FIRM SIZE, EARNINGS YIELD, BOOK TO MARKET RATIO, CASH FLOW YIELD AND STOCK RETURNS: THE NEPALI EVIDENCE

A Research Thesis Submitted to

Kathmandu University School of Management

in partial fulfillment of the requirements for the

degree of Master of Philosophy (MPhil) in Management

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October 2010

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We have conducted the viva-voce examination of the thesis **Firm Size, Earnings Yield, Book to Market Ratio, Cash Flow Yield and Stock Returns: The Nepali Evidence** submitted by Mr. Dev Prakash Gupta and found the thesis to be original work of the candidate and written according to the prescribed format of the School of Management. We approve the thesis as the partial fulfillment of the requirements for the degree of Master of Philosophy (MPhil) in Management.

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I hereby declare that this thesis entitled *Firm size, earnings yield, book to market ratio, cash flow yield and stock returns: The Nepali evidence* embodies the result of an original research work I carried out in partial fulfillment of the requirements for the degree of Master of Philosophy (MPhil) in Management of the Kathmandu University and that this thesis has not been submitted for candidature for any other degree.

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This is to certify that Mr. Dev Prakash Gupta has completed his research work on **Firm Size, Earnings Yield, Book to Market Ratio, Cash Flow Yield and Stock Returns: The Nepali Evidence** under our supervision and that his thesis embodies the result of his investigation conducted during the period he worked as an MPhil candidate of the School of Management. The thesis is of the standard expected of a candidate for the degree of MPhil in Management and has been prepared in the prescribed format of the School of Management. The thesis is forwarded for evaluation.

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ACKNOWLEDGEMENTS

I express my sincere gratitude to *Dr. Radhe Shyam Pradhan* professor at KUSOM for his continuous advice, discussions, encouragement and generous support during this research work. I am indebted to Prof. Pradhan who initially sparked my interest in Finance especially in stock market. As his research student at KUSOM, I learned immensely from his knowledge and experiences. I am grateful to him as he was always open to questions and discussion. His valuable comments and criticism have always inspired me to do things in an improved way with a new approach. I am especially thankful to *Prof. Krishna Ram Khadka* for his advice, guidance and encouragement.

I would like to extend my hearty gratitude to the respondents who gave their valuable time and insights during the discussions and interactions. The respondents' interactions were a valuable source of information for the study.

My years of study at KUSOM would have been much stressful and confusing without advice and support from Prof. Subas K.C. (Dean, KUSOM). I am grateful to him for providing me the opportunity to take this research work. His timely encouragement and consistent guidance helped me complete this research in time.

I take this opportunity to extend my sincere gratefulness to Government Officials, Nepal Rastra Bank officials, officials of Central Bureau of Statistics, officials of Nepal Stock Exchange Limited, and Securities Board of Nepal, who all gave me their precious time for interaction and gave useful information and suggestions for making this study better.

I would also like to thank my father for being my pillar of strength and fountain of wisdom, my wife Sony for her encouragement, my son Harsh and daughter Anushkha for

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their support. I'm thankful to them for encouraging me to take up a challenging task like this.

This research study would not have been completed timely without the cooperation of colleagues at my office and staff in KUSOM especially Bhawana Tamrakar, Prem Adhikari and Mr. Ram. These individuals were very cooperative, supportive and they furnished me with a great deal of ideas and encouraged me to work hard.

Finally, thanks to all faculty members, staff and friends of Kathmandu University, School of Management (KUSOM) for their suggestions and support during my study.

Dev Prakash Gupta

(Date: 21st October 2010)

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LIST OF ABBRIVIATIONS

AAR	Average Abnormal Return
ACF	Autocorrelation Function
ADR	American Depository Receipts
APT	Arbitrage Pricing Theory
BtM	Book to Market Ratio
B/M	Book Equity to Market Equity Ratio
CAAR	Cumulative Average Abnormal Return
CAPM	Capital Asset Pricing Model
C/P	Cash Flow to Market Price Ratio
CCAPM	Consumption-Oriented Capital Asset Pricing Model
CMER	Cumulative Market Excess Return
DJIA	Dow Jones Industrial Average
EMH	Efficient Market Hypothesis
EPS	Earnings per Share
E/P	Earning Price Ratio
GARCH	Generalized Autoregressive Heterscedasticity
GoN	Government of Nepal
IPO	Initial Public Offerings
ICAPM	Intertemporal capital asset pricing model
KUSOM	Kathmandu University School of Management
NEPSE	Nepal Stock Exchange
NRB	Nepal Rastra Bank
NYSE	New York Stock Exchange

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OLS	Ordinary Least Square
P/E	Price Earnings Ratio
SAR	Standardized Abnormal Return
SD	Standard Deviation
SEBO/N	Security Board/Nepal
SUE	Standardized Unexpected Earnings
UK	United Kingdom
USA	United States of America

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ABSTRACT

This study examines the relationship between four company fundamental variables (viz. size (market capitalization), book equity to market equity ratio, earning yield and cash flow yield) and equity returns in Nepali stock market. Alternative statistical specifications and various estimation methods are applied to a comprehensive, high-quality secondary data set of 92 listed firms in Nepal Stock Exchange that extends from July 2000 to July 2010 and primary data by taking opinion of investors, brokers and executives of listed companies through a structured questionnaire. The study also relates cross-sectional differences in returns on Nepalese stocks to the underlying behavior of four variables: earnings yield, size, book to market ratio, and cash flow yield and investigates whether the inclusion of any one or more of these fundamental variables can better explain cross sectional variations in equity returns in Nepal than the single factor CAPM. The study has found a statistically significant relationship between four company fundamentals: size (market capitalization), cash flow yield, book to market ratio and earning yield and stock returns in Nepal over the study period. This implies that a strong size effect, cash flow yield effect, and value effect existed in Nepali capital market during the study period. Since the results are not in support to the findings of the major studies done in the developed economies, this further implies that Nepali capital market is still in developing stage and investors needs to be very cautious while investing.

The study finds that Fama French three factor model (viz. market risk premium, size premium and value premium) explains cross sectional variations in equity returns in Nepal in a much better way than the single factor CAPM. These results have important implications for market efficiency, asset pricing and market microstructure issues in Nepali stock market.

Keywords: Stock Returns, Size Effect, Cash Flow Yield Effect, Value Effect

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CHAPTER I

INTRODUCTION

Stock markets in the emerging economies have witnessed the growing attention of the investors around the world. As a result of the emerging equity market phenomenon and of the need to provide liquidity for privatization-linked equity issues, the relationship between stock return and its fundamentals have received renewed attention of academicians and policy makers both in the developed and developing economies. The growing importance of stock returns in the developing countries have opened up many avenues for research in the relationship between fundamentals of the companies and stock returns, with focus on some fundamental variables like earnings yield, cash flow yield, size of the firm or market capitalization of equity and book to market ratio of equity.

The cross-sectional relationship between stock returns and fundamental variables have been extensively studied in the developed economies. In general, a positive relationship has been found between equity returns and earnings yield, cash flow yield and book to market ratio, and studies in the developed economies indicate a negative relationship has been found between equity returns and size. Some of the studies that document the size and the earnings yield effects and studies that try to disentangle the two effects are Basu (1983); Banz (1981); Reinganum (1981); Ritter and Chopra (1989). Fama and French (1988) suggest reasons why such fundamental variables might help to predict returns, in particular, yield surrogates such as the earnings yield and the dividend yield are correlated with returns because they proxy for underlying risks not otherwise accounted for by traditional risk measures such as betas. Accordingly Fama (1991) points out, any correlation observed between fundamental variables and returns could be consistent with market inefficiencies, or with the fundamental variables

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proxying for omitted risk factors. The nature of the problem prevents an unambiguous resolution of whether the predictability of returns, either over time or cross-sectionally, is a result of market inefficiency or not. Nonetheless, documenting such predictability, for whatever reason, may still be useful.

The traditional mean-variance analysis developed by Markowitz (1956) and Black (1972) have indicated that the returns are determined by risk (beta) factors, however, Ross (1976) and other empirical studies by Fama and Chan (1991) have suggested that the fundamental variables such as earnings yield, size, book to market value, cash flow yield and leverage are the important determinants of the stock returns.

The Efficient Market Hypothesis (EMH) rules out the possibility to consistently earn extra normal return in an efficient stock market. However empirical studies do not agree with this phenomenon and evidences indicated the availability of extra normal returns by using investment strategies based on firm specific variables such as size (Banz ,1981), leverage (Bhandari ,1988), price earnings ratio (Basu ,1977), book equity to market equity ratio (Stattman ,1980). In the literature of Finance, these evidences are cited as anomalies to CAPM based on company fundamentals. These anomalies are also known as the size effect which states that "stock of small sized companies outperform large sized companies, leverage effect indicates that high debt-equity ratio stocks outperform low debt-equity stocks, price earnings effect indicates that low E/P stocks outperform high E/P stocks and value effect which says that high book equity to market equity ratio stocks outperform low book to market ratio equity stocks". As specified by Fama and French (1996), there is a move towards multifactor asset pricing model, because studies point that CAPM is mis-specified and there are some risk factors which beta fails to capture.

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By definition, a firm's stock returns are driven by shocks to expected cash flows (cash-flow news) and/or shocks to discount rates (expected- return news). There is a substantial body of research measuring the relative importance of cash-flow and expected-return news for aggregate portfolio returns (Campbell, 1991; Campbell & Ammer, 1993), but virtually no evidence of the relative importance of these components at the firm level. Basu (1977) argues that P/E ratio information was not "fully reflected" in security prices in as rapid manner as postulated by the semi-strong form of the efficient market hypothesis and low P/E portfolios did earn superior returns on a risk-adjusted basis. Keim and Westerfield (1989) find that there exists a positive relationship between earning yield and subsequent stock returns.

Studies also suggest that total yield is positively determined by earnings yield and size, whereas, the same is negatively determined by book to market value and cash flow yield. Book to market value has been found to be more informative than other variables. The study also revealed that there is a positive relationship among earnings yield, book to market value and cash flow yield. However, the size is negatively related to these three variables (Pradhan and Balampaki, 2006).

Although stock market in Nepal has made notable strides during last one and half decades, its impact on the national economy is only marginal. The market rates of return on the stock exchange have shown high variability during the 15 year period from 1994 to 2008. Although the market capitalization of the listed companies increased by 26 times and was around 47 per cent of the total Gross Domestic Product of the country in 2008, the figure is much lower if the market values of only frequently traded companies are considered. Besides this, except in last three years, the rates of market return have been quite discouraging. Except in the cases of

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commercial banks and other financial institutions, the rates of return in most of the sectors have been negative.

After two decades of academic research there is a consensus on relationship between stock return and fundamental variables such as size, earning yield, book to market ratio and cash flow yield in the developed economies, however this does not seem to be the case in Nepal. The studies in the developed economies suggest that stocks with high book-to-market ratios have reliably higher returns than lower book-to-market stocks of the same size and there is evidence of a B/M effect in each of the major stock markets (United States, Japan, Germany, the United Kingdom, France & Switzerland).

There has been considerable effort to explore the economic feasibility of investment strategies based on fundamental variables, but most of these studies are limited to the US and some developed markets only. Since these kinds of studies are recent in origin, there is limited evidence for emerging and underdeveloped markets like Nepal. The behavior of developed capital market is different than that of the emerging and under developed ones, and due to financial, political and culture differences, each capital market have its own investment environment. In addition to this no attempts have been made in Nepali context to seek the opinion of practitioners such as stock analysts, investment bankers, managers of investment companies and investors and simultaneously perform secondary data analysis to substantiate or reject their perceptions based on the performance of company fundamentals. This study attempts to fill up this gap and contribute to the literature by examining the stock return based on the company fundamentals.

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Statement of the Problem

The relationship between stock returns and fundamental variables have attracted a considerable amount of research attention and been extensively studied in the developed economies like the U.S., European countries and Japan. Among the frequently cited fundamental variables are size, earnings yield, book-to-market ratio, and cash flow yield. Rosenberg, Reid, and Lanstein (1985) provide earlier evidence of an important book-to-market value (B/M) effect by showing that average returns on US stocks are positively related to the ratio of a firm's book value of common equity to its market value. Hamao and Lakonishok (1991) find that book-to-market ratio B/M, also has a strong role in explaining the cross-section of average returns on Japanese stocks.

Studies suggest that there exists a statistically significant relationship between fundamental variables and expected returns (Lakonishok, 1991). Banz (1981) found that size has a negative influence on stock returns. Barry and Brown (1984) indicated that the size effect is at least partly associated with differential information about small and large firms and thus related to the perceived riskiness of small firm stocks. Tripathi (2008) found that excess returns of the smallest size portfolios are much higher than those of the largest sized portfolios.

Empirical studies so far have indicated that there is a positive relationship between equity returns and earnings yield, cash flow yield and book to market ratio, and a negative relationship between stock returns and size. Ross (1976) and other empirical studies have suggested that the fundamental variables such as earnings yield, size, book to market value, cash flow yield and leverage etc. are the important determinants of the stock returns. Fama and French (1992) hypothesized that stocks with low fundamental-to-price ratios have low sensitivity to the 'book-to-market' risk factor. Under this interpretation, short-sellers achieve superior returns by short-

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selling low risk stocks. These superior returns are compensation for the increased exposure to the book-to-market risk factor. They found that consistent with rational pricing, high BE/ME signals persistent poor earnings and low BE/ME signals strong earnings.

The general conclusion of the above-mentioned empirical studies is that stock returns are determined not only by a single factor but by a number of different fundamental variables. This study therefore aims at analyzing the relationship of stock returns with the underlying behavior of fundamental variables by estimating summary statistics and various regression models in the context of Nepal. Unlike the developed capital markets, there is very little done to know what actually is affecting the stock returns. More specifically the study deals with the following issues:

- What are the relationships of equity returns with company fundamental variables?
- What roles does each of the fundamental variables such as size, excess return, cash flow yield, earnings yield and book to market equity ratio play in explaining and determining the stock returns?
- Do the large sized companies have higher equity returns? What kind of relationship exists among earnings yield, size, book to market equity ratio and cash flow yield?
- What is the behavior of stock return if size and cash flow yield are considered together?
- What is the joint effect of book to market ratio and cash flow yield on stock return?
- What are the perception of practitioners such as stock analysts, investment bankers, managers of investment companies and investors on stock returns based on company fundamentals in Nepal?

Objectives of the Study

The major objective of this study is to deal with fundamentals of stock returns in Nepal.

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The specific objectives of the study are as follows

- To examine the relationship between size (market capitalization of equity), earnings yield, cash flow yield, dividend yield, book to market and stock returns.
- To analyze the relationship between excess return, market return and equity returns.
- To examine the effect of inclusion of one and more of the company fundamental variables on cross sectional variations in equity return.
- To examine if the fundamentals of the company can explain variation in average stock return in a better way than market factor in Nepal.
- To get the opinion of investors, brokers and executives of the listed companies and examine the company fundamentals and its effect on stock returns in Nepal.

Hypotheses

Following hypotheses on company fundamentals will be tested:

- There is a statistically significant relationship between various company fundamentals and equity returns in Nepal.
- Stocks of small companies outperform the stocks of large companies in Nepali Stock Market.
- Low E/P stocks outperform the stocks of high P/E stocks.
- High B/M stocks outperform low B/M stocks.

Following hypotheses on the effect of cross sectional variations in stock returns will be tested:

- Company size can better explain cross sectional variations in equity returns in Nepali stock market than market factor.
- P/E ratio can better explain cross sectional variations in equity returns in Nepali Stock Market than market factor.

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- Cash flow yield variable has higher predictive power than does earnings yield
- Inclusion of more factors (four fundamental variables mentioned above) in a model can better explain cross sectional variations in equity returns in Nepali Stock Market than any of the single factor, two or three factors model.

Unlike developed capital markets, available Nepali evidences are not in line with the findings of developed capital markets. The Nepali evidences support the findings of developed capital markets to some extent and suggest that size, book to market equity ratio, cash flow yield and earning yield are the major determinants of expected stock returns.

However the available Nepali evidences lack consistency and consensus. Developments in the Nepali stock markets are now comparable to many emerging markets around the world. Hence there is a need for a study which can examine the relationship between various company fundamentals and equity returns in Nepali stock market in the changed scenario and analyze the relationship of stock returns with the underlying behavior of fundamental variables that will help compare the findings with that of the developed capital markets and build a consensus among the Nepali evidences. Based on the findings it is also important to examine economic feasibility of fundamentals based investment strategies in the advent of technological up gradation.

Organization of the study

The following sections of the study are structured as follows. In Chapter II, conceptual framework, and review of literature is presented both on international and in Nepali context. Chapter III describes and presents the research methodology for testing the relationship between equity returns and fundamental variables. Chapter IV contains the results and analysis of findings based on the secondary data whereas Chapter V contains the results and analysis of findings based on the primary data. In Chapter VI the findings and its implications are summarized.

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CHAPTER II

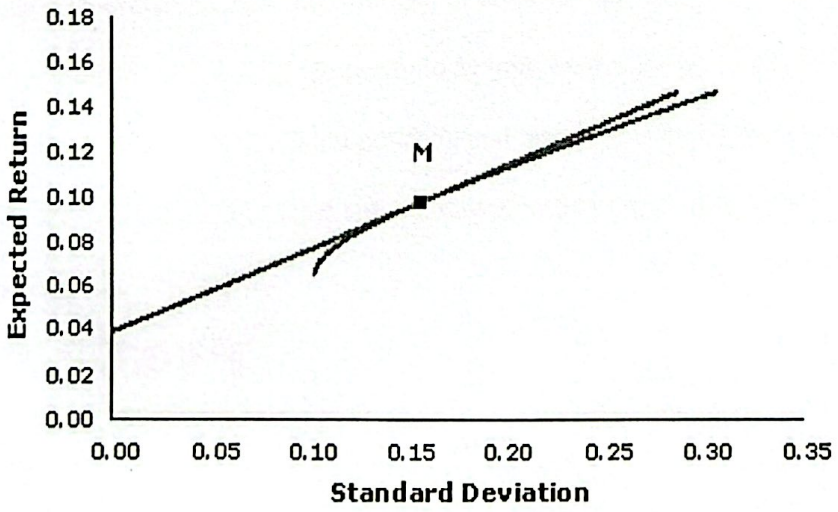
REVIEW OF LITERATURE

Any discussion of the theory of stock price behavior has to start with Markowitz (1952, 1959). The Markowitz model is a single-period model, where an investor forms a portfolio at the beginning of the period. The investor's objective is to maximize the portfolio's expected return, subject to an acceptable level of risk (or minimize risk, subject to an acceptable expected return). The assumption of a single time period, coupled with assumptions about the investor's attitude toward risk, allows risk to be measured by the variance (or standard deviation) of the portfolio's return. Thus, as indicated by the arrow in Figure 2.1, the investor is trying to go as far northwest as possible.

As securities are added to a portfolio, the expected return and standard deviation change in very specific ways, based on the way in which the added securities co-vary with the other securities in the portfolio. The best that an investor can do (i.e., the furthest northwest a portfolio can be) is bounded by a curve that is the upper half of a hyperbola, as shown in Figure 2.1.

Figure 2.1

Markowitz Portfolio Selections



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This curve is known as the efficient frontier. According to the Markowitz model, investors select portfolios along this curve, according to their tolerance for risk. An investor who can live with a lot of risk might choose portfolio A, while a more risk-averse investor would be more likely to choose portfolio B. One of the major insights of the Markowitz model is that it is a security's expected return, coupled with how it co-varies with other securities, that determines how it is added to investor portfolios.

Theoretical Concepts

Capital asset pricing model.

Building on the Markowitz framework, Mossin (1966) independently developed what has come to be known as the Capital Asset Pricing Model (CAPM). This model assumes that investors use the logic of Markowitz in forming portfolios. It further assumes that there is an asset (the risk-free asset) that has a certain return. With a risk-free asset, the efficient frontier in Figure 2.1 is no longer the best that investors can do.

The straight line in Figure 2.2, which has the risk-free rate as its intercept and is tangent to the efficient frontier, is now the northwest boundary of the investment opportunity set. Investors choose portfolios along this line (the capital market line), which shows combinations of the risk-free asset and the risky portfolio M. In order for markets to be in equilibrium (quantity supplied = quantity demanded), the portfolio M must be the market portfolio of all risky assets. So, all investors combine the market portfolio and the risk-free asset, and the only risk that investors are paid for bearing is the risk associated with the market portfolio. This leads to the following CAPM equation:

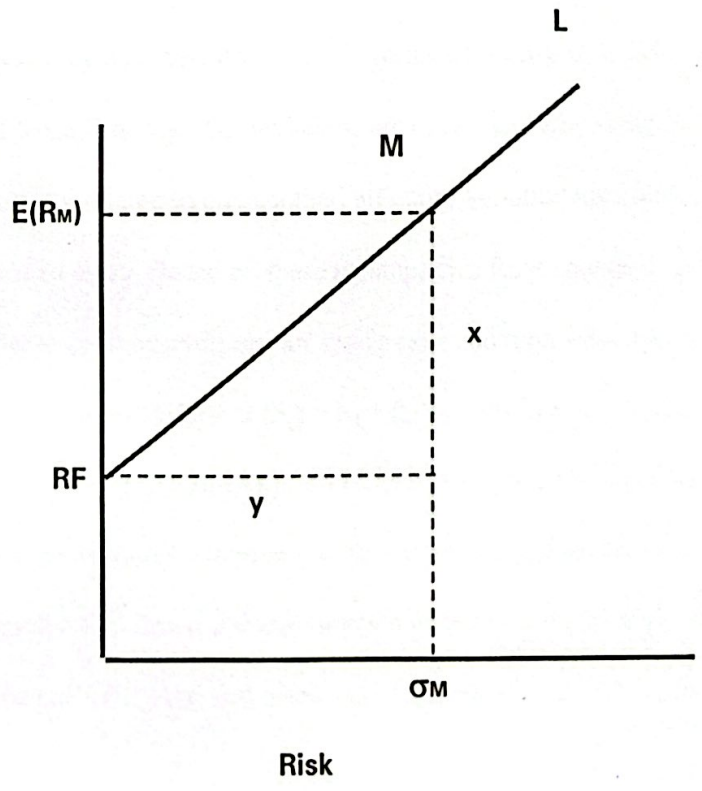
$$E(R_j) = Rf + \beta_j [E(R_m) - R_f]$$

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where E(Rj) and E(Rm) are the expected returns to asset j and the market portfolio, respectively, R_f is the risk free rate, and β_j is the beta coefficient for asset j. β_j measures the tendency of asset j to co-vary with the market portfolio. It represents the part of the asset's risk that cannot be diversified away, and this is the risk that investors are compensated for bearing. The CAPM equation says that the expected return of any risky asset is a linear function of its tendency to co-vary with the market portfolio. So, if the CAPM is an accurate description of the way assets are priced, this positive linear relation should be observed when average portfolio returns are compared to portfolio betas. Further, when beta is included as an explanatory variable, no other variable should be able to explain cross-sectional differences in average returns. Beta should be all that matters in a CAPM.

Figure 2.2

Capital Market Line



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Arbitrage pricing theory.

While the CAPM is a simple model that is based on sound reasoning, some of the assumptions that underlie the model are unrealistic. Some extensions of the basic CAPM were proposed that relaxed one or more of these assumptions (e.g., Black, 1972). Instead of simply extending an existing theory, Ross (1976) addresses this concern by developing a completely different model: the Arbitrage Pricing Theory (APT). Unlike the CAPM, which is a model of financial market equilibrium, the APT starts with the premise that arbitrage opportunities should not be present in efficient financial markets. This assumption is much less restrictive than those required to derive the CAPM.

The APT starts by assuming that there are n factors which cause asset returns to systematically deviate from their expected values. The theory does not specify how large the number *n* is, nor does it identify the factors. It simply assumes that these n factors cause returns to vary together. There may be other, firm-specific reasons for returns to differ from their expected values, but these firm-specific deviations are not related across stocks. Since the firm specific deviations are not related to one another, all return variation not related to the *n* common factors can be diversified away. Based on these assumptions, Ross shows with the following equation that, in order to prevent arbitrage, an asset's expected return must be a linear function of its sensitivity to the *n* common factors: $E(R_j) = R_f + \beta_{j1}\,\lambda_1 + \beta_{j2}\,\lambda_2 + \ldots + \beta_{jn}\,\lambda_n$

E(Rj) and Rf are defined as before. Each βjk coefficient represents the sensitivity of asset j to risk factor k, and λk represents the risk premium for factor k. Same as with the CAPM, the expression for expected return that is a linear function of the asset's sensitivity to systematic risk. Under the assumptions of APT, there are *n* sources of systematic risk, where there is only one in a CAPM.

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Intertemporal capital asset pricing model.

Both the CAPM and the APT are static, or single-period models. As such, they ignore the multi-period nature of participation in the capital markets. Merton's (1973) intertemporal capital asset pricing model (ICAPM) was developed to capture this multi-period aspect of financial market equilibrium. The ICAPM framework recognizes that the investment opportunity set (see Figures 2.1 and 2.2) might shift over time, and investors would like to hedge themselves against unfavorable shifts in the set of available investments. If a particular security tends to have high returns when bad things happen to the investment opportunity set, investors would want to hold this security as a hedge. This increased demand would result in a higher equilibrium price for the security (all else constant). One of the main insights of the ICAPM is the need to reflect this hedging demand in the asset pricing equation. The resulting model is:

$$E(R_j) = R_f + \beta_{jM}\,\lambda_M + \beta_{j2}\,\lambda_2 + \ldots + \beta_{jn}\,\lambda_n$$

Note that the form of the ICAPM is very similar to that of the APT. There are subtle differences, however. The first factor of the ICAPM is explicitly identified as being related to the market portfolio. Further, while the APT gives little guidance as to the number and nature of factors, the factors that appear in the ICAPM are those that satisfy the following conditions:

1. They describe the evolution of the investment opportunity set over time.
2. Investors care enough about them to hedge their effects.

For example, there might be a priced factor for unexpected changes in the real interest rate. Such a change would certainly shift the investment opportunity set (for example, the intercept of the line in Figure 2.2 would move), and the effect would be pervasive enough that investors would want to protect themselves from the negative consequences.

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Early Empirical Works

Early cross-sectional studies of stock returns (e.g., Nicholson, 1960) did not receive a great deal of attention, due to the small samples used to conduct the empirical tests. It was not until the CRSP and Compustat5 databases became available that researchers could construct samples large enough (and of sufficient quality) to produce reliable results. Consequently, for a few years after the development of the CAPM, there was no reliable way to test the model's predictions against variables like book-to-market equity or earnings/price.

Earnings / Price

One of the early studies that contradicted the predictions of the CAPM was that of Basu (1977). Using a sample period that stretched from April 1957 to March 1971, Basu showed that stocks with high earnings/price ratios (or low P/E ratios) earned significantly higher returns than stocks with low earnings/price ratios. His results indicated that differences in beta could not explain these return differences. In a follow-up study, Basu (1983) showed that this "E/P effect" is not just observed among small cap stocks. A later study by Jaffe, Keim and Westerfield (1989) confirmed this finding and also showed that the E/P effect does not just appear in the month of January, as had been claimed by some studies. The E/P effect is a direct contradiction of the CAPM; beta should be all that matters.

Firm Size

Banz (1981) uncovered another apparent contradiction of the CAPM by showing that the stocks of firms with low market capitalizations have higher average returns than large cap stocks. Other studies (e.g., Basu, 1983) showed that the size effect is distinct from the E/P effect discussed above. Small firms tend to have higher returns, even after controlling for E/P.

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Proponents of the CAPM are quick to point out that small firms tend to have higher betas than large firms, so one would expect to see higher average returns for small firms. However, the beta differences are not large enough to explain the observed return differences. Once again, the CAPM predictions are violated.

Book-to-Market Equity

Rosenberg, Reid and Lanstein (1985) provide yet another piece of evidence against the CAPM by showing that stocks with high ratios of book value of common equity to market value of common equity (also known as book-to market equity, or BtM) has significantly higher returns than stocks with low BtM. Since the sample period for this study is fairly short (1973-1984), the empirical results did not receive as much attention as some of the other studies discussed above. However, when Chan, Hamao and Lakonishok (1991) found similar results in the Japanese market, BtM began to receive serious attention as a variable that could produce dispersion in average returns.

Leverage

Bhandari (1988) finds that firms with high leverage (high debt/equity ratios) have higher average returns than firms with low leverage for the 1948-1979 periods. This result persists after size and beta are included as explanatory variables. High leverage increases the riskiness of a firm's equity, but this increased risk should be reflected in a higher beta coefficient. Consequently, Bhandari's results are yet another deviation from the CAPM predictions.

Momentum

Jegadeesh (1990) found that stock returns tend to exhibit short-term momentum; stocks that have done well over the previous few months continue to have high returns over the next month. In contrast, stocks that have had low returns in recent months tend to continue the poor

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performance for another month. A study by Jegadeesh and Titman (1993) would later confirm these results, showing that the momentum lasts for more than just one month.

Their study also indicates that the momentum is stronger for firms that have had poor recent performance. The tendency of recent good performance to continue is weaker. Note that the pattern here is the opposite of that found in the long-term overreaction papers. In those studies, long-term losers outperform long-term winners. In the momentum studies, short-term winners outperform short-term losers.

The studies discussed in this section cast doubt on the ability of the CAPM to explain equilibrium relationships in the financial markets. Stocks with high E/P, high BtM, high leverage, etc. should not outperform other stocks to the extent that they have. To make matters worse, Reinganum (1981) shows that the positive relation between beta and return that was observed in earlier studies (e.g., Fama and MacBeth, 1973) has weakened in more recent years. In spite of all this negative evidence, the CAPM was still the default view for most financial economists and practitioners going into the 1990s. That was about to change.

In 1992, an influential paper was published that pulled together much of the earlier empirical work. Fama and French (1992) brought together size, leverage, E/P, BtM, and beta in a single cross-sectional study. Their results were controversial. First, they showed that the previously documented positive relation between beta and average return was an artifact of the negative correlation between firm size and beta. When this correlation is accounted for, the relation between beta and return disappears. Figures 2.3 and 2.4 show this result. Figure 2.3 plots beta and average return for twelve portfolios formed by ranking stocks on firm size. The positive relation between return and beta is highly linear, as predicted by the CAPM. Based on this evidence, it appears that the CAPM nicely explains the higher returns that small firms have

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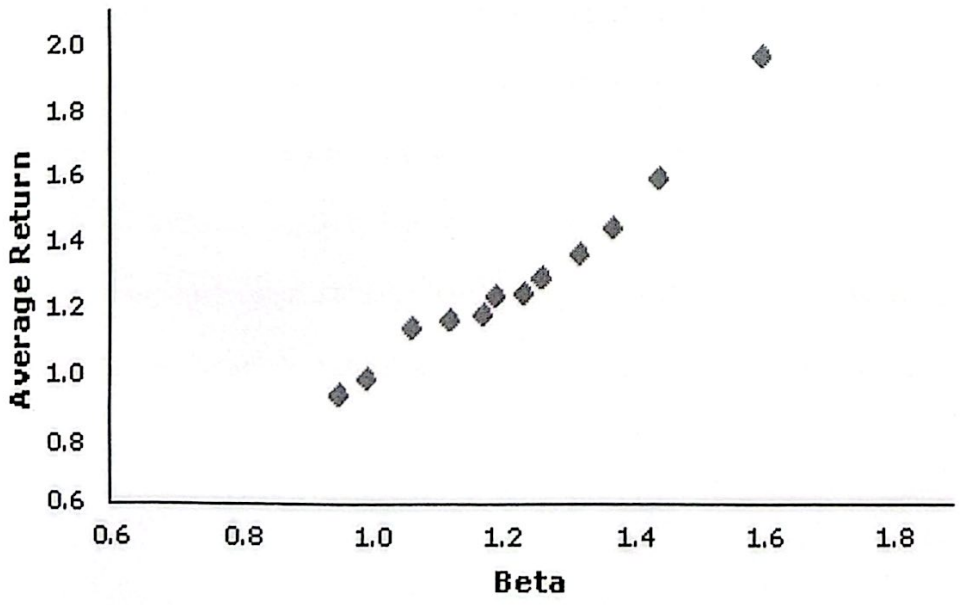
earned. Figure 2.4 plots average return and beta for portfolios formed by ranking on both firm size and beta, so that each portfolio contains stocks that are similar in both their betas and their market values. This chart shows that when beta is allowed to vary in a manner unrelated to size, the positive, linear beta return relation disappears. This result contradicts the central prediction of the single-period CAPM.

Given that beta does a poor job of explaining average returns, what variables can do a better job? This is the second main point of the Fama/French study. They compared the explanatory power of size, leverage, E/P, B/M, and beta in cross-sectional regressions that spanned the 1963-1990 periods. Their results indicate that B/M and size are the variables that have the strongest relation to returns. The explanatory power of the other variables vanishes when these two variables are included in the regressions. The cross-section of average stock returns can be nicely described by two variables.

The Fama and French (1992) results dealt a severe blow to the view that the single-period CAPM is the way securities are actually priced. The model that has been taught more than any other in business school doesn't seem to work.

Figure 2.3

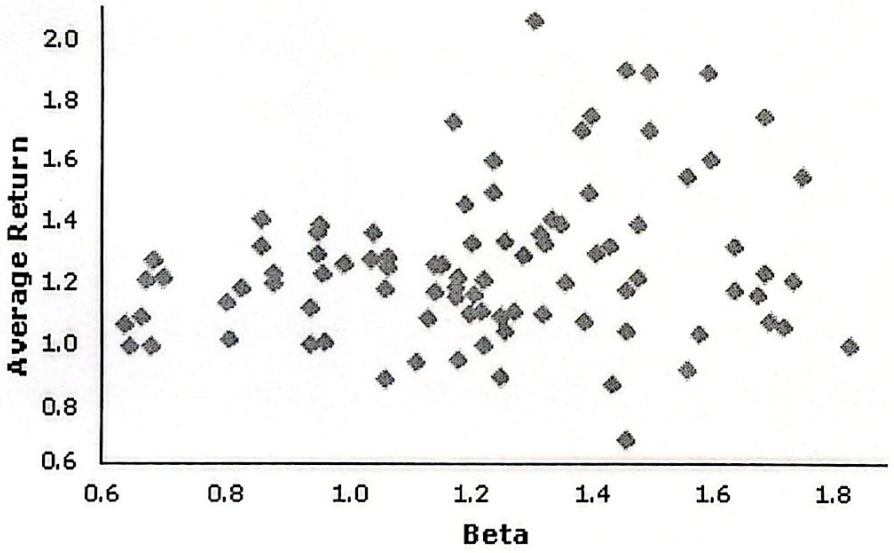
Beta and Average Return for Portfolios formed on Size



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Figure 2.4

Beta and Average Return for Portfolios formed on Size and Beta



As a result of the studies on stock price behavior and asset pricing have, a number of results have surfaced recently. Perez-Quiros and Timmermann (2000) provide evidence that small firms have high average returns because they are more affected by tight credit market conditions. Small firms do not have the same access to domestic and international bond markets that are enjoyed by large firms. Since the availability of credit is tied to economic conditions, so that a credit contraction typically occurs near a recession, small firms would be very sensitive to systematic variation in credit market conditions. Thus, the high returns to small firms might be compensation for the high sensitivity to a credit-related risk factor.

There exists a potentially important link between the equity and fixed income markets (Elton, Gruber, Agrawal and Mann (2001)). If certain risk factors are pervasive enough to explain common variation in stock returns, it is reasonable to expect that these same risk factors

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would be at work in the bond market as well. Elton, *et al.* provides evidence that SMB and HML do just that. Their research isolates the portion of a bond's return that is due to changing risk premiums, and they show that this part of the bond's return is strongly related to SMB and HML. Not only does this result support the risk-based story, but it also suggests some interesting avenues for future research in fixed income portfolio management.

Lettau and Ludvigson (2001) shows that a consumption-oriented capital asset pricing model (CCAPM) that allows expected returns to vary over time provides a nice cross-sectional explanation of equity returns. They use the ratio of aggregate consumption to wealth as a "conditioning variable" to model the evolution of expected returns over time. The relation between the consumption/wealth ratio and expected returns is straightforward. If investors expect returns to be high in the future, they would be more likely to raise their consumption level (relative to their level of wealth). So, an increase in the consumption/wealth ratio would signal high expected returns. Lettau and Ludvigson also find that the variation in returns that is picked up by the Fama/French three-factor model appears to be related to the changing risk premium from the CCAPM.

Lettau and Ludvigson's results bolster the risk-based explanation of the size and value effects. SMB and HML capture common variation in returns because they seem to be related to variation in a consumption-based risk premium that changes over time. Financial theory (the CCAPM) and empirical observation (the size and value effects) are linked in an intuitively appealing way. It would be ironic if the asset pricing model that received the least empirical support in the early years turned out to be the best description of expected returns. Pastor and Stambaugh (2001) provide evidence that sensitivity to market-wide shifts in liquidity might be a priced risk factor. Stocks that are highly sensitive to shifts in market liquidity (they have a high

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"liquidity beta") have high average returns. This liquidity factor appears to be distinct from SMB and HML, suggesting an independent source of risk. However, it appears that liquidity betas are highly unstable, and there is substantial variation in the corresponding premium. While it is too early to conclude that there is a systematic liquidity factor in stock returns, more research is sure to be forthcoming in this area.

Finally, an indication of the acceptance of the three-factor model is the frequency with which it is now used as a benchmark for performance measurement. The issue of whether the value and size premiums are caused by risk or inefficiency may never be resolved to everyone's satisfaction. Feelings run strong on both sides of the argument. For investors, there are two crucial points to remember. First, factors based on value and size has explained much of the common variation in US stock returns for the past three-quarters of a century. Second, value and size premiums have been observed in several other countries, with the value premium being observed in nearly every country that has been studied.

While these observations are consistent with a risk-based story, they do not prove anything. Nevertheless, something very fundamental would have to change in the financial markets in order for these premiums to disappear. Furthermore, the returns observed in the US market during 1999 show that "value-minus-growth" is not a low-risk strategy.

The inability of the Fama - French three-factor model to explain stock price momentum is a problem for the model's proponents. However, the problem may not be all that serious. Consider the following facts:

1. Pure momentum strategies involve very high turnover. Consequently, transaction costs and taxes can significantly erode momentum profits.

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2. Most of the return to the "winner-minus-loser" momentum portfolio is due to the poor performance of the losers. So, in order to capture the bulk of the momentum effect, short positions are necessary. This is not feasible for some investors.
3. The momentum effect is stronger among small cap stocks, which tend to be less liquid. Trying to implement a high-turnover strategy with small cap stocks is unrealistic.

These facts suggest that momentum strategies probably do not represent a real opportunity for investors to earn abnormal returns, at least not to the extent implied by some of the recent studies.

Two schools of thought have emerged in search for possible explanation of persistent departure from the standard CAPM. One argument is that CAPM is mis-specified; there is/are some missing risk factor(s) which beta fails to capture. Hence there is a move towards multifactor asset pricing framework as specified by Fama and French (1996).

The other school blames the investors' irrationality for the existence of the phenomenon. Whatever be the cause, the presence of these CAPM anomalies provides gainful investment opportunities to the investing community. The robustness of size and value effects in US stock market motivated Fama and French (1996) to suggest the inclusion of a size and value factor in asset pricing model. A number of research studies have explored the economic feasibility of investment strategies based on fundamental variables, but most of these studies relate to US and other mature markets.

This study uses the methodology used Chan, Hamao and Lakonishok (1991) to test relationship between company fundamentals and equity returns and is based on the primary and secondary data from Nepal Stock Exchange Limited (NEPSE), enterprises that are subject of the study and Security and Exchange Board of Nepal (SEBON).

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Review of Major Studies

The review of major literature is divided in four time periods:

a) Early Studies (before 1990),

b) Studies during 1990s,

c) Studies between 2000 and 2005,

d) Recent Studies (after 2005).

According to the Markowitz model, investors select portfolios along the efficient frontier, according to their tolerance for risk. An investor who can live with a lot of risk might choose portfolio X, while a more risk-averse investor would be more likely to choose portfolio Y. One of the major insights of the Markowitz model is that it is a security's expected return, coupled with how it co-varies with other securities, that determines how it is added to investor portfolios.

Given that beta does a poor job of explaining average returns, Fama and French (1992) compared the explanatory power of size, leverage, E/P, B/M, and beta in cross-sectional regressions that spanned the 1963-1990 period. Their results indicate that B/M and size are the variables that have the strongest relation to returns. The explanatory power of the other variables vanishes when these two variables are included in the regressions. The cross-section of average stock returns can be nicely described by two variables. The results dealt a severe blow to the view that the single-period CAPM is the way securities are actually priced.

In US, the relationship between stock returns and fundamental variables have attracted a considerable amount of research attention and been extensively studied. Among the frequently cited fundamental variables are size, P/E, Book/Market, and cash flow ratio. Chen, Hamao, and Lakonishok (1991) find that book-to-market ratio B/M, also has a strong role in explaining the cross-section of average returns on Japanese stocks.

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Fama and French (1992) report that stocks with high book-to-market ratios have reliably higher returns than lower book-to-market stocks of the same size. Capapl, Rowley and Sharpe (1993) find evidence of a B/M effect in each of the major stock markets (United States, Japan, Germany, the United Kingdom, France, and Switzerland). They conclude that, during their study period (January 1981 through June 1992), portfolios of high-B/M stocks provided risk-adjusted returns superior to those from low-B/M stocks. They point out that the merit of B/M as a single variable to distinguish between value and growth stock.

Chen, Hamao, and Lakonishok (1991) design a modified Seemingly Unrelated Regression Model to find out that cash flow has a significant forecast power for expected returns on Japanese stocks. Moreover, before model adjustment, cash follow and B/M ratio have positive relation with stock returns; after model adjustment, these two variables still have most powerful explanatory power on the stock returns. Chen, Karceski and Lakonishok (1998) evaluate the performance of various proposed factors in capturing return co-movements. The empirical results of this most updated study show that factors associated with the market, size, past return, book to market and dividend yield help explain return co-movement on an out of sample basis.

Similarly, Efficient Market Hypothesis (EMH) rules out the possibility by anybody to consistently earn extra normal return in an efficient stock market. According to this hypothesis securities are correctly priced and return is solely determined by the amount of risk one assumes (as per the standard Capital Asset Pricing Model – CAPM). However a plethora of empirical studies doubts such a phenomenon and documents the availability of extra normal returns by using investment strategies based on firm specific variables such as size (Banz ,1981)), leverage (Bhandari ,1988); price earnings ratio (Basu, 1977); book equity to market equity ratio (Stattman,1980).

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These empirical evidences have been commonly cited as anomalies to CAPM based on company fundamentals and popularly known as the size effect (small capitalization stocks outperform large capitalization-stocks), leverage effect (high debt-equity stocks outperform low debt-equity stocks), Price Earnings Effect (low P/E stocks outperform high P/E stocks) and value effect (high book equity to market equity stocks outperform low book to market equity stocks).

Two schools of thought have emerged in search for possible explanation of persistent departure from the standard CAPM. One argument is that CAPM is mis specified; there is/are some missing risk factor(s) which beta fails to capture. Hence there is a move towards multifactor asset pricing framework as specified by Fama and French (1996). The other school blames the investors' irrationality for the existence of the phenomenon. Whatever be the cause, the presence of these CAPM anomalies provides gainful investment opportunities to the investing community.

The robustness of size and value effects in US stock market motivated to suggest the inclusion of a size and value factor in asset pricing model. A number of research studies have explored the economic feasibility of investment strategies based on fundamental variables, but most of these studies relate to US and other mature markets.

Early Studies (before 1990).

Building on the Markowitz framework independently developed what has come to be known as the Capital Asset Pricing Model (CAPM). This model assumes that investors use the logic of Markowitz in forming portfolios. It further assumes that there is an asset (the risk-free asset) that has a certain return. With a risk-free asset, the efficient frontier is no longer the best that investors can do. Investors choose portfolios along the capital market line, which shows combinations of the risk-free asset and the risky portfolio M. In order for markets to be in

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equilibrium (quantity supplied = quantity demanded), the portfolio M must be the market portfolio of all risky assets. So, all investors combine the market portfolio and the risk-free asset, and the only risk that investors are paid for bearing is the risk associated with the market portfolio.

One of the early studies that contradicted the predictions of the CAPM was Basu (1977). Using a sample period that stretched from April 1957 to March 1971, Basu showed that stocks with high earnings/price ratios (or low P/E ratios) earned significantly higher returns than stocks with low earnings/price ratios. His results indicated that differences in beta could not explain these return differences. In a follow-up study, Basu (1983) showed that this "E/P effect" is not just observed among small cap stocks. A later study by Jaffe, Keim and Westerfield (1989) confirmed this finding and also showed that the E/P effect does not just appear in the month of January, as had been claimed by some studies. The E/P effect is a direct contradiction of the CAPM; beta should be all that matters.

Jaffe, Keim and Westerfield (1989) re-examined the effect of size and earnings to price ratio (E/P) with a substantially longer sample period, 1951-1986, data that were reasonably free of survivor biases, for both portfolio and seemingly unrelated regression tests, and emphasized on the important differences between January and other months. They found that, over the entire period, the earnings yield effect was significant in both January and the other eleven months. Conversely, the size effect was significantly negative only in January. They also found evidence of consistently high returns for firms of all sizes with negative earnings.

Despite repeated efforts, studies have not been able to disentangle the two effects. Banz and Breen (1981) examined the size effect and the earnings to price ratio (E/P) effect jointly.

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Reinganum (1981) concludes that the E/P effect vanishes when size is simultaneously considered.

The results of Cook and Rozeff (1984) are different still, with stock returns being jointly related to both size and the E/P ratio. They find a market value effect but no independent E/P effect across all months. The inability of the existing literature to unravel the two effects may be attributed, in part, to the use of relatively short periods of analysis and to the failure to separate January from the rest of the year. Use of the COMPUSTAT files for retrieval of earnings limits most studies to the twenty-year window of historical data supplied by COMPUSTAT, a relatively short period when compared to the sixty years of CRSP monthly data that are used to document the size effect.

The recent release by COMPUSTAT of post-1950 data, for both currently covered and deleted companies, substantially lengthens the available period. Of the above-mentioned studies only Cook and Rozeff (1984) investigate January and non-January months separately. Their research suggests that both the size and E/P effects are significant, both in January and in the rest of the year. Unfortunately, they employ the ANOVA approach, which does not provide point estimates of statistical relations. One must visually gauge effects by reading rows and columns of numbers.

The Asset-Pricing Model of Black (1972) has long shaped the way academics and practitioners think about average returns and risk. The central prediction of the model is that the market portfolio of invested wealth is mean-variance efficient in the sense of Markowitz (1959). The efficiency of the market portfolio implies that (a) expected returns on securities are a positive linear function of their market βs (the slope in the regression of a security's return on the market's return), and (b) market βs suffice to describe the cross-section of expected returns.

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There are several empirical contradictions of the Sharpe-Lintner-Black (SLB) model. The most prominent is the size effect of Banz (1981). He finds that market equity, ME (a stock's price times shares outstanding), adds to the explanation of the cross-section of average returns provided by market βs. Average returns on small (low ME) stocks are too high given their f estimates, and average returns on large stocks are too low. Another contradiction of the SLB model is the positive relation between leverage and average return documented.

It is plausible that leverage is associated with risk and expected return, but in the SLB model, leverage risk should be captured by market. Bhandari (1988) finds, however, that leverage helps explain the cross-section of average stock returns in tests that include size (ME) as well as A. Rosenberg, Reid, and Lanstein (1985) find that aver- age returns on U.S. stocks are positively related to the ratio of a firm's book value of common equity, BE, to its market value, ME.

Basu (1983) shows that earnings-price ratios (E/P) help explain the cross-section of average returns on U.S. stocks in tests that also include size and market. Ball (1978) argues that E/P is a catch-all proxy for unnamed factors in expected returns; E/P is likely to be higher (prices are lower relative to earnings) for stocks with higher risks and expected returns, whatever the unnamed sources of risk. Ball's proxy argument for E/P might also apply to size (ME), leverage, and book-to-market equity. All these variables can be regarded as different ways to scale stock prices, to extract the information in prices about risk and expected returns. Moreover, since E/P, ME, leverage, and BE/ME are all scaled versions of price, it is reasonable to expect that some of them are redundant for describing average returns.

Fama and MacBeth (1973) find that, as predicted by the SLB model, there is a positive simple relation between average stock returns and β during the pre-1969 period. Lakonishok and

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Shapiro (1986), found that the relation between βs and average return disappears during the more recent 1963-1990 period, even when β is used alone to explain average returns.

Similarly Banz (1981) uncovered another apparent contradiction of the CAPM by showing that the stocks of firms with low market capitalizations have higher average returns than large cap stocks. Other studies (Basu, 1983) showed that the size effect is distinct from the E/P effect discussed above. Small firms tend to have higher returns, even after controlling for E/P. Table 2.1 summarizes some of the major studies and their findings done before 1990.

Table 2.1

Summary of early studies (before 1990) and their findings

Studies	Major Findings
Fama and MacBeth (1973)	A virtual absence of correlation in excess return was consistent with that from the correlation tests.
Basu (1977)	P/E ratio information was not "fully reflected" in security prices in as rapid a manner as postulated by the semi-strong form of the efficient market hypothesis and low P/E portfolios did earn superior returns on a risk-adjusted basis.
Rosenberg, Reid and Lanstein (1985)	Stocks with high ratios of book to market value have significantly higher returns than stocks with low B/M
Jaffe, Keim and Westerfield (1989)	The earnings yield effect was significant in both January and the other eleven months and the size effect were significantly negative only in January. There were consistently high returns for firms of all sizes with negative earnings.
Basu (1977); Jaffe, Keim and Westerfield (1989)	There exists a positive relation between earning yield and subsequent stock returns.

Rosenberg, Reid and Lanstein (1985) provide yet another piece of evidence against the CAPM by showing that stocks with high ratios of book value of common equity to market value of common equity (also known as book-to market equity, or B/M) have significantly higher returns than stocks with low Book to Market. Since the sample period for this study is fairly short (1973-1984), the empirical results did not receive as much attention as some of the other studies discussed above. However, when Chan, Hamao and Lakonishok (1991) found similar results in the Japanese market, B/M began to receive serious attention as a variable that could produce dispersion in average returns.

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Studies during 1990s.

Fama and French (1995) studied whether the behavior of stock prices, in relation to size and book-to- market-equity (BE/ME), reflects the behavior of earnings. They found that consistent with rational pricing, high BE/ME signals persistent poor earnings and low BE/ME signals strong earnings. Stock prices forecast the reversion of earnings growth observed after firms are ranked on size and BE/ME. There are market, size, and BE/ME factors in earnings like those in returns. The market and size factors in earnings help explain those in returns, but there is no link between BE/ME factors in earnings and returns.

Table 2.2

Summary of studies and their findings during 1990s

Studies	Major Findings
Chan, Hamao and Lakonishok (1991)	The book to market ratio and cash flow yield has the most significant positive impact on expected returns.
Lakonishok, Shleifer and Vishny's (1994)	An alternative interpretation of their results is that low fundamental-to-price ratios are associated with unique risk characteristics.
Fama and French (1995)	High BE/ME signals persistent poor earnings and low BE/ME signals strong earnings. The market and size factors in earnings help explain those in returns, but there is no link between BE/ME factors in earnings and returns.
Fama and French (1993, 1995, 1996)	Measures are proxies for exposure to underlying economic risk factors that are rationally priced in the market
Fama and French (1993, 1996, and 1998)	The return premia associated with size and book-to-market is compensation for risk.
Black (1993), MacKinlay (1995), Breen and Korajczyk (1994), Kothari, Shanken, and Sloan (1995); and Chan, Jegadeesh, and Lakonishok (1995)	The observed predictive relations are largely the result of data snooping and various biases in the data
Daniel and Titman (1997)	The expected returns of assets are directly related to their characteristics for reasons, such as behavioral biases or liquidity, which may have nothing to do with the covariance structure of returns.

Their interpretation was consistent with Lakonishok, Shleifer and Vishny's (1994) hypothesis that 'naïve' investors tend to be overoptimistic about the future prospects of stocks with low fundamental-to-price ratios. Under this interpretation, our evidence suggests that short-sellers are sophisticated investors, who play an important role in keeping the price of stocks in

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line with fundamentals. An alternative interpretation of our results is that low fundamental-to-price ratios are associated with unique risk characteristics.

Their results were consistent with Fama and French's (1992) hypothesis that stocks with low fundamental-to-price ratios have low sensitivity to the 'book-to-market' risk factor. Under this interpretation, short-sellers achieve 'superior returns' by short-selling low risk stocks. These 'superior returns' are compensation for the increased exposure to the book-to-market risk factor.

A large body of evidence demonstrates that ratios of measures of fundamental value to market value systematically predict future stock returns. These ratios compare estimates of "intrinsic" values based on accounting data to observed market prices. They range from simple ratios such as earnings-to-price and book-to-market (Vishny, 1994) to ratios based on more sophisticated valuation models.

Fama and French (1998) argue that the return premia associated with size and book-to-market are compensation for risk, as described in a multifactor version of Merton's (1973) Inter temporal Capital Asset Pricing Model (ICAPM) or Ross's (1976) Arbitrage Pricing Theory. They propose a three-factor model in which the factors are spanned by three zero-investment portfolios: Mkt is long the market portfolio and short the risk-free asset; SMB is long small capitalization stocks and short large capitalization stocks; and HML is long high book-to-market stocks and short low book-to-market stocks.

Daniel and Titman (1997) argue that the Fama and French tests of their three-factor model lack power against an alternative hypothesis, which they call the "Characteristic Model." This model indicates that the expected returns of assets are directly related to their characteristics for reasons, such as behavioral biases or liquidity, which may have nothing to do with the covariance structure of returns. Using alternative tests, which they apply to U.S. stock returns

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between 1973 and 1993, Daniel and Titman reject the Fama and French three-factor model but not the characteristic model.

There is controversy over why the firm-specific attributes that are used to form the FF factors should predict returns. Some argue that such variables may be used to find securities that are systematically mispriced by the market.

Others argue that the measures are proxies for exposure to underlying economic risk factors that are rationally priced in the market. A third view is that the observed predictive relations are largely the result of data snooping and various biases in the data (Black, 1993; MacBreen & Korajczyk ,1994).

Berk (1995) emphasizes that, because returns are related mechanically to price by a present value relation, ratios that have price in the denominator are related to returns by construction. If the numerator of such a ratio can capture cross-sectional variation in the expected cash flows, the ratio is likely to provide a proxy for the cross section of expected returns.

Ratios like the book-to-market are therefore likely to be related to the cross section of stock returns whether they are related to rationally priced economic risks or to mispricing effects. Ferson, Sarkissian, and Simin (1999) illustrate that spread portfolios like SMB or HML can appear to explain the cross section of stock returns even when the attributes used in the sort bear no relationship to risk. Since the FF factors are not derived from a theoretical model, such concerns about their interpretation are natural.

Earlier studies identified predetermined variables that predict stock and bond re- turns through time. Ferson and Harvey (1999) established that loadings on the same variables provide

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significant cross-sectional explanatory power for stock portfolio returns. The loadings were significant given the three factors advocated (Fama & French, 1993).

The explanatory power of the loadings on lagged variables was robust to various portfolio grouping procedures and other considerations. The results carried implications for risk analysis, performance measurement, cost-of-capital calculations, and other applications. They also found that simple proxies for time variation in expected returns, based on common lagged instruments, were also significant cross-sectional predictors of returns.

The ability of these variables to explain the cross section of returns provides a powerful rejection of the FF model as a conditional asset pricing model. In some cases loadings on the lagged variables drive out the individual FF variables in cross-sectional regressions. The results were robust to variations in the empirical methods and to a variety of portfolio grouping procedures. They also reject the four-factor model advocated by Elton, Gruber, and Blake (1995). Their results raised a caution flag for studies that would use the FF and Elton et al. models to control for systematic patterns in risk and expected return.

Fama and French (1992) finds that two variables, market equity (ME) and the ratio of book equity to market equity (BE/ME) capture much of the cross- section of average stock returns. If stocks are priced rationally, systematic differences in average returns are due to differences in risk. Thus, with rational pricing, size (ME, stock price times shares outstanding) and BE/ME must proxy for sensitivity to common risk factors in returns.

Fama and French (1993) confirm that portfolios constructed to mimic risk factors related to size and BE/ME add substantially to the variation in stock returns explained by a market portfolio. Moreover, a three-factor asset-pricing model that includes a market factor and risk

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factors related to size and BE/ME seems to capture the cross-section of average returns on U.S. stocks.

High-BE/ME stocks are less profitable than low-BE/ME stocks for four years before and at least five years after ranking dates. In a nutshell, low BE/ME (a high stock price relative to book value) is typical of firms with high average returns on capital (growth stocks), whereas high BE/ME is typical of firms that are relatively distressed.

An extensive body of empirical research over the past 10 to 15 years has provided evidence contradicting the prediction of the Lintner (1965), and Black (1972) capital asset pricing model (CAPM) that the cross- section of expected returns is linear in beta. A study by Kothari, Shanken, and Sloan examined the cross-section of expected returns and found that economically and statistically significant compensation (about 6 to 9 percent per annum) for beta risk when betas are estimated from time-series regressions of annual portfolio returns on the annual return on the equally weighted market index.

The relation between book-to-market equity and returns is weaker and less consistent than that in Fama and French (1992). They also documented that deviations from the linear CAPM risk-return trade-off are related to, among other variables, firm size (Banz , 1981), earnings yield (Basu , 1983; Bhandari ,1988) and the ratio of a firm's book value of equity to its market value (Hamao & Lakonishok ,1991).

After carefully reexamining this research, a recent article by Fama and French (1992) draws two main conclusions about the cross-section of average stock returns. First, there is only a weak positive relation between average return and beta over the period 1941 to 1990, and virtually no relation over the shorter period 1963 to 1990. Firm size and book-to-market equity

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(B/M) do a good job of capturing the cross-sectional variation in average returns over the 1963 to 1990 period.

Davis (1994) used a database that is free of survivorship bias and found that book-to-market equity, earnings yield, and cash flow yield have significant explanatory power with respect to the cross-section of realized stock returns during the period from July 1940 through June 1963. There is a strong January seasonal in the explanatory power of these variables, even though small stocks are, by construction, excluded from the sample.

Boudoukh, Richardson and Whitelaw (1994) investigated the cross-sectional relation between industry-sorted stock returns and expected inflation, and found that that this relation is linked to cyclical movements in industry output. Stock returns of noncyclical industries tend to co vary positively with expected inflation, while the reverse holds for cyclical industries.

From a theoretical perspective, they described a model that captures both (i) the cross-sectional variation in these relations across industries, and (ii) the negative and positive relation between stock returns and inflation at short and long horizons, respectively. They used the model, developed in an economic environment in which the spirit of the Fisher model is preserved.

Chan, Hamao and Lakonishok (1991) attempted to find the precise relation of financial variables with the market returns in Japanese stock market. The basic purpose of the study as authors mentioned was to explore the cross-sectional predictability of equity returns in Japan in association with four fundamental financial variables earning yield, size, book-to market ratio and cash flow yield. By using Seemingly Unrelated Regression (SUR) Model and alternative approaches based on secondary data obtained from various sources including Tokyo Stock Exchange (TSE) from January 1971 to December 1988, the authors postulated that there exist

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significant relationship between expected returns and fundamental variables investigated in their study. Among four, book to market ratio was found the most significant both statistically and economically followed by cash flow yield in explaining expected stock returns.

The findings also confirmed the existence of a size effect in the portfolio properties as small firms were tending to outperform larger firms in the sample. From the study, the authors reported that the effect of earning yield in stock return was difficult to disentangle. Similarly they observed that the predictive power of four fundamental variables is not a phenomenon specific to the month of January when the January effect on stock returns was analyzed.

Fama and French (1992) document a significant relation between firm size, book-to-market ratios, and security returns for nonfinancial firms. Because of their initial interest in leverage as an explanatory variable for security returns, Fama and French (1992) exclude from their analysis financial firms, thus creating a natural holdout sample on which to test the robustness of their results. Barber and Lion (1997) found that the relation between firm size, book-to-market ratios, and security returns is similar for financial and nonfinancial firms.

In addition, they also presented evidence that survivorship bias does not significantly affect the estimated size or book-to-market premiums in returns. Their results indicate data-snooping and selection biases do not explain the size and book-to-market patterns in returns.

By definition, a firm's stock returns are driven by shocks to expected cash flows (i.e., cash-flow news) and/or shocks to discount rates (i.e., expected- return news). There is a substantial body of research measuring the relative importance of cash-flow and expected-return news for aggregate portfolio returns (Campbell, 1991), Campbell and Ammer (1993), but virtually no evidence on the relative importance of these components at the firm level.

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Davis (1994) studied the cross section of realized stock returns and attempted to study the ability of certain fundamental variables, book to market equity, earning yield and cash flow yield to explain the cross-section of realized returns in the period from July 1940 to June 1963. The author claims that survivorship biased free data has been used and some of the methodological issues that had been raised about the observed predictive ability of the variables in earlier studies have been used. Stocks in the sample are ranked by variables, quintiles are formed on the rank and all characteristics of these quintiles are analyzed and portfolios are formed in stock with high cash flow yield and low sales growth and stock with high sales growth and low cash flow yield. The authors found that book to market equity and earning yield, cash flow yield have the explanatory power with respect to return in univariate regression but stated that the degree of explanatory power was not precisely measurable. In the study 1twas noticed that firm size and stock price has lack of explanatory power in subsequent returns.

Traditional Valuation Models takes as given an investment's cash-flow pattern, which, along with a discount rate, determines the price or value of the investment. Based on these models, one can expect stock price movements to be associated with news about either future cash flows or discount rates. However, in reality, it is often quite difficult to attach significant economic news to large stock price movements. Indeed, CEOs, especially those of smaller technology companies, often express concerns about their stocks being punished by market movements which are not warranted by their assessment of company fundamentals.

Studies between 2000 and 2005.

Dechowa and Sloana (2000) found that firms with low ratios of fundamentals (such as earnings and book values) to market values are known to have systematically lower future stock returns. They also found that low fundamental-to-price ratios are associated with temporary

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overpricing that is actively exploited by short-sellers. In an attempt to mitigate such movements, many firms expend considerable resources on investor relations in order to establish strong relationships with outside analysts, and, in other ways, facilitate the flow of information to investors. These expenditures on investor relations, however, are difficult to explain with traditional finance models which suggest that if stock prices fall for reasons unrelated to long-run fundamentals, the price change will be quickly reversed.

Table 2.3

Summary of studies (between 2000 and 2005) and their findings

Studies	Major Findings
Dechowa, Meulbroekb, Hutton and Sloana (2000)	Firms with low ratios of fundamentals to market values are known to have systematically lower future stock returns and low fundamental-to-price ratios are associated with temporary overpricing that is actively exploited by short-sellers.
Graff (2000) and Mahoney (2000)	If stock prices fall for reasons unrelated to long-run fundamentals, the price change will be quickly reversed.
Subrahmanyam and Titman (2001)	Complementarities across stakeholders result in cascades, wherein relatively small stock price moves trigger substantial changes in asset values.
Griffin M.J. and Lemmon M.L (2002)	There exists inverse size effect on both BE/ME and 0-score and market leverage is positively related to both BEIME and Q-score.
Vuolteenaho (2002)	Firm-level stock returns are mainly driven by cash-flow news.
Diether, Alloy, and Scherbina (2002)	Stocks with higher dispersion in analysts' earnings forecasts earn significantly lower future returns than otherwise similar stocks. This effect is strongest in small stocks, and stocks that have performed poorly over the past year.
Jonathan A. Parker and Christian Julliard (2005)	Consumption risk is an important determinant of average returns across stocks.
Zhi Da (2005)	A large portion of cross-sectional variation in expected excess return can be explained by a two-factor cash flow model with the two factors being Cov and Cov × Dur, respectively.
Zhi Da (2005)	Cash flow duration was particularly important in explaining the value premium given as value and growth stocks have significantly different durations.

Subrahmanyam and Titman (2001) indicated that feedback from financial market prices to cash flows arises when a firm's non- financial stakeholders, for example, its customers, employees, and suppliers, make decisions that are contingent on the information revealed by the price. Complementarities across stakeholders result in cascades, wherein relatively small stock price moves trigger substantial changes in asset values. They analyzed the relation between such

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feedback effects and parameters such as the information cost, the volatility of existing projects, the risk aversion of liquidity suppliers, and the precision of managerial information.

Griffin and Lemmon (2002) investigated the relationship among book to market equity, distress risk and stock returns. Based on the data collected from NYSE, NASDAQ and AMEX, the author attempted to study the effect of financial risk on stock returns in relation to book to market equity by using the Fama and French (1992) three factor time series regression procedure. The authors found more firms in the high O-score (Ohlson's measure of probability of financial distress) with low BE/ME ratios than firms with high BEIME ratios and among all low BEIME stocks, high Q-score firms have the largest 12-months and three years prior stock returns that were similar to those of other low BEIME stocks. Their other findings include the inverse size effect on both BE/ME and 0-score and market leverage is positively related to both BEIME and Q-score.

To decompose an individual firm's stock return into two components: changes in cash-flow expectations (i.e., cash-flow news) and changes in discount rates (i.e., expected-return news) Vuolteenaho (2002) used a vector autoregressive model (VAR). They found that the VAR yields three main results. First, firm-level stock returns are mainly driven by cash-flow news. For a typical stock, the variance of cash-flow news is more than twice that of expected-return news. Second, shocks to expected returns and cash flows are positively correlated for a typical small stock. Third, expected-return-news series are highly correlated across firms, while cash-flow news can largely be diversified away in aggregate portfolios.

Diether, Alloy and Scherbina (2002) analyze of dispersion in analysts' earnings forecasts in predicting the cross section of future stock returns. They found that stocks with higher dispersion in analysts' earnings forecasts earn significantly lower future returns than otherwise

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similar stocks. In particular, a portfolio of stocks in the highest quintile of dispersion underperforms a portfolio of stocks in the lowest quintile of dispersion by 9.48 percent per year. This effect is strongest in small stocks, and stocks that have performed poorly over the past year. Their results are robust to various risk-adjustment techniques, and are inconsistent with an interpretation of dispersion in analysts' forecasts as a proxy for risk.

They provide evidence that stocks with higher dispersion in analysts' earnings fore- casts earn lower future returns than otherwise similar stocks. This effect is most pronounced in small stocks and stocks that have performed poorly over the past year. Interpreting dispersion in analysts' forecasts as a proxy for differences in opinion about a stock, they show that this evidence is consistent with the hypothesis that prices will reflect the optimistic view whenever investors with the lowest valuations do not trade. By contrast, our evidence is inconsistent with a view that dispersion in analysts' forecasts proxies for risk.

Parker and Julliard (2005) attempted to study the Fama and French (1992) size and book-to-market portfolios and re-evaluated the central insight of the consumption capital asset pricing model (CCAPM) that an asset's expected return is determined by its equilibrium risk to consumption. Rather than measure the risk of a portfolio by the contemporaneous covariance of its return and consumption growth (as done in the previous literature on the CCAPM and the cross-sectional pattern of expected returns) the authors measured the risk of a portfolio by its ultimate risk to consumption, defined as the covariance of its return and consumption growth over the quarter of the return.

The authors further confirmed one of the central insights of the CCAPM that consumption risk is an important determinant of average returns across stocks. Zhi Da (2005) links the cross-sectional variation in assets' returns directly to the cross-sectional variation in

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their fundamental cash flow characteristics. The dynamics of the cash flow stream of an asset are summarized using two characteristics: Cov (covariance — how cash flow varies with aggregate consumption) and Dur (duration — whether cash flow occurs further in the future). In a general consumption-based asset pricing framework, they denote the price and expected (excess) return of the cash flow stream as functions of Cov and Dur. They then show that a large portion of cross-sectional variation in expected excess return can be explained by a two-factor cash flow model with the two factors being Cov and Cov × Dur, respectively.

To measure the temporal pattern of the cash flow Zhi Da (2005) relates the risk premium on an asset to two characteristics of its underlying cash flow: cash flow covariance with aggregate consumption; and cash flow duration. Their impact on the cross-sectional variation of risk premia can be largely captured by a two-factor cash flow model. While cash flow covariance was of first-order importance in explaining the cross-sectional variation of risk premia, cash flow duration still provides additional explanatory power through a second-order interaction term. Cash flow duration was particularly important in explaining the value premium given as value and growth stocks have significantly different durations. Empirically, he measured both cash flow characteristics using only consumption and accounting data. The author showed that the two-factor cash flow model is able to explain 82% of the cross-sectional variation in returns on size or book-to-market sorted stock portfolios.

Recent Studies (after 2005).

Fama and French (2007) indicated that since the book-to-market ratio (B/M) is a noisy measure of expected stock returns because it also varies with expected cash flows. They hypothesized that the evolution of B/M, in terms of past changes in book equity and price,

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contains independent information about expected cash flows that can be used to improve estimates of expected returns.

They examined whether the origins of the book-to-market ratio, BMt, in terms of past changes in price and book equity, and the more distant changes in price and book equity summarized by BMt-k, can be used to provide better estimates of expected returns than BMt alone. They hypothesized that past changes in price and book equity help disentangle the information in BMt about expected cash flows and expected returns, to enhance estimates of expected returns. Their tests support this hypothesis, with results that are largely but not entirely similar for Microcap stocks (below the 20th NYSE market capitalization percentile) and All but Micro stocks (ABM).

Table 2.4

Summary of studies and their findings (after 2005)

Studies	Major Findings
Fama and French (2007)	Book-to-market ratio (B/M) is a noisy measure of expected stock returns because it also varies with expected cash flows.
Tripathi (2009)	Market capitalization and price earnings ratio have significant negative relationship with equity returns while book to market equity ratio and debt equity ratio have statistically significant positive relationship with equity returns.
Asteriou (2009)	Significant value relevancy of accounting earnings.
Statman (2010)	Evidence was more consistent with the affect hypothesis than with the characteristics hypothesis.

Tripathi (2009) examined the relationship between company fundamental variables and equity returns in Indian stock market using monthly price data of a sample of 455 companies over the period June 1997 to June 2007. The results indicated that market capitalization and price earnings ratio have statistically significant negative relationship with equity returns while book equity to market equity ratio and debt equity ratio have statistically significant positive relationship with equity returns in India.

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In the context of the Greek capital market, Asteriou (2009) investigated the relationship between earnings figures and stock returns on individual Greek stocks as well as portfolios from 1994 to 2004. The findings demonstrated a significant value relevancy of accounting earnings prepared under the Greek GAAP and the use of cross-sectional and time-series aggregated data resulted in a large increase in the explanatory power of earnings for returns (for the return and differenced model) yielding more significant Earnings Response Coefficients.

Similarly Statman (2010) tries to find the reason for the returns of stocks with low book-to-market ratios and high market capitalizations lower, on average, than the returns of stocks with high book-to-market ratios and low market capitalizations. The study pits the characteristics hypothesis against the affect hypothesis. The characteristics hypothesis says that some characteristics, such as low book-to-market ratio and high market capitalization, are associated with high future stock returns in typical investors' minds. The affect hypothesis says that the names of some companies elicit positive affect which is associated with high future stock returns in typical investors' minds. The study found that the evidence is more consistent with the affect hypothesis than with the characteristics hypothesis.

Studies in the Nepali Context

Although there is very limited research done on fundamentals and stock return of Nepali stocks, a study in the Nepali context by Pradhan and Balampaki (2006) indicates that, earnings yield and cash flow yield have significant positive impact on dividend yield, and an insignificant impact on book to market value. The size has a negative impact on dividend yield. Cash flow yield has been found to be more informative than earnings yield.

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Table 2.5

Summary of Nepali studies and their findings

Studies	Major Findings
Pradhan and Balampaki (2006)	There is a positive relationship among earnings yield, book to market value and cash flow yield and size is negatively related to these three variables.
Dahal (2009)	The average return on stock increases as size increases showing that the largest size portfolio has the highest return and smallest size portfolio has the lowest returns.
Adhikari (2008)	The return is positively related with size and earning yield and negatively related to book to market value ratio and cash flow yield. The size is negatively related with all fundamental variables except return.
Prasai (2009)	There is a significant positive relationship between size and stock return and the relationship between book to market ratio and returns was negative and statistically significant.
Gupta (2010)	There exists a statistically significant relationship between company fundamentals (viz. size (market capitalization), cash flow yield, book to market ratio and earning yield) and equity returns.

The study suggests that capital gain yield is positively influenced by earnings yield and size, whereas, the same is negatively influenced by book to market value and cash flow yield. Book to market value has been found to be statistically strong in predicting capital gain yield (Pradhan and Balampaki (2006)). It was noticed that total yield is positively determined by earnings yield and size, whereas, the same is negatively determined by book to market value and cash flow yield. Book to market value has been found to be more informative than other variables. The study also revealed that there is a positive relationship among earnings yield, book to market value and cash flow yield. However, the size is negatively related to these three variables.

Similarly, Dahal (2009) found that the average return on stock increases as size increases showing that the largest size portfolio has the highest return and smallest size portfolio has the lowest returns. He also indicated that there is a positive association of firm and stock price and argues that the larger stocks are traded at higher price. The average return increases with the larger portfolio sorted by market price of stock reveals that stocks with higher price are yielding more. He further argues that the association of stock price with earning yield is not consistent

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over different portfolios and there exists an inverse relation of earning to price ratio with stock returns and low E/P stocks outperform high E/P stocks. The relation of earnings to price ratio with size was negative as the average size decreases for the lowest portfolio to the highest portfolio.

Adhikari (2008) argues that the return is positively related with size and earning yield and negatively related to book to market value ratio and cash flow yield. The size is negatively related with all fundamental variables except return.

Prasai (2009) indicates that there is a significant positive relationship between size and stock return and the relationship between book to market ratio and returns was negative and statistically significant. Earning yield and cash flow yield did not have explanatory power to explain stock return.

Similarly, Gupta (2010) indicated that there exists a statistically significant relationship between company fundamentals (viz. size (market capitalization), cash flow yield, book to market ratio and earning yield) and equity returns in Nepal. He also pointed that a strong size effect, cash flow yield effect, and value effect existed in Nepali capital market.

Concluding Remarks

Over the past 15 years stock market in Nepal has made some noticeable progress. Between the fiscal year 1993/94 and 2007/08, the number of listed companies in Nepal Stock Exchange Limited increased almost two and half fold from 62 to 142 and the market value of stock listed rose more than 26 times from Rs.14 billion to Rs.366 billion. Likewise, the number of securities listed with the exchange has increased seven and half times from 43 million to 321 million and the number of annual transactions increased seventeen times from around nine thousands to 150 thousands. During this period NEPSE index jumped to 963.36. Despite this, stock market in

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Nepal is yet to take sound footing and has to show visible impacts on the economic growth of the country.

In Nepali context, stocks with larger price earnings ratio seemed to have lower liquidity, profitability, assets turnover and interest coverage, and higher leverage (Pradhan, 1993). It was indicated that there is a negative relationship between dividend yield and size (market equity). It was also noted that the relationship between dividend per share and stock price is positive, and dividend per share affects the share price variedly in different sectors. Manandhar (1998) observed that dividend per share, return on equity and dividend yields have the significant impact on market capitalization, whereas, price earning multiple has no significant impact. The study also observed the negative relationship between dividend yield and market value, and positive relationship between dividend per share and market value of equity. Clearly, these studies have attempted to deal with only a few relationships described earlier.

Unlike developed capital markets, available Nepali evidences are not in line with the findings of developed capital markets. The Nepali evidences support the findings of developed capital markets to some extent and suggests that size, book to market equity ratio, cash flow yield and earning yield are the major determinants of expected stock returns.

However the available Nepali evidences lack consistency and consensus. Developments in Nepali stock markets are now comparable to many emerging markets around the world. Hence there is the need for a study which can examine the relationship between various company fundamentals and equity returns in Nepali stock market in the changed scenario and analyze the relationship of stock returns with the underlying behavior of fundamental variables that will help compare the findings with that of the developed capital markets and build a consensus among the Nepali evidences.

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CHAPTER III

RESEARCH METHODOLOGY

This chapter is divided into five different sections. Research Design used for this study is explained in section one, nature and sources of data are presented in section two. Selection of enterprise is described in section three. Section four deals with the method of analysis and explains the various econometric and statistical methods, tools and techniques used in this study. It also presents various econometric models used in this study.

Research design

The research design adopted in this study consists of descriptive, correlation and causal comparative to deal with the various issues raised in this study. The descriptive research design has been adopted to undertake fact-finding operation searching for adequate information in the context of company fundamentals and equity returns that justifies current conditions and practices of Nepali stock market. The method adopted also assesses the opinions and characteristics of investors, brokers and the executives of the listed companies in Nepal. An attempt has also been made to describe the situation and events occurring during the period of study in the context of Nepali stock market. This study has also adopted correlation research design to establish the directions, magnitudes and forms of the observed relationship between current stock returns and returns at one or more period earlier. Moreover, this study has also adopted causal comparative research design to determine the effect of size, book to market ratio, earning yield and cash flow yield of the portfolio of stocks on stock market returns.

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This design has also been used to understand the fact that if the stock returns of Nepali stocks are also influenced by market rate on the basis of the historical price information. The detailed methodological issues are discussed extensively in respective sections of this study.

Nature and sources of data

This study has utilized both the primary and secondary sources of data. The stock returns and its relationship with different variables such as cash flow yield, cash flow, market price, book to market ratio, and size are examined by utilizing the secondary sources of data. The overall stock market return and effect of various company fundamentals of the stock market in Nepal has been evaluated using primary source of data. The secondary source primarily includes annual reports of Nepal Stock Exchange Limited from fiscal year 1999/2000 through 2009/2010. Prices of individual companies have been collected from the Nepal Stock Exchange Limited. Annual reports of the individual companies have also been collected to obtain the information regarding cash flow yield, cash flow, market price, book to market ratio, size of the enterprise and other types of corporate events. In order to know the investors, brokers and company executives' perceptions on stock returns, a structured questionnaire was administered.

The relationship between stock returns and company fundamentals was examined by utilizing the 642 observations of 92 listed enterprises. The data includes the cash flow yield, cash flow, market price, book to market ratio, size of 92 listed enterprises. Similarly, the market return on the Nepali stock market has been determined by utilizing the Nepal Stock Exchange (NEPSE) index data and closing prices of 92 enterprises. It includes 11 observations of yearly market returns, 3852 observations of yearly cash flow, market price, book to market ratio, size of the enterprise and 11 observations of 91 day average treasury bill rate published by Nepal Rastra Bank. Similarly, returns on individual enterprises are also utilized to examine the effect of

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various company fundamentals on stock returns in Nepali stock market. Table 3.1 depicts the name, study period and number of observations of the selected enterprises selected for this study:

Table 3.1

Enterprises selected for the study (1999/2000-2009/2010)

S.No.	Name of the Enterprises	Study Period	Observations
	A. Commercial Banks		
1	Nabil Bank, Nepal Investment Bank, Standard Chartered Bank, Himalayan Bank, Nepal SBI Bank, Nepal Bangladesh Bank, Everest Bank, Bank of Kathmandu, Nepal Industrial & Co.Bank, Machhachapuchhre Bank, Laxmi Bank, Kumari Bank, Lumbini Bank, Nepal Credit & Com. Bank, Siddhartha Bank, NMB Bank	1999/00 – 2009/10	160
2	Global Bank Ltd., KIST Bank Limited, Citizen Bank International Ltd., Bank of Asia Nepal Ltd.	2007/08 - 2008/09	8
		Total Observations	**168**
	B. Finance Companies		
3	Nepal Finance and Saving., NIDC Capital Markets, National Finance, Nepal Share Markets, Annapurna Finance, Kathmandu Finance, Peoples Finance, Union Finance, Citizen Investment Trust, Nepal Aawas Bikas Beeta, Narayani Finance, Yeti Finance Company, Gorkha Finance, Samjhana Finance, Universal Finance, Nepal Housing & Merchant Fin., General Finance, Maha Laxmi Finance, Lalitpur Finance, Goodwill Finance, Paschimanchal Finance, Pokhara Finance, Lumbini Finance, Siddhartha Finance, Alpic Everest Finance, United Finance, International Leasing & Fin, Shree Investment Finance, Central Finance, Nepal Shree Lanka Merchant Bank, Premier Finance, Nava Durga Finance, Butwal Finance Janaki Finance, Standard Finance, Om Finance, Cosmic Mer.Bank & Fin., Fewa Finance, World Merchant Bank, Birgunj Finance, Capital Mer. Bamk & Fin, Everest Finance, Prudential Bittiya Sanstha, Shrijana Finance(Bittiya Sanstha), Royal Mer. Bank.& Fin, Guheyshwori Mer. Bank. Fin, IME Financial Institution, Bhajuratna Fin.& Sav, Patan Finance, Imperial Financial Inst., Civil Merc.Bittiya Santha, ICFC Bittiya Santha, Nepal Express Finance, Kuber Mer. Finance, Pravu Finance, Sagarmatha Mer. Banking & Finance Lord Buddha Financial, Kaski Finance, Mechant Finance, Reliable Investment Bittiya Santha, Sikhar Bittiya Santha	2002/03 - 2009/10	416
		Total Observations	**416**
	C. Development Banks		
4	Development Credit Bank	2003/04 - 2009/10	6
5	Nirdhan Utthan Bank	2004/05 - 2006/07	3
		Total Observations	**9**
	D. Insurance Companies		
6	Himalavan General Insurance, United Insurance Co.(Nepal), Premier Insurance Co.(Nepal), NECO Insurance, Sagarmatha Insurance	2002/03 - 2006/07	25
		Total Observations	**25**
	E. Hotels		
7	Taragaon Regency Hotels	2002/03 - 2007/08	6

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8	Oriental Hotels	2003/04 - 2007/08	5
		Total Observations	**11**
	F. Manufacturing and Processing Companies		
9	UNILEVER Nepal, Bottlers Nepal (Balaju), Bottlers Nepal Terai	2002/03 - 2008/09	14
		Total Observations	**14**
		Grand Total Observations	**642**

The primary data required for this study has been collected through structured questionnaire distributed to the individual investors, licensed brokers of Nepal Stock Exchange Limited and executives of listed companies. Data were also collected from website of some of the sources that were not directly related to capital market viz. Economic Survey (2008, 2009 and 2010) from Ministry of Finance (Government of Nepal), quarterly and annual financial highlights from Nepal Rastra Bank, experts from publications of media houses, Abhiyan, Nepalsharemarket.com and Kantipur Publications.

The well-structured questionnaires were sent to the investors in share market, brokers of Nepal Stock Exchange Limited and executives of listed companies to gather information regarding the various issues of stock returns of Nepali enterprises. As regards to the respondents from investors, 98 percent are from Kathmandu, and 2 percent are from outside Kathmandu. 93 percent are practitioners, 89.1 percent are male, and 82 percent are above 30 years. All the respondents from brokers are from Kathmandu, and all of them are practitioners, and 100 percent of them are male. On the other hand, the respondents from the executive of the listed companies include twenty one commercial banks, sixty one finance companies, two development banks, four insurance companies and three manufacturing and processing industries and two hotels. The yearly price data was converted into yearly return data using the following equation:

$$R_t = \frac{P_t - P_{(t-1)}}{P_{(t-1)}} \qquad \text{for } t = 1 \text{ to } n$$

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Where

t = year of observation

R_{it} = Return on stock i in the year t

P_{it} = Closing adjusted share price of stock i in year t

$P_{i(t-1)}$ = Closing adjusted share price of stock i in year t-1

Initially the plan was to incorporate all the 163 listed companies, but because of non availability of data this study is based on 92 listed companies. An attempt has been made to select the enterprise from all the categories viz. Commercial Banks, Development Banks, Insurance Companies, Finance Companies and Manufacturing and Processing Companies. Moreover, the study period begins only from 1999/2000. In the absence of valid and reliable data, the study periods for each selected enterprises are not homogeneous in nature. To analyze the relationships among different variables, this study uses pooled cross-section data of 92 enterprises as shown in Table 3.1. Thus the total number of observations was 642.

Selection of Enterprise

To examine the relationship of stock returns and different company fundamentals, data of 92 listed enterprises were utilized. The sample represents 53 percent of the total population (175 listed companies till July 2010). The sample represents 20 commercial banks, 60 finance companies, 2 development banks, 5 insurance companies, 2 hotels, and 3 manufacturing and processing companies were selected. For the sample selection (enterprises that were considered for the study) the following criterion was applied:

- Positive net worth
- Regularly traded (20 transactions in a year)
- Published Annual Report every fiscal year
- Relatively Older enterprise (3 years old)

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The Nepali firms have mid – July (Ashad) as the end of their fiscal year. Some firms publish semiannual statements; this study does not use this information because of their tentative nature. The data used in this study are from the published annual reports of the enterprises, and the market prices are taken from the published data of Nepal Stock Exchange Limited.

While selecting the enterprises, factors like market capitalization, cash flow, book to market ratio, volume of transactions, frequency of trading, and tenure of the enterprise has been taken into consideration. Accordingly, eight commercial banks, three manufacturing and processing companies, two hotels, one trading company, six insurance companies and ten finance companies are selected to confirm the results of the index data. Out of the 92 enterprises, the beginning period of the data of 16 enterprises is 1999. The beginning period of the data of remaining enterprises ranges from 2000 to 2006. However, the ending period of data of each enterprise is 2010.

Methods of analysis

The Model.

With the use of various econometric models to confirm the relationship between stock returns and fundamental variables, this study attempts to estimate and to test the robustness of the results. The study examines the relationship of stock returns (R) such as, dividend yield, capital gain yield and total yield with fundamental variables such as, earnings yield (E/P), size (LS), book to market equity ratio (B/M) and cash flow yield (C/P) of Nepali stocks by estimating various models.

Fama and French (1998) document an international size effect based on the evidence that small stocks outperform large stocks in 11 out of 16 markets. This evidence suggests that the cross-section of expected stock returns is not sufficiently explained by their betas. The discipline

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of asset pricing, already prone to debate; (CAPM vs. APT and the development of multifactor models), faces yet a new debate in the sense that an alternative view emerges in the spirit of a study by Daniel and Titman (1997). Davis, Fama, and French (2000) make a valiant attempt to put an end to the debate of factor vs. characteristic based model by observing that the value premium in the US is robust and their three-factor model explains the value premium better than the characteristic based model.

In light of the above evidences this study uses the methodology of Chan, Hamao and Lakonishok (1991) for selected stocks of Nepali Enterprises to examine the relationship between company fundamentals and equity returns. The motivation comes from the fact that the bulk of existing studies relates to US and non US portfolios are based on the above models and there are evidences available on the robustness of the above models for the different international markets.

Theoretically the model is stated as *"the stock returns (R) may be regarded as subject to the constraints of earnings yield (E/P), size (LS), book to market equity ratio (B/M) and cash flow yield (C/P)"* and can be stated in an equation form as follows:

$$R = f(E/P, LS, B/M, C/P) \quad \text{----------} \quad (1)$$

With the use of above theoretical concept, the estimation equation used in this study is specified as follows

$$R = a + b1(E/P) + b2(LS) + b3(B/M) + b4(C/P) + Ui \quad \text{----------} \quad (2)$$

Where Dividend yield, Capital gain yield, and Total yield are the dependent variables and is defined as

DY = Dividend yield or dividend per share to market price per share, i.e., D1/P0.

CY = Capital gain yield or capital gain per share to market price per share, i.e., (P1-P0)/P0.

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TY = Total yield or dividend per share plus capital gain per share to market price per share, i.e., (D1+P1-P0)/P0, and Earnings yield, Size, Book value of equity per share to market value of equity per share, and Cash flow yield are independent variables and are defined as

- E/P = Earnings yield or earning per share to market price per share.
- LS = Size or market capitalization.
- B/M = Book value of equity per share to market value of equity per share.
- C/P = Cash flow yield or earning per share plus depreciation expenses per share to market price per share.
- The standard notations used in equations (4 to 27) are given below:
- R_{pt} = Portfolio return in year t
- R_{ft} = Risk free return in year t
- R_{mt} = Return on market portfolio in year t
- a = intercept
- βp = Slope coefficient of Market Factor
- b1 = Slope coefficient or factor loading of earning yield
- b2 = Slope coefficient or factor loading of size
- b3 = Slope coefficient or factor loading of value or book to market ratio
- b4 = Slope coefficient or factor loading of cash flow yield (C/P)
- Ui = Disturbance or error term.

Statistically significant values of slope coefficient of various factors would indicate that those factors are important in explaining variations in stock returns otherwise not. Moreover whether independent variable(s) in a particular model significantly explain cross sectional variations in stock returns or not can be detected by looking at its adjusted R^2 value. The higher the value of adjusted R^2 the greater is the explanatory power of the independent variable(s) included in the model.

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The analysis was based on one, two, three, four and five independent factors at a time to estimate portfolio returns (stock returns). The main equation is as follows for Market, Earning Yield, Size, Book to Market and Cash Flow Yield

$$R_{pt} - R_{ft} = a + \beta p\,(R_{mt} - R_{ft}) + b1\,(E/P)_t + b2\,(LS)_t + b3\,(B/M)_t + b4\,(C/P)_t + Ui \quad \text{--------- (3)}$$

In order to observe the precise effects of the variables under being studied on stock returns, market premium as controlled variable has been introduced in all models as:

$$R = a + b1\,(E/P)_t + b2\,(LS)_t + b3\,(B/M)_t + b4\,(C/P)_t + b4\,(MR)_t + Ui \quad \text{--------- (4)}$$

To establish the more precise relations between the stock returns and the variables being studied, log linear models have also been used as below.

$$R = a + b1\,(LN(E/P)_t) + b2\,(LN(S)_t) + b3\,(LN(B/M)_t) + b4\,(LN(C/P)_t) + Ui \quad \text{--------- (5)}$$

The study uses the concept and approaches of various statistical tools that includes Mean, Median, Range, Standard deviation, Spearman correlations, t-Statistics, Coefficient of determinations (R^2), Standard errors of estimates (SEE) etc.

This study uses five different econometric models in order to test the predicting power of variables in explaining stock returns. To estimate various portfolios, fixed effect model is used to impose time independent effects for each entity that are possibly correlated with the regressors and for other estimations simple linear regression is used to model the value of a dependent scale variable based on its linear relationship to one or more predictors assuming that the error term has a normal distribution with a mean of 'zero' and the variance of the error term is constant across cases and independent of the variables in the model i. e. no heteroscedastic and multiple regression models used to establish the relationship between stock returns and firm-specific variables. For regression analysis and data analysis of all the above models, Statistical Package for Social Sciences (SPSS) Version 16 and Excel 2010 was used in this study.

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Formation of Portfolio

For the construction of portfolio the sample companies were ranked on the basis of size (market capitalization (MC)) at the end of July of year t. The ranked sample companies were then divided into 5 equally weighted portfolios namely S1, S2, S3, S4 and S5 from smallest sized portfolio (S1) to largest sized portfolio (S5). Each of these portfolios consists of 20% of the total companies. In order to test whether the investment strategy based on remaining company fundamentals (E/P ration, B/M ration and C/P ratio) yields any extra normal returns in Nepali equity market, the portfolio formulation process was repeated for E/P ratio, B/M ratio and C/P ratio as the sorting variable.

Portfolios sorted on the basis of E/P ratios have been specified as EP1 (lowest), EP2, EP3, EP4 and EP5 (highest). Portfolios sorted on the basis of B/M ratio are named as BM1 (lowest), BM2, BM3, BM4 and BM5 (highest), while those sorted on the basis of C/P ratio are specified as CP1 (lowest), CP2, CP3, CP4 and CP5 (highest).

Yearly equally weighted returns on all portfolios were calculated for the sample period. The relationship between company fundamentals and stock returns was tested using time series regression and market model equation (used by Chan, Hamao and Lakonishok (1991)) and is mentioned below

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + \varepsilon_t \quad \text{--------- (6)}$$

(for p = 1 to 20 and t = 1 to 10)

Where

p = number of portfolios

t = number of observation

$R_{pt} - R_{ft}$ = Excess return on portfolio i.e. return on portfolio P minus risk for return in month t.

$R_{mt} - R_{ft}$ = Excess return on market portfolio in month t

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α_p = Intercept term

β_p = Slope of Market Factor

ε_t = Error or Disturbance Term

With the above equation the relationship between company fundamentals and stock returns was tested for one, two, three and four fundamental factors.

To test and explain if inclusion of any one or more of the four company fundamentals (Size (MC), Earnings Yield (E/P), Book equity to market equity ratio (BE/ME) and Cash Flow Yield (C/P)) can better explain cross sectional variations in average equity returns in Nepali Stock Market, the same methodology as used by Davis, Fama and French (2000) was used with the following modifications:

- DFF (2000) constructed and used only nine portfolios based on size and book to market equity. This study uses 20 portfolios based on size, earning yield (E/P) ratio, book to market equity ratio and cash flow yield (C/P) ratio.
- DFF (2000) used the following 3 factors and tested Fama-French three factor asset pricing model equation :
  - Market Risk Premium = (RM – RF)
  - Size Premium = SMB = Return differential between small & large firms portfolios
  - Value Premium = HML (High - Low) = Return differential between high B/M stocks portfolio and low B/M stocks portfolio

This study uses the following five factor model:

- Market Risk Premium = (RM – RF)
- Size Premium = SP = Return differential between small & large firms portfolios

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- Value Premium = B/M (High - Low) = Return differential between high B/M stocks portfolio and low B/M stocks portfolio
- Earning Yield Premium = E/P (High - Low) = Return differential between high E/P stocks portfolio and low E/P stocks portfolio
- Cash Flow Yield Premium: C/P (High - Low) = Return differential between high C/P stocks portfolio and low C/P stocks portfolio

Definitions of Key Terms and Variables

This study uses econometric, statistical and financial variables, tools and terminologies. The definition of such key terms and variables are as follows:

- **Size:** Market capitalization (MC) as on Nepali Financial Year Closing (July 16th) every year which is obtained as Market price per share multiplied by number of outstanding shares.
- **Earning Yield:** Ratio of Earnings per share to Market price per share (E/P ratio) as on Nepali Financial Year closing (July 16th) every year
- **Book Equity to Market Equity Rate:** Book equity to market equity ratio (B/M ratio) as on Nepali Financial Year closing (July 16th) every year.
- **Cash Flow Yield:** Earning per share plus depreciation expenses per share to market price per share as on Nepali Financial Year closing (July 16th) every year.
- **Stock Returns (R):** It is annual average stock returns of sample companies calculated as Market price of (t+1) minus Market price of time t whole divided by Market price of time t expressed as: $(MPS_{t+1} - MPS_t)/MPS_t$
- **Excess Return (ER):** Excess return is the return which can be compensated for bearing the market risk and is the difference between return on stock of firm i and risk free rate

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taken annual weighted average of 91 days treasury bills interest rate for 1999 to 2007. The model excess return has been formulated to observe the more precise relationship of stock returns with its cross section determinants.

- **Market Premium (MPR):** Market return premium is the excess return on market over risk free rate of return (91-days T-bill rate) and market return premium on time t has been calculated as market return i.e. NEPSE index minus risk free rate for the study period. The inclusion of market premium as controlled variable provides an interesting insight into the relation of returns and independent variables.
- **Risk Free Rate (Rf):** Risk free rate is the annual weighted average rate of 91 days T-bills obtained from Nepal Rastra Bank publications.
- **Net-worth Per Share (NWPS):** Net worth is the owner's equity in the company. It is also known as book value of the company. It consists of equity capital, retained earnings, reserve and surplus. Net worth per share is the book value of each share.
- **Market Price Per Share (MPS):** Market price per share is the price at which the shares are traded in the stock market. This study has used year end market price per share of each company over the study period which is determined in the Nepal Stock Exchange Ltd.
- **Earning Per Share (EPS):** Earning per share is the amount which is calculated by dividing the total earnings available to the common stockholders by the total number of shares outstanding.
- **Dividend Per Share (DPS):** Dividend per share is amount available to the holders of each stock. It is the regular return to investors on their investment provided to the

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company. It is calculated by dividing total dividend amount by the number of shares outstanding.

- **β (beta):** Beta is the standardized regression coefficient that would result if the variable were entered into the equation at the next step and the un standardized coefficients or betas are an attempt to make the regression coefficients more comparable)
- **α_t (constant):** αt is the intercept in time t called the model-predicted value of the dependent variable when the value of every predictor is equal to 'zero'.
- **Error Terms (ε_t):** ε_t is the error term which represents omitted sources of risk that the previous variables may not have identified.
- Total Capitalization: Total capitalization includes net worth plus long term debt. It is also known as the total capitalization employed.
- **Correlations:** The correlation coefficient is a measure of linear association between two variables. Pearson correlation coefficients assume the data are normally distributed. The values of the correlation coefficient range from -1 to 1. The sign of the correlation coefficient indicates the direction of the relationship (positive or negative). The correlation coefficients on the main diagonal are always 1.0, because each variable has a perfect positive linear relationship with itself. Correlations above the main diagonal are a mirror image of those below.
- **Co-efficient of (multiple) Determination (R^2):** Goodness-of-fit measure of a linear model, sometimes called the coefficient of multiple determination. It is the proportion of variation in the dependent variable explained by the independent variables in regression model. It ranges in value from 0 to 1. Numerically it is expressed as:

  R^2=Explained variation / Total variation

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Higher R2 means higher explanation of variation in dependent variables by independent variables and small values indicate that the model does not fit the data well. The sample R squared tends to optimistically estimate how well the model fits the population.

- **Tolerance:** Tolerance is the proportion of a variable's variance not accounted for by other independent variables in the model. Tolerance is a statistical tool used to determine how much the independent variables are linearly related to one another (multicollinear). Smaller Tolerance values are an indicator of multicollinearity.
- **VIF (Variance Inflation Factors):** VIP or the variance inflation factor is the reciprocal of the tolerance. As the variance inflation factor increases, so does the variance of the regression coefficient, making it an unstable estimate. VIP shows how the variance of an estimator is inflated by the presence of multicollinearity (Gujarati, 2007). Large VIP values are an indicator of multicollinearity.
- **Durbin Watson d-statistic:** It is a tools used to test for serially correlated (or auto correlated) residuals. One of the assumptions of regression analysis is that the residuals for consecutive observations are uncorrelated. If this is true, the expected value of the Durbin-Watson statistic is 2. Normally, values less than 2 indicate positive autocorrelation, a common problem in time series data. Values greater than 2 indicate negative autocorrelation.
- **Histogram:** The graphical representation of trend of dependent variable on independent variable. The shape of the histogram of dependent variable should approximately follow the shape of the normal curve. This histogram is acceptably close to the normal curve
- **Sig-value:** Often called p-value, it is the conditional probability that a relationship as strong as the one observed in the data would be present if the null hypothesis were true so

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it gives the result of the test. Very small values (less than 0.05) indicate that there are probably significant relationships among variables being studied. A value higher than about 0.10 or so may indicate that the data are not suitable for study and analysis.

- **t-Statistics:** The t-statistics can help the researcher determine the relative importance of each variable in the model. The t-statistic and its significance value are used to test the null hypothesis that the regression coefficient is zero (or that there is no linear relationship between the dependent and independent variable). If the significance values is small (less than say 0.05) then the coefficient is considered significant.
- **ANOVA:** The ANOVA table tests the acceptability of the model from a statistical perspective. While the ANOVA table is a useful test of the model's ability to explain any variation in the dependent variable, it does not directly address the strength of that relationship.
- **F - Statistics:** The F-statistic is the regression mean square (MSR) divided by the residual mean square (MSE). If the significance value of the F-statistic is small (smaller than say 0.05) then the independent variables do a good job explaining the variation in the dependent variable and indicate that the variation explained by the model is not due to chance. If the significance value of F is larger than say 0.05 then the independent variables do not explain the variation in the dependent variable.
- **Regression Constants (α):** Regression constants, also known as intercepts of the model, are the average value of the dependent variable when the value of independent variables is zero. The regression coefficient of each independent variable is the rate of charge in dependent variables due to unit change in independent variables keeping other independent variables constant in the regression model.

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- **Standard Error of Estimate (SEE):** Standard error of estimate is a measure of the reliability of the estimating equation, indicating the extent to which observed values differ from their predicted values on regression line. In other words, it is a measure of dispersion (or scatter or variation) about the regression line. The smaller the value of SEE, the closer will be the observed values to the regression line and the better will be the estimates based on the equation for this line. It is not possible to predict perfectly with the help of the regression equation only. Therefore the SEE makes it possible to ascertain how good and representative the regression line is as descriptions of the average relationship between two series.
- **Weighted Mean:** The weighted mean is used in this study to analyze the survey data and draw inferences. The degree of importance of each value to -the overall total is measured by weighted mean. Weighted means are calculated to rank the issues, raised on questionnaire, based on their importance as mentioned by respondents.
- **Chi-square Test:** As a non-parametric test, chi-square can be used to determine if categorical data shows dependency or the two classifications are independent. Here, in this study, chi-square values are computed to assess the difference in the opinions of the share brokers, investors and executives of the different enterprises regarding stock returns and company fundamentals. The chi-square values are

  calculated as: $\chi^2 = \sum \frac{O - E}{E}$

  Where,

  O = observed frequency

  E = expected frequency

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When observed frequency is small, a more accurate value of X2 is obtained by applying Yates' Continuity correction. This is achieved by subtracting each difference by 0.5 in absolute value before squaring.

- **Spearman's Rank-order Correlation:** Of all the statistics based on ranks, the Spearman rank-order correlation coefficient ρ (rho) is a measure of association between two variables that is based on the ranks of the observations and not on the numerical values of the data. This statistics is computed in this study to find the degree of relationship between the responses of three categories of respondents, The Spearman's rank-order correlation is calculated as:

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2-1)}.$$

Where,

di =difference in ranks on the two variables (Xi - Yj)

The coefficient of rank correlation is a relative measure which varies from -1 (a perfect negative relationship between X and Y) to +1 (a perfect positive relationship between X and Y). The closer ρ is to these extremes, the stronger is the relationship between X and Y and vice versa. If X and Y are independent of each other, there is no relationship and the coefficient of correlation is zero.

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CHAPTER IV

PRESENTATION AND ANALYSIS OF SECONDARY DATA

To examine the relationship of various fundamental variables with stock returns of the Nepali stocks, data of 92 Nepali enterprises was collected for most recent twelve fiscal year starting from 1999/2000 to 2009/2010. The total number of observations was 642. This chapter presents the analysis based on the collected secondary data.

The analysis is based on the models and equations mentioned in chapter three. As the study used four company fundamental variables (Size, E/P, B/M and C/P) there were four sets of 5 portfolios each and altogether there were 20 portfolios. As the study is based on the primary data collected through questionnaire and secondary data from NEPSE, SEBO/N and the enterprises, the analysis is purely based on the data collected.

Descriptive Statistics

The stock returns and its relationship with different variables such as cash flow yield, cash flow, market price, book to market ratio, and size are examined by utilizing the secondary sources of data. The secondary data source primarily includes annual reports of Nepal Stock Exchange Limited from fiscal year 1999/2000 through 2009/2010. Prices of individual companies have been collected from the Nepal Stock Exchange Limited. Annual reports of the individual companies have also been collected to obtain the information regarding cash flow yield, cash flow, market price, book to market ratio, size of the enterprise and other types of corporate events. In order to know the investors, brokers and company executives' perceptions on stock returns, a structured questionnaire was administered.

The relationship between stock returns and company fundamentals was examined by utilizing the 642 observations of 92 listed enterprises. The data includes the cash flow yield, cash

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flow, market price, book to market ratio, size of 92 listed enterprises. Similarly, the market return on the Nepali stock market has been determined by utilizing the Nepal Stock Exchange (NEPSE) index data and closing prices of 92 enterprises. It includes 11 observations of yearly market returns, 3852 observations of yearly cash flow, market price, book to market ratio, size of the enterprise and 11 observations of 91 day average treasury bill rate published by Nepal Rastra Bank. Similarly, returns on individual enterprises are also utilized to examine the effect of various company fundamentals on stock returns in Nepali stock market.

The data analysis was done using the standard statistical tools and techniques. Microsoft Excel and SPSS were used to present the descriptive statistics and regression analysis.

Mean yearly rate of return of Nepali stocks is 25.1% with the minimum being 81.3% negative to maximum of 383.3%. It can be noticed that the rate of return varies from one company to another. Similarly mean excess return of the Nepali stocks for the study period is 21.4%. We observe that both the yearly rate of return and excess return has minimum of negative values and maximum of positive values.

During the fiscal year 1999/2000 to 2009/2010 the mean market rate of return is 12.2%, where as if we take market capitalization the mean is NPR. 321.658 million. Mean Book to market ratio is .640 and cash flow yield is 13.1%. Mean earning yield is 9.6% with the standard deviation of .115. Table 4.1 presents the summary statistics of the Nepali enterprises.

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Tale 4.1

Summary statistics of the Nepali enterprises

	Unit	Range	Minimum	Maximum	Mean	Std. Deviation
Yearly Return	Percent	4.646	-0.813	3.833	0.251	0.564
Excess Return	Percent	4.644	-0.860	3.784	0.214	0.564
Market Return	Percent	1.584	-0.840	0.744	0.122	0.339
Size	Log Value	8.703	16.300	25.003	19.589	1.986
Book to Market Ratio	Times	5.190	-0.471	4.719	0.640	0.555
Cash Flow Yield	Percent	4.152	-1.531	2.621	0.131	0.238
Earning Yield	Percent	1.504	-0.868	0.636	0.096	0.115

Spearman's and Pearson's Correlation

Table 4.2 presents cross correlation (Spearman's and Pearson's) matrix of fundamental variables used in the study. As is evident from the result, there is negative but statistically significant relationship between stock returns and book to market ratio; stock returns and cash flow yield; stock returns and earning yield, however there is a positive relationship between stock returns and size. There is negative but strong relationship between size and book to market ratio; and size and cash flow yield and size and earning yield. Most of the relationships are statistically significant at 1 percent level. The correlation matrix shows that there exists a statistically significant positive relationship between stock returns and excess return, stock returns and market return and stock return and size. However a statistically significant positive relationship exists between book to market ratio and cash flow yield; book to market ratio and earning yield; cash flow yield and earning yield. The result indicates that the trend observed in the developed capital market is similar in case of cash flow yield, book to market ratio and earning yield, but it is not the same for size. Thus Nepali stock market tends to capture different firm characteristics. This is mainly due to the large gap in size between the smaller and big enterprises.

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Table 4.2

Spearman's and Pearson's Correlation matrix of various fundamental variables and Stock Return

	Stock Return	Excess Return	Market Return	Size	Book to Market	Cash Flow Yield	Earning Yield
Stock Return	1	0.9982**	0.3551**	0.0894	-0.2558**	-0.1464*	-0.1749**
Excess Return	0.9982**	1	0.3667**	0.0898	-0.2539**	-0.1446*	-0.1726**
Market Return	0.3551**	0.3667**	1	0.1494**	-0.0882	-0.0754	-0.0652
Size	0.0894	0.0898	0.1494**	1	-0.6492**	-0.2048**	-0.4621**
Book to Market	-0.2558**	-0.2539**	-0.0882	-0.6492**	1	0.3984**	0.6554**
Cash Flow Yield	-0.1464*	-0.1446*	-0.0754	-0.2048**	0.3984**	1	0.4084**
Earning Yield	-0.1749**	-0.1726**	-0.0652	-0.4621**	0.6554**	0.4084**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Properties and Summary Statistics of Portfolio

Sample companies were ranked on the basis of size (market capitalization (MC)) at the end of July of year t. The ranked sample companies were then divided into 5 equally weighted portfolios namely S1, S2, S3, S4 and S5 from smallest sized portfolio (S1) to largest sized portfolio (S5). Each of these portfolios consists of 20% of the total companies. The portfolio formulation process was repeated by using E/P ratio, B/M ratio and C/P ratio as the sorting variable. As the study used four company fundamental variables (Size, E/P, B/M and C/P) there were four sets of 5 portfolios each and altogether there were 20 portfolios.

Portfolios sorted on the basis of E/P ratios have been specified as EP1 (lowest), EP2, EP3, EP4 and EP5 (highest). Portfolios sorted on the basis of B/M ratio are named as BM1 (lowest), BM2, BM3, BM4 and BM5 (highest), while those sorted on the basis of C/P ratio are specified as CP1 (lowest), CP2, CP3, CP4 and CP5 (highest). The following paragraphs present the analysis of the different portfolios formed for this study.

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Portfolio based on the size (market capitalization)

Table 4.3

Summary Statistics of portfolio based on size.

Portfolio	S1		S2		S3		S4		S5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Stock Return	-0.05	0.20	0.14	0.41	0.04	0.31	0.37	0.36	0.04	0.34
Excess Return	-0.08	0.20	0.11	0.41	-0.01	0.32	0.34	0.37	0.44	0.35
Market Return	0.08	0.29	0.07	0.26	0.09	0.22	0.21	0.26	0.41	0.27
Ln(Size)	17.56	0.35	18.21	0.19	19.74	0.85	21.76	0.49	25.75	2.72
Book to Market	1.46	1.01	0.94	0.38	0.62	0.34	0.29	0.10	0.12	0.05
Cash Flow Yield	0.21	0.17	0.15	0.05	0.35	0.62	0.09	0.04	0.06	0.03
Earning Yield	0.20	0.16	0.14	0.05	0.07	0.13	0.05	0.03	0.03	0.02

S1 = 16.8 to 17.93 *S2 = 17.94 to 18.58* *S3 = 18.59 to 20.97*

S4 = 20.99 to 22.50 *S5 = 22.55 to 29.60*

Note: This table provides summary statistics for the properties of six variables grouped into five portfolios sorted by market capitalization (size). The variables include: Stock Return, Excess Return, Market Return, Book-to-Market equity (B/M ratio), Cash-flaw-yield (C/P ratio) and Earning yield (E/P ratio) for portfolio sorted by size over the period of 1999/2000 to 2009/2010 of 92 NEPSE listed companies with 642 observations.

It is evident that mean monthly excess returns of smallest size portfolio (S1) is much lower than that of largest sized portfolio (S5). The mean stock return of the smallest size being 5.0 percent negative as against the mean stock return of largest size portfolio which is at 4.7 percent. This clearly suggests and provides evidence of a size premium (the return differential between S1 and S5) of 9.7 percent per year which is quite robust. However the standard deviation of S5 is also higher than that of S1 pointing towards the intuitive fact that large firms are more risky than their smaller counterparts.

Table 4.4 presents the regression result of the market model of the portfolio sorted based on the size. The market model equation which is as follows

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + \varepsilon_t$$

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is used to check for the relationship between company size and stock returns in Nepali stock market.

It is clear that intercept value (αp) started rising monotonically as one moves from S1 to S5. The smallest sized portfolio has provided an extra normal return of 2.8 percent per year over the study period as revealed by its value which is statistically significant (t-value 112.280 as against its critical value of 1.96). Thus we can reject null hypothesis (i.e. $\alpha p = 0$) as intercept value for this portfolio is positive and statistically significant.

However as one moves from S1 to S5 there has been an increase in intercept value particularly up to S3, we do find statistically significant extra normal returns. These findings indicate that the stocks of large firms outperformed those of small firms over the study period. A look at the R^2 value reveals the fact that market factor is important in capturing a large amount of variation in stock returns especially for the large stocks portfolios. It is important to note here that R^2 value (coefficient of determination) is high for all the stocks.

Table 4.4

Regression Result of Market Model of Portfolio sorted on the basis of size (Market Capitalization)

Portfolio	αp	βp	$t(\alpha p)$	$t(\beta p)$	Adj. R^2
S1	0.028	0.983	15.232	112.280	0.998
S2	0.029	0.996	16.000	214.440	0.999
S3	0.047	0.928	2.743	17.222	0.902
S4	0.029	0.994	13.527	216.299	0.999
S5	0.036	0.989	9.575	142.212	0.999

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Portfolio sorted based on book to market ratio (B/M)

Table 4.5 depicts the properties of portfolios of six variables sorted by Book-to Market Ratio over the period of 1999/2000 to 2009/2010 for 642 observations of sample companies in five equally formed portfolios.

Table 4.5

Summary Statistics of portfolio sorted based on book to market ratio

Portfolio	BM1		BM2		BM3		BM4		BM5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Stock Return	0.49	0.38	0.27	0.34	0.09	0.28	0.09	0.40	-0.03	0.23
Excess Return	0.46	0.38	0.24	0.34	0.03	0.29	0.06	0.40	-0.06	0.23
Market Return	0.44	0.29	0.14	0.23	-0.02	0.23	0.14	0.30	0.11	0.24
Ln(Size)	25.06	3.24	21.74	0.71	19.20	1.38	18.26	0.56	17.91	0.73
Book to Market	0.11	0.06	0.29	0.06	0.57	0.06	0.82	0.12	1.80	0.85
Cash Flow Yield	0.09	0.15	0.11	0.06	0.11	0.04	0.15	0.06	0.40	0.62
Earning Yield	0.01	0.09	0.07	0.05	0.09	0.05	0.14	0.06	0.21	0.17

BM1 = - 17.1% to 17.80% BM2 = 18.00% to 40.70% BM3 = 43.5% to 66.7%

BM4 = 66.7% to 105.8% BM5 = 107.1% to 471.9%

We can notice that mean monthly excess return of high B/M stocks portfolio (BM5) is much lower and statistically significant (-3.2 percent per annum) than that of low B/M stocks portfolio (BM1: 48.9 percent per annum). Moreover the standard deviation of low B/M stocks portfolio is also higher.

Table 4.6

Portfolio sorted based on B/M

Portfolio	Range (%)	Mean	SD
BM1	- 17.1% to 17.80%	0.489	0.378
BM2	18.00% to 40.70%	0.271	0.340
BM3	43.5% to 66.7%	0.085	0.283
BM4	66.7% to 105.8%	0.092	0.399
BM5	107.1% to 471.9%	-0.032	0.227

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From the market model regression result the intercept value αp also declines monotonically from 4.0 percent per year to 2.9 percent per year as we go from BM1 (t value 16.312) to BM5 (t value 32.429) which suggests that low B/M stocks portfolio generated higher risk adjusted extra return during the study period. The value premium (i.e. the return differential between BM5 and BM1) is also high and is as 1.1 percent per year which is also significant. The result suggests that during the study period a strong value effect existed in the Nepali stock market.

Table 4.7

Regression result of Market Model of Portfolio sorted on the basis of Book to Market ratio

Portfolio	αp	βp	t(αp)	t(βp)	Adj. R^2
BM1	0.040	0.986	16.312	240.045	1.000
BM2	0.032	0.990	35.418	462.995	1.000
BM3	0.057	0.930	2.952	17.168	0.910
BM4	0.030	0.998	25.301	329.898	1.000
BM5	0.029	0.991	32.429	252.780	1.000

Portfolio sorted based on Cash Flow Yield (C/P)

Table 4.8 depicts the summary statistics of the portfolio sorted based on cash flow yield

Table 4.8

Summary Statistics of portfolio sorted based on cash flow yield

Portfolio	CP1		CP2		CP3		CP4		CP5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Stock Return	0.53	0.38	0.28	0.42	0.15	0.35	0.05	0.25	-0.03	0.21
Excess Return	0.50	0.39	0.23	0.43	0.12	0.35	0.02	0.25	-0.06	0.21
Market Return	0.44	0.27	0.21	0.26	0.01	0.30	0.07	0.19	0.16	0.28
Ln(Size)	23.83	3.82	21.15	2.32	20.28	2.72	19.05	1.53	18.33	1.14
Book to Market	0.30	0.49	0.43	0.32	0.58	0.31	0.79	0.39	1.38	1.09
Cash Flow Yield	0.04	0.01	0.08	0.01	0.11	0.01	0.15	0.02	0.48	0.58
Earning Yield	0.02	0.01	0.05	0.02	0.08	0.03	0.13	0.03	0.22	0.20

CP1 = 1.4% to 6% CP2 = 6% to 9.6% CP3 = 9.6% to 12.8% CP4 = 12.9% to 18.7%

CP5 = 18.9% to 262.1%

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In the above table, the portfolio properties of variables sorted by cash flow yield for 642 observations over the study period of 1999/2000 to 2009/2010 are presented. The variables are stock returns, excess returns, market capitalization (Size), book-to-market equity (B/M) and earning yield (E/P ratio).

The summary statistics and market model results of portfolios sorted on the basis of cash flow are presented in Table 4.9 and Table 4.10 respectively. It can be noted that the mean monthly stock return of low C/P stocks portfolio (CP1) is much higher and statistically significant (52.8 percent per annum) than that of high C/P stocks portfolio (CP5) with minus 3.1 percent per annum. Moreover the standard deviation of low C/P stocks portfolio is also higher.

Table 4.9

Portfolio based on C/P

Portfolio	Range (%)	Mean	SD
CP1	1.4% to 6%	0.528	0.385
CP2	6% to 9.6%	0.280	0.415
CP3	9.6% to 12.8%	0.150	0.350
CP4	12.9% to 18.7%	0.047	0.252
CP5	18.9% to 262.1%	-0.031	0.208

Table 4.10

Regression result of Market Model of Portfolio sorted on the basis of Cash Flow Yield

Portfolio	αp	βp	t(αp)	t(βp)	Adj. R^2
CP1	0.036	0.991	15.133	260.142	1.000
CP2	0.062	0.938	2.920	20.945	0.938
CP3	0.035	0.989	20.612	210.329	0.999
CP4	0.030	0.988	41.003	330.547	1.000
CP5	0.028	0.991	28.429	212.709	0.999

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From the market model regression result the intercept value α_p also declines monotonically from 3.6 percent per year to 2.8 percent per year as we go from CP1 (t value 15.133) to CP5 (t value 28.29) which suggests that low C/P stocks portfolio generated higher risk adjusted extra return during the study period. The C/P premium (i.e. the return differential between CP5 and CP1) is also high and is as 0.8 percent per year. The result suggests that that during the study period a C/P premium existed in the Nepali stock market.

Portfolio sorted based on Earning Yield (E/P)

Table 4.11 depicts the summary statistics of the portfolio sorted based on earning yield. The table presents the properties of stock returns, excess returns, market capitalization (Size), Book to Market equity (B/M), Cash flow yield, in relation to E/P ratio when the portfolio is sorted by earning yield for 642 observations for sample companies over the period of eleven years starting from 1999/2000 to 2009/2010.

Table 4.11

Summary Statistics of portfolio sorted based on Earning Yield

Portfolio	EP1		EP2		EP3		EP4		EP5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Stock Return	0.37	0.44	0.24	0.36	0.27	0.45	0.10	0.26	-0.04	0.20
Excess Return	0.31	0.46	0.21	0.36	0.24	0.45	0.07	0.26	-0.07	0.20
Market Return	0.32	0.33	0.23	0.32	0.13	0.25	0.02	0.23	0.18	0.27
Ln(Size)	24.04	3.98	21.64	2.20	20.13	1.78	18.57	1.08	17.99	0.78
Book to Market	0.32	0.47	0.37	0.39	0.57	0.36	0.80	0.37	1.44	1.01
Cash Flow Yield	0.26	0.63	0.08	0.02	0.11	0.03	0.14	0.02	0.28	0.13
Earning Yield	0.00	0.08	0.04	0.01	0.08	0.01	0.12	0.01	0.27	0.13

EP1 -30.42 to 2.92% EP2 3% to 5.8% EP3 5.9% to 10.3%

EP4 10.4% to 14.7% EP5 15.3% to 63.6%

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It can be noticed that the mean monthly stock return of low E/P stocks portfolio (EP1) is much higher and statistically significant (36.7 percent per annum) than that of high E/P stocks portfolio (EP5) with minus 3.7 percent per annum. Moreover the standard deviation of low E/P stocks portfolio is also higher.

Table 4.12

Portfolio based on E/P

Portfolio	Range (%)	Mean	SD
EP1	-30.42 to 2.92%	0.367	0.437
EP2	3% to 5.8%	0.242	0.357
EP3	5.9% to 10.3%	0.271	0.445
EP4	10.4% to 14.7%	0.098	0.259
EP5	15.3% to 63.6%	-0.037	0.203

From the market model regression result it can be noticed that the intercept value αp also declines from 7.5 percent per year to 2.8 percent per year as we go from EP1 (t value 3.249) to EP5 (t value 27.984) which suggests that low E/P stocks portfolio generated higher risk adjusted extra return during the study period. The E/P premium (i.e. the return differential between EP5 and EP1) is also very high and is 4.7 percent per year. The result suggests that that during the study period an earning yield or E/P premium existed in the Nepali stock market.

Table 4.13

Regression result of Market Model of Portfolio sorted on the basis of Earning Yield

Portfolio	αp	βp	$t(\alpha p)$	$t(\beta p)$	Adj. R^2
EP1	0.075	0.931	3.249	22.174	0.946
EP2	0.031	0.993	24.600	335.872	1.000
EP3	0.030	0.996	29.453	483.499	1.000
EP4	0.033	0.992	25.338	201.132	0.999
EP5	0.028	0.990	27.984	209.647	0.999

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Cross Sectional Variation in Stock Returns in Nepal

The following section presents the results regarding the role of company fundamentals in explaining the cross sectional variation in stock returns in Nepali stock market. To explain the role of different company fundamentals, the results of regression analysis based on the equations mentioned in model section are presented in the following paragraphs with the help of tables. To help explain which model, viz. single factor, two factor, three factor, four factor and five factor mode accurately captures the cross sectional variations in stock returns in Nepal, 24 regressions were run on these models and the results are presented in the subsequent paragraphs.

Regression Results

The regression results based on single factor model indicates that individually the size (market capitalization) has a positive relationship with stock returns with average slope of 0.045 percent with positive t-values 4.786. This indicates that the size and the stock returns of Nepali enterprises move in the same direction in Nepali stock market. Although Pradhan (2004) found that size explains the cross sectional variation of stock returns in Nepali stock market and is negatively related with the stock returns, the findings of this study does not suggest that and does not support their findings. The finding of this study regarding size also does not support the findings of major studies done in the developed capital markets and contradicts (Chan, Hamao & Lakonishok (1991).

Similarly, if taken individually book-to-market shows the statistically significant negative relationship with stock returns with average slope of -0.191 with negative t values of 4.449. This again indicates that the stock returns and book to market ratio moves in the opposite direction. F-statistics is also significant and is 19.972. The finding is again not as per the priori. The results

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thus do not support the findings of Davis (1994) who found that book-to-market equity reliably has positive influence on stock returns and captures the cross section of expected returns in the US context. In the Nepali context it can be said that the movement and relationship of book to market ratio and stock returns are not same as that in the developed countries.

Similarly earning yield (E/P) also shows the statistically significant negative relationship with stock returns with average slope of -0.977 with negative t values of 3.654. This indicates that the stock returns and earning yield moves in the opposite direction. F-statistics is also significant and is 13.350. The finding is again not as per the priori. The result thus does not support the findings of Davis (1994) and Pradhan (2004). Thus it can be said that the movement and relationship of earning yield and stock returns of Nepali enterprises are not the same as that in the developed countries.

Cash flow yield (C/P) shows the statistically significant negative relationship with stock returns with average slope of -0.297 with negative t values of 2.861 and is significant at 1% level. This indicates that the stock returns and cash flow yield moves in the opposite direction. F-statistics is also significant and is 8.185 and is significant at 1% level. The result thus does not support the findings of Fama and French (1992), Davis (1994) and Pradhan (2004) and is again not as per the priori. Thus it can be concluded that the movement and relationship of cash flow yield and stock returns of Nepali enterprises are not the same as that in the developed countries. The model has low standard error (0.369) which indicates that that the coefficients can be estimated with great precision and accuracy.

For this model market return was also taken as an independent variable to examine if it explains the cross section variation of stock returns in the Nepali stock market. The results show

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significant positive relationship with stock return with average slope of 0.674 with positive t values of 7.49. Market return and stock returns move in the same direction.

Similarly, if taken collectively book-to-market shows the statistically significant negative relationship with stock returns. The average slopes are -0.107 and 0.031 respectively with the t values of -2.047 and 2.645. This again indicates that the stock returns and book to market ratio moves in the opposite direction. F-statistics is also significant and is 13.803. The finding is again not as per the priori.

The results thus do not support the findings of Fama and French (1992) and Davis (1994) found that book-to-market equity reliably has positive influence on stock returns and captures the cross section of expected returns in the US context. So the movement and relationship of book to market ratio and stock returns of Nepali enterprises are not same as that in the developed countries.

Similarly earning yield (E/P) and cash flow yield also shows the statistically significant negative relationship with stock returns with average slope of -0.902 and -0.259 with negative t values of 2.569 and 3.418. This again indicates that the stock returns, earning yield and cash flow yield moves in the opposite direction. F-statistics is also significant and is 10.234. The finding is again not as per the priori.

The result thus does not support the findings of Fama and French (1992), Davis (1994) and Pradhan (2004). Thus the movement and relationship of earning yield, cash flow and stock returns of Nepali enterprises are not the same as that in the developed countries.

Cash flow yield (C/P) and book to market (B/M) again shows the statistically significant negative relationship with stock returns with average slope of -0.171 and -0.167 with negative t

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values of 1.630 and 3.711 and is significant at 1% level. This indicates that the stock returns, cash flow yield and book to market moves in the opposite direction.

However it can be concluded that cash flow yield and book to market ratio moves in the same direction. F-statistics is also significant and is 11.339 and is significant at 1% level. The result thus does not support the findings of Fama and French (1992), Davis (1994) and Pradhan (2004) and is again not as per the priori. Thus the movement and relationship of cash flow yield, book to market and stock returns are not the same as that in the developed countries.

Market return was also taken collectively with cash flow yield as an independent variable to examine if it explains the cross section variation of stock returns with cash flow in the Nepali stock market.

The results show significant positive relationship with stock return and market return with average slope of 0.644 with a positive t values of 7.184 whereas cash flow yield still has a negative average slope of -0.202. Market return and stock returns move in the same direction but cash flow yield moves in the opposite direction. Since the above variables did not behaved as per the priori, it can be said that although market rate of return explains and captures the cross sectional variation in the Nepali stock market but that is not the case with the cash flow yield.

The regression results based on three factor model indicates that if taken collectively size (market capitalization) and market return has a positive relationship with stock returns with average slope of 0.020 and 0.588 percent with positive t-values of 2.114 and 6.565 whereas earning yield has statistically significant negative relationship with stock return with average slope of -0.504 with negative t values of -1.955. This indicates that the size, market return and the stock returns of Nepali enterprises move in the same direction in Nepali stock market but that is not the case with earning yield. The results based on three factor model are in line with the

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result of the above two model (single factor and two factor) which suggests that the model predictability of all these three models (single, two and three factors) are same.

In the Nepali context, Pradhan (2004) found that size explains the cross sectional variation of stock returns in Nepali stock market and is negatively related with the stock returns, the findings of this study does not suggest that even if we consider market return and earning yield together. Thus the results of this study based on the three factor model do not support their findings. The finding of this study regarding size thus contradicts with the findings of major studies done in the developed capital markets and contradicts with the findings made by Chan, Hamao and Lakonishok (1991), Fama and French (1992).

Similarly, if taken collectively market return, earning yield and book-to-market to examine the cross sectional variations of stock return, earning yield and book-to-market shows statistically significant negative relationship with stock return, whereas market return has a positive relationship with stock returns. The average slopes for market return, earning yield and book to market are 0.660 and -0.227 and -0.127 respectively with the t values of 7.167, -0.732 and 2.503. This again indicates that the stock returns and earning yield and book to market ratio moves in the opposite direction. F-statistics is also significant and is 26.411. The finding is again not as per the priori. The results thus do not support the findings of Fama and French (1992) and Davis (1994) who found that book-to-market equity reliably has positive influence on stock returns and captures the cross section of expected returns in the US context. In the Nepali context we can say that the movement and relationship of earning yield, book to market ratio and stock returns are not same as that in the developed countries.

In case of earning yield (E/P), size and cash flow yield we can observe statistically significant negative relationship in case of earning yield and cash flow yield with stock returns

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with average slope of -0.489 and -0.207 with negative t values of 1.689 and 2.088. Size still has a positive relationship with stock return with average slope of 0.033 with t values of 2.552. This again indicates that the stock returns, earning yield and cash flow yield moves in the opposite direction. F-statistics is also significant and is 10.366. The finding is again not as per the priori. The results thus do not support the findings of Fama and French (1992), Davis (1994) and Pradhan (2004). Thus we can say that in the Nepali context we can say that the movement and relationship of earning yield, cash flow and stock returns are not the same as that in the developed countries.

Cash flow yield (C/P) and book to market (B/M) again shows the statistically significant negative relationship with stock returns with average slope of -0.169 and -0.085 with negative t values of 1.641 and 1.567 whereas size shows statistically significant positive relationship with average slope of 0.030 with positive t values of 2.646 and is significant at 1% level. This indicates that the stock returns, cash flow yield and book to market moves in the opposite direction and size still has the same positive relationship even if we take it together with cash flow yield and book to market ratio. However we can say that cash flow yield and book to market ratio moves in the same direction. F-statistics is also significant and is 10.207 and is significant at 1% level.

The regression results based on four factor model indicate that if four fundamental factors are taken collectively size (market capitalization) and market return has a positive relationship with stock returns with average slope of 0.012 and 0.594 percent with positive t-values of 1.175 and 6.633 whereas earning yield has negative relationship with stock return with average slope of -0.191 with negative t values of -0.612. The fourth factor, book to market also shows the

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negative relationship with stock returns in four factor models with average slope of -0.099 with t negative t values of -1.768.

It is to be noticed that the t values of earning yield and book to market is not significant statistically. But market return does have statistically significant t values indicating strong positive relationship with stock return.

The results of four factor model is very much similar to that of other three model, thus the sign and relationship directions of fundamental variables of all the four models (single, two, three and four factors) is consistent across all the model. This indicates that the size, market return and the stock returns of Nepali enterprises move in the same direction in Nepali stock market but that is not the case with earning yield. In the Nepali context, Pradhan (2004) found that size explains the cross sectional variation of stock returns in Nepali stock market and is negatively related with the stock returns, the findings of this study based on the four factor model do not suggest that even if we consider market return, book to market ratio and earning yield together. Thus the results of this study based on the four factor model do not support their findings. The finding of this study regarding size thus contradicts with the findings of major studies done in the developed capital markets and contradicts with the findings.

Similarly, while considering market return, size, earning yield and cash flow yield together, the result shows a strong positive relationship of market return and size with stock returns with average slope of 0.018 and 0.573 with positive t values of 1.863 and 6.396. The average slope of earning yield and cash flow yield is – 0.496 and -0.154 with negative t values of – 1.936 and -1.741 indicating negative relationship with stock return. F-statistics is significant and is 20.171. The finding is again not as per the priori. The results thus do not support the findings of Fama and French (1992) and Davis (1994) who found that earning yield and cash

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flow yield reliably has positive influence on stock returns and captures the cross section of expected returns in the US context. In the Nepali context we can say that the movement and relationship of earning yield, cash flow yield and stock returns are not same as that in the developed countries.

Now if we consider earning yield, size, book to market ratio and cash flow yield the results indicate a strong positive relationship of size with stock returns with average slope of 0.029 and t values of 2.523. Earning yield, book to market and cash flow yield with -0.340, -0.048 and -0.185 with t values of -0.951, -0.716 and -1.773. Although the values are not significant but still the relationship is negative which is contradictory with the priori hypothesis. F-statistics is also significant and is 7.86. The finding is again not as per the priori. The result thus does not support the findings of Fama and French (1992), Davis (1994) and Pradhan (2004). Thus the movement and relationship of earning yield, cash flow, book to market and stock returns are not the same as that in the developed countries.

Regression was run on all the five independent variables (market return, earning yield, size, book to market ratio and cash flow yield) to estimate stock returns as the dependent variable using the following model:

$$R_{pt} - R_{ft} = a + \beta p\,(R_{mt} - R_{ft}) + b1\,(E/P)_t + b2\,(LS)_t + b3\,(B/M)_t + b4\,(C/P)_t + Ui$$

This model is used to examine if it better captures the cross sectional variations of stock returns in Nepali stock market. The result indicates that if all the five fundamental factors are taken collectively i,e, market return, size (market capitalization), earning yield, book to market ratio and cash flow yield, market return has a statistically significant positive relationship with stock returns for Nepali stocks with average slope of 0.585 and with t values of 6.667 indicating the market return and stock return moves in the same direction. Similarly size has a statistically significant negative relationship with stock returns for Nepali stocks with average slope of -0.053

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with t values of -2.699 indicating that size and stock returns moves in the opposite direction. The findings are as per the priori hypothesis and are in agreement with the available evidences (Pradhan (2004); Chan, Hamao and Lakonishok (1991); Fama and French (1992)) in the developed capital market. Similarly earning yield, book to market ratio, and cash flow yield has negative relationship with stock returns with average slope of -0.072, -0.334, -0.51 and t values are -0.207, -3.985 and -0.368.

Pradhan (2004) found that size explains the cross sectional variation of stock returns in Nepali stock market and is negatively related with the stock returns, the findings of this study are in agreement with this and suggest that if we consider market return, book to market ratio, size, cash flow yield and earning yield together, there is a negative relationship between stock returns and size of the firm. The findings regarding earning yield, book to market ratio and cash flow yield are not as per the priori. The result thus does not support the findings of Pradhan (2004). Thus we can say that in the Nepali stock market the movement and relationship of earning yield, cash flow, book to market and stock returns are not the same as that in the developed countries. One important thing to note is that the relationship and the movement direction across all the five models are same. Table 4.14 presents the regression results based on five factor model.

The regression results of stock returns on four fundamental variables based on pooled cross sectional data of 92 Nepali Enterprises listed on Nepal Stock Exchange (NEPSE) based on 642 observation across eleven fiscal year starting from 1999/2000 to 2009/2010 are presented in this Table. The different equations for the five factor model are mentioned above. These equations are derived from the basics model which is R = f(E/P, LS, B/M, C/P). E/P is the earning yield, LS is the size based on market capitalization, B/M is the book to market ratio and C/P is the cash flow yield in time t. p-values and t-values along with F-statistics, standard error

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of model (std. error) and coefficient of determinations (R^2) is also reported. Models numbers in the table presented are given the same number as the above equations.

Table 4.14

Results of Linear Regression Model

Models		Intercept	Market Return	Earning Yield (E/P)	Size	Book to Market (B/M)	Cash Flow Yield (C/P)	F	Std. Error	Adj, R^2
		1.449	0.585	-0.072	-0.053	-0.334	-0.051	14.597	0.5094	0.184
24	p value	0.001	0.000*	0.836	0.007**	0.000*	0.713	0.000		
	t value	3.480	6.667	-0.207	-2.699	-3.985	-0.368			

* Significant at 1% level

* Significant at 10% level

Concluding Remarks

Size (market capitalization) and market return has a positive relationship with stock returns with positive t-values, whereas earning yield has negative relationship with stock return with negative t values. Book to market also shows the negative relationship with stock returns. The sign and relationship directions of fundamental variables of all the models are consistent across all the models. This indicates that the market return and the stock returns of Nepali enterprises move in the same direction whereas size and stock returns move in the opposite direction. Pradhan (2004) found that size explains the cross sectional variation of stock returns in Nepali stock market and is negatively related with the stock returns, the findings of this study also suggests the similar relationship. The finding of this study regarding size thus is in agreement with the findings of major studies done in the developed capital markets (Chan, Hamao and Lakonishok (1991), Fama and French (1992)).

Similarly, the results show that earning yield and cash flow yield has negative relationship with stock return. The finding is not as per the priori. The results thus do not support the findings of Fama and French (1992) and Davis (1994) who found that earning yield and cash

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flow yield reliably has positive influence on stock returns and captures the cross section of expected returns in the US context. The movement and relationship of earning yield, cash flow yield and stock returns in Nepal are not same as that in the developed countries.

Across all the five different models to examine cross sectional variations of stock return, the results are consistent and are very much similar to that of other models, although they differ in significance level. The results thus indicate that the sign and relationship directions of fundamental variables of all the five models (single, two, three, four and five factors) is consistent across all the models.

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CHAPTER V

PRESENTATION AND ANALYSIS OF PRIMARY DATA

The relationship between stock returns and fundamental variables in the context of Nepal has been studied mostly using secondary data. Investor behavior is characterized by overexcitement and overreaction in both rising and falling markets. Using CCI and the University of Michigan Consumer Sentiment Index (CSI) Fisher and Statman (2003) found that changes in consumer confidence are positively correlated with changes in individual investor sentiment (measured using the American Association of Individual Investors Investor Sentiment Index), but find no relation between changes in consumer confidence and change in an index of sentiment of institutional investors. Further, the authors find that the change in consumer confidence is positively correlated with contemporaneous returns of the S&P 500, Nasdaq Index, and a small-cap index. Interestingly, however, the authors find a negative relationship between the level of confidence in one month and some stock returns in the next month.

Using consumer sentiment for 11 European Union countries, Jansen and Nahuis (2003) find positive and significant correlations between change in consumer sentiment and contemporaneous stock index returns in 9 of 11 countries. A Granger-causation analysis reveals that stock market returns generally cause changes in consumer confidence, but the reverse is not true. Otoo (1999) similarly finds that stock market returns generally lead changes in consumer confidence for U.S. stocks. However, while Asgary and Gu (2005) find significant, positive correlations between change in consumer confidence and contemporaneous stock returns in the U.S., U.K., France and Germany, they are unable to find a causal relationship in these changes. These studies are limited, however, by their use of monthly (contemporaneous) returns, which may be influenced by factors other than consumer confidence.

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As such, this study examined relationship between stock returns and fundamental variables by conducting an opinion survey targeted to the key players in the stock market in Nepal. The major players in the stock market are investors, stock brokers and listed companies. Both the investors and institutions play a key role in formulating stock prices, while stock brokers facilitate them to do so. The companies also release price-sensitive information regarding their operations, management, incomes and future prospects. Periodical announcement of earnings and dividends, management decision to split the stocks, repurchase of stock and issue of rights to restructure the capital are also price-sensitive information. Investors develop strategies of their investment on the basis of such information released by the listed companies.

Similarly, individual investors play an important role in stock market functioning. Stock market is predominantly affected by the behavior of the investors, their perception of information. Surveys have occasionally conducted to study investors' behavior, their opinion and decision-making skill. Lewellen et al. (1977), analyzed 972 questionnaires sent to clients of a large brokerage firm to query them about their investment goals, behavior and beliefs including their opinion on the predictability of stock returns. Likewise Baker et al. (1977) used mail questionnaire to survey investors' attitude towards risk and their perceptions of common stocks as investments. Shiller (1990) sent survey questionnaire to investors to collect information about their views on the prospects of the stock market. Shiller (1997) used a mailed questionnaire to poll people about their understanding of inflation. Welch (2001) used email questionnaire to poll financial economists on their beliefs about the stock market before and after the crash – including their opinion on the efficiency of public securities' market prices. Benartzi and Thaler (2001) polled investors by e-mail about their holdings in various asset classes and their investment strategies.

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Though relationship between stock returns and fundamental variables had been examined using secondary data, it is also imperative to survey opinion of individual investors, brokers and executives of listed companies to highlight the other aspects of stock returns not covered by the previous chapters.

Survey Procedures

This study has conducted a survey on opinion of investors, brokers and executives of listed companies and for the purpose of the, 250 questionnaires were distributed from May 2010 to June 2010 to individual investors, located in Kathmandu, Bhaktapur, Lalitpur and Pokhara. The investors were selected on random basis who actively participated in the buying and selling of shares in secondary market. 100 questionnaires were distributed to the investors who visited stock broker's office. Investors who frequented the investment banker's office and the Nepal Stock Exchange office were distributed 50 questionnaires each. Finally questionnaires were also distributed to the fifty investors through e-mail by collecting their contact information from some of the brokers.

The total time taken to collect the data from the investors was eleven days with 4 hours a day. Regarding brokers, questionnaire was personally handed over to all 23 active brokers of Nepal Stock Exchange Limited. The survey of brokers generated a response rate of 69.5 percent (16 completed questionnaire was collected). All the respondents from brokers are from Kathmandu, all of them are practitioners, and 100 percent of them are male. For listed companies, 93 questionnaires were distributed to 21 commercial banks, 61 finance companies, two development banks, four insurance companies and three manufacturing and processing industries and two hotels. The survey of executives of listed companies generated a response rate of 63.44.

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Questionnaire

Three different questionnaires were designed to collect information on how investors, brokers and the executives of the listed companies viewed the different aspects of stock returns and fundamental variables. The questionnaire for individual investor focused on identifying the investors' understanding and priorities on investment opportunities, their motivation on investing is stocks, and their frequency of buying and selling. Some questions were designed to identify the level of awareness of the investors such as where they consult before buying or selling shares in secondary market, how they arrive on buying or selling decisions and what do they consult before they order to buy or sell the shares, how they manage their portfolio and consider risk. Questions were also asked to identify the investors' reaction over different types of information such as announcement of dividends, bonus share, right share issues, public issues of new shares. The survey also collected information about payment system in share transaction, brokers' honesty and efficiency in executing their orders, efficiency of listed companies in processing stock certificates, reasons for dealing with only one or more than one brokers.

Similarly, the questionnaire, designed for the brokers, was to collect information regarding major reasons, advantages and disadvantages of listing shares in stock exchanges, the factor that matters the most for an investor to make investing decisions and importance of listing the shares in Nepal Stock Exchange for Nepali enterprises. Some questions were also asked to find the reason for investing in Nepali Stock Market and about the reflection of market risk in Nepali stock.

Likewise, the questionnaire, designed for the executives of listed companies, aimed at collecting information regarding major reasons, advantages and disadvantages of listing shares in stock exchange. The questions were also asked about their opinion on existing listing

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requirements and if they need to be revised, the rational based on which they determine the number of shares to be issued in public floatation and amount to be raised thereof and about their initial public offering if it was over or under subscribed. Some questions were also asked if current market price of their company's stock reflects true value and their stocks are over or under priced.

Survey Results

The study is based on the questionnaire survey of 132 respondents. Out of them, 70 respondents have studied up to graduate level and the other 62 are post graduate. By occupation, 123 are practitioners such as bankers, job holders, business persons and professionals and four are academicians. Out of the total respondents, 63 belong to Kathmandu, 66 belong to Lalitpur, two belongs to Bhaktapur and one belongs to Pokhara. From the results (Table 5.1), it can be noticed that the investors are centered in Kathmandu valley only and some of the major reasons for this kind of distribution are

- The share market related activities (trading, issuance and transfer) are centered in the Kathmandu Valley,
- Almost all the listed companies have their head offices in Kathmandu,
- The only stock exchange NEPSE, is in Kathmandu,
- There are only two brokers active outside Kathmandu Valley

Table 8 presents the respondents profile

The survey results clearly indicates that the Nepali Stock market is dominated by the young investors as 72.7 percent of the total sample are below the age of 40 years and are more attracted to investing in Nepali Stocks. Likewise, it can be noticed that the investment habit of

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Nepali people is guided by the occupation, as 96.2 percent of the total sample are bankers, job holders, business persons, academicians, and professionals.

Similarly the Nepali stock market is dominated by male investors, as out of the total sample 89.4 percent are male. The actual investment pattern of gender could not be generalized as the gender of the investor in whose name the investment was made was not within the scope of this study. On the education, it can be noticed that majority of the investors (53 percent) have the education level of up to graduate level only.

Table 5.1

Respondents Profile

Parameters		No. of Respondents	Percentage
Location	Kathmandu	63	47.7%
	Lalitpur	66	50.0%
	Bhaktapur	2	1.5%
	Pokhara	1	0.8%
	Total	**132**	**100%**
Age	Below 30 years	24	18.2%
	31 to 40 years	72	54.5%
	41 to 50 years	33	25.0%
	Above 50 years	3	2.3%
	Total	**132**	**100%**
Education	upto Graduate	70	53.0%
	Post Graduate	62	47.0%
	Total	**132**	**100%**
Occupation	Practitioner	123	93.2%
	Academician	4	3.0%
	Other	5	3.8%
	Total	**132**	**100%**
Gender	Male	118	89.4%
	Female	14	10.6%
	Total	**132**	**100%**

To analyze and evaluate the perception of investors on different dimensions of stock returns of Nepali Stocks, three major classifications of investors have been made based on their education, occupation and age. The classification has been made for analyzing the differences in

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their opinions with respect to major aspect of stock returns such as investment priority, motivation, choice of market and place and person of consulting prior to making investing decision. The Performa of structured questionnaire is presented in the annexure and the responses on various aspects of stock returns and Nepali Stock market are presented in the following tables.

The response to each choice of the question, where choices are to be ranked, is weighted by the value of the rank assigned to it by the respondents, and the weighted arithmetic mean were calculated to find out the overall rank for each choice for all the three classified investors.

Analysis and Evaluation of Results

Out of the several investing opportunities available for the investors in the form of both financial and real assets, investors were asked to rank the relative importance on bank deposits, investing in gold and silver, bonds, shares, real estate and other investments alternatives on a scale of 1 (most important) to 7 (least important). Table 5.2 presents the investment priority of investors.

It can be noticed that the investors have given first preference to investing in shares, second to real estate, third to investing in gold and silver, fourth to government bonds and then to bank deposit. Across the different education level, both the graduate and post graduate level respondents gave the first priority to shares; second priority to investing in real estate; third priority to investing in gold and silver. However their priorities on investing in bank deposit and government bond differ as post graduate investors gave fourth priority to bank deposit whereas graduate investors ranked it fifth. Similarly, bonds were ranked fifth by post graduate investors, whereas graduate investors gave it fourth priority.

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Table 5.2

Means and ranks of responses on the priority of investment

	Rank wise Number of Responses							Total Responses	Weighted Value	Mean Weight	Overall Rank
	1	2	3	4	5	6	7				
A	14	0	12	54	18	34	0	132	498	3.77	5
B	7	0	54	32	39	0	0	132	430	3.26	3
C	0	41	18	14	3	56	0	132	481	3.64	4
D	92	21	19	0	0	0	0	132	129	0.98	1
E	5	70	16	7	26	8	0	132	337	2.55	2
F	14	0	13	25	46	34	0	132	525	3.98	6

(A) Bank Deposit (B) Gold and Silver (C) Bonds (D) Shares (E) Real estate (F) Others

Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "How do you prioritize the following investment opportunities?" is presented in this table. Investors are presented in rows and investment opportunities are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

It can be noticed that the investors' preference to deposit money in bank is least preferred to them. This could be because investors have not forgotten the non payment of their own money during Dashain in the year 2066 and still they don't have enough confidence in the banking institutions. On another extreme, the second lowest priority was assigned to investing in bonds which is less risky financial asset than shares. This indicates that the investors expect more return by investing in stocks then in bank deposit and bonds.

Similarly, both the academicians and practitioners' respondents gave the first priority to shares and second priority to investing in real estate, their opinion on investing in gold, bonds and real estate differs. Practitioners gave third priority to investing in gold and silver, fourth priority to bonds and fifth priority to bank deposit, whereas academicians ranked investing in bonds, gold and silver third and fourth respectively. Bank deposit was least preferred by academicians as it was ranked sixth in order of preference. As evident from the above results,

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investing in shares is most preferred by all the above classified investors, followed by real estate and gold and silver as second and third most preferred respectively.

Table 5.3

Means and ranks of responses on the priority of investment classified by age of respondents

		Rank wise Number of Responses							Total Responses	Weighted Value	Mean Weight	Overall Rank
		1	2	3	4	5	6	7				
A	Below 30 years	0	0	2	13	1	8	0	24	87	3.63	5
	31 to 40 years	6	0	9	26	12	19	0	72	311	4.32	4
	41 to 50 years	8	0	1	13	5	6	0	33	124	3.76	4
	Above 50 years	0	0	0	2	0	1	0	3	14	4.67	6
Total		**14**	**0**	**12**	**54**	**18**	**34**	**0**	**132**	**536**	**4.06**	**5**
B	Below 30 years	2	0	13	3	6	0	0	24	59	2.46	3
	31 to 40 years	4	0	26	22	20	0	0	72	270	3.75	3
	41 to 50 years	1	0	13	7	12	0	0	33	128	3.88	5
	Above 50 years	0	0	2	0	1	0	0	3	11	3.67	3
Total		**7**	**0**	**54**	**32**	**39**	**0**	**0**	**132**	**468**	**3.55**	**3**
C	Below 30 years	0	23	12	8	1	28	0	72	215	2.99	4
	31 to 40 years	0	7	2	3	1	20	0	33	157	4.76	6
	41 to 50 years	0	1		1	1	0	0	3	11	3.67	3
	Above 50 years	0	10	4	2	0	8	0	24	88	3.67	4
Total		**0**	**41**	**18**	**14**	**3**	**56**	**0**	**132**	**471**	**3.57**	**4**
D	Below 30 years	20	0	4	0	0	0	0	24	8	0.33	1
	31 to 40 years	7	7	12	11	0	0	0	37	101	2.73	1
	41 to 50 years	33	20	9	3	0	0	0	65	112	1.72	1
	Above 50 years	3	2	0	1	0	0	0	6	11	1.83	1
Total		**92**	**21**	**19**	**0**	**0**	**0**	**0**	**132**	**383**	**1.60**	**1**
E	Below 30 years	0	14	0	2	7	1	0	24	53	2.21	2
	31 to 40 years	5	37	7	4	13	6	0	72	217	3.01	2
	41 to 50 years	0	17	9	1	5	1	0	33	96	2.91	2
	Above 50 years	0	2	0	0	1	0	0	3	9	3.00	2
Total		**5**	**70**	**16**	**7**	**26**	**8**	**0**	**132**	**375**	**2.84**	**2**
F	Below 30 years	2	0	1	4	10	7	0	24	89	3.71	6
	31 to 40 years	8	0	7	12	26	19	0	72	321	4.46	5
	41 to 50 years	3	0	5	9	10	6	0	33	140	4.24	6
	Above 50 years	1	0	0	0	0	2	0	3	13	4.33	5
Total		**14**	**0**	**13**	**25**	**46**	**34**	**0**	**132**	**563**	**4.27**	**6**

(A) Bank Deposit (B) Gold and Silver (C) Bonds (D) Shares (E) Real estate (F) Others

Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "How do you prioritize the following investment opportunities?" is presented in this table. Investors are classified by their age and are presented in rows and investment opportunities are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

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The results clearly indicate that the preference does not differ among different types of investors group. The respondents were also classified according to their age into four groups (below 30 years, 31 to 40 years, 41 to 50 years and above 50 years), the results are tabulated and presented in Table 5.4. Across all the age groups, the first priority was investing priority in shares; second priority was given to investing in real estate; and third priority was given to investing in gold and silver by all the age groups except the respondents of age group of 41 to 50 years who gave third priority to bonds.

Investing in bank deposit and government bond differ significantly across different age groups, as respondents between age group of 31 to 40 years and 41 to 50 years ranked bank deposit as their fourth most preferred investing priority whereas respondents below 30 years and above 50 years ranked bonds as their fourth most preferred investment priority. Similarly, bank deposit was least preferred by the respondents below 30 years and above 50 years.

Across all the classifications, investors investing in share are the first most preferred investment priority followed by real estate as second most preferred investment. From the results, one common pattern can be drawn that being, investors in Nepal does not prefer to invest their money in the assets on which the return is less or fixed.

Regarding the choice of market, a majority of respondents (96.2 percent) buys shares from secondary market whereas only few investors (3.8 percent) buys shares from primary market. Out of those respondents who buy shares in the primary market, 80 percent of them are between 31 and 50 years. Of those respondents who buy shares in the secondary market, 74 percent are below 40 years of age and 24.4 percent are above 40 years but below 50 years of age (Table 5.4). From the results, it is evident that majority of the investors prefer secondary market

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to buy shares. Graphically presentation of the preference of the respondents of various age groups for primary and secondary market is presented in Figure 5.1.

Table 5.4

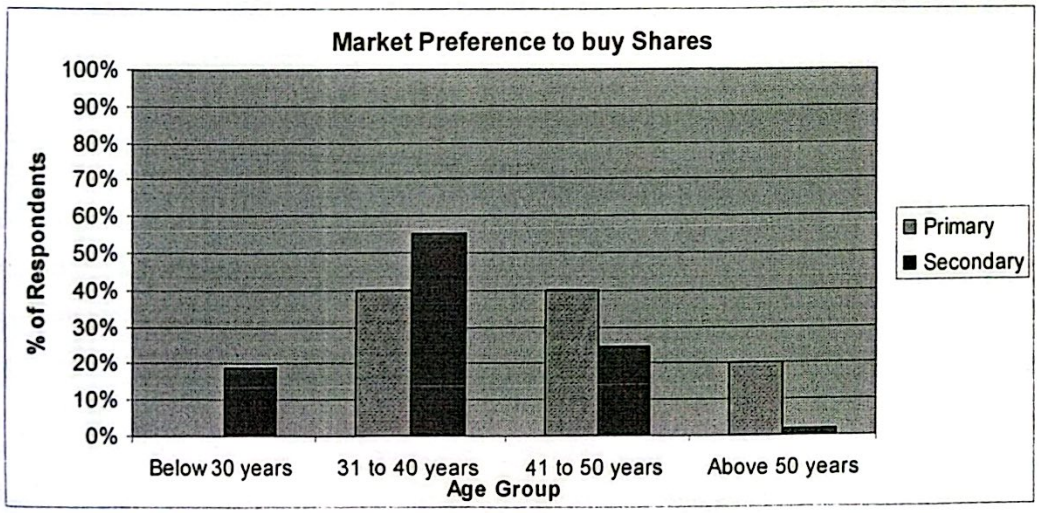
Frequency and percent of responses on the priority of market investment classified by age of respondents

Age Group	Primary	Percentage	Secondary	Percentage
Below 30 years	0	0.0%	24	18.9%
31 to 40 years	2	40.0%	70	55.1%
41 to 50 years	2	40.0%	31	24.4%
Above 50 years	1	20.0%	2	1.6%
Total	**5**	**100%**	**127**	**100%**

Note: The frequency and percentage obtained by asking the survey question "From which market you normally buy shares?" is presented in this table. Investors are classified by their age and are presented in rows and types of market are presented in columns. Frequencies corresponding to each age group and market priority for each category of investors are shown in columns.

Figure 5.1

Responses on the priority of market investment classified by age of respondents



Note: The percentage obtained by asking the survey question "From which market you normally buy shares?" is presented in this figure. Investors are classified by their age and are presented in x axis and the two bars represents the types of market. Percentage corresponding to each age group and market priority for each category of investors are shown in y axis.

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Investors were asked to rank the various motivating factors that motivated them to invest in the shares initially. Among six factors, self-motivation was most popular among the investors with the mean weight of 0.98 and was ranked one. Likewise, friends' advice was the second most important motivating factors for the investors with the mean weight of 1.52. Neighbors or relatives suggestion and attraction from company's growth and profitability was ranked third and fifth respectively. The results also indicated that broker's advice was the least important factor for motivating to invest in shares. Table 5.5 depicts the summary of results.

Table 5.5

Means and ranks of responses on the motivating factor for investing in shares

	Rank wise Number of Responses							Total Responses	Weighted Value	Mean Weight	Overall Rank
	1	2	3	4	5	6	7				
A	87	35	3	2	3	2	0	132	129	0.98	1
B	54	36	30	9	3	0	0	132	201	1.52	2
C	0	21	18	14	23	56	0	132	538	4.08	6
D	45	21	40	10	10	0	0	126	231	1.83	3
E	0	0	0	77	45	10	0	132	533	4.04	5
F	14	0	13	25	46	34	0	132	525	3.98	4

A) Self-motivation B) Friend's advice C) Broker's advice D) Neighbors/relatives suggestion
E) Attraction from company's growth and profitability F) Others

Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "What was your motivation to purchase the shares initially?" is presented in this table. Investor's responses are presented in rows and motivating factors are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

To examine the motivating factors for investing between various age groups, the respondents were classified into different age groups and are presented in Table 5.6. The weighted arithmetic mean and overall rank obtained by asking the survey question "What was your motivation to purchase the shares initially?" is presented in this table. Investor's responses classified by age are presented in rows and motivating factors are presented in columns.

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Table 5.6

Means and ranks of responses on the motivating factor for investing in shares classified by age

		Rank wise Number of Responses							Total Responses	Weighted Value	Mean Weight	Overall Rank
		1	2	3	4	5	6	7				
A	Below 30 years	43	11	13	3	1	1	0	72	55	0.76	1
	31 to 40 years	26	3	3	1			0	33	45	1.36	1
	41 to 50 years	3						0	3	3	1.00	1
	Above 50 years	16	2	5			1	0	24	41	1.71	1
	Total	**88**	**16**	**21**	**4**	**1**	**2**	**0**	**132**	**144**	**1.09**	**1**
B	Below 30 years	2	31	12	6	17	4	0	72	161	2.24	2
	31 to 40 years	3	20	1	1	5	3	0	33	93	2.82	2
	41 to 50 years		1			1	1	0	3	13	4.33	5
	Above 50 years		10	2	3	9		0	24	83	3.46	4
	Total	**5**	**62**	**15**	**10**	**32**	**8**	**0**	**132**	**350**	**2.65**	**2**
C	Below 30 years	9	1	8	14	19	21	0	72	240	3.33	6
	31 to 40 years	2		2	5	15	9	0	33	157	4.76	6
	41 to 50 years					2	1	0	3	16	5.33	6
	Above 50 years	2		3	3	8	8	0	24	111	4.63	6
	Total	**13**	**1**	**13**	**22**	**44**	**39**	**0**	**132**	**524**	**3.97**	**6**
D	Below 30 years	14	1	6	24	9	18	0	72	211	2.93	4
	31 to 40 years	1	1	2	16	5	8	0	33	146	4.42	5
	41 to 50 years			2	1			0	3	10	3.33	2
	Above 50 years	3		2	11	2	6	0	24	99	4.13	5
	Total	**18**	**2**	**12**	**52**	**16**	**32**	**0**	**132**	**466**	**3.53**	**5**
E	Below 30 years	4	4	25	15	24	0	0	72	195	2.71	3
	31 to 40 years	1	1	17	7	7	0	0	33	117	3.55	3
	41 to 50 years			1	2		0	0	3	11	3.67	4
	Above 50 years	3	1	11	4	5	0	0	24	79	3.29	2
	Total	**8**	**6**	**54**	**28**	**36**	**0**	**0**	**132**	**402**	**3.05**	**3**
F	Below 30 years		24	8	10	2	28		72	218	3.03	5
	31 to 40 years		8	8	3	1	13		33	135	4.09	4
	41 to 50 years		2				1		3	10	3.33	3
	Above 50 years		11	1	3		9		24	91	3.79	3
	Total	**0**	**45**	**17**	**16**	**3**	**51**	**0**	**132**	**454**	**3.44**	**4**

A) Self-motivation B) Friend's advice C) Broker's advice D) Neighbors/relatives suggestion
E) Attraction from company's growth and profitability F) Others

Note: Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

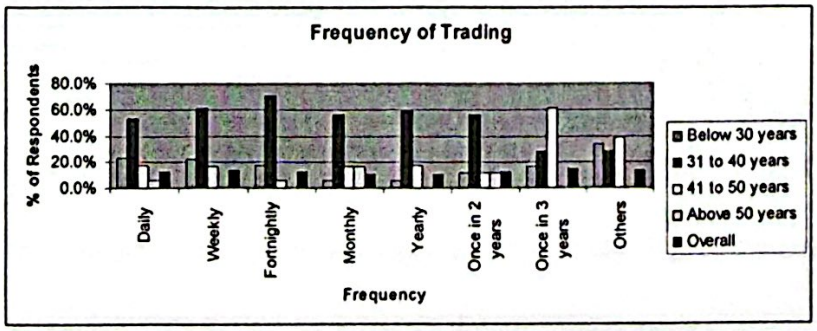
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The result shows that among the six factors, self motivation was most popular among the investors with all the age groups. Similarly, friends' advice was the second most important motivating factors for the investors of all the age groups with the exceptions of the investors above forty years of age. Neighbors or relatives suggestion and attraction from company's growth and profitability was ranked third and fifth respectively.

To examine the frequency of trading by the investors, they were asked "How frequently do you buy or sell shares in secondary market?" There were mixed responses from the investors and the results show lack of consensus on the frequency; i.e. daily, weekly, fortnightly, monthly, yearly, once in two years, once in three years or other. The result (Figure 5.2) indicates that 14.4 percent of the investors trade once in three years whereas about 13.6 percent prefer to do the transaction weekly. The percent of investors who trade daily was 12.9 and those who trade fortnightly and once in two years was 12.1 percent. The result also shows that majority of the investors (49.2 percent) trade within a month which indicates that half of the investors are short term. Likewise 13.6 percent of the investors do not have any identified frequency of trading.

Figure 5.2

Responses on the frequency of trading classified by age of respondents



Note: The percentage obtained by asking the survey question "How frequently do you buy or sell shares in secondary market?" is presented in this figure. Respondents are classified by their age and are presented in x axis and the four bars represents the frequencies of trading. Percentage corresponding to each age group and frequency for each category of investors are shown in y axis.

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In response to "Where do you go to consult before you buy or sell the shares in secondary market?" majority of the investors (41.7 percent) said that they consult friends, neighbors or relatives before buying or selling shares. There are 27.3 percent of the investors who do not consult at all and only 25.8 percent of the respondents consult brokers before making trading decisions. There are very few investors who consult company's office or stock exchange's office or the security board (Table 5.8).

The frequency and percentage obtained by asking the survey question "Where do you go to consult before you buy or sell the shares in secondary market?" is presented in Table 5.7. Investors are classified by their age and are presented in rows and types of consulting places in percent are presented in columns

Table 5.7

Frequency and percent of responses on the frequency of consulting place for trading decisions classified by age of respondents

	Below 30 years	31 to 40 years	41 to 50 years	Above 50 years	Overall
Broker's office	35.3%	20.6%	23.5%	20.6%	25.8%
Company's office	0.0%	0.0%	100.0%	0.0%	0.8%
Stock exchange's office	0.0%	0.0%	2.9%	2.9%	1.5%
Security's Board's office	0.0%	0.0%	100.0%	100.0%	0.8%
Buyer's/seller's home	2.9%	2.9%	2.9%	0.0%	2.3%
Friends/neighbors/relatives	35.3%	64.7%	32.4%	29.4%	41.7%
Do not consult at all	35.3%	32.4%	26.5%	11.8%	27.3%

The result shows that 95 percent of the investors consult either friend, neighbors, relatives, brokers or they do not consult at all and decide on their own. The result also indicates that majority of the respondents are either not aware of the consulting place before placing orders or trading or they know the market better.

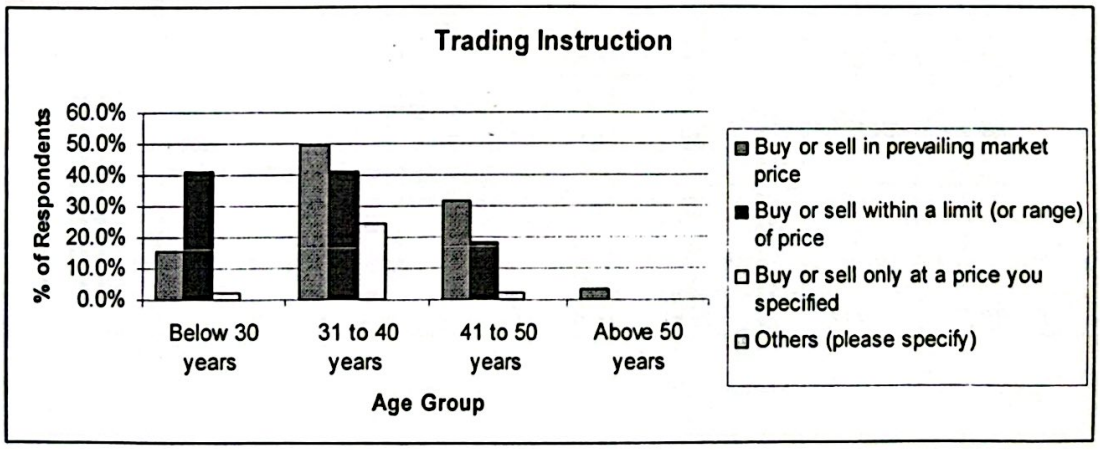
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The above results indicate that of the various available investing opportunities, investors prefer in share investment. However, they are reluctant in investment on bonds and very few investors prefer to put their money in the banks. Majority of the investor trade in secondary market indicates its popularity. Motivation towards investing in shares came mainly from self-motivation and suggestions from friends, relatives and neighbors. The trading decisions are mainly based on consultations with broker, friends, neighbors and relatives.

In response to "How do you instruct to buy or sell shares to your broker?" majority of the investors (64.4 percent) indicated that they instruct to buy or sell in prevailing market price. Figure 5.4 present the results of the responses on trading instructions.

Figure 5.3

Trading Instruction classified by age of respondents



Note: The percentage obtained by asking the survey question "How do you instruct to buy or sell shares to your broker?" is presented in this figure. Investors are classified by their age and are presented in x axis. Percentage corresponding to each age group is shown in the bar.

In order to examine the information based on which the investors make investing decisions, the investors were asked "What do they consult before buying or selling shares of a company in the secondary market?", investors ranked brokers advice to number one followed by quarterly and annual reports of the company.

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Table 5.8

Means and ranks of responses on consulting before buying or selling shares classified by age

		Rank wise Number of Responses							Total Responses	Weighted Value	Mean Weight	Overall Rank
		1	2	3	4	5	6	7				
A	Below 30 years	2	21	2	3	1	8	0	37	78	2.11	4
	31 to 40 years	14	23	5	2	1	1	0	46	94	2.04	3
	41 to 50 years	14	0	6	1	5	0	0	26	61	2.35	3
	Above 50 years	22	0	0	1	0	0	0	23	26	1.13	1
Total		**14**	**0**	**12**	**54**	**18**	**34**	**0**	**132**	**259**	**1.96**	**4**
B	Below 30 years	2	44	1	2	6	0	0	55	76	1.38	3
	31 to 40 years	22	0	4	1	2	1	0	30	54	1.80	2
	41 to 50 years	34	2	4	1	3	0	0	44	69	1.57	1
	Above 50 years	0	0	2	0	1	0	0	3	11	3.67	5
Total		**7**	**0**	**54**	**32**	**39**	**0**	**0**	**132**	**210**	**1.59**	**2**
C	Below 30 years	28	23	12	8	1	0	0	72	75	1.04	2
	31 to 40 years	20	7	2	3	1	0	0	33	57	1.73	1
	41 to 50 years	0	1		1	1	0	0	3	11	3.67	5
	Above 50 years	8	10	4	2	0	0	0	24	48	2.00	3
Total		**0**	**41**	**18**	**14**	**3**	**56**	**0**	**132**	**191**	**1.45**	**1**
D	Below 30 years	20	0	4	0	0	0	0	24	8	0.33	1
	31 to 40 years	2	21	12	13	0	0	0	48	132	2.75	4
	41 to 50 years	21	21	9	3	0	0	0	54	102	1.89	1
	Above 50 years	3	2	0	1	0	0	0	6	11	1.83	2
Total		**92**	**21**	**19**	**0**	**0**	**0**	**0**	**132**	**253**	**1.92**	**3**
E	Below 30 years	0	14	0	2	7	1	0	24	53	2.21	5
	31 to 40 years	5	37	7	4	13	6	0	72	217	3.01	5
	41 to 50 years	0	17	9	1	5	1	0	33	96	2.91	4
	Above 50 years	0	2	0	0	1	0	0	3	9	3.00	4
Total		**5**	**70**	**16**	**7**	**26**	**8**	**0**	**132**	**375**	**2.84**	**5**

A Past price
B Quarterly/Annual report
C Broker's advice
D Friends advice
E Others (please specify)

Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "What do they consult before buying or selling shares of a company in the secondary market?" is presented in this table. Investor's responses classified by age are presented in rows and instructions are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

Friends advice was ranked third whereas past price was least preferred by the investors before making an investing decisions. The result (Table 5.10) indicates that older investors prefer

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past price before making investing decisions. Similarly young investors (below the age of 40) prefer to consult brokers before buying or selling shares.

The results also indicate that matured investors go through the books of the company and consult quarterly or annual report of the company before buying or selling shares.

In order to examine how the investors do the risk management, they were asked to choose among the various risk management techniques to respond "How do you manage the risk on the share investment?" The results (Table 5.11 and Figure 5.4) shows that majority of the investors (79.5 percent) manage their risk by diversifying their portfolio by investing in different industry groups or by investing in different companies.

Table 5.9

Means and ranks of responses on risk management techniques for investing in shares classified by age

	Below 30 years	31 to 40 years	41 to 50 years	Above 50 years	Overall
Investing in shares of different companies	41.8%	43.6%	10.9%	3.6%	41.7%
Investing in shares of different industry groups	0.0%	52.0%	48.0%	0.0%	37.9%
Investing in bonds and share portfolios	92.9%	0.0%	7.1%	0.0%	10.6%
Investing in bonds, shares and bank deposits	60.0%	20.0%	20.0%	20.0%	3.8%
Others	85.7%	0.0%	14.3%	0.0%	5.3%

Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "How do you manage the risk on the share investment?" is presented in this table. Investor's responses classified by age are presented in rows and techniques are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns

In response to the revision of the portfolio, 70 percent of the respondents indicated that they revise it frequently, whereas 23 percent indicated that they do it quite often. Similarly, in response to considering the risk almost all the investors (99.7 percent) said that they do consider before making investing decisions. Considering risk differ significantly across different age

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groups. Among the various age groups 64 percent of the young investors (below the age of 40 years) indicated that they consider risk by study of earnings fluctuations, whereas 67.4 percent of the old investors indicated that they consider risk by study of fluctuation in market price of shares.

Respondents between age group of 31 to 40 years and below 30 years ranked study of earnings fluctuation as their most preferred study while considering risk, whereas respondents below above 40 years ranked it their second most preferred. Across all the age groups study of company's borrowings, changes in government policies and frequency of changes in the management of the company was ranked third, fourth and fifth respectively.

As indicated by the results shown in Table 5.10, bonus and rights announcement matter the most for an investors to make investing decision as 47.7 percent of the investors indicated the preference. Similarly market rumor was the second most important factor for the investors to make investing decision, followed by profit of the company (15.9 percent) and then by dividend announcement (12.1 percent).

Table 5.10

Means and ranks of responses on most important factor for investing in shares classified by age

	Below 30 years	31 to 40 years	41 to 50 years	Above 50 years	Overall
Market rumor	25.8%	16.1%	35.5%	22.6%	23.5%
Dividend Announcement	68.8%	18.8%	12.5%	0.0%	12.1%
Bonus / Rights issue	20.6%	19.0%	33.3%	27.0%	47.7%
Profit of the company	14.3%	19.0%	52.4%	52.4%	15.9%
Others	0.0%	0.0%	100.0%	0.0%	0.8%

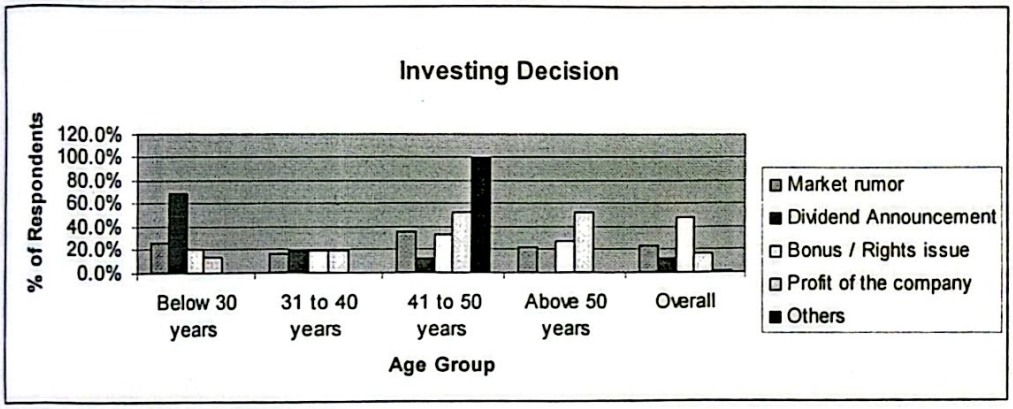
Note: The weighted arithmetic mean and overall rank obtained by asking the survey question "What matter the most for an investor to make investing decisions?" is presented in this table. Investor's responses classified by age are presented in rows and factors are presented in columns. Total responses, weighted value, mean weight and overall ranks (1 = most important and 7 = least important) of priority for each category of investors are shown in columns.

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The graphical presentation in Figure 5.4 and the results of Table 5.10 clearly indicates that Nepali investors are influenced by external factors that that of fundamentals of the company.

Figure 5.4

Most important factor for investing decisions



Note: The percentage obtained by asking the survey question "What matter the most for an investor to make investing decisions?" is presented in this figure. Investors are classified by their age and are presented in x axis. Percentage corresponding to each age group is shown in the bar.

Overpriced shares provide managers with strong incentives to invest, and particularly to acquire businesses, even at excessive prices and doubtful strategic fit, in order to "buy themselves out" of the inevitable price correction by portraying continued growth. Share overpricing is strongly and positively associated with the intensity of corporate acquisitions and the growth of accounting goodwill and is negatively related to the post-acquisition share performance of buyers (Gu and Lev, 2008). Effective governance mitigates these adverse effects and is positively related to the frequency and size of goodwill write-offs. We further show that share overpricing predicts both goodwill write-offs and their magnitude is by and large a losing proposition for buyers' shareholders.

To know the opinion about the pricing level of different industry groups, investors were asked to rank (fairly to unfairly) the various industry groups.

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Table 5.11

Pricing of shares of various industry groups

	% of responses
Commercial Banks	6.12
Finance Companies	6.76
Development Banks	4.32
Insurance Companies	19.8
Hotels	13.6
Manufacturing and Processing Companies	49.4
	100

The respondents were asked to indicate on a five-point scale (1 = fairly; 5 = unfairly), "Please rate (Fairly to unfairly) the various industries below if their stocks are correctly priced?" Table 5.11 presents the results of the responses that presents the percentage of respondents that view the pricing as fair (i.e., respond 1 or 2). Almost half the respondents feel that manufacturing and processing companies are fairly priced, whereas only 13.6 percent of the respondents is of the opinion of fairly priced hotel industry. Only 6.12 percent of the respondents feel that commercial banks are correctly priced. Likewise 19.8 percent of the respondents indicated that insurance companies are fairly priced. Similarly only 6.76 percent of the respondents viewed finance companies as fairly priced. The results indicate that most of the shares of the regularly traded companies' shares are unfairly priced.

To know how the respondents view the company fundamentals influence the stock market, investing decision of the investors and stock return of the Nepali enterprises, the respondents were asked to indicate on a five-point scale (1 = strongly agree, 5 = strongly disagree), "Please rate (strongly agree (=1) to strongly disagree (=5)) your opinion on the various

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statements below". The responses are presented in table 5.12 that presents the percentage of respondents those who are agree with the statement (i.e., respond 1 or 2).

Table 5.12

Influence of fundamental variables

	% of responses
Nepali investors consider the bonus and rights shares as the major factor influencing the investment decision	24.4
Stock returns is not affected by the size of the Nepali Enterprises	3.1
Earning yield is the major determinant of stock returns in Nepali market	45.6
Nepali investors consider the cash flow trend of companies for short term investment on share market.	9.4
Market risk is the least important factor affecting stock market returns in Nepali companies	17.5
	100

The responses show that earning yield is the single factor dominating the responses and it is perceived as a positive signal. Most of the respondents of each group think that higher the earning yield of the companies higher would be the stock returns. All the investors in sample size believe that it is the earning yield that has the positive relation with stock returns meaning that the ratio of EPS to MPS determine the stock price in capital markets. However considering the bonus and rights shares as the major factor influencing is perceived as second most influencing to the stock market, investing decisions and price of the share. Only 3.1 percent of the respondents feel that stock returns is not affected by the size of the company which implies that investors are of the opinion that size does affect the stock return. Market risk is perceived as the least important factor by 17.5 percent of the respondents and only 9.4 percent of the investors' investing decision is based on cash flow trend of the company for the short term investment. The results are consistent with the finding of major literature.

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To know the opinion about the trend of book to market ratio, size and return of the various industries groups, investors were asked to rank (good to bad) the various industry groups.

Table 5.13

Trend of company fundamentals across different industry groups

	% of responses
Commercial Banks	2.3
Finance Companies	46.1
Development Banks	44.5
Insurance Companies	4.1
Hotels	2.2
Manufacturing and Processing Companies	0.8
	101

The respondents were asked to indicate on a five-point scale (1 = good; 5 = bad), "For the various industries and its characteristics below rate your feeling associated with it on the scale ranging from 1-"Good" to 5-"Bad". Table 5.13 presents the results of the responses that presents the percentage of respondents that view the finance companies as good because of average size and high return, whereas there are very few (2.3 percent) responses that indicated that the high return with low book to market and large size is good for commercial bank. Similarly 44.5 percent of the respondents perceived that with average book to market and size the high return on development bank shares is good.

Concluding Remarks

The analysis of secondary data presented above shows the surprising results which are not as a priori expectation of the study. Market capitalization (size) of sample companies for example does not demonstrate strong evidence to capture the cross section of stock returns. The size in general exhibits positive relation with stock returns on the study of properties of portfolios and simple linear regression models. However it exhibits negative relation with returns

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in the combination of other variables in multiple regression equations still fails to display strong significant influence.

Similarly not consistent with the empirical evidences of financial studies, book-to-market equity demonstrates statistically significant negative influence with stock returns on the study of both properties of portfolio and econometric models. The inverse relation of cash flow yield with stock return examined in both observations: analysis of properties as well as that of econometric models is also contradicts with the previous findings. The relation of earning yield to stock returns is also ambiguous. The analysis of properties of portfolios shows the somewhat curvilinear relation of earning yield with stock returns but the analysis of econometric models particularly log linear models depicts the inverse relation of E/P ratio with stock returns. Similar results are also observed for excess returns models and restricted sample models. Thus the study of excess returns, the inclusion of controlled variable, the observation on restricted sample do not alter the basic characteristics of variables studied with respect to the relationship with equity returns and the characteristics do not comply with the findings of financial studies conducted particularly in large and developed markets.

Similarly, the findings of survey study are more or less consistent with the secondary data analysis of this study. Further it has also been argued that investors make investment decisions on the basis of speculative motive rather than the real performance of the companies. Therefore according to the majority of the respondents believe that the stock market investors do not pay adequate attentions to the firm-specific variables for the stock investment decisions. The results show that the policies and practices in Nepali capital market and the investors' sentiments and investment decisions are not guided by the financial principles rather it is induced by the earnings and speculative motive and the lack of investment opportunities in profitable areas.

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CHAPTER VI

SUMMARY, DISCUSSIONS AND IMPLICATIONS

Summary

A basic premise of economics is that, due to the scarcity of resources, all economic decisions are made in the face of trade-offs. Markowitz identified the trade-off facing the investor: risk versus expected return. The investment decision is not merely which stocks to own, but how to divide the investor's wealth amongst securities. This is the problem of portfolio selection. The fundamental goal of portfolio theory is to optimally allocate investments between different assets. Based on Markowitz's portfolio theory, Sharpe, Lintner and Black developed the CAPM model that says that it is the individual stocks co-movements with the overall markets that determine stocks expected returns.

The basic determinant of the cross-section of expected returns is the risk associated with the assets; however other factors such as size of the firm, earning ratio, investment policies, trading volume, leverage, tax policies and informational considerations also affect the return on securities.

The econometric research in the area of fundamental analysis has been conducted so far mainly in the United States, focusing attention on the companies listed on the American stock exchanges. Models explaining either stock returns or earnings are based on the financial data from companies' reports and market data regarding stock prices.

Fama and French (1992, 1993) initiated the studies of the risk factors that determine the value of stock returns. They refined the traditional Capital Asset Pricing Model (Sharpe, 1964) by adding new explanatory variables: company's size (measured by its market capitalization), financial leverage, and earnings to price ratio and book-to-market equity (book value of a firm's

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common stock to its market value). They found that the role of the beta coefficient in the CAPM is decreasing in favor of new variables. Firm's size and book-to-market equity account for much of the variability in average stock returns in the US.

Major Findings of the Study

Portfolio based on the size (market capitalization)

- Mean monthly excess returns of smallest size portfolio (S1) is much lower than that of largest sized portfolio (S5).
- The mean stock return of the smallest size being 5.0 percent negative as against the mean stock return of largest size portfolio is 4.7 percent. This clearly suggests and provides evidence of a size premium (the return differential between S5 and S2) of 9.7 percent per year which is quite robust.
- The smallest sized portfolio has provided an extra normal return of 2.8 percent per year over the study period and is statistically significant.
- The standard deviation of largest sized portfolio S5 is also higher than that of S1 pointing towards the intuitive fact that large firms are more risky than their smaller counterparts.
- These findings indicate that the stocks of large firms outperformed those of small firms over the study period.
- Statistically significant positive relationship between company size and stock returns over the study period.

Portfolio sorted based on book to market ratio (B/M)

- Mean monthly excess return of high B/M stocks portfolio (BM5) is much lower and statistically significant (-3.2 percent per annum) than that of low B/M stocks portfolio (BM1: 48.9 percent per annum).

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- From the market model regression result the intercept value α_p also declines from 4.0 percent per year to 2.9 percent per year as we go from low BM1 (t value 16.312) to BM5 (t value 32.429) which suggests that low B/M stocks portfolio generated higher risk adjusted extra return during the study period.
- The value premium (i.e. the return differential between BM5 and BM1) is also high and is as 1.1 percent per year which is also significant.
- The result suggests that that during the study period a strong value effect existed in the Nepali stock market.

Portfolio sorted based on Cash Flow Yield (C/P)

- The mean monthly stock return of low C/P stocks portfolio (CP1) is much higher and statistically significant (52.8 percent per annum) than that of high C/P stocks portfolio (CP5) with minus 3.1 percent per annum. Moreover the standard deviation of low C/P stocks portfolio is also higher.
- From the market model regression result the intercept value α_p also declines monotonically from 3.6 percent per year to 2.8 percent per year as we go from CP1 (t value 15.133) to CP5 (t value 28.29) which suggests that low C/P stocks portfolio generated higher risk adjusted extra return during the study period.
- The C/P premium (i.e. the return differential between CP5 and CP1) is also high and is as 0.8 percent per year.
- The result suggests that that during the study period a C/P premium existed in the Nepali stock market.

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Portfolio sorted based on Earning Yield (E/P)

- The mean monthly stock return of low E/P stocks portfolio (EP1) is much higher and statistically significant (36.7 percent per annum) than that of high E/P stocks portfolio (EP5) with minus 3.7 percent per annum. Moreover the standard deviation of low E/P stocks portfolio is also higher.
- From the market model regression result (Table the intercept value α_p also declines from 7.5 percent per year to 2.8 percent per year as we go from EP1 (t value 3.249) to EP5 (t value 27.984) which suggests that low E/P stocks portfolio generated higher risk adjusted extra return during the study period.
- The E/P premium (i.e. the return differential between EP5 and EP1) is also very high and is 4.7 percent per year.
- The result suggests that that during the study period earning yield or E/P premium existed in the Nepali stock market.

Findings from Regression analysis

- Market return has a statistically significant positive relationship with stock returns for Nepali stocks with average slope of 0.585 and with t values of 6.667 indicating that the market return and stock return moves in the same direction.
- Size has a statistically significant negative relationship with stock returns for Nepali stocks with average slope of -0.053 with t values of -2.699 indicating that size and stock returns moves in the opposite direction.
- The findings are as per the priori hypothesis and are in agreement with the available evidences (Pradhan (2004), Chan, Hamao and Lakonishok (1991), Fama and French (1992)) in the developed capital market.

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- Earning yield, book to market ratio, and cash flow yield has negative relationship with stock returns with average slope of -0.072, -0.334, -0.51 and t values are -0.207, -3.985 and -0.368.

Discussions

On the basis of the empirical results presented in this study, the following conclusion may be drawn

- This study has found a statistically significant relationship between four company fundamentals (viz. size (market capitalization), cash flow yield, book to market ratio and earning yield) and stock returns in Nepal over the study period.
- This implies that a strong size effect, cash flow yield effect, and value effect existed in Nepali capital market over the most recent seven years period. Since some of the results are not is support to the findings of the major studies done in the developed economies, this further implies that Nepali capital market is still in developing stage and investors needs to be very cautious while investing.
- As the result shows that the stocks of large firms outperformed those of small firms it is wise to invest in larger companies that that of smaller companies.
- The results also suggest that low B/M stocks portfolio generated higher risk adjusted extra return; the investors should be cautious and very careful while investing when the investment is based only on book to market ratio.
- Similarly the results suggest that low C/P stocks portfolio generated higher risk adjusted extra return, investors should be careful when they are considering the investment in a stock based on cash flow yield.

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- Since earning yield, book to market ratio and cash flow yield has negative relationship with stock returns it is wise to take precaution while investing in a stock considering these factors.
- Presence of strong size effect, E/P effect, and value effect are indicative of the fact that arbitrage opportunities are available in Nepali stock market and gainful investment strategies can be formulated and used by equity analysts, fund managers and investing community at large based on these company fundamentals.
- The study also indicates that no single factor asset pricing model (be it based on market risk premium or any of the company fundamentals) works well in explaining cross sectional variations in equity returns in Nepal. Hence more factors should be included for future research.

Implications

The results of this study based on individual as well as combined effect of size, book-to market ratio, cash flow yield and earning yield in explaining stock returns does not give strong supportive evidence as are postulated in research findings and studies conducted in developed capital markets in large economics.

When portfolios are formed on size, the result shows that large stocks achieve higher return, higher excess return and market return premium. The results indicate that the stocks of large firms outperformed those of small firms over the study period.

Similarly, book to market ratio demonstrates significant negative relations with stock returns across all the models of simple and multiple equations and analysis of properties of portfolios sorted by B/M ratio. The findings of this study thus indicate some contradictory results

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and are not consistent with the findings of the major studies conducted in developed and emerging economics.

The findings of the research have important policy implications and are of pertinent use for equity analysts, fund managers and investing community at large.

Implications for market efficiency.

The study has found a statistically significant relationship between four company fundamentals (viz. size, earning yield, book to market ratio and cash flow yield) and equity returns in Nepal over the study period. This implies that a strong size effect, earning yield effect, value effect and cash flow yield effect existed in Nepali stock market. This further implies that Nepali stock market is still not efficient because publicly available financial information can be used to earn extra return in Nepali stock market.

Implications for investment strategies.

Presence of strong size effect, earning yield effect, value effect and cash flow yield effect are indicative of the fact that arbitrage opportunities are available in Nepali stock market and gainful investment strategies can be formulated and used by equity analysts, fund managers and investing community at large based on these company fundamentals. Since the research results are of the most recent ten years period their utility gets further enhanced in this context.

Implications for asset pricing framework.

The study has found that no single factor asset pricing model work well in explaining cross sectional variations in equity returns in Nepal. Hence more factors should be included in the asset pricing framework. The study also indicates that addition of two company fundamentals (viz. size premium and value premium) in the asset pricing model can substantially explain cross

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sectional variations in equity returns in Nepal. This lends further support to the Fama and French three factor asset pricing model in Nepali stock market in a recent time period.

Contrary to Fama & French (1996) the study has found that market risk premium is still the most important independent factor in asset pricing framework although its relative importance has substantially declined during last decade. This implies that company fundamentals are gaining importance in explaining cross sectional variations in equity returns in Nepal.

Implications for market microstructure.

The findings also have important implications for market microstructure aspects as the study has found the presence of strong size effect, earning yield effect, value effect and cash flow yield effect on Nepali Stock Exchange. This implies that unlike market micro structural aspects do not affect the relationship between company fundamentals and equity returns in Nepal in any substantial manner.

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ANNEXES

Annex I

QUESTIONNAIRE FOR INVESTORS

Survey on Stock Returns of Nepali Enterprises

Name: _____ Age: _____ Sex: _____

Address: _____ Occupation: _____ Education: _____

1. How do you prioritize the following investment opportunities? (Please rank the following from most important (= 1) to least important (= 7))

a. Bank Deposit ☐
b. Gold and Silver ☐
c. Bonds ☐
d. Shares ☐
e. Real estate ☐
f. Others (please specify) ☐

2. From which market you normally buy shares? (Please tick appropriate box).

a. Primary market ☐
b. Secondary market ☐

3. What was your motivation to purchase the shares initially? (Please tick appropriate box).

a. Self-motivation ☐
b. Friend's advice ☐
c. Broker's advice ☐
d. Neighbors/relatives suggestion ☐
e. Attraction from company's growth and profitability ☐
f. Others (please specify) ☐

4. How frequently do you buy or sell shares in secondary market? (Please tick appropriate box).

a. Daily ☐
b. Weekly ☐
c. Fortnightly ☐
d. Monthly ☐
e. Yearly ☐
f. Once in 2 years ☐
g. Once in 3 years ☐
h. Others (please specify) ☐

5. Where do you go to consult before you buy or sell the shares in secondary market? (Please tick appropriate box).

a. Broker's office ☐
b. Company's office ☐
c. Stock exchange's office ☐
d. Security's Board's office ☐

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e. Buyer's/seller's home ☐
f. Friends/neighbors/relatives ☐
g. Do not consult at all ☐

6. How do you instruct to buy or sell shares to your broker? (Please tick appropriate box).
a. Buy or sell in prevailing market price ☐
b. Buy or sell within a limit (or range) of price ☐
c. Buy or sell only at a price you specified ☐
d. Others (please specify) ☐

7. Do you specify time limit in executing orders to your broker? (Please tick appropriate box).
a. Yes ☐
b. No ☐

8. What is your normal practice of setting time limit in order form? (Please tick appropriate box).
a. A day (day order) ☐
b. A week (week order) ☐
c. A month (month order) ☐
d. Open date (Good-till-cancelled) ☐
e. Left to the discretion of broker ☐
f. Others (please specify) ☐

9. How do you arrange funds for investment in shares? (Please tick appropriate box).
a. Personal savings ☐
b. Borrowing from friends/neighbors/ relatives ☐
c. Borrowing from financial institutions ☐
d. Borrowing from brokers ☐
e. Selling properties ☐
f. Borrowing from provident fund ☐
g. Others (please specify) ☐

10. How many shares do you buy, normally, at a time in primary market? (Please tick appropriate box).
a. Less than 10 share ☐
b. 10-20 shares ☐
c. 20-30 shares ☐
d. 30-50 shares ☐
e. 50-100 shares ☐
f. 100-500 shares ☐
g. More than 500 shares ☐

11. How many shares do you buy, normally, at a time in secondary market? (Please tick appropriate box).

a. Less than 100 shares ☐

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b. 100 and multiples of 100 shares ☐
c. More than 100 (but not multiples of 100) shares ☐
d. Others (please specify) ☐

12. What do you consult before buying or selling shares of a company in secondary market? (Please rank the following from most important (= 1) to least important one (= 7))
a. Past price ☐
b. Quarterly/Annual report ☐
c. Broker's advice ☐
d. Friends advice ☐
e. Others (please specify) ☐

13. How do you manage the risk on share investment? (Please tick appropriate box).
a. Investing in shares of different companies ☐
b. Investing in shares of different industry groups ☐
c. Investing in bonds and share portfolios ☐
d. Investing in bonds, shares and bank deposits ☐
e. Others (please specify) ☐

14. How frequently do you revise your portfolio? (Please tick appropriate box).
a. Frequently ☐
b. Often ☐
c. Seldom ☐
d. As an when required ☐

15. Do you consider risk while investing in shares? (Please tick appropriate box).
a. Yes ☐
b. No ☐
c. Don't know ☐

16. How do you consider the risk while investing in shares? (Please rank the following from most important (= 1) to least important (= 7))
a. Study of earnings fluctuations ☐
b. Study of company's borrowings ☐
c. Changes in government policies ☐
d. Fluctuation in market price of shares ☐
e. Frequency of changes in the management of the company ☐
f. Others (please specify) ☐

17. Based on your experience, what matters the most for an investor to make investing decisions (please select all that applies).
1. Market rumor
2. Dividend Announcement
3. Bonus / Rights issue
4. Profit of the company
5. Others (.....)

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18. Based on your experience, why do you think the investors in Nepali Stock Market (please select all that applies)
    1. Lack of other investing opportunities
    2. Low interest rate of the banks
    3. Stock Returns
    4. Word of Mouth
    5. Expectations of higher return
    6. Others (……..)

19. Please rate (Fairly to unfairly) the various industries below if their stocks are correctly priced?

	Fairly				Unfairly
Commercial Banks	1	2	3	4	5
Finance Companies	1	2	3	4	5
Development Banks	1	2	3	4	5
Insurance Companies	1	2	3	4	5
Hotels	1	2	3	4	5
Manufacturing and Processing Companies	1	2	3	4	5

20. Please rate (strongly agree (=1) to strongly disagree (=5)) your opinion on the various statements below.

Nepali investors consider the bonus and rights shares as the major factor influencing the investment decision	1	2	3	4	5
Stock returns is not affected by the size of the Nepali Enterprises	1	2	3	4	5
Earning yield is the major determinant of stock returns in Nepali market	1	2	3	4	5
Nepali investors consider the cash flow trend of companies for short term investment on share market.	1	2	3	4	5
Market risk is the least important factor affecting stock market returns in Nepali companies	1	2	3	4	5
Nepali investors consider the bonus and rights shares as the major determinants of stock returns of Nepali enterprises	1	2	3	4	5

21. For the various industries and its characteristics below rate your feeling associated with it on the scale ranging from 1-"Good" to 5-"Bad".

Characteristics
B/M= is the ration of market price to its book value
Size= Market capitalization of the companies (i.e. total value of all the stocks of the company)
Return= Past stock return at the end of Fiscal year 2065-2066

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	B/M	Size	Return	Good				Bad
Commercial Banks	Low	High	High	1	2	3	4	5
Finance Companies	Low	Average	High	1	2	3	4	5
Development Banks	Average	Average	High	1	2	3	4	5
Insurance Companies	High	High	Average	1	2	3	4	5
Hotels	Average	Average	Low	1	2	3	4	5
Manufacturing and Processing Companies	High	High	Low	1	2	3	4	5

22. Please rate the future return of various categories of stock on the scale ranging from 1-"Low" to 5-"High".

	Low				High
Commercial Banks	1	2	3	4	5
Finance Companies	1	2	3	4	5
Development Banks	1	2	3	4	5
Insurance Companies	1	2	3	4	5
Hotels	1	2	3	4	5
Manufacturing and Processing Companies	1	2	3	4	5

23. Please rate the risk associated with the stock of following industries on the scale ranging from 1-"Low" to 5-"High". Don't spend time thinking about the rating; just go with your quick, intuitive feeling.

	Low				High
Commercial Banks	1	2	3	4	5
Finance Companies	1	2	3	4	5
Development Banks	1	2	3	4	5
Insurance Companies	1	2	3	4	5
Hotels	1	2	3	4	5
Manufacturing and Processing Companies	1	2	3	4	5

24. Please rate (most important to not important) the various factors on determination of the stock prices of Nepali Enterprises.

	Most Important				Unimportant
Book to Market ratio	1	2	3	4	5
Size of the company	1	2	3	4	5
Dividend of the company	1	2	3	4	5
Earning per share	1	2	3	4	5
Cash Flow	1	2	3	4	5

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25. Do you think that stock of small sized (in terms of market equity) Nepali Enterprises gives higher returns than large sized stocks?

a. Yes ( ) b. No ( ) c. No Idea ( )

26. According to the established theory, *cash flow yield* (earning per share plus depreciation divided by market price per share) of a particular company has the most important influence on stock returns than any other factors have? Do you think this implies to the stocks of Nepali enterprises also?

a. Yes ( ) b. No ( ) c. No Idea ( )

27. How would you define the relationship of earning yield (Earning per share / Market price per share) and the stock price of the Nepali Enterprises?

a. Positive ( ) b. Negative ( ) c. No Idea ( )

28. Although book to market ratio is positively related with the stock returns, Nepali investors do not consider this important factor while making investment decision. Are you in agreement with the above?

a. Yes ( ) b.No ( ) c. No Idea ( )

29. How influencing do you think is the role of dividend payout ratio in stock returns of Nepali Enterprises?

a. Strong ( ) b. Moderate ( ) c. weak ( )

THANK YOU!

If you would like an advance copy of the results or if you would like to discuss the survey, please email or call Dev Prakash Gupta (dev@nepalinformation.com or +977 9851027322

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Annex II

Survey response of determinants of Stock Returns

	Below 30 years	31 to 40 years	41 to 50 years	Above 50 years	Overall
Book to Market ratio	25.8%	16.1%	35.5%	22.6%	23.5%
Size of the company	68.8%	18.8%	12.5%	0.0%	12.1%
Dividend of the company	11.1%	18.5%	25.9%	44.4%	20.5%
Earnings per share	40.4%	36.8%	17.5%	17.5%	43.2%
Cash Flow	28.6%	14.3%	42.9%	14.3%	5.3%

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