investors are not analyze the risk and return of the stock but they invest their wealth in stock in lieu of family member and relative's pressure. But some investors are analyzed risk and return of the stocks.
- Beta measures the unsystematic risk and it also measure the sensitivity and volatility of the stocks with market. In this study, ADBL has the highest beta ( $\beta_i=0.5927$ ) and SBI has

lowest beta ( $\beta=0.1074$ ). it represents the common stocks value of ADBL's are more volatile and SBI's are less volatile.

- Most of investors are not analyze the overall performance of the company and they are not forecast the future uncertainties.
- Due to lack of political stability, adequate information about market, knowledge, lack of rational decision are makes fool an investor and he/she cannot analyze the security as well as capital market properly.
- The share price is determined by the demand and supply. The movement of share prices of the listed companies are increasing in the past fiscal years but current fiscal year 2066/67 and 2067/2068, market price of stocks are decreasing continuously. All most of the companies have decreasing market price of stock in the current situation in the lieu of economic crisis of the world and instability political situation in Nepal.
- Among the selected listed companies, LFC has highest expected return (i.e. 1.1349 or 113.49%) and KFL has lowest expected return (i.e.0.2451 or 24.51%). All banking sector's return has more consistent than other sector's return. Return of the financial companies are more volatile and returns of the banking companies are less volatile.
- On the view point of risk, PDBL has the highest risk (i.e. 1.2375) and KFL has the lowest risk or standard deviation (i.e. 0.4199). On the other hand, the return of KFL is less volatile and return of PDBL is more volatile because coefficient variation (CV) of KFL has low (i.e. 0.7562) and coefficient variation of PDBL has high (i.e. 1.6566) than other companies.
- Market capitalizations of commercial banking sector have highest than financial companies and development banks.
- On the view point of market capitalization, NIBL has the highest weight and KFC has the lowest weight among the selected listed companies are 37.2123% and 0.4242% respectively.
- The correlation coefficient between HBL and ILFC, NIBL and ADBL, PDBL and KFC has positive correlation between them. The correlation coefficients between them are 0.6073, 0.7343 and -0.2729 respectively. The correlation coefficient of two portfolio combinations i.e. HBL, ILFC and NIBL have 0.6073 and 0.7343 which are highly

positively correlation. In this situation or these types of portfolio combination is not fruitful to any investors or it doesn't reduce the unsystematic risk. But the

- In practically seen that most of Nepalese investor invest their funds in a single security or invest in any one sector. Some of the investors use their money or fund in two or more securities but they do not make analysis constructing an optimal portfolio. They invest their money in different securities on the basis of expectation and assumption. An investor selects the appropriate portfolio of different securities, which has highly negative correlation coefficient between them. In such portfolio combination which has Negative correlation coefficient between two or more securities can reduce the unsystematic risk and also average correlation between two or more securities can reduce the risk not more than negative correlation.
- According to the t- test or first hypothesis, Null Hypothesis (H0) is rejected and Alternative Hypothesis (H1) is accepted. It means average return of selected listed companies and market return is not equal.
- From the second t-test, Null Hypothesis (H0) is accepted and Alternative Hypothesis (H1) is rejected. So it indicates that there is no significant difference between the market beta and average beta of common stock of selected listed companies.
- From the ANNOVA table, null hypothesis (H0) is accepted and alternative hypothesis (H1) is rejected. Therefore, there is no significant difference in average return of common stock of selected listed companies.



## **CHAPTER- FIVE**

### **SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 SUMMARY**

In the context of Nepal, Capital Market has not a very long history; it is not smoothly developed and grown. Nepalese capital market is mainly concentrate the Kathmandu valley. The instruments of capital market are very limited. Per capita incomes of Nepalese people have very low.

Most of the securities investors are urban people especially accessible to the income. So only the limited person has covered the securities market in the Nepal. The government has to take positive effort to access interested all level of people in the capital market.

An investment is a sacrifice of current money or other resources for future benefits. There are some opportunities available for investment. Everyone can either deposit money in a bank account or purchase a long term government bond or invest in the equity shares of a company or invest in land or some others firms.

Common stock is the most risky security and lifeblood of stock market. The investment in common stocks of any corporate firms neither ensure the annual return or dividend nor ensure the return of principle. So that, the investment in common stocks is very sensitive on the ground of risk. Dividend to common stockholders is paid only of the firm makes on operating profit after tax and preference dividend. The company can return the principle in case of its liquidation only to extend of the residual assets after satisfying to all its creditors and preferential shareholders. Main focus of this study is to analyze the risk and return of common stock of selected listed companies. The study it is known that the investors are risk averters. For the analysis, among listed companies 9 are taken into account. Among them 4 are from commercial banks, 3 are from finance sectors and 2 are development banking sectors. While analyzing the risk and return brief review of related studies has been performed. Scientific methods are used in the accordance of data analysis, tabulation, graph and charts. Figures are used to interpret and present the results. Secondary data are collected from NEPSE, NRB, Security Board, library and internet (related websites). Other necessary types of information are collected through personal visit, executives of the companies and SEBON AND NEPSE.

## 5.2 FINDINGS AND CONCLUSIONS

- Nepalese stock market is emerging state; the development of stock market is jump-up after the political change in 1990 with in economic liberalization.
- Some of investors are not analyze the risk and return of the stock but they invest their wealth in stock in lieu of family member and relative's pressure. But some investors are analyzed risk and return of the stocks.
- Beta measures the unsystematic risk and it also measure the sensitivity and volatility of the stocks with market. In this study, ADBL has the highest beta ( $b_i=0.5927$ ) and SBI has lowest beta ( $b_j=0.1074$ ). it represents the common stocks value of ADBL's are more volatile and SBI's are less volatile.
- Most of investors are not analyze the overall performance of the company and they are not forecast the future uncertainties.
- Due to lack of political stability, adequate information about market, knowledge, lack of rational decision are makes fool an investor and he/she cannot analyze the security as well as capital market properly.
- The share price is determined by the demand and supply. The movement of share prices of the listed companies are increasing in the past fiscal years but current fiscal year 2066/67 and 2067/2068, market price of stocks are decreasing continuously. All most of the companies have decreasing market price of stock in the current situation in the lieu of economic crisis of the world and instability political situation in Nepal.
- Among the selected listed companies, LFC has highest expected return (i.e. 1.1349 or 113.49%) and KFL has lowest expected return (i.e. 0.2451 or 24.51%). All banking sector's return has more consistent than other sector's return. Return of the financial companies are more volatile and returns of the banking companies are less volatile.
- On the view point of risk, PDBL has the highest risk (i.e. 1.2375) and KFL has the lowest risk or standard deviation (i.e. 0.4199). On the other hand, the return of KFL is less volatile and return of PDBL is more volatile because coefficient variation (CV) of KFL has low (i.e. 0.7562) and coefficient variation of PDBL has high (i.e. 1.6566) than other companies.

- For this study, risk free rate of return is assumed to be interest rate of Treasury bill, which interest rate of 91 days Treasury bill in the date of 12<sup>th</sup> January 2010 is 7.236%. So that risk free rate of return ( $R_f$ ) = 7.236%.
- When the required rate of return is less than expected rate of return, the stock is said to be underpriced and vice-versa. From the calculation it is found that all the selected listed companies are under price. These companies' common stocks are more valuable to purchase investors to achieve more profit in near future or it is beneficial to purchase these shares as they are realizing greater rate of return then needed.
- Market capitalizations of commercial banking sector have highest than financial companies and development banks.
- On the view point of market capitalization, NIBL has the highest weight and KFC has the lowest weight among the selected listed companies are 37.2123% and 0.4242% respectively.
- The expected rate of return of market is 25.39% and risk of the market is 36.64%. Coefficient variation of market (CV<sub>m</sub>) is 1.4431. For earning 1 unit of return on market an investor has to bear a risk of 1.4431 units.
- Unsystematic risk is measured by standard deviation of stocks ( $\sigma_j$ ), systematic or market risk cannot define by it. Systematic risk can depend upon the external environment it is far away from the managerial control and not forecast the market risk. Another major aspect of the risk is market risk which is defined by market and measured by beta coefficient ( $\beta_j$ ). Beta explains the market sensitivity and volatile of the stock price in the market it may be used for ranking the systematic risk of the different assets i.e. stocks. If the beta greater than one ( $\beta_j > 1$ ), the asset is more volatile than the market and is called aggressive assets. If beta is less than one ( $\beta_j < 1$ ), the asset is defensive asset and its price fluctuates less volatile than the market. From the analysis, HBL, NIBL, SBI, EBL, SBI, ILFC, LFL, KFC, PDBL and ADBL beta coefficients are 0.3192, 0.3720, 0.1074, 0.4054, 0.5927, 0.2632, 0.1122, 0.1483 and 0.2524 respectively. The data clearly shows that beta coefficient of these companies have less than than one; therefore such companies stock is not volatile with market.
- The correlation coefficient between HBL and ILFC, NIBL and ADBL, PDBL and KFC has positive correlation between them. The correlation coefficients between them are

0.6073, 0.7343 and -0.2729 respectively. The correlation coefficient of two portfolio combinations i.e. HBL, ILFC and NIBL have 0.6073 and 0.7343 which are highly positively correlation. In this situation or these types of portfolio combination is not fruitful to any investors or it doesn't reduce the unsystematic risk. But the

- The portfolio analysis of the stocks such as (PDBL, KFC), (NIBL, ACEDBL) and (HBL, ILFC) are not completely good combination portfolio because their correlation coefficients are positive; these are -0.2729, 0.7343 and 0.6073. A portfolio combination between PDBL and KFC is good than other two portfolio combination. The first portfolio (PDBL, KFC) can able to reduce the risk more efficiently than other two; (NIBL, ACEDBL) and (HBL, ILFC) because it has negative correlation than other two portfolio combination.
- In practically seen that most of Nepalese investor invest their funds in a single security or invest in any one sector. Some of the investors use their money or fund in two or more securities but they do not make analysis constructing an optimal portfolio. They invest their money in different securities on the basis of expectation and assumption. An investor selects the appropriate portfolio of different securities, which has highly negative correlation coefficient between them. In such portfolio combination which has Negative correlation coefficient between two or more securities can reduce the unsystematic risk and also average correlation between two or more securities can reduce the risk not more than negative correlation.
- According to the t- test or first hypothesis, Null Hypothesis (H0) is rejected and Alternative Hypothesis (H1) is accepted. It means average return of selected listed companies and market return is not equal.
- From the second t-test, Null Hypothesis (H0) is accepted and Alternative Hypothesis (H1) is rejected. So it indicates that there is no significant difference between the market beta and average beta of common stock of selected listed companies.
- From the ANNOVA table, null hypothesis (H0) is accepted and alternative hypothesis (H1) is rejected. Therefore, there is no significant difference in average return of common stock of selected listed companies.

### 5.3 RECOMMENDATION AND SUGGESTIONS

This study is conducted to analyze the risk and return of the common stocks of listed companies in NEPSE. Common stock is most risky securities among the other types of securities because common stockholders are the real owner of the company. Common stocks have high risk as well as high profit, it depend upon the company's activities as well as internal and external environment. Everyone should make an investment decision with the help of analyzing proper reliable past year's data and adequate information. Information and data play the great role to select the suitable stocks of the companies. This study provides some suggestions to new comer investors in the field of securities market. Some important recommendations and suggestions are presented as below.

- Generally investor think, investment on stock market is ever beneficial when the price of the shares always increase. But it is not only an important factor, the important factor is that why the stock price is increasing and decreasing? In which factor lead it up and down? An investor would be considered the related factors such as political situation, government law, economic condition, companies' policy and strategies. It is remember that the growing trend is to be reached in the limited peak point and then start to decrease.
- It is the age of information and advertising so it is suggested that to provide the data and good suggestion for all the people who are interested on share market.
- Beside the banking sector, the market price per share is very low of the selected listed companies. So that it provides the lesson to non-banking companies have to utilize their resources properly and sufficiently which helps to rise up price of the stock.
- Since the return of LFC has highest return of common stock among the selected listed companies, so that investors could be more benefited if they invest in the common stock of LFC.
- PDBL AND KFC beta is less compare with other listed companies, so these stocks are defensive stocks and less volatile, it can able to reduce the risk, investors use these stocks to minimize the risk.
- The coefficient variation (CV) and standard deviation of PDBL has higher than other given sample. It represents the high risk will be bear if an investor will decide to invest it. On the other hand, KFC has lowest CV and standard deviation or risk, so that it is beneficial to invest in KFC's common stock.

- The corporate firms should disclose the real financial statements or value of total assets and liabilities to general public.
- Most of the Nepalese investors are one-sided mind that is they only focus to the return of the common stock. They are not hesitate to invest more profitable securities but it should be necessary to understand that if there is high return there will be high risk.
- Risk and return analysis is slowly increasing in this days but it is not sufficient for analysis risk and return of common stock. It is suggested that further study should be conducted on this topic and researcher should include maximum number of sample.
- The trading of securities is only focus in Katmandu area. NEPSE should manage the trading securities beyond the valley and to appoint the sufficient security brokers.
- Government needs to make necessary rules and amend the current rule and regulations about stock market. To protect the investor's right and develop the trading system of securities, government should play the role of monitor, facilitator and promoter in the case of stock market in Nepal.
- In the present state, Nepalese political situation is instable and liquidity phase. The entire economic sector has been going worse condition. The GDP which was expected in the past economic planning is not meet this current period. For smoothly run the industries, companies or any kinds of organizations that are either profitable or non-profitable depends upon the political condition of the nation. So government should take effective strategy to develop the nation. Government has to make favorable policies and rules for facilitating the industries, it increases the investment opportunities to mobilization of funds in different profitable sectors and it definitely supports the economic growth and diverts the social status of the nation.

## Appendix-1

Calculation of selected bank Beta

NIBL

Fiscal year	(R-R)	(R-E)	(R-R)*(R-E)
2062/063			
2063/064	-0.5142	-0.5135	0.2640
2064/065	-0.1546	-0.3031	0.0469
2065/066	0.4763	0.8081	0.3849
2066/067	0.0561	0.8185	0.0459
2067/068	0.1366	0.4197	0.0573
Total			0.7990

$$\text{Cov}(R_j, R_m) = \frac{[(R_j - E(R_j))][R_m - E(R_m)]}{n-1} = \frac{0.7990}{5-1} = 0.1998$$

$$\beta_j = \frac{\text{Cov}(R_j, R_m)}{\text{Var}(R_m)} = \frac{0.1998}{0.5370} = 0.3720$$

HBL

Fiscal year	(R-R)	[R-E(R)]	(R-R)*[R-E(R)]
2062/063			
2063/064	-0.5142	-0.4798	0.2467
2064/065	-0.1546	-0.2694	0.0416
2065/066	0.4763	0.8419	0.4010
2066/067	0.0561	-0.1108	-0.0062
2067/068	0.1366	0.0180	0.0025
Total			0.6856

$$\text{Cov}(R_j, R_m) = \frac{0.6856}{5-1} = 0.1714$$

$$\beta_j = \frac{0.1714}{0.5370} = 0.3192$$

EBL

Fiscal year	(R-R)	(R-E)	(R-R)*(R-E)
2062/063			

2063/064	-0.5142	-0.1517	0.0780
2064/065	-0.1546	-0.9887	0.1529
2065/066	0.4763	-0.1382	-0.0658
2066/067	0.0561	0.7950	0.0446
2067/068	0.1366	0.1535	0.0210
Total			0.2306

$$\text{Cov}(R_j, R_m) = \frac{0.2306}{5-1} = 0.0577$$

$$B_j = \frac{0.0577}{0.5370} = 0.1074$$

SBI

Fiscal year	(R-R)	[R-E(R)] -	(R-R)*(R-E)
2062/063			
2063/064	-0.5142	-1.4560	0.7487
2064/065	-0.1546	0.3763	-0.0582
2065/066	0.4763	0.2081	0.0991
2066/067	0.0561	0.4705	0.0264
2067/068	0.1366	0.4011	0.0548
Total			0.8708

$$\text{Cov}(R_j, R_m) = \frac{0.8708}{5-1} = 0.2177$$

$$B_j = \frac{0.2177}{0.5370} = 0.4054$$

ILFC

Fiscal year	(R-R)	[R-E(R)]	(R-R)*[R-E(R)]
2062/063			
2063/064	-0.5142	-1.7595	0.9047
2064/065	-0.1546	0.1013	-0.0157
2065/066	0.4763	0.5750	0.2739
2066/067	0.0561	0.4690	0.0263
2067/068	0.1366	0.6142	0.0839
Total			1.2732



$$\text{Cov}(R_j, R_m) = \frac{1.2732}{5-1} = 0.3183$$

$$B_j = \frac{0.3183}{0.5370} = 0.5927$$

LFL

Fiscal year	(R-R)	[R-E(R)]	(R-R)*[R-E]
2062/063			
2063/064	-0.5142	-0.5239	0.2694
2064/065	-0.1546	-1.4249	0.2203
2065/066	0.4763	-0.1982	-0.0944
2066/067	0.0561	1.5311	0.0859
2067/068	0.1366	0.6160	0.0841
Total			0.5653

$$\text{Cov}(R_j, R_m) = \frac{0.5653}{5-1} = 0.1413$$

$$B_j = \frac{0.1413}{0.5370} = 0.2632$$

KFL

Fiscal year	(R-R)	(R-R)	(R-R)*(R-E(R))
2062/063			
2063/064	-0.5142	-0.2057	0.1058
2064/065	-0.1546	0.1514	-0.0234
2065/066	0.4763	0.2950	0.1405
2066/067	0.0561	-0.6323	-0.0355
2067/068	0.1366	0.3916	0.0535
Total			0.2409

$$\text{Cov}(R_j, R_m) = \frac{0.2409}{5-1} = 0.0602$$

$$B_j = \frac{0.0602}{0.5370} = 0.1122$$

PDBL

Fiscal year	(R-R)	[R-E(R)]	(R-R)*[R-E(R)]
2062/063			
2063/064	-0.5142	0.4557	-0.2343
2064/065	-0.1546	-2.1621	0.3343
2065/066	0.4763	0.1424	0.0678
2066/067	0.0561	0.7817	0.0439
2067/068	0.1366	0.7823	0.1069
Total			0.3185

$$\text{Cov}(R_j, R_m) = \frac{0.3185}{5-1} = 0.0796$$

$$B_j = \frac{0.0796}{0.5370} = 0.1483$$

ACEDBL

Fiscal year	(R-R)	[R-E(R)]	(R-R)*[R-E(R)]
2062/063			
2063/064	-0.5142	-0.2104	0.1082
2064/065	-0.1546	-0.6198	0.0958
2065/066	0.4763	0.6877	0.3276
2066/067	0.0561	0.1112	0.0062
2067/068	0.1366	0.0313	0.0043
Total			0.5421

$$\text{Cov}(R_j, R_m) = \frac{0.5421}{5-1} = 0.1355$$

$$B_j = \frac{0.1355}{0.5370} = 0.2524$$

## Appendix-2

### Calculation of One Way ANOVA

	Year					Total
	2063/64	2064/65	2065/66	2066/67	2067/68	
<b>HBL (X1)</b>	0.9595	0.7491	-0.3621	0.5905	0.4617	<b>2.3987</b>
<b>EBL(X2)</b>	1.4507	0.6002	-0.333	0.3085	0.2834	<b>2.3098</b>
<b>SBI (X3)</b>	2.1171	0.2848	0.453	0.1905	0.26	<b>3.3054</b>
<b>NIBL (X4)</b>	0.9595	0.7491	-0.362	-0.373	0.0263	<b>1.0003</b>
<b>ADBL (X5)</b>	0.5915	1.0009	-0.3066	0.2698	0.3497	<b>1.9053</b>
<b>PDBL (X6)</b>	0.2913	2.9091	0.6046	-0.0347	-0.0353	<b>3.735</b>
<b>ILFC (X7)</b>	2.466	0.6052	0.1315	0.2374	0.0923	<b>3.5324</b>
<b>LFC (X8)</b>	1.6588	2.5598	1.3331	-0.3962	0.5189	<b>5.6744</b>
<b>KFC (X9)</b>	0.761	0.4039	0.2603	1.1876	0.1637	<b>2.7765</b>
<b>Total</b>						<b>26.6378</b>
<b>X1</b>	0.213167	0.34869	0.131116	0.561151	0.92064	<b>2.174765</b>
<b>X2</b>	0.080316	0.095172	0.110889	0.36024	2.10453	<b>2.751147</b>
<b>X3</b>	0.0676	0.03629	0.205209	0.081111	4.482112	<b>4.872323</b>
<b>X4</b>	0.000692	0.138756	0.131116	0.561151	0.92064	<b>1.752355</b>
<b>X5</b>	0.12229	0.072792	0.094004	1.001801	0.349872	<b>1.640759</b>
<b>X6</b>	0.001246	0.001204	0.365541	8.462863	0.084856	<b>8.91571</b>
<b>X7</b>	0.008519	0.056359	0.017292	0.366267	6.081156	<b>6.529593</b>
<b>X8</b>	0.269257	0.156974	1.777156	6.552576	2.751617	<b>11.50758</b>
<b>X9</b>	0.026798	1.410394	0.067756	0.163135	0.579121	<b>2.247204</b>

## Appendix-3

### **NIBL Capital Structure**

. Its market capitalization issued capital and paid up capital are Rs 18,775,138,200, Rs

2407069000 and Rs 2407069000 respectively on the last date of 10/02/2012.

### **SBI Capital Structure**

Its market capitalization, issued capital and paid-up capital are Rs 6095460160, Rs 874528000 and Rs 874528000 Respectively on the date of 10/02/2012

### **HBL Capital Structure**

Its market capitalization, issued capital and paid up capital are Rs10945935000, Rs12162150 and Rs12162150 respectively. Its issued shares are 12162150.

### **EBL Capital Structure**

Its market capitalization, issued capital and paid-up capital of this bank are Rs 10,221,120,000, Rs638, 820,000, and Rs638, 820,000 respectively. Its par value and paid-up value is similar Rs 100. Total numbers of issued shares of EBL are 6388200.

### **ILF Capital Structure**

Its total market capitalization, paid up capital and issued capital are Rs1, 328,400,000, Rs648000000 and Rs 648000000 respectively on the date of 28/01/2010. Total numbers of issued share are 6480000 and its par value and paid up value per share is Rs 100.

### **KFL Capital Structure**

Its share listing date on stock exchange was 1995A.D. Its total market capitalization, paid up capital and issued capital are Rs214038000, Rs 759000000 and Rs 759000000 respectively on the date of 15/02/2010. Par value and paid up value per share are Rs100 and Rs 100.

### **LFL Capital Structure**

LFC's issued shares are 1200000 and its market capitalization, paid up capital and issued capital are Rs 333600000, Rs 120000000 and Rs 120000000 respectively on the till date of 12/02/2010.

### **ACEDBL Capital Structure**

Its shares are listed in Nepal stock Exchange on the date of 12/05/1996. Its market capitalization, paid up capital and issued capital are Rs 2251392000, Rs 874528000 and Rs 874528000 respectively on the till date of 12/02/2010.

### **PDBL Capital Structure**

PDBL's market capitalization, paid up capital and issued capital are Rs 289000000, Rs 100000000 and Rs 100000000 respectively on the date of 25/02/2010.

## **Appendix-4**

### **Calculation of annual Return for NIBL**

Fiscal year	Closing price (MPS) (Rs.)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E] <sup>2</sup>
062/63	1260.0000				
063/64	1760.0000	740.0000	0.9595	-0.5135	0.2637
064/65	1980.0000	574.2200	0.7491	-0.3031	0.0919
065/66	1760.0000	174.8000	-0.3621	0.8081	0.6530
066/67	1495.0000	166.0000	-0.3725	0.8185	0.6699
067/68	1560.0000	195.5500	0.0263	0.4197	0.1761
			$\Sigma R = 2.23$		$\Sigma [R - E]^2 = 1.8546$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{(1760 - 1260) + 740}{1260} = 0.9595 \text{ or } 95.95\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

#### Calculation of annual Return for SBI

Fiscal year	Closing MPS (Rs)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)] -	[R-E(R)] <sup>2</sup>
062/63	612				
063/064	1176	731.67	2.1171	-1.4560	2.1200
064/065	1511	-	0.2848	0.3763	0.1416
065/066	1900	295.61	0.453	0.2081	0.0433
066/67	742	295.38	0.1905	0.4705	0.2214
067/68	588	291	0.2600	0.4011	0.1609
Total			$\Sigma R = 3.31$		$\Sigma (R - R)^2 = 2.6872$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{(1176-612)+731.67}{612} = 2.1171 \text{ or } 211.71\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for HBL

Fiscal year	Closing price (MPS)	Total dividend	$R = \frac{(P_{t+1} - P_t) + D_t}{P_t}$	[R-E(R)]	[R-E] <sup>2</sup>
062/063	1100				
063/064	1760	807.00	0.9595	-0.4798	0.2302
064/065	1980	817.00	0.7491	-0.2694	0.0726
065/066	1760	404.04	-0.3621	0.8419	0.7087
066/67	1495	712.67	0.5905	-0.1108	0.0123
067/68	1560	625.23	0.4617	0.0180	0.0003
			$\Sigma R = 2.3987$		$\Sigma [R-E]^2 = 1.0241$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{(1760-1100)+807}{1100} = 2.1171 \text{ or } 211.71\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for EBL

Fiscal year	Closing MPS(Rs)	Total dividend	$R = \frac{(P_{t+1} - P_t) + D_t}{P_t}$	(R-R)	(R-R) <sup>2</sup>
062/063	1379				
063/064	2430	949.6	1.4507	-0.9887	0.9776
064/065	3132	756.5	0.6002	-0.1382	0.0191
065/066	2455	510	-0.3330	0.7950	0.6320
066/67	2458	754.47	0.3085	0.1535	0.0235
067/68	2398	756.54	0.2834	0.1786	0.0319
Total			2.3098		1.6841

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{(2430 - 1379) + 949.6}{1379} = 1.4507 \text{ or } 145.07\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for ILF

Fiscal Year	Closing MPS	Total dividend	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
062/063	147				
063/064	380	129.52	2.4660	-1.7595	3.0959
064/065	610	-	0.6052	0.1013	0.0103
065/066	610	80.27	0.1315	0.5750	0.3306
066/67	605	149.84	0.2374	0.4690	0.2200
067/68	508	152.83	0.0923	0.6142	0.3772
Total			$\sum R = 3.5324$		$\sum (R - R)^2 = 4.0340$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{(380 - 147) + 72}{1379147} = 2.4660 \text{ or } 246.60\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for KFL

Fiscal year	Closing MPS(Rs)	Total dividend	$R = \frac{(P_{t+1} - P_t)}{P_t}$	(R-R)	(R-R) <sup>2</sup>
062/063	140				
063/064	203	43.54	0.7610	-0.2057	0.0423
064/065	285	-	0.4039	0.1514	0.0229
065/066	326	33.2	0.2603	0.2950	0.0870
066/67	620	93.15	1.1876	-0.6323	0.3998

067/68	589	70.5	0.1637	0.3916	0.1533
Total			$\sum R=2.7765$		$\sum (R-R)^2=0.7054$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{203 - 147 + 43.54}{147} = 0.7610 \text{ or } 76.10\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for LFL

Fiscal year	Closing MPS(Rs)	Total dividend	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
062/063	115	5.27			
063/064	163	142.76	1.6588	-0.5239	0.2745
064/065	285	295.25	2.5598	-1.4249	2.0305
065/066	561	103.92	1.3331	-0.1982	0.0393
066/67	250	88.73	-0.3962	1.5311	2.3442
067/68	304	75.73	0.5189	0.6160	0.3794
Total			$\sum R=5.6744$		$\sum (R-R)^2=5.0678$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{163 - 115 + 142.76}{115} = 1.6588 \text{ or } 165.88\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for ACEDBL

Fiscal year	Closing MPS(Rs)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
062/063	320				
063/064	459	50.2800	0.5915	-0.2104	0.0443
064/065	856	62.4500	1.0009	-0.6198	0.3842
065/066	588	5.5000	-0.3066	0.6877	0.4729
066/067	650	96.6630	0.2698	0.1112	0.0124
067/068	780	97.3256	0.3497	0.0313	0.0010



Total			$\sum R=1.9054$		$\sum(R-R)^2=0.9147$
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$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{459 - 320 + 50.2800}{320} = 0.5915 \text{ or } 59.15\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

### Calculation of annual Return for

Fiscal year	Closing MPS(Rs)	Total dividend (Rs.)	$R = \frac{(P_{t+1} - P_t)}{P_t}$	[R-E(R)]	[R-E(R)] <sup>2</sup>
2062/063	150	24.8	0.2309		
2063/064	132	61.7	0.2913	0.4557	0.2077
2064/065	511	5	2.9091	-2.1621	4.6746
2065/066	780	40	0.6046	0.1424	0.0203
2066/067	680	72.94	-0.0347	0.7817	0.6111
067/068	560	96.0235	-0.0353	0.7823	0.6119
Total			$\sum R=3.7350$		$\sum(R-R)^2=6.1256$

$$\text{Annual Return (R)} = \frac{(P_t - P_{t-1}) + \text{Dividend}}{P_{t-1}}$$

$$\text{For Fiscal Year 063/64} = \frac{132 - 150 + 61.7}{150} = 0.4557 \text{ or } 45.57\%$$

And so on for the remaining fiscal year annual return (R) up to fiscal year 067/68.

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