INVESTMENT DECISION IN NEPSE WITH REFERENCE TO CAPITAL ASSETS PRICING MODEL

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RECOMMENDATION

This is to certify that the thesis

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Entitled

"Investment Decision in NEPSE with reference to capital assets pricing model"

Has been prepared as approved by this department in the prescribed format of the Faculty Management. This thesis is forwarded for evaluation.

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DECLARATION

I hereby declare that the work reported in this thesis entitled **"Investment Decision in Nepse with reference to capital assets pricing model"**, submitted to the faculty of Mangement, Hari Khetan Multiple Campus, Tribhuvan University is my original work done in the format of T.U. for the partial fulfillment of the Master's Degree in Business Studies (MBS) under the supervision and guidance of Hiralal Yadav, Lecturer, Hari Khetan Multiple Campus, Birguanj, Parsa.

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TABLE OF CONTENTS

CHAPTER – III

CHAPTER – IV

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AFCL	—	Annapurna Finance Co. Ltd.
AVUL	—	Arun Vanaspati Udyog Ltd.
AFCL	—	Ace Finance Co. Ltd.
BNL	—	Bottlers Nepal Ltd.
BBCL	—	Bishal Bazaar Co. Ltd.
BOK	—	Bank Of Kathmandu
CAPM	—	Capital Asset Pricing Model
EIC	—	Everest Insurance Com. Ltd.
GFICL	—	Goodwill Finance & Investment Co. (Nepal) Ltd.
GRUL	—	Gorakhkali Rubber Udyog Ltd.
HBL	—	Himalayan Bank Ltd.
HISEFFL	—	HISEF Finance Ltd.
HGI	—	Himalayan General Insurance
HBTFL	—	Harisiddhi Bricks & Tile Factory Ltd.
JSML	—	Jyoti Spinning Mills Ltd.
KFL	—	Kathmandu Finance Ltd.
LFCL	—	Lalitpur Finance Com. Ltd.
MFCL	—	Mahalaxmi Finance Com. Ltd.
NRB	—	Nepal Rastra Bank.
NEPSE	—	Nepal Stock Exchange Ltd.
NBL	—	Nabil Bank Ltd.
NIB	—	Nepal Investment Bank Ltd.

NSBI	—	Nepal SBI Bank Ltd.
NSFCL	—	Nepal Saving and Finance Co. Ltd.
NIDCCM	—	NIDC Capital Markets Ltd.
NHMFL	—	Nepal Housing & Merchant Finance Ltd.
NWCL	—	Nepal Welfare Co. Ltd.
NLGI	—	National Life and General Insurance
NABBCL	—	Nepal Aawash Bikash Bitta Co. Ltd.
NFDCL	—	Nepal Film Development Co. Ltd.
NHMFL	—	Nepal Housing & Merchant Finance Ltd.
NFCL	—	Nepal Finance Co. Ltd.
NSMFL	—	Nepal Share Markets & Finance Ltd.
PICL	—	Primer Insurance Com. Ltd.
PFL	—	People's Finance Ltd.
STC	—	Salt Trading Corporation
STC	—	Salt Trading Corporation
SHL	—	Soaltee Hotel Ltd.
SCB	—	Standard Chartered Bank Ltd.
TRHL	—	Taragon Regency Hotel Ltd.
UFL	—	Universal Finance Ltd.
UFL	—	Universal Finance Ltd.
UIC	—	United Insurance Com. (Nepal) Ltd.
ULL	—	Uni Lever Ltd.
YFL	—	Yeti Finance Ltd.

CHAPTER - I

INTRODUCTION

1. 1 Background of the Study

The investors support investment sectors by investing their funds and savings. It is implied that Investors or every body wants to maximize his/her wealth in a proper and safe way, investors always endeavor to invest in such a sector which provide adequate return on their hard earn money. Whatever may be the type of investment; the major motto is to maximize the return with minimizing the risks involved there on.

Nowadays people are becoming more aware to select and invest in proper means of investment. Among them banker's fixed deposit is one of them but the people are not satisfied with the fixed deposit return due to low interest rate. As the real interest rates provided by banks are negative i.e. they are less than the inflation rate prevailing in the country. So, people started to invest in productive sector like industrial, trading, service, banking sector etc for better return. The form of investment may be different such as a creditors, equity holders, stock holders etc.

Investment is defined simply to be the sacrifice of current consumption for future consumption whose objective is to increase future wealth. The sacrifice of current consumption takes place at present with certainty and the investor expects desire level of wealth at the end of his investment horizon. The decision to investment now is a most crucial decision as the future level of wealth is not certain. Time and risk are the two conflicting attributes involved in the investment decision.

Some investment alternatives are preferred over others since the risk and return characteristics on such underlying investment alternatives satisfy the individual investor's expectations. Return expected on share investment can be partitioned into dividend and capital gain components. Both these two components of the total return on share investment are not certain with investors having to make decisions in an uncertain environment. Investments in shares are risky in relation to the investments in other fixed income securities like treasury bills, saving certificates, etc. Despite the risk element inherent to investment in shares, most investors desire to invest in shares in anticipation that the future price of the stock will increase. The intrinsic, or theoretical, price of the stock today can be ascertained by analyzing publicly disclosed financial investments. Investors, in most cases, do not analyze published financial statement before they make the investment in shares of a given company. The actual market price of the stock striving towards equilibrium must reflect the theoretical value of the stock determined by using some valuation models. Determining the intrinsic value of stock today and comparing it with the actual market price however, are rare in practice.

Over the past decade, the investment in any business is become very risky due to highly volatile in Nepalese economy, inflation, government instability, and the major factor affecting to this is Maoist insurgency & political instability. Nepalese stock market shows a high level of fluctuation when we look as at the overall picture of the stock market. People think twice before they invest in any stock market. This makes the investors more vulnerable towards possible risk, and encourages them to divert their investments to other safer alternatives such as gold, saving deposits, etc, or to spend on current consumption. Looking it in that way, this study is expected to provide at least some insight to the

investors in making rational investment decision with the use of concept embodied in the Capital Asset Pricing Model (CAPM).

1.2 Statement of the Problem

Making investment is sometimes profitable & less risky and sometimes less profitable and high risky job. Choosing the best alternative, when there are a number of similar investment alternatives, is even more difficult job. Every investment is not safe. All the investment has certain level of risk. The fundamental issue is how to select the best combination of risk and return to maximize the wealth of shareholders. The tough part of the decision-making under uncertainty is deciding how much extra return should be required to accept a measurable risk. Every investment decision is based on past experiences for the future expectations. It is always not possible to predict perfect forecast of the future incident. All investment decisions carry a degree of risk along with return. So in this case a proper analysis of past trends of the market and future expectations are only the base of rational investment decision.

In Nepal, the listing of shares in NEPSE and their trading in the stock market is a recent phenomenon. A low trading volume, absence of professional brokers, early stage of growth, limited movement of share prices, and limited information available to investors characterize the Nepalese stock market. A number of researches are available on government owned public enterprises but researches on enterprises whose stocks are listed in NEPSE and traded in stock market are yet to come up in Nepal. Viewed in this way this way this study is expected to provide at least some inside into application of CAPM in Nepal.

The present study, therefore, attempts to address the following issues relevant to investment decisions in the Nepalese Stock Market:

- How much returns can be expected from the selected stocks of the Nepalese Stock Market? Do the stocks with higher expected returns have higher risks?
- What is the nature of expected returns across the stocks of different business sectors?
- What is the nature of risk across the stocks of different business sectors?
- What is degree of risk, that can be diversified away and that cannot be diversified away associated with the selected stocks?
- How much average return in each business sector of Nepalese Security Market providing? What is nature of market pervasive risk across the different sectors of business?
- What are the required rates to invest in the selected areas of Nepalese Stock Market?
- Which stocks in the Nepalese Security Market are overpriced? And which are under-priced?
- Which stocks in the Nepalese Security Market are aggressive? Which are defensive and which are average?
- Which are the stocks that can be used as hedging tools?
- Which are the business sectors that are overvalued (undervalued) by the investors of Nepalese Security Market?

1.3 Purpose of the Study

J The major purpose of this study is to develop a framework for investing in stocks available in the Nepalese security market (Nepal Stock Exchange) with the use of the CAPM. The specific objectives could be listed as below:

i) To estimate the risk and expected return of the selected companies listed in Nepal Stock Exchange.

ii) To estimate the risk adjusted rate of return (required rate of return) for the selected listed companies.

iii) To compare expected rates of return with the risk adjusted rates of return (required rates of return) of individual stocks.

iv) To identify the highly aggressive, aggressive, average and defensive stocks among the selected securities.

v) To identify the overpriced and under-priced stocks among the selected stocks.

vi) To identify the overvalued and under-valued sectors among different sectors of the Nepalese Stock Market.

vii) To determine the sector-wise expected rate of return of the sectors of the Nepalese Stock Market.

viii) To estimate the risk adjusted rate of return (required rate of return) for the different sectors of the Nepalese Stock Market.

ix) To compare sector-wise expected rates of return with the sector-wise risk adjusted rates of return.

x) To identify the aggressive, average and defensive areas of the Nepalese Stock Market.

xi) To partition the total risk of individual stock into diversifiable and undiversifiable risk

1.4 Conceptual Frameworks

This study is the basic research regarding the decision to make investment in Nepalese Stock Market according to the different decision alternatives. It provides the framework of minimizing the risk by investing in different alternatives. It helps to find out the expected rate of return and the required rate of return of each particular company by considering the year end price and the dividend yield.

The study provides us the knowledge about diversifiable and undiversifiable risk associated in investment decision with the help of different statistical tools. The Capital Asset Pricing Model is the basis study criterion which helps to find out the valuation of stock through beta coefficient and required rate of return. The full text of this Model has been presented in Chapter II.

In this way the study give the entire knowledge about the investment in particular company or the sector regarding different investment decisions.

1.5 Research Questions

This study is basically focused upon the evaluation of individual stock of listed companies in NEPSE. In this study only 43 listed companies has been selected for the purpose of evaluation of stock for taking the decision of various purposes by using the Capital Asset Pricing Model.

The research is done using the various statistical tools for the analysis of stock and a part from that to give the flavor for this study, the primary research is done by the help of questioners with is targeted to fill by the investor of stock market.

The study focuses on the following research questions:

- It helps to find out and to compare the expected rate of return and risk adjusted rate of return (required rate of return) of the selected companies.
- It helps to find out the aggressiveness of the selected companies' stock with its valuation regarding under and over.
- It helps to determine the sector-wise expected rate of return of the sectors of the Nepalese Stock Market.
- It helps to identify the valuation regarding under and over among the different sectors of the Nepalese Stock Market.
- It also helps to partition the total risk of individual stock in to diversifiable and undiversifiable risk.

1.5 Organization of the Study

This study has been organized into five chapters. Each chapter covers some facets pertaining to the investment decisions in Nepalese Security Market. The following are the titles of the chapters:

Chapter One : Introduction

Chapter Two : Review of Literature

Chapter Three : Methodology

Chapter Four : Presentation and Analysis of Data

Chapter Five : Summary and Conclusions

The report is organized in this fashion to make this study in line with simple research methodology approach.

Chapter One contains the introductory part of the study. This chapter gives an account of the objectives and scope of the study, and also looks over the major issues to be investigated and explained.

Chapter Two is devoted to theoretical framework that bounds the study, and brief review of relevant literatures. It includes the review of previous writings and studies relevant to the problem being explored, and within the framework of the theory structure.

Chapter Three covers the research methodology employed in the study. This chapter further attempts to explain the nature and sources of data, list of the selected companies, the method of data analysis and utilization of statistical tools.

Chapter Four elaborates the presentation and analysis of data. Basically the descriptive analysis is done for this research work.

Finally, summary and conclusions of the study are presented in chapter five. It also focuses on the major findings along with other empirical evidences. Recommendations for further research are also offered in this section.

The exhibits and bibliography are incorporated at the end of study.

CHAPTER - II

LITERATURE OF REVIEW

The basic framework for the present study on "Investment decision in the Nepalese stock market with reference to Capital Asset Pricing Model (CAPM)" has been drawn from the past research study, books, articles, journals, policy documents etc. In this chapter attempts have been made to review the literatures pertinent to the study. It includes theoretical framework and research review. Theoretical framework attempts to review the theoretical aspects of the study especially the financial market, security analysis, theories of Efficient Market Hypothesis and Capital Asset Pricing Model (CAPM).

2.1 Conceptual Review

Concept of Market

The dictionary meaning of market is the gathering of people for buying and selling goods. Especially, the concept of transactions leads to the concept of a market. In other words, it is the set of actual and potential buyers of a product. Each people gather in a place or in a central area called a market place, traders bring goods to the merchant and trades for desired goods. As a number of persons and transactions increases in a society, the number of merchants and market places also increases.

The increasing competition in the market gives rise to a strange form of market popularly known as credit market. Each buyer may not be able to pay for goods in cash and further each businessman may also not be succeeded without providing credit facilities in today's world. As a result, credit market has emerged. Credit facility to the customers is one

of the most important factors in marketing environment. Similarly, debt facility to a manufacturer or financing to an individual business is also equally important. The large corporations require financing though financial instruments. This resulted not only physical but also financial market. Therefore, Markets are sub-divided into two broad categories - real sector and financial markets. The markets relevant to this study are only financial. (Kotler & Armstrong. 1992: 8)

Financial Market

A financial system is a set of institutional arrangements through which financial surpluses in an economy are mobilized from surplus units to deficit unit (spenders). Financial assets, financial markets, and financial institutions are the basic ingredients of any financial system. Financial market refers to the place where the transactions of mobilizing funds are performed. It is especially the market for paper or documents. Analytically, financial markets are very much similar to the goods and service market. Instead of goods and services, it deals with financial assets and instruments of various kinds such as currency, deposits, cheques, bills, bonds, debentures, etc.

Financial markets are the centers where people with surplus funds interact with the business firms, which can utilize such funds efficiently. Speaking broadly, the purpose of financial markets in an economy is to allocate saving efficiently during a period of time to parties who use funds for investment in real assets or for consumption.

Efficient financial markets are essential to ensure adequate capital formation and economic growth in an economy. With financial intermediaries in an economy, the flow of savings from savers to user of the funds can be indirect. Financial intermediaries include

institutions like commercial banks, life insurance companies, credit unions, and pension and profit sharing funds. These intermediaries come between ultimate borrowers and lenders by transforming direct claims into indirect ones. They purchase primary securities and, in turn, issue their own securities to the investors.

In sum, financial markets refer to the institutional arrangements for dealings in financial assets and credit instruments of different types such as currency, cheques, bank deposits, bills, bonds, debentures etc. Thus, financial markets facilitate a systematic transfer of funds to productive business companies and projects (Luckett, 1984:146-147)

Financial markets are broadly classified as negotiated-loan markets and open markets. Negotiated-loan market is a market in which lender and borrower personally negotiate the terms of the loan agreement. A businessperson borrowing from a bank and an individual borrowing from small loan companies are examples of negotiated loans. In contrast, the open market is an impersonal market in which standardized securities are traded in large volumes. Buyers and sellers may never meet, and there is comparatively little latitude for tailoring an instrument to the precise needs of a given issuer. The stock market is an example of an open market. Securities are bought and sold by a myriad of investors through stock market. Thus, the open market provides the binding that ties the country's financial institutions together into an integrated part. However, only the open market is the concern of this study.

Financial instruments facilitate the transfer of funds from surplus spending units to deficit-spending units on the basis of credit required for short run and long run. Short run credit is required for the purpose of working capital of the companies whereas long run credit is required to purchase fixed assets. Short run credit is provided by money market and long

run by capital market. In this way, the open market further can be classified into money market and capital market. Moreover capital market is relevant to the present study. So this section primarily deals with the theoretical aspects of the capital market.

The Capital Market

The capital market (CM) refers to the market where long-term funds are borrowed and lent. In other words, it refers to the links between lenders and borrowers of funds arranging a funds transfer process to seek each other's benefit. It is just the market for capital funds. The word "capital" used in this context implies a long-term commitment on the part of the lender and a long-term need for the funds on the part of the borrower. Both lenders and borrowers coming together in capital market play effective financial intermediary role in primary and secondary market through the use of various long-term capital market instruments like common stocks, bonds, preferred stocks, convertible issues, etc. Thus strictly speaking, the market encompasses any transaction involving long-term debt or equity obligations.

In literary sense, the term "capital market" is used to describe the institutional arrangements for facilitating the borrowing and lending of long-term funds. Businesses, in the form of public limited companies require long-term or permanent capital in order to finance their activities, or to undertake expansion schemes. Similarly, government needs large quantities of funds in order to be able to provide and expand services such as education, health-care, and defense. In order to meet their money demands to fulfill their objectives, both companies and government raise money by issuing different securities.

Stock exchange plays a significant role in mobilizing funds in capital market. Investment institutions, unit trusts, industrial banks, insurance companies, etc, also raise

funds from public and sometimes from government too through various securities and use them in long-run investments. Securities dealt in capital market are long-term securities. Some securities are of perpetual nature and others are for a longer period. Debentures may be either redeemable or irredeemable, the proceeds of life insurance policies may be repayable at death or at maturity so stock exchange, investment trusts and insurance companies are the major segments of capital market.

In many developing countries, the unorganized capital market is still a prevailing characteristic of the economy. But it has crucial role to play in channeling funds from savers to users as they hold huge amounts of the financial assets.

The capital market can be usefully sub-divided into the primary market and the secondary market. The primary market deals with the selling of new securities whereas the secondary market deals the securities previously issued in the market. (Luckett,1984: 147)

Primary Market

Securities available for the first time are offered through the primary markets. The issuer may be the brand new company or one that has been in business for many years. Primary market is used to denote the market for the original sale of securities by an issuer to the pubic. The volume of new issues in the primary market, particularly of common stock, is directly related to market conditions. When the market is high or rising, the number or new issues being offered to the public rises and when the market is low or falling, the number declines.(Weston & Brigham, 1981: 375)

The institution that dominates the primary market is the investment –banking house. It is a traditional middleman in the primary market. When a company decides to acquire new funds from the outside, it will frequently do so through the intermediation of an

investment banker in the developed countries. The investment banker's principal activity is to bring sellers and buyers together in the market. They are specialists in the marketing of new securities. They advise companies in the design of the security. Although there are a number of possible arrangements, the investment-banking house underwrites a new issue of securities. In underwriting agreement, an investment banker agrees to buy the securities from the issuing company and sells them to the public. In addition, placing new securities through the intermediation of investment bankers, many companies engage in the private placement of securities. In private placement, the issuer of the securities sells securities directly to investors without the underwriting services of an investment banker. This method is cheaper, and it avoids the underwriting costs. (Luckett, 1984: 147)

Secondary Market

Securities that have been previously issued are traded in the secondary market. The majority of all capital market transactions occur in the secondary market. The majority of all capital market transactions occur in the secondary market. The proceeds from sale of securities in the secondary market do not go to the original issuer but to the owners of the securities. In other words, securities are traded among the individual as well as institutional investors.

The function of the secondary market is to provide liquidity for securities purchased in the primary markets. Once investors have purchased securities in the primary market, they need to place them in the secondary market in order to sell. Secondary markets are further divided into the over-the-counter market and the registered stock exchanges.

The Over-the-Counter Market

The over-counter-market (OTC) is the market for the securities not listed on the stock exchanges. When the company first sells its securities to the public, the securities are traded in the OTC. It includes all transactions in securities other than those taking place on registered stock exchanges. In practice, however, the term is usually limited to the activities of dealers and brokers may range in size from very large houses doing an international business to one person firms that trade only in local markets (Brigham & Houston, 2001:174-186).

The Stock Exchanges

Stock exchanges are voluntary associations of members who come together for the purpose of buying and selling, for the general public, the securities of the great companies. Only listed securities are traded in the exchanges and are bought and sold through "auction". The members of these exchanges are truly a national market in which virtually anyone may participate. (Luckett, 1984: 144)

The stock exchanges play an indispensable role in mobilizing funds in capital market. The essential function of a stock exchange is to provide active market for already issued securities. The essential function of a stock exchange is to provide active market place for corporate share and other listed securities. The various virtues governing stock exchange include enhanced marketability of securities, rational allocation of investible funds, enhanced economic growth and wealth generation and proper maturity, liquidity, marketability and diversification of investment. The growth of capital market through the vehicle of stock exchange has brought a flow of the information about various securities in addition to the sound listing criteria that prove worthwhile to the investors. However, the

secondary market is said to give liquidity to primary issues, and this liquidity is an essential ingredient in the capital formation process of the economy.

Capital Market in Nepal

The history of capital market in Nepal starts with the establishment of Biratnagar Jute Mill in 1936 A.D. Thereafter, various mills of rice, cotton, sugar, and others were established. In 1937, Tejarath was set up to facilitate loans to government employees. In the same year, the first industrial Act was promulgated, which was also a favorable step to promote capital market in Nepal. But, the participation of public in the ownership structure of industries was not available and all the shares of companies were gone to Rana families' portfolio. In 1950, democracy was established in the country by throwing Rana regime and the interim government was much busy in devising measures to revive the sick industries and only very little attention could be given to initiate the development of capital market. Important actions were taken during these periods for this sake and various institutions and industries were established. Then, in 1960, Nepal entered into Panchayat System by sacking democracy. HMG/Nepal started to issue bonds in 1964. Government bonds still occupy a major chunk of trading in the securities market.

After an extensive study of the working of public limited company HMG/Nepal announced Industrial Policy in 1974. This policy made a provision for the establishment of an institution named Securities Marketing Centre to deal with securities. It was established with the joint effort of Nepal Rastra Bank (NRB) and Nepal Industrial Development Corporation (NIDC) to mobilize the capital among the various industries and companies. After a passage of few years, this center was changed into Securities Exchange Centre (SEC) in 1976. Securities Exchange Act came into force on 13 April 1984. Since then, SEC

started to operate under this act. Before this, it was operating under the Company Act. The main purpose of Securities Exchange Act was to provide systematic and regular environment of market of securities ensuring and protecting the interest of individual and institutional investors as to increase public participation in various firms and companies.

The interim government initiated financial reform program and established a Citizen's Investment Fund as pioneering capital market institution. The established of NIDC Capital Markets Limited is also another milestone in this regard. Now, Nepal has entered into market-oriented economic system. Thus, necessity was felt to change the whole operation of Stock Exchange Centre to make it compatible with the changing economic system. As a result, HMG/Nepal brought about changes in the existing structure of SEC by separation SEC into two distinct entities –Securities Exchange Board of Nepal (SEBO/N) and Nepal Stock Exchange Ltd. (NEPSE) at the policy level in 1993 (Shrestha, 1992: 15).

Constituents of Capital Market in Nepal

The constituents of capital market in Nepal include the following institutions and parties:

Securities Exchange Board of Nepal

Nepal Stock Exchange Limited

Securities Exchange Board of Nepal

HMG/Nepal established the Securities Exchange Board on May 26, 1993. The thrust of the board is to promote and protect the interest of investors by regulating the securities market. Besides the regulatory role, it is also responsible for the development of securities market in the country. The objectives of the Board are:

To ensure a regulated and orderly market for the primary issues and secondary trading of securities and to foster the development of securities market by protecting the interest of inventors.

The Board performs the following functions:

- To advise HMG on the issues related to development of capital market and the protection of the interest of investors;
- To approve the stock exchanges and oversee them for healthy trading of securities;
- To register and regulate the members involved in the primary issues and secondary trading of securities;
- To regulate public issues of securities including the mutual and trust fund; and
- To conduct studies, provide training; organize educational programs on the regulatory and development aspects of capital market.

The Board consists of seven members including its chairman. HMG/Nepal appoints a full time chairman for a term of four years. Line Ministries nominate three members, representing Ministry of Finance, Ministry of Law, Justice and Parliamentary Affair and Ministry of Industry, Commerce and Supply. Each of the remaining three is nominated by Nepal Rastra Bank, Federation of Nepal Chamber of Commerce and Industries, and Association of Chartered Accountants of Nepal. (HMG/Nepal 1997: 1)

Nepal Stock Exchange Limited

Securities Marketing Centre was established to deal with especially the government bonds in 1974. But this center was converted into Securities Exchange Centre (SEC) in 1976. It involved in the management of public issues made by corporate bodies. After eighteen

years of incorporation, the Securities Exchange Centre was converted into Nepal Stock Exchange Ltd. (NEPSE) in 1993.

NEPSE is a non-profit organization, operating under Securities Exchange Act. The basic objective of NEPSE is to impart free marketability and liquidity to the government bonds and corporate securities by facilitating transactions in its trading floor through market intermediaries, such as brokers, market maker, etc. Before the conversion into stock Exchange, SEC was only the capital market institution undertaking the job of brokering, underwriting, managing public issue, market making for government bonds and other financial services. (Nepal Stock Exchange Ltd., 1994: 1)

NEPSE opened its trading floor on 13 Jan. 1994 for its newly appointed brokers and market makers.

HMG/Nepal, Nepal Rastra Bank and Nepal Industrial Development Corporation are the principal shareholders of the NEPSE. The ownership structure of the NEPSE is as follow:

Table – 2.1

NEPSE Ownership Structure

Shareholders	**Share Capital** (in million Rs.)	**Percentage (%)**
His Majesty's Government	11.48	44.30
Nepal Rastra Bank	12.08	46.70
NIDC	2.14	8.30
Members	0.19	0.70
Total	25.89	100.00

Seven members Board of Directors control NEPSE and the chief executive in Ex-officio Director of the Board. At present it has 27 brokers, 9 market makers (underwriters and security traders). There is a provision of primary and secondary market-dealers but it has

not come into the practice yet. However, members of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and shares of listed companies. Trading on the floor of the NEPSE is restricted to listed corporate securities and government bonds. At present, 114 companies have listed their securities. Besides this, NCM Mutual Fund 2059 of NCM mutual fund and Citizen Unit Scheme of Citizen Investment Trust has been traded in the floor.

NEPSE has adopted an "Open Out-cry System" of trading. The buying broker or market maker with the highest bid posts the price and his number code on the buying column, while the selling broker with the lowest offer posts the price and his number code on the selling column on the quotation board. The market makers quote their bid and offer price on their own board before the floor starts. Once the bid and offer price match each other, contracts between the buying selling brokers or between the brokers and market makers are concluded on the floor. (Nepal Stock Exchange Ltd., 1998: 2)

Efficient Market Hypothesis

One of most profound but controversial theories of stock market behavior and its implications for investment decision-making is Efficient Market Hypothesis (EMH). This theory deals with the degree of capital market efficiency. Market efficiency in this context refers to the market's ability to price securities correctly and instantaneously change security price to reflect new information. In an efficient market, a security's price would correctly reflect the important variables for that security and would represent and unbiased estimate of its investment value. Market efficiency also implies that as new information becomes available, the market quickly analyzes it, and any necessary price adjustments occur rapidly.

The efficient market hypothesis suggests that investors cannot expect to outperform the market consistently on a risk-adjusted basis over an extended period of time. This hypothesis is based on the premise that security prices reflect all available information concerning a firm and that security prices change rapidly in response to new information. Because security price fully incorporate known information and prices change rapidly, day-to-day price change will follow in a "random-walk" over time. A random walk essentially means that price changes are unpredictable and patterns formed are accidental.

Security prices are rationally and efficiently determined by such fundamental considerations as earning, interest rates, dividend policy and the economic environment. Changes in these variables are quickly reflected in a security's price. All known information is embodied in the current price, and only new information will alter that price. New information has to be unpredictable; if it is predictable, the information would be known and stock prices would have already adjusted for the information. Hence, new information must be random and security prices should change randomly in response to that information. If changes in security prices were not random and could not predictable, then investors consistently outperform the market and security markets would not be efficient. (Cheney & Moses, 1992: 746)

The EMH also asserts that the price of any under-or-over valued stock is unstable and will change. The security's equilibrium price is a true valuation of what the investors believe the asset is worth. If the markets were not so efficient and prices did not adjust, some investors would be able to adjust their holding and take advantage of differences in investor's knowledge.

The degree of market efficiency has important implications for the economy and for investment decision-makers. In an economic sense, it is important that security prices

provide accurate signal that can be used to allocate capital resources correctly. Mispriced securities would result in incorrect allocations of capital. Although efficient-market may be important and desirable from an economic perspective, it presents a dilemma to investors in terms of an appropriate investment strategy.

However, the apparent randomness of stock prices lies in understanding the market –making mechanism. In an efficient market, liquid capital will channel quickly and accurately where it will do the community the most good. Efficient market will provide ready financing for worthwhile business ventures and drain capital away from inefficient corporations that are poorly managed or producing obsolete products. It is essential that a country have efficient capital markets if that country is to enjoy highest possible level of wealth, welfare and education for population. One of the main reasons that some underdeveloped countries do not advance is that they have inefficient capital markets. In inefficient capital markets, prices may be fixed or manipulated rather than determined by supply and demand. Capital may be controlled by a few wealthy people and not be fluid and flow where it is needed. Graft and public distrust can cause money to be hoarded rather than invested in the capital market, or investors may be ignorant and unable to distinguish between worthwhile business ventures and bad investment. (Bhalla, 1997: 383)

In an efficient market, all prices are correctly stated and there are no bargains in the stock market. Thus, James H. Lorie defined the efficient security market as: "Efficiency in this context means the ability of the capital markets to function so that prices of securities react rapidly to information. Such efficiency will produce prices that are appropriate in terms of current knowledge, and investors will be less likely to make unwise investments. A corollary is that investors will also be less likely to discover great bargains and thereby earn extraordinary high rates of return. There are three forms of EMH theory- (i) Weak

form (price information), (ii) Semi-strong form (other public information), and (iii) Strong form (inside information) tests.

The weak form or the random walk hypothesis hold that past prices do not provide information that can be used to outperform the market. The price of a security fully reflects whatever information is implied or contained in the price sequence preceding it. Thus, studying past price behavior and other technical indicators of the market will not produce superior investment results. It is asserted that the past data cannot be used to predict future stock prices. The stock prices approximate a random walk, as the information available. Prices walk more or less randomly across the charts. Since the walk is random, a knowledge of past price changes do nothing to inform the investor about whatever the price tomorrow, next week, or next year will be higher or lower than today's price.

The semi-strong form of EMH asserts that the current price of a stock reflects all of the publicly available information concerning the company. Thus any significant new public information should immediately be reflected in the stock market. Furthermore, there is no lag between the time that the information becomes available and the adjustment of the stock price. This knowledge includes both the firm's past history and the information learned through studying a firm's financial statements, its industry, and the general economic environment. Analysis of the information cannot be expected to produce superior investment results. Instead, if the investor has access to inside information that individual may consistently achieve superior results. Such an inside information are stock splits, earning announcements, new discoveries, acquisitions and divestitures, and financial distress. Of course, most investors do not have such an access to inside information and further the use of such information for personal gain is illegal.

The strong form of the EMH asserts that the current price of a stock reflects all known information concerning the firm. Information includes both public and private. Private information implies the certain individuals or organizations such as corporate insiders. In effect, an idealistic economic situation results in perfectly efficient market where prices and values are always equal as they fluctuate randomly together in response to the arrival of new information. Thus, the strong form of the EMH is equivalent to perfect markets in which the market correctly prices securities at all times. Prices adjust quickly to new information public and private (Cheney & Moses, 1992: 753).

The Concept of Stock Valuation

The concept of value is at the heart of financial management. The value of any tradable item is whatever the bidder is prepared to pay. With a well-established asset market, valuation is relatively simple. So long as the market can be accepted as being reasonably efficient, then the market price can be trusted as a fair assessment of value. Several analytical techniques are available to assist the financial manager for valuing common stock. The investor expects regular earnings in the form dividends and capital gains from the upward movement of the stock price. Therefore, the valuation model should account for all these factors. Some of the basic valuation models used to determine the intrinsic value of the stocks are: Net Asset Value (NAV); the Dividend Discount Model (DDM); and Price-Earnings (P/E) model. These different models are discussed below:

The NAV Model

The NAV is the value of total assets less current liabilities and long term debt, which is financed by shareholders' net-worth. The shareholders' net-worth comprises of paid-up

capital, share premium, accumulated profit and other free reserves, which belong to shareholders. The NAV per share or the book value per share is determined dividing the total NAV by number of outstanding shares (Alexander, et. al. 2003: 574).

NAV (Book Value) per share = Net Asset Value/Number of shares outstanding.

The DDM Model

The DDM states that the value of a share now is the sum of stream of future discounted dividends, plus the value of the share as and when sold in some future year. Therefore, the value of a share today is a function of the cash inflows expected by the investors and the risk associated with the cash inflows.

$$V_0 = D_1 /(1+K)^1 + D_2 /(1+K)^2 + D_3 /(1+K)^3 + \ldots\ldots\ldots\ldots\ldots + D_t /(1+K)^n \text{ or}$$

$$V_0 = \quad D_t / (1+K)^t$$

In the model, V_0 represents the intrinsic or the theoretical value of the stock today, D_t is the dividend expected in nth year and the K is the firm's cost of equity capital. The equation stated above assumes that dividend will grow at a given rate and the amount of dividend will be different in different years. A zero growth stock is a stock from which the investor expects a constant amount of dividend each year and where the dividend is not expected to grow. In such case the price of the stock now, V_0, is calculated by dividing the amount of dividend by the cost of equity.

$$V_0 = D /K$$

Generally, dividend is expected to grow at a given rate (g). Myron J. Gordon developed an equation to value the stock price for a growing firm. It is often called the Gordon Model.

$$V_0 = D_1 /(K - g)$$

D_1 is the next expected dividend and g is the growth rates in dividends.

The P/E Model

This model requires only an estimate of price–earnings ratio. It uses earnings rather than dividends in determining the intrinsic value of the stock. Under this model, the intrinsic value of the stock today is calculated as follows:

$$V_0 = M*E$$

M is the estimate if earnings multiplier or P/E ratio and E is the estimates of earnings. The theoretical multiplier (M) for a company that distributes all earnings as dividends and has no earnings growth is equals to:

$$M = [D/E] /K = 1/K$$

If the company retains parts of its earnings, and that results in earnings growth, the theoretical multiplier (M) can be calculated as:

$$M = [D/E(1+g)]/[K–g]$$

The growth rate (g), being the product of retention ratio (b) and return on incremental capital (r), will be zero if the company does retain earnings and distributes all its earnings as dividends (b = 0) or the if the company produces no additional earnings on retention (r = 0) (Alexander, et. al. 2003: 329-353).

Return

Investors are risk-averter and they select the securities that maximize expected rate of return for any given level of risk or minimize risk level of expected returns. The mean and the standard deviation measure the return and the risk of an individual security respectively.

The mean is the average of the total return of a firm's security. The total return is calculated by adding capital gain and the dividend yield of a security. It is normally denoted by (R_j). Here, capital gain is calculated by dividing the difference between the NEPSE index of current year and the previous year by the previous year's NEPSE index as below:

$$\text{Capital gain} = \frac{t_n Z t_{nZ1}}{t_{nZ1}}$$

Where, t_n = Nepse index of current year;

t_{n-1} = Nepse index of previous year

Dividend yield is the ratio between dividend paid and market price. Hence,

Total Return (R_j) = Capital gain + Dividend yield

The Expected Rate of Returns

The expected rate of return is the expected after-tax increase in the value of the initial investment over the over the holding period. The overall rate of return can be decomposed into capital appreciation and dividend components. Capital appreciation is the difference between investor's end-of-the period and beginning-of-the period.

Expected return is the most likely return on an asset (in our case the stock), which has been calculated here by dividing the total sum of individual stock's annual return over the study period by the number of years in the study period.

$$\text{Expected Return } [E(R_i)] = \frac{\overset{n}{Ri}}{n}$$

Single-Period Return

For a one-year holding period, the benefits associated with ownership include the cash dividend paid during the year together with an appreciation in market price, or capital gain, realized at the end of the year. Thus, the Expected or realized or ex-post rate of return is:

= (Ending price - Beginning price + Dividends) / Beginning price

Ex-ante rate of return on an investment is also the mean value of the probability distribution of its possible returns. The expected rate of return, in such case, can be calculated as:

$$HPR \; X \sum_{t X 1}^{n} \frac{HPR_t}{n}$$

In this equation, HPR_i is the $_i$th possible outcome, P_i is the probability of the $_i$th outcome and n is the number of possible outcome.

Return over Several Periods

Annualized rate of returns over several periods can be calculated in two ways. The first one is simply to take the average of the annual holding period returns over a given period and the second one, which also takes into account the compounding effects of cash receipts over different time intervals, is the geometric mean rate of return. The simple arithmetic mean:

$$HPR \; X \sum_{t X 1}^{n} \frac{HPR_t}{n}$$

The geometric mean rate of return:

$$HPR_g \; X \prod_{t X 1}^{n} (1 \Gamma HPR_t)^{1/n} \; Z 1.0$$

Measuring Risk of Investment Alternatives

Investors are risk-averter and they select the securities that maximize expected rate of return for any given level of risk or minimize risk for any given level of expected returns. Chenny and Moses define risk as the variability of possible returns around the expected return of an investment. For some investments, this variability can be quite small. Similarly, Weston and Brigham define risk as the chance that some unfavorable event will occur. Each investor has his one attitude toward risk and how much he can tolerate. The real rate of return will provide a rate of return that compensates the investors for deferred consumption. An additional rate of return should be added to the risk-free rate of return that provides premium for additional risk bearing.

$E(R_j) = R_f + RP_j$

Where, E(Ri) = Required rate of return for asset i.

R_f = Risk-Free- rate of return.

RPi = Risk premium for stock i.

A number of factors may contribute to investment uncertainty. The factors usually mentioned with respect to marketable securities are business risk, financial risk, liquidity risk, default risk, interest rate risk, management risk and purchasing power risk. Risk is a difficult concept to grasp. Some of the statistical methods that can be used to measure risk of an underlying financial asset are discussed below.

The Range

The range is one of the traditional methods of measuring risk, which simply communicates the difference between the best possible return and the worst possible return; it does not provide any information about the distribution of the rates of return between the extremes.

The range = Best possible rare of returns – Worst possible rate of returns.

The degree of risk of an underlying security is reflected in the magnitude of the difference. The smaller difference the lower will be the degree of risk.

The Standard Deviation

The standard deviation (±) is the other measure of investment risk. The smaller the standard deviation the lower will be the degree of risk of the stock. The formula for calculating the standard deviation is:

$$\text{Standard deviation } (\pm) = SD(i) = \frac{\sqrt{(Y \; Z Y')^2}}{N \; Z1}$$

In the equation, Y is the possible rates of returns, and Y' is the average mean return and N is the number of observations. The variance can also be used to measure risk, which is the square of the standard deviation.

$$\text{Variance} = \text{Var}(R_i) = \bullet SD(i)'^2$$

Total risk (±) can also be defined as the sum of systematic risk plus unsystematic risk. Systematic risk has its source factors that affect all marketable assets and thus cannot be diversified away. The sources of systematic risk are market-pervasive.

Systematic risk reflects market-wide factors such as the country's rate of economic growth, corporate tax of economic growth, corporate tax rates, interest rates etc. Since

these market-wide factors generally cause returns to move in the same direction they cannot cancel out. Therefore, systematic risk remains presents present in all portfolios. Some investments will be more sensitive to marker factors than others and will therefore have a higher systematic risk. The measure of systematic risk permits an investor to evaluate an asset's required rate of return relative to the systematic risk of the stock.

Unsystematic (company-specific or unique) can be reduced through diversification. Investors who hold well-diversified portfolio is wholly systematic, unsystematic risk have been diversified away. These investors may want to measure the systematic risk of each individual investment within their portfolio, or of a potential new investment to be added to the portfolio. A single investment is affected by both systematic and unsystematic risk but if an investor owns a well-diversified portfolio then only the systematic risk of that investment would be relevant. If a single investment becomes a part, unsystematic risk can be ignored.

The systematic risk of an investment is measured by the covariance of an investment's return with the returns of the market. Once the systematic risk of an investment is calculated, it is then divided by the market risk, to calculate a relative measure of systematic risk. This relative measure of risk is called the 'beta'.

The relationships among total risk, systematic risk and unsystematic risk are shown below.

Total Risk ($\pm\ ^{2}i$) = Systematic risk + Unsystematic risk;

Where, Systematic risk = $b^{2}Var(Rm)$ and Unsystematic risk = $Var(e)$

Another term for systematic risk is "*undiversifiable risk*" while for unsystematic risk is "*diversifiable risk*. Throughout the following sections, the term "*diversifiable*" and "*undiversifiable*" will be used instead of "*systematic* " and "*unsystematic.*"

The Coefficient of Variation

The coefficient variation (CV) is the other useful measure of risk. It is the standard deviation divided by the expected return, which measures risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. If investors believe that the rate of return should increase as the risk increase, then the coefficient of variation provides a quick summary of the relative trade-off between expected return and risk.

$$\text{Coefficient of Variation (CV)} = \pm / Y'$$

In general the CAPM indicates that an asset's required return should be related to the risk free rate of return plus a risk-free return based on the beta of the asset.

The Beta Coefficient

The beta coefficient ( ), a measure of systematic risk, can be calculated by using the following formula:

$$\text{Beta coefficient } (\ _i\ ) = Cov_{iM} / \pm_M^{\ 2}$$

Cov_{iM} is the covariance between the return of an individual asset and the returns of the market and $\pm_M^{\ 2}$ is the variance of the market returns.

The CAPM contends that shares co-move with the market. If the market moves by 1% and a share has a beta of two, then the return on the share would move by 2%. The beta indicates the sensitivity of the return on shares with the return on the market. Some companies activities are more sensitive to changes in the market- eg luxury car manufacturers- have high betas, while those relating to goods and services likely to be in

demand irrespective of the economic cycle- eg food manufacturers-have lower betas. The beta value of 1.0 is the benchmark against which all securities' betas are measured.

Stocks can be classified as aggressive or defensive or average depending on the value of beta coefficients.

Table – 2.2

Beta and Stocks classification

Beta coefficient ( )	**Stocks classification & degree of risk**
Beta coefficient exactly equals to 1	Average stock; equally risky as the market
Beta coefficient greater than 1	Aggressive stock; more risky than the market
Beta coefficient less than 1	Defensive stock; less risky than the market

Beta coefficient (Brigham & Houston, 2001:227-287) can also be related with the CAPM equation to determine the required rate of return of a given stock. The required rate of return (K_i) is the risk free rate of return (K_{RF}) plus a risk premium ($RP_j=K_M- K_{RF}$) based on the beta of the stock ( ).

$K_i = K_{RF} +$ ($K_M - K_{RF}$) or $K_j = K_{RF} + RP_j$

Capital Asset Pricing Model (CAPM)

The capital asset pricing model or CAPM is a model that relates the required rate of return for a security to its risk as measure by beta. CAPM predicts the relationship between the risk and equilibrium expected returns on risky assets. The Capital Asset Pricing Model almost always referred to as CAPM, is centerpiece of modern financial economics. It was first purposed by William F. Shape, who was awarded the 1990 Nobel Prize for economics.

Assumptions of the CAPM

A number of simplifying assumptions lead to the basic version of CAPM. The fundamental idea is that individuals are as alike as possible, with the notable exceptions of initial wealth and risk aversion. "As in all financial theories a number of assumptions were made in the development of the Capital Asset Pricing Model (CAPM); they are summarized in the following list (Brigham, et al, 1999:212):

- All investors focus on a single holding period, and they seek to maximize the expected utility of their terminal wealth by choosing among alternative portfolios on the basis of each portfolio's expected return and standard deviation.
- All investors can borrow or lend an unlimited amount at a given risk-free rate of interest, K_{RF}, and there are no restrictions on short sales of any asset.
- All investors have identical estimates of the expected returns, variances, and covariance among all assets; that is, investors have homogeneous expectations.
- All assets are perfectly divisible and perfectly liquid (that is, marketable at the going price).
- There are no transactions costs.
- There are no taxes.
- All investors are price takers (that is, all investors assume that their own buying and selling actively will not affect stock prices).
- The quantities of all assets are given and fixed."

Capital Asset Pricing Model (CAPM), an important tool used to analyze the relationship between risk and rates of return. The primary conclusion of the CAPM is this: The relevant

riskiness` of an individual stock is its contribution to the riskiness of a well-diversified portfolio.

The risk that remains after diversifying is market risk, or the risk that is in the market, and it can be measured by the degree to which a given stock tends to move up or down with the market (Brigham, et al, 1999:178-180).

The Security Market Line (SML)

According to the CAPM, the differences in risk premium across assets are due to difference in the systematic risk of assets. This risk I called beta and measures the sensitivity of the return of an assets relative to movements in the market return, given this risk free rate, the CAPM predicts that the expected return of an asset is an upward-sloping linear function of its beta. According to CAPM, the equilibrium expected return for stock I is

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

Where,

R_f = Risk free rate

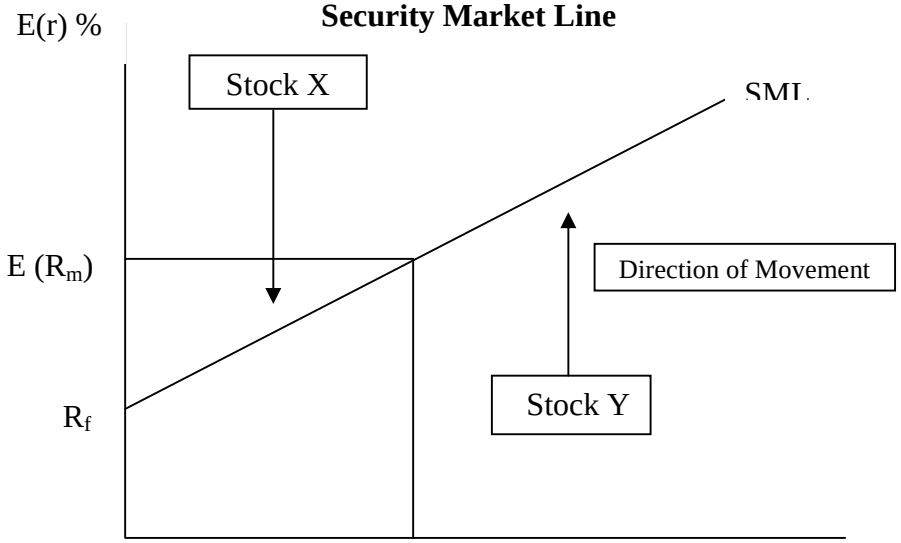
$E(R_m)$ = Expected overall return of market portfolio

$_j$ = Beta coefficient of secrity 'I'

As per CAPM, a security expected return should relate to its degree of systematic risk, and not to its degree of total risk. Systematic risk is the thing that matters to an investors holding a well-diversified portfolio. The greater the systematic risk i.e. its beta, the greater the risk and greater the expected returns required.

The expected return-beta relationship can be graphed as the security market line (SML)

Figure No. – 2.1
Security Market Line



The slope of SML is the risk premi market portfolio. At the po... where β=1 (which is the beta of the market portfolio) on the horizontal axis, it can read off the vertical axis, it can off the vertical axis the expected return of the market portfolio.

The security market provides a benchmark for evaluation of investment performance. Given the risk of an investment as measured by its beta, the SML provides the required rate of return that will compensate investors for the risk of that investment as well as for the time value of money. Since the SML is the graphical representation of expected return beta relationship, "Fairly priced" assets plot exactly on the SML.

If an individual security (Stock Y of graph has an expected return-risk combination that places it below the SML; it will be overvalued in the market. That is, it provides and expected return less than that required by the market for the systematic risk involved.

Investors seeing the opportunity for the superior returns by investing in stock X (under priced selling) should rush to buy it. This action (increases in demand) would drive the price up and the expected return, until the expected return was on the SML. In case of stock Y, investor holding this stock would sell it, recognizing that they could obtain a higher return for the same amount of systematic risk with other stocks. This selling

pressure would drive Y's market price down and its expected return up until the expected return was on the SML, when the expected returns for these two stocks to the SML, market equilibrium will again prevail. (Van Horne 1998: 74-75)

Validity and Role of Capital Asset Pricing Model

Primarily, Investor concerned with the systematic risk that cannot be eliminated by diversification. They expect extra return as a premium for bearing the systematic risk. If this were not so, the stock price should increase whenever two companies merge to spread their risk, and an investment companies which invest in shares of other firms should be highly valued than the shares they hold. In real world mergers undertaken just to spread risk do not increase stock price and investment companies are no more highly valued than the stock held. In recent years there is explosion of research into the opportunities and risk of investing in emerging equity markets stimulated in part by the growing exposure of US and European investor to these markets, but also following the rapid rise and fall of returns on the assets class.

Rouwenhorst(1997) in his article namely "Local Returns Factors and Turnover in Emerging stock Markets" conclude that " The return factors in emerging markets are qualitatively similarly to these in developed markets: Small stocks out perform growth stocks and emerging markets stocks exhibit momentum. There is no evidence that local market betas are associated with average returns. The low correlation between the country return factors suggests that the premiums have a strong local character. Furthermore, global exposures can not explain the average factor returns of merging markets. There is little

evidence that the correlation between the local factor portfolios have increase, which suggests that the factors responsible for the increase of emerging market country correlation are separate these markets. A Bayesian analysis of premiums in developed and emerging markets shows that, unless one has strong prior beliefs to the contrary, the empirical evidence favors the hypotheses that size, momentum and value strategies are compensated the relationship between expected returns and share turnover, and examines the turnover characteristics of the local returns factors portfolios. There is no evidence of a relation between expected return and turnover, in emerging markets. However, beta, size momentum, and value are positively cross sectionals correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity".

The study by Rouwenhorst does not consider the analysis of single security. It has been analyzed the return factors in worldwide stock markets. However, it concentrates in the various emerging stock markets. Hence this article contributes in the area of risk and return analysis in common stock investment (Rouwenhoust, 1999: 1439-1462).

The book edited by Michael Papaionnov and George Tsetkos namely "Emerging markets portfolio; Diversification and Hedging strategy" analyzed investment risk and opportunities in emerging markets, structure feature and the role of government in markets, structure feature and the role of government in market development and use of derivative market in emerging economics by governments and investors. It conclude that "Diversification benefits of investing in emerging market are present but have been reduced in recent years as a result of growing foreign institutional investors involved and are less effective during periods of large market movements" (Michael & Tsetsekor, 1997 IRWIN).

2.2 Review of Related Studies

Bhandari (2003) conducted a study on "Application of CAPM in Nepal" taking annual data of market prices and dividend yield from 1995 to 2002 of 15 companies listed in Nepal Stock Exchange. The fifteen companies were taken from the sectors: banks, finance companies, insurance companies, trading companies, hotel, airlines and manufacturing. Major findings of his study are:

Among the 15 selected companies, Uni Lever Limited has the highest expected rate of return; In term of the risk measured by standard deviation, common stock of NIDC Capital Market is most risky and Salt Trading Corporation is least risky security; however, some companies are providing higher return at relatively lower risk as revealed by coefficient of variation; Nepse Index, which is used to measure of return of market, indicates that there is negative movement till 1997/98 but is improving thereafter and increasing till 1999-2001 and fails thereafter. The index of Banking and Manufacturing are moving in the same direction. The index of the both is increasing till 1999 to 2001 but is decreasing thereafter. The index of trading is regularly decreasing throughout the review period while that of Hotel, Trading & other is fluctuating each year and is decreasing continuously from 1992 to 2001.

The required future returns on stock of the companies have a linear relationship with market index. Among the 15 companies analyzed NIDC has the highest future required return, which is followed by Nabil Bank. Only the eight companies under the study have future required return greater than the market return.

The beta coefficient, which measures the systematic risk of the company, reveals that systematic risk of a selected companies range between 3.5373 to 0.0892 times. NIDC Capital Market and Nabil Bank contains the most beta risk followed by Annapurna Finance Company, Himalayan General Insurance, Nepal Investment Bank, etc. and the lower risk companies are Salt Trading Corporation and Bishal Bazar Company Limited. Bhandari's study further remarks that there are differences in expected return, required return and risk situation in the selected enterprises and it shows the real performance of the selected enterprises.

Another Study, conducted by Bhatta (1995) entitled “Assessment of the performance of listed companies in Nepal”. Bhatta’s study in performance of listed companies is based on 10 listed companies’ data from 1990 to 1995. One of the major objective that concern with the research topic is “to analyze the performance of listed companies in terms of risk and return i.e. expected rate of return and company specific risk, required rate of return and internal rate of return systematic risk and diversification of risk through portfolio context.

Bhatta addressed the following findings in risk return behavior from the analysis of different stocks. “A highly significant positive correlation has been addressed between risk and return character of the company. Investors expect higher returns from those stocks that associate higher risk. Nepalese capital market is not efficient one. So the sock price does not contain all the information relating to market and company itself. Neither investors analyze the overall relevant information of the stocks nor the member of stock exchange tries to disseminate the information. So the market return and risk both may not represent reality. However, the analysis based in the available information shows high priced stocks

such as BBC, NIB, NIC, has beta risk than others. These companies this requires higher returns to satisfy the investors for their risk premium.

Investors in Nepal have not yet practiced to invest in portfolio of securities. An analysis of the two securities portfolio shows that the risk can be totally minimizes if the correlation is perfectly negative. In this situation, the risk can totally be diversified, but when there is perfectly positive relationship between the returns of the two securities, the risk is undiversifiable. The analysis shows some has negative correlation and some has positive one. Negative correlation between securities returns is preferred for diversification of risk"

On the basis of findings Bhatta concluded: "An analysis of risk and return shows that many companies have higher unsystematic or specific risk. There is a need of expert institution that will provide consultancy services to the investors to maximize their wealth through rational investors to maximize their wealth through rational investment decision.

Lastly Bhatta, (1995) recommended that following points to improve the market efficiently:

- Developed institutions to consult investors for risk minimization.
- Establish an information channel in Nepal stock exchange and
- Market proper amendment on Trading Rules.

To some extent Bhatta focused in the analysis of risk and return in common stock investment. But due to so many other aspects of analysis investor cannot easily assess the results. In deed, study did not focus the viewpoint of investors rather it concentrates the companies and stock market. However, this study also explores some dimensions for further research in this subject.

Poudel (2002) analyzed risk-return characteristics of commercial banks' shares and tried to determine the degree of correctness in pricing the shares and further endeavored to trace the future price movement when striving towards equilibrium. Poudel conducted the study citing eight commercial banks and taking quarterly data from the secondary sources, particularly from the publications of Nepal Stock Exchange Limited (NEPSE). The banks included in his study are Nepal Arab Bank Limited (NABIL), Nepal Indosuez Bank Limited (NIBL), Standard Charter Bank Nepal Limited (SCBNL), Himalayan Bank Limited (HBL), Nepal SBI Bank Limited (NSBL), Nepal Bangladesh Bank Limited (NBBL), Everest Bank Limited (EBL) and Bank of Kathmandu Limited (BOKL). The sample period in his study commenced on mid-July 1996 and ends in mid-July 2001. Quarterly percentage changes in the NEPSE index were used as the returns on market portfolio (return on average stock). Average return on the 91-day Treasury bill was taken as a proxy of the risk-free rate of return.

Poudel concluded that the average mean return on market portfolio, as measured by percent changes in the NEPSE index, was 5.51 percent over the sample period. All the shares produced higher rates of return than the return on market portfolio. However, the risk-return characteristics did not seem to be the same for all the shares he reviewed. The shares with larger standard deviations appeared to be able to produce higher rates of return. The portion of unsystematic risk was very high with the shares having negative beta coefficient. The risk per unit of return, as measured by the coefficient of variation, was less than that of the market as a whole for all the individual shares. Poudel found most of the shares to have fallen under the category of defensive stocks, (having beta coefficients less than 1), except the shares of Bank of Kathmandu Limited. He observed the return on the

shares of Nepal Arab Bank Limited to be negatively correlated with the return on market portfolio with negative beta coefficient.

His study showed that none of the shares are correctly priced. Shares of Nepal Arab Bank Limited, Nepal Indosuez Bank Limited and Himalayan Bank Limited which were found to be overpriced relative to equilibrium thus market forces, was expected to fall in price. The remaining shares appeared to be under-priced indicating a possible positive long-term price trend.

The study conducted by Sapkota (2000) is about "Risk and Return in commercial bank in Nepal". The basic aim of this study is to analyze risk return of securities of listed companies of Nepal stock exchange limited. The main target of this study is potential investor who wants to invest in security but repel by imaginary and an unreal risk. So, the study will be more significant for exploring and increasing. The basic objective of this study is to describe risk, return, volatility of stock and some relevant and irrelevant factors, which are very important to make decision in stock investment. It also observes the unseen problems facing by individual investors.

Risk and return analysis is an important concept of investment decision process. It helps to make a good investment opportunity in stock market as well as new issue market. Basically, this study analyses risk and return of commercial banks, which are listed and traded in NEPSE. The study period was 2049/59 to 2055/56 (or after liberalization policy has been lunched). And data are collected from secondary sources, banks officials, SEBON/N NEPSE, Brokers etc. The tools for analysis are market price of stock and dividends and also expected return, standard deviation, covariance, betas, and coefficient of variance etc. It is based on hypothetical data and more analytical and empirical types of research rather than descriptive.

Although this study helps to analyze risk and return concept with considering risk, however, it ignores financial risk and return of related companies. Without considering financial risk and return only, market return could not be able to make optimal investment decision.

This paper also doesn't appropriately observe the unseen problems facing by individual investors, regarding with various problems in stock investment in security market, the study is able to conclude following findings:

- It enables the investors to put the return as they can expect and the risk they may take into better prospective.
- Nepalese economy is in emerging stage but due to lack of the appropriate information and other knowledge, Nepalese private investors cannot analyze the securities as well as market properly.
- Banking industry is the biggest one in terms of market capitalization and turn over and return for common stock of commercial banking sectors are more parallels with market return.
- This study has also found risky and higher return projects by analyzing coefficient of variance, beta, (less volatile and higher volatile market). The portfolio approach of investment is better way to win the stock market investment.

An article by Bhattarai (2005) on the topic, "Define your objective before buying stocks" has given way to invest in securities according to investors' objective. "Stock market is perhaps poorly understood among Nepalese investors. Its development remains almost impossible unless the people accept it as a way of their life. For this, first of all they have to know what stock market is, and how it functions. If it is not understood, it cannot attract the

interests of investors. Thus investors' awareness about stock market and their rights are also essential.

People invest in the share market for different purposes. If someone is not clear about his/her purpose, the strategy followed can be wrong and the benefits not satisfactory, or there s/he may even incur a loss. So, it is necessary to define our objectives first and then start playing with the market. Some possible objectives would be to maximize dividend income, to maximize capital gain in short run, to maximize total gain and to minimize risk. A proper setting of objectives helps in identify the category of shares that help to accomplish the set objectives. If we observe stocks market regularly, we find various patterns of movement in different stocks. Thus setting clearly defined objectives will help to gain from such movement

Investors who want to maximize their dividend income would do better by investing in the shares in which more shares at a less amount of commission can be purchased. But those investors who want to maximize their return by capital gain in the short run, it is better to avoid investing in shares of finance and insurance companies because their share price is found to fluctuate less as compared to the banks. In case of stocks that do not fluctuate much, it will be difficult of cover the transaction costs.

Capturing a capital gain in a short run requires a selection of highly fluctuating companies or newly listed companies such as Bank Of Kathmandu (BOK), Lumbni Bank Ltd (LBL), Macchapuchhre Bank Ltd. (MBL), Nepal Bangladesh Bank Ltd. (NBBL), and Nepal Credit and Commerce Bank Limited. (NCCBL). These price changes can provide a handsome capital gain to the investors but it further requires a regular collection of information and regular contact with brokers. Similarly, the shares of newly listed banks

are found to fluctuate more compared to old banks, for example, Nepal Credit and Commercial Bank (NCC).

The next fundamental objective of buying securities is for the purpose of borrowing. Investors can borrow money by using the shares as collateral. Banks and finance companies provide loans up to 50% of the market price of the shares. To borrow in this way, one should have those securities that promise more certain return as well as growth. Such stocks are those of Standard Chartered Bank Nepal Ltd., Nabil Bank Ltd., Bishal Bazaar Company Ltd., Uniliver Nepal ltd and Nepal Investment Bank Ltd. Therefore, it is better to buy these high priced stocks if investors intend to borrow by pledging them. Such borrowing can be used to buy more stocks and the selection of such stock will again depend on the purpose for which you want to buy them.

If the objective is to minimize the risk, investors require selecting socks that remain less fluctuating in the market. For example, Bishal Bazaar Company Ltd, Himalayan Bank Ltd., Bottlers Nepal ltd., Rastriya Beema Sansthan and Uniliver Nepal Ltd., are found to be such stocks." (New Business Age, May 2005:65)

"NEPSE is the only secondary market in the south Asian countries that does not have automation. Shares have been traded through tedious open and cry out system on the NEPSE floor. Ishwori Rimal, President of Association of Nepalese Securities Brokers, said that the secondary market would replace the current trading system that is done through "open and cry out method". This will attract new investors in the secondary market, there by increasing volume of transaction by over four folds. "He also said that the automation would bring down the shares transaction cost by around 10 times. He also further said that the project would also adopt management information system (MIS) at the SEBO to

disseminate necessary information to investors and market practitioners in order to keep the secondary market abreast." (The Kathmandu Post, 21 Jan 2005)

As from above we know that trading system is not systematic in NEPSE. The trading technique/method in NEPSE is also not appropriate and it cheats investors.

An article in the "New Business Age", on the topic "Matching and cheating" technique of selling and buying of share in NEPSE is explained. Many investors in the Nepali stock market don't know that brokers who use a relatively unknown technique called "Matching" are cheating them. The investors cheated by this method are normally those who occasionally buy or sell shares, not the regular ones who are active almost every day in the market.

Matching and splitting are the most prevalent mode of securities transaction in Nepal. According to the Securities Board Nepal (SEBO/N), the regulator of the Country's stock market, about 65% of the total transactions in the NEPSE are executed through matching.

Matching is helping market manipulators to increase the price of their selected stock by matching small quantities of shares at a higher price and thus misleading the naive investors who would be tempted to buy large quantity of shares at the artificially increased price from the same manipulators.

If matching is totally banned, the government may lose some revenue as the total transaction in stocks may be reduced and its impact will not only be on capital gain tax but also on the tax earning from the commission earned by the brokers. But the question is whether the cheating of the general investors should be allowed to continue. Thus it calls for a proper regulatory framework so that the investors are not cheated while the brokers

also get a fair commission for their service even by pursuing their profession honestly." (New Business Age, April 2005:58.)

"Though the market capitalization and the list of companies at the secondary market are on the continuous rise, NEPSE so far hasn't introduced a policy to recruit new brokers.

On the topic " NEPSE: Increasing capitalization, decreasing brokers", an article was published in the New Business Age. This reveals that there should also be some policy regarding brokers at NEPSE also necessary to update the investors with timely information. The NEPSE officials said that there should be the policy to let the brokers freely enter and exit the market to match the growing market capitalization. Shambhu Prasad Pant, assistant manager at the Research, Library and Listing Division at the NEPSE, said that it is natural and necessary to increase the number of brokers with the rising capitalization. He also said that recruitment of new brokers is also necessary to update the investors with timely information and provide them with necessary advices. Reacting to absence of share trading outside the capital, pant said that recruitment of new brokers is profoundly important to start the share transactions outside Kathmandu as all brokers are currently based in the capital." (The Kathmandu Post, 29 December 2004).

Summary of Literature of Review

Literature review basically focuses upon the conceptual review and the review of related studies. It provides us the theoretical background about the subject matter which is Capital Asset Pricing Model.

The study is basically the theoretical background of different concepts like Financial Market, Capital Market, Primary Market, Secondary Market, Stock Exchange, Capital Market in Nepal, Constituents of Capital Market in Nepal, Nepal Stock Exchange

Ltd., Efficient Market Hypothesis, The Concept of Stock Valuation, Return, Measuring Risk of Investment Alternatives, Capital Asset Pricing Model, Security Market Line, Validity and Role of Capital Asset Pricing Model.

In this regards for measuring risk of investment alternatives the study provides theoretical background regarding expected rate of return, range, standard deviation, systematic and unsystematic risk, coefficient of variation, and beta coefficient etc. The study also focus CAPM which is an important tool used to analyze the relationship between risk and rates of return. In this the required rate of return of each investment alternative is found with the help of beta coefficient, risk free rate and expected rate and than analyze whether the stock is undervalued or overvalued.

In spite of that, the review of different national studies like thesis, articles, journals were also studied as a related topic in this section. The studies includes Application of CAPM in Nepal, Assessment of the Performance of Listed Companies in Nepal, Investment in Shares of Commercial Banks in Nepal, Risk and Return in Commercial Bank in Nepal, Define Your Objective Before Buying Stocks, and Matching and Cheating etc.

The study is done to find out the basic application of Capital Asset Pricing Model in Nepalese capital market. The model is all about the management of investment risk by relating the required rate of return for a security to its risk as measured by beta.

In Nepal the capital market price is mainly determined by the indicative factors like, rumor, signaling effects etc. This model is applied having the assumption of efficient market hypothesis where it is assumed that all the investors are well informed and many other assumptions assumed by this model. In developed country the capital market is very much efficient and this model can provides the real picture of the capital market. But in

Nepal to what extent this model is applied is still to see together with how much it holds true by Nepalese securities.

This study is an attempt to explore the degree of the application of Capital Asset Pricing Model in Nepalese Security Market.

CHAPTER - III

RESEARCH METHODOLOGY

Research is a knowledge building process. It generates new knowledge, which can be used for different purpose. Research is undertaken not only to solve a problem existing in the work setting, but also to add or contribute to the general body of knowledge in a particular area of interest to the researcher. Thus research is an organized, systematic, data based, critical, scientific inquiry or investigation into a specific problem, undertaken with the objective of finding answers or solutions to it. (Wolff and pant, 2005:5). Methodology is the research method used for investigation. Research Methodology is the way of doing and completing research work. It is the way to solve the research problem systematically. Thus sets of method used in this research are as follows:

3.1 Research design

A research design is a plan for the collection and analysis of data. It is a blue print for the study that presents a series of guideposts to enable the researcher to progress in the right direction in order to achieve the goal. It is a strategy for conducting research. It is the main part of any research work. The research design is a plan of study or in this study; the analytical cum descriptive research design has been adopted. The research attempts to explore the information about the behavior of individual stock.

3.2 The Population

The study is mainly based on secondary data. The data is about the year end closing price of common stocks and dividend of that year. Though there are about 114 companies listed in Nepal Stock Exchange Ltd., all of them do not provide scope for their study. On the one hand, many of them are new and have just begun their operation, on the other hand, many of the old listed companies do not submit their financial statement to Nepal Stock Exchange Ltd. leading to the absence of data.

3.3 The Sampling Procedure

For the purpose of the study, the collection of secondary data is done through various related books; magazine, journals, newspapers, websites, and the dissertation made in this field have been referred. As far as primary data is concerned, it has been collected through questionnaires, distributed to shareholders present at the NEPSE.

The study focus upon the study of 43 listed companies from different seven sectors like, Banking, Insurance, Finance, Manufacturing and Processing, Hotels, Trading and Others.

3.4 Data Collection Procedure

The collection of data is done through the various reports published by Security Exchange Board. The types of data collected through these reports are Market Price Per Share, Dividend Distribution, Market Capitalization, Risk free rate etc. As far as primary data is concerned, it is collected through questionnaires distributed to shareholders presented at NEPSE.

3.5 Statistical Analysis

The various financial and statistical tools have been used to analyze and interpret the data. Following are the tools that are used for the analysis of this research:

Expected Rate of Return

The expected rate of return is simply the weighted average of all expected return on the individual assets in the portfolio. It is the summation of market capital gain and average market dividend yield. It shows the rate of return which we get by investing in the investment alternative in the particular year.

Standard Deviation

Standard deviation is the relative measure of risk associated with any investment alternative. It is a weighted average of the deviations from the expected value and it provides an idea of how far above or below the expected value and the actual value is likely to be.

Coefficient of Variation

The coefficient of variation shows the risk per unit of return, and it provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same.

Beta Coefficient (b_i)

Beta coefficient is measure of systematic risk which undiversifiable. This measurement of risk shows about the aggressiveness of stock with respect to market return.

Required Rate of return, [$E(R_j)$]

This is the rate of return that the investor required to have by investing in any security. Required rate of return calculated using CAPM relationship gives the level of return required to justify the level of risk inherent in the investment alternative. The required rate of return differs according to the riskiness of the investment alternatives. It is derived with the adjustment among risk free rate, expected rate, and beta coefficient.

3.6 Data Processing Procedure

The processing of data is done by the utilization of various statistical tools for the purpose of the analysis of stock. In this regards first the raw data of market price per share, dividend yield, market capitalization of listed companies are collected through the trading report of Security Exchange Board, and the risk free rate of return also collected from the quarterly economic bulletin published by NRB. The data are collected from the year2002/03 to 2006/04.Then by the utilization of different statistical tools the major findings are found and on the basis of that result the analysis of CAPM is done.

CHAPTER -IV

DATA PRESENTATION AND ANALYSIS

This chapter is the main focus of the study. This report is the analysis of investment risk and returns of stock using CAPM issued by different listed companies of commercial banks, finance companies, insurance companies, manufacturing and processing, hotels, trading houses, and others in Nepal, considering the market price of stock, dividend yield, and risk free rate of each year.

This chapter has tried to analyze and diagnose the deviation of return in stock, its systematic risk associated with market and unsystematic risk inherent in itself. In this regard two types of analysis are done here.

A. Analysis of Securities

B. Opinion Survey

4.1 Analysis of Securities

Secondary data are the data, which are already analyzed, concerned to the subject. In this regard the data related to the analysis like year end price of stock, dividend yield, risk free rate, market capitalization of different stock are taken to consideration and found the result from using different statistical tool related to CAPM.

4.1.1 Risk Free Rate

Risk free rate is the real rate of return by which an investment grows annually after adjusting for inflation if there is no risk associated with the investment. The average realized return of 91-day treasury bill for the period 1998/99 through 2005/06 has been taken as the proxy for the risk free rate of return (R_f). Thus, risk free rate of return used in our study is 3.87 %, which is evident from the Table 4.1.

Table – 4.1
Risk free rate of return

Fiscal Year	91-Day Treasury Bill Rate
1998/99	2.33
1999/00	4.66
2000/01	4.94
2001/02	4.71
2002/03	3.48
2003/04	2.93
2004/05	4.15
2005/06	3.75
Total	**30.95**
Av. Return on 91-day T-bill (R_f)	**3.87**

Source: Quarterly Economic Bulletin, Nepal Rastra Bank, Security Board Nepal, Vol. 38

4.1.2 Expected Market Rate of Return

Theoretically, a portfolio consisting of all securities in the capital market is called market portfolio. The market return is simply the weighted average of all expected return on the individual assets in the portfolio. Market return is the summation of market capital gain and

average market dividend yield. The risk of a portfolio can be divided into two parts. The parts of the risk that can be reduced through diversification are defined as unsystematic risk, while the part that cannot be eliminated is defined as systematic or market risk. Market portfolio is considered to be a well-diversified portfolio where diversifiable risk (firm specific risk) is completely eliminated and the only risk inherent in the portfolio is the market risk (undiversifiable or systematic risk).

Expected market rate of return is the rate of return one would realize holding a market portfolio. For this study, the portfolio consisting of stocks of all listed companies in proportion of their market capitalization is considered to be the market portfolio. Thus, the return on this portfolio is the market rate of return used in the study.

The expected market rate of return, used in this study, is the combination of capital appreciation (capital gain) and dividend yield of the portfolio. Percentage change in Nepse Index (mid July) per year has been taken as the market capital gain. Average dividend yield of stock of 43 listed companies included in the sample has been taken as the market dividend yield.

Thus, expected market rate of return has been calculated as 21.51%. This means, on an average, the capital market generates the return of 21.51% annually. Expressing it differently, holding any portfolio with beta equal to 1 and unsystematic risk equal to zero would result in the annual return of 21.51 %.

4.1.3 Expected Rate of Return

Expected rate of return measures the likely return one would realize in the forthcoming period. Theoretically, it is the summation of all likely rates of returns multiplied by their probabilities of occurrence. Here, expected rate of return of individual stock is calculated from their historic realized rates of returns. The relationship used to calculate the expected rate of return is:

$$E(R_i) = \frac{R_i}{n} .$$

Table – 4.2

Expected Rate of Return, Standard Deviation & Coefficient of Variation

Sector	Name of the Company	SD	CV (R_i)	E(R_i)
Banking	Nabil Bank Ltd.	45.07	1.22	36.86
	Nepal Investment Bank Ltd.	43.23	1.91	22.69
	Standard Chartered Bank Nepal Ltd.	32.11	0.88	36.66
	Himalayan Bank Ltd.	33.25	1.99	16.75
	Nepal SBI Bank Ltd.	57.12	2.58	22.11
	Bank of Kathmandu Ltd.	100.00	1.70	58.78
Finance Co.	Nepal Finance & Saving Co. Ltd.	1.83	3.57	24.02
	NIDC Capital Markets Ltd	1.72	2.99	26.39
	National Finance Co. Ltd.	0.40	1.51	17.31
	Nepal Share Market & Finance Ltd.	1.26	3.18	15.85
	Annapurna Finance Co. Ltd.	53.31	1.43	37.15
	Kathmandu Finance Ltd.	73.38	2.36	31.15
	Peoples Finance Ltd.	63.98	3.38	18.93
	Nepal Aawas Bikas Beetta Co. Ltd	43.42	1.21	35.94
	HISEF Finance Co. Ltd.	77.90	2.95	26.39
	Ace Finance Company Ltd.	48.96	1.41	34.77
	Yeti Finance Ltd.	28.38	1.14	24.83

	Universal Finance Ltd.	73.48	1.56	47.12
	Nepal Housing & Merchant Fin. Ltd.	56.31	1.96	28.80
	Mahalaxmi Finance Co. Ltd.	50.26	1.32	37.98
	Lalitpur Finance Co. Ltd.	76.34	3.29	23.21
	Goodwill Finance Co. Ltd.	86.91	2.68	32.39
Insurance	National Life & General Insurance	28.20	46.76	0.60
	Himalayan General Insurance Co.	52.46	2.74	19.18
	United Insurance Co. Ltd.	40.57	3.77	10.75
	Everest Insurance Company Ltd.	68.63	1.75	39.28
	Premier Insurance Company Ltd.	46.43	1.77	26.16
	Neco Insurance Company Ltd.	41.02	6.36	6.46
Manufacturing & Processing	Bottlers Nepal Ltd. (Balaju)	28.50	4.04	7.06
	Nepal Lube Oil Ltd.	29.02	4.09	7.09
	Gorakhkali Rubber Udyog Ltd.	44.53	4.53	9.84
	Jyoti Spinning Mills Ltd. (Ord)	13.81	(1.64)	(8.42)
	Arun Vanaspati Udyog Ltd.	9.31	(3.04)	(3.06)
	Harisiddhi Bricks & Tile Factory Ltd.	20.01	(2.48)	(8.06)
	Uni Lever Ltd.	112.86	1.53	73.58
	Shree Ram Sugar Mills Ltd.	36.48	2.58	14.12
Hotel	Soaltee Hotel Ltd.	33.41	12.41	2.69
	Taragaon Regency Hotel Ltd.	20.91	(1.69)	(12.39)
Trading	Salt Trading Corporation	11.80	2.06	5.74
	Bishal Bazaar Co. Ltd.	17.71	2.18	8.14
	Nepal Welfare Co. Ltd.	16.96	1.84	3.53
Other	Necon Air Ltd.	38.82	(2.22)	(17.45)
	Nepal Film Development Co. Ltd.	27.11	7.68	3.53

Table – 4.2 presents the expected rate of return, $E(R_i)$, standard deviation, SD, and coefficient of variation, CV, of 43 listed companies from seven different sectors.

The top five stocks with highest expected rate of return are Uni Lever Ltd, Bank of Kathmandu, Universal Finance Ltd., Everest Insurance Company Ltd. and Mahalaxmi Finance Co. Ltd. The expected rate of returns of Uni Lever Ltd. is 73.58%, Bank of Kathmandu, 58.78%, Universal Finance Ltd. 47.12%, Everest Insurance Company Ltd is 39.28% and Mahalaxmi Finance Co. Ltd is 37.98%.

Out of the 43 listed firms, the five firms with the lowest expected rate of return are Necon Air Ltd, Taragon Regency Hotel Ltd., Jyoti Spinning Mills Ltd., Harisiddhi Bricks & Tile Factory Ltd., and Arun Vanaspati Udyog Ltd. The lowest among these five firms is Necon Air Ltd. with expected rate of minus 17.45%, followed by Taragon Regency Hotel Ltd., minus 12.39%, Jyoti Spinning Mills Ltd., minus 8.42% Harisiddhi Bricks & Tile Factory Ltd., minus 8.06%, and Arun Vanaspati Udyog Ltd., minus 3.06% respectively.

In banking sector, the banks with the highest expected rate of return are Bank of Kathmandu, 58.78 % and Nabil Bank Ltd., 36.86%. The lowest in this sector are Himalayan Bank Ltd, 16.75 % and Nepal SBI Bank Ltd., 22.11%. However, the expected returns of all the banks have been found to be above 16 %.

Among the finance companies,Universal Finance Ltd. 47.12%. Mahalaxmi Finance Ltd. 37.98 %, and Annapurna Finance Ltd. 37.15%, rank in the top three positions in term of expected rate of return respectively. The lowest among the group are Nepal Share Market and Finance Ltd.15.85%, National Finance Ltd. 17.31% & Peoples Finance Co. Ltd, 18.93%. Expected rate of return of all the finance companies in the sample have been found to be above 15 %.

Out of the six insurance companies under study, Everest Insurance Co. Ltd ranks the highest in the insurance group with expected rate of return of 39.28% and National Life & General Insurance Ltd., the lowest with expected rate of return of 0.60%. The expected rate of returns of the other insurance companies ranges from 0.60% to 40 %.

In manufacturing & processing sector, the top three firms in term of expected rate of return are Uni Lever Ltd, 73.58%, Shree Ram Sugar Mills Ltd., 14.12 %, and Gorakhali Rubber Udyog Ltd., 9.84%. Half of the manufacturing firms in the study have negative expected rate of return, the lowest among them being Jyoti Spinning Mills Ltd, minus 8.42% & Harisiddi Bricks & Tile Factory Ltd, minus 8.06%.

Out of the two firms in the sample from hotel sector, only Soaltee Hotel Ltd. has positive expected rate of return of 2.69%.

Similarly, out of the three firms from trading sector in the sample, Nepal Welfare Co. Ltd. Has minimum positive expected rate of return of 3.53%.

The two firms from the sector "Other", Nepal Film Development Co. Ltd and Necon Air Ltd have expected rate of return of 3.53 % and minus 17.45 % respectively.

4.1.4 Standard Deviation

Standard deviation is the relative measure of risk associated with any investment alternative. It is a weighted average of the deviations from the expected value and it provides an idea of how far above or below the expected value and the actual value is likely to be. The higher the variability of actual return from the expected value, the higher will be the standard deviation. Standard deviation (SD) in this study is calculated using the following relationship:

$$SD = \sqrt{\frac{(R_i \; Z E(R_i)^2}{n \, Z 1}}$$

Table – 4.2 also presents the standard deviation of stocks of individual firms under the study.

In term of total risk as measured by the standard deviation (SD), Uni Lever Ltd. has appeared to be the most risky investment with SD of 112.86 % out of the all 43 listed companies. Similarly, other four firms with the highest SD after Uni Lever are Bank of Kathmandu with SD of 100%, Goodwill Finance Co. Ltd. with SD of 86.91%, HISEF Finance Co. Ltd with SD of 77.90%, and Lalitpur Finance Co. Ltd with SD of 76.34 %.

The three firms with the lowest SD out of the 43 listed companies in term of SD are National Finance Co. Ltd., 0.40%, Nepal Share Market and Finance Co. Ltd., 1.26%, and NIDC Capital Market Ltd., 1.72 %.

In the banking sector, Bank of Kathmandu followed by Nepal SBI Bank Ltd. has the highest risk than the other banks in the sample. Both of these two banks have SD of 100% and 57.12% respectively. The bank with the lowest risk in term of SD is Standard Chartered Bank Ltd., 32.11 %.

In the finance company sector, Goodwill Finance Co. Ltd., and HISEF Co. Ltd, are the firms whose stocks have the highest risk as measured by SD. SD of Goodwill Finance Co. Ltd. is 86.91% and HISEF Co. Ltd is 77.90%. The two finance companies with the lowest SD risk are National Finance Co. Ltd, 0.40% and Nepal Share Market and Finance Ltd., 1.26%. SD risk of all other finance companies in the sample falls between 0.40 % and 87 %.

In the insurance sector, the most risky company is the Everest Insurance Company Ltd with SD of 68.63% and the least risky company is National Life and General Insurance

Co. Ltd, with SD of 28.20%. The other insurance companies under the study fall between 28% and 69% in term of their SD.

In the manufacturing sector, the only company with high risk and high expected return is Uni Lever Limited. It is the most risky company in its category with SD of 112.86%. All other manufacturing companies have SD risk below 50%. Arun Vanaspati Udyog Limited has been the manufacturing company with the lowest risk in its category with SD of 9.31%.

Out of the companies from Hotel, Trading and Other sectors, Necon Air Limited and Soaltee Hotel Ltd. seemed to be more risky with SD above 33%. Necon has SD of 38.82% while Soaltee Hotel has SD of 33.41%.

4.1.5 Coefficient of Variation

If a choice must be made between two investments, which have the same expected rate of return but different standard deviations, most people would choose the one with the lower standard deviation and, therefore, the lower risk. Similarly, given a choice between two investments with the same risk (standard deviation) but different expected rates of return, investors would generally prefer the investment with the higher expected return. To most people, this is common sense - return is "good", risk is "bad", and, consequently, investors want as much return and as little risk as possible. But how do we choose between two investments when one has the higher expected rate of return but the other has the lower standard deviation? To help answer this question, another measure of risk, the coefficient of variation (CV), is used.

The coefficient of variation shows the risk per unit of return, and it provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. CV can be estimated by using the following formula:

$$CV = \frac{SD}{E(R_i)}$$

In term of risk per unit of return as measured by CV, Bishal Bazaar Co. Ltd., Nepal SBI Bank Ltd., Nepal Finance & Saving Co. Ltd. Gorakhali Rubber Udyog Ltd. Nepal Film Development Co. Ltd. Soaltee Hotel Limited and National Life and General Insurance Co. Ltd. are the seven companies with the highest risk associated with per every unit of return out of the 43 listed companies. The CVs of these seven companies are 2.18, 2.58, 3.57, 4.53, 7.68, 12.41 and 46.76 respectively.

The following Table – 4.3 presents the companies with highest risk per unit of return and lowest risk per unit of return as measured by CV in each sector considered in the study.

Table – 4.3

Sector-wise Highest and Lowest Coefficient of Variation

Sector	Highest Risk Per unit Expected Return		Lowest Risk Per Unit Expected Return	
	Company	CV	Company	CV
Banking	Nepal SBI Bank Ltd.	2.58	Standard Chartered Bank Nepal Ltd.	0.88
Finance Co.	Nepal Finance & Saving Co Ltd.	3.57	Yati Finance Co. Ltd.	1.14
Insurance Co.	National Life & General Insurance	46.76	Everest Insurance Company Ltd	1.75
Manufacturing	Gorakhkali Rubber Udyog	4.53	Arun Vanaspati Udyog	(3.04)

& Processing	Ltd.		Ltd.	
Hotel	Soaltee Hotel Ltd.	12.41	Taragaon Regency Hotel Ltd.	(1.69)
Trading	Bishal Bazaar Co. Ltd.	2.18	Nepal Welfare Co. Ltd.	(1.84)
Others	Nepal Film Development Co. Ltd.	7.68	Necon Air Ltd.	(2.22)

While simultaneously looking at the SD and expected rate of return of 43 listed companies, the general notion of investment that higher risk should be compensated by higher return holds true. The stocks with higher SD also have higher expected rates of return. And the stocks with lower SD have lower expected rates of return. For instance, Bank of Kathmandu and Uni Lever are the two companies with highest SD in the entire sample. Consequently, they have the highest expected returns of 58.78 % and 73.58 % respectively.

4.1.6 Beta Coefficient

The risk associated with any investment alternative can be classified in to diversifiable (unsystematic) and undiversifiable (systematic) risk. Diversifiable risk is firm specific risk that results from the inefficiencies inherent within a firm while undiversifiable risk result from the macro economic factors like business cycle, inflation, war, epidemic, earthquake, etc, which affect all business units in an economy, hence, can not be eliminated at all. While diversifiable risk can be eliminated to a large extent by increasing the number of securities in a portfolio. The relevant risk for an investor is only the undiversifiable risk. The market compensates only for the undiversifiable risk. The correct measure of undiversifiable risk is beta coefficient, b.

The tendency of a stock to move up and down with the market is reflected in its beta coefficient, b. Beta is a key element of CAPM. An average-risk stock is defined as the one that tends to move up and down in step with the general market as measured by some index such ads the Dow Jones Industrials, the S & P 500, or the New York Stock Exchange Index. Such a stock will, by definition, have a beta, b, of 1.0, which indicates that, in general, if the market falls by 10 percent, the stock will likewise fall by 10 percent. A portfolio of such b = 1.0 stocks will move up and down the broad market averages, and it will be just as risky as the market.

Hence, beta measures a stock's volatility relative to average stock, which by definition has b = 1.0.

Beta Coefficient of a stock is defined as its contribution to the riskiness of a portfolio. Stock's beta coefficient shows how the stock would affect the riskiness of a diversified portfolio.

Since Beta measures the variability of a stock's return with respect to the market return, the slope of a regression line of the stock's historic return against market return can be used as the estimate of beta. For the purpose of this study, the following statistical relationship to calculate the slope of the regression line has been used as the measure of the stock's beta:

$$b = \frac{XY \; \mathrm{Z} nX'Y'}{X^2 \; \mathrm{Z} nX'^2}$$

Where, X = Market Return

Y = Stock's Return

X' = Expected Market Return

Y' = Stock's Expected Rate of Return

n = Number of Observations

Table – 4.4

Beta Analysis

Sector	Name of the Company	Beta	Comparison with Market	Remarks
Banking	Nabil Bank Ltd.	1.36	>1	Aggressive
	Nepal Investment Bank Ltd.	1.00	=1	Average
	Standard Chartered Bank Nepal Ltd.	0.92	<1	Defensive
	Himalayan Bank Ltd.	0.99	=1	Average
	Nepal SBI Bank Ltd.	1.56	>1	Aggressive
	Bank of Kathmandu Ltd.	2.92	>1	Highly Aggressive
Finance Co.	Nepal Finance & Saving Co. Ltd.	1.83	>1	Aggressive
	NIDC Capital Markets Ltd	1.72	>1	Aggressive
	National Finance Co. Ltd.	0.40	<1	Defensive
	Nepal Share Market & Finance Ltd.	1.26	>1	Aggressive
	Annapurna Finance Co. Ltd.	1.40	>1	Aggressive
	Kathmandu Finance Ltd.	1.22	>1	Aggressive
	Peoples Finance Ltd.	1.69	>1	Aggressive
	Nepal Aawas Bikas Beetta Co. Ltd	0.76	<1	Defensive
	HISEF Finance Co. Ltd.	1.68	>1	Aggressive
	Ace Finance Company Ltd.	1.35	>1	Aggressive
	Yeti Finance Ltd.	0.18	<1	Defensive
	Universal Finance Ltd.	1.85	>1	Aggressive
	Nepal Housing & Merchant Fin. Ltd.	1.07	=1	Average
	Mahalaxmi Finance Co. Ltd.	0.04	=1	Defensive
	Lalitpur Finance Co. Ltd.	1.70	>1	Aggressive
	Goodwill Finance Co. Ltd.	1.62	>1	Aggressive

Insurance	National Life & General Insurance	0.55	<1	Defensive
	Himalayan General Insurance Co.	1.18	>1	Aggressive
	United Insurance Co. Ltd.	0.97	=1	Average
	Everest Insurance Company Ltd.	0.64	<1	Defensive
	Premier Insurance Company Ltd.	1.11	>1	Aggressive
	Neco Insurance Company Ltd.	0.79	<1	Defensive
Manufacturing & Processing	Bottlers Nepal Ltd. (Balaju)	0.31	<1	Defensive
	Nepal Lube Oil Ltd.	0.34	<1	Defensive
	Gorakhkali Rubber Udyog Ltd.	0.78	<1	Defensive
	Jyoti Spinning Mills Ltd.	(0.01)	<1	Defensive
	Arun Vanaspati Udyog Ltd.	0.05	<1	Defensive
	Harisiddhi Bricks & Tile Factory Ltd.	0.50	<1	Defensive
	Uni Lever Ltd.	0.97	=1	Average
	Shree Ram Sugar Mills Ltd.	(0.76)	<1	Defensive
Hotel	Soaltee Hotel Ltd.	0.84	<1	Defensive
	Taragaon Regency Hotel Ltd.	0.56	<1	Defensive
Trading	Salt Trading Corporation	0.11	<1	Defensive
	Bishal Bazaar Co. Ltd.	0.27	<1	Defensive
	Nepal Welfare Co. Ltd.	0.13	<1	Defensive
Other	Necon Air Ltd.	0.54	<1	Defensive
	Nepal Film Development Co. Ltd.	0.51	<1	Defensive

The realized return of stock with beta equals to 1.0 fluctuates with the market equally in the same direction. The return of the stock having beta greater than 1.0 fluctuates more than the return of the market portfolio and those of the ones with beta less than 1.0 fluctuates less than the return of the market.

Therefore, the stock with beta equals to 1.0 is considered to be equally risky as the market and, hence, categorized as the average stock; the stock with beta coefficient greater

than 1.0 is classified as the aggressive stock and the one with beta less than 1.0 is categorized as defensive stock.

However, this classification has been slightly modified and used in this study. For the purpose of the study, stocks are classified as below:

Table – 4.5

Degree of risk according to beta

Beta Coefficient	Stock Classification	Degree of Risk
Greater than 2	Highly aggressive	Exceptionally risky than the market
Between 1 to 2	Aggressive	More risky than the market
Between 0.95 to 1.049	Average	More or less as risky as the market
Less than 0.95	Defensive	Less risky than the market

Table - 4.5 above presents the individual stocks' betas in descending order in each category.

From the Table – 4.5, it is obvious that Bank of Kathmandu has the highest beta coefficient of 2.92 in the entire sample. Similarly, Universal Finance Ltd. follows Bank of Kathmandu with beta equals to 1.85. Both of these companies' higher beta risk is justified by their expected rates of return of 58.78% and 47.12%, the highest among the sample, respectively. The other three companies in the entire sample with the highest beta after Bank of Kathmandu and Universal Finance are Nepal Finance & Saving Co. Ltd, 1.83, NIDC Capital Market Co. Ltd., 1.72 and Lalitpur Finance Co. Ltd. 1.70.

The five companies with the lowest betas out of the 43 listed companies are Shree Ram Sugar Mills, b = minus 0.76, Jyoti Speeinng Mills Ltd., b = minus 0.01, Mahalaxmi Finance Ltd, b= 0.04, Arun Vanaspati Udyog Ltd., b = 0.05, and Salt Trading Corporation, b = 0.11.

Shree Ram Sugar Mills and Jyoti Speeing Mills Ltd are the only companies with negative betas in the sample. Their negative betas depict that their returns fluctuate in the opposite direction of the return of the market. When returns of average securities of the market are swinging up, their returns fall down and vice-versa.

While giving a sector-wise look at the individual stocks' betas, in banking sector, Bank of Kathmandu has the highest beta (b = 2.92) and Standard Chartered Bank, the lowest (b = 0.92). In the sector "finance company", companies with highest and lowest beta are Universal Finance (b = 1.85) and Mahalaxmi Finance Co Ltd. (b = 0.04) respectively. Himalayan General Insurance (b = 1.18) and National Life & General Insurance (b = 0.55) are the companies with the highest and lowest betas in insurance sector respectively. In the manufacturing sector, Uni Lever Ltd has the highest beta of .97 and Shree Ram Sugar Mills, the lowest beta of minus 0.76. All other manufacturing companies have beta less than 1.0. In hotels Soaltee have beta = 0.84 and Taragaon Regency have beta = 0.56 both are less than l.0. In the trading sector, Bishal Bazar Co. Ltd. beta is the highest with b = 0.27. Similarly, Necon Air Ltd. beta is greatest in "other" sector with b = 0.54.

Table – 4.6 below classifies stocks of the forty-three NEPSE companies as highly aggressive, aggressive, average and defensive together with their expected returns.

Table – 4.6

Classification of Stock

Highly Aggressive Stock

Company	**Beta**	**Expected Rate of Return**
Bank of Kathmandu Ltd.	2.92	58.78

Aggressive Stock

Company	Beta	Expected Rate of Return
Universal Finance Ltd	1.85	47.12
Nepal Finance & Saving Co. Ltd.	1.83	24.02
NIDC Capital Markets Ltd	1.72	26.39
Lalitpur Finance Co. Ltd.	1.70	23.21
Peoples Finance Ltd.	1.69	18.93
HISEF Finace Co. Ltd.	1.68	26.39
Goodwill Finance Co. Ltd.	1.62	32.39
Nepal SBI Bank Ltd.	1.56	22.11
Annapurna Finance Co. Ltd.	1.40	37.15
Nabil Bank Ltd.	1.36	36.86
Ace Finance Company Ltd.	1.35	34.77
Nepal Share Market & Finance Ltd.	1.26	15.85
Kathmandu Finance Ltd.	1.22	31.15
Himalayan General Insurance Co.	1.18	19.18
Premier Insurance Company Ltd.	1.11	26.16

Average Stock

Company	Beta	Expected Rate of Return
Nepal Housing & Merchant Fin. Ltd.	1.07	28.80
Nepal Investment Bank Ltd.	1.00	22.69
Himalayan Bank Ltd.	0.99	16.75
United Insurance Co. Ltd.	0.97	10.75
Uni Lever Ltd.	0.97	73.58

Defensive Stock

Company	Beta	Expected Rate of Return
Standard Chartered Bank Nepal Ltd.	0.92	36.66
Soaltee Hotel Ltd.	0.84	2.69
Neco Insurance Company Ltd.	0.79	6.46
Gorakhkali Rubber Udyog Ltd.	0.78	9.84
Nepal Aawas Bikas Beetta Co.Ltd	0.76	35.94
Everest Insurance Company Ltd.	0.64	39.28
Taragaon Regency Hotel Ltd.	0.56	-12.39
National Life & General Insurance Co.	0.55	.60
Necon Air Ltd.	0.54	(17.45)
Nepal Film Development Co. Ltd.	0.51	3.53
Harisiddhi Bricks & Tile Factory Ltd.	0.50	(8.06)
National Finance Co. Ltd.	0.40	17.31
Nepal Lube Oil Ltd.	0.34	7.09
Bottlers Nepal Ltd. (Balaju)	0.31	7.06
Bishal Bazaar Co. Ltd.	0.27	8.14
Yeti Finance Ltd.	0.18	24.83
Nepal Welfare Co. Ltd.	0.13	3.53
Salt Trading Corporation	0.11	5.74
Arun Vanaspati Udyog Ltd.	0.05	(3.06)
Mahalaxmi Finance Co. Ltd.	0.04	37.98
Jyoti Spinning Mills Ltd.	(0.01)	(8.42)
Shree Ram Sugar Mills Ltd.	(0.76)	14.12

From the Table – 4.6, particularly in the highly aggressive stock category, it can be seen clearly that the expected returns for the stocks with higher beta values are also higher while expected return goes on decreasing with the decrease in beta values. This indicates that the market compensates with higher return for the stocks with higher betas.

In the aggressive stock category, the association of higher expected returns with the higher beta values is less apparent.

In the average stock category, association of higher expected rates of return with the higher betas does not hold true for Universal Finance. But for others like Unilever Ltd., Nabil Bank Ltd. and Premier Insurance Ltd. holds true with the expected rate of return 73.58%, 36.86% and 26.16% respectively.

In the defensive stock category, the association of higher expected returns with the higher beta values is less apparent. Standard Chartered Bank with beta, 0.92, has expected return of 36.66 % while Harisiddhi Bricks & Tile Factory Ltd. with beta, 0.50, has expected return of minus 8.06%. Everest Insurance Co. with beta equals to 0.64 has highest expected return as high as 39.28%. In contrast Harisiddhi Bricks & Tile Factory Ltd. with beta 0.50 has lowest expected rate of return of minus 8.06%.

In sum, the higher expected returns are more closely associated with higher beta values in highly aggressive stock category than in aggressive, average and defensive categories. In the categories other than highly aggressive the relation holds true less closely.

Depending upon the degree of risk-aversion, investors may choose stocks from the highly aggressive, aggressive, average and defensive categories. For the aggressive investors with low risk-aversion, the preferable investment alternatives could be the stocks from highly aggressive and aggressive stock categories. Stocks from the average category are appropriate for moderately risk-aversion investors. While the stocks from defensive category are appropriate for the investors who want to assume less risk and be satisfied with comparatively low return. The shares of the shares of the companies with negative

beta could be included in a portfolio as hedging tools as they help to smoothen portfolio return.

The above classification of stocks would help to match the stocks with the degree of risk-aversion of investors and accordingly choose appropriate investment options available in Nepalese Capital Market.

4.1.7 Required Rate of Return

The significance of CAPM lies in using beta measure of risk in estimating the required rate of return for any investment alternative. Required rate of return calculated using CAPM relationship gives the level of return required to justify the level of risk inherent in the investment alternative. Here, in our study too, required rate of return for the stock of 43 listed companies are calculated using the same relationship. This is also the relationship for security market line (SML). SML states that each stock's required return is equal to the risk-free rate plus the product of the market risk premium times the stock's beta coefficient.

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

Where, R_f = Risk-free rate

$E(R_m)$ = Expected market rate of return

b_i = Beta coefficient of the stock i.

The required rate of return is the benchmark for investment decision. In the analysis of stocks, it is the basis for determining over-pricing and under-pricing of stocks in the capital market.

The stocks whose expected rates of return are greater than their required rates of return are termed as under-priced, and the stocks whose expected returns are less than their required rate of return are classified as overpriced. Theoretically, the market price of an over-priced (under-priced) share will fall (rise) in order to increase the expected return such that the expected return equals the required return.

Table – 4.7

Comparison of Expected Rate of Return against Required Rate of Return

Sector	Name of the Company	Expected Rate of Return $E(R_i)$	Required Rate of Return R_i	Excess Return over Required Rate $E(Ri) - Ri$	Remarks
Banking	Nabil Bank Ltd.	36.86	27.80	9.06	UP
	Nepal Investment Bank Ltd.	22.69	21.52	1.17	UP
	Standard Chartered Bank Nepal Ltd.	36.66	20.02	16.64	UP
	Himalayan Bank Ltd.	16.75	21.26	-4.51	OP
	Nepal SBI Bank Ltd.	22.11	31.42	-9.31	OP
	Bank of Kathmandu Ltd.	58.78	55.39	3.39	UP
Finance Co.	Nepal Finance & Saving Co. Ltd.	24.02	36.19	-12.17	OP
	NIDC Capital Markets Ltd	26.39	34.23	-7.84	OP
	National Finance Co. Ltd.	17.31	10.99	6.32	UP
	Nepal Share Market & Finance Ltd.	15.85	26.04	-10.19	OP
	Annapurna Finance Co. Ltd.	37.15	28.65	8.50	UP
	Kathmandu Finance Ltd.	31.15	25.34	5.81	UP

	Peoples Finance Ltd.	18.93	33.68	-14.75	OP
	Nepal Aawas Bikas Beetta Co. Ltd	35.94	17.21	18.73	UP
	HISEF Finance Co. Ltd.	26.39	33.46	-7.07	OP
	Ace Finance Company Ltd.	34.77	27.61	7.16	UP
	Yeti Finance Ltd.	24.83	6.97	17.86	UP
	Universal Finance Ltd.	47.12	36.44	10.68	UP
	Nepal Housing & Merchant Fin. Ltd.	28.80	22.66	6.14	UP
	Mahalaxmi Finance Co. Ltd.	37.98	4.53	33.45	UP
	Lalitpur Finance Co. Ltd.	23.21	33.91	-10.70	OP
	Goodwill Finance Co. Ltd.	32.39	32.41	-0.02	OP
Insurance	National Life & General Insurance	0.60	13.59	-12.99	OP
	Himalayan General Insurance Co.	19.18	24.70	-5.52	OP
	United Insurance Co. Ltd.	10.75	21.05	-10.30	OP
	Everest Insurance Company Ltd.	39.28	15.19	24.09	UP
	Premier Insurance Company Ltd.	26.16	23.51	2.65	UP
	Neco Insurance Company Ltd.	6.46	17.84	-11.38	OP
Manufacturing & Processing	Bottlers Nepal Ltd. (Balaju)	7.06	9.26	-2.20	OP
	Nepal Lube Oil Ltd.	7.09	9.90	-2.81	OP
	Gorakhkali Rubber Udyog Ltd.	9.84	17.68	-7.84	OP
	Jyoti Spinning Mills Ltd. (Ord)	-8.42	3.70	-12.12	OP

	Arun Vanaspati Udyog Ltd.	-3.06	4.71	-7.77	OP
	Harisiddhi Bricks & Tile Factory Ltd.	-8.06	12.61	-20.67	OP
	Uni Lever Ltd.	73.58	20.94	52.64	UP
	Shree Ram Sugar Mills Ltd.	14.12	-9.49	23.61	UP
Hotel	Soaltee Hotel Ltd.	2.69	18.64	-15.95	OP
	Taragaon Regency Hotel Ltd.	-12.39	13.79	-26.18	OP
Trading	Salt Trading Corporation	5.74	5.83	-0.09	OP
	Bishal Bazaar Co. Ltd.	8.14	8.65	-0.51	OP
	Nepal Welfare Co. Ltd.	3.53	6.15	-2.62	OP
Other	Necon Air Ltd.	-17.45	13.48	-30.93	OP
	Nepal Film Development Co. Ltd.	3.53	12.86	-9.33	OP

Note:- UP:- Under Price, OP:- Over Price

Presented in the Table – 4.7 are the expected rates of return, required rate of return, comparison of the two rates and the classification of stocks.

Many of the stocks of banking sector are generating excess return over their required rates of return; therefore, many of the shares of banks in the study are under-priced. This is the indication of the potential rise in the market prices of these shares in future. Among the banking group, the share of Himalayan Bank provides the highest excess return of 4.51% over what is required to be invested in it. Next to Himalayan Bank is Nepal SBI Bank with excess return of 9.31 %.

In finance company sector shares of all the companies under the study are under-priced, except seven finance company which are Nepal Finance and Saving Com., NIDC Capital Market, Nepal Share Market and Finance Ltd., People Finance Ltd.,HISEF finance, Lalitpur Finance Co. and Goodwill Finance who's the share are overpriced. The market

price of these seven company could be expected to go down in the days to come. In the group of finance company, excess return over the required rate of return can be expected as high as 14.75 %, which is the expected excess return of Peoples Finance Co. Ltd. Among the under-priced shares, only the share of Kathmandu Finance Co. Ltd. provides the less return of 5.81% over the required rate.

In the insurance sector, only the share of Everest Insurance Company Ltd. performs well with under priced having large volume of 24.09%. So the price of Everest Insurance Company can grow in future. Shares of others of the insurance companies in the sample are overpriced of National life and General Insurance, United Insurance, Neco Insurance etc. therefore; market prices of these could be expected to go down in future.

Shares of half of the manufacturing companies in the sample are over-priced, under-priced shares being only those of Unilever Ltd and Shree Ram Sugar Mills. Among the under-priced shares, share of Unilever Ltd provides attractive excess return of 52.64%, which is the highest excess return in the entire sample.

Shares of the both companies Soaltee Hotel and Taragaon Regency Hotel from the group "Hotel" are over-priced.

The share of all companies is over-priced from the group of trading sector.

The shares of both Necon Air and Nepal Film Development Co. Ltd. from the group "Other" seem to have over-priced.

Out of the entire 43 listed companies, Unilever Ltd. has the expected rate of return well above the required rate of return by 52.64%. This indicates substantial price rise in future.

Investment decision based on the comparison made in the Table – 4.7 would be to hold the under-priced shares and sell the overpriced shares.

The ten most attractive companies, out of the 43 NEPSE companies, to invest in common shares are as below:

Table – 4.8

List of 10 Attractive NEPSE Companies

Name of the Company	**E(Ri) - Ri**
Uni LeverLtd.	52.64
Mahalaxmi Finance Co. Ltd.	33.45
Everest Insurance Company Ltd.	24.09
Shree Ram Sugar Mills Ltd.	23.61
Nepal Aawas Bikas Beetta Co. Ltd	18.73
Yeti Finance Ltd.	17.86
Standard Chartered Bank Nepal Ltd	16.64
Universal Finance Ltd.	10.68
Nabil Bank Ltd.	9.06
Annapurna Finance Co. Ltd.	8.50

The ten companies out of the 43 NEPSE companies whose shares are least attractive for investment are as below:

Table -4.9

List of 10 Least Attractive NEPSE Companies

Name of the Company	E(Ri) - Ri
Necon Air Ltd.	-30.93
Taragaon Regency Hotel Ltd.	-26.18
Harisiddhi Bricks & Tile Factory Ltd.	-20.67
Soaltee Hotel Ltd.	-15.95
Peoples Finance Ltd.	-14.75
National Life & General Insurance	-12.99
Nepal Finance & Saving Co. Ltd.	-12.17
Jyoti Spinning Mills Ltd. (Ord)	-12.12
Neco Insurance Company Ltd.	-11.38
Lalitpur Finance Co. Ltd	-10.70

4.1.8 Analysis of the Sectors

The seven different sectors, from which 43 NEPSE firms are taken for the study, have also been analyzed in the light of CAPM. In this connection, sector-wise expected rates of return, sector-wise betas and sector-wise required rates have been estimated. In addition, the comparison of sector-wise expected rates of return against sector-wise required rates return has been made to determine the overvalued and undervalued sector.

In order to calculate the sector-wise expected rate of return, average market capitalization of each individual stock of 43 Nepse companies have been calculated based on the actual market capitalization of each firm over the period of 1998/99 to 2005/06. Then, the average sector-wise market capitalization for each of the seven different sectors cited for this study is calculated. Each company's average market capitalization is divided by the average sector-wise market capitalization to derive the weight to be used in the

calculation of sector-wise expected rate of return. The summation of the individual company's expected rates of return multiplied their respective weights gives the sector-wise expected rate of return. The formula used is as below:

$$E(R_s) = E(R_i)\frac{indv.mktcap(i).}{sect.mkt.cap(j).}$$

Where, $E(R_s)$ = Sector-wise expected rate of return

$E(R_i)$ = Expected rate of return of the individual stock i

indv. mkt. cap. = Average market capitalization of the individual stock i

sect. mkt. cap. = Average market capitalization of the sector j.

Similarly, sector-wise beta has been estimated as the summation of individual stocks' betas multiplied by the weights as used in estimating sector-wise expected rate of return. The relationship used is as below:

$$B_s = b_i \frac{indv.mktcap(i).}{sect.mkt.cap(j).}$$

Where, B_s = Sector-wise beta coefficient

b_i = Beta coefficient of the individual stock i

indv. mkt. cap. = Average market capitalization of the individual stock i

sect. mkt. cap. = Average market capitalization of the sector j.

The sector-wise betas estimated in this way have been used to determine the required rate of return for each sector considered in the study. Thus determined required rates of return are compared against the sector-wise expected rates of return to determine the overvalued and undervalued sectors. The sectors with expected rate of return greater than their required

rates of return are undervalued sectors, and the sectors with their expected rates of return below required rates of return are overvalued sectors.

The result of the analysis made as mentioned above is presented in the Table - 12 below.

Table – 4.10

Sector-wise Analysis

Sector	**Risk Free Rate (R_f)**	**Sectoral Beta (B)**	**Expected Market Return (R_m)**	**Expected Rate of Return $E(R_i)$**	**Required Rate of Return ($R_{j)}$**	**Excess Return over Required Rate of Return $E(R_i) - R_j$**	**Remarks**
Banking	3.87	1.25	21.51	31.92	25.92	6.00	Undervalued
Finance Co.	3.87	1.20	21.51	29.71	25.04	4.67	Undervalued
Insurance	3.87	0.80	21.51	17.28	17.98	-0.70	Overvalued
Manufacturing & Processing	3.87	0.52	21.51	36.03	13.04	22.99	Undervalued
Hotel	3.87	0.73	21.51	(3.16)	16.75	-19.91	Overvalued
Trading	3.87	0.25	21.51	7.82	8.28	-0.46	Overvalued
Other	3.87	0.54	21.51	(14.57)	13.40	-27.97	Overvalued

The sector "Manufacturing & Processing" stands top in the rank with its sector-wise expected rate of return of 36.03%; next to it is Banking sector with 31.92%, followed by

the finance group with its expected rate of return of 29.71%. The least among the seven sectors is ‘Other’ sector with negative expected rate of return of 14.57%.

Among the seven sectors, the required rate of return for "Banking Sector" is the highest with 25.92%. Finance sectors falls second to banking with the required rate of return of 25.04%. The comparatively higher required rates of return of these sectors are due to the higher volatility of its sector-wise return than that of the market on average, which is justified by the higher beta coefficients these sectors. The betas of "banking" sector and "finance" sector are 1.25 and 1.20 respectively. Their beta coefficient imply that when market rate of return fluctuate by .05 %, finance companies' returns on average fluctuate by 4.67%, and the banks' returns on average fluctuate by 6.00 %.

The sector "Trading" has the least required rate of return out of the seven sectors considered, which is justified by its lowest beta coefficient among the sectors. This sector has the beta of 0.25. This indicates that when the market return goes up by 10 %, returns of the companies in this sector on average go down by 0.25 %.

Table – 4.11

Sector-wise Beta Analysis

Sector	**Sectoral Beta**	**Comparison with the Market**	**Remarks**
Banking	1.25	> 1	Aggressive
Finance Co.	1.20	> 1	Aggressive
Insurance	0.80	< 1	Aggressive
Manufacturing & Processing	0.52	< 1	Defensive
Hotel	0.73	< 1	Defensive
Trading	0.25	< 1	Defensive
Other	0.54	< 1	Defensive

Presented in the Table – 4.11 are beta coefficients of the different sectors classification of those sectors on the basis of the betas.

As in individual stock classification, sectors with the beta coefficient greater than 1 are classified as aggressive sectors; the sectors with beta coefficient less than 1 are classified as defensive sector. As obvious from the Table -4.11, aggressive sectors include banking and finance company. Insurance company, Manufacturing & processing, hotel, trading and other are defensive sectors.

This classification shows that the returns on the shares of the companies in aggressive sector are expected to be more volatile than the return of the market portfolio, and those of the firms in the defensive sector are less volatile than the return on the average market.

It can be also concluded that the stocks of the firms in aggressive sectors are more risky to invest in, but provide comparatively higher returns. The opposite could be concluded for the stocks of the firms in defensive sectors.

4.2 Opinion Survey

As regarding the opinion survey, for this research a questionnaire is distributed to the investor of stock market player in the stock market. Population of this research is investors but only 30 questionnaires were distributed to the investors who were present at NEPSE trading floor for share transaction. So investors present at NEPSE are sample of this research.

4.2.1 Area of investment

For the area of investment, the investors are asked whether the investors are would like to invest in which area, following result was found. It is clear from the following Table – 4.12 that 60 percentages of investors attracted towards the investment in shares.

Table – 4.12

Area of investment

S. N.	**Research Variable**	**No. of investors**	**% of investors**
A	Real Estate	12	40
B	Financial Assets	0	0
C	Shares	18	60
D	Others	0	0
Total		30	100

4.2.2 Share of investment of saving

In context of percentage of saving for investment decision the, the investors were asked about how much of their saving they would like to invest in shares, following result were found. It is clear from the following Table – 4.12 that generally 25 to 50 percentage of saving investors would like to invest in share.

Table – 4.13

Share of investment of saving

S. N.	Research Variable	No. of investors	% of investors
A	Less than 10	5	17
B	10 to 25	5	17
C	25 to 50	13	43
D	50 to 75	7	23
E	75 to 100	0	0
Total		30	100

4.2.3 Sector wise preference for investment

Regarding the sector of investment, the investors are asked whether the investors are interested in which sector to invest, following result was found. It is clear from the following Table – 4.14 that 63 percent of the investors are attracting by banking sectors.

Table – 4.14

Sector wise preference for investment

S. N.	Research Variable	No. of investors	% of investors
A	Banking	19	63
B	Finance Company	5	17
C	Insurance Company	0	0
D	Manufacturing and Processing	5	17
E	Hotels	0	0
F	Trading	0	0
G	Others	1	3
Total		30	100

4.2.4 Decision making analysis

In the context of investors' decision-making regarding basis for investment in shares, 50% respondents said that they invest on share from their own analysis. Some 27% invest on share on the basis of NEPSE index. This shows how investors are getting more potential regarding investing their assets in to secondary market by their own analysis and NEPSE index but they don't go through family advice and rumors.

Table – 4.15

Decision Making Analysis

S. N.	Research Variable	No. of investors	% of investors
A	Market price fluctuation	7	23
B	Own analysis	15	50
C	Family advice and rumors	0	0
D	Only on new established company	0	0
E	NEPSE index	8	27
Total		30	100

4.2.5 Motivation for holding share

Correspondents were asked for their motive on investment. 50% of the respondents were interested in dividend and 50% were for price appreciation to get capital gain in investment.

Table – 4.16

Motive for holding share

S. N.	Research Variable	No. of investors	% of investors
A	Price appreciation	15	50
B	Dividend	15	50
C	Liquidity	0	0
D	Social status	0	0
Total		30	100

4.2.6 Investment satisfaction

Regarding satisfaction on the investment made by investor, correspondent of 60% said that they are satisfied with the decision and investment they made. Because a shareholder who has analyzed market and done market analysis has get satisfactory return from their investment. But 40% of them are unsatisfied because company didn't perform well due to unfavorable situation of country.

Table – 4.17

Investment satisfaction

S. N.	Research Variable	No. of investors	% of investors
A	Yes	18	60
B	No	12	40
Total		30	100

4.2.7 Analysis of right issue

This analysis is done to identify that will the satisfied shareholders purchase the further share issued by the company. This will also analyze the market position and investors confidence toward organization.

Table – 4.18

Analysis of right issue

S. N.	Research Variable	No. of investors	% of investors
A	Yes	27	90
B	No	3	10
Total		30	100

4.2.8 Consideration of NEPSE Index

This analysis is done to identify that whether the investors consider the NEPSE index or not for trading the stocks. The 83% of the investors said that they consider NEPSE index for investment.

Table – 4.19

Consideration of NEPSE index

S. N.	Research Variable	No. of investors	% of investors
A	Yes	25	83
B	No	5	17
Total		30	100

4.2.9 Analysis of Organization Performance

Regarding the analysis of organization performance, 40% of the respondent said that they evaluate the performance through the dividend and bonus they get by the company and 30 of them through financial status and technical analysis.

Table -4.20

Analysis of organization performance

S. N.	Research Variable	No. of investors	% of investors
A	Dividend & Bonus	12	40
B	Market price	0	0
C	Financial status	9	30
D	Technical Analysis	9	30
Total		30	100

4.2.10 Frequently trading the stocks

This analysis is done to find out about how frequently the investor trades their stock for investment. In this regard it is found that mainly investor does trade on the weekly basis.

Table – 4.21

Frequently trading the stocks

S. N.	Research Variable	No. of investors	% of investors
A	Daily	0	0
B	Weekly	12	40
C	Once in two week	5	17
D	Monthly	8	28
E	Once in two months	5	17
F	Never	0	0
Total		30	100

4.2.11 External Affect in Stock Market

This analysis is done to find out whether the external environments like political environment, national and international events affect the Nepalese stock market or not. In this all the respondent agreed that it dose.

Table – 4.22

External affect in stock market

S. N.	Research Variable	No. of investors	% of investors
A	Yes	30	100
B	No	0	0
C	I don't know	0	0
Total		30	100

4.2.12 Major Factor for Stock Price

With regard to the stock price change the major factor found out by the investors of 43% are due to Company's management. As management of any organization plays vital role

for the better performance in all aspects. So the price of the stock is also highly affected by it.

Table – 4.23

Major factor for stock price

S. N.	Research Variable	No. of investors	% of investors
A	Signaling factor	0	0
B	Company's management	13	43
C	Company's performance	7	23
D	NEPSE Index	10	33
E	Above all	0	0
Total		30	100

CHAPTER - V

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study mainly aims of examines the application of CAPM in Nepalese Public enterprises. Its specific objectives are (1) To estimate the risk and expected return of the selected companies listed in Nepal Stock Exchange. (2) To estimate the risk adjusted rate of return (required rate of return) for the selected listed companies. (3) To compare expected rates of return with the risk adjusted rates of return (required rates of return) of individual stocks. (4) To identify the aggressive, average and defensive stocks among the selected securities. (5) To identify the overpriced and under-priced stocks among the selected stocks. (6) To identify the overvalued and under-valued sectors among different sectors of the Nepalese Stock Market. (7) To determine the sector-wise expected rate of return of the sectors of the Nepalese Stock Market. (8) To estimate the risk adjusted rate of return (required rate of return) for the different sectors of the Nepalese Stock Market. (9) To compare sector-wise expected rates of return with the sector-wise risk adjusted rates of return. (10) To identify the aggressive, average and defensive areas of the Nepalese Stock Market. (11) To partition the total risk of individual stock in to diversifiable and undiversifiable risk

For the purpose of the study it covers forty three major enterprises. Of them six from commercial banks, sixteen from finance company, six from insurance company, eight from manufacturing & processing, two from hotel, three from trading, and two from others.

The necessary data and the other related variables were collected for the period of 1998 to 2006 from Security Exchange Board Nepal for computing the study.

The study used a variety of financial and statistical tools to accomplish the objectives. It employed risk return analysis and regression equation to find out the application of CAPM of selected enterprises of Nepal.

The major findings, which emerge from this study, are as follows:

1. Among the 43 selected companies the expected return of Uni Lever Ltd is the highest this followed by BOK, Universal Finance Everest Insurance Company, Mahalaxmi Finance Com. Ltd. in the top level.
2. The standard deviation which measures the risk of an asset shows that most of the companies are quite risky. The ranking of the company from most risky is Uni Lever Ltd. followed by Bank of Kathmandu, Goodwill Finance Co. Ltd., HISEF Finance Co. Ltd, and Lalitpur Finance Co. Ltd.
3. The Coefficient of Variation shows that the variation is the measurement of risk. For our purpose low variation is good for us. In term of risk per unit of return as measured by CV, National Life & General Insurance, Soaltee Hotel Ltd., Nepal Film Development Co. Ltd, Neco Insurance, and Gorakhkali Rubber Udyog Ltd. are the five companies with the highest risk associated with per every unit of return out of the 43 listed companies.
4. The beta coefficient which measures the systematic risk of the company and it also helps to identify that the sock is highly aggressive, aggressive, average, or defensive. In this regard BOK has the highest beta followed by Universal Finance Nepal finance & Saving Co. Ltd., NIDC Capital Market, Laitpur Finance etc in aggressive category. In this way in average Nepal Housing and Merchant finance

Ltd, Nepal Investment bank Ltd, Himalayan Bank Ltd. United Insurance. Unilever Ltd. and finally in Defensive category, Standard Chartered Bank Nepal Ltd., Gorakhhali Rubber Udyog Ltd., and National Life & General Insurance Co.

5. The required rate of return calculated using CAPM relationship gives the level of return required to justify the level of risk inherent in the investment alternative. It is the benchmark for investment decision. In the analysis of stocks, it is the basis for determining over-pricing and under-pricing of stocks in the capital market. Here in the analysis Uni Lever has highest underpriced security followed by Mahalaxmi Finance Co. Ltd., Everest Insurance Com. Ltd., Nepal Awas Bikas Beetta Co. Ltd., Shree Ram Sugar Mills Ltd. etc. In the same way the least attractive company are Necon Air Ltd. followed by Taragaon Regency Hotel Ltd., Hirisiddhi Bricks & Tile Factory Ltd. etc.
6. On the basis of sector wise analysis of CAPM. We found that Banking, Finance Co., and Manufacturing & Processing sectors have undervalued security considering the required and expected rate of return and Hotel, Trading, Other and Insurance sector has overvalued securities.
7. Considering the sector wise beta analysis banking beta shows aggressive behavior than other sectors and the most defensive is Trading sector.

5.2 Conclusion

Investment in stock market was the major portion of this study which involves trade off between risk and return. The study is focused upon the application of CAPM in stock evaluation. Economically Nepal is backward and its economic performance is not in the satisfactory level. Generally public people are least understood about the stock market and

face conceptual thoughts about its risk. Risk is the uncertainty which relates to the degree of ups and down in return. Investing like many other activities involves risk in order to achieve return. Because of its higher expected return most of the investors are attracted to common stocks. Many people consider stock market investment as a game where they expect to win. Sock market investment can be boost up investor's fund as well and crash down like boulders from the mountains. As we know higher the risk higher the risk higher will be return, so standard deviation is not only a single measure of risk. Coefficient of variance also measures risk. Market sensitivity or the systematic risk is measured by beta coefficient which can't be reduced by diversification. Beta is used to determine the required return of an assets using CAPM. With this help investor's can make decision that which security has to buy and which security has to sell. If the required rate of return is lower than expected rate of return a stock is said to be underpriced. It means this stock has the chance to increase in the price in future so long positioning is suggested. If the required rate of return is higher than expected rate of return the stock is said to be overpriced. It means this stock has the chance to decrease in the price in future so short positioning is suggested.

5.3 Recommendations

The following are the recommendations based on the above findings, conclusions and analysis of data as well as information collected through primary data with private investors NEPSE.

- Investors have to focus their mind also on risk not only the return. Before thinking about higher return they also have to think about risk associated with return. If there

is higher return there will be higher risk definitely. So risk adverse investor can invest on moderate types of stock having average risk and return.

- Investors need to diversify fund to reduce risk. Besides investing the funds in a single stock, it is better to invest making portfolio of more than a single assets. Portfolio investment gives maximum return at very minimum risk or increases the return keeping the risk in a constant way. For higher portfolio effect stock returns with negative correlation and higher expected return should be best.
- Investment in capital market is a new phenomenon in Nepal. Most of the investors are purchasing shares in primary market only and there are not considering the risk involves in the initial public offering.
- Investor should purchase or sell securities on the basis of past trend earning dividend, market value of shares. Stock trading in secondary market is less risky than the initial public offering.
- Investor should purchase or sell securities on the basis of past trend earning dividend, price earning ratio, market value of shares. Stock trading secondary market is less risky than the initial public offering.
- The companies themselves are responsible for increasing or decreasing the unsystematic risk which badly hits the business and profit. So proper and efficient management is essential for the progress of any organization.
- Stock investment is very risky job so investor should know his need, desire, risk taking capabilities, tacking with ever changing market to win the stock market. Self knowledge, superior forecasting ability and sound understanding on the information of stock market can give winning chance in investment of stock.

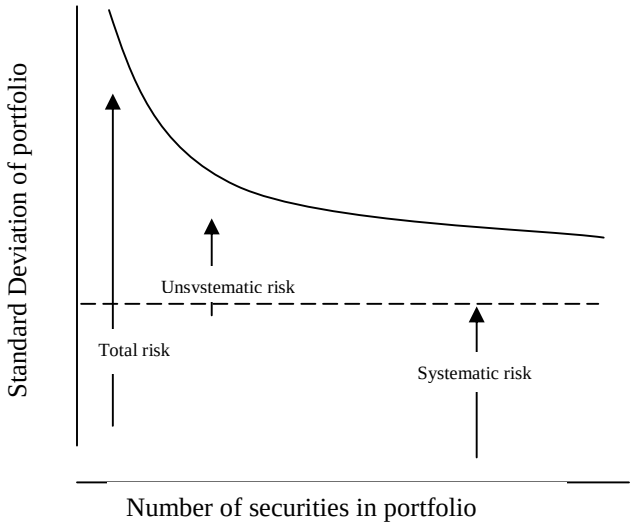
- Investors should analyze the similar companies' i. e. industry before investing in a common stock of a particular company because the industry factors have a significant influence in the performance of an individual company.
- Traditionally, the purchase of land, construction of building and saving on the bank had been the major area of investment for the people but their attitudes changing towards shares, debenture, and other new securities. But the government policies and programmes are not directed toward the development of domestic stock market (over the counter market) for mobilizing saving and providing equitable investment opportunities for the people of all regions.
- People of older time were interested on long-term investment. But now a day most people needs return immediately & want to invest for short period only. The attitude of people towards investment has change due to many situations and circumstances. Because of risk factor nobody wants to invest in long period. Due to the increasing violence and unstable political situation there is decrease in investment. Most of the liaison office and breach office and industry are closed and those who are survived one facing heavy recession. So government has to play a vital role to improve conditions of investing environment as well as to promote investments.
- NEPSE need to modernize the trading system and effective information channel. Different program should be developed to increase rationally as well as market efficiency supported to be summarized in the risk-return statistics describing the investment candidates".

Investors rarely place their entire wealth in a single asset rather, they construct a portfolio. Portfolio is simply an investment made on two or more than two securities. Portfolio analysis considers the determination of future risk and return in holding various blends of individual securities.

Diversification is essential to the creation of an efficient investment because it can reduce the variability of returns around the expected return. There are two broad sources of uncertainty. The first is due to overall market risk-change in nation's economy, tax reform act, a change in world energy situation, business cycle, the inflation rate interest rates, exchange rates and so forth which are called systematic risk which are undiversifiable. None of these macroeconomic factors can be predicted with certainty. So these risks cannot be diversified away. Even the investors who hold a well diversified portfolio will be exposed to this type of risk. The second risk component, however, is unique to a particular company being independent of economic political and other factors that affects securities in a systematic manner. By diversification unsystematic risk can be reduced and even eliminated if diversification is efficient. Therefore, not all of the risk involved in holding a stock is relevant, part of it can diversified away.

Figure – 5.1

Unsystematic and Systematic Risk



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