CHAPTER I

INTRODUCTION

1.1 Background of the Study

Due to globalization of economy and market, present world economy has been more competitive and complicated. Every short of change occurring in one sector of the world affects the other. A healthy economy is dependent on efficient transfers of funds from people who are not savers to firms and individuals who need capital. Without efficient transfers the economy simply could not function and economic efficiency is simply impossible without a good system for allocating capital within the economy.

Nepal is a landlocked country economically based on agriculture. It occupies an area of 147,181 km^2 and bounded by India and China. Nepal is one of the least developed countries with about 26 million people though it is very rich in natural resources. However the resource is unutilized. The geographical variation has been standing as a challenge for development of the country. About more than 80% people are dependent on agriculture. Traditional agriculture system is used till now. The current situation of Nepalese economy is not satisfactory due to poor infra-structure, unutilized natural resources, miserable agriculture, deficit trade, illiteracy, political instability and so forth.

Majority of the people are below poverty line. Despite a series of ambitious development plans and international aid, Nepal's economic growth has barely kept pace with its expanding population. The living standard of the people is very low. Unemployment and conflict are other evil for our economic development. The economic inequality is also great .While the country has been moving toward a market oriented economy since the early 1990s, frequent changes in government have hampered the realization of the policy reforms and delayed the implementation of development projects. Furthermore, the growing insurgency had helped deteriorate the government's poor delivery of basic services and curtailed private sector activities. Now, the country politically landed to the republic from constitutional monarchy. Along with the political change, a revolutionary change has been expected in economic sector too.

Nepal has many implicit and explicit obstacles for every facets of the development. Investment in productive sectors is necessary for the economic development of any country. This increases economic activities which finally

accelerates economic growth. The unutilized financial resources should be diverted towards productive sectors in order to increase the economic activities. Hence, sustained and balanced economic development of all sectors is possible.

Like blood is necessary for human beings, finance is for business organizations and industries. Each and every business organization should base their decision making in financial management. Financial management is mainly concerned with the acquisition and utilization of funds. For this, financial market plays vital role in utilizing financial resources for expanding productive sectors in the country. It mobilizes unproductive and unutilized financial resources towards productive sectors and helps in expanding economic growth of the country.

Investment in capital markets collect necessary funds and divert the collected funds towards the productive sectors. Due this industrialization is possible. Capital market is a significant mechanism for the development of national economy. It reinvigorates and boosts up the economic activities by mobilizing especially domestic financial resources. It provides best investment opportunities by transferring the funds from surplus saving to need based sectors through the transaction of financial instruments.

Financial instruments are traded in securities market. Stock market is the largest financial market all over the world where stocks of various business organizations are traded. It has greatest role in the development of financial system. Capital market consists of (i) Primary market and (ii) Secondary market
Additionally Over the Counter Market is also helpful to the capital market.

(i) **Primary Market**: This market where new securities are usually issued by corporations and governmental bodies is called primary market. "The financial market in which securities are initially issued, the only market in which the issuer is directly involved is called primary market."[1] In this market funds transfer from savers to investors. The main function of primary market is to make the financial capital available to make new investment. The investment bankers perform the role of an expert in issuing new securities. These bankers make available advice to the business firms regarding the nature of securities, maturity and interest rate and underwrite the issue of securities.

(ii) **Secondary Market**: It is the market where existing securities which are already issued are traded. Once the securities are issued into primary market, then they are traded in secondary market. The main function of secondary market is to provide liquidity on security. The corporations need to list their shares in any

[1] Lawrence J. Gitman. Principle of Management Finance, 4th ed. (New York: Harper and Row Inc.1985) p. 33

organized securities exchanges to qualify for the trading. Due to more liquidity on secondary market, investors are encouraged to invest in primary market.

(iii) **OTC Market**: Securities which are not listed and which are de-listed can't be traded in stock exchange because of not meeting of the requirements for trading. They are traded in over the counter market. It is not formal organized stock exchange. OTC neither requires membership for trading nor listing of securities. Price quotation in the OTC market exists through competitive price quoted by the securities dealer. In Nepal OTC market has just started and volume of securities traded in this market is very thin.

Development requires economic growth. Economic growth occurs when people and their government respond to economic incentives. Sustainable development also takes hold when good governance is found with a dynamic private sector. A vibrant private sector gives free reign to human creativity, fostering innovation and improving the living standard of people.[2] Increased economic growth and individual prosperity through economic freedom must be the core goals of development. Open market and economic liberalization provide the fastest and most reliable path to increased growth and prosperity. With the worldwide move towards open and market oriented economic system, it has led to growth and expansion of banking and financial systems too.

1.2 History of Capital Market in Nepal

The history of Nepalese capital market began when Biratnagar Jute Mills Ltd. and Nepal Bank Limited floated their equity shares to the general public in 1937. Other early significant development relating to capital markets are the introduction of Company Act in 1964, the first issuance of Government Bond in 1964 and the establishment of Securities Exchange Centre Ltd. in 1976.

The Security Board was also established in 1982, which was another step towards the capital market development .Its main objective was to regulate and monitor the functions of the Security Exchange Center. Security Board (SEBON) has been working as an apex regulatory body to facilitate the orderly development of a dynamic and competitive capital market and has attempted to maintain its credibility, fairness, efficiency, transparency and responsiveness.

In the absence of developed securities market in Nepal, the government was the sole issuing authority of development bonds and national saving certificates. In initial period, only the government securities were traded in the market. Nepal Rastra Bank, as central bank, is responsible to mobilize resources on behalf of the

[2] US Department of State, Economic Prospectives Vol. 8, Number2, (Washington DC: US Department of State March 2003)

government to finance development activities and manage public debt under public debt act. Accordingly, NRB has been managing the issue of short term treasury bills and various types of development bonds to collect public debt for the development works from time to time. Ninety one days treasury bills of Rs.7 million were issued for the first time during June/July 1962. The government issued 6% Development bonds of Rs.13.1 million with a maturity period of five years for the first time on 12 February 1964.In 1965, 3% compensation bonds with a maturity period of 10 years were issued for the acquisition of Birta Land and 1% compensation bonds with a maturity of 20 years were issued for the acquisition of private forests. Non interest bearing Prize Bonds of 8.61 million were also issued to general public in 1969. NRB makes arrangement for the issue, register, purchase and sale, transfer of ownership and redemption of government bonds and debentures. These securities are traded under the sole management and supervision of NRB.

Institutional development of securities market in Nepal began when the securities exchange center (SEC) was established in 1976 under the company act. It was established with the objective of facilitating and promoting the growth of capital markets institution undertaking the job of brokering, underwriting, managing public issue, market making of government bonds and other financial services.

After the introduction of liberalized economic policy and the restoration of multiparty democracy in Nepal, the government converted Securities Exchange Center (SEC) into Nepal Stock Exchange ltd. (NEPSE) in 1993 under the provision of Securities Exchange Act 1983.

Primary Market: In Nepal there was no institutional arrangement to undertake new issue and manage the sale of shares and debentures of the corporate bodies before the establishment of the Securities Stock Exchange Center (SEC). A public limited company could make public offering according to the provisions of the Company Act, 1964. When the SEC came into existence, it started managing new issues of shares and debentures according to the Guidelines for new Issues and Sales Management, 1986.

Secondary Market: Initially, the public limited companies had to list their securities in SEC to qualify for trading. But the government bonds issued under the National Debt Act were exempted from such compulsory obligation. Securities Exchange Act 1983 made it obligatory to trade the securities through the recognized exchange center or their licensed brokers. As a result, the SEC opened its floor for secondary trading of corporate shares in 1984.

Over The Counter Market: OTC market is new concept in Nepalese share market. Nepal Security Board provided permission for operation of OTC market for Nepal Stock Exchange at B.S. 2065-Jestha 14. NEPSE started its work through

B.S. 2065-Jestha 22 opening separate counter other than regular activities. Now, shareholders of 38 de-listed and 2 not listed companies can take advantage through OTC.

After the formation of SEBON and conversion of SEC into NEPSE, brokers and market makers operate on the trading floor as per the Securities Exchange Act, Rules and Bylaws of NEPSE. NEPSE began its trading operation as a secondary market on 13 January 1994 through its licensed members. Now, the crying system on trading is developed as computerized system since August 2007. It makes easy to trade the securities and gain the information for investor and make easy for NEPSE and its brokers to perform their work. Currently it has 23 member brokers operating on its trading floor and additional broker selecting process is running. Altogether 144 companies have listed their shares to make them eligible for trading in the secondary market.

1.3 Commercial Banks

According to G. Crowther, "A bank is an institution which collects money from those who have it spare or who are saving it out of their income and lends this out to those who requires it." It is established by law. So it's a legal entity. Crowther has described that the merchants, money lenders and goldsmiths and the ancestor of modern bank.

According to the Black's Law Dictionary, "Commercial bank means a bank authorized to receive both demand and time deposits, to engage in trust services, to issue letter of credit, to rent time-deposit boxes and to provide similar services."

Commercial bank means a bank which operates currency exchange transactions, accepts deposits, provides loan; performs dealing relating of commerce except the banks which have been specified for the co-operative, agriculture, industry or other similar specific objectives.[3]

1.3.1 History of Commercial Banks in Nepal

The specific date of the beginning of money and banking transaction in Nepal is unknown. The banking functions were carried out in unorganized sectors. It is found that minted coins, copper coins, silver coins and gold coins were introduced by different kings.

Institutional development of modern banking in Nepal had begun from early 1990s. With the establishment of Nepal Bank Limited in 1994 B.S, the new era of

[3] Nepal Government. Commercial Bank act, 2031BS, Article 2 (a) Kathmandu: Nepal Law Book Management Committee, n.d.)

banking sector had started in Nepal. As a central bank, Nepal Rastra Bank was established in 2013B.S. under the provision of Nepal Rastra Bank Act 2012, with the objectives of helping in the development of monetary and financial sector by undertaking various functions.

Another step was added when Rastriya Banijya Bank was established in 1966(2022 BS) under the Banijya Bank Act 1965(2021 BS). Likewise, Agriculture Development Bank was established in 1965(2024BS) under the Agriculture Development Bank Act, 1968 (2024 BS) with the objective of increasing the life standard of those people who are involved in agriculture.
The banks opened before the decade of 1980s were by the government. No private sector was permitted to open banks in Nepal. The process of development of banking was not so satisfactory. In the early 1980s, the government adopted liberalized economic policies to develop the financial sector. As a pre-condition to economic liberalization, the Foreign Investment and Technology Transfer Act, 1981 came into existence. The government allowed private sectors to open banks. Joint venture projects were also allowed. Many joint venture commercial banks and financial institutions were established. As a result, Nepal Arab Bank Limited was established as a first joint venture commercial bank in 1985 under the provision of Commercial Bank Act, 1974 and Company Act 1965. Then, Nepal Indosuez Bank Limited was established in 1985 and Nepal Grindlays Bank Limited in 1986. In 2001, the name of Nepal Grindlays Bank Limited has been changed into Standard Chartered Bank Nepal Limited and Nepal Indosuez Bank Limited has been changed into Nepal Investment Bank in 2002, which has not foreign share now. After the restoration of multiparty democracy, the newly formed government adopted liberalized policies aimed at accelerating economic growth and considerably reducing state interference in business. The governments encouraged foreign and private investment by offering attractive incentives and facilities including 100% foreign ownership in all but few sectors. This help to create conductive business environment for banking. As a result, additional commercial banks came into existence. When the internal violence shows green signal to manage and Nepal Rastra Bank make ease for rules and regulations, many new commercial banks are coming existence and existing development banks and financial institutions are upgrading them as commercial banks. At present, there are 24 commercial banks registered and operated in Nepal up to 2064, Chaitra (Including Development and Credit Bank Ltd. Upgraded in commercial bank) (*See Annex- I*).

1.3.2 Functions of Commercial Banks

The main function of commercial banks include:(i) accepting deposits in the forms of current, savings and fixed deposits, (ii)providing short, medium and long term loans,(iii)acting as an agency in transfer of money, make payment on commission basis for the cheque, draft, bill of exchange etc. presented by the customer,

(iv) buying and selling shares and debentures of any company and government bonds, (v) collecting interest on debenture and government bonds, dividend on shares and funds from other banks for its customers, (vi) making payments on insurance premium, rent, income tax, school fees, telephone bills to the concerned offices on behalf of customers, (vii)carrying out the foreign currency exchange, and (viii)helping in foreign trade.
Moreover, other functions include:

- To protect the precious jewelleries.
- To provide travelers cheque.
- To facilitate in financial policy formulation by gathering and providing trading and monetary transaction related information.
- To underwrite the debentures.
- To accept the bill of exchanges.
- To provide advice to customers, entrepreneurs, and businessmen on economic matter.
- To create credit on the specific basis and expand credit.
- To issue credit card, debit card, master card, visa card etc.

1.4 Development Banks

Development bank means the banks that are established to mobilize skill, labor and capital for the development of a special sector of the economy, such as agriculture, industry, trade etc. After the development of central and commercial banks, the concept of development banks was stated. Mainly development banks works in these sector where commercial banks are not available or which needs special attention. Development banks not only provide financial assistance but also extend the technical services to their customers. The concept of development bank in Nepal is developed through the establishment of agricultural development bank in 2024 B.S.
"Development bank's aim is not to earn profit. Development banks are two types. The first development banks finances loans to farmers and other agricultural sectors for short, medium and long term purpose. The second development bank finances loans in the infrastructure development in a country."[4]

1.4.1 History of Development Banks in Nepal

The first development bank in Nepalese banking system is Nepal Industrial Development Corporation (NIDC). Though NIDC does not have word 'bank' in its name but its objectives and functions are same as any development bank. To promote industrialization in the economy NIDC was established with the objective of providing long term loan to the needy industry in 2016 B.S. (1959 A.D.). After

[4] Shakespeare Vaidya, Banking and Insurance Management, 3rd edition, (Bhotahity, Kathmandu, Talaju Publication, 2001).p.33

NIDC, agricultural development bank was establishment in 2024 B.S. Then, different rural development banks were establishment by the effects of different government agencies. Different regional rural development banks were previously established under the provision of the Commercial Bank Act, 2031and later their status was changed by the Development Bank Act, 2052 as development banks. After liberalization, many new development banks came into existence. The different banks which were previously established as development banks have changed their status. The Agricultural Development Bank received the license of class A that is available for commercial banks and other different development banks are also upgrading them as commercial banks. There are 58 development banks operating in different sector and different geographical region of Nepal up to Chaitra 2064(*See Annex- II*).

1.4.2 Functions of Development Banks

Without stating the word development bank in its provision the BFI Act, 2063 makes provision for the class B license to the banking companies which were makes previously involved in the development banking or want to be involved in the development banking. The section 47(2) determines the following functions for such banking companies;[5]

Subject to this Act and its memorandum and articles of association, a class B licensed institution may conduct the following types of financial transactions:

a. Accept deposits with or without interest, and refund such deposits, subject to the limit prescribed by the Rastra Bank.
b. Supply credits other than hypothecation credit as prescribed.
c. Deal in foreign exchange subject to current law and the directions of the Rastra Bank.
d. Supply credits for hire-purchase, leasing, housing and service enterprises.
e. Engage in merchant banking business subject to the directives of the Rastra Bank.
f. Supply or arrange for joining supplying credits on the basis of co- financing by joining hands with other licensed institutions according to the agreement conducted for the purpose so as to divide the collateral Pari Passu.
g. Supply credit against the guarantee provided by any local bank or financial institution.
h. Issue guarantees on behalf of its customers, have such customers execute necessary bonds in consideration thereof, obtain security, and acquire their moveable or immovable assets as collateral or on mortgage of the assets of third individual as collateral.
i. Issue, accept, pay, discount, or deal in bills of exchange, promissory notes, cheques, traveler's cheques, drafts or hundis.

[5] Banking low of Nepal, Resham Raj Regmi ,Exhibition Roads, Kathmandu, 2064, p. 33

j. Accept deposits, make payments and supply credits through automated teller machines and cash dispensing machines.
k. Grant overdraft to persons trusted by it.
l. Obtain credits by pledging its movable or immovable assets as collateral.
m. Supply a fresh credit in a lump sum or in installment against the security of the same movable or immovable assets which have already been pledged with it or with any other licensed institution, to the extent covered by the total value of such security.
n. Issue and accept letters of credit subject to the conditions prescribed by the Rastra Bank.
o. Remit or transmit funds to different Places within the territory of Nepal through bills of exchange, cheques or other financial instruments, deal in shares, debentures, bonds, etc. and collect dividends accruing on shares, and interest on promissory notes, debentures, bonds, etc.
p. Act as a commission agent of its customers, take custody of and arrange for the sale or purchase of shares, debentures or securities, and collect interests, dividends, profits, etc. accruing from shares, debentures, bonds, etc.
q. Issue guarantees on behalf of its customers, have such customers execute necessary bonds in consideration thereof, obtain security and acquire their movable or immovable assets as collateral or on mortgage or the assets of third individual as collateral.
r. Purchase, sell or accept loan-bonds issued by the government of Nepal or the Rastra Bank.
s. Arrange for safe deposit vaults.
t. Undertake off-balance sheet transactions subject to the conditions prescribed by the Rastra Bank.
u. Supply credits not exceeding the amount prescribed by the Rastra bank to ensure the economic upliftment of the destitute class, low-income families, and victims of natural calculations and inhabitants of any area of the country with the provision of individual or collective guarantee.
v. Exchange with the Rastra Bank or any other licensed institution particulars, information or notices regarding debtors or customers who have obtained creditors from it or any other licensed institution.
w. Provide guarantee to arrange for the supply of credit to its customers by any other licensed institution.
x. Mobilize capital through shares, debentures, bonds loan-bonds, saving-bonds, or other financial institutions subject to the limit prescribed by the Rastra Bank.
y. Obtain refinance credit from the Rastra Bank according to need, or obtain or supply creditors to or form other licensed institutions.
z. Supply funds received from the government of Nepal or other local or foreign agencies as credit for the promotion of projects, or manage such credits.

aa. Conduct or arrange for conducting studies, research and surveys relating to the establishment, operation and evaluation of projects, and impart trading and provide consultancy and other information.
bb. Write off credits subject to the bye-rules framed by the board.
cc. Prescribe conditions according to need in order to project is interests while supplying credits to or carrying out any transaction with any individual or institution.
dd. Supply installment or hire-purchase credit to any individual, firm, company or institution for vehicles, machinery, tools, equipment, durable household goods or similar other movable property.
ee. Operate projects such as those relating to purchase of lands and construction of building for land development and residential purpose, and sell or manage such lands and buildings, or make arrangements for doing so.
ff. Perform such other functions as are prescribed by the Rastra Bank.

In addition to giving detailed list of business which a banking company having class B license can do, this Act gives authority to NRB as a central bank to prescribe the other necessary functions which a development banks can do as per need of the hour. There is no negative list included for the development banks in the Act but it does not mean that the development banks can be involved in the non banking business. NRB is authorized to make limitation of functions to any banking companies.

1.5 Portfolio Risk and Return

Investment is made with the goal of earning some expected rate of return. Investors seek to minimize inefficient deviations from this expected rate of return. To minimize inefficient deviations, diversification is essential to the certain of an efficient investment as it can reduce the variability of returns around the expected return.

Diversification means dividing available assets across a number of different securities. The key to diversification is the correlation across the securities. Portfolio theory suggests creating a well-diversified investment portfolio that has the maximum return at whatever level of risk the investor seems appropriate. Portfolio theory was originally proposed by Harry M. Markowitz. Professor of Finance Harry M. Markowitz began a revolution by suggesting that the value of a security to an investor might best be evaluated by its mean return, its standard deviation (risk), and correlation to other securities in the portfolio.

Diversification is important for every investor. In fact, it is so important that Marry Markowitz won the Nobel Prize of 1990 largely for his work on

diversification. He developed a theory of diversification. This is also called "modern theory of portfolio management ".

Markowitz diversification based on the correlation. Under this theory if portfolio is made with combining assets which are less than perfectly positive correlated (+1), the reduction in risk is possible without sacrificing portfolio return. Lower the correlation between assets; more that Markowitz diversification will be able to reduce the portfolio risk. If the asset are perfectly negative correlated (-1), the risk-less portfolio is possible but it is rare in practical life.

Many portfolios can be made through our limited fund but our preference goes to select portfolio having higher level of return at given level of risk. Therefore trade off is required between risk and return of portfolio. To select the efficient portfolio we need first to calculate expected return and risk of the portfolio.

The essence of portfolio theory can be simply stated. The two characteristics of interest are the expected return from the portfolio, the whole (the risk characteristics of the portfolio) is unequal to the sum of the parts (the risk characteristics of the individual assets).

☻ Expected Portfolio Return

The expected portfolio return is the simple weighted average of the expected return from the investment represented by a portfolio. This expected return is calculated by determining the expected return of each component of the portfolio and using these returns to compute a weighted average. The weights used are the portfolio weights, which describe how the portfolio's investment is weighted among the various assets/securities. Portfolio weights are percentage of the total amount available to be invested in the portfolio and sum to 1. The expected return of a portfolio, $E(R_p)$, is calculated as:

Expected Portfolio Return = $E(R_p) = \sum_{j=1}^{n} X_j E(R_j)$

Where,

$E(R_p)$ = the expected return on the portfolio

$E(R_j)$ = the expected return of asset j

X_j = the portfolio weight for asset j, where $\sum W_j = 1.0$

n=number of assets/ securities in a portfolio

☻ Portfolio Risk

The portfolio risk is measured by the variance of the portfolio's rate of return distribution. The portfolio risk depends on the risk of the individual securities and the covariance between the return of the individual securities. The risk (variance of returns) from a portfolio made up of n assets is defined as:

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

OR,

$\sqrt{[X_i^2 \sigma_i^2 + 2 X_i X_j r_{ij} \sigma_i \sigma_j + X_j^2 \sigma_j^2]}$, for two assets portfolio,

Where,

X_i = proportion of investment in security i

X_j = proportion of investment in security j

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

σ_i = standard deviation of security i

σ_j = standard deviation of security j

1.6 Portfolio Management

Portfolio management is concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. The management may be by professionals, by others or by individual themselves. A portfolio of an individual or corporate unit is the holding of securities and investment in financial assets. These holding rate are the results of individual preferences and decisions regarding risk and return.

"Portfolio management is the art of handling a pool of funds so that it not only preserves its original worth but also over time appreciates in value and yields an adequate return consistent with the level of risk assumed."

The objective of portfolio management is to analyze different individual assets and delineate efficient portfolios. Specially, portfolio management will have the following objectives:-

- ➪Safety or security of investment through diversification
- ➪Risk avoidance or minimization of risk
- ➪Income through dividends and interests
- ➪Marketability of investment
- ➪Liquidity of investment
- ➪Tax planning – capital gain

1.7 Focus of the Study

Investors always invest their money with the hope of getting good or pretty return on their investable funds. All the investors who invest their funds are not rational investors so they invest their life time earnings in the securities without analyzing different indicators but only by reading melodious slogans. So the study is concentrated to find out portfolio alternative on the empirical study of those stocks trading at NEPSE, which is secondary market in Nepal.

Hence, this study is mainly focused on the portfolio risk and return of the commercial and development banks. The study also focuses on the market volatility of those stocks. It is also focused on how an investor manages his/her investable fund in order to maximize their return and reduce risks. Whether he/she has adopted appropriate diversification into practice or not is another aspect of the study.

1.8 Statements of the Problem

"The investment process is concerned with how an investor should go about making decision with regard to what marketable securities to invest in, how extensive the investment should be and when the investment should be make."[6]

Most of the Nepalese investors invest their fund in non productive sector like land, building and jewelries. They deposit their fund in bank for nominal interest rate. Due to this, investors seem to invest their money in stock market even though it is new concept in Nepal. There is single stock market, i.e. NEPSE. There is no investment analyst rendering professional services to investors except few cases. There is big chance to be manipulated. Investors don't use the related information during investing their fund. Most of the investors are claiming that they are being cheated by the financial institution, intermediaries and brokers. It arises a question whether Nepalese investors make their investment by studying the market and risk return status of securities or just they gamble to make the profit. The price of stock is very much sensitive in a free market economy. Many factors affect the value of stock directly or indirectly. Risk associated with return is not analyzed by investors before making investment. Whether the stock price of Nepalese commercial and development banks are correctly priced or not, is another aspect of the study. The stock market is facing many difficulties, even investors too. Most of the investors are misadvised by brokers. They only observe market price when making investment. They don't analyze risk associated with return. Primary market is seen more attractive than that of secondary market.

[6] William F. Sharpe et al., *Investments*. (New Delhi: Prentice Hall of India,2003), p.1

Most of the Nepalese investors are not professional investors. They don't analyze the performance and information regarding the companies. They invest when the price of securities in NEPSE is getting rise and draw it hurriedly when it is getting down. They don't use the technique of portfolio investment. They have only seen or listen how much money have someone made by investing in securities and they follow them. Only few investors analyze the securities before buying or purchasing them. In a nutshell:

- How risk and return are related each other?
- Whether the stock is overpriced or under-priced?
- Which is the best portfolio for investment?
- How the returns are correlated with each other?
- Whether the investors analyze the risk and return or not?
- What type of diversification strategies and investment strategies are Nepalese investors adopting?

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

1.9 Objectives of the Study

The general objective of this study is to analyze the portfolio on investment with reference to listed commercial banks and development bank in Nepal. However, the specific objectives are as follows:

1. To study the return and risk of securities of selected commercial and development bank.
2. To study the prices of shares of selected commercial and development banks whether they are correctly priced or not.
3. To analyze the portfolio return and risk of the selected commercial and development banks.
4. To provide suggestions and recommendations on the basis of major findings.

1.10 Significance of Study

First of all, it is the fact that this study is undertaken to apply the theoretical concepts and knowledge of Financial Management to the practical aspects as a partial fulfillment of the requirement of Master of Business Studies (MBS) under faculty of Management, Tribhuvan University.

Moreover, investment practices under the organized stock exchanges are heading progressively in Nepal. Some studies and researches have been undertaken regarding the stock market. Since we are moving towards the free and open market economy, such studies have become more significant. Due to growing number of investors, such type of study helps them to make rational investment decision. Hence, this study assess the risk and return characteristics of the stocks to make them eligible for trading in primary as well as secondary market. Hence, this study is a additional brick of continuous research process.
The main significance of the study is:-

1. To diversify the risk with the help of optimum portfolio selection
2. The study will provide a guideline for a rational investor
3. It will be valuable property for the library use
4. The study will be used as a pilot work for the future research
5. It will be helpful to NEPSE, Commercial and development banks.

1.11 Limitation of the Study

Each study is conducted under some constraints and limitations. Likewise, this study is also limited by some common constraints. This study is based on the fundamental analysis of the common stocks of the selected commercial and development banks which have issued their shares to general public and listed their shares in Nepal Stock Exchange Limited to make them eligible for trading. However, the specific limitations of the study are as follows:

- The study is based on secondary data. However primary data have also been used to analyze the investors' behavior during the course of investment.
- Data of the stocks of the respective Commercial and Development banks traded in NEPSE with in the last 5 year (2003-2007) are only considered.
- The study area is also limited; it is oriented within the Kathmandu valley only.
- When analyzing portfolio risk and return, only six listed companies are considered from two sectors and three from each sector.
- The Ace Development Bank is taken as sample from the sector of development bank; it was operating as financial company before

being changed into development bank. Likewise the Development Credit Bank has changed into commercial bank.

- This study is affected by financial resources of the student. Time and work forces are also factors of limitation in undertaking this study.

1.12 Structure of the Study

This study has been organized in to five chapters. They are as follows:-

1. Introduction
2. Review of literature
3. Research methodology
4. Presentation and analysis of data
5. Summary, conclusion and recommendation.

→ The first chapter contains the introduction part of the study. It gives some earlier history of concern title and some related term as well. It presents systematically the objective of the research, problem of the study, signification of the study and limitation of the study.

→ The second chapter is review of literature which presents some principles, theoretical aspects, some pilot studies had been made under the topics of the thesis, some reports, journals and some relevant studies on the topics of this thesis.

→ Similarly, the third chapter explains the research methodology including research design, nature and resource of data, sample size, data collection procedure, tabulation, analysis and interpretation of data, period covered of research and review of literature.

→ The fourth chapter presents analysis and interpretation data. It particularly concentrated to trace out the fact by the given data through the primary and as well as secondary.

→ The fifth chapter concerns with summary, conclusion and recommendations for future improvement of corporation.

CHAPTER II

REVIEW OF LITERATURE

The primary concern of this study is to focus on portfolio management theories; diversification and asset allocation concepts and risk return characteristics of the common stocks. Theoretical aspects of return and risk are explained in this chapter. Furthermore, some books and journals related to financial management and other related studies have been reviewed. In Nepal, independent researches have not yet been reviewed.

2.1 Conceptual /Theoretical Reviewed

Conceptual and theoretical review deals with the theoretical aspects of investment, return, risk, portfolio, diversification etc. Various books are reviewed under this.

2.1.1 **Investment**

"Investment in its broadest sense means the sacrifice of current dollars for future dollars. Two different attributes are generally involved: time and risk. The sacrifice takes place in present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain."[7]

Investment Process:[8]

The investment process describes how an investor should go about making decisions with regard to what marketable securities to invest in, how extensive the investment should be, and when the investment should made. The formal investment process includes:

1. Set Investment Policy: It involves determining the investor's objectives and amount of his or her invest-able wealth. Investment objective should be stated in terms of both risk and return.
2. Perform Securities Analysis: It involves examining several individual securities or group of securities within the broad categories of financial assets previously identified.
3. Construct a Portfolio: The third step in the investment process, portfolio construction, involves identifying those specific assets in which to invest, as well as determining the proportions of the investor's wealth to put into

[7] Francis, op cit., p 1
[8] Sharpe et al., op cit., pp. 11-14

each one. Here the issues of selectivity, timing and diversification need to be addressed by the investor.

4. Revise the Portfolio: Portfolio revision concern with the periodic repetition of previous three steps. That is, overtime the investor may change his or her investment objectives, which in turn may cause the currently held portfolio to be less than optimal.
5. Evaluate the Performance of the Portfolio: It involves determining periodically how the portfolio performed, in terms not only the return earned but also the risk experienced by the investor.

2.1.2 **Common Stock**

"Common stock represents equity or an ownership position in a corporation. It is a residual claim, in the sense that creditors and preference share holders must be paid as scheduled before common stock holders can receive any payments. In bankruptcy, common stock holders are in the principal entitled only to any value remaining after all other claimants have been satisfied."

Common stock holders are entitled certain rights, which are as follows:

- Control through voting rights
- Primitive right
- Residual right
- Limited liability
- Right to income and distribution of additional shares

Common Stock Values

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

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 the common stock remains unchanged unless and until the stock split or reverse split exists. Generally common stocks carry Rs.100 par value.

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 stock holder's equity is the book value of the equity.

Book Value of Equity = Cumulative Retained Earning + Capital Contributed in excess of part + Common stock

The book value per share is obtained by dividing the book value of the equity by the number of shares outstanding. Higher the profit, higher the book value.

Market Value: The value of share in the secondary market traded between investors and traders is the market value. Market value is the consequence of demand and supply. It is influenced by various factors such as economic and industrial conditions, expected earnings and dividends and market and company risk considerations.

2.1.2.1 Return on Common Stock

Single Period Return

The investment return is defined as the after tax increase in the value of the initial investment. The increase in value comes from two sources: a direct cash payment to investor or an increment in the market value of stock. The rate of return over the holding period, or holding period return (HPR) is computed as:

$$\textbf{HPR}= \frac{Ending\ \text{Pr}ice - Begining\ \text{Pr}ice + Cash\ \text{Re}ceipts}{Begining\ \text{Pr}ice}$$

The holding period returns are often calculated for periods other than one year, for this reason, the length of the holding period must always be indicated for specific HPR. Many HPRs over periods shorter or longer than one year are annualized. In general, if the length of the holding is not specified, it is assumed to be one year.

Annualized Holding Period Returns

"Holding period returns measure mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate of return as an investment yield. The yield calculation is present value based and this considers the time value of money."[9]
HPRs are reported as an annual equivalent. One possible measure of annualized HPR might be the average of several HPR_s such as:

$$\overline{HPR} = \frac{\sum_{t=1}^{r}(HPR)}{n}$$

[9] James c. Van Horn and Jr. John M. Wachowicz Fundamentals of financial management, Ninth Edition. (USA:Prentic Hall Inc., p. 90

However, the simple arithmetic averaging ignores the compounding effect that results if first period's return is reinvested. In addition, the result of an arithmetic average return can be distorted if there are large differences in the rate of returns across time periods. Large differences in the periodic rates of return over longer investment horizons will cause the arithmetic rate of return to be misleading.

The geometric mean rate of return does not suffer from this flaw. The geometric mean rate of return, $\overline{HPR}_g$, is defined as the rate of return that would make the initial investment equal to the ending investment value. Annualized rate of return is calculated as:

Annual rate of return (R) = $(1+HPR)^{1/n}$ -1

Required Rate of Return

"When setting the required rate of return on an investment, an investor must consider the real rate of return, expected inflation and risk. Because consumption is foregone today, the investor is entitled to a rate of return that compensates for this deferred consumption. Since the investor expects to receive an increase in real goods purchased later, and assuming for the moment, zero inflation and risk, the required rate of return equals the real rate of return, in which it would represent the pure time value of money. The capital market determines this rate based upon the supply of money to be invested relative to the demand for borrowed money."[10]

The required rate of return is the minimum rate of return that an investor expects from his/her investment in risky assets. It is the function of real rate of return and risk. The required rate of return is the return on risk free assets i.e. government securities plus risk premium. It is determined by CAPM/SML.

The required rate of return using CAPM/SML is:
Required rate of return, (K) = $R_f + (R_m - R_f)$

Expected Rate of Return

If an investment is to be made, the expected rate of return or expected holding period return should be equal or greater than the required rate of return for that investment. The expected rate of return is based upon the expected cash receipts (e.g. dividends or interest) over the holding period and expected ending or selling price. The expected rate of return is an ax-ante or unknown future return.

[10] John M. Cheney &Edward A. Moses. Fundamentals of Investment. 5th Edition. (New York: West Publishing Company, 1995) p. 33

If the investor can describe the possible variables that will influence each of the possible rates of return and assign probabilities to these outcomes, the expected rate of return should equal the weighted average of the probabilities. Listing the possible investment results and assigning probabilities to each of these outcomes is the same as creating a probability distribution in statistics. Probability distributions are used to describe possible outcomes and to assign individual probabilities, from zero (no chance of occurring) to one (full certainty that the outcome will happen), to each possible outcome.

The investor has forecasted possible outcomes, each based on a possible state of economy. Each economic state will result in a different expected rate of return. Subjective probabilities are assigned to each outcome. The overall expected rate of return, E(HPR) can be calculated as a weighted average of the their forecasts.

$$E(HPR) = \sum_{j=1}^{n} P_j \times HPR_j$$

2.1.2.2 Risk on Common Stock

Different people interpret uncertainties and risks in different ways. It is simply lack of definite outcome or chance of losing something due to presence of some unfavorable conditions. However risk is the product of uncertainty. Although risk arises from uncertainty, its magnitude depends upon the degree of variability in uncertain cash flows and it is measured in terms of standard deviation.

"In a world of uncertainty, expected return may not be realized. Risk can be the possibility of the actual return from holding a security will deviate from the expected return. The greater the magnitude of deviation and greater the probability of its occurrence, the greater is said to be the risk of the security."[11]

Financial analysts and statisticians prefer to use a quantitative risk surrogate called the variance of return, denoted by Var(r). The variance of asset's rates of return equals the sum of the products of the squared deviations of each possible rate of return from the expected rate of return multiplied by the probability that the rate of return occurs.[12]

$$Var(r) = \sum_{t=1}^{T} P_t[r_t - E(r_t)]^2$$

$$= P_1[r_1 - E(r_1)]^2 + P_2[r_2 - E(r_2)]^2 + ... + P_T[R_T - E(R_T)]^T$$

[11] James C van Horne. Financial Management and Policy. (New Delhi: Prentice Hall of India Pvt. Ltd., 2000), p. 35

[12] Francis op. cit. pp.12-13

The square root of the variance of the rates of return is called the standard deviation (σ) of the return.

Standard deviation (σ) = $\sqrt{Var(r)}$

The standard deviation and the variance are equally acceptable and conceptually equivalent quantitative measures of an asset's total risk.

Source of investment risk

Every investment involves uncertainties that make future investment returns risky. The sources of uncertainty that contributes to investment risk are:

i. Interest rate risk: It is defined as the potential variability of returns caused by changes in the market interest rates. If market interest rate rise or fall, then the investment's present value will fall or rise. Present value moves inversely with changes in the market rate of interest. The interest rate risk affects the prices of bonds, stocks, real estate, gold, puts, calls, future contracts, and other investments as well.

ii. Purchasing Power Risk: It is the variability of return an investor suffers because of inflation. Economics measures the rate of inflation by using a price index. The percentage change in the consumer price index is a widely followed measure of the inflation.

iii. Bull –Bear Market Risk: It arises from the variability in market returns resulting from alternating bull and bear market forces.
When a security index rises fairly consistently from a low point, called a trough, for a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the trough is called a bear market. Bull market that usually rise more than enough to compensate for the bear market losses follow bear market. But the alternating bull and bear market forces create a potential source of investment risk.

iv. Management risk: Errors made by business managers can harm those who involves in their firms. Forecasting management errors is difficult work that may not be worth the effort and, as a result, imports a needlessly skeptical outlook. **Agency theory** provides investor with an opportunity to replace skepticism with informed insight as they endeavor to analyze subjective management risks.

v. Default Risk: Default risk is that portion of an investment's total risk that results from changes in the financial integrity of the investment.

The variability of return that investors experience as a result of changes in the creditworthiness of a firm in which they invested is their default risk.

vi. Liquidity Risk: liquidity risk is that portion of an asset's total variability of return which results from price discounts given or sales commission paid in order to sell the assets without delay.

vii. Callability Risk: some bonds and preferred stocks are issued with a call provision. It is called call provision because it allows them to buy back outstanding preferred stocks and/ or bonds with the funds from a new issue if market interest rates drop below the level being paid on the outstanding securities. But whatever the issuing company gained by calling on issue is gained at the expense of the investors who have their securities called. That portion of a security's total variability of returns that derives from the possibility that the issue may be called is the **Callability Risk**. Callability risk commands a risk premium that comes in the form of slightly higher average rate of return. This additional return should increase as the risk that the issue would be called increase.

viii. Convertibility Risk: Conversion is a contractual stipulation that is included in the term of original issue. This provision alters the variability of returns from the security.

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

ix. Political Risk: Political Risk arises from the exploitation of a politically weak group for the benefit of a politically strong group, with the effects of various to improve their relative position increasing the variability of return from the affected asset regardless of whether the charges that causes political risk are sought by political or by economic interests, the resulting variability of return is called political risk if it is accomplished through legislative, judicial or administrative branches of the government. Political risk can be international as well as domestic.

X. Industry Risk: Industry Risk is that portion of an investment's total variability of return caused by events that affects the products and firm that make up an industry. The stage of the industry's life cycle, international tariffs and/ or quotas on the products produced by an industry, product or industry related taxes, industry wise labor union problems, environmental restrictions, raw material availability, and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commodities, the prices of the securities issued by competing firms tend to rise and fall together.

The above mentioned uncertainties are the major source of investment. Moreover, there might be numerous minor sources of investment risk. The above said major sources are of additive nature which add up to total risk i.e. variance.

2.1.3 **Trade – off between Risk and Return**

Risk is complicated subject and needs to be properly analyzed. The relationship between risk and return is described by investor's perception about risk and their demand compensation. No investor will like to invest in risky assets unless he is assured of adequate compensation for the assumption of risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rational investor, higher risk will command by rational premiums and the trade – off between the two assumes a linear relationship between risk and risk premium.

The best mix of expected return and standard deviation for a security portfolio depends on the investor's utility function. If you are a risk-averse investor who associate risk with divergence from expected value of return, your utility function might be depicted in the following figure. The expected return is plotted on the vertical axis, while the standard deviation is along the horizontal.

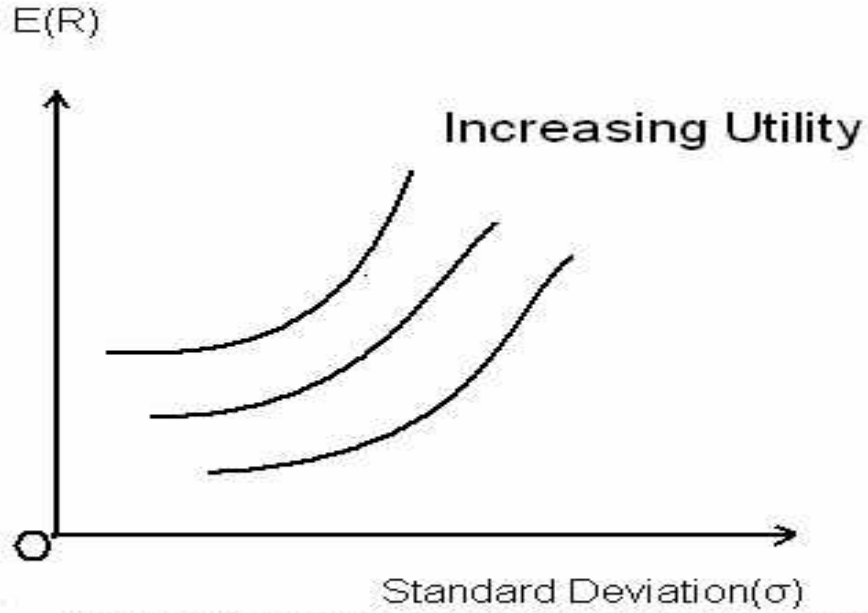

Figure 2.1: Hypothetical Indifference Curve

Source: James C. Van Horne, Financial Management and Policy. 11th edition(New Delhi: Prentic Hall of India, 2000)P.59

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

The greater the slope of indifference curves, the more averse the investor is to risk. As we move to the left in Fig.2.1, each successive curve represent a higher level of expected utility. It is important to note that the exact shape of the indifference curves will not be the same for different investors. While the curves for all risk-averse investors will be upward sloping, a variety of shapes are possible, depending on the risk preferences of the individual. As an investor, you want to hold that portfolio of securities that places you on the highest indifference curve.

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

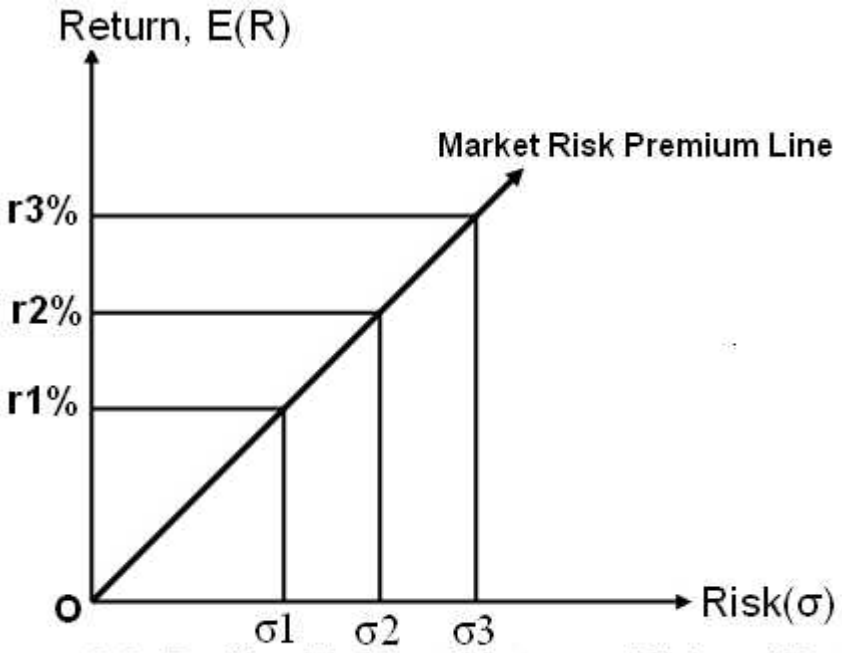

Figure: 2.2- Positive Trade-off between Risk and Return

The figure 2.2 represents a higher risk premium. For taking risk σ1, the expected return is r1 when an investor assumes σ2, the return must be r2 increasing the return (risk premium) by r2-r1 for assuming more risk: σ2- σ1. The assumption of linear relationship states that *the risk premium must increase or decrease in proportion to a change in level of risk.* It also indicates **–** *higher the risk, higher the return and lower the risk, lower the return.*

2.1.4 Portfolio Analysis

2.1.4.1 Portfolio and Diversification

According to Jack Clark Francis, "Investment positions are undertaken with the goal of earning some expected rate of return. Investors seek to minimize inefficient deviations earning some expected rate of return. Diversification is essential to the creation of an efficient because it can reduce the variability of returns around the expected return.

Raymond, Brockington defined, "The term 'Portfolio' simply means collection of investments. For an investor through the stock exchange will be a collection of shareholdings in different companies. For a property investor, portfolio will be a collection of buildings. To a financial manager with in an industrial company, portfolio will be a collection of real capital projects. It will be apparent that the actual nature of the components of portfolio demands on the population of opportunities from which the selection has been made."[13]

Feorge B. Cohen et al. defined the portfolio management as- "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."[14]
According to Francis- "Portfolio is simply a combination of two or more securities or assets."[15]

"The portfolio manager seeking efficient investments works with two kinds of statistics –expected return statistics and risk statistics. The expected return and risk statistic for individual assets are the exogenously determined input data analyzed by the portfolio analyst. The objective of portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor seems appropriate."[16]

Diversification is a risk management technique that mixes a wide variety or investment within a portfolio performance. "Diversification is possibly the greatest way to reduce the risk. This is why mutual funds are so popular."[17]
Diversification means reducing the investment risk by dividing the investment among a variety of assets. Diversification helps to reduce risk because different investment will rise and fall independent of each other.

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[13] Raymond Brockington
[14] Feorge, op. cit., p. 75
[15] Francis, op. cit., p. 229
[16] Van Horne and Wachowicz, op. cit., p. 90
[17] http://www.investopedia.com

"Diversification in investments can be achieved in many different ways. Individuals can diversify across one type of asset classification –such as stocks. To do this, might purchase shares in the leading companies across many different (and unrelated) industries. Many other diversification strategies are also possible. You can diversify your portfolio across different types of assets (for example stocks, bonds, and real estate) or diversify by regional decisions (such as state, region, or company). Thousands of opinions exist."[18]

The common saying "Don't put all your eggs in one basket" is the essence of the principle of diversification. Because all investments carry with them some level of risk, it is important to diversify and spread your money into many different investments.

"Diversification is important for every investor. In fact, it is so important that in 1990, Harry M. Markowitz won the Nobel Prize largely for his work on diversification."[19]

"Investors can reduce their potential for loss through diversification… the key to diversification is the age -old adage, "don't put all your eggs in one basket". The main point of diversification is to reduce risk rather than improve expected return.... This is the power of diversification: The whole is grater than the sum of its parts."[20]

Diversification can help to reduce portfolio risk by eliminating unsystematic risk for which investors are not rewarded. Investors are rewarded for taking market risk. By choosing securities of different companies in different industries, we can minimize the risk associated with a particular company's "bad luck". Diversification among companies, industries and assets classes affords the investor the greatest protection against business risk, financial risk and volatility.

Investments whose price movements are opposite each other is said to be negatively correlated. When negatively correlated assets are combined within a portfolio, the portfolio volatility is reduced. Markowitz diversification is more analytical than simple diversification and considers asset's correlation (or covariance). The lower the correlation between assets, the more that Markowitz diversification will be able to reduce the portfolio's risk.

Applying Markowitz diversification to a collection of potential investment assets with a computer is called Markowitz Portfolio Analysis. It is scientific way to manage a portfolio, and its results are quite interesting. Since Markowitz portfolio

[18] http://www.ameritrade.com
[19] http://www.nefe.org
[20] http://www.dfaus.com

analysis considers both the risk and return of dozens, hundreds, or thousands of different securities simultaneously, it is more powerful methods of analyzing a portfolio than using intuition.

☻ Expected Portfolio Return

The expected portfolio is the simple weighted average of the expected return from the investment represented by a portfolio. This expected return is calculated by determining the expected return of each component of the portfolio and using these returns to compute a weighted average. The weights used are the portfolio weights, which describe how the portfolio's investment is weighted among the various assets/securities. Portfolio weights are percentage of the total amount available to be invested in the portfolio and sum to 1. The expected return of a portfolio, $E(R_p)$, is calculated as:

Expected Portfolio Return = $E(R_p) = \sum_{j=1}^{n} X_j E(R_j)$

Where,

$E(R_p)$ = the expected return on the portfolio

$E(R_j)$ = the expected return of asset j

X_j = the portfolio weight for asset j, where $\sum W_j = 1.0$

n=number of assets/ securities in a portfolio

☻ Portfolio risk

The portfolio risk is measured by the variance of the portfolio's rate of return distribution. The portfolio risk depends on the risk of the individual securities and the covariance between the return of the individual securities. The risk (variance of returns) from a portfolio made up of n assets is defined as:

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

OR,

$\sqrt{[X_i^2 \sigma_i^2 + 2 X_i X_j r_{ij} \sigma_i \sigma_j + X_j^2 \sigma_j^2]}$, for two assets portfolio,

Where,

X_i = proportion of investment in security i

X_j = proportion of investment in security j

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

$\pm_i$ = standard deviation of security i

$\pm_j$ = standard deviation of security j

Risk: Systematic vs. Unsystematic Risk

Systematic Risk: systematic risk is the variability of a security's return with that of the overall stock market. It is also called unavoidable risk. It is measured by beta. The beta of a stock is the slope of the characteristics line between returns for the stock and those for the market. Beta depicts the sensitivity of the security's excess return to that of the market portfolio. If the slope is 1, it means that excess return for the stocks vary proportionately with excess return for the market portfolio. In other words, the stock has the some unavoidable or systematic risk as the market as a whole. A slope steeper than 1 means that the stock's excess return vary more than proportionately with the excess return of the market portfolio. Put another way, it has systematic risk than the market as a whole. This type of stock is often called an 'aggressive' stock. And a slope less than 1 means that the stock has less unavoidable or systematic risk than does the market as a whole. This type of stock is called a 'defensive' stock.

"Changes in the economic, political and sociological environment that affect securities are the sources of systematic risk. Systematic variability of return is found in nearly all securities to varying degrees because most securities tend to move together in a systematic manner."

Unsystematic Risk: It is the amount of a stock's variance unexplained by overall market movements. It can be diversified away. It derives from the variability of the stock's excess return not associated with movements in the excess return of the market as a whole.

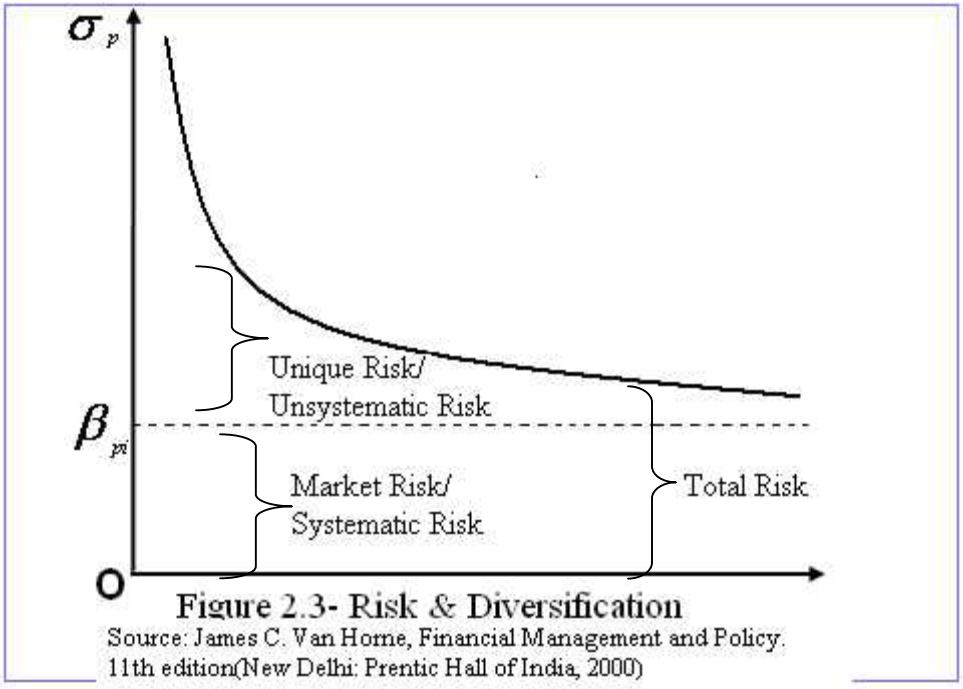


Figure 2.3- Risk & Diversification

Source: James C. Van Horne, Financial Management and Policy. 11th edition(New Delhi: Prentic Hall of India, 2000)

"Events such as labor strikes, management errors, inventories, advertising campaigns, shift in consumer taste, and lawsuits cause unsystematic variability in the value of a market asset. Since unsystematic changes affects one firm, or at most a few firms, they must be forecast separately for each firm and for each individual incident. Unsystematic security price movements are statistically independent from each other, and so they may be averaged to zero when different assets are combined to from a diversified portfolio. Therefore, unsystematic risk is also called diversifiable risk."

2.1.4.2 Markowitz Portfolio Selection Model

A portfolio is a collection of securities. There exists a problem of portfolio selection. Investors face a problem of selecting optimal portfolio from a set of possible portfolios. Hence, it is often referred to as portfolio selection problem. One solution to this problem was put forth in 1952 by Harry M. Markowitz, when he published a landmark paper that is generally viewed as the origin of the modern portfolio theory approach to investing.

Markowitz's approach begins by assuming that an investor has a given sum of money to invest at the present time. This money will be invested for a particular length of time known as the investor's holdings period. At the end of holding period, the investor will sell the securities purchased at the beginning of that period.

Markowitz's model is a theoretical framework for the analysis of risk –return choices. Decisions are based on the concept of efficient portfolios. A portfolio is said to be efficient when it provides maximum expected return for the same level of risk or bears minimum risk for the same level of return.

Portfolio Theory Assumption

The portfolio selection model developed by Harry M. Markowitz is based on several assumptions regarding investor's behavior.

i) Investors consider each investment alternative as being represented by a probability distribution of expected returns over same holding period.
ii) Investors maximize one period- expected utility and possess utility curve, which demonstrates diminishing marginal utility of wealth.
iii) Individuals estimate the risk on the basis of the variability of expected returns.
iv) Investors take decisions solely based on expected return and variance of returns only.
v) For a given risk level, investors prefer high returns instead of lower returns. Similarly, for a given level of expected return, Investors prefer less risk instead of more risk.

2.1.4.3 The Efficient Set Theorem

An infinite number of portfolios can be formed a set of N securities. The investor can buy any one security or buy more securities in order to create a portfolio. An investor can distribute his or her investing money in different securities.

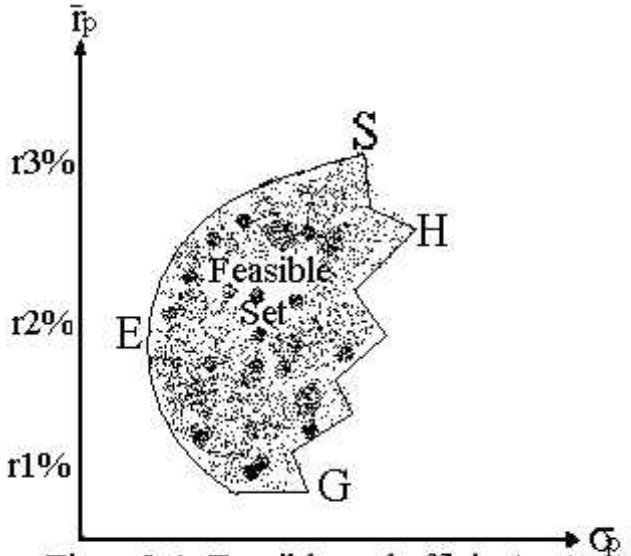


Figure2.4- Feasible and efficient set

Source: Willim F. Sharpe et al.. Inveatments. 6th edition 11th edition(New Delhi: Prentic Hall of India, 2000) p. 172

The investor should not have to evaluate all these portfolios. The investor can select an optimal portfolio from a feasible set of portfolios. Efficient set theorem states that:
An investor will choose his or her optimal portfolio from the set of portfolio that

1) Offer maximum expected return for varying level of risk, and
2) Offer minimum risk for varying level of expected return.

The set of portfolios meeting these two conditions is known as the efficient set. Efficient set is also known as the efficient frontier.

2.1.4.4 The Feasible Set

Figure 2.4 is an illustration of the location of the feasible set/ the opportunity set. Efficient set can be identified from the feasible set. The feasible set simply represents all portfolios that could be formed from a group of N securities. All the possible portfolios, which could be formed from the N securities, lie either on or within the boundary of feasible set. In general, this set will have an umbrella type shape similar to the one shown in the figure 2.4.

2.1.4.5 The Efficient Set Theorem applied to the Feasible Set

The efficient set can now be located by applying the efficient set theorem to this feasible set. To begin with, the set of portfolios that meet the first condition of the efficient set theorem must be identified. Looking at figure 2.4, there is no portfolio offering less than that of portfolio E because if a vertical line were drawn through E, there would be no point in the feasible set that is to the left of the line. Also, there is no portfolio offering more risk than that of portfolio H because if a vertical line were drawn through H, there would no point in the feasible set to the right of the line. Thus the set of portfolios offering maximum expected return for varying level of risk is the set of portfolios lying on the northern boundary of the feasible set between points E and H.

Considering the second condition next, there is no portfolio offering an expected return grater than portfolio S (because no point in the feasible set lies above a horizontal line going through S). Similarly, there is no portfolio below G, because no point in the feasible set lies below a horizontal line going through G. Thus, the set of portfolios offering minimum risk for varying levels of expected return is the set of portfolios lying on the western boundary of the feasible set between G and S.

Remember that both conditions have to be met in order to identify the efficient set. It can be seen that only those portfolios lying on the northwest boundary between points E and S do so. Accordingly, these portfolios form the efficient set and it is from this set of efficient portfolios that the risk-averse investor will find his or her optimal one. All the other feasible portfolios are inefficient portfolios and can be ignored.

2.1.4.6 Selection of the Optimal Portfolio

To select an optimal portfolio, an investor should plot his or her indifference curves on the efficient set and then proceed to choose the portfolio that is on the indifference curve that is farthest northwest. This portfolio will correspond to the point at which an indifference curve is just tangent to the efficient set. As can be seen in the figure 2.5, this is portfolio O* on indifference curve I2. Although the investor would prefer a portfolio on I3, no such portfolio exists; wanting to be this indifference curve is just wishful thinking. In regard to I1, there are several portfolios that the investor could choose (for example O). However, the figure shows that portfolio O* dominates such portfolios because it is on an indifference curve that is farther northwest. The portfolio selection for a highly risk- averse investor has been shown in Figure 2.6.

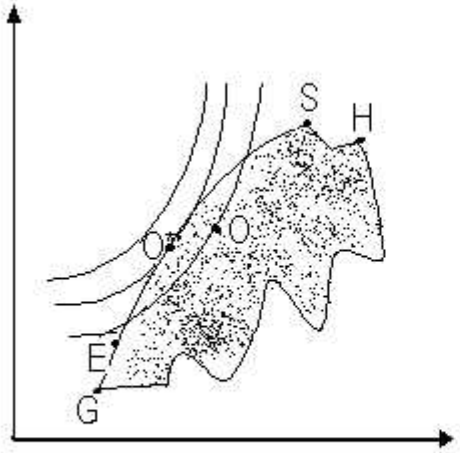


Figure:2.5 Selecting an Optimal Portfolio
Source: Willim F. Sharpe et al. Investment. 6th edition. (New Delhi: Prentice Hall of India Limited, 2002) p. 173

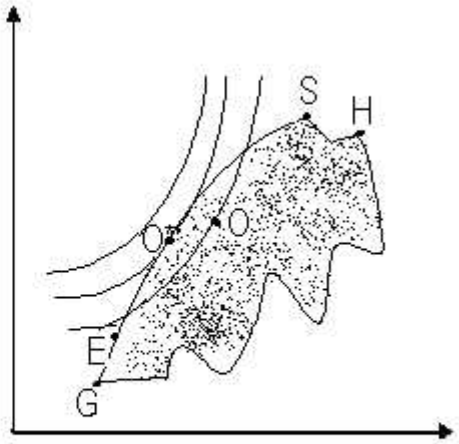


Figure2.6: Portfolio Selection for a Highly Risk- Averse Investor
Source: Willim F. Sharpe et al. Investment. 6th edition. (New Delhi: Prentice Hall of India Limited, 2002) p. 174

Upon reflection, the efficient set theorem is quite rational. The efficient set theorem, stating that the investor needs to be concerned only with portfolios that lie on the northwest boundary of the feasible set, is a logical consequence.

2.1.5 Capital Asset Pricing Model (CAPM)

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

"The capital assets pricing model states that the expected risk premium on each investment is proportional to it's beta. This means that each investment should lie on the sloping security market line connecting Treasury bills and Market Portfolio."

In market equilibrium, a security will be expected to provide a return commensurate with its *unavoidable risk.* This is simply the risk that cannot be avoided by diversification. If greater the unavoidable risk of a security, the greater the return that investors will expect from the security. The relationship between expected return and unavoidable risk, and the valuation of securities that follows, is the essence of the capital assets pricing model (CAMP). This model was developed by William F. Sharpe (1990 Nobel prize winner in economics) and John Lintner in the 1960s, and it has had important implications for finance ever since.

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

$$E(R_j) = R_f + [E(R_m) - R_f]_{\ j}$$

Where,

$E(R_j)$ =the expected or ex-ante return on the jth risky asset

R_f = the rate of return on a risk less asset

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

$_j = Cov(R_j, R_m)/Var(R_m)$ =a measure of the un-diversifiable risk of the j^{th} security.

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

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

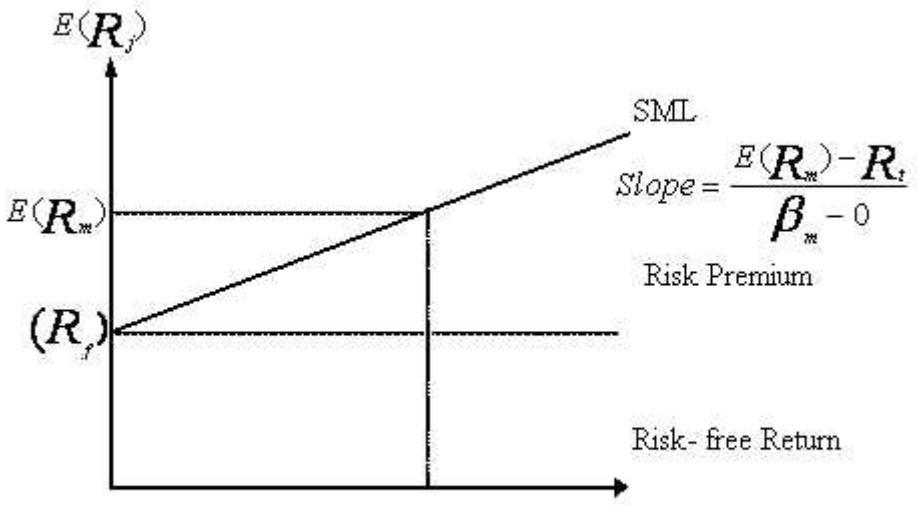


Figure 2.7: The Security Market Line/CAPM
Source: James C. Varn Hon. Financial Management and Policy. 11th edition (New Delhi:Prentice Hall of India Limited,2000)p. 71

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

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

William F. Sharpe in his Autobiography states, "The CAPM is built using an approach, familiar to every micro economist. First, one assumes some sort of maximizing behavior on the part of participants in a market: then one investigates the equilibrium conditions under which such markets will clear. Since Markowitz had provided a model for the requisite maximizing behavior, it is not surprising that I was not alone in exploring its implications for market equilibrium. Sometimes in 1963, I received an unpublished paper from Jack Treynor containing somewhat similar conclusions. In 1965, John Linther published his important paper with vary similar results. Later, Jan Mossin published a version that obtained the same relationship in a more general setting."

Assumption of the CAPM

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

1. All investors are risk-averse. Thus, all investors seek to be on the efficient frontier.
2. There are no constraints on the amount of money that can be borrowed or lent. Borrowing and lending occur at the identical risk –free rate, R_f.
3. All investor have identical beliefs about the expected return and risks of assets and portfolios; that is all investors have homogeneous expectations.
4. All investors have a common investment horizon, whether it be one months, one year, or whether.
5. All the investments are infinitively divisible and marketable; that is, it is possible to buy or sell any portion of an asset or portfolio.
6. Taxes and transaction costs do not exist. That is, there are no tax effects, costs of acquiring information or transaction costs associated with buying or selling securities. There are often referred to as perfect market assumptions. Markets are assumed to be competitive; therefore, the same investment opportunities are available to all investors.
7. There are no unanticipated changes in inflation or interest rates.
8. The capital markets are in a state of equilibrium or striving toward equilibrium. There are no under priced or over priced securities; if under pricing or overpricing exists, the prices will move to correct this disequilibrium situation.

Under and Over Valuations

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

will fall and expected return will rise until there is consistency with the security market line and with equilibrium pricing.

2.1.6 Portfolio Performance Evaluation

2.1.6.1 Sharpe's Portfolio Performance Measure

Ranking portfolio's average returns ignores the skill with which they minimize risk and therefore presents an oversimplified picture. Hence, in assessing the performance of a portfolio, it is necessary to consider both risk and return. William F. Sharpe devised an index of portfolio performance for portfolio i as:

$$S_i = \frac{Risk\ \Pr emium}{TotalRisk} = \frac{\bar{r}_j - R}{\pm_i}$$

Where,

S_i = Sharpe index of portfolio performance for portfolio i

$\bar{r}_j$ =Average Return from portfolio i

$\pm_i$ =Standard deviation of returns for portfolio i

R=Risk-less rate of interest

$\bar{r}_j - R$ is the risk premium for portfolio i. The risk premium is the additional return over and above the risk-less rate that is paid to induce investors to assume risk.

Sharpe's index of performance generates one number that is determined by both the risk and the return of the portfolio or other investment being evaluated.

2.1.6.2 Treynor's Portfolio Performance Measure

Jack Treynor conceived an index of portfolio performance that is based on systematic risk, as measured by portfolio's beta coefficients. He suggests measuring a portfolio's return relative to its systematic risk rather than relative to its total risk, as does the Sharpe measure. Treynor's index is ascertained as:

$$T_p = \frac{Risk\ \Pr emium}{SystematicRiskIndex} = \frac{\bar{r}_j - R}{\ _p}$$

Where,

T_p =Treynor's index of portfolio performance for portfolio i

$\bar{r}_j$ =Average return from portfolio i

$_p$ =systematic risk index of returns for portfolio i

R=Risk-less rate of interest

2.1.6.3 Jensen's Portfolio Performance Measure

Dr. Michael C. Jensen has modified the characteristic regression line to make it useful as a one parameter investment performance measure. The basic random variable in Jenson's model is risk premiums, such as:

$$rp_{i,t} = r_{i,t} - R_t$$

Where,

$rp_{i,t}$ =risk premium for asset i in period t

$r_{i,t}$ = One period rate of return from asset i in period t

R_t = risk-less observed in period t.

2.2 Review from Previous Thesis

Mr. J.B. Sapkota (1999), submitted a thesis named "Risk and Return Analysis in Common Stock Investment" with special reference to banking industry to T.U. The main objective of the study was to analyze the risk and return of the common stocks in Nepalese stock market.

In his findings, he summarized, "Banking industry is the biggest one in terms of market capitalization and turnover. In this regard, common stock of Nepal Bank Ltd. is most risky and common stock of SBI Bank is least risky. In the contest of industries, expected return of finance and insurance industry is found highest. Expected return of banking industry is 60.83%."

Mrs. Pramila Tuladhar (2002), conducted a thesis entitled "A Study on Risk and Return Analysis of Common Stock Investment" has been done in 2002.the study is based on eleven companies: two companies are selected from each group that is categorized by NEPSE.

The main objectives of the study are:

- To describe the risk, return and other relevant those are very important in making decision on stock investment.
- To identify the problem faced by the individual investors in stock market.
- To analyze the risk and returns of common stock and their portfolio.
- To access the past and present state of investment of common stock.

The study is based on randomly selected 11 companies. The study is based on recent historical data. It covers 7 years period from F/Y 1995/96 to 2001/02. The study has summarized the following findings;

- Among each sample, ERR of Nepal Bangladesh Bank is the highest.

- Bishal Bazzar Co. has the lowest S.D. According to sector wise comparison, banking has the highest ERR with 11.92%. Other sectors have the highest S.D. with 43.73% and trading sector has lowest S.D. with 11.10%. Other sector has the highest C.V. with 595.78 and Insurance sector has lowest C.V. with 285.58.

Mr. Roopak Joshi (2002) conducted a thesis named "Investor's Problems in Choice of Optimum Portfolio of stocks in Nepal Stock Exchange". The main objectives of the study were to find out and analyze the major problems of investor facing regarding the selection of most profitable stocks in NEPSE. He has used historical data in order to achieve his objectives. He has summarized his findings as "Portfolio management is a new concept for Nepalese investors. Due to lack of sufficient information internal as well as external, the stock market of Nepal is also on growing state only. There is only stock exchange located in Kathmandu. Traditional cry system for trading stocks, limited number of securities broker, lack of opportunity of investment and many reasons are there, which are acting a barrier of development of NEPSE."
Mr. Joshi further stated that Nepalese investor's don't know in which stock to make investment and how to construct a portfolio. Many brokers are not willing to provide information to the investor. Investors are trading the securities mostly under the pressure of brokers.

Manilata Manandhar, (*2003*) in her thesis entitled "Analysis of risk and return on common stock investment of commercial bank in Nepal" has been done in 2003. The main objective of the study is to analyze risk & return on common stock investment of CBs and other objectives are as follows;

- To examine risk & return on common stock of NABIL, BOKL, HBL, NBBL, NIBL.
- To calculate risk & return of their portfolio.
- To identify whether stocks of selected companies are over-priced, under-price and equilibrium priced.

Major Findings:

- Stocks have greater volatility risk than other investment, which takes a random and unpredictable path. Stock market is risky in the short term and it is necessary to prepare the investors for it.

- This study used the historical data of five years starting from FY 053/054 to 057/058 and found that FY 057/058 is best for banking sector according to market capitalization.

- Expected return of the common stock of BOKL is maximum (i.e. 1.1267) due to the effect of unrealistic annual return. Similarly, expected return of the common stock of NIBL is found minimum

(i.e.0.4917). On the basis of sector-wise comparison, expected return on banking sector (i.e. 67.39%) is higher and others sector is the least (i.e. 0.65%).

- Risks associated with common stock investment of different selected companies are 1.3949, 0.4154, 0.7392, 0.6798 and 0.1429 of BOKL, NABIL, HBL, NBBL, and NIBL respectively. In the context of comparison of banking sector with other sector expected return is greater than that of other sectors. Standard deviation of other sector is greater than that of other sectors. CV of others sector is greater than that of others.

- Beta explains the sensitivity or volatility of the stock with market. If beta is greater than one then the asset is called an aggressive assets. If beta is less than one than the asset is called defensive stock. If the beta is equal to 1 then the assets is called average asset.

- BOKL, NABIL, HBL, NBBL's beta coefficient is 2.30, 2.01, 1.0853, 1.7632 and 1.7441 respectively, which is greater than one. Therefore such banks common stocks are more volatile with market. On the other hand NIBL's beta coefficient is 0.3461, which is less than one, therefore common stock of NIBL is said to be less volatile with market.

- One of the main significance of beta coefficient is in capital asset priding model (CAPM). CAPM is a model that describes the relationship between risk and return.

- Stock of all banks in this study are said to be under priced. These companies' common stocks are worth to purchase, as their expected return is greater than required rate of return.

Khaniya (Banjade), Kalpana, (*2003*), in her thesis entitled "Investment Portfolio Analysis of Joint Venture Banks" has been done in 2003. The study is based on five joint venture banks and they are; NABIL, SCBNL, HBL, NBBL & EBL. The general study of the present study is to identify the current situation of investment portfolio of joint venture banks in Nepal. The specific objectives are as follows;

- To analyze the risk and return ratios of commercial banks.

- To evaluate the financial performance of joint venture banks.

- To study existing investment policies taken by Nabil in various sectors.

- To study portfolio structure of Nabil Bank Ltd. in investment as compared to other joint venture banks.

- Preference given by Nabil Bank Ltd. for investment between loan investment, investment in real fixed assets, investment in financial assets.

Major findings:

Based on the analysis of the various data, remarkable findings are drawn up. The major findings are as follows;

- SCBNL and HBL have better position. NBBL and NABIL have a low position in the industry. But EBL has a very low position in the industry because of having lowest mean return on shareholder's fund resulting from the negative returns in the fiscal years 1995/96 and 1996/97.

- SCBNL has the highest mean return and EBL has the lowest return. Except EBL, all other four banks i.e. NABIL, SCBNL, HBL and NBBL have good performance.

- Among other joint venture banks, SCBNL has the highest return and EBL has above mean return than industry average. SCBNL's and EBL's mobilized funds in investment title is higher than the standard ratio.

- NABIL, SCBNL and HBL are investing low amount of deposits on loans and advance which is lower than industry average and NBBL and EBL have invested a high amount of deposits to loans and advance title which is higher than industry average.

- NABIL is investing the highest amount of funds on NRB bond as compared to other JVBs i.e. 3%. NBBL has invested no amount of funds in this title and EBL has invested the lowest of funds i.e. 0.4% and SCBNL and HBL have invested above industry average.

- SCBNL has the highest EPS and EBL has the lowest EPS. Similarly HBL also has above mean EPS than industry average and that of NBBL is lower than industry average.

- HBL has the lowest beta coefficient among the five JVBs which mean that the systematic risk of HBL is the lowest among JVBs. The portfolio return of NBBL is 94%. This return is the average of capital gain yield and dividend yield.

The coefficient of correlation between loans and advance in private sector and portfolio return in joint venture banks come out to be rxy = -0.6. Therefore it indicates that there is negative correlation between loans and advances in private sector and portfolio return of five JVBs in Nepal.

2.3 Review of Journals, Articles and Websites

American Association of Individual Investors under the "Investing Basis" describes-"It is important to understand how personal circumstances affect investment decisions. If these factors make no differences we could simply publish one suggested portfolio for everyone to follow. However, your tolerance for risk, your return needs (whether income or growth), the length of time you can remain invested and your tax status all have an important effect on the kinds of investments. Investment profile is the beginning of the asset allocation process, which consist of dividing your portfolio among the major asset categories of stocks, bonds and cash. The asset allocation decision that you make here will have a far more effect on your overall portfolio return. Make allocation decisions with the major categories. For instance, stock portfolio can be divided among large capitalization stocks, small capitalization stocks and international stocks. Once these decisions are reached, you will be ready to make selections among the various investment options. Lastly, once you will have set up your investment portfolio, you must monitor it making changes, when appropriate. Every investor wants the highest assured return possible. But as we have seen returns aren't certain and different investors have varying degree of uncertainty that they are willing to accept."

"The investor return is a measure of growth in wealth resulting from that investment. This growth measure is expressed in percentage forms to make it comparable across large and small investors. Stock return may be riskier or more volatile. But this concept is a difficult one to express simply. To do so, we borrow a concept from statistics, called standard deviation. It is a single measure, allowing quantifying asset returns by risk, and it also provides the basis for investor's decisions about portfolio choice."

Joan Warner under the article "Diversify is still the Managers' Mantra" states, "Some investors got a rude shock in 1995. They thought global diversification would maximize opportunities while reducing their risks. Instead, investors who sank all their saving into a mutual fund indexed to the all American Standard &Poor's 500-stock Index earned 37% compared with 12.5% for sophisticates who put their money in funds composed of international stocks and bonds.

But many money managers are betting that 1995 will turn out to have been exception. They argue that late summer. American's love affair with their high technology issues also fueled the rise. Now, the steep run up in US stock prices

has many investors chanting their mantra of global diversification more loudly than ever.

Some allocaters are shifting their resources to capture the greater gain they expect overseas. Indeed, the best way to exploit the benefits of falling rates around the world may be to carve up a portfolio into fairly even slices."

Mr. Warner further reiterates that asset allocators favor South-east Asia as a region to comb for bargains. In emerging markets of the Pacific Rim, including Malaysia, Thailand and Indonesia, Fremont Global's Haddick recommends liquid stocks such as bank and utilities. These stand to gain from lower inflation and falling interest rates and "are trading at the low to midpoint of their historical valuation ranges. He further named John F. H. Trott, London based chief international investment officer of Bessemer Trust Co., who is putting the biggest portion of his 20% allocation of non US stocks in New Zealand and Australia. John F. H. Trott believes industrial and banking shares are better buys than the bigger, more commonly held resource stocks.

Given the benefits, how many investors actually hold diversified portfolio? A study by William N. Goetzmann and Alok Kumar, "Equity Portfolio Diversification" concluded the number was disturbingly low. After examining more than 40,000 equity investment accounts at a large discount brokerage firm from 1991-1996, the authors found that the vast majority of investors held portfolios that were clearly undiversified, with holdings typically concerned in just a few stocks. The average investor held a portfolio consisting of just four stocks. Amazingly, they found that less than five percent of investors held at least ten stocks.

They further argue that many investors mistakenly assume that diversification worker by the gross number of holdings rather than by holding stocks with low correlation. Investors are overconfident of their stock-picking skills. However, some stocks might be overpriced in the market.

The journal of finance, published bimonthly by American Finance Association for many decades is considered. In August 1999, an article entitled “Local Returns Factors and Turnover in Emerging Stock Markets” by K. Greet Rouwenhorst was published which is reviewed here.

“There is growing empirical evidence that multiple factors are cross-sectionally correlated with average returns than large stocks (Bang 1981). Fama Frenceh (1992/1996) and Lakosnishock, Shleifer and Vishny (1994) show that value/stocks with book to market (B/M), earnings to price (E/P), cash flow to price (C/P) out-perform growth stocks with low B/M, E/P or C/P, moreover, stock with high return over the past three months to one year continue to outperform stocks with poor prior performance (Jagadees and Titman 1993). The evidence that beta is also compensated for in average returns is weaker (Fama and Frence 1992), Kothari, Shakken and stoan (1995).

The interpretation of the evidence is strong debated. Some believe that the premiums are a compensation for pervasive risk factors, others attribute them to firm characteristics or an inefficiency in the way market incorporate information into prices. Yet others average that survivorship or data snooping may bias the premiums.

This paper examines the sources of return variation in emerging stock market. From the perspective of collecting independent samples, emerging market countries are particularly interesting because of their relative isolation from the capital market of other countries. Compared to developed markets, the correlation between most emerging market and stock markets has historically been low (Harvey 1995) and until recently many emerging countries restricted investment by foreign investors. Interestingly Beakaert and Harvey (1995) find that despite the recent trend toward abolition of these restrictions and the substantial inflows of foreign capital markets have actually become more segmented from world capital of emerging economics is held by local investors who are likely to evaluate their portfolios in light of local market condition (Bekaert and Harvey 1997)."[21]

On the above background Rouwenhorst attempts to answer two set of question. "The first set of three questions concerns the existence of expected returns premiums"

Do the factors that explain expected returns differences in developed equity market also describe the cross section of expected return of emerging market firms?
Are the returns in emerging markets primarily local or they have global components as well?
How does the emerging market evidence factors present in market around the world?

Mr. Shiva Raj Shrestha (1998) has given a short glimpse on article entitled "Portfolio Management in Commercial Banks; Theory and Practices". (Nepal bank patrika: 2005)
Mr. Shrestha in his article has highlighted the followings issues;

- The portfolio management becomes very important both for individuals and institutional investor.
- Investor would like to select better mix of investment assets subject on these aspects like, higher return that is comparable with alternatives according to the risk class of investor.

[21] K. Great Rouwenhost. 1999. "Local Return Factors and Turnover in Emerging Market" **The Journal of Finance**. PP. 1439-40

- Good liquidity with adequate safety on investment, maximum tax concession, economic efficient and effective mixes.

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

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

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

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

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

- For surviving commercial banks should depend upon their own financial health and various activities.
- In order to develop and expand the portfolio management activities successfully, the investment management methodology of portfolio

manger should reflect high standards and give their clients the benefits of global strengths, local insights and product philosophy.

- With the discipline and systematic approval to the selection of appropriate countries, financial assets and management of various risks the portfolio manager could enhance the opportunity for each investor to earn supervisor returns over time.

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

A article was published in a newspaper named **Business Age** at may 2008 by Pratistha Bhurtel and Matrika Babu Pokherel on the title 'Market Outlook'. This article is reviewed here.

Due to the political metamorphosis, investors seemed to walk in havoc. The market turmoil pulled the standard index downhill as soon as the market reopened after a break of 9 days for the constituent assembly election. The investors were perplexed if the Maoist Party that recorded big electoral victory would allow the mixed economy and would not thrust the command economy. Moreover, the merger news flying in the market has enabled some forces to play a game. The rumor of the five finance companies (Mahalaxmi Finance Ltd., Butwal Finance Ltd., Birgunj Finance Ltd, Siddhartha Finance Ltd. and Himchuli Development Bank Ltd.) shaking hands together rocketed the price of these companies. Without relying on facts and running after anecdotes has resulted in such a scenario. The 3 rd quarter report published this month has raised the share price of most of the companies in finance sector. The net profit reported is more than that of the previous corresponding period. This can be a reason for the leap in shares prices of such companies. About 90% of the pie is covered by the financial sector this month. In the coming month, the stock market is likely to get shot in the arms, because it will be getting more stocks listed from real sector such as Nepal Telecom. Chilime is also likely to issue shares to the public shortly, after this month. These developments will definitely rock the market and the demand for proper analysis to forecast stock trend would increase. Hence, the next month would be tougher for investor to identify phoney and fair trend.

In this article the writers describe about some market indicators and how the market is affected by the market information.

One other article from this newspaper Business Age is also reviewed here, which was published on may 2008 by the name Making it or Breaking it on the Stock Market;

Can the Stock Market be considered a zero-sum game, where one investor's loss is another investor's gain? While this can be true, much to the woe of unlucky investor, it is typically only true in the short term. However, this reasoning causes many people to shy away from the Stock Market. Gambling, on the contrary, is always a zero-sum game because one always wins at the cost of the other. It merely takes money from a loser and gives it to a winner. No value is ever created. But by investing in a share, we increase the overall wealth of an economy. As companies compete, they increase productivity and develop products that can improve our lives.

Therefore, one should not confuse investing and creating wealth with gambling's zero-sum game. Still it should be kept in mind that investing is not a zero-sum game only if the motive of investment is not short-term gain. If you invest for the long term, even if you lose some money on a few stocks this year you will gain on some others. Interestingly, all other investors are also making profit since prices in the stock market are continuously rising over the long term.

To understand why investing in stocks is inherently different from gambling, we need to review what it means to buy stocks. The word 'stock' simply refers to a supply. In the financial market, stock refers to a supply of money. This supply comes from people who have given money to the company in return for a 'share' of the company in hopes that the company will make their money grow. Stock is ownership in a company. Shareholders hope the company will earn money as it grows. If a company earns money, the shareholders share the profits. It entitles the holder to a claim on assets as well as a fraction of the profits that the company generates. Too often, investors think of shares as simply a trading vehicle, and they forget that stock represents partial ownership of a company. Over time, people usually earn more from owning stock than from leaving money in the bank, buying bonds, or making other investments.

The term 'Stock Market' is a concept for the mechanism that enables the trading of company shares, other securities and derivatives. Market is a public place where things are bought and sold. It refers to the business of buying and selling stock. Participants in the Stock Market range from small individual stock investors to large fund traders, who can be based anywhere. Many years ago, worldwide, buyers and sellers were individual investors, such as wealthy businessmen. It was believed that the Stock Market was an exclusive club in which only brokers and rich people could make money. Over time, markets have become more "institutionalized"; buyers and sellers are largely institutions (e.g., insurance companies, mutual funds, investor groups, and banks). The rise of the institutional investor has brought with it some improvements in market operations.

Assessing the value of a company isn't an easy practice. There are so many variables involved that the short-term price movements appear to be random

(academics call this the Random Walk Theory); however, over the long term, a company is only worth the present value of the profits it will make. In the short term a company can survive without profits because of the expectations of future earnings, but no company can fool investors forever - eventually a company's stock price can be expected to show the true value of the firm. In the stock market, investors are constantly trying to assess the profit that will be left over for shareholders. This is why stock prices fluctuate. The outlook for business conditions is always changing, and so are the future earnings of a company.

Security prices are sometimes too high or too low. We sometimes say that Stocks that go up must come down. But the laws of physics do not apply in the stock market. There is no gravitational force that pulls stocks back to even. What's behind the stock? It's the company! We should not assume that rational economic behavior controls markets. However, to say that market participants behave irrationally is not the same as saying that there is no rational explanation for market movements.

If we can't forecast stock market movements, then there is not much point in wasting valuable time on it. Why do investors worry about bear markets? They worry because they don't want to lose money when their stocks decline in value. In dire circumstances, you might lose your money if your neighbor succeeds in forcing you to sell your assets under his terms. This is one of the reasons why some investors will avoid selling a poorly performing stock even when they feel it will continue going down. They don't want to face the pain involved with a loss.

It is believed that the fallen angels will all go back up, eventually. But buying companies solely because their market price has fallen will get you nowhere. Make sure you don't confuse this practice with value investing, which is buying high-quality companies that are undervalued by the market. The goal is to buy good companies at a reasonable price. Whatever the reason, amateur investors think that a stock trading near a 52-week low is a good buy. As a warning to those investors, there is a popular saying in the market: "Those who try to catch a falling knife only get hurt."

People have many motives for trading in the Stock Markets that are not related to maximization of financial wealth, the choice between consumption and spending, or logical expectations of future returns. Most market participants do not have the time, inclination or capacity to exercise due diligence on all available information before making trading decisions. But it is crucial in the stock market that individual investors have a clear understanding of what they are doing with their money. Only those investors succeed who really do their homework.

Fear, greed, superstition, laziness, undue haste, panic, carelessness, negligence and stupidity are often important in financial decisions. In order to reduce the

possibility of future regret, many investors will simply follow the crowd by investing in popular stocks, rationalizing that if they lose, they will not be the only one to have made a bad decision. Trusting the judgment of others (or following the crowd) and making snap decisions based on insufficient information are common habits of investors

We cannot assume that market players behave in predictable ways based on economic fundamentals. A rising price on any share will attract the attention of investors. Market players have reasons for buying and selling investment assets, but these reasons are not always 'economically rational' and change from time to time. When investors continue to buy into an over-priced market, they act irrationally. Some economists assume that market players — in the long run — behave rationally and that self-interest acts like an Invisible Hand that guides players along a predictable path.

The best way to grow your money is to find stocks you like and sit on them for as long as you can. You can't beat the stock market, so you might as well just wait it out.

Another article published on The Kathmandu Post daily of 28th April 2007 entitled "Efficient Banking" by **L.D. Mahat**, in his article he has accomplished, the efficiency of banks can be measured using different parameters. The concept of productivity and profitability can be applied while evaluating efficiency of banks. The term productivity refers to the relationship between the quantity of inputs employed and the quantity of outputs produced. An increase in productivity means that more output can be produced from the same inputs or the same outputs can be produced from fewer inputs. Interest expense to interest income ratio shows the efficiency of banks in mobilizing resource at lower cost and investing in high yielding asset. In other words, it reflects the efficiency in use of funds.

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

Commercial banks have continuously been reducing interest rates on deposits. Many depositors are exposed to the increasing risk of non-refund of their deposits because of the mismanagement in some of the banks and finance institutions and accumulation of huge non-performing assets with them. Few depositors of cooperative societies lost their deposits because some of these cooperatives were closed down because of their inability to refund public deposits. An investor in days of crisis has to make an effort to minimize the risk and at least earn a

reasonable rate of return on his aggregate investment. An investment in equity share can earn dividend income as well as capital gain in the form of bonus share and right share until an investor holds it and capital profit when he sells it in the stock market. As returns from equity investments have fluctuated within a very wide range, investors feel it much difficulty to balance risk and reward in their equity portfolio. As a matter of fact, investors in equity shares should invest for a reasonable long time frame in order to manage the risk.

Making investment in fixed deposits with commercial banks is a normal practice among the common people. Normally fixed deposits with banks are considered risk-less, but they also are not 100% free of risk. You should select a bank to put your deposit therein, which has sound financial health and high credibility in banking business. In times of crisis if you select a sick bank deposit your money there is high probability that your money could be returned back.

An investor may have option of making investment in government bonds or debentures. In history we have examples that a government can nationalize the private property of its citizens, cancel out old currency notes, and can convert the new investment into some conditional instrument. But in democracy there is no probability that the government would default to repay money back. This is comparatively risk free investment, but yields low return. An investor has to evaluate the risk and return of each of the investment alternatives and select an alternative, which has lower degree of risk and offer at least reasonable rate of return. One can draw a safe side conclusion to invest all the money he has only in government securities, but this is not a rational decision. An investor who doesn't try to maximize return by minimizing the possible risk is not a rational investor. On the other hand, one can place over-confidence on equity investment and assume high risk by investing the whole money in equity shares. Stock market these days is much dwindling and notoriously unpredictable; therefore this too is not a wise decision. Therefore, a portfolio, which consists of only one class of financial assets, is not a good portfolio

CHAPTER III

RESEARCH METHODOLOGY

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

3.1 Research Design

This study is based on recent five years historical data from F/Y 2003 to 2007.In this study, common stocks of commercial banks and development banks are included that have listed their shares in NEPSE to make them eligible for trading. Hence it is a historical research. The common stocks under study have been analyzed in a descriptive and analytical way. It is more analytical and empirical and less descriptive. Moreover the primary data are collected through questionnaire. It is a survey study, which have been conducted on risk and return on diversified portfolio with different combination and provide suggestions to the investors for investing in appropriate portfolio.

3.2 Population and Sample

Population of this study includes all listed commercial and development banks in NEPSE. At present, there are 25 commercial banks and 58 development banks in Nepal up to Chaitra 2064. However, only 15 commercial banks and 22 development banks have listed their shares in NEPSE for trading in secondary market up to 30th Nov.2007. They have only been considered as population.
For the study, 3 commercial banks and 3 development banks are selected as sample based on establishment period and profitability. 60 investors have been selected for gathering information through questionnaire.

The sampled commercial and development are listed in table 3.1

Table 3.1: Sample of commercial and development banks

Category	Population size	Sample Size	Sampled Companies
Commercial Banks	15	3	1. NABIL Bank Limited 2. Nepal Investment Bank Limited 3. Himalayan Bank Limited
Development Banks	22	3	1. Nepal Development Bank Limited 2. Development Credit Bank Limited 3. Ace Development Bank Limited

3.3 Sources of Data

The study is based on secondary as well as primary data. Secondary data have been collected through various books, published annual/trading reports of NEPSE, SEBON, NRB and concerned banks. Especially the official website of NEPSE and SEBON become the main source of secondary data.
Likewise the primary data have been collected through questionnaire. While collecting the primary data the investors were contacted and interviewed as per requirement.

3.4 Data Collection Technique

The researcher has visited the different libraries, concerned banks, Nepal Rastra Bank, NEPSE, SEBO-N and other several book stores; and collected related publications and periodicals. Official websites were searched in order to collect required information. The official website of NEPSE, ***http:/www.nepalstock.com*** and the official website of Security Board Nepal, ***http:/www.sebonp.com*** were logged in to find the published data of concerned companies.
For the collection of primary data, the investors were contacted and distributed questionnaire. Their opinion was surveyed.

3.5 Data Analysis Tools

Under this, financial as well as statistical tools are used to analyze the gathered data and information.

3.5.1 Financial Tools

(a) Return and Risk Analysis of Individual Stocks

- **Dividend Per Share (DPS)**

Dividend per share is calculated using the following model:

DPS = Cash Dividend + Stock Dividend

Cash equivalent of stock dividend is calculated as:

Cash equivalent of stock Dividend = SDR x Next Year MPS
Where SDR = Stock Dividend Ratio

- **Market Price of Share (MPS)**

One of the principle measures of the value of stock is market price of stock. It is denoted by MPS. Three price records are available in Nepal Stock Exchange

Limited namely – High, Low and Closing price. For our study purpose, closing prices of the stocks are taken since our study focuses on annual data.

- **Return on Common stock (R)**

Holding Period Return (HPR)

Single period return or holding period is the return obtained by the investors due to holding the stock for certain period. Generally, it is represented by R and expressed in terms of percentage basis. It is calculated as:

$$\text{HPR} = \frac{Ending\ \text{Pr}ice - Begining\ \text{Pr}ice + Cash\ \text{Re}ceipts}{Begining\ \text{Pr}ice}$$

Symbolically,

$$\text{HPR} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$$

Where, P_t = Price of the stock at time t

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

D_t = Dividend per share at time t

Expected/Average Return of Common Stock $(\overline{R})$

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

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

Symbolically,

$$\overline{R} = \frac{\sum R_j}{n}$$

Where,

$\sum R_j$ = Summation of annual return on stock j.

n = Number of Year of Observation

- **Risk of Common Stock**

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

$$\text{Standard Deviation } \pm_j = \sqrt{\frac{\sum(R_j - \overline{R_j})^2}{n-1}}$$

Coefficient of Variation

It is defined as the ratio of standard deviation to mean of expected return. It is used to standardize the risk per unit of return that is, 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. It is calculated as:

$$\text{C.V.} = \frac{\pm}{\overline{X}} \times 100$$

Where,

σ= Standard deviation of asset j

$\overline{X}$ = Mean value of returns

C.V. = Coefficient of variation

For analysis purpose, it is noted that low C. V. represent low risk and high C. V. represent high risk.

(b) Risk and Return Analysis of Market

- **Return on Market**

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

$$\text{Annual Market Return } (R_m) = \frac{EndingNEPS\ EIndex - BeginingNE\ PSEIndex}{BeginingNE\ PSEIndex}$$

Average Market Return $\overline{R_m}$

$$\overline{R_m} = \frac{\sum R_m}{n}$$

Where,

$\overline{R_m}$ = Average market return

n = Number of observations

- **Risk of Market Return**

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

Standard Deviation $\pm_m = \sqrt{\frac{\sum (R_m - \overline{R_m})^2}{n-1}}$

(c) Market Sensitivity Analysis

- **Covariance**

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

$$\text{Cov}(R_j, R_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n} = \circ_{j,m} \pm_j \pm_m$$

If two variables are independent, their covariance is zero.

- **Correlation Coefficients**

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

$$\circ_{j,m} = \frac{Cov(R_j, R_m)}{\pm_j \pm_m}$$

(i) If correlation between stock j and market is positive, the returns on security j and market tend to be large and small at the same time.

(ii) If correlation between stock j and market is negative relatively large return of security j is associated with relatively small return of market.

(iii) If correlation between stock j and market is zero, the return of security j is uncorrelated to the return on market. Movement on the return of security j appear unrelated to movements in the return of market.

- **Beta**

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

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

Where,

$Cov(R_j, R_m)$ = Covariance of Returns of the j_{th} assets with the market

$Var(R_m)$ = Variance of Returns for the market portfolio

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

Beta coefficients	**Stock classification**	**Degree of risk**
Less than 1	Defensive stock	Less risky than the market
Exactly 1	Average stock	Equally risky as the market
Greater than 1	Aggressive stock	More risky than the market

(d) Analysis of Systematic and Unsystematic Risk

- **Systematic Risk**

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

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

Where,

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

$Var(R_m)$ = Variance of market return

The percentage of systematic risk is measured by the coefficient of determination. It is also the square of correlation coefficient of return of stock with market.

Proportion of Systematic Risk = $\frac{SystematicRisk}{TotalRisk}$

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

- **Unsystematic Risk**

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

Unsystematic Risk = Total Risk - Systematic Risk

$$= Var(R_j) - \beta_{jm}^2 Var(R_m)$$
$$= \sigma_j^2 - \beta_{jm}^2 \sigma_m^2$$

(e) Portfolio Analysis

- **Portfolio Return**

The expected return on a portfolio is the simple weighted average of the expected returns from the investment represented by a portfolio. In a two asset portfolio, the expected return of a portfolio $\overline{R_p}$, is calculated as:

Expected Portfolio Return, $\overline{R_p} = W_1 \overline{R_1} + W_2 \overline{R_2}$

Where,

$\overline{R_p}$ **= the expected return on the portfolio**

$\overline{R_1}$ **= the expected return on the stock 1**

$\overline{R_2}$ **= the expected return on the stock 2**

W_1 **= the weight of investment in stock 1**

W_2 **= the weight of investment in stock 2**

Similarly, Expected Return on more than two assets portfolio is;

$$\overline{R_p} = W_1\overline{R_1} + W_2\overline{R_2} + W_3\overline{R_3} + \ldots\ldots\ldots\ldots + W_n\overline{R_n}$$

- **Portfolio Risk**

Total portfolio risk is measured by a statistical tool standard deviation and variance of the portfolio's rate of return distribution. It is a function of the proportions invested in the components and correlation of returns on the components securities. This risk is computed by using the following equations:-

$$\pm_p = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} W_i W_j \circ_{ij} \pm_i \pm_j}$$

$$\pm_p = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} W_i W_j Cov_{ij}}$$

Again, risk is also calculated by Variance

$$\pm_p^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} W_i W_j \circ_{ij} \pm_i \pm_j$$

Or,

$$\pm_p^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} W_i W_j Cov_{ij}$$

Where,

W_i **= Proportion** of investment in Asset i

W_j **= Proportion** of investment in Asset j

$\pm_p$ **= Standard deviation of portfolio's return**

Cov_{ij} **= Covariance of return between assets i and j**

$\circ_{ij}$ **= Correlation coefficient between assets i and j.**

Alternatively, the risk i.e. standard deviation and variance can be calculated as follows:

For two assets Portfolio,

$$\pm_p = \sqrt{W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + 2W_1W_2 \rho_{12} \pm_1 \pm_2}$$

Or,

$$\pm_p = \sqrt{W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + 2W_1W_2 Cov_{1,2}}$$

Variance is calculated as,

$$\pm_p^2 = W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + 2W_1W_2 \rho_{1,2} \pm_1 \pm_2$$

Or

$$\pm_p^2 = W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + 2W_1W_2 Cov_{1,2}$$

For three assets Portfolio,

Standard deviation, $\pm_p =$

$$\sqrt{W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + W_3^2 \pm_3^2 + 2W_1W_2 \rho_{12} \pm_1 \pm_2 + 2W_2W_3 \rho_{2,3} \pm_2 \pm_3 + 2W_1W_3 \rho_{1,3} \pm_1 \pm_3}$$

OR

$$\pm_p = \sqrt{W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + W_3^2 \pm_3^2 + 2W_1W_2 Cov_{1,2} + 2W_2W_3 Cov_{2,3} + 2W_1W_3 Cov_{1,3}}$$

Variance,

$$\pm_p^2 = W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + W_3^2 \pm_3^2 + 2W_1W_2 \rho_{1,2} \pm_1 \pm_2 + 2W_2W_3 \rho_{2,3} \pm_2 \pm_3 + 2W_1W_3 \rho_{1,3} \pm_1 \pm_3$$

OR

$$W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + W_3^2 \pm_3^2 + 2W_1W_2 Cov_{1,2} + 2W_2W_3 Cov_{2,3} + 2W_1W_3 Cov_{1,3}$$

Where,

- $\pm_p$ **= Standard deviation of portfolio's return**
- $\pm_p^2$ **= Variance of portfolio return**
- W_1 **= Proportion of investment in asset 1**
- W_2 **= Proportion of investment in asset 2**
- W_3 **= Proportion of investment in asset 3**

$\pm_1$ = Standard Deviation of returns on asset 1

$\pm_2$ = Standard Deviation of returns on asset 2

$\pm_3$ = Standard Deviation of returns on asset 3

$Cov_{1,2}$ = Covariance of returns between assets 1&2

$Cov_{2,3}$ = Covariance of returns between assets 2&3

$Cov_{1,3}$ = Covariance of returns between assets 1&3

$\rho_{1,2}$ = correlation coefficient between asset 1&2

$\rho_{2,3}$ = correlation coefficient between asset 2&3

$\rho_{1,3}$ = correlation coefficient between asset 1&3

Capital Asset Pricing Model (CAPM)

Assets with high degree of systematic risk must be priced to yield high rate of return in order to induce investors to accept high degree of risk that are un-diversifiable within that market. Hence CAPM illustrates the positive relation between assets' systematic risks and their expected rates of return. CAPM is also called security market line (SML). The SML equation is as:

$$K_j = R_f + (R_m - R_f)\ _j$$

Where,

K_j = Required rate of return on security j

R_f = Risk free rate of return (Government Security)

R_m = Return on market i.e. on risky assets

$_j$ = Beta coefficient of security j (systematic risk index of security j)

(f) Sharpe's Portfolio Performance Measure

William F. Sharpe devised an index to assess the portfolio performance by considering both the risk and return of any portfolio simultaneously. The Sharpe index of portfolio performance is calculated as:

$$S_j = \frac{Risk\ \mathrm{Pr}emium}{TotalRisk}$$

$$= \frac{\overline{R_j} - R_f}{\pm_j}$$

Where,

S_j = Sharpe's index of portfolio performance

$\overline{R_j}$ = Average Return from Portfolio j

R_f = Risk free rate of return

$\pm_j$ =Standard deviation of returns for portfolio j

3.5.2 Statistical Tools

(a) Hypothesis Testing

To test the Hypothesis, t- test has been employed. Under null hypothesis (Ho), t-test statistic is:

$$\mathbf{T=} \frac{\overline{X} - «}{S/\sqrt{n}}$$

Where,

$\overline{X}$ = Average return of the common stock of sample under study

μ = Average market return (assumed as population)

S = Sample standard deviation

n = Number of Observation

3.6 Research Hypothesis

In order to achieve the set objective, following hypothesis are set for testing:

3.6.1. Return Characteristics For Commercial Banks;

Null Hypothesis (H_O): $\overline{R_i}$ = μ i.e. There is no significant difference between the return of population and sample i.e. Average return of common stock of selected commercial banks is equal to market (NEPSE Commercial Banking Index)

Alternative Hypothesis (H_A): $\overline{R_i} \neq$ μ i.e. There is significant difference between the return of population and sample i.e. Average return of common stock of selected

commercial banks is not equal to market (NEPSE Commercial Banking Index)

For Development Banks;

Null Hypothesis (H_O): $\overline{R_i}$ = μ i.e. There is no significant difference between the return of population and sample i.e. Average return of common stock of selected Development banks is equal to market (NEPSE Development Banking Index)

Alternative Hypothesis (H_A): $\overline{R_i} \neq$ μ i.e. There is significant difference between the return of population and sample i.e. Average return of common stock of selected Development banks is equal to market (NEPSE Development Banking Index)

3.6.2 Risk Characteristics

For Commercial Banks;

Null Hypothesis (H_O): $_i$=1 i.e. There is no significant difference between the systematic risk of population and sample i.e. the portfolio beta (systematic risk) of common stock of selected commercial banks is equal to market –NEPSE. (The market beta is always 1).

Alternative Hypothesis (H_A): $_i \neq 1$ i.e. There is significant difference between the systematic risk of population and sample i.e. the portfolio beta (systematic risk) of common stock of selected commercial banks is not equal to market (NEPSE.)

For Development Banks;

Null Hypothesis (H_O): $_i$=1 i.e. There is no significant difference between the systematic risk of population and sample i.e. the portfolio beta (systematic risk) of common stock of selected Development banks is equal to market (NEPSE).

Alternative Hypothesis (H_A): $_i \neq 1$ i.e. There is significant difference between the systematic risk of population and sample i. e. the portfolio beta (systematic risk) of common stock of selected Development banks is not equal to market (NEPSE).

The set hypothesis have been tested on 5% level of significance (α = 5%).

3.7 Limitations of the Methodology

Each and every methodology suffers from some kind of limitations. So, the methodology deployed in this research can not be different from the common limitations of same type of thesis. However in analyzing portfolio risk and return of the selected samples, the tools applied can not best describe the relationships between the variables under study since portfolio analysis tools are based on various assumptions. In selecting samples, purposive and judgmental sampling method has been adapted. The samples for secondary data collection were selected on the basis of high volume traded in NEPSE and the availability of published data. Likewise only three commercial banks and three development banks were taken as sample. More than 50 investors were selected as sample for primary data. Hence the reliability, accuracy and validity of the research findings depend on these samples.

Primary data have been collected through questionnaire distributed to investors who have invested their funds in securities in NEPSE. Some of the conclusions and recommendations are solely based on the consultations with some investors.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter is concerned with the presentation and analysis of the return and risk characteristics of common stock of the commercial and development banks respectively. Logically, the chapter is divided into three sections: Analysis of secondary data, analysis of primary data and major findings of the study. Risk-return characteristics of common stocks of selected commercial and development banks have been analyzed and interpreted on the basis of secondary data. Return and risk characteristics of the two and three assets portfolio have also been analyzed. Additionally, primary data have been used to assess the existing situation of portfolio investment that investors are following now. Tables, diagrams and charts have been depicted the information precisely where necessary.

4.1 Presentation and Analysis of Secondary Data

Risk and return characteristics on the common stocks of individual companies, systematic and unsystematic risk, market sensitivity of the stocks, expected rate of return, required rate of return, two assets and three assets portfolio return and risk have been analyzed in this section. Furthermore, the portfolio performance has also been evaluated using Sharpe index of portfolio performance measure.

4.1.1 Market Price per Share and Dividend per Share of Common Stock

Commercial Banks

The data of market price per share and dividend per share are presented in following table:-

Table 4.1.1: MPS and DPS of NABIL Bank Limited

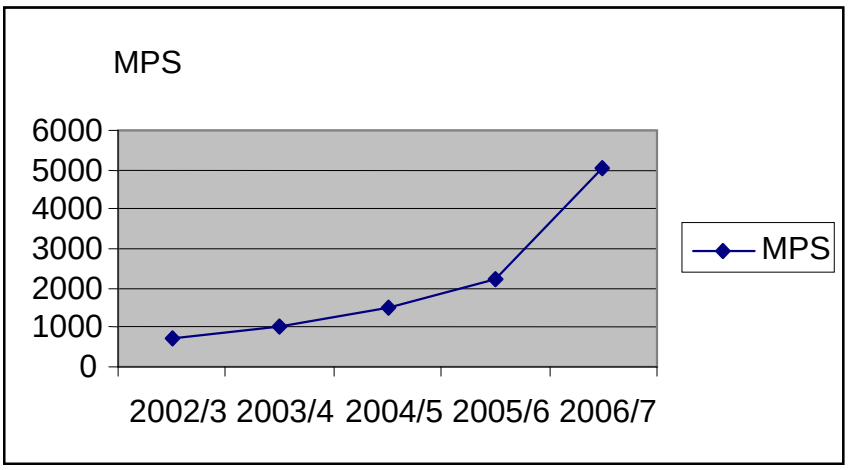
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	875	700	740	50	-	50	
2003/4	1005	705	1000	65	-	65	
2004/5	1515	1000	1505	70	-	70	
2005/6	2300	1500	2240	85	-	85	
2006/7	5050	2025	5050	100	2020	2120	40%Stock Dividend

Source: Annual report of SEBON

Stock dividend Amount = Stock Dividend Ratio x Next Year's MPS.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.1: MPS of NABIL Bank Limited



Above graph shows that the MPS of NABIL bank is in increasing trend. It is maximum in fiscal year 2006/7 i.e. 5050.

DPS of the bank is also in increasing trend. It is to maximum at in fiscal year 2006/7. Due to the conversion of stock dividend into cash, it seems so high. The bank has continuously provided the cash dividend. So the investor who needs regular income can invest in this stock.

Table 4.1.2: MPS and DPS of Nepal Investment Bank Limited

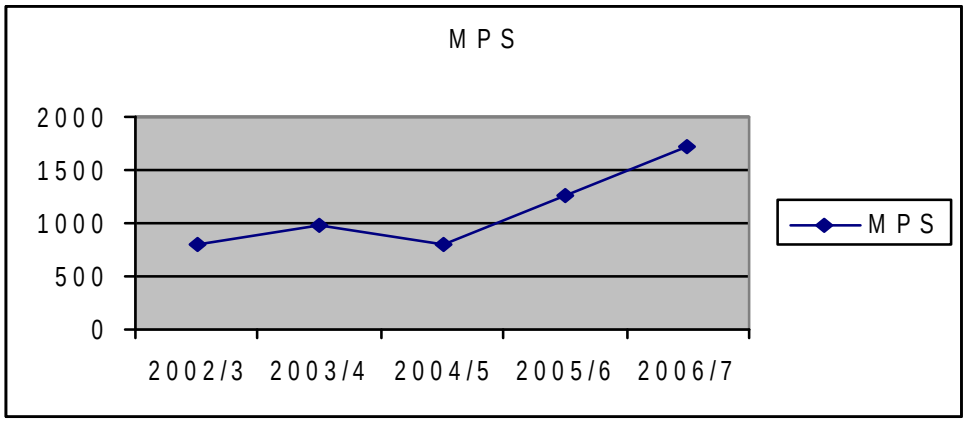
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	890	635	795	20	-	20	
2003/4	942	745	974	15	-	15	
2004/5	1430	760	800	12.58	-	12.58	
2005/6	1265	762	1260	20	613.10	633.10	35.46% Stock Dividend
2006/7	1729	1000	1729	5	432.25	437.25	25% Stock Dividend

Source: Annual report of SEBON

Stock dividend Amount = Stock dividend Ratio x Next years MPS.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.2: MPS of Nepal Investment Bank Limited



The above table and graph show that the Market Price of the stock of NIBL bank is in increasing trend. However it was decreased in fiscal year 2004/5. It is maximum in fiscal year 2006/7.i.e.1729.
The bank has provided dividend in decreasing trend up to fiscal year 2004/5 but it has increased the dividend in fiscal year 2005/6 and 2006/7 because of stock dividend, where the cash equivalent is Rs. 613.10 and Rs. 437.25 in fiscal year 2005/6 and 2006/7 respectively.

Table 4.1.3: MPS and DPS of Himalayan Bank Limited

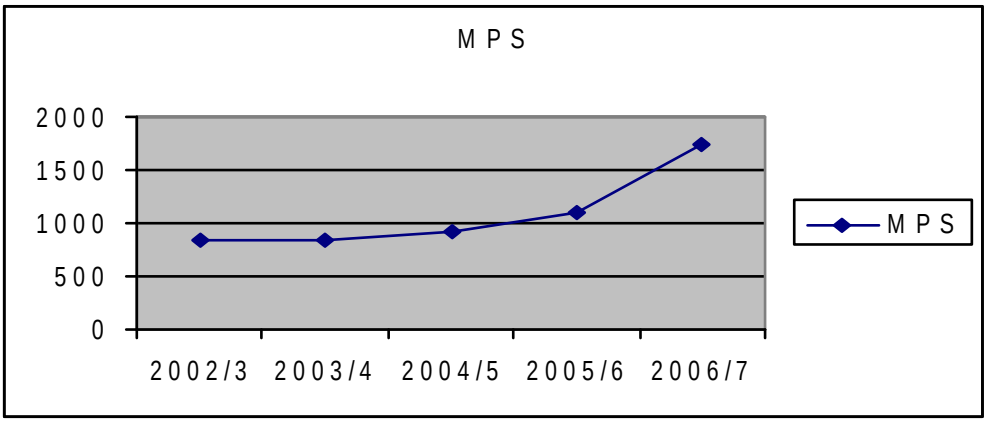
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	950	750	836	1.32	23.68	200.23	
2003/4	1010	600	840	-	20	184	
2004/5	1181	855	920	11.58	20	231.58	
2005/6	1200	900	1100	30	5	117	
2006/7	1760	950	1740	15	25	455	

Source: Annual report of SEBON
Stock dividend Amount = Stock dividend Ratio x Next years MPS.

The graph 4.1.3 shows that the market price of the stock of the bank is slightly in increasing trend up to fiscal 2005/6 and it is highly steep in fiscal year 2006/7 attaining the maximum price, i.e.1740.
The bank has continuously provided the cash provided the cash dividend (except in fiscal year 2003/4) and stock dividend.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.3: MPS of Himalayan Bank Limited



Development Banks

Table 4.1.4: MPS and DPS of Nepal Development Bank Ltd.

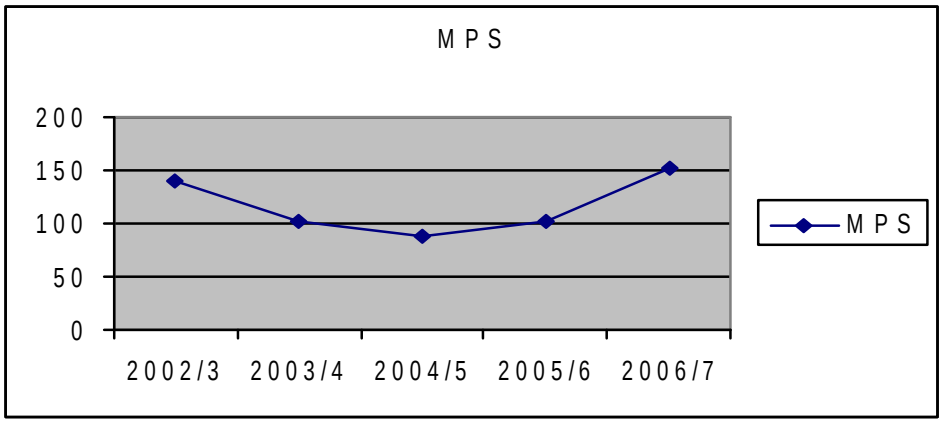
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	160	122	140	-	-	-	
2003/4	135	102	102	-	-	-	
2004/5	111	87	88	-	-	-	
2005/6	120	80	102	-	-	-	
2006/7	198	100	153	-	-	-	

Source: Annual report of SEBON

Stock dividend Amount = Stock dividend Ratio x Next years MPS.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.4: MPS of Nepal Development Bank Ltd.



It is seen that the market price of the bank is in decreasing trend up to fiscal year 2004/5, and slightly increases in 2005/6 and 2006/7.

The bank has provided neither cash dividend nor stock dividend. By inspection of the performance of the bank on the basis of market price and dividend of the bank's, the investors are suggestive not to invest in this stock.

Table 4.1.5: MPS and DPS of Development Credit Bank Ltd.

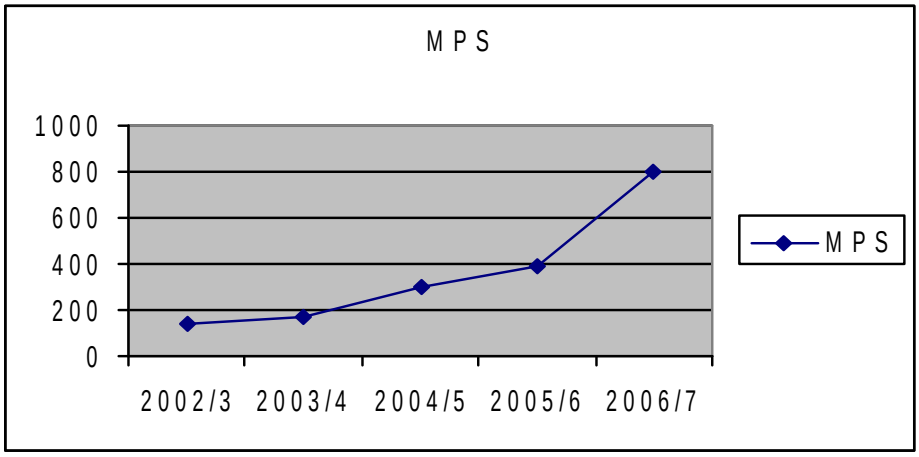
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	185	140	145	10.53	-	10.53	
2003/4	167	138	167	10.53	-	10.53	
2004/5	360	167	305	12.63	-	12.63	
2005/6	420	240	390	0.63	12%=Rs. 96	96.63	
2006/7	970	367	800	0.63	12%=Rs. 98.40	99.03	

Source: Annual report of SEBON

Stock dividend Amount = Stock dividend Ratio x Next years MPS.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.5: MPS of Development Credit Bank Ltd.



The market price of the bank is on increasing trend. The slope of increasing up to fiscal year 2005/6 is slight and it is maximum in fiscal year 2006/7. The maximum market price per share of the stock of the bank is Rs. 800 which is in the fiscal year 2006/7.

The bank has continuously provided the cash dividend up to the fiscal year 2004/5. On the basis of DPS, the investor who prefers constant income may invest in this stock.

Table 4.1.6: MPS and DPS of ACE Development Bank Ltd.

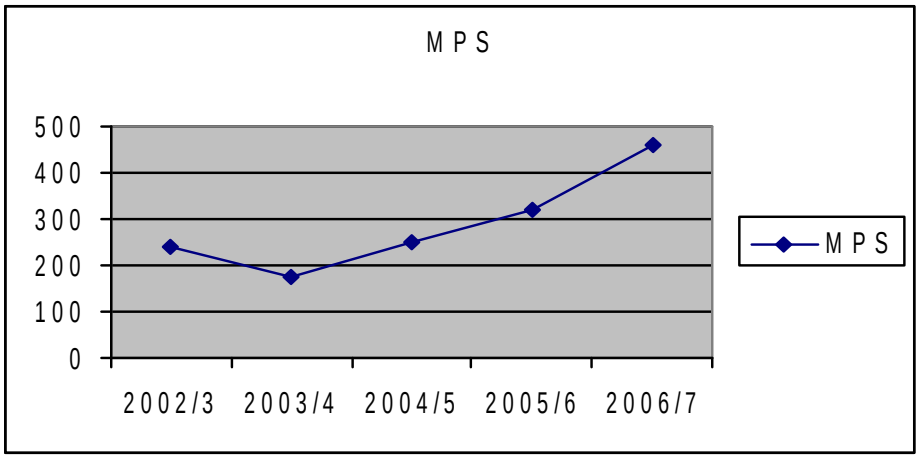
Fiscal Year	Market Price Per Share			Dividend Per Share			Remarks
	High	Low	Closing	Cash	Stock	Total	
2002/3	260	191	240	-	15%=Rs.25.95	25.95	
2003/4	288	162	173	20	-	20	
2004/5	270	173	251	-	-	-	
2005/6	355	250	320	2.11	40%=Rs.183.6	185.71	
2006/7	525	320	459	5.26		5.26	

Source: Annual report of SEBON

Stock dividend Amount = Stock dividend Ratio x Next years MPS.

The Market Price of the stock of the bank can be shown in graph as follows:-

Figure 4.1.6: MPS of ACE Development Bank Ltd.



The market price of the stock of the bank was decreased in the fiscal year 2003/4 and it increases up to the fiscal year 2006/7 with increasing trend. The stock price attains its maximum value i.e. Rs. 459 in the fiscal year 2006/7.

The bank had provided the cash dividend in fiscal year 2003/4, 2004/5 and 2005/6 and 2006/7. It had also provided the stock dividend in fiscal year 2002/3 and 2005/6.

4.1.2 Risk and Return of Common Stocks

The return on common stock is the percentage increase/decrease in share price and any cash receipts such as dividends over a specific period of time. Here, one year holding period returns R_i are calculated.

The risk is the possibility that the actual return from holding a stock may deviate from the expected rate of return. It is measured by variance or standard deviation of return.

Commercial Banks

Average rate of return, variance of return, standard deviations and coefficient of variation are presented at Table 4.1.7, the calculations are shown in.

Table 4.1.7: Average Rate of Return, Variance, S.D. and C.V. of Commercial Banks

Commercial Banks	$\overline{R_i}$	$Var(R_i)$	$\pm_i$	C.V.
NABIL	77.77%	6641.74	81.50	1.048
NIBL	91.26%	2135.17	46.21	0.506
HBL	39.01%	1309.86	36.19	0.928

Source: Annual report of SEBON

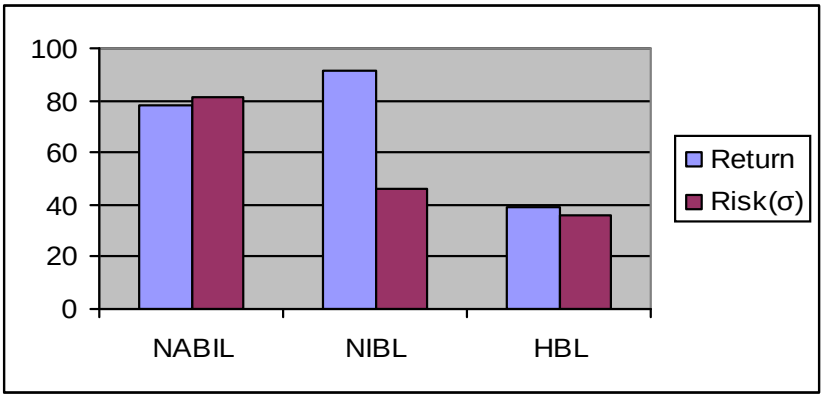
The statistical results imply that over the period, the share of NIBL offers the higher average rate of return where as the share of HBL offers the lowest average rate of return. The different shares have different rate of return, the share of NIBL seems to be the best for investment. Considering the overall market, however, the shares of all the commercial banks are attractive for investment.

Analyzing the return characteristics separately will mislead the investment decision. Each and every return carries an uncertainty or risk. Risk can explain the variability of return from its central tendency. The risk is measured by the standard deviation of the returns. Observing the standard deviation of returns of individual banks, NABIL has the higher i.e. 81.50%. NIBL and HBL have standard deviation of 46.21% and 36.19% respectively. NIBL has the lowest risk among all. Considering above all NIBL provides highest returns with lowest risk among all commercial banks under study. Hence investors are suggested to invest in NIBL's stock.

However, the average rates of return are not the same and in such a situation, standard deviation may not provide a meaningful basis for measuring risk. So, the decision based on risk and return separately can not be taken as rational. So, coefficient of variation can deposit the exact position of risk per unit of return. Lower CV is preferable. The CV of HBL is 0.928, NIBL is 0.506 and NABIL is 1.048. it seems that the CV i.e. risk per unit of return of NABIL is higher and of NIBL is the lowest among all. It seems that one percent increase in return of NABIL causes 1.08% increase in risk. Likewise, for 1% increase in the return of the stocks of HBL and NIBL, the investors should assume 0.928% and 0.506% risks respectively. On the basis of CV, the common stocks of NIBL seem attractive among all. The stocks of HBL seem more attractive than that of NABIL even though the return of NABIL is higher than that of HBL.

The rates of return and risk are depicted in Figure 4.1.7

Figure 4.1.7: Risk and Return of the Stocks of Commercial Banks



Development Banks

Average rates of return, variance of return, standard deviation and coefficient of variation are presented in table 4.1.8

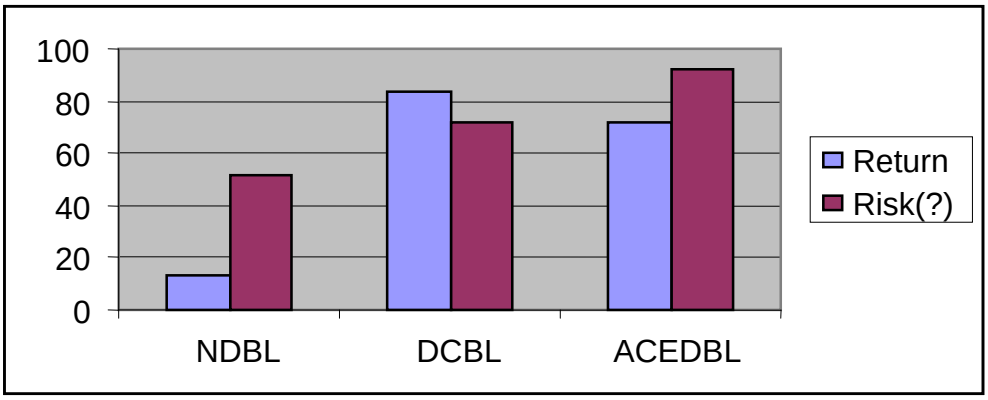
Table 4.1.8: Average Rate of Returns, Variance, SD and CV of Development Banks

Development banks	$\overline{R_i}$	Var(R_i)	$\pm_i$	C.V.
NDBL	13.46	2690.34	51.87	3.854
DCBL	83.95	5204.78	72.14	0.859
ACEDBL	71.87	8526.10	92.34	1.285

Source: Annual report of SEBON

From the statistical results of different Development Banks, it has been observed that the stock of DCBL has highest average rate of return i.e. 83.95% and NDBL has the lowest average rate of return i.e. 13.46%. On the basis of average rate of return, a rational investor chooses the stock of DCBL. Furthermore, analyzing the risk characteristics, the ACEDBL also has the highest standard deviation i.e. 92.34% and NDBL has the lowest standard deviation i.e. 51.87%.
However, the decision taken on the basis of risk separately is not a rational decision. Coefficient of variation (the ratio between risk and return) is the best measure to make investment decision. It gives the exact situation of risk per unit of return. Here, risk per unit of return of DCBL is the lowest among all i.e. 0.859 whereas of NDBL has the highest i.e. 3.854. On the basis of CV, the common stock of DCBL is attractive among all. The rates of return and the risk are depicted in Figure 4.1.8

Figure 4.1.8: Risk and Return of the stocks of Development Banks



4.1.3 Market Risk and Return

Nepal Stock Exchange Limited (shortly called as NEPSE) is the only secondary market of Nepal. Hence, index represents the market. Market return is calculated on the basis of NEPSE index. The market index of last five years and annual rate of returns are presented in Table 4.1.9 and Figure 4.1.9.

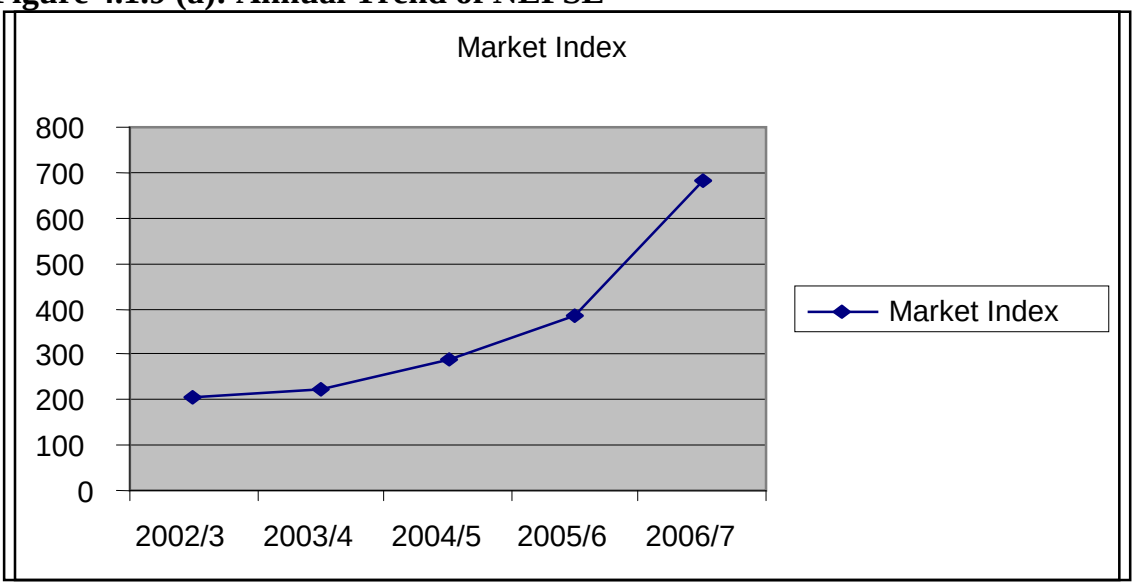
Table 4.1.9: Annual Trend of NEPSE

Fiscal Year	2002/3	2003/4	2004/5	2005/6	2006/7
Market Index	204.86	222.04	286.67	386.83	683.95
Annual Return	-9.97	8.39	29.11	34.94	76.81

Source: Annual report of SEBON

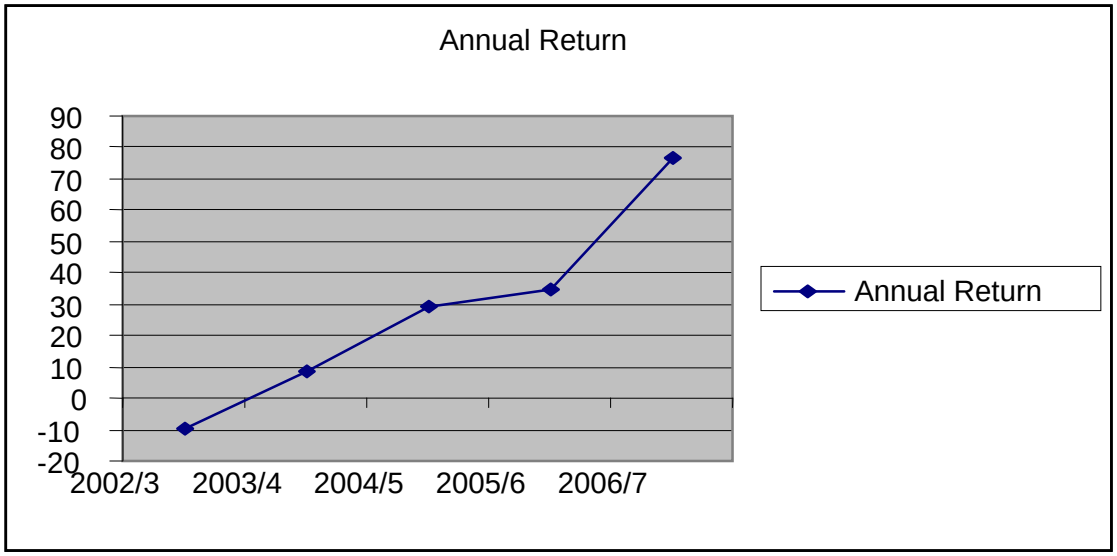
The figure 4.1.9 shows the annual trend of NEPSE:-

Figure 4.1.9 (a): Annual Trend of NEPSE



The above graph shows that the NEPSE index is in increasing trend. The slope of increment is slightly upwards up to the fiscal year 2005/6. The slope is very high in the fiscal year 2006/7. The maximum market index is 683.95 on the fiscal year 2006/7.
The figure 4.1.9(b) shows annual rate of return of market:-

Figure 4.1.9(b): Annual Rate of Return of Market



The above graph shows that the market returns in the fiscal year 2002/3 is negative. But the return on market is in increasing trend. The degree of slope is small up to the fiscal year 2005/6 and it is very high in the fiscal year 2006/7. The maximum return on market index is 76.81% in the fiscal year 2006/7.
Average rate of return, variance and standard deviation of the market and coefficient of variation of overall market, commercial banking index and development banking index have been shown in the table No 4.1.10

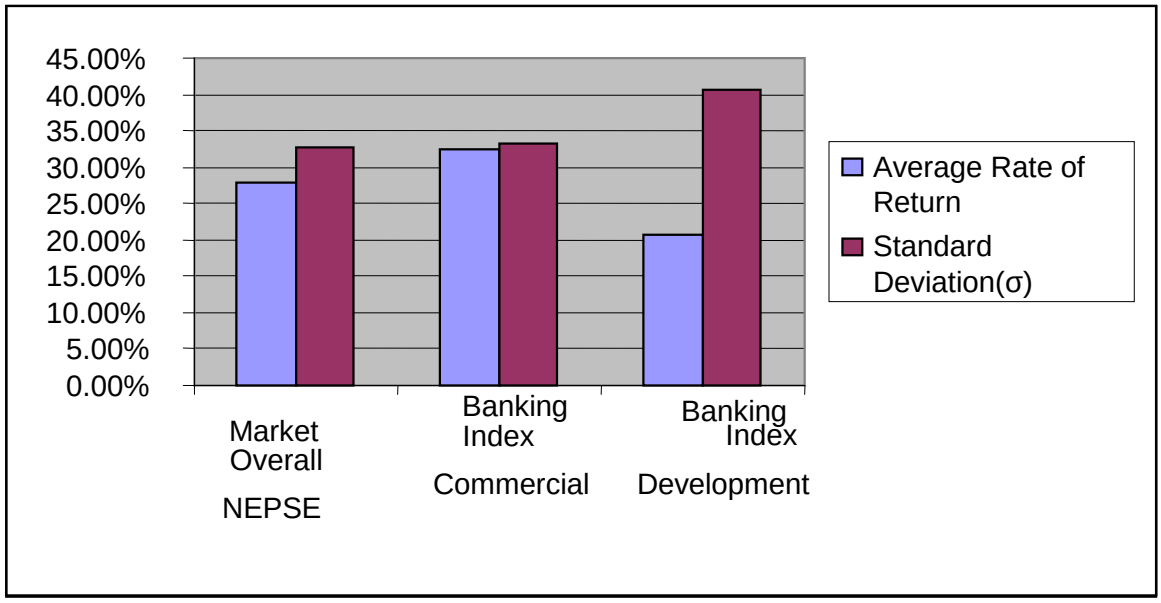
Table 4.1.10: Average Rate of Returns, Variance, SD and CV of Overall Market, Commercial Banking Index and Development Banking Index

	Average Rate of Return	Variance	Standard Deviation	C.V.
Overall Market NEPSE	27.86%	1064.50	32.63%	1.171
Commercial Banking Index	32.50%	1100.17	33.17%	1.021
Development Banking Index	20.62%	1644.83	40.56%	1.967

Source: Annual report of SEBON

Risk and return of NEPSE, Commercial and Development Banks are depicted in figure 4.1.10

Figure 4.1.10: Risk and Return of NEPSE, Commercial and Development Banks



From above table and figure, it is seen that the return on market i.e. NEPSE, on commercial bank and Development bank are 27.86%, 32.5% and 20.62% respectively. Likewise, the risks on corresponding markets are 32.63%, 33.17% and 40.56% respectively. The data shows that the commercial banks provide the maximum returns and development bank provide the least. The development banks have maximum risk too.

On the basis of C.V., the Commercial Banks have least value of C.V. i.e. 1.021. So, it possesses the least risk for every unit of return. The NEPSE and Development banks have the C.V. of 1.171 and 1.967 respectively. Taking support of above data, investors are suggested to invest in commercial banks.

4.1.4 Market Sensitivity of Stocks:-

Covariance measures how the returns on common stocks of individual companies and market co-vary. It measures the absolute association between two variances. Likewise, the correlation coefficient measures the relative association between two variables. The correlation between two variables can be within the unit of +1 to -1.

The variability of a security's return within the return of the overall market, say NEPSE return is called systematic risk and such type of risk can't be diversified. It is un-avoided risk and is measured by beta coefficient. Beta depicts the sensitivity of the security's excess returns to that of the market portfolio. The market sensitivity of the stocks is depicted in table and figure below:-

Commercial Banks

The calculated covariance, correlations and beta coefficients of the stocks of commercial banks are presented in table 4.1.11 and figure 4.1.11.

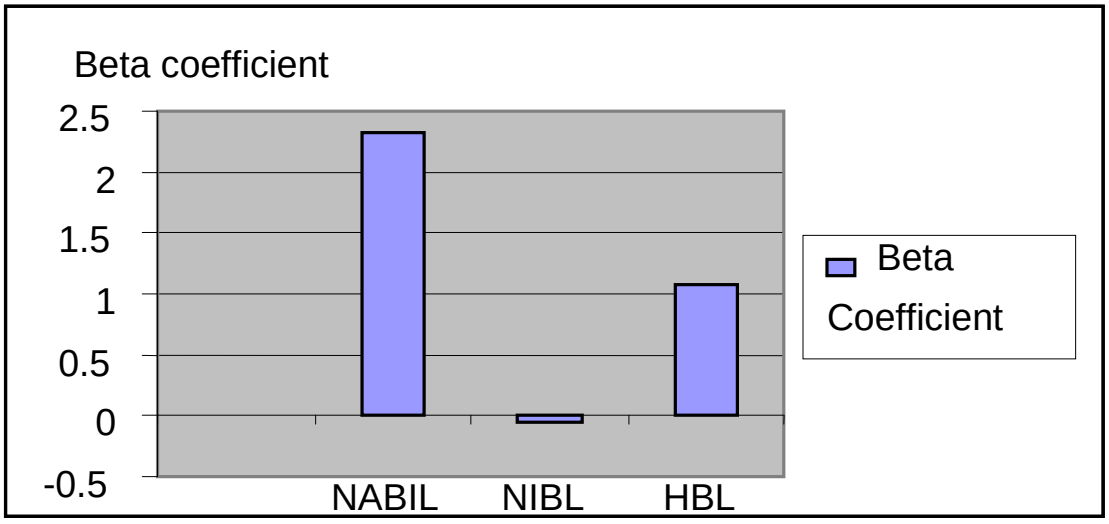
Table 4.1.11: Correlation Coefficient, Covariance and Beta Coefficient of Commercial Banks

Commercial Banks	Correlation Coefficient (ρ_{im})	Covariance (Cov_{im})	Beta coefficient (β_{im})
NABIL	0.930	2472.75	2.32
NIBL	-0.036	-54.94	-0.0516
HBL	0.968	1143.46	1.074

Source: Annual report of SEBON

Data presented in above table are shown in following Figures:

Figure 4.1.11: Correlation Coefficient, Covariance and Beta Coefficient of Commercial Banks



From the results presented on above table, correlation coefficient of NABIL, NIBL and HBL are 0.930, -0.036 and 0.968 respectively. The returns of the NABIL and HBL are positively high correlated. Hence portfolio on such stock with market can't reduce risk significantly. But correlation of NIBL is negative and portfolio of this stock with market reduces the risk. On the basis of correlation, the investors are suggested to make the portfolio of stock of NIBL with market. Covariance of the returns of NABIL and HBL are with the market returns are 2472.75, -54.94 and 1143.46 respectively. As covariance between two variables measures the absolute association, there is the highest absolute association between the returns of NABIL and the market. Similarly NIBL has the lowest absolute association within market.

From Figure 4.1.11, by observing the individual stock's beta coefficients, the stock of NABIL, NIBL and HBL are 2.32, -0.0516 and 1.0074 respectively. The beta coefficient of NABIL is seen highly aggressive and that one of NIBL is defensive since it is less than one. The beta coefficient of HBL is slightly aggressive or can be said averse to some extent as its value is nearly about one. So, the stock of NABIL is more risky because it is more volatile than market. The stock of HBL is a little bit riskier than market.

Development Banks

The calculated correlation coefficient, covariance and beta coefficients of the stocks of development banks are presented in table and in figure;

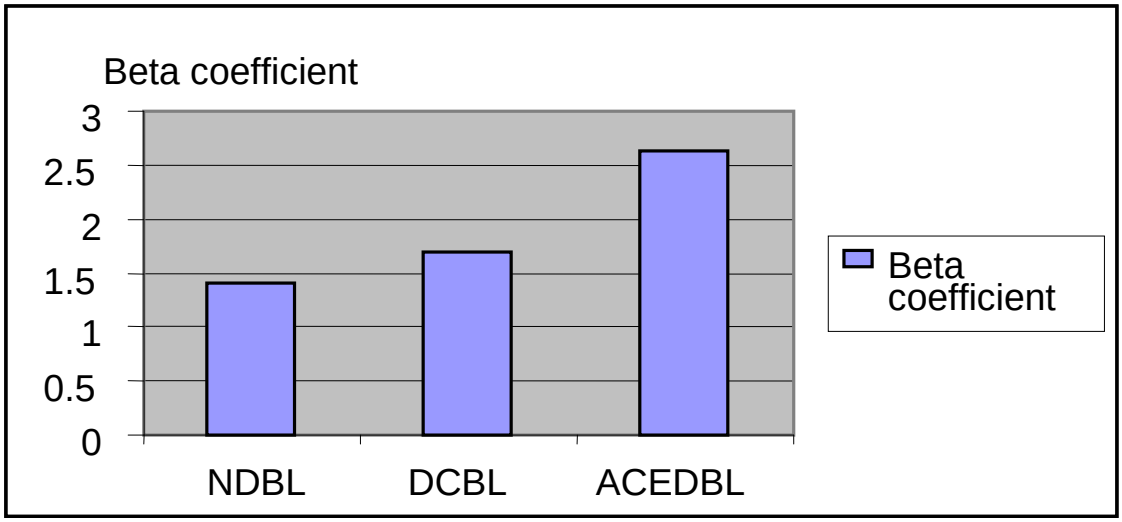
Table 4.1.12: The Calculated Correlation Coefficient, Covariance and Beta Coefficients of the Stocks of Development Banks

Development Banks	Correlation Coefficient (ρ_{im})	Covariance (Cov_{im})	Beta coefficient (β_{im})
NDBL	0.883	1495.33	1.404
DCBL	0.766	1803.24	1.694
ACEDBL	0.927	2793.79	2.624

Source: Annual report of SEBON

Results presented in above table are shown in following Figure;

Figure 4.1.12: The Calculated Correlation Coefficient, Covariance and Beta Coefficients of the Stocks of Development Banks



From the results presented above table, the correlation coefficients of the returns of NDBL, DCBL and ACEDBL with market returns 0.883, 0.766 and 0.927 respectively. It is observed that all three banks have high degree of positive

correlation. It means that can't reduce the risk significantly. Among them, the DCBL being least correlated can reduce risk to some extent.

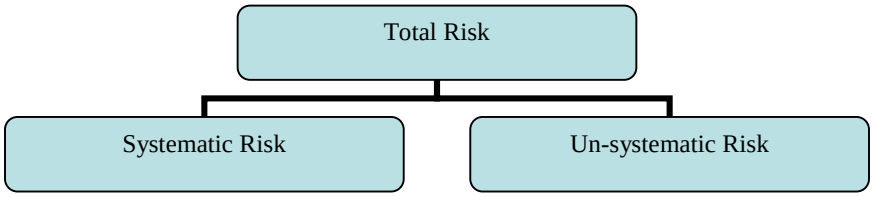
Covariance of the returns of NDBL, DCBL and ACEDBL with market is 1495.33, 1803.24, and 2793.79 respectively. As covariance between two variables measures the absolute association, there is the highest absolute association between the returns of ACEDBL and market. Among all the least association is of NDBL. On the basis of covariance, ACEDBL is the most risky stock while NDBL is least one.

Observing Figure 4.1.12, when we move through the beta coefficient of the return of development banks, all the stocks has been seen aggressive. Among them ACEDBL is most aggressive for which the value of beta coefficient is 2.624 and the NDBL is the least aggressive with beta coefficient 1.404. The beta coefficient of the DCBL is 1.694. On the basis of beta coefficient of the stocks, it can be said that all stocks are risky. Among them ACEDBL is the most risky and NDBL is least risky.

4.1.5 Systematic and Unsystematic Risk

Total risk is measured by the variance of returns and can be portioned into systematic and unsystematic risk. Systematic risk is also called unavoidable or un-diversifiable risk. It is caused by market factors. Changes in economic, political, technological and sociological environment that affect securities markets are sources of systematic risk.

Partition of Total Risk



The systematic risk is computed as;

Systematic Variance = $^{2} \times Var(R_m)$

The percentage of systematic risk is measured by the coefficient of determination. It is also called proportion of systematic risk.

Proportion of systematic risk is calculated by;

$$\text{Proportion of systematic risk} = \frac{SystematicRisk}{TotalRisk}$$

$$= \frac{^{2}Var(R_m)}{Var(R_i)} = \circ^{2}_{im}$$

Unsystematic risk is called avoidable or diversifiable risk or non market risk or company specific risk. It is ascertained as:-

Un-systematic Risk=Total Risk-Systematic Risk $= Var(R_i) - \quad ^{2}.Var(R_m)$

The total risk, systematic risk and unsystematic risk of commercial and development banks are presented below:-

Commercial Bank

Table 4.1.13: Total Risk, Systematic and Unsystematic Risk of Commercial Banks

Commercial Banks	Total Risk	Systematic Risk	Proportion of Systematic	Unsystematic Risk	Proportion of Unsystematic risk
NABIL	6642.25	5730.73	0.863	911.52	0.137
NIBL	2135.17	2.835	0.0013	2132.53	0.9987
HBL	1309.72	1228.13	0.938	81.59	0.062

Source: Annual report of SEBON

The statistical results shown in above table, depicts the total risks, systematic risk and unsystematic risk of commercial banks.

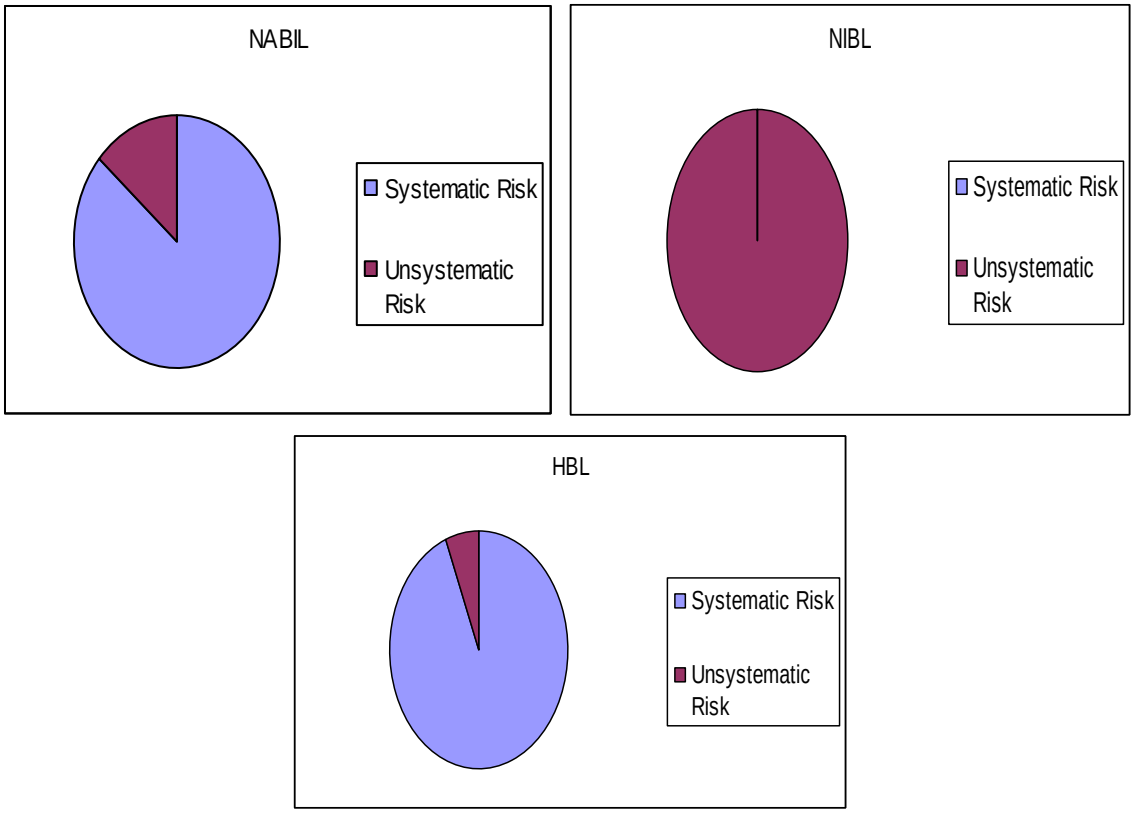
The total risks i.e. variance of NABIL, NIBL and HBL are 6642.25, 2135.17 and 1309.72 respectively. On the basis of variance, the NABIL is seen most risky among them and the HBL is seen least risky and the NIBL is medium.

While portioning the total risk into systematic and unsystematic, the systematic risk represents the uncertainty due to the market factor that the organization can't avoid. The systematic risk of NABIL, NIBL and HBL are 5730.73, 2.835 and 1228.13 respectively. The results show that NABIL has the largest one and the NIBL has the least of systematic risk. The HBL has medium, when this systematic risk is expressed in terms of proportion. The proportion of systematic risk of NABIL, NIBL and HBL are 0.863, 0.0013 and 0.938. The large portion of total risk of NABIL and HBL are systematic risk i.e. the uncertainty for the return of NABIL and HBL are largely due to the market factors. But the market is seen in favor of NIBL as its proportion of systematic risk is 0.0013, which is very small value.

The unsystematic risk of NABIL, NIBL and HBL are 911.52, 2132.53 and 81.59 respectively. With the comparison of total risk, the unsystematic risk of NABIL and HBL are very small and the proportion of unsystematic risk of NABIL and

HBL are 0.137 and 0.062 respectively. From the result it is clear that they are success to avoid the avoidable risk and the organization are seen well managed, because it represents the uncertainty due to the internal factors with in the organization. While taking about systematic risk of NIBL is very high. It is seen unsuccessful to avoid the avoidable risk even though market is in its favor. Because of the management errors or company specific weakness of NIBL, it has been increased to 2132.53 for which the corresponding proportion of unsystematic risk is 0.9987.

Figure 4.1.13: - Systematic and Unsystematic Risk of Commercial Banks



Development Banks

Table 4.1.14: Total Risk, Systematic and Unsystematic Risk of Development Banks

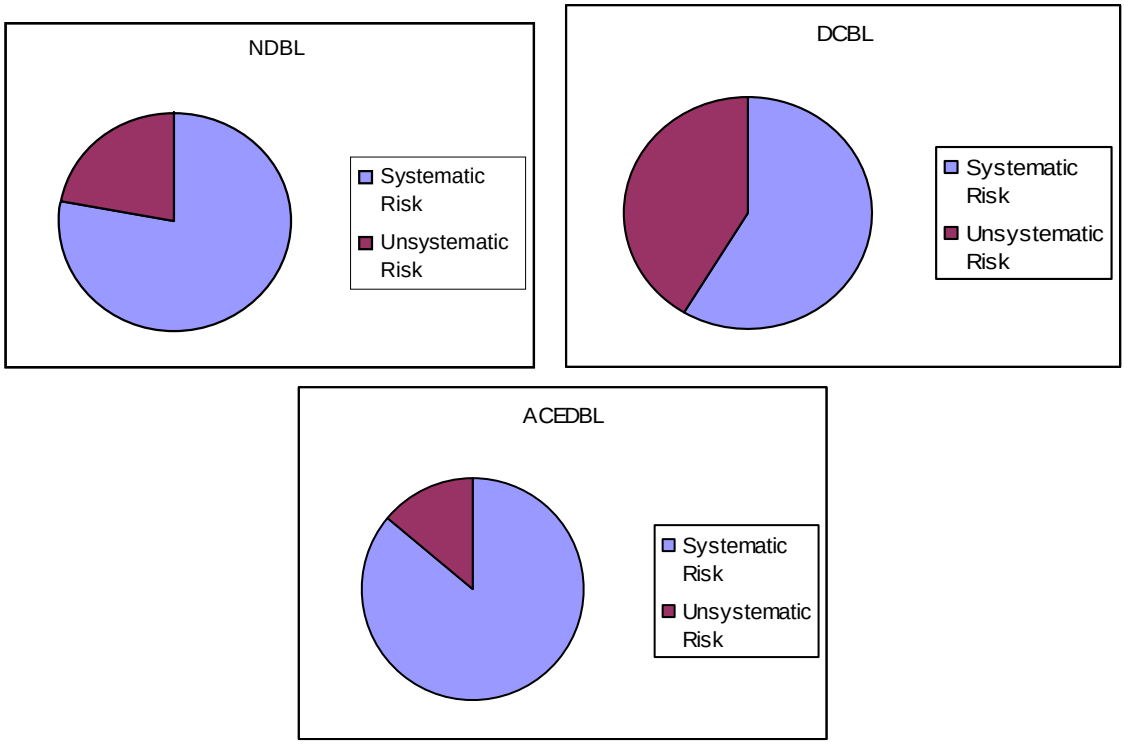
Development Banks	Total Risk	Systematic Risk	Proportion of Systematic	Unsystematic Risk	Proportion of Unsystematic risk
NDBL	2690.50	2098.79	0.78	591.71	0.22
DCBL	5204.18	3055.35	0.587	2148.83	0.413
ACEDBL	8526.68	7330.98	0.86	1195.70	0.14

Source: Annual report of SEBON

The statistical results presented in above table shows total risk, systematic risk and unsystematic risk. The total risk i.e. variance of NDBL, DCBL and ACEDBL are 2690.50, 5204.18 and 8526.68 respectively. On the basis of variance the ACEDBL is the most risky stock as its total risk is maximum and the NDBL is least risky because its variance is minimum among all three stocks. The DCBL has the medium risk among them.

When systematic risk is portioned from total risk, it separates the risk due to market factors. The systematic risk of NDBL, DCBL and ACEDBL are 2098.79, 3055.35 and 7330.98 respectively. Like in total risk, the ACEDBL is seen most risky being highest value of systematic risk. The NDBL is least risky due to the minimum value of systematic risk. The DCBL is medium one. While we enter through proportion of systematic and unsystematic risk, it measures the percentage of each on the basis of total risk. The proportion of systematic risk of NDBL, DCBL and ACEDBL are 0.78, 0.587 and 0.86 respectively. All the three banks have large proportion of systematic risk with the comparison of unsystematic risk. The NDBL and ACEDBL have significantly difference between systematic and unsystematic risk while DCBL has a small difference.

Figure 4.1.14: - Systematic and Unsystematic Risk of Development Banks



4.1.6 Price Situation of the Stocks of Selected Companies

The required rate of return is the minimum rate of return that an investor expects from his/her investment in risky assets. It is the function of real rate of return and systematic risk. The required rate of return is the return on risk free assets i.e. government securities plus risk premium. It is determined by CAPM/SML. The grater the beta of a security, the greater will be the risk and grater the expected return required. Likewise, the lower the beta, lower will be the risk, the more valuable it becomes and the lower the expected returns required.

The beta coefficients, risk premium and required rate of returns on the stocks of commercial banks and development banks are summarized as follows:-

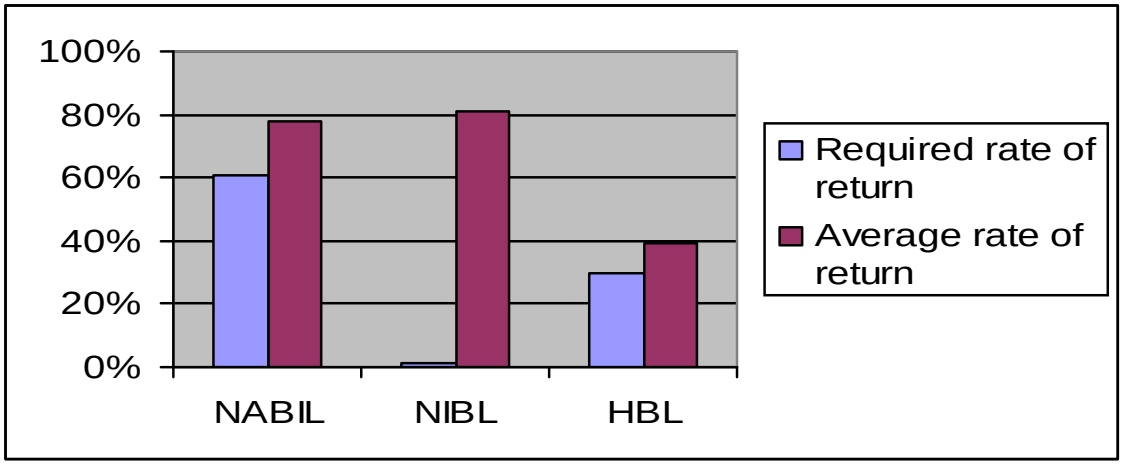
Commercial Banks

Table 4.1.15: Price situation of Common Stocks of Commercial Banks:-

Commercial Banks	Beta (β)	$\overline{R_m}$	R_f	Risk Premium $(\overline{R_m} - R_f)$	Required rate of return	Average rate of return	Price situation
NABIL	2.32	27.86%	2.83	25.03%	60.90%	77.77%	Under-priced
NIBL	-0.0516				1.54%	81.26%	Under-priced
HBL	1.074				29.71%	39.01%	Under-priced

Source: Annual report of SEBON

Figure 4.1.15: Price Situation of Common Stocks of Commercial Banks



From the result presented above, it has been observed that the overall average market return is 27.86%. The average treasury bills rate is 2.83%. the risk premium for all stocks of commercial banks in the market is the difference between the market rate of return and risk free rate of return which is 25.03% based on the risky-ness of the

stocks, the required rate of return of the banks NABIL, NIBL and HBL are 60.90%, 1.59% and 29.71% respectively. Higher the beta coefficient, higher will be the required rate of return of NABIL is maximum among all the stocks i.e. 2.32. Its required rate of return is also highest among all. Higher systematic risk requires higher risk premium. Likewise, the beta coefficient of the stocks of NIBL is the lowest among all i.e. -0.0516 and the required rate of return is 1.54%, which is the smallest required rate of return. The beta coefficient of HBL is 1.074 and the required rate of return is 29.71. The required rate of return of NIBL is seen significantly small. This is because that the calculation of required rate of return considers only systematic risk but not the unsystematic risk.

Comparing the required rate of return and average rate of return/ expected rate of return of the stocks of individual commercial banks, the required rate of return for all the commercial banks are less than average rate of return/expected rate of returns. Hence, all the stocks are under-priced in the market. As a result, the stock of commercial banks appears attractive to investors.

Hence, the investors are suggested to purchase (not to sell) the common stocks of commercial banks in the market. The investors are required to take long position to gain from the stocks of commercial banks.

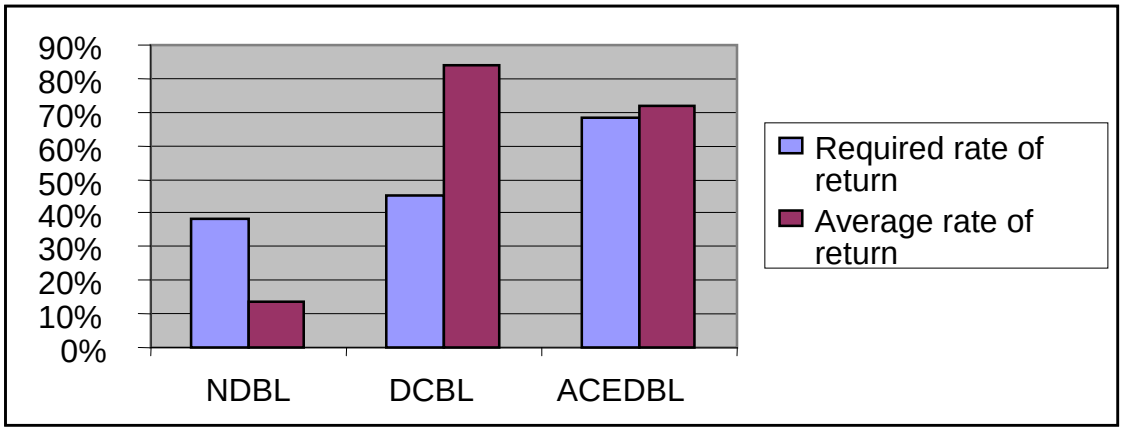
Development Banks

Table 4.1.16: Price Situation of Common Stocks of Development Banks

Development Banks	Beta(β)	$\overline{R_m}$	R_f	Risk Premium ($\overline{R_m} - R_f$)	Required rate of return	Average rate of return	Price situation
NDBL	1.404	2.83%	27.86%	25.03%	37.97%	13.46%	Over-priced
DCBL	1.694				45.23%	83.95%	Under-priced
ACEDBL	2.624				68.51%	71.87%	Under-priced

Source: Annual report of SEBON

Figure 4.1.16: Price Situation of Common Stocks of Development Banks



From results presented in the table 4.1.14, it has been observed that the overall average market return is 27.86%. The average rate of treasury-bill is 2.83%. The risk premium for all stocks of development banks in the market is the difference between risk free rate and market rate of return which is 25.03%.

Based on the risky ness of stocks in terms of systematic risk only, the required rate of return for NDBL, DCBL and ACEDBL are 37.97%, 45.23% and 68.51% respectively. Higher the systematic risk, higher the required rate of return and vice versa, because the beta coefficient is directly proportional to the required rate of return. Since, beta coefficient of ACEDBL is the highest among all this is the reason for being maximum required rate of return of the stocks of ACEDBL. The beta coefficient of DCBL is grater than that of NDBL and smaller than that of ACEDBL which is 45.23%. Comparing the required rate of return with the average/expected rate of return of the stocks, it is observed that, NDBL has grater required rate of return. This is the case of overpricing. The investor should not buy such stock. It is better to sell the short for investors. In the case of overpricing, investor should go through short position. In case of DCBL and ACEDBL the required rate of returns are greater than that of expected/average rate of return. So, these two shares are appeared attractive to the investors. Hence, investors are advised to purchase not to sell these shares in the market. In case of these two companies, investors are required to take long position to gain from the stocks.

4.1.7 Portfolio Analysis

To analyze the portfolio risk and returns, the commercial banks and development banks are categorized into two groups. Firstly, the portfolio of commercial banks are formed between the different sample commercial banks, And portfolio risk and returns are calculated to reach in a decision of best commercial banks portfolio. Secondly, stocks of different development banks are combined in different proportion to form the best portfolio of development banks. After findings the best portfolios of two different sectors, than it is found the portfolio between commercial banks and development banks on the basis of commercial banking index and development banking index.

For finding two assets portfolio risk and return, it is calculated the optimal weight for minimum risk. For finding three assets portfolio weight of the stock are taken randomly.

The portfolio returns of the companies is the weighted average returns of the investment in different stock. Mathematically it is expressed as:-

Portfolio return ($\overline{R_p}$) = $W_1 \times \overline{R_1} + W_2 \times \overline{R_2} + ... + W_n \times \overline{R_n}$

Here $\overline{R}$ represents expected return on individual assets or stocks and W represents the weight of the investment in individual stocks/assets.

Similarly the risk is calculated using the following mathematical relationship;

$$\pm_p = \sqrt{W_1^2 \pm_1^2 + W_2^2 \pm_2^2 + W_3^2 \pm_3^2 + 2W_1W_2Cov_{1,2} + 2W_2W_3Cov_{2,3} + 2W_1W_3Cov_{1,3}}$$

Here, $\pm_p$ is portfolio risk, W is investment in individual stocks; σ is risk on individual stocks. **Cov** is covariance of individual stocks with market.

The calculated portfolio risk and returns of commercial banks and development banks are presented in table and graph;

Commercial banks

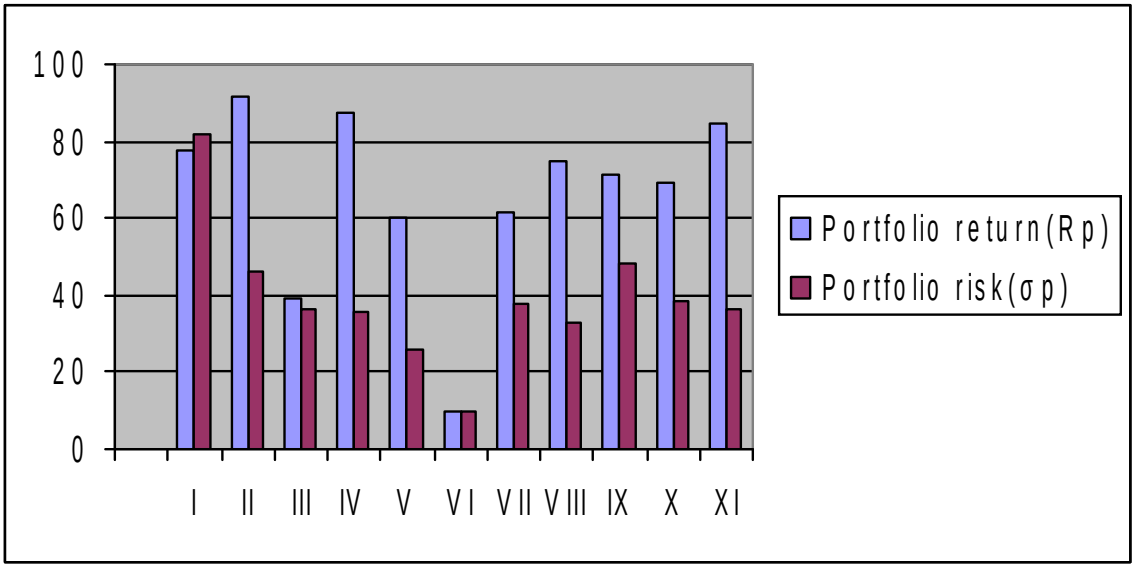
Table 4.1.17: Portfolio Risk and Returns between Commercial Banks

Portfolio	Weight of stocks			Portfolio return(Rp)	Portfolio risk(σp)	C.V.	Ranking
	NABIL	NIBL	HBL				
I	1	0	0	77.77	81.50	1.048	11th
II	0	1	0	91.26	46.21	0.506	5th
III	0	0	1	39.01	36.19	0.928	9th
IV	0.29	0.71	0	87.35	35.71	0.409	1st
V	0	0.40	0.60	59.91	25.69	0.429	3rd
VI	-0.76	0	1.76	9.55	9.49	0.994	10th
VII	0.25	0.25	0.50	61.76	37.62	0.609	7th
VIII	0.25	0.50	0.25	74.83	33.121	0.443	4th
IX	0.50	0.25	0.25	71.45	48.44	0.678	8th
X	0.33	0.33	0.34	69.04	38.73	0.561	6th
XI	0.1	0.80	0.10	84.69	36.24	0.428	2nd

Source: Annual report of SEBON

Above table shows the different portfolios formed by combining different commercial banks including single stock investment also. There are 11 portfolios shown in above table. Three are single assets investment and next three are two assets portfolio. Remaining five are three assets portfolio in different proportions. The risk and return of the portfolios are different and can't be select one best portfolio on these banks, so coefficient variance are calculated which measures the risk pre unit return. Thus a best portfolio can be selected. This table is presented in following graph;

Figure 4.1.17: Portfolio Risk and Returns between Commercial Banks



On analyzing the single assets portfolio, that is investing in single stocks, the portfolio II is seen best with the comparison of portfolios I & III, the return is higher than that of I and the risk also lower than that I. so, the portfolio II dominates portfolio I. While portfolio II and III are compared, the return on II is 91.26% and on III is 39.01%. Similarly, the risk on II is 46.21% and on III is 36.19%. In such situation we can't find that which one is dominant Portfolio and need to calculate the coefficient variation for compared portfolios.

Between the portfolio II and III, the coefficient variation of portfolio II is the best. Among three single assets investment, the portfolio II is seen best.

For two assets portfolios, when portfolio IV is compared with portfolio V and VI, both the risk and return are seen higher. This means that we need to move through coefficient variation. The C.V. of portfolio IV is lowest among all three portfolios, that means this portfolio offer least risk for one unit of return.

Likewise portfolio V is better than that of portfolio VI as it's C.V. is 0.429 which is less than the C.V. of portfolio VI i.e. 0.994.

Comparing the three assets portfolios, the portfolio return of XI is higher than that of all other four portfolios and the risk of portfolio XI is lower than that of portfolios VII, IX and X. Hence, among portfolios VII, IX, X and XI the portfolio XI is dominant, all three portfolios VII, IX and X are rejected and the XI is selected. Now, when portfolio XI is compared with portfolio VIII, the C.V. of XI is lower than VIII, therefore XI is better than VIII. Hence, portfolio XI is seen best among all three assets portfolio. Thus, it is selected.

While we go through overall study of all portfolios, the coefficient variation of portfolio IV is seen least, so it is the least risky assets for single unit of return. Hence, it comes in 1st position in selection, the portfolio XI in 2nd position and portfolio V is in 3rd position.

Furthermore, while making two or three assets portfolio, it is seen that the large proportion investing in NIBL's stock significantly reduce the risk without significant reduction in return.

Development Banks

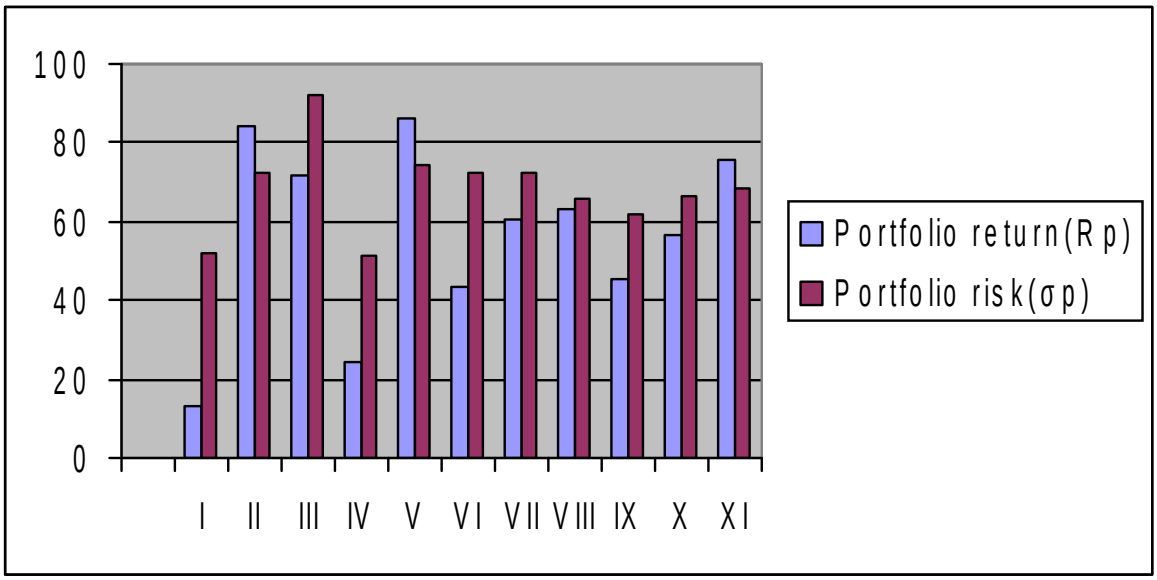
Table 4.1.16 shows the different portfolios formed by combining different development banks in different proportion. The single asset investment has also shown in the table to find out that whether it is better to invest in portfolios or in single assets. There are eleven portfolios shown in the table. The first three are single asset investment. Next three are two assets portfolios and the remaining five are three assets portfolios. The risk and return of different portfolios are different. On the basis of risk and return, we find out the dominant stock one and select. But if it is not possible for finding the dominant stock, than we calculate the coefficient of variations. The stock having least C.V., We choose the best portfolio.

Table 4.1.18: Portfolio Risks and Returns between Development Banks

Portfolio	Weight of stocks			Portfolio return(Rp)	Portfolio risk(σp)	C.V.	Ranking
	NDBL	DCBL	ACEDBL				
I	1	0	0	13.46	51.87	3.854	11th
II	0	1	0	83.95	72.14	0.859	2nd
III	0	0	1	71.87	92.34	1.285	7th
IV	0.85	0.15	0	24.03	51.06	2.125	10th
V	0	1.20	-0.20	86.37	74.15	0.858	1st
VI	0.49	0	0.51	43.25	72.09	1.667	9th
VII	0.25	0.25	0.50	60.29	72.64	1.205	6th
VIII	0.25	0.50	0.25	63.31	65.86	1.040	4th
IX	0.50	0.25	0.25	45.69	61.98	1.357	2nd
X	0.33	0.33	0.34	56.58	66.72	1.179	5th
XI	0.10	0.80	0.10	75.69	68.25	0.902	3rd

Source: Annual report of SEBON

Figure 4.1.18: Portfolio Risks and Returns between Development Banks



Observing the single assets investment on the table and graph, the return on investment II is higher than that of investment on I and II. The risk on II investment is smaller than on III and grater than on I. Hence, II investment is dominant as it dominants III one. But for the case of I and II, we move through coefficient of variation, where C.V. of investment II is less. The investment on II is seen best among all three single assets investment.

In case of two assets portfolio, the return on portfolio V is higher among all three i.e. 86.37% where the returns on IV and VI are 24.03% and 43.25% respectively. The risks on the portfolios IV, V and VI are 51.06, 74.15 and 72.09 respectively. Here, the risk of portfolio II is seen highest. While calculating coefficient of variation, the C.V. of portfolio V is seen least. Hence, it is selected among all three stocks. Now, when we move through three assets portfolios, it is observed that the portfolios VIII and XI dominate the portfolio VII as the portfolio respectively. The risk of portfolio VIII and XI have 65.68% and 68.25% respectively and the risk and return of portfolio VII has 60.29% return and 72.64% risk. So, the portfolio VII being riskier than that of VIII and having less rate of return, it is dominated by portfolio VIII and XI.

For other portfolios we have calculated the coefficient of variation, the C.V. of portfolios VII, VIII, IX, X and XI have 1.205, 1.040, 1.357, 1.179 and 0.902 respectively. The coefficient of variation of portfolio XI is seen least among all five portfolios. Hence, it is selected as best portfolio among three assets portfolio.

For the overall study, the coefficient of variation in two assets portfolio is least among all eleven portfolios. In this case, the investors can invest in two development banks. They are DCBL and ACEDBL. The proportion of the

investment in DCBL and ACEDBL are 1.20 and -0.20 respectively. The negative proportion of investment tells us that the stocks equal to 20% in ACEDBL should sell the short and 120% should invest in DCBL. After selecting this best portfolio, investors can earn the return of 86.37% bearing 74.15%return.

Furthermore, while making two or three assets portfolio, investing large proportion in DCBL and small proportion in remaining two significantly reduces the risk without significant reduction in return.

Portfolios between commercial bank and development banks

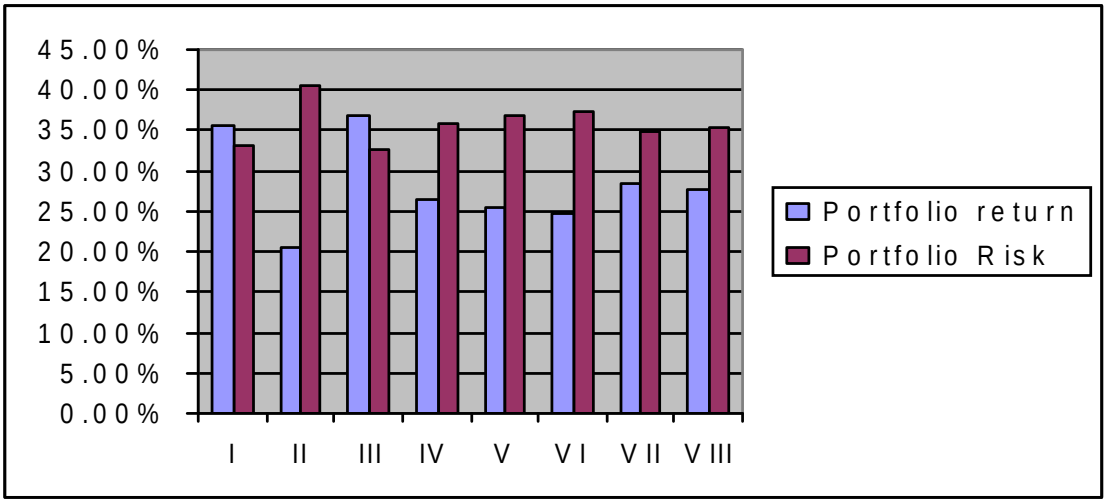
Portfolio return and risk of commercial and development banks are shown below:-

Table 4.1.19: Portfolio Return and Risk of Commercial and Development banks

Portfolio	Proportion of Investment		Portfolio return($\overline{R_p}$)	Portfolio Risk($\pm_p$)	C.V.
	Commercial banks	Development Banks			
I	1	0	35.50%	33.17%	1.021
II	0	1	20.62	40.56	1.967
III	1.36	-0.36	36.78	32.54	0.885
IV	0.50	0.50	26.56	35.97	1.354
V	0.40	0.60	25.37	36.76	1.039
VI	0.34	0.66	24.66	37.27	1.511
VII	0.66	0.34	28.46	34.85	1.225
VIII	0.60	0.40	27.75	35.25	1.270

The results presented in above table shows the portfolio risks and returns that is formed by combining commercial banks and development banks in different portfolios. The investment on individual banking sector provides return on commercial banks is 35.50% and on development banks is 20.62%. Similarly, the risk on commercial banks is 33.17% and on development banks is 40.56%. The data shows that the returns on commercial banks is higher than returns on development bank and the risk on commercial bank is smaller than risk on development banks. Hence, development banking sector is dominated by commercial banking sector. While investing on the basis of risk and return of individual banking sector, the investors are advised to invest in commercial banking sector.

Figure 4.1.19: Portfolio Return and Risk of Commercial and Development banks



On analyzing two assets portfolio, firstly we have calculated optimal weight for minimum risk. Different random weights have been taken for the calculation of portfolio risk and return. It is seen that the return on portfolio III is higher among all portfolio i.e. 36.78% and risk on the same portfolio is lower i.e. 32.54%. Hence it is dominant portfolio among all. On the basis of coefficient variation, portfolio III has also the least values among all i.e. 0.885. Hence, it is the best portfolio between the commercial banks and development banks.

Furthermore, while forming the portfolio between commercial banks and development banks, higher weights providing in commercial banks and lower in development bank significantly reduces the risk without significant reduction in return.

4.1.8 Portfolio Performance Evaluation:-

William F. Sharpe, Jack Treynor and Dr. Michel C. Jenson developed indices of measuring the portfolio performance. Sharpe considered total risk and return simultaneously. Here, portfolio performance of listed companies has been evaluated based on Sharpe Index.

Commercial Banks

The portfolio performance indicators using Sharpe index of each portfolio shown in table no 4.1.17 is presented in table No. 4.1.20 below,

Table 4.1.20: Sharpe Index of Portfolio Performance Measure for CBs.

Portfolios	$S_p = \frac{\overline{R}_p - \overline{R}_f}{\pm_p}$	Ranks
I	0.909	10th
II	1.914	5th
III	0.999	9th
IV	2.367	1st
V	2.222	3rd
VI	0.708	11th
VII	1.566	7th
VIII	2.174	4th
IX	1.417	8th
X	1.710	6th
XI	2.259	2nd

From the table 4.1.20, it has been seen that the Sharpe Index of portfolio performance measure of top five portfolios IV, XI, V, VIII and II are 2.367, 2.259, 2.222, 2.174 and 1.914 respectively. The Sharpe performance index of the portfolio IV is seemed highest among all and it is the best portfolio. This portfolio consists of 29% of investment in NABIL's stock and 71% of investment in NIBL's stock. A next better portfolio is XI which consists of 10% investment in NABIL, 80% investment in NIBL and 10% investment in HBL. The worst portfolio is VI with Sharpe Performance Index 0.708, which consists of investment in short sell of 76% in NABIL and long position of 176% in HBL.

Development Banks

The portfolio performance indicators using Sharpe Index of each portfolio shown in table 4.1.18 is presented in the Table 4.1.21 below:-

From the table 4.1.21, it has been seen that the portfolio performance measure of Sharpe Index of top five portfolios are V, II, XI, VIII and X respectively, for which there corresponding value of Sharpe's performance Index are 1.127, 1.124,

1.068, 0.910 and 0.806 respectively. The Sharpe Performance Index of portfolio V is seen highest among all. This portfolio involves the investment on DCBL and ACEDBL. This portfolio further says that 20% stocks of ACEDBL should be sold short and 120% fund should be invested on DCBL for getting maximum return minimizing the risk at optimal level. Hence, portfolio V is the best portfolio among all on the basis of Sharpe Performance measure. The least value of Sharpe Performance Index is 0.205 of portfolio I among all.

Table 4.1.21: Sharpe Index of Portfolio Performance Measure for DBs.

Portfolios	$S_p = \frac{\overline{R}_p - \overline{R}_f}{\pm_p}$	Ranks
I	0.205	11th
II	1.124	2nd
III	0.748	7th
IV	0.415	5th
V	1.127	1st
VI	0.561	9th
VII	0.791	6th
VIII	0.910	4th
IX	0.692	8th
X	0.806	5th
XI	1.068	3rd

Commercial and Development Banks

The portfolio performance indicators using Sharpe Index of each portfolio shown in table 4.1.19 is presented on the table 4.1.22 below:-

The results presented in the table below shows the Sharpe Performance Index of eight portfolios, among them the maximum index is of portfolio III for which the corresponding value is 1.043. The portfolio I, VII and VIII are in 2nd, 3rd and 4th position respectively, for which their corresponding values are 0.985, 0.707 and 0.735 respectively. The portfolio II has the least value of Sharpe Performance Index among all.

Table 4.1.22: Sharpe Index of Portfolio Measure for CBs and DBs

Portfolios	$S_p = \frac{\overline{R}_p - \overline{R}_f}{\pm_p}$	Ranks
I	0.985	2nd
II	0.439	8th
III	1.043	1st
IV	0.660	5th
V	0.613	6th
VI	0.586	7th
VII	0.735	3rd
VIII	0.707	4th

4.1.9 Hypothesis testing

Regarding the return characteristics

Commercial Banks

Null Hypothesis (H_0): $\overline{R}_i$ =μ i.e. there is no significant difference between the mean return of population and sample.

Alternative Hypothesis (H_1): $\overline{R}_i \neq$ « i.e. there is significant difference between the mean return of population and sample.

Decision: The calculated value of t is 2.353. The critical value of t at 5% level of significance for two failed test at degree of freedom (3-1) =2 is 4.303. Since the calculated value of t is smaller than the critical value of t at 5% level of significance for two failed test at (3-1) =2 d.f., the Null Hypothesis is accepted and alternative hypothesis is rejected which mean that the average return of selected commercial banks is not significantly different from the market return. Hence, it can be concluded that average rate of return of the selected commercial bank is equally volatile to return of market

Development Banks

Null Hypothesis (H_0): $\overline{R}_i$ =μ, i.e. there is no significant difference between the return of population and sample.

Alternative Hypothesis ((H_1): $\overline{R}_i \neq$ « ,i.e. there is significant difference between the return of population and sample.

Decision: The calculated value of t is 1.645. The critical value of t at 5% level of significance for two tailed test at degree of freedom 2. (3-1) is 4.303. Since, the calculated value of t is smaller than that of tabulated value of t. Thus the Null Hypothesis is accepted and alternative hypothesis is rejected. Which means that the average return of selected development banks is not significantly different from the market return .Hence it can be

concluded that average rate of return of the selected development bank is equally volatile to return of market.

Regarding the risk characteristics

Commercial Banks

Null Hypothesis (H_0): $_j = 1$ i.e. there is no significant difference between the systematic risk of population and sample.

Alternative Hypothesis (H_1): $_j \neq 1$ i.e. there is significant difference between the systematic risk of the population and sample.

Decision: The calculated value of t is 0.503. The critical value of t at 5% level of significance for two tailed test at degree of freedom 2(3-1) is 4.303. Since, the calculated value of t is less than that of critical value. Thus the Null Hypothesis is accepted and alternative hypothesis is rejected .Which means that the portfolio beta of selected commercial banks is equal to market beta. Hence it can be concluded that the stocks of selected commercial banks are equally volatile to market.

Development Banks

Null Hypothesis: (H_0): $_j = 1$ i.e. there is no significant difference between the systematic risk of population and sample.

Alternative Hypothesis: (H_1): $_j \neq 1$ i.e. there is significant difference between the systematic risk of the population and sample.

Decision: The calculated value of t is 2.587. The critical value of t at 5% level of significance for two tailed test at degree of freedom 2(3-1) is 4.303. Since the calculated value of t is less than that of critical value of t. Thus, Null Hypothesis is accepted and alternative hypothesis is rejected. Which means that the portfolio beta of the selected development banks is equal to market beta. Hence, it can be concluded the stocks of selected development banks are equally volatile to market.

4.2 Presentation and Analysis of Primary Data

This part concerns with the presentation and analysis of primary data collected through questionnaires. The opinions and views expressed by the investors are first presented and than analyzed using percentage and depicted in graphs.

4.2.1 Holding Securities

The respondents were asked if they are holding one or more than one securities to find out the holding status of securities. the respondents regarding this are presented in table 4.2.1

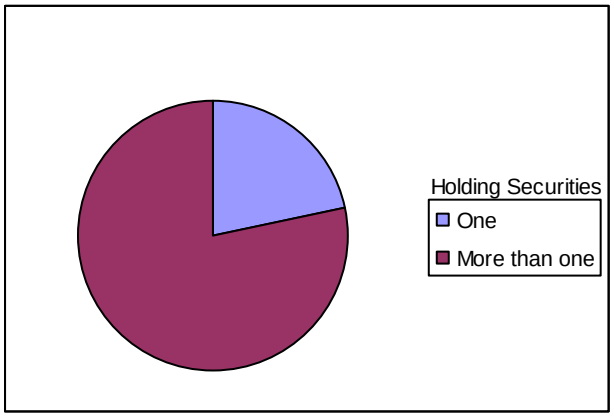
Table 4.2.1: Holding Securities

S.N.	Research Variable	Number of Investors	Percentage (%)
1	One	13	21.67
2	More than one	47	78.33
	Total	60	100

Source: Field Survey

From the table 4.2.1, it has been observed that out of 60 respondents 21.67% (i.e. 13 investors) respondents replied that they are holding only one companies securities, and rest 78.33% (i.e. 47 persons) respondents replied that they are holding different companies securities. This seems that 21.67% investors either investing few amounts in this field or they have no good knowledge of portfolio investment. This has been depicted in figure 4.2.1 below.

Figure 4.2.1: Holding Securities



4.2.2 Types of Investor

In order to identify the activities of the investors, the respondents were asked that if they are active or passive investor. The responses are shown as follows.

Table 4.2.2: Types of Investors

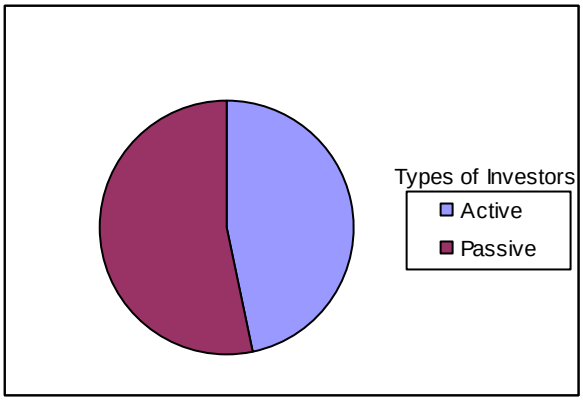
S.N.	Research Variable	Number of Investors	Percentage (%)
1	Active	28	46.67
2	Passive	32	53.33
	Total	60	100

Source: Field Survey

From Table 4.2.2, it has been seen that 46.67% (i.e. 28 persons) replied that they are active investors and rest 53.33% (i.e. 32 persons) are passive investors. This

seemed that only 46.67% investors have good education and experience and they can do hard work in stock market and take advantages from opportunities. Rest 53.33% apply 'Buy and hold strategy' and their trading is not affected by the market factors. This result has been presented in Figure 4.2.2 below.

Figure 4.2.2: Types of Investors



4.2.3 Preference in investment

To find out the investors preferences in investment, the investors were asked three questions. The first question was related to profitability and risk. The responses are shown in Table 4.2.3(a)

Table 4.2.3(a): Preference in Investment

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Less profitable but safe	25	41.67
2	Risky but more profitable	35	58.33
	Total	60	100

Source: Field Survey

From the table 4.2.3(a), it is observed that 41.67% investors selected less profitable but safe investment and rest 58.33% choose more profitable investment whatever it is risky. It is seen that 58.33% investors are risk taker and 41.67% investors are risk averter.

Next question was which sector provides them more return with minimum risk. In this regard, the responses are presented in Table 4.2.3(b)

Table 4.2.3(b): Preference Sector for Investment

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Commercial banks	36	60.00
2	Development banks	16	26.67

3	Others	8	13.33
	Total	60	100

Source: Field Survey

From Table 4.2.3(b), it is observed that out of 60 investors, 60.00% investors replied that commercial banks provide them more return with minimum risk. Rest 26.67% and 13.33% respondents replied in favor of development banks and other sectors respectively. It is seen that very few investors choose other sectors except banking sector as profitable with less risky investment. Investors give more preference in commercial banks.

Other question was related to investor's choice when making portfolio. The respondents were asked that which sector they select while making their portfolio. The responses are shown in Table 4.2.3(C)

Table 4.2.3(c): Investors Choice while making Portfolio

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Portfolio with commercial banks	28	46.67
2	Portfolio with development banks	18	30.00
3	Portfolio with other sectors	10	16.67
4	Both 1 and 2	2	3.33
5	None	2	3.33
	Total	60	100

Source: Field Survey

From table 4.2.3(c), it is seen that 46.67% of investors select portfolio with commercial banks, 30.00% of investor choose portfolio with development banks and 16.67% of investors choose portfolio with other sectors. Rest, 3.33% chooses both portfolio with commercial banks and portfolio with development banks at a time and 3.33% of investors don't invest with portfolio. From the survey, it is seen that most of the investor's attractive sector is commercial banks.

Investor's preferences are presented in Figure 4.2.3(a), 4.2.3(b) and 4.2.3(c) below

Figure: 4.2.3(a): Preference in Investment

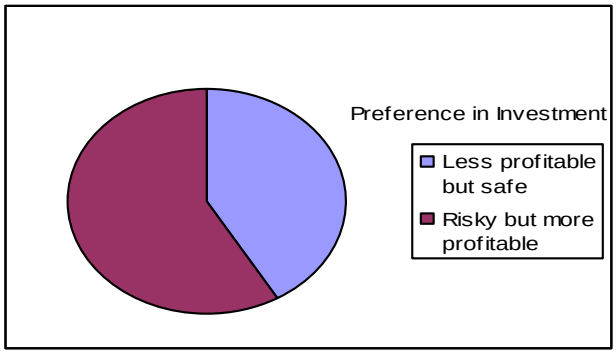


Figure: 4.2.3(b): Preference Sector for Investment

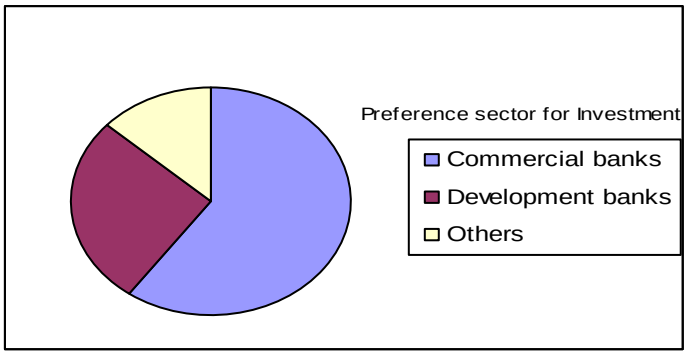
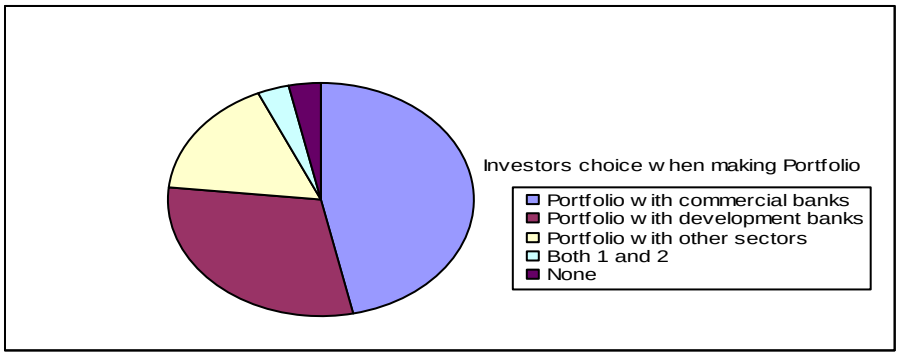


Figure 4.2.3(c): Investors Choice while making Portfolio



4.2.4 Analysis of Securities before Trading

To find out the investor's analyzing power incase of investment three questions were asked them.

First question was if they analyze market information correctly or not incase of investment. The responses are shown in Table 4.2.4(a)

Table 4.2.4(a): Analysis of Market Information

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Yes	43	71.67
2	No	17	28.33
	Total	60	100

Source: Field survey

From table 4.2.4(a), it is seen that 71.67% investors analyze market information rationally and rest 28.33% investors don't watch market information incase of investment or return back their investment.

Second question was if they estimate return and risk associated with the securities. The responses are shown in Table 4.2.4(b)

Table 4.2.4(b): Estimated Return and Risk Associated with Securities

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Yes	38	63.33
2	No	22	26.67
	Total	60	100

Source: Field Survey

From above table 4.2.4(b), it is observed that 63.33% of respondents replied "Yes" and rest 26.67% respondents seen that they don't estimate return and risk associated with the securities.

Other question was that if they calculate the prices of securities whether it is correctly priced or mispriced, when they are going to invest in securities. The responses are shown in table 4.2.4(c)

Table 4.2.4(c): Calculation of Prices of Securities

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Yes	36	60.00
2	No	24	40.00
	Total	60	100

Source: Field Survey

From above Table 4.2.4(c), it is observed that 60.00% investors calculate the prices of securities and find out the real price (i.e. intrinsic value). Rest 40.00% investors don't calculate the prices of securities; they don't analyze the intrinsic value of securities when they are going to invest.

From above three questions and respondents responses to them, it is observed that above 60% investors analyze securities from different angles before investing and return back their investment, rest investors are not seen as rational investor. These results have been presented in Figure 4.2.4(a), 4.2.4(b) and 4.2.4(c) below:

Figure: 4.2.4(a) Analysis of Market Information

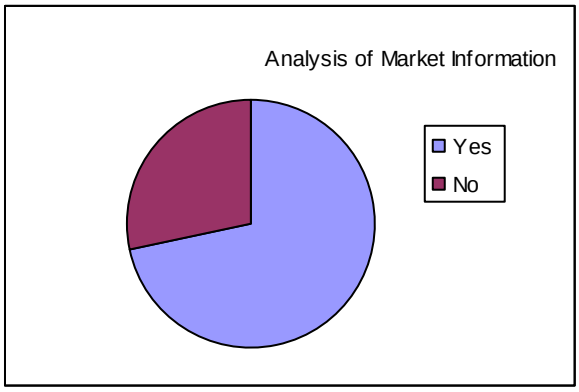


Figure: 4.2.4 (b): Estimated Return and Risk Associated with the Securities

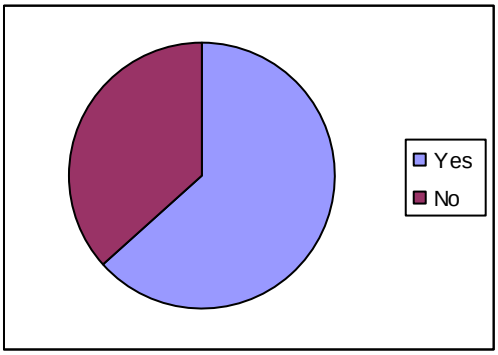
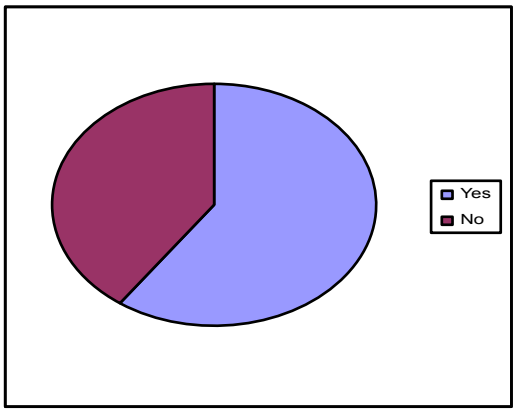


Figure: 4.2.4 (c): Calculation of Prices of Securities during Investment



4.2.5 Objective of investment

To find out the objective of investment, the respondents were asked if they have an objective of maximizing return and minimizing risk or not. The responses are shown in Table 4.2.5 below

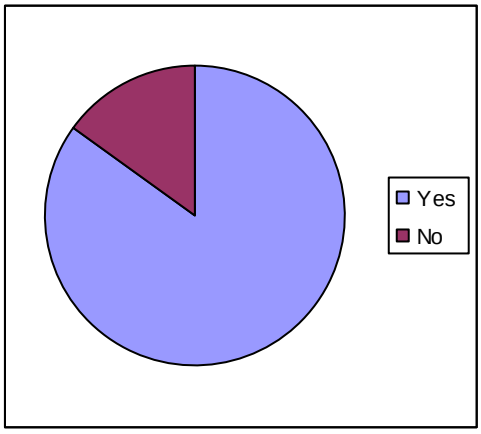
Table4.2.5: Objective of Investment

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Yes	51	85.00
2	No	9	15.00
	Total	60	100

Source: Field Survey

From Table 4.2.5, it has been seen that out of 60 respondents, 85.00% respondents replied that they have an objective of maximizing return and minimizing risk. Rest15.00% respondent's response was "No". This seemed that 15.00% of investors invest without investment objective. This has been depicted in Figure 4.2.5

Figure: 4.2.5: Objective of Investment



4.2.6 Knowledge about Portfolio

In order to identify the investor's knowledge about portfolio, the investors were asked if they know about portfolio investment or not. The responses of the investors were shown in Table 4.2.6

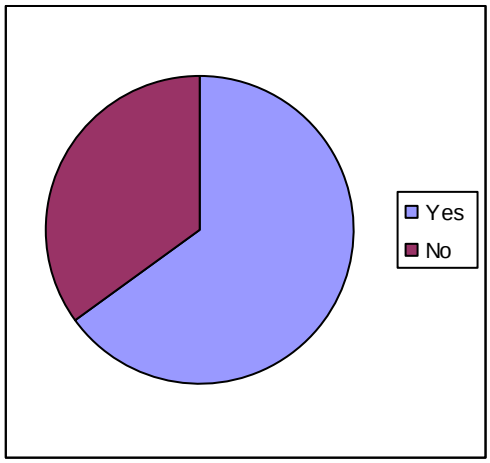
Table 4.2.6: Knowledge about Portfolio

S.N.	Research Variable	Number of Investors	Percentage (%)
1	Yes	39	65.00
2	No	21	35.00
	Total	60	100

Source: Field Survey

From Table 4.2.6, it is observed that out of 60 investors, 65.00% of investors replied that they have the knowledge of portfolio investment and rest 35.00% investors are investing their funds without any knowledge of portfolio investment, i.e. they don't diversify their funds in two or more than two securities properly to reduce risk and increase their return. This has been presented in Figure 4.2.6 below

Figure: 4.2.6: Knowledge about Portfolio



4.3 Major Findings of the Study

4.3.1 Based on Secondary Data Analysis:-

☺MPS and DPS Trend of Common Stock

Generally, Commercial banks are providing regular dividend and development banks are not so regular. MPS movement is based on DPS of commercial and development banks, sometimes not correctly. MPS of regular dividend providing company, is increasing regularly and others are not so. Investors are suggested to choose regular dividend providing company's stock.

☺Risk and Return Characteristics

Commercial Banks

The share of NIBL offered the highest average rate of return i.e. 91.20%, with medium risk i.e. 46.21% and its C.V. (risk per unit) is minimum i.e. 0.506 when as NABIL and HBL have C.V. 1.048 and 0.928 respectively. The different shares have different rate of return and risk, the share of NIBL seems to be the best for investment. NABIL seems to be high risky than NIBL and

HBL. Considering the overall market, the shares of all commercial banks are attractive for investment.

Development Banks

Comparing development banks, the shares of DCBL offered highest average rate of return, i.e. 83.95% with medium risk i.e. 72.14% and its C.V.(per unit risk) is medium i.e. 0.859,where as NDBL and ACEDBL have their C.V. 3.854 and 1.285 respectively. The shares have different rate of return and risk, the DCBL seems to be the best for investment and NDBL seems to be high risky for investment.

☺**Market Risk and Return**

The average rate of return on overall market NEPSE, commercial banking index and development banking index are 27.63%, 32.50% and 20.62% respectively. Likewise, the risks on corresponding markets are 32.63%, 33.17% and 40.56% respectively. Commercial banking index have highest return with higher risk than NEPSE. However, comparing C.V., commercial bank's C.V. (i.e. 1.021) is less than NEPSE's C.V. (i.e. 1.171). So, commercial bank's risk per unit return is low but return is high. Likewise development banks have lower return and higher risk than NEPSE. It's risk per unit return (C.V.) is higher than NEPSE's (i.e. 1.967>1.171). Commercial banks are more attractive than overall market NEPSE and development banks are risky.

☺**Market Sensitivity**

Commercial Banks

- From the results, covariance between the returns of NABIL, NIBL and HBL with overall market returns are 2472.75, -54.94 and 1143.46 respectively. As covariance between two variables measures the absolute association between them, there is higher absolute association between the return of NABIL and the market. Among all, HBL has the second largest association and NIBL has the least with market.
- The correlation coefficient of NABIL and HBL are positive and near about 1 which indicates that returns on individual stocks move together with the proportionate movements of the returns on overall market. The correlation coefficient of NIBL is negative and less than one which indicates that portfolio of this stock with market reduces risk.
- The stocks of NABIL and HBL are appeared to be aggressive (offensive) stock. Since, their beta coefficient is more than one. However, the stock of NIBL appeared to be more defensive stock since their beta coefficient is less than one. On the basis of beta coefficient, the stocks of NABIL and HBL are more risky and stocks of NIBL are less risky.

Development Banks

From the results, the covariance between the returns of NDBL, DCBL and ACEDBL are 1495.33, 1803.24 and 2793.79 respectively. Among them the ACEDBL has highest and the NDBL has lowest one. The positive value of covariance shows that the returns of all selected development banks move in the direction of returns of market. Being highest covariance of ACEDBL, it has the highest absolute association with market and NDBL has least association.

- The correlation coefficient of NDBL, DCBL and ACEDBL with market returns are 0.883, 0.766 and 0.927 respectively. All the selected development banks have high degree of correlation coefficients. The highest value i.e. 0.927 among them, the ACEDBL has highest value i.e 0.927. It means that the return of ACEDBL moves almost along with market's return. Other two also have the same direction.
- On the basis of beta coefficient, it can be concluded that all stocks of sample development bank are aggressive. Among them ACEDBL is highly aggressive as it has beta coefficient 2.624. All stocks are more volatile than the market.

☺**Systematic and Unsystematic Risk**

Commercial Banks

Comparing each other, the stocks of NIBL has least systematic risk, i.e. 0.13%. It means that market is favorable to the NIBL. On the basis of systematic risk, the NIBL is seemed most attractive among all selected commercial banks. However, from the unsystematic risk perspective, the management error, company's specific weakness of this bank is highest.
The systematic risk of HBL is highest i.e. 93.8% which means that 93.8% of volatility (variability) in the return of HBL is due to the market factors. However, the unsystematic risk of HBL is 6.20% which is least among all selected commercial banks. HBL is able to avoid unsystematic risk with efficient management. NABIL bears the 86.30% risk due to market factors and 13.70% unsystematic risks. On the basis of proportion of systematic and unsystematic risk NABIL possesses the middle portion. However, it has highest total risk i.e. 6642.25.

Development Banks

The systematic risk of NDBL, DCBL and ACEDBL are 78%, 58.7% and 86% which shows that the volatility of return due to factors of ACEDBL is highest i.e. 86% and the least is of DCBL i.e. 58.7%. The unsystematic risk of NDBL, DCBL and ACEDBL are 22%, 41.3% and 14%. The highest unsystematic risk is of DCBL i.e. 41.3% which means that 41.3% of variability in return is due to internal factors of organization like management errors, company's specific weaknesses. The least unsystematic risk is of ACEDBL. It is seen that the bank is able to manage internal factors. The NDBL has medium systematic and unsystematic risk among them.

☺Price Situation

Commercial Banks

The required rates of return of NABIL, NIBL and HBL are 60.90%, 1.54% and 29.71% respectively where as the average rate of returns/expected rate of returns of NABIL, NIBL and HBL are 77.77%, 81.26% and 39.01% respectively. It is seen in the result, average rate of return/ expected rate of return of all selected commercial banks are higher than required rate of returns. Hence all stocks are in under-priced situation. Hence investors are suggested to buy the securities and hold the long position to make profit from commercial banks.

Development Banks

The required rate of returns of NDBL, DCBL and ACEDBL are 37.97%, 45.23% and 68.51% respectively. Similarly, average rate of return /expected rate of return of NDBL, DCBL and ACEDBL are 13.46%, 83.95% and 71.87% respectively. The expected return is less than required rate of return in case of NDBL. Hence, this stock is overpriced. In such situation investors are suggested to sell the stocks of NDBL. Those investor who maintain short position, can earn more profit in overpriced situation. However, next two stocks of DCBL and ACEDBL have average rate of return /expected rate of return higher than that of required rate of return. Hence, these stocks are under-priced. Investors are suggested to buy the stocks and hold the long position to make profits.

☺Portfolio Analysis

Commercial Banks

Limiting within the investors wealth, eleven different portfolios are constructed numbering from I to XI. Among them IV portfolio consists of 29% of

investment in NABIL bank and next 71% investment in NIBL. It provides 87.35% return at 35.71% risk. It has the least C.V. among all portfolios i.e. 0.409. Another next better portfolio is XI. It consists of 10% investment in NABIL, 80% investment in NIBL and 10% investment in HBL. It provides the 84.69% portfolio return at 36.24% risk. The C.V. of this portfolio is 0.428. The third better portfolio i.e. V has 59.91% return at 25.69% risk with C.V. 0.429. The portfolio I has least priorities. Even though, it has 77.77% returns at 81.51% risk. The C.V. of this portfolio is highest among all hence rejected first.

Development Banks

Limiting within the investors wealth, eleven different portfolios are constructed numbering from I to XI. Among them the portfolio V is seen best which provides 86.37% returns at 74.13% risk. It is the maximum returns among all. The portfolio V consists of 120% investment in DCBL and 20% short sell of stock ACEDBL. Next better portfolio is IX which consists of 50% investment in NDBL, 25% in DCBL and 25% in ACEDBL. This Portfolio provides 45.69% return at 61.98% risk and C.V. 1.357. The return on this portfolio is far smaller than the first one. Hence, portfolio V is best and investors are suggested to construct this portfolio. The least attractive portfolio is I, which provides 13.46% return at 51.87% risk with C.V. 3.854.

Portfolios of Commercial and Development Banks

To study the portfolio risk and return between commercial and development banks, we have chosen commercial banking sector and development banking sector. Eight different portfolios numbering I to VIII are constructed. From the result, III portfolio is seemed as best which consists of 136% investment in commercial banks and 36% of stocks of development banks are to be short sold. This portfolio provides 36.78% of return at 32.54% risk with C.V. of 0.885, this return is maximum among all portfolios. The portfolio I is in second position with return 35.50% at 33.17% risk with C.V. 0.934. Hence, III portfolio is most attractive and portfolio II is least attractive with 20.62% return at 40.56% risk and C.V. 1.967.

☺Portfolio Performance Evaluation

Commercial Banks

On the basis of Sharpe Index of portfolio performance measure, the portfolio IV has the highest value i.e. 2.367. Hence, it is seen best portfolio among different portfolio constructed between commercial banks. This portfolio

consists of 29% of investment in NABIL and 71% investment in NIBL. Another portfolio that come in second and third position are portfolio XI and V with Sharpe Performance Index 2.259 and 2.222 respectively. The least attractive portfolio is VI with Sharpe Performance Index 0.708.

Development Banks

The portfolio V provides the maximum risk premium for one unit risk i.e. Sharpe Performance Index which is 1.127. Hence, it is the best portfolio among all portfolios constructed with different selected development banks. This portfolio consists of investment in DCBL and ACEDBL. This portfolio further says that 20% of stocks of ACEDBL should be sold short and 120% fund should be invested in DCBL for getting maximum return. Another two better portfolios with higher performance index are II and XI respectively and their corresponding values are 1.124 and 1.068 respectively. The least attractive portfolio is I and its Sharpe Performance Index is 0.205.

Commercial Banks and Development Banks

The portfolio constructed between the Commercial banks and Development banks gives different measure of performance evaluation. Among eight portfolios constructed, the portfolio III has the maximum Sharpe Performance Index i.e. 1.043. It gives maximum risk premium for one unit of risk among all portfolios. Hence, it is selected as the best portfolio. It consists of 136% investment in commercial banking sector by short selling 36% from development banking sectors. Another two better portfolios are I and VII with their corresponding Sharpe Performance Index 0.985 and 0.735 respectively. The least attractive portfolio is II with the index 0.439.

☺Hypothesis Testing

Commercial Banks

Regarding the return characteristic, null hypothesis is accepted and alternative hypothesis is rejected, which means that average return of selected commercial bank is not significantly different from the market return. A conclusion is drawn from the findings that average rate of return of the selected commercial banks equally volatile to return of market.
Regarding risk characteristics, the null hypothesis is accepted and alternative hypothesis is rejected. Hence, it can be concluded that there is no significant different between betas of selected commercial banks and market. They are equally volatile.

Development Banks

Regarding return characteristics, null hypothesis is accepted and alternative hypothesis is rejected, which means that there is no significant difference between average returns of selected development banks and market returns of development banks are equally volatile to market returns.
Regarding risk characteristics, null hypothesis is accepted and alternative hypothesis is rejected, which means that there is no significant difference between the risk of selected development bank and the market. They are equally volatile.

4.3.2 Based on Primary Data Analysis

- From the analysis of primary data, it is found that 78.33% of sampled investors have invested their fund more than one securities. Only 21.67% of investors have invested their fund in one security. From the result, it is clear that the most of the investors are maintaining their portfolio either knowingly or unknowingly.
- 46.67% of total sample investors are found to be active investors and remaining 53.33% investors are passive. More of the investors to be passive represents that they invest their wealth and hold for long time. However they have not sufficient profit in their securities. Only 46.67% of investors are actively participating in buying and selling their securities in the market to make more profit.
- Under the study of attitude towards risk, it is seen that 41.67% of investors prefer safe securities however profit may be the less. Therefore they represent risk averter investors. 58.33% of investors invest in more profitable securities however there is high risk. They represent the aggressive investors or risk seeker investors.
- While investing the sum in securities it is found that 71.67% of investors invest their fund in securities by analyzing the market information related to the securities that s/he is going to invest. 28.33% of investors don't analyze market information during investment. This result shows that most of the investors are aware of their investment.
- It is observed that 63.33% of investors either calculate or estimate risk and return associated with the securities while they are going to invest in securities. If respondents are not bias to their answers, it shows the high degree of awareness of investors in their investment. 36.67% of investors don't estimate or calculate the risk and return associated with securities while making investment in such securities.
- From the study it is seen that 85.00% of investors based on sample set their investment objective of risk minimization and profit maximization. This shows that the most investors are rational. They choose the securities giving equal returns on the basis of low risk. Similarly, they choose the securities having equal risk on the basis that gives high

return. 15.00% of investors are not rational. They don’t set their objective while they are going to invest. They don’t compare the risk and return associated with the securities while investing. They just invest on rumor as on suggestion of friends and others.

- While studying the risk and return under different sectors, most of the investors believe that the commercial banks provide more returns with minimum risk. 60.00% of investors choose the commercial banks for more returns with low risk. Where as 26.67% of selected investors prefer the development banks with believe that gives maximum returns with minimum risk. This shows that the rising interest of investors in development banks in Nepalese financial market. While preference given to commercial bank by most investors is existing charming of this sector for long time. 13.33% of investors believe that the other sectors like finance company, manufacturing company, trading company etc. provide more return at minimum risk. This result shows that the sector other than commercial banks and development banks are in least preference as investors can't believe that they can provide more return.
- From the field survey, it is found that 60.00% of selected investors calculate the price of stocks to find out whether it is correctly priced or mispriced during the investment in stock. If the answer of the investors is not bias, this shows the high degree of awareness to their investment in security market. 40.00% of selected investors don’t calculate the price situation of the stock. More investors involved in price calculation represents that there are more investors with required knowledge for investment in the market.
- 65.00% of selected investors are quite known about the term 'portfolio investment'. This represents that the investors who have not academic study are also familiar with the terms that frequently arises in course of investment. 35.00% of investors are unknown about the term 'Portfolio investment'. However some of them have invested on portfolio. In conclusion, it can be said that more investors have also theoretical knowledge less have not.
- In course of selection of sector for making portfolio, it is found that 46.67% of selected investors select commercial banking sector. This shows the charming of commercial banks for investment. 30.00% of investors select development banking sectors for making portfolio. It means that choice of investors is increasing in development banks. 16.67% investors select other sectors. However, 1.67% investors select the both commercial and development banks and 5.00% select no sectors for making portfolio.

CHAPTER V

Summary, Conclusion and Recommendations

This chapter is a complete conclusive and suggestive package based on the study. This chapter is divided into three sections: (i) Summary, (ii) Conclusion and (iii) Recommendations. The summary part of the chapter of the study gives the brief introduction of above four chapters. Conclusion of the findings is based on the consequences of the analysis of relevant data by using various financial and statistical tools. The recommendations are presented in terms of suggestions, which are prepared on the basis of findings and conclusions.

5.1 Summary

The development of any country largely depends upon its economic development. Capital market is a significant mechanism for the economic development of national economy. It reinvigorates and boots up the economic activities by mobility especially domestic financial resources. It provides best investment opportunities by transforming the funds from surplus to need based sectors through the transaction of financial instruments.

Financial instruments are traded in securities market. Stock market is the largest financial market all over the world where stocks of various business organizations are traded. It has greatest role in the development of financial system. Capital market consists of (i) Primary market and (ii) Secondary market. Additionally Over the counter market is also helpful to the capital market.

Investment is made with the goal of earning some expected rate of return. Investors seek to minimize inefficient deviations from this expected rate of return. To minimize inefficient deviations, diversification is essential to the certain of an efficient investment as it can reduce the variability of returns around the expected return.
The expected portfolio return is the simple weighted average of the expected return from the investment represented by a portfolio.
The portfolio risk is measured by the variance of the portfolio's rate of return distribution. The portfolio risk depends on the risk of the individual securities and the covariance between the return of the individual securities.

This study has mainly focused on the portfolio risk and return of the commercial and development banks. The study also focuses on the market volatility of those stocks. It has also focused on how an investor manages his/her investable fund in order to maximize their return and to reduce risks. Whether he/she has adopted appropriate diversification into practice or not is another aspect of the study.
This study is based on the fundamental analysis of recent five years historical data from F/Y 2003 to 2007 of the common stocks of the selected commercial and

development banks which have issued their shares to general public and listed their shares in Nepal Stock Exchange Limited to make them eligible for trading.

The study is based on secondary as well as primary data. Secondary data have been collected through various books, published annual/trading reports of NEPSE, SEBO-N, NRB and concerned banks. Especially the official website of NEPSE and SEBO-N become the main source of secondary data.
Likewise the primary data have been collected through questionnaire. While collecting the primary data the investors were contacted and interviewed as per requirement. In analyzing portfolio risk and return of the selected samples, somewhere the tools applied can not best describe the relationships between the variables under study since portfolio analysis tools are based on various assumptions. Only three commercial banks and three development banks were taken as sample for secondary data. Sixty investors were selected as sample for primary data. Hence the reliability, accuracy and validity of the research findings depend on these samples.

5.2 Conclusion

Using various financial and statistical tools the relevant data are analyzed in previous chapter. Following conclusion are drawn on the basis of that analysis, specially based on secondary data analysis.

- Considering the overall market return and risk, the shares of all commercial banks are attractive for investment. However the common stock of NIBL seems attractive among all considering risk per unit of return. Stocks of NABIL have more risk than others.
- Considering the return and risk characteristics of the common stock of all the selected Development Banks, the common stock of DCBL is most attractive and NDBL is seen most risky.
- All sampled Commercial Banks are providing Cash Dividend most often. NABIL and NIBL are providing cash dividend regularly. The HBL has provided stock divided with cash dividend every year except fiscal year 20003/4. Development Banks are not providing dividend regularly as Commercial Banks. NDBL has not provided any cash or stock dividend in five years sample period. However, DCBL is providing dividend regularly and ACEDBL is providing on some years only. It is concluded that Commercial Banks provide regular earnings than Development Banks.
- Annual trend of NEPSE and overall annual return both are in increasing trend. Average rate of return of Commercial Banking index is higher than NEPSE and Risk (i.e. S.D) is not so different. However average rate of return of Development Banking Index in lower than NEPSE and risk (i.e. S.D) is more.

- Most of stocks of Commercial and Development Banks move in the same direction, they are highly positively correlated to the market. Only the stock of NIBL is negatively correlated to the market. The stocks having high positive correlation can not reduce risk on portfolio with market. The stocks of NIBL can reduce risk meaningfully on portfolio with market.
- The stocks of all sampled Commercial Banks and most Development Banks are under-priced, since their required rate of returns are less than average rate of returns. Generally active strategy can not work effectively in Nepalese market. Long position on these common stocks can work effectively because its required rate of return is greater than average rate of return. Short position would be effective on that stock of NDBL because it is overpriced.
- While making two or three assets portfolio between commercial banks, investing large proportion in NIBL and small portion in NABIL and HBL significantly reduces the risk without significant reduction in return.
- While making two or three assets portfolio between Development Banks, investing large proportion in DCBL and small portion in NDBL and ACEDBL significantly reduces the risk without significant reduction in return.
- Forming the portfolio between Commercial and Development Banks, higher weights providing in Commercial Banks and lower in Development Banks can reduces risk significantly without significant reduction in return.
- On the basis of Sharpe Index, investing higher proportion in NIBL's stock among Commercial Banks, investing higher proportion in DCBL's stock among Development Banks, and investing higher proportion in Commercial Banks and lower proportion in Development Banks can form better portfolios.
- Testing the hypothesis in different level, null hypothesis is accepted and alternative hypothesis is rejected in all cases. It is concluded that average rate of return and systematic risk (i.e. β) of selected Commercial and Development Banks are not significantly different to the population i.e. market. So selected Commercial and Development Banks are equally volatile to the market.
- Most of the investors invest their funds on portfolio basis. They analyze the prices of securities, market information and risk return of the securities. Most of the investors are seen as rational investors based on primary data.
- Most of investors choose Commercial Banks when they are investing or making their portfolio on investment.
- Small portion of investors don't know about portfolio investment. Generally they are passive investor. They don't analyze the related information properly while making investment decision.
- Most of investors choose the portfolio that provides more return on investment however it is risky.

5.3 Recommendations

This study is basically conducted to analyze the portfolio risk and return of securities from the investor's point of view, and based on secondary and primary data analysis. On the basis of major findings of the study, following recommendations and suggestions are provided

- Generally investors think that investment in share market is always beneficial. They believe that price of shares always increases. But in reality it is not always like that. Due to many economic and non-economic factors the shares can not provide attractive benefits and the share price do not increases. To take better advantage, the investors are recommended to make stock transactions on the basis of fundamental and technical analysis scientifically.
- Investors should always think not only about the return but also risk. Investor's objective should be the minimization of risk and maximization of return. To meet the objective, the investors should create well-diversified portfolio. Negatively correlated or low correlated stocks can reduce risk significantly.
- All the selected commercial and development bank's stocks are under-priced except the stock of NDBL. Investors are suggested to invest on under-priced stocks while making portfolio and to take short position for the over-priced stocks.
- In Nepalese context, investors don't analyze related information carefully other than financial sectors. Information from other sector such as political, social and legal should also be considered before taking the investment decision.
- Many investors are adopting passive investment strategy. They buy the securities and wait for dividend. To gain from the investment, they should actively participate.
- It is necessary to establish a '**Information Center**' for investors. The investors should be provided right information timely. Updated and real statements should be published. Manipulated and window dressing information should not be published.
- Government should play a vital role to improve the securities market and to promote the investors. Sometimes, the policies made by Nepal Rastra Bank and the rules made by NEPSE are seen as opponent of investors .The policies and rules should be more confidential and easier for investors.

APPENDIX –I

Research Questionnaire

Dear sir/Madam,

I hereby request you to fill up the attached questionnaire in order to collect the precious facts, views and opinions from your side, which will be helpful for facilitating the requirement of the partial fulfillment of the requirement of the MBS degree. The research topic is **"PORTFOLIO ANALYSIS ON INVESTMENT" (WITH REFERENCE TO NEPLESE COMMERCIAL AND DEVELOPMENT BANKS)** Securities portfolio has only been considered for the study purpose. The views and opinions expressed in this questionnaire will only be used for the research purpose and kept confidential.

Your kind cooperation will be helpful to complete this research successfully.

Thank you!!

Chuda Raj Adhikari

Researcher

Masters of Business Studies (MBS)

Nepal Commerce Campus
New Baneshwor

22nd July 2008

Name: _____ **Address:**_____

Date: _____ **Ph. no:** _____

1. Do you know about portfolio investment?
   a. Yes [ ] b. No [ ]

2. Are you holding one or more than one securities?
   a. One [ ] b. More than one [ ]

3. As a rational investor, do you have an objective of maximizing return and minimizing risk?
   a. Yes [ ] b. No [ ]

4. Are you an active or passive investor?
   a. Active [ ] b. Passive [ ]

5. Which type of securities would you prefer for invest?
   a. Less profitable but safe [ ]
   b. b. Risky but more profitable [ ]

6. Do you calculate or estimate the return and risk associated with the securities?
   a. Yes [ ] b. No [ ]

7. Which of the following sector would you provide more return with minimum risk?
   a. Commercial banks [ ] b. Development banks [ ]
   c. Others

8. Do you analyze the market information correctly incase of investment?
   a. Yes [ ] b. No [ ]

9. When you are going to invest in securities, do you calculate the prices of stocks whether it is correctly priced or mispriced?
   a. Yes [ ] b. No [ ]

10 Which sector would you select while making your portfolio?
a. Portfolio with commercial banks [ ]
b. Portfolio with development banks [ ]
c. Portfolio with other sectors [ ]

APPENDIX –II

Banks Registered and Operating in Nepal (Up to 2064 Chaitra)

Class A: Commercial Banks				
S.No.	**Names**	**Operation Date (A.D.)**	**Head Office**	**Paid up Capital** *(Rs. In Million)*
1	Nepal Bank Limited	1937/11/15	Kathmandu	380.4
2	Rastriya Banijya Bank	1966/01/23	Kathmandu	1172.30
3	Agriculture Development Bank Ltd.	1968/01/02	Kathmandu	9278.00
4	NABIL Bank Limited	1984/07/16	Kathmandu	689.20
5	Nepal Investment Bank Limited	1986/02/27	Kathmandu	1203.00
6	Standard Chartered Bank Nepal Limited.	1987/01/30	Kathmandu	620.80
7	Himalayan Bank Limited	1993/01/18	Kathmandu	1013.50
8	Nepal SBI Bank Limited	1993/07/07	Kathmandu	874.50
9	Nepal Bangladesh Bank Limited	1993/06/05	Kathmandu	744.10
10	Everest Bank Limited	1994/10/18	Kathmandu	831.40
11	Bank of Kathmandu Limited	1995/03/12	Kathmandu	603.10
12	Nepal Credit and Commerce Bank Limited	1996/10/14	Siddharthanagar,Rupendehi	1275.80
13	Lumbini Bank Limited	1998/07/17	Narayangadh,Chitawan	750.00
14	Nepal Industrial & Commercial Bank Limited	1998/07/21	Biaratnagar,Morang	792.00
15	Machhapuchhre Bank Limited	2000/10/03	Pokhara, Kaski	821.70
16	Kumari Bank Limited	2001/04/03	Kathmandu	900.00
17	Laxmi Bank Limited	2002/04/03	Birgunj, Parsa	732.00
18	Siddhartha Bank Limited	2002/12/24	Kathmandu	790.00
19	Global Bank Ltd.	2007/01/02	Birgunj, Parsa	700.00
20	Citizens Bank International Ltd.	2007/6/21	Kathmandu	560.00
21	Prime Bank Ltd	2007/9/24	Kathmandu	700.00
22	Sunrise Bank Ltd.	2007/10/12	Kathmandu	700.00
23	Bank of Asia Nepal Ltd.	2007/10/12	Kathmandu	700.00
24	Development Credit Bank Ltd.	2001/01/23	Kamaladi, Kathmandu	301.00
25	NMB Bank Ltd.	1996/11/26	Babarmahal, Kathmandu	1000.00

Source: www.nrb.org.np

APPENDIX –III

Development Banks Registered and Operating in Nepal (Up to 2064Chaitra)

Class B: Development Banks				
S.No.	**Names**	**Operation Date (A.D.)**	**Head Office**	**Paid up Capital** (Rs. In Million)
1	Nepal Industrial Development Corporation	1959/06/15	Durbar Marg, Kathmandu	415.8
2	Nepal Development Bank Ltd.	1999/01/31	Kamaladi, Kathmandu	320.0
3	Uddyam Development Bank Ltd.	1999/02/22	Tandi, Chitawan	17.5
4	Malika Development Bank Ltd.	1998/12/27	Dhangadhi, Kailali	50.0
5	Siddhartha Development Bank Ltd.	1998/08/20	Butawal-11, Rupandehi	107.5
6	United Development Bank Ltd.	2002/03/16	Jeetpur, Bara	3.5
7	Nepal cottage and Small Ind. Dev. Bank Ltd.	2001/06/19	Heritage Plaza, Kathmandu	112.0
8	Narayani Ind.Development Bank Ltd.	2001/10/17	Ratna Nagar-1, Chitawan	30.5
9	Pashimanchal Bikas Bank Ltd.	2003/3/2	Butawal-8, Rupandehi	52.5
10	Sahayogi Bikas Bank Ltd.	2003/10/21	Janakpurdham,Dhanusha	20.0
11	Pashupati Bikash Bank Ltd.	2004/01/01	Banepa, Kavre	29.0
12	Karnali Bikash Bank Ltd.	2004/02/14	Nepalgunj, Banke	20.4
13	Triveni Development Bank Limited	2004/07/26	Bharatpur, Chitawan	35.0
14	Annapurna Development Bank Limited	2004/08/23	Banepa, Kavre	60.0
15	Bhrikuti Bikas Bank Limited	2004/08/19	Butawal, Rupandehi	24.0
16	Shubhechchha Bikas Bank Limited	2004/09/14	Narayangadh, Chitawan	23.9
17	Bageshowri Bikas Bank Limited	2004/10/19	Nepalgunj, Banke	30.0
18	Sanima Bikas Bank Limited	2004/11/26	Nagpokhari, Kathmandu	320.0
19	Gaurishankar Bikas Bittiya Sanstha Ltd.	2004/11/29	Kawasoti, Nawalparasi	18.3
20	Gorkha Bikas Bank Limited	2004/12/01	Putalisadak, Kathmandu	320.0
21	Gandaki Development Bank Ltd.	2005/01/19	Pokhara, Kaski	50.0
22	Infrastructure Development Bank Ltd.	2005/04/29	Banepa, Kavre	56.0
23	Business Development Bank Ltd.	2005/05/10	Pokhara, Kaski	60.0
24	Biratlaxmi Bikas Bank Limited	2005/05/11	Biratnagar, Morang	50.0
25	Excel Development Bank Ltd.	2005/07/21	Anarmani,Jhapa	20.0
26	Western Development Bank Ltd.	2005/09/15	Tribhuvannagar, Dang	10.8
27	Himchuli Bikas Bank Limited	2005/11/07	Pokhara, Kaski	66.0
28	Arniko Bikas Bank Ltd.	2006/07/06	Dhulekhel, Kavre	16.9
29	Nepal Dev. and Employment Promotion Bank Ltd.	2006/07/17	Kamaladi, Kathmandu	192.0
30	Clean Energy Development Bank Ltd.	2006/09/06	Sitapaila, Kathmandu	224.0
31	Mitery Bikas Bittiya Sanstha Ltd.	2006/10/13	Mahendrapath-5, Dharan	15.8
32	Tinau Bikas Bank Ltd.	2006/10/13	Sangampath, Butwol	21.0
33	Gaindakot Development Bank Ltd.	2006/12/18	Navalparasi, Gaindakot	14.0
34	Muktinath Bikas Bank Ltd.	2006/12/18	Putalibazar, Syanja	26.0
35	Sewa Bikas Bank Ltd.	2007/2/25	Butawal, Rupandehi	17.5
36	Kankai Bikas Bank Ltd.	2007/5/4	Damak , Jhapa	14.0

37	Public Devlopment financial Institution Ltd.	2007/6/7	Birjunj , Parsa	45.0
38	Mahakali Bikas Bank Ltd.	2007/8/18	Mahendranagar, Kanchanpur	5.9
39	Ace Development Bank Ltd.	1995/08/15	Narayanchaur, Kathmandu	320.0
40	Sangrila Bikas Bank Ltd.	2007/8/26	Pokhara, Kaski	39.9
41	Bhargab Bikas Bank Ltd.	2007/8/30	Nepalgunj, Banke	12.0
42	Vibor Bikas Bank Ltd.	2007/10/4	Tripureshwor, Kathmadu	207.4
43	Resunga Bikas Bank Ltd.	2007/9/26	Tamghas, Gulmi	10.1
44	Rara Bikas Bank Ltd.	2007/9/30	Birendranagar, Surkhet	10.0
45	Diyalo Bikas Bank Ltd.	2007/10/01	Banepa, Kavre	32.5
46	Country Development Bank Ltd.	2007/10/04	Banepa, Kavre	51.0
47	Kasthamandap Development Bank Ltd.	2007/10/25	New Road, Kathmandu	224.0
48	Alpine Development Bank Ltd.	2007/10/05	Hetauda, Makawanpur	33.5
49	Nilgiri Bikas Bank Ltd.	2007/10/25	Beni, Maygdi	10.5
50	Corporate Development Bank Ltd.	2007/10/25	Birjung, Parsa	35.0
51	Kamana Bikas Bank Ltd.	2007/9/29	Lekhnath, Kaski	26.0
52	City Bikas Bank Ltd.	2007/10/19	Pokhara, Kaski	35.0
53	Garima Bikas Bank Ltd.	2007/11/23	Sangja	26.5
54	Biswo Bikas Bank Ltd.	2007/11/21	Pokhara, Kaski	73.2
55	Pathibhara Bikas Bank	2007/11/21	Urlabari, Morang	25.5
56	Professional Bikas Bank Ltd.	2007/10/17	Banepa, Kavre	35.0
57	Kabeli Bikas Bank Ltd.	2007/11/15	Dhankuta	10.1
58	Purnima Bikas Bank Ltd.	5/20/2008	Sidhardhanagar, Rupandehi	26.9

Source: www.nrb.org.np

APPENDIX –IV

Listed Commercial Banks in Nepal

S.No	Name of Bank	Stock Symbol	Listed Value
1	Nabil Bank Ltd.	NABIL	6,873,930
2	Nepal Investment Bank Ltd.	NIB	12,039,154
3	Standard Chartered Bank Ltd.	SCB	6,807,840
4	Himalayan Bank Ltd.	HBL	12,162,150
5	Nepal SBI Bank Limited	SBI	8,734,791
6	Nepal Bangladesh Bank Ltd.	NBB	7,442,000
7	Everest Bank Ltd	EBL	4,914,000
8	Bank of Kathmandu	BOK	6,031,413
9	Nepal Industrial & Co.Bank	NICB	7,920,000
10	Machhachapuchhre Bank Ltd	MBL	8,216,513
11	Laxmi Bank Limited	LBL	9,150,000
12	Kumari Bank Ltd	KBL	9,000,000
13	Lumbini Bank Ltd.	LUBL	7,500,000
14	Nepal Credit & Com. Bank	NCCB	11,368,047
15	Siddhartha Bank Limited	SBL	8,280,000
16	NMB Bank Ltd.	NMBF	10,000,000
17	Development Credit Bank Ltd.	DCBL	11,074,560

Source: Nepalstock.com

APPENDIX –V

Listed Development Banks in Nepal

S.No	Name of Bank	Stock Symbol	Listed Value
1	Nepal Industrial Dev. Corp.	NIDC	2,978,784
2	Nepal Development Bank	NDB	3,200,000
3	Nirdhan Utthan Bank Ltd.	NUBL	790,721
4	Chhimek Vikash Bank Ltd.	CBBL	510,000
5	Paschimanchal Bikash Bank	PDBL	1,000,000
6	Infrastructure Development Bank Limited	IDBL	800,000
7	Diprox Development Bank	DDBL	174,000
8	Gandaki Dev. Fin. Inst.	GDBL	500,000
9	Business Development Bank Ltd.	BDBL	2,100,000
10	Bhrikuti Vikash Bank Limited	BBBL	239,572
11	Sanima Vikash Bank Ltd.	SBBL	3,200,000
12	Narayani Industrial Dev. Bank	NABBC	200,000
13	Bageshowori Dev.Bank	BBBLN	330,000
14	Sahayogi Vikas Bank	SBBLJ	200,000
15	Gurkha Development Bank	GDBNL	3,200,000
16	Annapurna Bikash Bank Limited	ABBL	600,000
16	Swabalamwan Bikash Bank	SWBBL	250,000
17	Ace Development Bank Limited	ACEDBL	3,200,000
18	Himchuli Bikash Bank Ltd.	HBBL	900,000
19	Malika Bikash Bank Limited	MDBL	500,000
20	Siddhartha Development Bank Limited	SDBL	1,075,725
21	Biratlaxmi Bikash Bank Limited	BLDBL	500,000
22	Excel Development Bank Ltd.	EDBL	200,000

Source: Nepalstock.com

BIBLIOGRAPHY

BOOKS

Bhandari, K.P. (2060), **Research Methodology**, M.K. Publishers and Distributers, Kathmandu.

Bhattarai, Rabindra (2003), **Nepal Ko Share Bazzar**, Buddha Academic Publication, Putalisadak, Kathmandu.

Bodie, ZIV, Kane, Alex and Marcus Alan J. (2004), **Essential of investments** 5th Ed., MC Graw. Hill/Irwin, Boston, USA.

Dahal, Peshal and Khatiwada, Som. Prasad (2059), **Reaserch Methodology**, MK publishers and Distributors,Bhotahity, Kathmandu.

Dhungana, Yub Raj (2005), **Fundamentals of Financial Management**, Asia Publications Pvt. Ltd., Babarmahal, Kthmandu.

Feorge, B.C., Edward, D.Z., and Arthur, Z. (1999), **Investment Analysis and Portfolio Management** 3rd ed., Irwin, USA.

Gautam, Rishi Raj and Thapa, Kiran (2062), **Capital Structure Management**, 3rd ed., Asmita Books and Stationery, Putalisadak, Kathmandu.

Gupta, S.C (1996), **Fundamentals of Statistics** 7th Ed, Himalayan Publishing House, Bombay

Haag, Stephen (2005), **Management Information System for the Information Age**, Mc Graw –Hill/Irwin, New York.

James C Van Horne (2000), **Financial Management and Policy**, Prentice Hall of India Pvt. Ltd., New Delhi.

Joshi, P.R.(2001), **Research Methodology**, Buddha Academic Enterprises Pvt. Ltd., Kathmandu.

Kerlinger, Fred N. (1973), **Foundations of Behavioural Research** 2nd Edition, Surjeet Publication, Delhi.

Pant, Prem R. and Wolff, Howard K. (2003), **A Hand Books for Social Science Research and Thesis Writing**, Buddha Academic Enterprises, Kathmandu.

Sharma, P.R. and Chaudhary A.K. (2060), **Statistical Methods**, 2nd ed., Khanal Books and Stationery, Kathmandu.

Sharma, P.R. and Silwal, D.P. (2053), **Business Mathematics and Statistics** 4th ed., Talaju Prakashan, Bhotahity Kathmandu.

Sharpe, William F., Alexander, Gordon J and Bailey, Jeffery V. (2002), **Investment** 6th ed., Prentice Hall of India, New Delhi.

Shrestha, Madhu Sundar (2006), **Fundamentals of Banking**, Buddha Academic Publishers and Distributors PVT. LTD, Kathmandu.

Thapa, Kiran, Bhattarai, Rabindra and Basnet, Dinesh (2006), **Investment: Theory and Solution**, Asmita Books Publishers and Distributors Putalisadak, Kathmandu.

Vaidya, Shakespeare(2001), **Banking and Insurance Management**, 3rd Edition, Taleju Prakahan, Bhotahity, Kathmandu.

Woodson, Hart (2002), **Global Convertible Investing**, The Gabelli Way, John Wiley and Sons Inc., New York.

Journals/Articles

Ammerican Association of Individual Investors, Investing Basis, <http:www.aaii.com>
Bhurtel, Pratistha and Pokherel, Matrika Babu (2008), "Market Outlook", Business Age, May 2008
Business Age (May 2008), "Making it or Breaking it on the Stock Market"
Mahat, L.D.(2007), "Efficient Banking", The Kathmandu Post daily, 28th April 2007
Rouwenhorst, K. Greet (1999), "Local Returns Factors and Turnover in Emerging Stock Markets", Ammerican Finance Association, August 1999
SEBON, SEBON News Letter (Jestha 2065)
Shrestha, Shiva Raj (2055), "Portfolio Management in Commercial Banks; Theory and Practices", Nepal Bank Patrika, 2055, Kathmandu: Nepal Bank Ltd.

University Thesis/Independent Studies

Joshi, Roopak (2002), "Investors Problems in Choice of Optimum Portfolio of Stocks in Nepal Stock Exchange LTD.", Unpublished MBS thesis, Shanker Dev Campus, Faculty of Management, T.U.
Khaniya (Banjade), Kalpana (2003), "Investment Portfolio Analysis of Joint Venture Banks", Unpublished MBS Thesis, Central Department, Faculty of Management, T.U.
Manandhar, Manilata (2003), "Analysis of Risk and Return on Common Stock Investment of Commercial Banks in Nepal", Unpublished MBS Thesis, Central Department, Faculty of Management, T.U.
Sapkota, J.B. (1999), 'Risk and Return Analysis in Common Stock Investment", Unpublished MBA Thesis, Central Department, Faculty of Management, T.U.
Tuladhar, Pramila (2002), 'A Study on Risk and Return Analysis of Common Stock Investment", Unpublished Thesis, Central Deparment, Faculty of Managemet, T.U.

Acts/Bylaws

Bank and Financial Institutions Act (2063), Babarmahal Kathmandu: Nepal Law Books Management Committee
Nepal Act Collection (Supplementary part 2063 'Kha'), Kathmandu: Nepal Government, Nepal Law Books Management Committee

Annual Reports/ Publications

Nepal Rastra Bank (2007), Economic Report 2006/7, Kathmandu: Nepal Rastra Bank

Nepal Rastra Bank (2065), News Letter (Samachar), Year 32 Issue 1-10, Kathmandu: Nepal Rastra Bank
Nepal Stock Exchange Ltd. (2003), Trading Report 2002/03, Kathmandu: NEPSE
Nepal Stock Exchange Ltd. (2004), Trading Report 2003/04, Kathmandu: NEPSE
Nepal Stock Exchange Ltd. (2005), Trading Report 2004/05, Kathmandu: NEPSE
Nepal Stock Exchange Ltd. (2006), Trading Report 2005/06, Kathmandu: NEPSE
Nepal Stock Exchange Ltd. (2007), Trading Report 2006/07, Kathmandu: NEPSE
Securities Board of Nepal (2002/03), Annual Report, Kathmandu: SEBON

Securities Board of Nepal (2003/04), Annual Report, Kathmandu: SEBON

Securities Board of Nepal (2004/05), Annual Report, Kathmandu: SEBON

Securities Board of Nepal (2005/06), Annual Report, Kathmandu: SEBON

Securities Board of Nepal (2006/07), Annual Report, Kathmandu: SEBON

WebPages

http://www.aaii.com
http://www.adb.org
http://www.ameritrade.com
http://www.businessweak.com
http://www.dfaus.com
http://www.investopedia.com
http://www.nefe.org
http://www.nepalstock.com
http://www.nrb.org.np
http://www.sebonp.com
http://www.teachmefinance.com