CHAPTER - I

INTRODUCTION

1.1 General Background

Stock market is a very important constituent of capital market where the shares of various firms are traded. Stock market is an economic institution that plays a crucial role in the economy by channeling investment where it is needed and can be put to the best use. It helps economic development by mobilizing long term as well as short-term capital needed for the production sector. It therefore, serves as a link between suppliers and users of capital funds.

Stocks are issued first in the primary market by private and government sectors to meet their long-term capital requirements and then they are traded in the secondary market to generate liquidity, profitability, diversification, and risk minimization purposes. It is the mechanism for the mobilization of public savings and channeling them in productive investments. Thus, the stock market works as a powerful media between potential investors and users of finance.

The expansion of stock market in Nepal is severely limited till today. The stock market of Nepal is small and is at early stage of growth. There is a problem of symmetric information between management of newly established Nepalese enterprises and investors who have poured their funds therein. “There is a need for efficient financial market where the people with surplus funds interact with business firms which can utilize such funds efficiently. It provides the liquidity to the securities and securities market. (*Pradhan: 1992, 20*)

In Nepal, the listing of shares in Stock Exchange Center (SEC) and their trading in the stock market is a recent phenomenon. The stock market development started only after the establishment of Securities Exchange

Center in 1984, which was later renamed as Nepal Stock Exchange (NEPSE) Ltd. in 1990 which has brought new dimensions and atmosphere in stock market. Now, a number of enterprises have established and listed their shaves in NEPSE Ltd. NEPSE Ltd. only is a secondary market which has provided the trading floor where buying and selling practices of stock take place with the help of open-out-cry system. It provides ready and continuous market for purchase and sale of securities at a competitive price by imparting future marketability and liquidity. The major objective of NEPSE Ltd. is to impart free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through market intermediaries. As at the end of the fiscal year 2007/08, there are 152 listed enterprises, 24 stock brokers, 9 issue managers and 2 market makers.

In a stock market, all enterprises operate in order to generate higher earnings. Stockholders supply equity capital hoping to share in these earning either directly or indirectly. When an enterprise pays out a portion of its earnings to the stockholders in the form of the dividend they are benefited directly. If instead of paying dividends, the enterprise retains the funds to exploit other growth opportunity, the stockholders expect to benefit indirectly through the increment in the stock price in the future. Investors thus get returns in the form of dividends and capital gains.

"Investors desire for the stocks of those enterprises which have performed well and provided high returns in comparison to the past years and other enterprises. Shareholders' wealth maximization is the maximization of the value of investment which is insured by the price of the firm's common stock." *(Weston and Brigham: 1996, 12-13*). "In an efficient market, a set of information is fully and immediately reflected in the market prices." (*Sharpe: 2000, 105*). Market price of the stock thus determines the returns to the investors in the form of the capital gain. Analysis of the stock returns

therefore is essential to the investors for determining the investment decision. Higher returns in the stock attract the existing and potential investors and then active participation for investment helps to promote the stock market.

Return is the motivating factor to scarify the present money, that is, it is reward for undertaking the investment. The first component of the return is the periodic cash receipt in the form of dividends which is also known as ordinary gain. The other component is the price appreciation commonly known as capital gain. The sum total returns are highly influenced by Risk factors, Earning yield, size, Book-to-market equity ratio, cash flow yield, and leverage. The security analysts study the earnings of stocks, their management, and economic outlook of enterprises, the competition, market condition, and many factors. “The fundamental variables allow investors to identify stocks that are mispriced, thus creating opportunities for realized returns in excess of what is required to compensate investors for risk.” (*Lakonishok, Shleifer, and Vishny: 1993, 257.*

The investors are more concerned with the rates of dividends and capital gains, not with the absolute values. The relationship of the different financial ratios with dividend yields, capital gain yields and total return and the associate variables are therefore very important to analyze.

A number of studies have been conducted on cross-sectional relationship between stock returns and fundamental variables extensively in the developed and big capital market like US and Japan but their relevance is yet to be seen in the smaller and underdeveloped capital markets like Nepal. In general, positive relationship between stock returns and earning yield, cash flow yield and size has been observed.

Traditional mean-variance analysis developed by Markowitz (1959), asset-pricing model of Sharpe (1964), Linter (1965), and Black (1972) have focused that the returns are determined by risk (beta) factors. Stephen Ross

(1976), Ball (1978), Stattman (1980), Basu (1983), Rosenberg, Reid and Lanstein (1985), Chan, Hamao and Lakosishok (1991), and Fama and French (1992) have suggested that the fundamental variables such as earning yield, size, Book-to-market equity ratio, cash-flow-yield, and Leverages etc. are important determinants of the stock returns.

In the context of Nepal, Balampaki (2004) has suggested that stock returns are positively affected by earnings-yield and size whereas negatively affected by the Book-to-market equity ratio, and cash flow yield.

Therefore, this study is directed toward analyzing the relationship between stock returns and its fundamental variables such as Risk factor (beta), size (Market capitalization) Book-to-market equity ratio, earning yield, cash flow yield, market leverage, and book leverage.

1.2 Statement of the Problem

Common stock represents a commitment on the part of a corporation to pay periodically whatever its board of directors deems appropriate as a cash dividend. Although the amount of cash dividends to be paid during the next year is subject to some uncertainty, it is relatively predictable. Average annual returns and variations of annual returns serve as measures of variability of returns on the stocks. Though annual returns on a stock is very difficult to predict, variability in the past may provide a fairly good measure of the uncertainty surrounding the future return. The past pattern of stock returns provides helps in predicting the next years' returns. The past stock returns may be determined by a number of associated factors. When sensible investment strategies are compared with one another, risk, size of enterprise, Book-to-market equity ratio, earning yield, cash flow yield, leverage and return tend to go together.

It is well accepted fact that analysis of the relationship of the associated factors with the realized return on stock is the cornerstone to the investment decision. As the investment is the sacrifice of dollar today for future dollar,

it is essential that patterns of stock return be analyzed. Several studies have documented the ability of certain variables to explain the cross-sectional variation in realized stock returns. Among these studies are Rosenberg, Reid, and Lanstein (1985), De Bondt and Thaler (1987), Chan, Hamao, and Lakonishok (1991) and Fama and French (1992), all of which find a relationship between book-to-market equity and stock returns. Other studies have shown the effects of the variables such as earnings yield (Basu (1977), Ball (1978), and Jaffe, Keim and Westerfield (1989)), cash flow yield (Chan, Hamao, and Lakonishock (1991)) on the stock returns.

According to SLB model returns are positively related to risk, but the study by Fama and French (1992) contradicted with the findings. The study attempted to indicate the extent to which the size and book-to-market equity ratio has captured the cross-sectional variation in average returns. Davis (1994) observed that book-to-market equity ratio, earnings yield and cash flow yield have significant explanatory power with respect to the study by Banz (1981) documented that stocks with larger market equity have lower returns. The size effect became weaker when the beta and expected returns were allowed to vary over time (Jagannathan and Wang, (1996)). Ball (1978) revealed that earning price ratio (E/P) was likely to be higher for stocks with higher risks and expected returns. Wiggns (1991) also revealed that market adjusted stock returns are directly related to E/P and they have positive relationship. Similarly, Verma (1994) observed positive relationship between profitability and dividends.

This study, therefore attempts to explore the facts about the returns and analyze the impact or effects of the fundamental variables in Nepalese context. To sum up, the study deals with the following issues:

1. What are the relationships of stock returns (i.e. Dividend yield, capital gain yield and total yield) with the fundamental variables (i.e.

beta, size, book-to-market equity ratio, earning yield, cash flow yield, and leverage)? What are their roles in explaining the stock returns?

2. What kind of relationship exists among beta, size, book-to-market equity ratio, earning yield cash flow yield, and leverage? Which variable among beta, earning yield, size, cash flow yield, book-to-market equity ratio and leverage is the most informative in predicting stock returns?
3. Whether the enterprises having high earnings yield, cash flow, and/or book-to market ratio have higher stock returns? Is there any relationship between earnings yield and stock returns? Do the large sized enterprises have higher stock returns? Is there any relationship between size and stock returns?
4. How do the variables like book leverage and market leverage play a role in explaining stock returns? Do the enterprises having lower leverage have the lower stock returns? Is there any relationship between leverage and stock returns?
5. Are there equal contributions of earnings yield, and cash flow yield in predicting stock returns? Which company's shares are overpriced and underpriced?

1.3 Objectives of the Study

The major objectives of this study is to analyze the relationship between the fundamental variables (i.e. beta, size, book-to-market equity, earning yield, cash flow yield, leverage) and stock returns (i.e. dividend yield capital gain yield and total yield) on Nepalese stocks.

The specific objectives of the study are as follows:

1. To identify the relationship of size, earning yield, book-to-market equity ratio, cash flow yield, and leverage with the returns on Nepalese stocks.

2. To analyze the properties of portfolios formed on the fundamental variables and examine the relationship among them.
3. To compare the predictability of the different variables to stocks returns.
4. To evaluate the performance of the stocks in the Nepalese stock market.
5. To analyze the volatility of the stock returns in the Nepalese stock market.

1.4 Organization of the Study

The whole study has been organized into five chapters, each devoted to some aspects of the study on analysis of realized returns on Nepalese stocks. The chapters one-to-five convey the following titles:

Chapter-I: Introduction

Chapter-II: Review of Literature

Chapter-III: Research Methodology

Chapter-IV: Presentation and Analysis of Data

Chapter-V: Summary, Conclusion and Recommendation

Chapter-I

It includes the major issues to be investigated along with the general background and objectives of the study.

Chapter-II

This chapter deals with review of literature which includes conceptual framework, review of empirical works, review of major studies in Nepal and finally concluding remarks of the literature.

Chapter-III

The third chapter is “Research Methodology”, which describes research design, nature and sources of data, selection of enterprises, methods of analysis, limitation of the study and definition of key terms.

Chapter-IV

This chapter is the presentation and analysis of data which includes the summary statistics for portfolios sorted by fundamental variables; regression results of stock returns on fundamental variables; the market sensitivity analysis; the investment performance evaluation; the risk-return classes of Nepalese common stocks.

Chapter-V

It is the final chapter which includes summary of major findings, conclusion of the study and provides recommendations for the future avenues.

CHAPTER – II

REVIEW OF LITERATURE

2.1 Conceptual Framework

A stock is a legal representation of an equity or membership position in a business enterprise. “Return is the income received on actual investment. It is the reward to the investors. Investment return is defined as the after tax increase in the value of the initial investment” (*Cheney and Mosses: 1993, 30*). The increase in value of assets can be derived from two sources: a direct cash payment to the investor, or an increase in market value of the investment in relation to the original purchase price. “The rate of returns concept is important because it measures the speed at which the investor's wealth increases or decreases. It is the relative value of benefit on the investment.” *(Francis: 1992, 11*)

Shareholders expect two kinds of returns from the purchase of common stock in the form of capital gains and dividends. Capital gain may be defined as the profit resulting from the sale of common stock. The shareholders expect an increase in the market value of common stock overtime. Most of the mature and stable enterprises declare some portion of earnings as a dividend. Investors also want regular dividend to be declared and paid on common stock. This expectation may take priority over the desire of the company management to retain earnings or plugging back for expansion and growth of the company. "Since dividend would be more attractive to stockholders, one might think that there would be a tendency for corporation to increase distribution of dividends. But one might equally pressure that gross dividends would be reduced some what, with an increase in net after tax dividends still available to stockholders, and increase in retained earnings for the corporation. Investors seek the maximization of dividends as well as stock price." (*Trop: 1977, 90-91*)

Financial management is therefore, concerned with the activities of corporation that affect the well being of shareholders. The well-being can be partially measured by dividend received, but a more accurate measure is the market value of stock.

Sharpe, Alexander and Bailey (2000, 3) expressed the rate of return (or, simply the return) is the rate of change in wealth over a period of time. Accordingly, the return is calculated as follows,

$$\text{Return} = \frac{\text{End of period wealth} - \text{beginning of period}}{\text{beginning-of-period wealth}}$$

Francis (1992, 1) viewed that an investor's single period rate of return, denoted by r, is simply the total return an investor would receive during the investment period or holding period stated as a percent of investment's price at the start of the holding period.

i.e. $$r = \frac{\text{ending wealth} - \text{beginning wealth}}{\text{beginning wealth (or, purchase price)}}$$

"An investor can obtain two kinds of income from an investment in a share of stock or a bond." (*Francis: 1992, 2*)

1) Income from price appreciation (or, loss from price depreciation). This is denoted by $P_t - P_{t-1}$.
2) Cash flow income from cash dividend or coupon interest payments, represented by the convention C_t.

The sum of these two sources of income (or, loss) equals the change in the invested wealth during any given holding period. The rate-of-return formula can be restated in an appropriate form for almost any investment;

$$r_t = \frac{\text{Price change} + \text{cash flow (if any)}}{\text{price at the beginning of the period}}$$

or, $r_t = \frac{(P_t - P_{t-1}) + C_t}{P_{t-1}}$

The above formula can be expressed in the another form also,

$$r_t = \frac{(P_t - P_{t-1})}{P_{t-1}} + \frac{C_t}{P_{t-1}}$$

or, $r_t = \frac{(P_t - P_{t-1})}{P_{t-1}} + \frac{D_t}{P_{t-1}}$

or, $r_t = CY + DY$

Where, r_t = rate of return during the period of t,

P_t = market price at the end of period t,

P_{t-1} = market price at the end of period t-1,

C_t = Cash flow income received during the period of t.

D_t = Dividend income received during he period of t.

CY = Capital gain yield, or, price appreciation (or depreciation) i.e. $\frac{(P_t - P_{t-1})}{P_{t-1}}$.

DY = Dividend yield, i.e. $\frac{D_t}{P_{t-1}}$.

Cheney and Mosses (1993, 30) also expressed that the rate of return over the holding period is change in price plus cash receipt divided by beginning price. If the investment is for more than one year period, the rate of return is suggested to compute by Weston and Brigham (1996) as,

$$\text{Inital Purchase Price} = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + ... + \frac{D_n + S_n}{(1+r)^n}$$

Where, r = discount rate, or, internal rate of return or, rate of return;

D_1, D_2, D_n = year to year cash dividend;

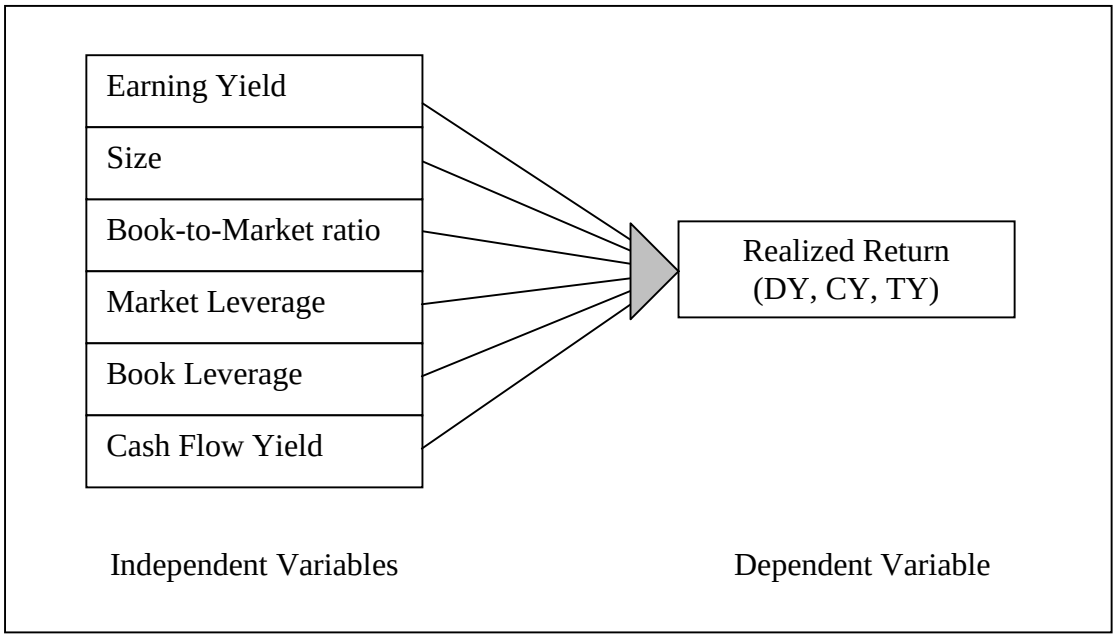
S_n = Terminal Price of stock realized on sale after n years.

Therefore, the stock returns are annual benefits from stock investments. These constitute dividend yield, capital gain yield and total yield. Returns are mainly the results of earnings, and cash flows. Besides that, returns are affected by various fundamental variables.

The variable of primary interest in this research is the dependent variable of realized return on Nepalese stocks. Six independent variables are used in an attempt to analyze the return. These independent variables along with dependent variable constitute a theoretical framework which is depicted in figure 2.1.

Fig. 2.1

Schematic Diagram of the Theoretical Framework



If the investors can describe the possible variables that will influence each of the possible rates of return and assign probabilities to these outcomes, the expected rate of returns should be equal to weighted average of the various possibilities. Probability distribution can be used to describe possible outcomes and to assign individual probabilities from zero to one, to each possible outcome. The expected return E(r) is calculated by summing up the products of the rates of return and their respective probabilities as follows:

$$E(r) = \sum_{1}^{n} P_t r_t$$

Where, P_t = Probability distributions of rates of returns for i^{th} outcomes.

r_t = Rates of returns for i^{th} outcomes.

Van Horne (2000, 68) has proposed the CAPM developed by Markowitz (1959), the expected return for the individual security linking with the risk coefficients. The expected return $\overline{R}_j$ for stock j is,

$$k_j = Rf + (\overline{R}_M - R_f).\beta$$

Where, k_j = REQUIRED rate of return for stock j.

R_f = Risk – free rate

$\overline{R}_M$ = The expected overall return for the market portfolio.

B_j = Beta coefficient for security j.

The beta (β) is an index of the market portfolio. The beta of a portfolio is simply a weighted average of individual stock betas in the portfolio.

The major implication of the CAPM is that the expected return of an asset will be related to a measure of risk for that asset known as beta (β). The exact manner in which expected return and beta are related is specified by the CAPM. Mathematically, the systematic risk, beta is measured as the covariance of the stock returns with the market returns with the market returns expressed per unit of market variance as follows:

$$\beta_j = \frac{cov(R_j, R_m)}{\sigma^2_{Rm}}$$

The CAPM provides us a means by which to estimate the required rate of return on a security. On the basis of price and dividend information, average return can be calculated which is known as realized rate of return or

expected rate of return. With the comparison of those two returns, investors can analyze whether the stock is underpriced or overpriced. Once, the investors come to identify the stocks that are mispriced, there is creation of opportunities for realized returns in excess of what is required to compensate investors for risk (Lakonishok, Sheifer, and Vishny (1993)). Figure below represents CAPM with underpriced and overpriced stocks.

Fig. 2.2

Security Market Line

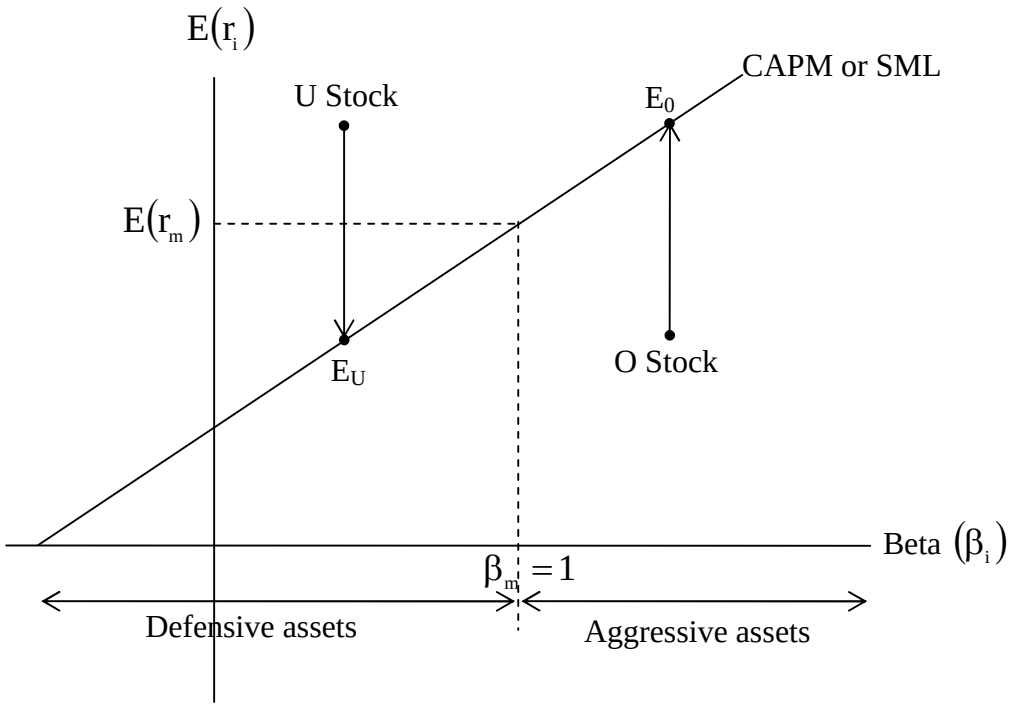


Figure 2.2 shows two assets are denoted by O and U. Asset U is underpriced asset as its average rate of return is too high for the level of systematic risk it bears. On the other hand, asset O is overpriced as its expected rate of return is too low to induce investors to accept its systematic risk. These two assets should move to the CAPM as shown by the arrows to their equilibrium positions at the points marked E.

To see whether assets O and U are incorrectly priced, we consider the average return for a common stock calculated as,

$$E(r) = \frac{\text{Capital gains/loss + Dividend per share}}{\text{Market priec per share}}$$

To reach their equilibrium positions on CAPM, assets O and U must go through a price readjustment. Assuming the asset's systematic risk remains unchanged the expected return of U must fall to E_U and the expected return of O must rise to E_O in the figure 2.2.

The economic process outlined above implies that, generally, speaking every asset that lies above CAPM in the figure 2.2 is under priced. Systematic but opposite logic implies that every asset that lies below the CAPM in the figure 2.2 is over priced.

From all the studies mentioned above, it is clear that a stock return is the function of various fundamental variables. Most of the empirical studies are, however, devoted to testing the effect of fundamental variables on stock return using cross sectional data. In the empirical literature, considerable attention has been paid to analyze the relation of different financial variables such as book-to-market equity ratio, Price earning ratio, market capitalization, earning yields, cash flow yield, and profitability leverage with stock returns.

Extending Factor Model Approach, Stephen Ross (1976) developed an alternative model of asset pricing theory which is known as Arbitrage Pricing Theory (APT). This model, in some ways, is less complicated than CAPM. In case of K factors (f_1, f_2, ... f_k) each security will have k sensitivities (bi_1, bi_2,..., bi_k) as return generating model for asset I,

$$r_{i,t} = a_i + bi_1F_{1t} + bi_2F_{2t} + ... + bikF_{kt} + e_{it}1$$

Where, r_{it} = One-period rate of return (or, holding period return) from i^{th} asset in period t.

a_i = Riskless rate of return equals expected rate of return for asset I, if all risk factor shave a value of zero, F = 0.

$F_{i,t}$ = i^{th} risk factors that reflects assets' returns, where, j = 1,2,...k, different risk factors exist. These risk factors all have mathematical expectation of zero, $E(F_{jt}) = 0$.

b_{ij} = Sensitivity factor (or factor loading) that measures how responsive returns from asset I are to index j.

e_{it} = Random error term for asset I in period t, which measures unexplained residual return, and which has an expected value of zero and variance of var (e).

2.2 Review of Empirical Studies

This section concerns with review of the important empirical studies, concerning cross-section of stock returns since 1959 till 2006. There have been made a number of studies on stock returns. It is therefore, out of the scope of this study to survey and review all the empirical studies extensively and present here in detail. Therefore, some important studies and their findings are presented in tabular form in chronological order. The review of literature is undertaken in subsections.

The first section focuses on empirical studies carried up to 1960s with their major findings. The second deals with the review studies carried out during 1970s. Similarly, the third, fourth and fifth sections deal with the review of studies during 1980s, 1990s and early 2000s respectively.

2.2.1 Review of Empirical Studies up to 1960s

The studies carried out up to 1960s were found around the Markowitz diversification. The first study that was carried out by Markowitz in 1959 was about the Summer Resorts Corporation and Umbrella Corporation of America's Stock. He turned out the result in support of their hypothesis that their hypothesis that there was a natural trade off between risk and return in the market. The efficiency of the market portfolio implies that a) expected

returns on securities were a positive linear function of their market βs which sufficed to describe the cross-section of expected returns.

Sharpe (1964) and Linter (1965) had long shaped the way academics and practitioners thought about average returns and risk. The central prediction of the asset pricing model in their study was that the market portfolio of invested wealth was mean-variance efficient in the sense of Markowitz (1959). They documented the conclusion that returns were determined by risk (beta) factors. Table 2.1 shows the major finding of studies conducted up to 1960s.

Table 2.1

Description of Empirical Study Works up to 1960s

study	Area Covered	Major Findings
Markowitz (1959)	Portfolio selection: Efficient diversification of investments	Expected returns on securities were a positive linear function of their market β (the slope in the regression of a security's return on market's return), and the cross-section of expected returns.
Sharpe (1964)	Capital asset prices: A theory of market equilibrium under conditions of risk	Returns were determined by risk (beta) factors. Market was mean variance efficient in the sense of Markowitz (1959). The leverage risk was captured by market β.
Linter (1965	The valuation of risk assets and the selection in stock portfolios and capital budgets.	Returns were determined by risk (beta) factors. Market portfolio of invested wealth was mean-variance efficient in the sense of Markowitz (1959). The leverage risk was captured by market β.

2.2.2 Review of Empirical Studies up to 1970s

The decade of 1970s was marked with the empirical studies extended in the area of risk and return and found to be consistent with the Markowitz diversification and SLB model. Most of the studies were around the central prediction as per CAPM. Table 2.2 provides in precise form of area covered by empirical studies and their major findings.

Table 2.2

Description of Empirical Studies During 1970s

Study	Area Covered	Major Findings
Black (1972)	Capital market equilibrium with restricted borrowing	No existence of riskless rate. Riskless rate was replaced by a portfolio which had a beta equal to zero still and had some small amount of variance.
Black, Jensen and Scholes (1972)	The capital asset pricing model.	A positive simple relation between average stock returns and β as predicted by the SLB model.
Fama and MacBeth (1973)	Risk, return and equilibrium	Average returns were positively related to market βs as basic prediction of the SLB model.

Black (1972) had suggested a model in which it was not necessary to assume the existence of a riskless rate through the study "Capital Market Equilibrium with Restricted Borrowing". In his model, the riskless interest rate was replaced by a portfolio which had a beta equal to zero but still had some small amount of variance. The zero-beta portfolio was uncorrelated with the market portfolio. The zero-beta portfolio was created by holding risky securities and leveraging and selling short.

Capital Asset Pricing Model was tested with some empirical studies by Black, Jensen and Scholes in 1972. Systematic risk was the main factor to be considered by risk-averse investors suggested by them. Other factors, such as the "glamour" of the stock and the company's financial ratios were suggested to be considered to the extent they affected the security's risk and return. As stated in the conclusion, there was a positive simple relation between average stock returns and β as predicted by the SLB model.

Fama and MacBeth (1973) had extended the CAPM to embrace the equilibrium with risk and return and also reached the conclusions that tend to support the CAPM. They documented that high beta stocks really had higher rates of return (i.e. CAPM theory had predictive power).

2.2.3 Review of Empirical Studies During 1980s

There were many empirical studies on stock returns took during the decade of 1980s. Most of the studies were related to market value of equity and returns. Seasonality of the stock market was the next important area covered for the study during that decade. The major empirical studies reviewed are presented in the table 2.3.

Table 2.3

Description of Empirical Studies During 1980s

Study	Area Covered	Major Findings
Stattman (1980)	Book values and stock returns	Average returns were positively related to the book-to-market equity ratio.
Banz (1981)	The relation between return and market value of common stock.	Market equity (i.e., Size) had most significant negative relationship with returns.
Basu (1983)	The relationship between earnings yield, market value, and return for NYSE common stocks: future evidence.	Earnings-price ratio (E/P) helped explain cross-section of average returns. E/P had most significant positive relation with average returns.
Rosenberg, Reid and Lanstein (1985)	Persuasive evidence of market inefficiency	Most significant positive relationship between book-to-market equity and average returns.
Wilson (1986)	The relation information content of accruals and cash flows	More significant positive relationship of stock returns with cash flows than that of earnings yield.
Bhandari (1988)	Debt/Equity ratio and expected common stock returns: Empirical evidence	The positive relation between leverage and average return.
Jaffe, Keim, and Westerfield (1989)	Earnings yields, market values, and stock returns	The evidence of seasonality in the explanatory power of earnings yield.

The studies of Stattman (1980) and Rosenberg, Reid, Lanstein (1985) found that average stock returns on U.S. stocks were positively related to the ratio of a firm's book value of common stock, BE, to its market value, ME. The book-to-market equity ratio had the most explanatory power over the stock returns. The most prominent contradiction of SLB model was the size effect of Banz (1981) that market equity, ME (a stock's price times shares outstanding), added to the explanation of the cross-section of average returns provided by market β. Average returns on small (low ME) stocks

were too high given their β estimates, and average returns on large stocks were too low.

The positive relation between leverage and average return was documented by Bhandari (1988). It was plausible that leverage was associated with risk and expected return, but in SLB model, leverage risk should be captured by market β. Bhandari found, however, that leverage helped explain the cross-section of average stock returns in stock, that included size (ME) as well as β. Basu (1983) had shown that earnings-price ratio (E/P) helped explain the cross-section of average returns on U.S. stocks in tests that also included size and market β.

2.2.4 Review of Empirical Studies During 1990

The most of the empirical studies during 1990s were related to the cross-section of stock returns and the fundamentals of stock returns. The major reviewed studies during the decade of 1990s are presented below in table 2.4.

Table 2.4

Description of Empirical Studies During 1990s

Fama and French (1992)	The cross-section of expected stock returns.	Size and book-to-market equity combined to capture the cross-sectional variation in average stock returns associated with market β, size, leverage, and book-to-market equity and earnings-price ratios.
Davis (1994)	The cross-section of realized stock returns	Book-to-market equity had significant explanatory power over returns. Earnings yield and cash yield had also positive relationship with realized returns.
Jagannathan and Wang (1996)	The conditional CAPM and the cross-section of expected returns.	Size had weaker explanatory power over returns.
Grauer (1999)	Relation between expected returns betas and size.	Size had negative relation with returns.

Fama and French (1992) studied on cross-section of Expected Stock Returns. They identified the relationship of average returns with market beta and size. They also examined the role of earning price ratio, leverage, and book-to-market equity ratio in average returns. Their goal was to evaluate the joint role of market beta(β), size, E/P, leverage, and book-to-market equity ratio in the cross section of average returns on NYSE, AMEX and NASDAQ stocks.

They found that the relationship between market beta(β), and average returns disappeared during the more recent (1963 – 1990) period, when β and average returns was also weak in 50 years from 1941 to 1990 period. In short, their average stock returns are positively related to market β's. Unlike the simple relation between β and average return, the unvaried relations between average return and size, leverage, E/P and book-to-market equity ratio were strong.

In multivariate tests, the negative relation between size and average return was robust to the inclusion of other variables. The positive relation between book-to-market equity ratio and average return also persisted in competition with other variables. Moreover, although the size effect had attracted more attention, book to marked equity ratio had a consistently stronger role in average returns. Their bottom results were:

1. β did not seem to help explain the cross section of average stock returns, and
2. The combination of size and book to market equity seemed to absorb the roles of leverage and E/P in average stock returns at least during their 1963 – 1990 sample period.

With the use of data collected from annual Moody's industrial Manuals for the period from July 1940 to June 1963, Davis (1994) analyzed the impact

of book to market equity ratio, earnings yield, cash flow yield, and historical sales growth on stock returns.

Jagannathan and Wang (1996), allowing betas and expected return to vary over time by assuming that CAPM holds period by period, concluded that the size effect became much weaker. They found that the conditional version of the CAPM explained the cross-section of stocks returns rather well. In doing so, they implicitly assumed that the portfolios of stock returns used in the study were economically important. They evaluated three betas whereas the standard CAPM has only one beta.

Relation between expected returns, betas and size was identified by Grauer (1999). The data set employed in his study consisted of 10 size portfolios compiled from all New York Stock Exchange and American Prices Database. Returns from the 1926 to 1989 period were employed. The model applied in his study was as follows:

$$\mu_j - r = b_0 + b_1 beta_j + b_2 size_j + \in_j$$

Where, μ_j = expected return of security j,

r = risk free rate of return,

b_0, b_1, b_2 = the beta coefficients,

$\in_j$ = the unexplained variance.

Using the model, he found that large firms had low expected returns and vice versa. He showed that the coefficients from either ordinary least squares or generalized least squares regressions did not allow us to tell whether the CAPM model is true or false.

2.2.5 Review of Empirical Studies During Early 2000s

The recent studies during the early 2000s were related to the cross-section of stock returns and information about the growth, consumption, dispersion via. security analysts' recommendations. The major empirical studies reviewed for this study purpose are presented in table 2.5.

Table 2.5

Description of Empirical Studies During Early 2000s

Study	Area Covered	Major Findings
Diether, Malloy and Scherbina (2002)	Differences of opinion and the cross-section of stock returns.	A negative relationship between stock returns and dispersion of analysis' earnings forecasts.
Johnson (2004)	Forecast dispersion and cross-section of expected returns	High book leverage and poor past performance were associated with higher dispersion in the cross-section. Book-to-market ratio also entailed higher dispersion.
Duffee (2005)	Time variation in the covariance between stock returns and consumption growth.	The conditional covariance between aggregate stock returns and aggregate consumption growth varied substantially over time.
Ang, Hodrick, Xing, and Zhang (2006)	The cross-section of volatility and expected returns.	Stocks with high sensitivities to innovations in aggregate volatility had low average returns.

A newly anomaly in the cross-section of returns was documented by Diether, Malloy and Scherbina (2002). Firms with more uncertain earnings 9as measured by the dispersion of analyst's forecasts) did worse. They viewed the negative relationship between forecast dispersion and subsequent returns.

Duffee (2005) in his study of 'Time variation in the covariance between risk returns and consumption growth' documented that the conditional

covariance between aggregate stock returns and aggregate consumption growth varied substantially over time. In the study of 'Forecast dispersion and cross-section of expected return', Johnson (2004) stated that high book leverage and poor past performance were associated with higher dispersion in cross-section. He also found that book-to-market ratio entitled higher dispersion.

Review of Thesis

Surya Bahadur Balampaki (2003), in his master's thesis "Fundamentals of Stock Return in Nepal" has the objectives of finding out relationship of stock return with fundamental variable such as dividend yield, capital gain yield, earnings yield, size, book-to-market equity ratio and cash flow yield of Nepalese enterprises by estimating various models. He analyzed pooled data of 5 years of 40 listed organizations and had the major findings as follows:

- Earnings yield and cash flow yield had significant positive impact on dividend yield, and an insignificant impact on book-to-market equity ratio.
- The size had a negative impact on dividend yield.
- Stocks with higher capital gain yield had higher earnings yield.
- Larger stocks had higher capital gain yield.
- Capital gain yield was negatively influenced by book-to-market equity ratio and cash flow yield, and book-to-market equity ratio had been found to be statistically strong in predicting capital gain yield.
- Total yield was negatively determined by book-to-market equity ratio and cash flow yield whereas positively determined by earnings yield and size. Among all the variables, book to market value had the most predictive power in predicting total yield.

- Similarly, there was positive relationship among earnings yield, book-to-market equity ratio and cash flow yield. However, the size was negatively related to these three variables.

Ava Shrestha (2004), in her master's thesis entitled "*Impact of Fundamental Variables on Stock Return"* has the objective of finding the role of different fundamental variables like in the setting of stock return and its relationship with them. She has analyzed cross-sectional data of 45 enterprises with 211 observations related to stock returns for the period from 1998 to 2002.

Her major research findings were as follows:

- Dividend yield capital gain yield and total yield had positive relation with earnings yield.
- Capital gain yield and total yield revealed to have negative relation with book to market equity ratio whereas, positive relation between dividend yield and B/M was observed.
- The large sized companies had lower dividend yield. Similarly, capital gain yield, and total yield also had negative tendency over the firm's size.
- The stock with higher cash flow yield had higher dividend yield but lower capital gain yield and lower total yield.,

Mankash Piya (2005) in his master's thesis entitled, "*Cross-Section of Stock Returns on Beta and Size*", has the objective of identifying the relationship of beta and size with the average return. For this, he analyzed the properties of portfolio formed on beta and size, and tested a regression equation keeping return as dependent variable and the beta and size as independent variables, as follows:

$$R_i = \lambda_0 + \lambda_1 \beta_i t + \lambda_2 \ln(ME)_{it} + \varepsilon_{it}$$

Where,

R_i was the average rate of return for the period,

ME_{it} was market value of equity i.e. the market capitalization.

$\lambda_0, \lambda_1, \lambda_2$ were regression coefficients and, ε_{it} was the error term. ln denoted the natural logarithm operator.

His major findings of the study were as follows:

- Higher risk (beta) was associated with a higher level of return (i.e. positive relation between expected stock returns, and the beta).size variable well explained the cross section of expected stock returns (i.e. negative relationship between stock returns and size).

2.4 Research Gap

Stock return is the function of various fundamental variables. Most of the above mentioned empirical studies have been devoted to analyzing the cause and effect of fundamental variables on stock returns using cross section and time series data from different countries. The findings of these studies, in general, are the positive relationship of stock returns with earnings yield, cash flow yield, book-to-market equity ratio and leverage whereas a negative relationship with size. Of the four fundamental variables considered, cash flow yield and book to market equity ratio have strong explanatory power in predicting stock returns than earnings yield and size.

Although, there are various studies on stock returns and its fundamental variables in the context of big and developed stock market, their applicability is yet to be seen in the context of smaller and underdeveloped stock market like Nepal.

Stattman (1980), Rosenberg, Reid, and Lanstein (1984), Fama, and French (1992), Davis (1994) in the context of big and developed stock market reported the statistically positively significant relationship with the stock

return, while Balampaki (2003) in small and underdeveloped stock market did not report the same. Similarly, the controversy also exists with respect to size effect, leverage, cash flow yield in both big and small stock market. Thus, there is no unanimous finding with respect to the fundamental variables and the stock returns. It has therefore, become difficult to support one view or another as there exists contradiction among such studies in the context of both developed and underdeveloped enterprises of Nepal.

In the context of Nepal though some attention has been paid to analyze the relationship of stock returns to the fundamental variables, many years have passed after these studies have been made. So it becomes important to assess the validity of the findings that have been resulted.

CHAPTER – III

RESEARCH METHODOLOGY

This chapter attempts to furnish the methodology employed to analyze the relationship between stock returns (dependent variable) and fundamental variables (independent variables) and to test the robustness of the results. This chapter has been divided into six sections. Section-1 presents the research design of the study. Section-2 deals with the nature and sources of data. Section-3 consists of the relation of enterprises. Section-4 explains the method and analysis employed in the study. Section-5 presents limitation of the study and Section-6 provides the definition of key terms.

3.1 Research Design

"Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance" (*Kerlinger: 1986, 275).*

"The research design refers to the entire process of planning and carrying out a research study. It describes the general framework for collecting, analyzing and evaluating data after identifying (i) what the researcher wants to know, and (ii) what has to be dealt with in order to obtain required information" (*Wolff and Pant: 2000, 209*). In order to conduct this study, descriptive cum analytical research design has been adopted. Descriptive research design has been utilized mainly for conceptualization of the problem. Analytical research design has been followed mainly to analyze the relationship among stock returns and fundamental variables.

3.2 Nature and Sources of Data

This study is based on secondary data. The necessary data and information have been collected from various sources covering a period of 5 years i.e. from 2003/04 to 2007/08. To analyze the relationship among different variables, this study uses pooled cross-sectional data of 41 enterprises with

158 observations. The balance sheet and Profit and loss account and other statements., of selected enterprises provides the information on the market value of equity, book value of equity, total assets, net worth per share, depreciation on the assets, cash flow, number of outstanding shares, profit/loss per share, share price, total capitalization, and dividend etc. Then, various ratios and variables have been computed as required for the study. The major sources of data and information are as follows:

- Website of NEPSE Ltd: http://www.nepalstock.com
- Website of SEBO/N: http://www.sebonp.com
- Dissertations of Master's Degree related to the subject.
- Annual Reports of SEBO/N from FY 2003/04 to FY 2007/08
- The Journal of Finance.
- The Journal of Financial Economics.

3.3 Selection of Enterprises

There were 152 Nepalese enterprises listed in the NEPSE Ltd. by the end of FY 2007/08 which is regarded as size of the population for the study (SEBO/N: 2007, 62-70). This study does not cover al the Nepalese enterprises because of data problem and also the study period begins only from 2003/04. In the absence of valid and reliable data for some years, the study periods for each selected enterprises are not homogeneous in nature. Out of the 152 enterprises, the study has been confined to only 41 enterprises. These enterprises selected for the study are representative of Commercial Banks, Development Banks, Finance Companies, Insurance Companies, Hotels, Manufacturing and Processing Companies and Trading Companies as 27 percent (41/152×100) enterprises. 41 enterprises selected

for the study form the important enterprises and they seem to have been representative of the Nepalese enterprises as a whole.

To analyze the relationship between stock returns and fundamental variables, this study has been conducted on the basis of pooled cross-sectional data for the period of 2003/04 to 2007/08. Considering this study period, the enterprises selected for this study, period of study and the numbers of observations are presented in Table 3.1.

Table 3.1

Selection of Companies, Period of study, and Number of Observations

S.N.	Name of the Companies	Study Period	Observations
	A. Commercial Banks		
1	Nepal Investment Bank Ltd. (NIBL)	2003/04 to 2007/08	4
2	Bank of Kathmandu Ltd. (BOK)	2003/04 to 2007/08	4
3	Himalayan Bank Ltd. (HBL)	2003/04 to 2007/08	4
4	Nabil Bank Ltd. (NBL)	2003/04 to 2007/08	4
5	Nepal Industrial & Commercial Bank Ltd. (NICB)	2003/04 to 2007/08	4
6	Nepal SBI Bank Ltd. (NSB)	2003/04 to 2007/08	4
7	Everest Bank Ltd. (EBL)	2003/04 to 2007/08	4
8	Standard Chartered Bank Nepal Ltd. (SCB)	2003/04 to 2007/08	4
	Total Observations		32
	B. Development Banks		
9	NIDC Bank (NIDCB)	2003/04 to 2007/08	4
10	Nepal Development Bank Ltd. (NDB)	2003/04 to 2007/08	4

11	Nirdhan Utthan Bank Ltd. (NUB)	2003/04 to 2007/08	3
	Total Observations		11
	C. Finance Companies		
12	Narayani Finance Ltd. (NFL)	2003/04 to 2007/08	4
13	Kathmandu finance Ltd. (KFL)	2003/04 to 2007/08	4
14	Gorkha Finance Co. Ltd. (GFCL)	2003/04 to 2007/08	4
15	Pokhara Finance co. Ltd. (PFCL)	2003/04 to 2007/08	4
16	Alpic Everest Finance Ltd. (AEFL)	2003/04 to 2007/08	4
17	Yeti Finance Ltd. (YFL)	2003/04 to 2007/08	4
18	Annapurna Finance Co. Ltd. (AFCL)	2003/04 to 2007/08	4
19	Peoples Finance Ltd. (PFL)	2003/04 to 2007/08	4
20	Nepal Housing & Merchant Finance Ltd. (NHMCL)	2003/04 to 2007/08	4
21	Nepal Finance & Saving Co. Ltd. (NFSCL)	2003/04 to 2007/08	4
22	Good Will Finance Co. Ltd. (GWFCL)	2003/04 to 2007/08	4
23	Nepal Share Market Co. Ltd. (NSMCL)	2003/04 to 2007/08	4
24	United Finance Ltd. (UFL)	2003/04 to 2007/08	3
25	Citizen Investment Trust (CIT)	2003/04 to 2007/08	4
26	Central Finance Co. Ltd. (CFCL)	2003/04 to 2007/08	2
27	Union Finance Co. Ltd. (UFCL)	2003/04 to 2007/08	3

	Total Observations		
	D. Insurance Companies		
28	Premier Insurance Co. Ltd. (PICL)	2003/04 to 2007/08	4
29	United Insurance Co. (Nepal) Ltd. (UICL)	2003/04 to 2007/08	4
30	Neco Insurance Co. Ltd. (NICL)	2003/04 to 2007/08	4
31	Sagarmatha Insurance Co. Ltd. (SICL)	2003/04 to 2007/08	4
32	Himalayan General Insurance Co. Ltd. (HGICL)	2003/04 to 2007/08	4
33	Everest Insurance Co. Ltd. (EICL)	2003/04 to 2007/08	3
	Total Observations		23
	E. Hotels		
34	Soltee Hotel Ltd. (SHL)	2003/04 to 2007/08	4
35	Oriental Hotel Ltd. (OHL)	2003/04 to 2007/08	4
36	Taragaon Regency Hotel Ltd. (TRHL)	2003/04 to 2007/08	4
	Total Observations		12
	F. Manufacturing and Processing Companies		
37	Unilever Nepal Lt. (UNL)	2003/04 to 2007/08	4
38	Bottlers Nepal Ltd. (BNL)	2003/04 to 2007/08	4
39	Bottlers Nepal (Terai) Ltd. (BNTL)	2003/04 to 2007/08	4
	Total Observations		12

	G. Trading Companies and Others		
40	Bishal Bazaar Co. Ltd. (BBCL)	2003/04 to 2007/08	4
41	Salt Trading Corporation Ltd. (STCL)	2003/04 to 2007/08	4
	Total Observations		8
	Grand Total Observations		158

Source: webpage of NEPSE Ltd.: http://www.nepalstock.com

Thus, the study is based on 158 observations.

3.4 Method of Analysis

The method of analysis employed in this study mainly relates to the econometric analysis. It also contains the use of various statistical tools to confirm the relationship between stock returns and fundamental variables and to test the robustness of the results. Possible attentive statistical specifications are also attempted in each case where necessary in order to obtain the best results.

3.4.1 The Econometric Models

The theoretical statement of the models is that the stock returns (R) may be regarded as subject to the constraints of earning yield (E/P), size (LS), Book-to-market equity ratio (B/M) and cash flow yield (C/P). The regressions use the natural logs of the Market equity, Book-to-market equity ratio, Book leverage, and Market leverage because the preliminary tests indicated that logs were a good functional form for capturing those effects in average returns. Using logs also leads to a simple interpretation of the relation between the roles of market equity, book to market equity ratio, and leverage in average returns.

The theoretical statement may be framed as under:

$$R = f\{E/P, \ln(ME), \ln(B/M), \ln(A/ME), \ln(A/BE), C/P\}$$

The equation to be estimated has therefore been specified as under:

$$R = a + b_1(E/P) + b_2 \ln(ME) + b_3 \ln(B/M) + b_4 \ln(A/ME) + b_5 \ln(A/BE) + b_6 C/P + U_i$$

where, dependent variable, R chosen for the study ahs been specified as under:

DY = Dividend yield or, dividend per share to market price per share, i.e. D_1/P_0 .

CY = Capital gain yield or, capital gain per share to market price per share, i.e. $(P_1 - P_0)/P_0$.

TY = Total yield or dividend per share plus capital gain per share to market price per share, i.e. $(D_1 + P_1 - P_0)/P_0$

The independent variables are specified as under:

E/P = Earning yield or earning per share to market price per share.

ln (ME) = Size or natural logarithm of market capitalization.

ln (B/M) = natural logarithm of Book value of equity per share to market value of equity per share.

ln (A/ME) = natural logarithm of market leverage.

ln (A/BE) = natural logarithm of book leverage.

ln (C/P) = Cash flow yield or earning per share plus depreciation expenses per share to market price per share.

U_i = Distribution or error term.

3.4.2 Method of Analyzing the Summary Statistics for Portfolio sorted by fundamental variables:

The summary statistics are studied to examine the relationship between stock returns and the fundamental variables of Nepalese enterprises. This

study is conducted at a portfolio level based on pooled-cross-section analysis of 41 enterprises with 158 observations. The study sorts out all the sampled securities into four portfolios. The summary statistics for portfolios have been sorted by each fundamental variables viz. Table 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6 respectively.

The low, to high ratios of fundamental variables are provided in portfolios 1, 2, 3 and 4 of each table. Splitting stock into more than four portfolios reduces the sample size which would result the greater sampling error. For each portfolio, various ratios of dividend yield, capital gain yield, total yield, earning yield, size, book-to market equity ratio, cash flow yield, and leverage are computed.

In the first step, stocks are ranked by earnings yield in Table 4.1 and placed them into four groups. Group 1 contains stocks with earnings yield of less than 4% and accordingly group 2, 3 and 4, each contains stocks ranked by increasing value of earnings yield. In the other tables, portfolios 1 to 4 are also formed according to the similar process.

3.4.3 Method of Analyzing Market Sensitivity of realized Stock Returns

Market sensitivity analysis of realized stock returns is used to examine the performance of the individual stock of each enterprise whether it is correctly priced, underpriced or, overpriced. This study is conducted at a stock level based on pooled cross-sectional data of 41 enterprises. Specifically, in the first step, required rate of return of individual stocks is calculated on the basis of beta, market return and risk free rate of return. Secondly, required rate of return is compared with the realized rate of return. The stocks are then classified accordingly into two group namely underpriced and overpriced stocks.

3.4.4 Method of Evaluating Investment Portfolio Performance

Investment performance evaluation is the study for the evaluation of the portfolios of the stocks constructed on the basis of the sector. The total enterprises selected for the research purpose are categorized into seven different sector groups. Sector 1 contains the Commercial Banks and their stocks forming a portfolio. Similarly, sectors 2 to 7 contain the Development Banks, Financial Companies, Insurance Companies, Hotels, Manufacturing and Processing Companies, and Trading Companies and Others respectively. The average realized returns and their variability (i.e., standard deviation or, total risk) and systematic risk for the each portfolio are calculated. The performance index for each portfolio is then computed as per Sharpe's measure and Treynor's measure.

Then equation employed to compute Sharpe's Performance Index is:

$$S_p = \frac{\text{Risk premium}}{\text{Total risk}} = \frac{\overline{R}_p - R_f}{\sigma_p}$$

Where, $\overline{R}_p$ = Average return for portfolio.

S_p = Sharpe's index of portfolio performance for portfolio.

R_f = Risk free rate of return.

σ_p = Standard deviation of returns for portfolio.

And, equation employed to compute Treynor's Performance Index is:

$$T_p = \frac{\text{Risk premium}}{\text{Systematic risk index}} = \frac{\overline{R}_p - R_f}{\beta_p}$$

Where, $\overline{R}_p$ = Average return for portfolio.

T_p = Treynor index of portfolio performance.

R_f = Risk free rate of return.

β_p = Systematic risk index of portfolio.

Lastly, the portfolios are ranked on the basis of the performance index as under both measures.

3.4.5 Method of Analyzing Risk-Return Classes of Nepalese Stocks

The risk-return classes of Nepalese stocks are studies to measure the volatility of the realized returns on Nepalese stock. In this study betas and realized return of 41 stocks are analyzed. Low to high betas of the stocks are provided in 5 portfolios. Group 1 contains stocks with negative betas, group 2 contains stock with beta equal and more than zero but less than 0.50, accordingly, groups 3, 4 and 5 contain the stocks ranked by increasing value of beta value. Regression equation is also estimated as under:

$$\bar{r}_j = a + b(\text{average beta}_j) + U_j$$

Where, $\bar{r}_j$ = Average annual stock returns on stocks (Dependent variable)

a = y-intercept

b = Slope of the regression line average beta_j is independent variable

U_j = Disturbance or error term

3.4.6 Statistical Tools Used:

In the process of estimating above mentioned models in subsection A, various statistical tools have been used, e.g. coefficient of multiple determination (R^2), Standard Error of Estimate (SEE), student's t-statistics and F-statistics etc. The statistical parameters are calculated with the help of computer via. SPSS for the models prescribed above. Brief explanations of statistical tools employed in this study are as follows:

3.4.6.1 Coefficient of Multiple Determinations (R^2):

The coefficient of multiple determination is a measure of the degree (extent or strength) of linear association of correlation between two variables, one of which happens to be dependent and other being independent variable. In other hand, R^2 measures the percentage total variation in independent variable explained by explanatory variable explained by explanatory variables. The coefficient of multiple determination can have the value ranging from zero to one (i.e. $0 \geq R^2 \geq 1$). If R^2= 90, the independent variables used in regression model, explain 90 percent of total variation in the dependent variable. A value of one can occur if only the unexplained variation is zero, which simply means that all the data points out in the scatter diagram fall exactly on the regression line.

3.4.6.2 Regression Constant (a)

It is also known as the numerical constant which determines the distance of the fitted line directly above or below the origin (i.e. y-intercept). The value of the constant, which is intercept of the model, indicates the average level of dependent variable when independent variable (s) is (are) zero. In other words, it is better to understand that a constant indicates the mean or average affect of dependent variable if all the variables omitted from the model.

3.4.6.3 Regression Coefficient $(b_1, b_2, b_3, ...)$

The regression coefficient of each dependent variable indicates the marginal relationship between that variable and value of dependent variable, holding constant effect of all other independent variables in the regression model. In other words, the coefficients describe how changes in independent variables affect the values of dependent variable's estimate. It is also known as the numerical constant which determines the change in dependent variable with per unit change in independent variables (i.e. slope of line).

3.4.6.4 Standard Error of Estimate (SEE)

With the help of regression equations perfect prediction is practically impossible. Standard error of an estimate is a measure of reliability of the estimating equation, indicating the variability of the observed values differs from their predicted values on the regression time. The smaller the value of SEE, the close will be the dots to the regression line and better the estimates based on the equation for this line. If SEE is zero, then there is no variation about the line and the correlation will be perfect. Thus, with the help of SEE, it is possible to ascertain how good and representative the regression line is as a description of the average relationship between two series.

3.4.6.5 T-Test

To test the validity of assumptions of the study for small samples, t-test is used. It is very difficult to make a clear-cut distinction between small samples and large samples. However, from practical point of view, in most of the situations a sample is termed as small if $n \leq 30$. It should be clearly understood that exact sample techniques (tests) can be used, even for large samples but large sample theory can't be used for small samples (Gupta: 1995, 1208). For applying t-distribution, t-values are calculated first and compared with critical values at a certain level of significance for given degree of freedom. If the computed value of 't' exceeds the table value (say $t_{0.005}$), it is known that the difference is significant at 5 percent level of significance but if t-values are less than corresponding critical values of the 't' distribution, the difference is not treated as significant.

3.4.6.6 F-Test

The Fisher's F-distribution is defined as a distribution of the ration of two independent chi-square variables each divided by the corresponding degree of freedom. It is clear that F-distribution has a single mode. Not that the shape of F-distribution depends on the value of degrees freedom and the value of F lies between 0 to ∞ (zero to infinity). The F-test sometimes

called variance ration test, is based on F-distribution. In order to test goodness of fit of the regression models, F-test is used.

3.5 Limitation of the Study

1. This study does not cover all the Nepalese enterprises. It therefore implies that the conclusions drawn are of a tentative nature and firm generalization should be avoided for the entire listed enterprises.
2. Each of selected enterprises does not represent the entire industry in which it falls.
3. Regression results are based on pooled cross-section analysis of limited observations for the selected enterprises.
4. The earlier years are not considered as it will decrease the number of enterprises to be selected for this study.
5. The study has been forced to use annual data which are available in profit and loss accounts and balance sheet as monthly or quarterly data could not be obtained. The use of annual data in this study is thus likely to make the conclusions somewhat less valid and less reliable.
6. The findings and conclusions of this study is accurate to that extent what the data and information provided by the companies and respondents are accurate.
7. The limited data, limited observations, lack of key figures in certain year, lack of research experience and lack of recent information etc. mar the accuracy and reliability of the data and hence the conclusions.

3.6 Definition of Key Terms

The financial statement published by NEPSE Ltd. has its own format for publishing the financial data of Nepalese enterprises on a more or less

uniform basis. It is therefore, desirable to define some key terms so as to avoid misunderstanding:

Cross-Section: The word "cross-section" used in this study refers to a study across different stocks for one time period by taking typical or representative sample.

Realized Returns: "Realized Returns" in this study is defined in terms of dividend yield, capital gain yield and total yield on stocks.

Dividend Yield: "Dividend Yield' refers to the rate of return in the form of dividend. It is calculated by dividing the year end dividend per share by the beginning market price per share.

Capital Gain Yield: "Capital Gain Yield" is known as the rate of return in the form of share price appreciation (or, depreciation) during the period of one year. It is calculated by dividing capital gain (or, loss) by the beginning market price per share.

Total Yield: "Total Yield" constitutes aggregate of dividend yield and capital gain yield. It is the total rate of return on stock investment.

Earnings Yield: "Earning Yield" refers to earnings per share divided by market price per share.

Size: Size is defined as total market capitalization of individual enterprises. Total capitalization includes net worth plus long-term debt. It is also known as capital employed. Size in this study, is denoted by ln(ME), i.e. natural logarithm of market capitalization denominated in million of rupees.

Book-to-Market Equity Ratio: It is book value of equity per share to market value of equity per share at closing price.

Book leverage: "Book leverage" is calculated as the total book assets divided by the book value of common equity.

Market Leverage: "Market Leverage" is calculated as the total book assets divided by the market value of common equity.

Cash Flow Yield: It is earnings after interest and tax plus depreciation expenses divided by market value of equity at closing price.

Fundamentals: "Fundamentals" refers to the group of independent variables that play the important roles in determining the stock returns.

CHAPTER-IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this chapter is to carry out secondary data analysis. Firstly, it attempts to analyze the properties of portfolios formed on earning yield, size, book-to-market ratio, book leverage, market leverage, and cash flow yield. Secondly, it attempts to fit regression equation of dividend yield, capital gain yield, and total yield on the fundamental variables. Thirdly, it attempts to analyze the market sensitivity (i.e. price situation) of the individual stocks. Finally, it attempts to analyze risk-return classes of Nepalese stocks

4.1 Summary Statistics for Portfolios sorted by fundamental variables

The summary statistics for portfolios have been sorted out by the fundamental variables to analyze the role of earnings yield, size, book-to-market equity ratio, cash flow yield, book leverage and market leverage. The low to high ratios of the fundamental variables are provided in the 4 portfolios for each of the tables 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6. For this purpose, various ratios of the dividend yield, capital gain yield, total yield, earnings yield, size, book-to-market equity ratio, book leverage, market leverage and cash flow yield are computed. They are classified into four portfolios depending on the size of the ratio of each variable. The low to high ratios of these variables are provided in portfolios 1 to 4 for each table.

4.1.1 Summary Statistics for Portfolios sorted by Earnings Yield

The summary statistics for portfolios have been sorted out by earnings yield to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.1.

Table: 4.1

Summary Statistics for Portfolios sorted by Earnings Yield

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by earnings yield over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: / **Bases of portfolio**	**1 (Smallest) < 4.00**	**2 4.00 to 8.00**	**3 8.00 to 15.00**	**4 (largest) ≥ 15.00**
EP (%)	-10.60 (33.47)	5.79 (1.10)	10.97 (1.79)	28.63 (20.67)
DY (%)	0.20 (0.49)	3.01 (3.37)	6.64 (5.70)	7.73 (8.13)
CY (%)	-15.39 (22.41)	6.27 (29.59)	-0.13 (18.36)	-4.33 (8.13)
TY (%)	-15.19 (23.10)	9.28 (31.15)	6.51 (19.89)	3.40 (21.58)
ln (ME)	6.58 (1.23)	6.38 (1.64)	5.06 (1.62)	4.04 (0.69)
ln (B/M)	-0.38 (0.59)	-0.92 (0.74)	-0.41 (0.55)	0.20 (0.76)
ln (A/ME)	1.23 (1.22)	1.16 (1.41)	1.39 (1.07)	2.19 (0.94)
ln (A/BE)	1.61 (1.20)	2.09 (1.10)	1.79 (1.01)	1.99 (0.86)
C/P (%)	-2.76 (32.78)	7.37 (1.75)	12.66 (3.24)	29.57 (20.84)
N	37	42	43	36

Source: Appendix-1

In Table 4.1, the portfolios sorted by earnings yield have been presented. The stocks with high earnings yield have higher dividend yield, higher capital gain yield and higher total yield. The average dividend yield increases from 0.20 percent for the low to 7.73 percent for the high portfolio. Similarly, the capital gain yield increased from – 15.39 percent for the low to – 4.44 percent or the high portfolio. The average total yield also increased from – 15.19 percent for the low to 3.40 percent for the high portfolio. Thus higher the earnings yield, higher would be the dividend yield, capital gains yield and total yield and vice – versa. These findings are consistent with the findings of Basu (1983), Ball (1978) and Balampaki (2004). The stocks with high earnings yield are less variable than that of low earnings yield. The capital gain yield and total yield for higher portfolio are also less variable as compared to low earnings yield portfolio. However, the dividend yields for the high portfolio are more variable as compared to low earnings yield portfolio.

The average of natural log of market equity denominated in millions of Rupees (i.e. size of firms) decreased from 6.58 for the low to 4.04 for the high earnings yield portfolio. Moreover, the size for the low portfolio is more variable than that of high earnings yield portfolio. The average of natural log of book-to-market equity ratio increased from -0.38 for low to 0.20 for the high earnings yield portfolio. The average of natural log of market leverage increased from 1.23 for the low to 2.19 for the high earnings yield portfolio. Similarly, the average of natural log of book leverage increased from 1.69 for the low to 1.99 for the high earnings yield portfolio. Moreover, cash flow yield increased from -2.76 for the low to 29.57 for the high earnings yield portfolio. The book-to-market equity ratio for the low is more variable as compared to high earnings yield portfolio whereas, market leverage, book leverage and cash flow yield for the low are more variable as compared to the high earnings yield portfolio.

4.1.2 Summary Statistics for Portfolios sorted by Size

The summary statistics for portfolios have been sorted out by size to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.2.

Table: 4.2
Summary Statistics for Portfolios sorted by Size

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by size over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: / Bases of portfolio	**1 (Smallest) < 4.20**	**2 4.20 to 5.00**	**3 5.00 to 7.00**	**4 (largest) ≥ 7.00**
ln (ME)	3.74	4.46	5.97	7.76
	(0.55)	(0.19)	(0.52)	(0.62)
DY (%)	5.65	5.43	2.34	4.45
	(6.49)	(6.72)	(3.04)	(5.41)
CY (%)	-4.21	-6.62	-8.35	7.96
	(16.65)	(17.38)	(19.92)	(29.22)
TY (%)	1.46	-1.19	-6.01	12.42
	(18.18)	(21.48)	(29.52)	(30.79)
E/P (%)	15.71	17.77	-6.23	6.23
	(15.57)	(19.10)	(32.87)	(2.72)
ln (B/M)	0.04	0.06	-0.71	-1.14
	(0.46)	(0.75)	(0.73)	(0.36)
ln (A/ME)	2.03	1.85	0.85	1.07
	(0.85)	(0.92)	(1.52)	(1.12)
ln (A/BE)	1.98	1.83	1.52	2.22
	(0.91)	(0.91)	(1.23)	(1.15)
C/P (%)	18.26	19.75	0.11	7.77
	(16.24)	(17.78)	(31.47)	(2.87)
N	45	38	42	33

Source: Appendix-1

In Table 4.2, the portfolios sorted by size have been presented. The larger stock have lower dividend yield but have higher capital gain yield and higher total yield. The average dividend yield decreased from 5.65 percent for the smallest to 4.45 percent for the largest portfolio. In contrast to dividend yields, the capital gain yield and total yield both increased from – 4.21 percent and 1.46 percent for the smallest to 7.96 percent and 12.41 percent for the largest portfolio respectively. Thus, greater the size of the enterprise, lower would be the dividend. These findings are consistent with the findings of Banz (1981) and Balampaki (2004). However, greater the size of the enterprise, higher would be the capital gain yield and vice versa. These findings are consistent with Balampaki (2004) but not consistent with Banz (1981). Moreover dividend yield for the smallest portfolio is more variable than that of largest portfolio. In contrast, capital gain yield and total yield for the smallest portfolio are less variable than that of largest portfolio. The average earnings yields deceased from 15.71 percent for the smallest to 6.25 percent for the largest portfolio. Similarly, average of natural log of book-to-marker equity ratio decreased from 0.04 for smallest to – 1.14 for the largest portfolio. Similarly, the average of natural log of market leverage and cash flow yield decreased from 2.03 and 18.26 for the smallest to 1.07 and 7.77 for the largest portfolio respectively. But book leverage increased from 1.98 for smallest to 2.22 for the largest portfolio.

Moreover, earnings yield, market leverage and cash flow yield are more variable for the smallest portfolio as compared to largest portfolio whereas leverage is less variable for the smallest portfolio as compared to largest portfolio.

4.1.3 Summary Statistics for Portfolios sorted by Book-to-Market Equity Ratio

The summary statistics for portfolios have been sorted out by book-to-market equity ratio to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.3.

Table 4.3
Summary Statistics for Portfolios sorted by Book-to-Market Equity Ratio

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by book-to-market equity ratio over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: / **Bases of portfolio**	**1 (Smallest)** **< -1**	**2** **-1 to 0.45**	**3** **0.45 to 0**	**4 (largest)** **≥ 0**
ln (B/M)	-1.14	-0.67	-0.23	0.46
	(0.41)	(0.16)	(0.14)	(0.54)
DY (%)	4.90	3.69	4.74	4.75
	(5.05)	(4.78)	(4.52)	(7.64)
CY (%)	1.74	-0.41	-3.26	-8.48
	(29.99)	(30.54)	(12.25)	(17.26)
TY (%)	6.64	3.28	0.46	-3.73
	(31.98)	(33.42)	(14.53)	(19.99)
E/P (%)	5.92	4.9	3.26	18.50
	(7.06)	(17.13)	(33.68)	(22.19)
ln (ME)	7.46	5.68	4.7	4.08
	(1.05)	(1.27)	(0.88)	(0.79)
ln (A/ME)	0.65	1.29	1.77	1.94
	(1.03)	(0.93)	(0.97)	(1.02)
ln (A/BE)	2.16	1.99	1.99	1.47
	(1.38)	(0.97)	(0.96)	(1.02)
C/P (%)	8.18	6.67	6.38	22.80
	(5.78)	(9.67)	(33.11)	(22.16)
N	32	43	37	46

Source: Appendix-1

In Table 4.3, the portfolios sorted by book-to-market equity ratio are presented .The preliminary test (Fama, and French 1992) indicated that logs are a good functional form for capturing fundamentals effects in average returns. Using logs also leads to a simple interpretation of relation between the roles of independent variables in average returns. Natural logs are therefore, being widely employed in this study.

The stocks having higher book-to-market equity ratio have lower dividend yield, lower capital gain yield and lower total yield. The dividend yield decreased from 4.90 percent for lowest to 4.75 percent for the highest. Similarly, the capital gain yields and total yield also decreased from 1.74 percent and 6.64 percent for lowest to -8.48 percent an – 3.73 percent for highest respectively. However, the dividend yield, capital gain yield and total yield for the lowest portfolio are more variable as compared to the largest portfolio. Thus, higher the book-to-market equity ratio, lower would be the dividend yield, capital gain yield and total yield and vice versa.

These findings are partially consistent with the findings of Balampaki (2004) and consistent with the findings of Rosenberg, Reid and Lanstein (1984), Stattman (1980), Chan, Hamao, and Lakonishok (1991), Fama and French (1992), Davis (1994) and Daniel, Titman, and Wei (2001). Moreover, higher the book-to-market equity ratio, higher would be the market leverage, and cash flow yield. All those three variables (Market leverage book leverage, cash flow yield) for the lowest portfolio are more variable than that of largest portfolio.

4.1.4 Summary Statistics for Portfolios sorted by Cash Flow Yield

The summary statistics for portfolios have been sorted out by cash flow yield to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.4.

Table 4.4

Summary Statistics for Portfolios sorted by Cash Flow Yield

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by cash flow yield over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: / **Bases of portfolio**	**1 (Smallest) < 6**	**2 6 to 9**	**3 9 to 16**	**4 (largest) ≥ 16**
C/P	-5.15 (31.44)	7.52 (0.83)	12.18 (1.99)	28.66 (19.19)
DY (%)	1.00 (1.81)	2.54 (3.25)	6.55 (5.15)	6.66 (7.88)
CY (%)	-9.77 (26.32)	6.43 (31.17)	1.09 (18.17)	-2.83 (18.19)
TY (%)	-8.77 (25.87)	8.97 (33.12)	7.64 (20.10)	3.83 (21.56)
E/P (%)	-9.58 (33.89)	7.30 (10.86)	9.97 (2.56)	23.73 (19.73)
ln (ME)	5.89 (1.23)	6.50 (1.45)	5.13 (1.70)	4.18 (0.85)
ln (B/M)	-0.72 (0.72)	-0.75 (0.62)	-0.44 (0.59)	0.20 (0.73)
ln (A/ME)	1.20 (1.45)	1.03 (1.19)	1.52 (1.12)	2.03 (1.03)
ln (A/BE)	1.92 (1.17)	1.83 (1.20)	1.95 (1.01)	1.84 (0.99)
N	37	34	44	43

Source: Appendix-1

In Table 4.4, the portfolios sorted by ash flow yield are presented. The stocks having higher cash flow yield have higher dividend yield, capital gain yield and total yield. The cash flow yield, therefore, increases with the increased returns. The average dividend, dividend yield, capital gain yield and total yield increased from 1 percent, -9.77 percent and – 8.77 percent for the smallest portfolio to 6.66 percent , -2.83 percent and 3.83 percent respectively for the largest portfolio. Thus, higher the cash flow yield, higher would be the dividend yield, capital gain yield and total yield and vie

versa. These findings are consistent with the findings of Bernard, Stobber (1989), Wilson (1986), Davis (1994) Daniel, Titman, and Wei (2001). The findings regarding cash flow yield and dividend yield are consistent with the findings of Balampaki (2004) but not consistent in regard to capital gain yield and total yield. Both of these variables are less variable for the smallest portfolio as compared to the largest portfolio.

4.1.5 Summary Statistics for Portfolios sorted by Market Leverage

The summary statistics for portfolios have been sorted out by market leverage to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.5.

Table 4.5

Summary Statistics for Portfolios sorted by Market Leverage

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by market leverage over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: Bases of portfolio	**1 (Smallest) < 1**	**2 1 to 1.80**	**3 1.80 to 2.10**	**4 (largest) ≥2.10**
ln (A/ME)	-0.24 (1.13)	1.44 (0.22)	1.93 (0.09)	2.47 (0.72)
DY (%)	3.10 (5.25)	3.48 (4.16)	4.73 (3.93)	6.45 (7.89)
CY (%)	-4.67 (21.79)	2.67 (28.84)	-1.44 (19.14)	-9.24 (23.52)
TY (%)	-1.57 (24.44)	6.15 (30.81)	3.89 (19.51)	-2.79 (26.21)
E/P (%)	6.93 (7.95)	8.98 (11.16)	3.10 (19.22)	14.45 (38.51)
ln (ME)	5.73 (1.37)	6.12 (1.73)	5.39 (1.53)	4.23 (0.98)
ln (B/M)	-0.36 (0.85)	-0.68 (0.62)	-0.49 (0.58)	0.13 (0.76)
ln (A/BE)	0.44 (03.63)	2.09 (0.68)	2.43 (0.50)	2.51 (0.71)
C/P (%)	10.79 (7.25)	9.66 (6.71)	7.22 (13.19)	18.01 (38.97)
N	39	41	36	42

Source: Appendix-1

In Table 4.5, the portfolios sorted by market leverage are presented. The stocks having high market leverage have higher dividend yield .The average dividend yield increased from 3.10 percent for the smallest portfolio to 6.45 percent for the largest portfolio. In contrast to dividend yield, the market leverage is negatively related to capital gain yield and total yield. The average capital gain yield and total yield both decreased from – 4.67 percent and – 1.57 percent for the smallest portfolio to – 9.24 percent and – 2.79

percent for the largest portfolio respectively. Thus greater the market leverage, higher would be the dividend yield and lower would be the capital gain yield and total yield and vice versa. These findings are consistent with the findings of Bhandari (1988) and Fama and French (1992). However, all these three yields are more variable for the largest portfolio than that of smallest portfolio.

4.1.6 Summary Statistics for Portfolios sorted by Book Leverage

The summary statistics for portfolios have been sorted out by book leverage to analyze the role of earnings yield in the cross-section of realized returns on Nepalese stocks and presented below in Table 4.6.

Table 4.6

Summary Statistics for Portfolios sorted by Book Leverage

(Average yearly dividend yield (DY), Capital Gain Yield (CY), Total Yield (TY), Earning Yield(E/P), Size [ln(ME) i.e. market capitalization], natural logs of book-to-market ratio [ln(B/M)], natural logs of book leverage and market leverage [ln(A/BE) and ln(A/ME)] cash flow yield (C/P i.e. earnings plus depreciation divided by price.) for portfolios sorted by book leverage over the period of 2003/04 to 2007/08 of 41 enterprises with 158 observations. Figures in parentheses are standard deviations and N denotes the number of observations in each portfolio.)

Portfolios: Bases of portfolio	**1 (Smallest) < 1**	**2 1 to 2.20**	**3 2.20 to 2.60**	**4 (largest) ≥ 2.60**
ln (A/BE)	0.27 (0.35)	1.79 (0.39)	2.39 (0.13)	3.03 (0.35)
DY (%)	2.25 (5.05)	5.13 (6.39)	5.83 (6.79)	4.33 (4.06)
CY (%)	-8.40 (18.79)	-4.87 (19.64)	3.12 (26.31)	-3.08 (28.67)
TY (%)	-6.15 (20.54)	0.26 (21.51)	8.95 (28.76)	1.25 (30.38)
E/P (%)	6.73 (8.49)	14.83 (25.57)	8.66 (12.45)	5.56 (35.75)
ln (ME)	5.49 (1.27)	4.97 (1.75)	5.23 (1.55)	6.03 (2.08)
ln (B/M)	-0.39 (0.87)	0.08 (0.82)	-0.45 (0.44)	-0.79 (0.67)
ln (A/ME)	-0.08 (1.16)	1.82 (0.65)	1.95 (0.44)	2.22 (0.79)
C/P (%)	10.73 (8.03)	19.49 (20.56)	10.90 (8.46)	5.48 (35.61)
N	40	39	39	40

Source: Appendix-1

In Table 4.6, the portfolios sorted by book leverage are presented. The stocks having high book leverage have higher dividend yield, capital gain yield and total yield. The average dividend yield, capital gain yield, and total yield increased from 2.25 percent, -8.40 percent, and -6.15 percent for the smallest portfolio to 4.33 percent ,3.08 percent and 1.25 percent respectively for the largest portfolio. Thus, greater the book leverage, higher would be the dividend yield, capital gain yield and total yield and vice- versa. These

findings are not consistent with the findings of Bhandari (1988) and Fama and French (1992). However, dividend yield is more variable for the smallest portfolio whereas capital gain yield and total yield are more variable for the largest portfolio. Moreover, earnings yields is and cash flow yield are more variable for the largest portfolio and leverages are more variable for smallest portfolio.

4.2 Estimated Regression Results of stock Returns on Fundamental variables

The regression results of dividend yield, capital gain yield and total yield on earnings yield, size, book-to-market equity ratio, book leverage, market leverage, and cash flow yield are presented in this section. Table 4.7 is related to the estimated regression results of dividend yield, Table 4.8 is related to the capital gain yield, and Table 4.9 is related to the total yield. The results of these alternative specifications support the summary statistics for the portfolios presented in Table 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6.

4.2.1 Estimated Regression Results of Dividend Yield on Fundamental variables

The regression results of the dividend yield on earning yield, size, book-to-market ratio, book leverage, market leverage, and cash flow yield are presented in table 4.7.

Table 4.7

Estimated Regression Results of Dividend Yield on Fundamental Variables

(The results are based on pooled cross-sectional data of 41 enterprises with 158 observations for the period of 2003/04 to 2007/08 by using linear regression model. The model is,

$$DY = a + b_1(E/P) + b_2 \ln(ME) + b_3 \ln(B/M) + b_4.\ln(A/ME) + b_5.\ln(A/BE) + b_6(C/P) + U_i$$

Where, DY, E/P, ME, B/M, A/ME, A/BE and C/P are dividend yield, earnings yield, size, book-to-market equity ratio, market leverage, book leverage and cash flow yield. ln and U_i represent natural logarithm and disturbance or error term.)

Model	Intercept	Regression Coefficients of						R^2	SEE	F
		E/P	ln(M/E)	ln(B/M)	ln(A/ME)	ln(A/BE)	C/P			
1	3.66 (8.26)*	0.08 (4.03)*						0.09	5.47	16.24*
2	4.24 (8.37)*			-0.24 (-0.38)				0.01	5.76	0.15
3	3.47 (7.34)*						0.08 (3.59)*	0.08	5.53	12.94*
4	5.22 (3.20)*	0.08 (3.73)*	-0.20 (-0.85)					0.10	5.48	8.47*
5	3.37 (3.74)*			-0.67 (-0.98)	-0.63 (-1.53)			0.02	5.73	1.24
6	6.84 (3.88)*	0.08 (3.99)*	-0.69 (-1.99)*	-1.65 (-2.25)*				0.13	5.41	7.48*
7	2.17 (2.36)*				-0.74 (-1.21)	1.34 (2.05)*	0.09 (3.95)*	0.11	5.48	5.94*
8	2.12 (2.27)*			-0.03 (-0.32)	-0.71 (-0.36)	1.50 (0.89)	0.09 (3.88)*	0.11	5.50	4.45*
9	6.40 (3.08)*	0.08 (4.14)*	-0.75 (-2.06)*	-0.56 (-0.47)	-1.12 (-0.97)	1.56 (1.33)		0.14	5.40	4.99*
10	6.23 (2.97)*		-0.79 (-2.18)*	-0.66 (-0.55)	-1.21 (-1.04)	1.69 (1.43)	0.09 (3.91)*	0.13	5.43	4.60*
11	6.38 (3.04)*	0.08 (2.29)*	-0.75 (-1.05)	-0.56 (-0.47)	-1.14 (-0.97)	1.59 (1.33)	0.01 (0.11)	0.14	5.42	4.13*

Source: Appendix-I

Notes: 1. Figures in parentheses are t – values.

2. * denotes that results are significant at 5 percent level of significance.

The first three models include one of the six independent variables selected at a time. Models 4 to 10 include various combinations of the fundamental variable and model 11 includes all the six fundamental variables simultaneously.

The dividend yield is positively influenced by earnings yield, book leverage and cash flow yield and negatively influenced by size, book to market equity and market leverage. Thus, higher the earnings yield, book leverage, and cash flow yield, higher would be the dividend yield and vice-versa. However, higher the size, book-to-market equity ratio and market leverage, lower would be the dividend yield and vice-versa. The results are more or less similar to the results indicated by Chan, Hamao and Lakonishok (1991) conducted in the content of Japanese stock market and also to the results indicated by Balampaki (2004) in the content of Nepalese stock market from 1995/96 to 1999/00.

The regression coefficients of earnings yield are significant for the models 1, 4, 6, 9, and 11. Similarly, the coefficient of size is also significant for the models 6, 9, and 10. The coefficients of cash flow yield are also significant for the models 3, 7, and 10.

Specifically, earnings yield and cash flow yield have positive influence on dividend yield while a negative association exists between dividend yield and size. Model 6 attempts to make clear the separate influence of earnings yield, size and book-to-market equity ratio on dividend yield. Adding book leverage and market leverage as independent variable market equity is weakened. Further more, in model 10, earnings yield is replaced by cash flow yield measure. The cash flow yield may be more informative than book-to-market equity ratio and leverages .In model 11, when all the independent variables are included, only earnings yield has been found to be significant.

The results suggest that the earnings yield may be more informative in predicting dividend yield than other are generally poor as revealed by coefficients of multiple determination $\left(R^2\right)$ which contradicts with Chan, Hamao and Lakonishock, 1991. Though the goodness of fit of the models is poor, they are good because signs of beta coefficient are all consistent with priori expectations. The explanatory power of the model may increase with the inclusion of larger number of enterprises and a longer study period.

4.2.2 Estimated Regression Results of Capital Gain Yield on Fundamental variables

The regression results of the capital gain yield on earning yield, size, book-to-market equity ratio, book leverage, market leverage, and cash flow yield are presented in table 4.8. Table 4.8

Estimated Regression Results of Capital Gain Yield on Fundamental Variables

(The results are based on pooled cross-sectional data of 41 enterprises with 158 observations for the period of 2003/04 to 2007/08 by using linear regression model. The model is,

$$CY = a + b_1(E/P) + b_2 \ln(ME) + b_3 \ln(B/M) + b_4.\ln(A/ME) + b_5.\ln(A/BE) + b_6(C/P) + U_i$$

Where, CY, E/P, ME, B/M, A/ME, A/BE and C/P are capital gain yield, earnings yield, size, book-to-market equity ratio, market leverage, book leverage and cash flow yield. ln and U_i represent natural logarithm and disturbance or error term.)

Model	Intercept	Regression Coefficients of						R^2	SEE	F
		E/P	ln(M/E)	ln(B/M)	ln(A/ME)	ln(A/BE)	C/P			
1	-4.07 (-1.88)	0.10 (1.17)						0.01	24.64	1.36
2	-5.60 (-2.42)*			-5.48 (-2.08)*				0.03	24.40	4.31*
3	-4.27 (-1.86)*						0.09 (1.00)	0.01	24.67	1.03
4	-18.94 (-2.55)	0.14 (1.62)	2.69 (2.09)*					0.04	24.36	2.88
5	-7.61 (-1.96)			-6.26 (-2.15)*	-1.15 (-0.64)			0.03	24.45	2.36
6	-13.96 (-1.71)	0.16 (1.77)	1.40 (0.85)	-4.81 (-1.45)				0.04	24.27	2.64
7	-9.63 (-2.34)*				-5.68 (-2.17)*	6.96 (2.40)*	0.18 (1.84)	0.04	24.34	2.34
8	-10.24 (-2.45)*			-4.70 (-0.88)	-1.91 (-0.38)	3.16 (0.61)	0.17 (1.74)	0.05	24.36	1.95
9	-16.58 (-1.74)*	0.16 (1.74)	1.42 (0.85)	-4.02 (-0.75)	-0.37 (-0.07)	1.71 (0.32)		0.06	24.39	1.68
10	-17.77 (-1.79)		1.33 (0.79)	-4.19 (-0.78)	-0.87 (-0.12)	2.50 (0.39)	0.17 (1.74)	0.06	24.39	1.68
11	-16.92 (-1.76)	0.08 (1.29)	1.38 (0.82)	-4.80 (-2.75)*	-0.57 (-0.10)	1.97 (0.36)	0.09 (1.31)	0.06	24.47	1.41

Source: Appendix-I

Notes: 1. Figures in parentheses are t – values.

2. * denotes that results are significant at 5 percent level of significance.

The first three models include one of the six independent variables selected at a time. Models 4 to 10 include various combinations of the fundamental variable and model 11 includes all the six fundamental variables simultaneously.

The overall results show the positive relationship of capital gain yield with earnings yield, size, book leverage and cash flow yield and negative relationship with book-to-market equity ratio and market leverage. Thus, higher earnings yield, size, book leverage and cash flow yield, higher would be the capital gain yield and vice-versa. However, the book to equity ratio and market leverage, lower would be the capital gain yield and vice versa.

The regression coefficient of book to market equity is significant in model 2, when only book to market equity ratio is treated as the independent variable. Adding the market leverage as the next independent variable in model 5 does not rob the predicting power of book to market equity ratio in replacing by book leverage and cash flow yield measure both leverages have been found to be more informative than cash flow yield. However, the book to market equity ratio has been appeared as more significant than leverages in various combinations formed in model 8, 9 and 10. Moreover, in model 11, when all the fundamental variables are simultaneously included, only the t-statistics of book to market equity ratio has been found to be significant. The book-to market equity ratio coefficient is more significant and, therefore has higher predictive power than other variables. These findings are partially consistent with the results of Rosenberg, Reid and Lanstein (1984), Stattman (1980), Fama and French (1992) and Daniel, Titman, and Wei (2001) with regard to predictive power, however, the book-to-market equity ratio, in this study has negative relationship with capital gain yields. Similarly, these findings are more or less consistent with the findings of Balampaki (2004) in the context of Nepalese stock market. However, the models estimated are generally poor as reveled by coefficient of multiple determination (R^2)

which contradicts with Basu (1983), Stober (1989), and Wilson (1983). Though the goodness of the fit of the models is poor, they are good because signs of the beta coefficient are consistent with the priori expectations. The explanatory power of the models may increase with the inclusion of larger no. of enterprises and a higher study period.

4.2.3 Estimated Regression Results of Total Yield on Fundamental variables

The regression results of the total yield on earning yield, size, book-to-market equity ratio, book leverage, market leverage, and cash flow yield are presented in table 4.9.

Table 4.9

Estimated Regression Results of Total Yield on Fundamental Variables

(The results are based on pooled cross-sectional data of 41 enterprises with 158 observations for the period of 2003/04 to 2007/08 by using linear regression model: $TY = a + b_1(E/P) + b_2 \ln(ME) + b_3 \ln(B/M) + b_4.\ln(A/ME) + b_5.\ln(A/BE) + b_6(C/P) + U_i$ Where, TY, E/P, ME, B/M, A/ME, A/BE and C/P are total yield, earnings yield, size, book-to-market equity ratio, market leverage, book leverage and cash flow yield. ln and U_i represent natural logarithm and disturbance or error term.)

Model	Intercept	Regression Coefficients of						R^2	SEE	F
		E/P	ln(M/E)	ln(B/M)	ln(A/ME)	ln(A/BE)	C/P			
1	-0.41 (-0.18)	0.18 (1.90)						0.02	24.52	3.60*
2	-1.36 (-0.54)			-5.69 (-1.99)*				0.03	26.50	3.94*
3	-0.80 (-0.32)						0.17 (1.67)	0.02	26.60	2.78*
4	-13.72 (-1.76)	0.22 (2.67)*	2.49 (1.79)					0.05	26.33	3.42*
5	-4.24 (-1.10)			-6.98 (-2.21)*	-1.78 (-0.97)			0.03	26.50	2.45
6	-7.12 (-0.86)	0.24 (2.46)	0.71 (0.42)	-6.36 (-2.48)*				0.07	26.14	3.37*
7	-7.44 (-1.81)				-6.42 (-2.29)*	8.30 (2.72)*	0.27 (2.55)*	0.07	26.12	3.46*
8	-8.12 (-1.92)			-4.73 (-0.83)	-2.62 (-0.49)	4.66 (0.84)	0.26 (2.44)*	0.07	26.15	2.76*
9	-10.18 (-1.06)	0.24 (2.47)*	0.67 (0.39)	-4.58 (-2.73)*	-1.49 (-0.39)	3.27 (0.64)		0.07	26.21	2.24
10	-11.54 (-1.12)		0.54 (0.32)	-4.85 (-0.78)	-2.08 (-0.36)	4.19 (0.73)	0.26 (2.44)*	0.07	26.23	2.21
11	-10.56 (-1.09)	0.16 (2.51)*	1.63 (0.36)	-4.64 (-2.74)*	-1.71 (-0.35)	3.56 (0.68)	0.10 (1.34)	0.07	26.29	1.88

Source: Appendix-1

Notes: 1. Figures in parentheses are t – values.
2. * denotes that results are significant at 5 percent level of significance.

The first three models include one of the six independent variables selected at a time. Models 4 to 10 include various combinations of the fundamental variable and model 11 includes all the six fundamental variables simultaneously.

The overall results show the positive relationship of total yield with earnings yield, size, book leverage and cash flow yield, and negative relationship with book-to-market equity ratio and market leverage. Thus, higher the earnings yield, size, book leverage and cash flow yield, higher would be the total yield and vice-versa. However, higher the book-to-market equity ratio and market leverage, lower would be the total yield and rage, lower would be the total yield and vice-versa. Model 4, 5, 9 and 11 provide significant positive relationship between total yield and earnings yield, whereas models 2, 5, 6, 9 and 11 provide significant negative relationship between total yield and book-to-market equity ratio. Model 7 provides the significant relationship of leverages and cash flow yield with total yield. Similarly, positive significant relationship of cash flow yield with total yield is provided in models 7, 8 and 10.

Specifically, model 1 provides insignificant relationship between total yield and earning yield whereas model 2 provides significant relationship between book-to-market equity ratio and total yield. On adding size as next independent variable in model 4, the predictive power of earnings yield has been strengthened and found significant. Furthermore, when the book-to-market equity ratio is added as third independent variable in model 6, both earnings yield and book-to-market equity ratio has been found significant. Similarly, adding book leverage and market leverage in model 9 don’t rob

the predicting power of earning yield and book-to-market equity ratio. In model 8, predictive power of leverages has been weakened due to the inclusion of the book-to-market equity ratio; however, the predictive power of cash flow yield hasn't been weakened due to this inclusion. In model 11, when all the fundamental variables are simultaneously included, the t-statistics of earnings yield and book-to-market equity ratio have been found to be significant. The results suggest that the earnings field and book-to-market equity may be more informative in predicting total yield. All models provide the insignificant relationship between total yield and size. Therefore, size may not play an important role in predicting total yield though it has positive relationship with total yield. the cash flow yield is more informative in predicting total yield than the book leverage, market leverage and size; whereas less informative than of the two variables and book-to-market equity ratio considered, book-to-market equity ratio has higher explanatory power than earnings yield as indicated by relationship of total yield with earnings yield and book to market equity ratio (Models 1, 2, 6, 9 and 11) consistent with the findings indicated by Jagannathan and Wang (1996) that size has weaker explanatory power of book-to-market equity ratio found in this study is consistent with the findings indicated by Rosenberg, Reid and Lanstein (1984), Stattman (1980), Fama and French (1992), Davis (1994), and Daniel, Titman, and Wei (2001) in the context of in big and developed countries. However, the positive significant relationship between total yield and book-to-market equity ratio as found in this study is not consistent with those results.

Furthermore, these results are consistent with the findings of Balampaki (2004) in the context of Nepalese stock market that book-to-market equity ratio has stronger explanatory power and negative significant relationship with total yield.

However, the models estimated are generally poor as revealed by coefficient of multiple determination (R^2) which contradicts with Basu (1983), Bernard, Stober (1989) and Wilson 91986). Though the goodness of the fit of the models is poor, they are good because signs of the beta coefficient are consistent with the priori expectations. The explanatory power of the models may increase with the inclusion of larger number of enterprises and a longer study period.

4.3 The Market Sensitivity Analysis

The CAPM is based on the efficient market hypothesis and provides a basis to measure the systematic risk (beta coefficient) in terms of covariance of its return with the market returns. It is the model, which gives the required rate of return of common stock. Required rate of return (here denoted by RRR) is risk free rate (R_f) plus risk premium $\left(\overline{R}_m - R_f\right)$, where, $\overline{R}_m$ is average return for market portfolio or average return on NEPSE index. Comparison of required rate of return (RRR) and realized rate of return (here, denoted by RR) determines whether the stock is correctly priced or not. Table 4.10 shows β, RRR, RR and price situation of the individual stock.

Table 4.10

β, RRR, RR and Price Situation

S.N.	Enterprises	β	$RRR_i(\%) = R_f + (\overline{R}_m - R_f)\beta$	RR_i (%)	Price Situation
1	NIBL	-0.282	0.99	4.61	Underpriced
2	BOK	2.063	-6.79	3.97	Underpriced
3	HBL	0.731	-0.53	-7.16	Overpriced
4	NBL	1.717	-5.16	15.05	Underpriced
5	NICB	1.856	-5.81	10.11	Underpriced
6	NSB	1.441	-3.86	-19.55	Overpriced
7	EBL	1.262	-3.02	14.08	Underpriced
8	SCB	0.931	-1.47	11.22	Underpriced
9	NIDCB	2.269	17.29	37.95	Underpriced
10	NDB	-0.087	2.23	-16.85	Overpriced
11	NUB	1.298	15.42	8.33	Overpriced
12	NFL	0.009	2.87	14.56	Underpriced
13	KFL	0.402	1.02	-12.03	Overpriced
14	GFCL	0.155	2.18	4.64	Underpriced
15	PFCL	0.081	2.53	33.57	Underpriced
16	AEFL	1.288	11.02	-4.52	Overpriced
17	YFL	0.850	-1.09	10.89	Underpriced
18	AFCL	0.441	0.84	4.82	Underpriced
19	AECFCL	0.471	-4.00	5.64	Underpriced
20	NHMFL	0.181	2.06	-1.06	Overpriced
21	NFSCL	0.267	1.66	-4.89	Overpriced
22	GWFCL	0.293	1.53	-9.58	Overpriced
23	NSMCL	0.539	0.38	-6.11	Overpriced
24	UFL	0.343	6.07	12.61	Underpriced
25	CIT	0.442	0.93	11.97	Underpriced
26	CFCL	0.106	3.45	17.08	Underpriced
27	UFCL	1.229	14.74	3.63	Overpriced
28	PICL	-0.329	4.46	11.01	Underpriced
29	UICL	0.407	0.99	-10.56	Overpriced
30	NICL	0.657	-0.18	-4.87	Overpriced
31	SICL	-0.036	3.08	-7.9	Overpriced
32	HGICL	0.378	1.13	-3.5	Overpriced
33	EICL	-0.423	-1.43	-17.74	Overpriced
34	SHL	0.134	2.28	-22.49	Overpriced
35	OHL	0.459	5.72	2.28	Overpriced
36	TRHL	0.747	-0.60	-18.49	Overpriced
37	UNL	1.366	-3.51	7.84	Underpriced
38	BNL	0.085	2.51	-1.03	Overpriced
39	BNTL	0.229	1.83	-11.25	Overpriced
40	BBCL	0.737	-0.55	10.12	Underpriced
41	STCL	0.118	2.36	6.17	Underpriced

Source: Appendix-1

Note: 1. R_f is based on the weighted average treasury bills rate of 91 days for the year 2003/04 to 2007/08. (Source: NRB)

2. $\overline{R}_m$ is based on the average return on NEPSE index for the year 2003/04 to 2007/08. (Source: NEPSE Ltd.)

Where, $\overline{R}_m$ = Average market return or Average Return on NEPSE index (-1.79%)

R_f = Risk free rate of return (2.91%)

The major implication of beta coefficient is CAPM is that beta greater than 1 is said to be highly sensitive. For example, the beta of BOK's stock is 2.063 > 1. It is therefore, highly sensitive and it is positively moving with the market, which means that if the market return rises by 1%, BOK's stock will rise by more than 2% and vice-versa. Further more, the beta of EICL's stock is -0.432 < 1. It is therefore, negatively moving with the market, which means that if the market return rises by 1%, EICL's stock will fall by less than 1% and vice-versa.

Comparison of required rate of return (RRR_i) and realized rate of return (RR_i) determines whether the stock is underpriced or overpriced. If RRR_i is less than RR_i, stock is said to be underpriced and for an investor, buying strategy is favorable for this type of stock and vice-versa. Beta plays a significant role in stock's RRR beside the important roles of R_m and R_f. Results indicate that the common stocks of NIBL, BOK, NBL, NICB, EBL, SCB, NIDCB, NFL, GFCL, PFCL, YFL, AFCL, PFL, UFL, CIT, CFCL, PICL, UNL, BBCL, and STCL are underpriced and all the remaining of the listed enterprises are overpriced. For an investor, it is recommendable to make a buying strategy for those underpriced shares.

4.4 Portfolio Performance Evaluation

The investment companies are specialized financial intermediaries that collect money by selling units to the investors and invest in the portfolio of securities which excel in the market place. The performance evaluation of

the portfolio on the basis of return only will be insufficient; ranking portfolios' average returns ignores the skill with which they minimize risk. Therefore, it is necessary to consider both risk and return.

Determining the relative efficiency of a portfolio is a more comprehensive analysis of portfolio's performance. However, it is often desirable to rank portfolios' performance. To evaluate a portfolio adequately, the level of risk it assumes must be considered simultaneously with its rate of return (Sharpe, 1966). The standard deviation (i.e. total risk) and beta coefficients (systematic risk) of the portfolios are much better indicators of the actual performance of the portfolios than their published statements. (Alexander and Francis, 1986)

In this study, sector-wise portfolios are constructed into seven different portfolios. The average returns, average standard deviation of stock returns and average betas are then calculated for each portfolio. Lastly, Sharpe's performance measure and Treynor's performance measure are applied to measure the portfolio performance.

4.4.1 Sharpe's Portfolio Performance Measure

One performance measure that has been developed to evaluate a portfolio's performance, considering both return and risk simultaneously, is Sharpe Index of portfolio performance. Sharpe's measure divides average portfolio excess return over risk free rate of return for the sample period by standard deviation of returns for that period. It measures the reward-to-volatility (total) trade-off.

An index of portfolio performance devised here denoted by SP is as

$$S_p = \frac{\text{Risk premium}}{\text{Total risk}} = \frac{\overline{R}_p - R_f}{\sigma_p}$$

Where, $\overline{R}_p$ = Average return from portfolio.

S_p = Sharpe's index of portfolio performance for portfolio.

R_f = Risk free rate of return.

σ_p = Standard deviation of returns for portfolio.

Table 4.11 shows ranking the portfolios under Sharpe performance measure.

Table 4.11

Ranking Portfolios under the Sharpe Performance Measure

S.N.	Portfolio	Average Return ($\bar{R}_p$)%	Standard Deviation (σ_p)%	Risk free rate (R_f)%	$S_p = \frac{\bar{R}_p - R_f}{\sigma_p}$	Rank
1.	Commercial Banks	4.04	11.91	2.91	0.098	4
2.	Development Banks	9.81	27.43	2.91	0.252	3
3.	Finance companies	6.58	10.86	2.91	0.3379	2
4.	Insurance companies	-5.59	9.57	2.91	-0.888	6
5.	Hotels	-12.9	13.29	2.91	-1.19	7
6.	Manufacturing and processing companies	-1.48	9.55	2.91	-0.46	5
7.	Trading companies and others	8.14	2.79	2.91	1.87	1

Source: Appendix 1

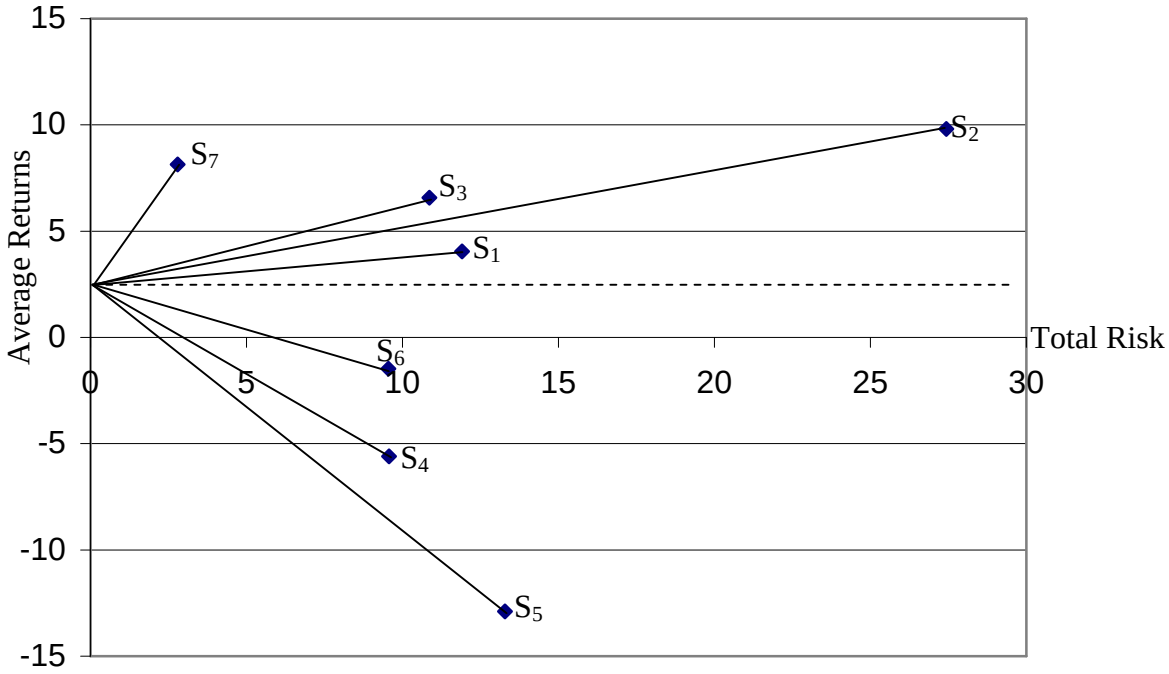
Note: R_f is based on the weighted average treasury bills rate of 91 days for the year 2003/04 to 2007/08 (Source: NRB)

The major implication of Sharpe's portfolio performance measure is that the higher the resulting number (index), the better is the portfolio performance. Moreover, the higher the risk premium per unit of a total risk, the better is the portfolio performance. In the above table 4.11, index of trading companies and others portfolio is 1.87. Trading companies and others' portfolio has the best performance as it has the highest risk premium at per unit of risk. On the other hand, Hotels' portfolio has the worst performance as it has the lowest risk premium (i.e. negative 1.19) at per unit of total risk.

Figure 4.1 graphically depicts Sharpe's index. S_p measures the slope of the line starting the riskless rate R_f in Figure 4.1 and running out to portfolio P.

Fig 4.1

Sharpe's Performance Measure



Thus, $S_7 > S_3 > S_2 > S_1 > S_6 > S_4 > S_5$ indicates that portfolio 7 is better performer than portfolio 3 and 3 is better than that of 2 and so on. For an investor, it is recommendable to make an investment strategy for that best performer portfolio.

4.4.2 Treynor's Portfolio Performance Measure

The performance index is calculated by using systematic risk instead of total risk under Treynor's portfolio performance measure. It suggests the use of beta coefficient of a portfolio, a measure of systematic risk index. The following equation measures the portfolio performance under Treynor's concept.

$$T_p = \frac{\text{Risk premium}}{\text{Systematic risk index}} = \frac{\overline{R}_p - R_f}{\beta_p}$$

Where, $\overline{R}_p$ = Average return for portfolio.

T_p = Treynor index of portfolio performance.

R_f = Risk free rate of return.

β_p = Systematic risk index of portfolio.

Table 4.12 shows ranking the port portfolio under the Treynor's Performance Measure.

Table 4.12

Ranking Portfolios under the Treynor's Performance Measure

S.N.	Portfolio	Average Return ($\overline{R}_p$)%	Systematic Risk Index (β_p)%	Risk free rate (R_f)%	$T_p = \frac{\overline{R}_p - R_f}{\beta_p}$	Rank
1.	Commercial Banks	4.04	1.215	2.91	0.963	4
2.	Development Banks	9.81	1.16	2.91	8.457	2
3.	Finance companies	6.58	0.44	2.91	8.341	3
4.	Insurance companies	-5.59	0.109	2.91	-77.98	7
5.	Hotels	-12.9	0.45	2.91	-35.13	6
6.	Manufacturing and processing companies	-1.48	0.56	2.91	-7.84	5
7.	Trading companies and others	8.14	0.427	2.91	19.06	1

Source: Appendix 1

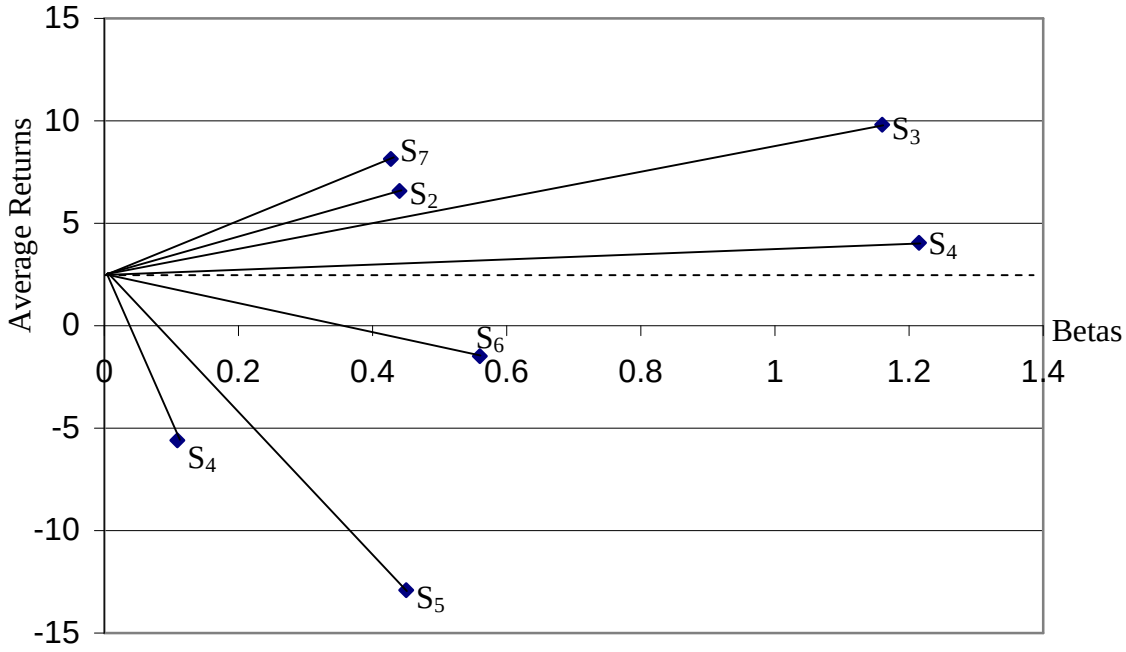
Note: R_f is based on the weighted average treasury bills rate of 91 days for the year 2003/04 to 2007/08 (Source: NRB)

The major implication of Treynor's portfolio performance measure is that higher the Treynor Index, the better is portfolio performance. Moreover the higher risk premium per unit of systematic risk index, the better the portfolio performance. In the above table 4.12, index of portfolio's of trading companies and others is 19.06. Trading companies and others' portfolio has the best performance as it has the highest risk premium at per unit of systematic risk. On the other hand, insurance companies' portfolio has the worst performance as it has lowest risk premium (i.e. negative 77.98%) at per unit of systematic risk.

Figure 4.2 graphically depicts Treynor's index. T_p measures the slope of line starting the riskless rate R_f in figure 4.2 and running out to portfolio P.

Fig 4.2

Treynor's Performance Measure



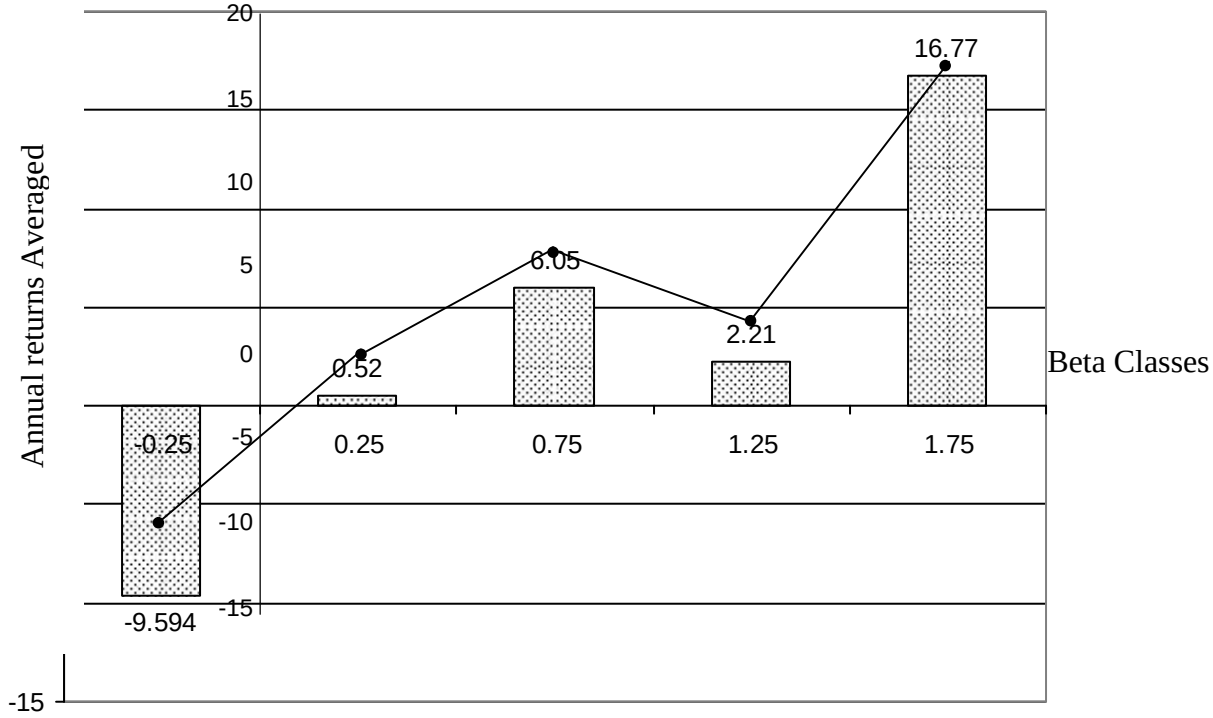
Thus, $S_7 > S_2 > S_3 > S_4 > S_6 > S_5 > S_4$ indicates that portfolio 7 is better performer than portfolio 2 and 2 is better than that of 3 and so on. For an investor, it is recommendable to make an investment strategy for that best performer portfolio.

4.5 Risk-Return Classes of Nepalese Common Stocks

"High-risk assets must offer investors high returns to induce them to make the riskier investments." (Ibbotson, Seigel and Love (1985)). If stocks' betas and average returns are estimated over a sample period, the high betas stocks would have higher rates of return. In this study, betas and rates of return for 41 stocks are first calculated. Secondly, stocks are grouped into five different portfolios based on their beta coefficients. Figure 4.3 shows the beta coefficient averaged for all stocks in all years during the sample period for the five risk classes as the independent variable. The annual returns averaged for all stocks in all years during sample period in each risk classes are taken as dependent variable.

Fig. 4.3

Risk-Return classes of Nepalese Common Stocks



In the above figure, average stock returns for the lowest risk class have been found to be lowest (i.e. -9.594%). The values have increased to 0.052% and 6.05% for the higher risk classes (0 to 0.50) and (0.50 to 1.00). The average returns for the highest risk class (i.e. beta more than 1.50) has been found highest i.e. 16.77%.

Thus, higher the risk (beta coefficient), higher would be the returns on stock and vice-versa. These findings are consistent with the results indicated by Sharpe and Cooper (1972).

A simple linear regression is fitted through the five average betas and their associated average annual returns from the figure 4.3. The model employed here is:

$$\bar{r}_j = a + b(\text{average beta } j) + u_j \text{ for } E(u_j) = 0$$

Where, $\bar{r}_j$ = average annual stock returns on stocks.

a = y-intercept

b = slope of the regression line

u_j = disturbance or error term.

Considering stock returns as dependent variable and beta value (risk) as independent variable, stock return is positively correlated with risk. The correlation coefficient is 0.891 and coefficient of determination (R^2) is 0.794. This shows that a positive relation exists between dependent variable (return) and the independent variable (risk). Thus, higher the risk, higher would be the returns on stock. These findings are consistent with the results indicated by Sharpe and Cooper (1972).

The output of regression analysis exhibits that regression line is:

Average return = –2.03+6.04 beta

Dependent variable	Intercept	Regression coefficient	R	R^2	SEE	t-value	F-value
Return	– 2.03	6.04	0.891	0.794	2.97	2.78	12.36

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This study analyzes the stock returns of the Nepalese stocks. Market returns on the stock expected by the investors are capital gain yield (i.e. stock price appreciation) and dividend. The rational investors consciously examine the behavior of the stock returns with the different variables and invest their funds from where they can realize higher rate of return. The main objective of the study is to determine the relation of stock returns (i.e. dividend yield, capital gain yield and total yield) with the fundamental variables (i.e. earning yield, book-to-market equity ratio, size, cash flow yield, and leverage) in the context of Nepalese enterprises listed in NEPSE Ltd. The specific objectives of the study are to identify the role of earning yields book-to-market equity ratio, size, cash flow yield and leverage in the cross-section of returns on Nepalese stocks, to analyze the properties of portfolios formed on the fundamental variables and examine the relationship among them; to compare the predictability of the different variables to stock returns; to examine whether the shares of listed enterprises are overpriced or, underpriced and to analyze the volatility of the stocks.

This study includes 41 major enterprises selected from different sector (i.e. 8 commercial banks, 3 development banks, 16 finance companies, 6 insurance companies, 3 hotels, 3 manufacturing and processing companies and 2 trading companies and others.) listed in NEPSE Ltd over the period of 2003/04 to 2007/08 – with 158 observations. It has been based on the secondary data collected from published and unpublished journals, articles, trading reports of SEBO/N; the website of NEPSE Ltd., and website of SEBO/N..

In order to identify the role of fundamentals variables such as earnings yield, book-to-market equity ratio, size, cash flow yield and leverage and their relationship with the stock returns, the sampled securities are grouped under four portfolios in each of six panels sorted by different variables. Furthermore, various regression models and possible alternative statistical specifications have been provided to conform the relationship and for the robustness of the results. Betas have been found out to analyze the market sensitivity and volatility of stocks and lastly the shares of all the enterprises are separated as underpriced or overpriced. The summary of major findings is presented below:

The study of summary statistics for portfolios sorted by fundamental variables gives the following results:

- Stocks with higher earnings yield have higher dividend yield, capital gain yield, total yield, book-to-market equity ratio, market leverage, book leverage, and cash flow yield whereas size is seemed to be lower with higher earnings yield. Capital gain yield and total yield are less variable at higher earnings portfolios. However, dividend yield is less variable at lower earnings portfolios. These results are consistent with the results documented in the study made by Basu (1983), Ball (1978) and more or less similar to the results documented by Balampaki (2004).
- Large sized stocks have higher capital gain yield, total yield and book leverage but have lower dividend yield, book-to-market equity ratio, earnings yield, market leverage and cash flow yield. Dividend yield for the smallest portfolios is more variable whereas capital gain yield and total yield are more variable at larger portfolios. These findings are inconsistent with the results documented in the study made by Banz (1981) in the big and developed capital market. However, the

same is consistent with the results documented in previous study made by Balampaki (2004) in the context of Nepal.

- Stocks with higher book-to-market equity ratio have lower dividend yield, capital gain yield, total yield, size and book leverage. In contrast, stocks with higher book-to-market equity ratio have higher earnings yield, market leverage and cash flow yield. Dividend yield, capital gain yield and total yield are more variable at lower book-to-market equity ratio. These findings are inconsistent with the results of Rosenberg, Reid and Lanstein (1984), Stattman (1980), Chan, Hamao, and Lakonishok (1991), and Daniel, Titman and Wei (2001) but consistent with the results of Balampaki (2004) in the context of Nepal.
- The stocks having higher cash flow yield have higher dividend yield, capital gain yield, total yield, earnings yield, book-to-market equity ratio and market leverage whereas the stock having lower cash flow yield have higher size and book leverage. Capital gain yield and total yield are more variable at the lower portfolios whereas the dividend yield is more variable at the higher portfolios. These findings are consistent with the results of Bernard, Stober (1989), Wilson (1986), and Davis (1994), however, the same is inconsistent with the results of Balampaki (2004).
- The stocks having higher market leverage have lower dividend yield, capital gain yield, total yield and size whereas the stocks having lower market leverage have lower earnings yield, book-to-market equity ratio, book leverage and cash flow yield. Dividend yield, capital gain yield and total yield are more variable at the larger portfolios. These findings are inconsistent with the results of Fama and French (1992) and Bhandari (1988).

- The stocks having higher book leverage have higher dividend yield, capital gain yield, total yield, earnings yield, size and market leverage but the lower book-to-market equity ration and cash flow yield. Dividend yield is more variable at the smallest portfolio whereas capital gain yield and total yield are more variable at the larger portfolios. These findings are inconsistent with the results of Fama and French (1992) and Bhandari (1988).

Regression results of dividend yield, capital gain yield, and total yield on fundamental variables give the following major findings:

- Dividend yield has been observed to have positive relation with earnings yield, book leverage and cash flow yield where as it has been observed to have negative relation with size, book-to-market equity ratio and market leverage.

  The book-to-market equity ratio, cash flow yield and earnings yield have more predictive power than other variables. Among these fundamentals, earnings yield is seemed as having more predictive power. These findings are consistent with the findings of Basu (1983), Davis (1994) and Ball (1978)

- Capital gain yield has been observed to have significant negative relation with book-to-market equity ratio. Market leverage influences the capital gain yield negatively, whereas, the capital gain yield has been observed to have positive relation with earnings yield, size, book leverage, and cash flow yield. The book-to-market equity ratio has been identified to have more predictive power over capital gain yield than the other variables. These findings are consistent with the findings of Davis (1994), Chan and Chen (1991), Jagannathan and Wang (1996) and Balampaki (2004).

- Total yield has been observed to have significant negative relation with book-to-market equity ratio, size and market leverage also have negative influence on total yield. However, total yield has positive relation with earnings yield; book-to-market equity ratio has been identified to have more predictive power over total yield than the other variables. These findings are consistent with the findings of Davis (1994), Chan and Chen (1991), Jagannathan and Wang (1996) and Balampaki (2004).

The study of the market sensitivity analysis revealed the following results:

- The results indicate that among the listed enterprises, the NIDC Bank Ltd. (NIDCB) has the highest beta which is 2.269 and the lowest beta is of the Everest Insurance Co. Ltd. (EICL) i.e. negative 0.423. Stock returns of NIDCB are highly volatile or sensitive with market and as positive moves along with the market.
- The common shares of NIBL, BOK, NBL, NICB, EBL, SCB, NIDCB, NFL, GFCL, PFCL, YFL, AFCL, PFL, UFL, CIT, CFCL, PICL, UNL, BBCL, and STCL are underpriced and all the remaining of the listed enterprises are overpriced.

The study of investment portfolio evaluation repealed the following results:

The portfolio of 'Trading Companies and Others' sector has performed better in the market as indicated by both Sharpe's measure and Treynor's measure. The risk premium per unit of risk borne by individual portfolios and the same per unit of systematic risk both are highest for the 'Trading companies and others' sector. Moreover, as indicated by two measures, hotels, insurance companies and manufacturing and processing sectors' portfolios are poor performer.

The study of risk-return classes of Nepalese common stocks revealed the following results:

- The findings are supportive of the CAPM theory's central prediction that higher risk (beta) is associated with a higher level of return (i.e. positive relation between realized stock returns, and betas). The results obtained lend support to the linear structure of CAPM equation beings a good explanation of security returns.

5.2 Conclusions

The tabulation of realized returns indicates that stock returns vary directly with earnings yield, size, book leverage and cash flow yield where as the same varies inversely with the book-to-market equity ratio and market leverage.

Other things remaining the same, it is observed that higher returns are to higher beta portfolio and vice versa which is consistent with CAPM. A negative book-to-market/return relationship and positive size/return relationship observed in the study contradict with the empirical findings in the context of big and developed stock market. However, the same is consistent with the empirical findings with Balampaki (2004), in the context of Nepalese stock market. Similarly, the negative market leverage/return relationship and a positive book leverage/return relationship observed in this study contradict with Fama and French (1992) and Bhandari (1988). The positive earnings yield/return relationship and positive cash flow yield/return relationship observed on the other hand, are strong enough to say that this study is in agreement with the empirical findings in big and developed stock market as well as priori expectations in the small and underdeveloped stock market.

The results for different explanatory variables (size, book-to-market equity ratio, earnings yield, book leverage, market leverage and cash flow yield together) suggest that they are measuring different aspects of the return-generating process. This lends support to a multi-factor asset-pricing framework, such as those developed by Fama and French (1992).

Significant explanatory factor, cash flow yield over dividend yield documented by Balampaki (2004) in Nepalese context is replaced by earnings yield in this study. Regardless of the underlying cause, book-to-market equity ratio remains significant in explaining cross-sectional variation in realized stock returns (capital gain yield and total yield). The central prediction of CAPM theory that is, higher risk (beta) is associated with a higher realized return has been supported by this study being a good explanation of security returns. Although this study does not offer any clues for the underlying reasons for this anomaly, nevertheless, it has suggested some insights. Specially, it is pointed out by changing trading strategies based on well-publicized empirical regularities as publicized empirical regularities as potential reasons for the findings.

5.3 Recommendations

Based on the data analysis and major findings, the following suggestions and recommendations can be prescribed in the Nepalese stock market:

- The study indicates that the enterprises with the higher leverage have higher dividend yield. Hence, if the enterprises wish to increase dividend yield, they should employ higher leverage. This finding is also applicable for the book leverage. In the other words, irrespective of how leverage is measured, increased in leverage would lead to increase in dividend yield.
- The book-to-market equity ratio is negatively related to the total yield (or realized returns). On the other hand, it seems to have strong predictive power over the capital gain yield and total yield. Hence, Nepalese enterprises should attempt to maintain the lower book-to-market equity ratio for the higher realized returns on stocks.

- As the study reveals that the realized rate of returns increases with the increase in risk, Nepalese enterprises should be aggressive toward risk management rather than repelling from it.
- The enterprises with higher earnings yield have higher dividend yield, capital gain yield and total yield. On the other hand, the earnings yield has strong explanatory power over dividend yield. Therefore, if the enterprises wish to increase the stock returns, they should be able to generate higher earnings.
- This study finds the evidence that the current market price per share in Nepalese capital market has not represented the intrinsic value. This finding helps investors identify stocks that are mispriced, thus, creating opportunities for realized returns in excess of what is required to compensate them for risk (i.e., both total risk and systematic risk). Hence, the investors should consider the performance of the individual stocks and select the best portfolio in the market while making an investment.
- The study indicates that the large sized enterprises have higher leverage. On, the other hands, size of the enterprises and average returns on the stocks have positive relationship. Hence, if the Nepalese enterprises wish to increase average returns along with the increasing their size, they should increase the debt level.

Furthermore, there are several avenues for future research in the area of realized rate of return in Nepal. One extension of the present study is to examine the cross-section of stock returns whether factors or characteristics. The second avenue of research is to make study by adding additional years, companies and variables like momentum, consumption growth and analysts' recommendation to get greater insight into the effect of fundamental variables on stock returns. The third avenue of research is to estimate a better model in explaining the stock returns in Nepal from among the

various models available in the literature. A final direction of research is to survey the opinions of shareholders and brokers on cross-section of realized return on stocks in Nepal.

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APPENDIX - 1

List of Stock Returns (i.e. Dividend Yield, Capital Gain Yield, and Total Yield) and Fundamental Variables (i.e. Earnings Yield, Book-to-Market Equity Ratio, Cash Flow Yield, Book Leverage, and Market Leverage) of 41 enterprises with 158 observations.

Enterprises	DY	CY	TY	EP	lnME	lnB/M	lnA/ME	lnA/BE	CP
NIBL	.	.	.	4.42	7.16	-0.9	1.35	2.26	5.09
NIBL	2.63	4.61	7.24	4.98	7.54	-1.3	1.57	2.87	5.61
NIBL	1.89	18.24	20.13	5.5	7.93	-1.34	1.56	2.9	6.34
NIBL	1.34	-14.89	-13.52	4.91	7.77	-1.39	2.04	3.32	6.29
BOK	1.18	-70.12	-68.94	0.79	6.39	-0.82	2.37	3.19	3.09
BOK	1.97	-22.05	-20.08	8.95	6.82	-0.46	2.09	2.55	10.26
BOK	5.05	48.99	54.09	9.29	7.22	-0.74	1.98	2.72	10.64
BOK	5.08	45.76	50.84	7	7.6	-1.02	1.93	2.84	7.94
HBL	2.33	-33.33	-31	6.03	8.01	-1.51	1.93	3.44	6.82
HBL	2.63	-16.4	-13.77	5.93	8.18	-1.22	1.87	3.09	6.57
HBL	2.39	0.48	2.87	5.84	8.39	-1.22	1.73	2.95	6.63
HBL	3.76	9.52	13.28	5.21	8.48	-1.35	1.82	3.09	5.98
NBL	2	-51	-49	7.52	8.19	-1.15	1.59	2.73	8.62
NBL	6.8	0	6.8	11.52	8.19	-1.01	1.52	2.54	12.49
NBL	8.84	36.05	44.89	9.26	8.5	-1.19	1.25	2.43	10.2
NBL	7	50.5	57.5	6.87	8.91	-1.49	1.75	2.34	7.67
NICB	0	-37.37	-37.34	0.54	7.13	-0.87	1.1	1.97	1.14
NICB	0	-28	-28	2.88	6.8	-0.49	1.5	1.99	3.65
NICB	0	21.11	21.11	6.26	7	-0.56	1.23	2.26	6.89
NICB	13.76	67.89	81.65	6.22	7.51	-0.98	0.84	2.39	6.62
NSB	0	-73.27	-73.27	2.39	6.36	-1.12	2.49	3.61	3.29
NSB	1.99	-36.41	-34.42	4.49	7	-0.64	1.93	2.57	5.73
NSB	0	20.39	20.39	4.64	7.19	-0.74	1.85	2.59	5.78
NSB	0	9.12	9.12	3.97	7.28	-0.74	1.41	2.71	5.03
EBL	2.67	-42.67	-40	7.65	6.43	-1.05	2.37	3.42	9.28
EBL	4.65	3.49	8.14	6.72	7.07	-1.09	1.93	3.01	8.38
EBL	4.49	52.81	57.3	6.7	7.67	-1.38	1.5	2.88	7.62
EBL	2.94	27.94	30.88	4.31	7.81	-1.64	1.56	3.09	5.09
SCB	4.67	-27.71	-23.04	9.11	8.57	-1.45	1.29	2.74	9.63
SCB	7.74	5.81	13.55	9.1	8.62	-1.4	1.19	2.6	10.32
SCB	6.71	6.4	13.11	8.23	8.79	-1.47	1.29	2.76	9.24
SCB	6.88	34.38	41.26	6.12	9.08	-1.71	0.91	2.63	6.87
NIDCB	0	.	.	3.64	5.49	-0.38	1.54	1.89	5.83
NIDCB	6.58	-4.61	1.97	7.18	5.45	-0.32	1.88	2.2	8.89
NIDCB	6.89	15.17	22.06	11.51	5.59	-0.39	1.82	2.21	12.75
NIDCB	7.19	82.63	89.82	7.3	6.19	-0.93	1.34	2.26	7.96
NDB	0	.	.	1.63	5.41	-0.37	2.29	2.66	3.61
NDB	0	-9.68	-9.68	0.54	5.31	-0.26	2.48	2.74	2.94
NDB	0	-27.14	-27.14	-185.06	5.09	-0.31	2.51	2.82	-182.29

NDB	0	-13.73	-13.73	55.99	4.95	-0.96	2.48	1.15	58.7
NUB	0	.	.	17.34	2.3	-0.36	3.89	3.52	22.28
NUB	0	-10	-10	5.44	2.19	-0.79	3.98	3.18	10.15
NUB	15.56	11.11	26.67	101.63	2.3	-1.09	4.19	3.11	109.86
NFL	9.17	10.09	19.26	10.39	3.4	-0.59	2.33	2.92	11.9
NFL	8.33	8.33	16.66	11.45	3.48	-0.59	2.47	3.07	12.79
NFL	10.38	-15.38	-5	15.99	4.01	-0.44	2.05	2.49	17.68
NFL	9.09	18.18	27.27	12.78	4.18	-0.53	2.01	2.53	14.61
KFL	3.74	-4.98	-1.24	12.15	4.11	-0.59	1.59	2.18	12.23
KFL	16.39	22.95	-6.56	14.4	3.85	-0.42	2.29	2.35	14.69
KFL	0	-12.77	-12.77	1.35	4.12	-0.41	1.73	2.13	18.86
KFL	5.14	-32.68	-27.54	13.02	3.73	-0.01	2.15	2.15	25.02
GFCL	10	0	10	15.46	2.47	-0.14	2.67	2.81	18.3
GFCL	15.33	-32	-16.67	16.75	3.24	-0.09	2.03	1.93	19.17
GFCL	9.8	1.96	11.76	13.96	3.26	-0.2	1.89	1.77	15.85
GFCL	9.62	3.85	13.46	10.81	3.3	-0.09	2.01	1.92	12.28
PFCL	18	36.89	54.89	21.24	4.03	-0.48	1.67	2.15	21.79
PFCL	8.93	-1.79	7.14	24.65	4.01	-0.15	2.06	2.21	25.24
PFCL	5.45	3.63	9.08	27.18	4.04	-0.04	2.35	2.31	27.7
PFCL	35.09	28.07	63.16	21.18	4.29	0.01	2.34	2.33	21.6
AEFL	0	.	.	9.78	3.91	-0.58	1.78	2.36	11.72
AEFL	8	-46	-38	23.74	3.3	0.24	2.81	2.57	27.12
AEFL	0	11.11	11.11	14.47	4.04	0.05	2.36	2.26	15.84
AEFL	0	13.33	13.33	6.92	4.22	-0.06	2.36	2.42	7.96
YFL	4.29	-5.15	-0.86	6.58	6.09	-1.14	1.24	2.38	6.93
YFL	4.52	-22.62	-18.1	8.84	5.83	-0.81	1.48	2.29	9.31
YFL	8.77	2.34	11.11	12.05	5.86	-0.59	2.01	2.59	12.59
YFL	8.57	42.86	51.43	6.41	6.21	-0.94	1.13	2.07	6.7
AFCL	2.4	-18	-15.6	17.07	4.41	-0.46	1.59	0.06	18.06
AFCL	2.93	2.44	5.37	15.99	4.43	-0.29	1.87	0.17	16.75
AFCL	12.53	7.14	19.67	14.66	4.5	-0.41	2.14	0.56	15.44
AFCL	14.04	-4.22	9.82	15.31	4.46	-0.54	2.43	2.97	16.03
PFL	1	-54	-53	2.51	4.64	-0.68	2.15	2.82	4.19
PFL	6.52	4.35	10.87	10.82	5.38	-0.63	1.56	2.19	11.74
PFL	8.33	-27.92	-19.59	15.32	5.05	-0.25	1.87	2.12	17.28
PFL	0	45.09	45.09	7.08	5.42	-0.49	1.47	1.97	7.87
NHMCL	5.36	10.71	16.07	7.26	5.53	-0.84	1.8	2.64	9.38
NHMCL	3.23	-22.58	-19.35	68.04	4.68	-0.53	1.69	2.18	8.43
NHMCL	4.17	-4.17	0	5.43	4.64	-0.43	1.79	2.23	6.93
NHMCL	6.52	-7.48	-0.96	11.31	4.57	-0.33	2.01	2.34	12.93
NFSCL	5.17	3.45	8.62	18.93	4.09	-0.48	1.94	2.41	20.04
NFSCL	0	-41.33	-41.33	0.22	3.56	0.18	2.64	2.46	1.87
NFSCL	0	-6.25	-6.25	2.42	3.5	0.26	2.49	2.23	4.06
NFSCL	30.3	-10.91	19.39	45.76	3.38	0.45	2.57	2.13	47.46
GWFCL	0	-13.85	-13.85	0.16	4.25	-0.89	1.54	2.43	1.11
GWFCL	1.88	-16.07	-14.19	4.07	4.07	-0.67	1.87	2.54	5.12
GWFCL	4.49	-23.4	-18.91	8.69	4.11	-0.18	1.93	2.11	10.24
GWFCL	5.87	2.78	8.65	9.04	4.13	-0.16	1.91	2.08	10.6

NSMCL	0	-11.67	-11.67	2.63	4.56	-0.36	2.09	2.47	4.66
NSMCL	0	-21.38	-21.38	1.85	4.32	-0.19	2.49	2.69	8.21
NSMCL	0	-17.6	-17.6	2.82	4.82	0.03	2.27	2.24	8.94
NSMCL	9.71	16.5	26.21	9.12	4.97	-0.12	2.26	2.37	14.23
UFL	0	.	.	11.7	4.12	0.06	1.43	1.38	2.06
UFL	4.85	2.91	7.76	4.41	4.15	0.02	1.8	1.78	5.17
UFL	7.08	10.38	17.46	11.46	4.25	-0.02	2.15	2.17	12.58
CIT	7.97	-8.33	-0.36	9.14	4.19	-0.19	2.69	2.88	10.14
CIT	8.48	3.03	11.51	11.08	4.22	-0.11	3.11	3.21	12.01
CIT	8.82	-2.94	5.88	22.24	4.19	0.06	3.75	3.69	22.96
CIT	9.63	21.21	30.84	21.97	4.38	-0.07	3.66	3.73	22.98
CFCL	15.58	-5.79	9.79	15.58	3.26	0.13	2.55	2.42	17.46
CFCL	0	23.08	23.08	18.58	3.47	-0.04	2.51	2.55	20.08
UFCL	0	.	.	16.97	4.27	0.01	1.91	1.91	19.2
UFCL	10.92	10.08	21	16.65	4.45	-0.1	1.99	2.09	22.22
UFCL	0	-13.74	-13.74	4.58	4.3	0.08	2.18	2.09	12.08
PICL	4.35	-26.08	-21.73	16.9	3.93	0.23	0.75	0.52	21.77
PICL	0	12.94	12.94	10.36	4.05	0.19	0.74	0.55	14.19
PICL	0	9.38	9.38	11.97	4.14	0.24	0.88	0.63	15
PICL	0	0	0	6.67	4.14	0.42	0.91	0.49	9.53
UICL	7.39	-17.39	-10	8.26	4.74	0.04	0.1	0.14	8.95
UICL	0	-27.36	-27.36	4.33	4.42	0.13	0.45	0.29	7.82
UICL	0	-23.91	-23.91	11.79	4.14	0.47	0.89	0.42	16.02
UICL	0	19.05	19.05	13.17	4.34	0.01	0.87	0.87	16.4
NICL	5.62	-27.97	-22.35	10.52	4.51	-0.02	0.28	0.76	13.73
NICL	0	-11.76	-11.76	9.32	4.17	0.35	0.98	0.67	12.78
NICL	7.69	-12.67	-4.98	7.32	4.03	0.53	1.23	0.46	10.16
NICL	0	20.61	20.61	2.74	4.01	0.58	1.27	0.38	6.54
SICL	3.39	2.25	5.64	10.67	4.46	-0.07	0.64	0.26	12.83
SICL	0	-28.57	-28.57	13.59	4.34	0.15	0.58	0.39	16.02
SICL	6.67	-13.85	-7.18	21.49	4.3	0.49	0.91	0.65	23.72
SICL	0	-1.79	-1.79	19.12	4.48	0.41	0.97	0.86	21.86
HGICL	5.57	-13.46	-7.69	11.33	4.21	-0.11	0.49	0.59	14.57
HGICL	0	-15.56	-15.56	20.21	4.04	0.28	0.83	0.55	23.97
HGICL	0	-7.89	-7.89	22.78	3.96	0.29	1.03	0.73	28.09
HGICL	0	17.14	17.14	17.9	4.12	-0.03	1.31	1.33	21.33
EICL	.	.	.	15.18	5.21	-1.12	0.47	1.59	17.32
EICL	0	-42.62	-42.62	16.35	4.65	-0.56	1.07	1.63	20.91
EICL	14.29	-7.14	7.15	5.19	4.58	-0.77	1.04	1.81	11.94
SHL	0	-28.57	-28.57	-5.85	6.48	-0.89	-0.47	0.42	1.61
SHL	0	-25	-25	-5.8	6.48	-0.71	-0.36	0.35	0.48
SHL	0	-13.33	-13.33	-7.86	6.34	-0.73	-0.31	0.41	0.65
SHL	0	-23.08	-23.05	-21.22	6.08	-0.46	-0.29	0.17	-10.18
OHL	.	.	.	-46.17	5.48	-0.08	1.8	1.89	-29.71
OHL	0	2.08	2.08	-49.39	5.5	-0.93	1.84	2.77	-32.46
OHL	0	-14.29	-14.29	-30.64	5.35	0.73	1.99	1.26	-10.83
OHL	0	19.05	19.05	-29.82	5.52	-1.77	1.81	3.58	-13.03
TRHL	0	-54.55	-54.55	-6.48	5.92	0.69	1.29	0.6	-5.99

TRHL	0	0	0	-3.43	5.92	0.69	1.69	1	24.75
TRHL	0	-22	-22	-0.49	5.67	1.04	2.1	1.06	34.75
TRHL	0	2.56	2.56	-55.23	5.7	-0.55	1.94	2.39	-20.95
UNL	1.82	-38.64	-36.82	3.43	7.13	-1.27	-1.27	0	15.77
UNL	6.67	-16.29	-9.62	8.95	6.95	-1.06	-1.07	0	25.09
UNL	8.85	23.89	32.74	10.92	7.43	-1.18	-1.45	-0.27	12.08
UNL	28.57	16.5	45.07	12.6	7.59	-1.95	-2.21	-0.27	13.48
BNL	1.43	0	1.43	3.57	7.22	-0.67	-0.67	0	7.35
BNL	0.71	0	0.71	1.42	7.22	-0.66	-0.66	0	5.54
BNL	0	-20.86	-20.86	3.5	6.98	-0.39	-0.39	0	8.81
BNL	0	14.62	14.62	3.06	7.12	-0.48	-0.49	0	7.03
BNTL	1.41	-24.79	-23.38	4.37	6.47	-0.53	-0.53	0	7.46
BNTL	1.87	10.11	-8.24	4.37	6.36	-0.38	-0.38	0	8.19
BNTL	1.04	-5	-3.96	3.65	6.31	-0.36	-0.36	0	7.81
BNTL	0	-9.4	-9.4	3.26	6.21	-0.22	-0.22	0	6.77
BBCL	3.82	-8.82	-5	4.61	6.05	-2.01	-2.39	-0.38	5.49
BBCL	4.84	-9.35	-4.51	5.94	5.95	-2.3	-2.23	0	6.79
BBCL	6.05	-0.36	5.69	5.31	6.26	-2.3	-2.62	-0.31	5.89
BBCL	6.43	37.86	44.29	4.79	6.58	-2.63	-2.92	-0.29	5.17
HTCL	9.09	-9.09	0	35.87	4.31	1.9	2.94	1.03	38.66
HTCL	6.67	0	6.67	67.6	4.31	1.99	3.24	1.25	71.01
HTCL	6.67	5	11.67	64.1	4.36	1.94	3.13	1.19	68.75
HTCL	6.35	0	6.35	63.82	4.36	1.94	3.21	1.27	68.78