Impact of managerial ownership on Stock returns; Empirical Evidence from Emerging Market of Pakistan

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In the name of Allah, the most merciful and beneficent

DEDICATION

I dedicate this thesis to my parents' husband and my supervisor whose support & encouragement has enabled me to complete this research study successfully.

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DECLARATION

I hereby declare that this thesis, neither as a whole nor as a part thereof, has been copied out from any source. It is further declared that I have prepared this thesis entirely on the basis of my personal effort made under the sincere guidance of my supervisor. No portion of work, presented in this thesis has been submitted in support of any application for any degree or qualification of this or any other university or institute of learning.

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APPRECIATION AND GRATITUDE

No words of gratitude will ever be sufficient for the Allah Almighty who made me capable of learning, blessed me with the knowledge & intellect and facilitated me with the finest of the mentors all through my academic years.

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ABSTRACT

Agency theory states that diverging interests of managers and shareholders can result in opportunistic behavior by managers that have an adverse effect on firm performance and eventually its stock returns. The weakly efficient markets are not able to observe the positive incentive effect due to presence of managerial ownership which in return causes high returns. The focus of the research is to introduce managerial ownership as a fourth risk factor in Fama and French three factor model (1992) and to test its applicability in Pakistan`s equity market to check how explanatory power of asset pricing model is affected by the inclusion of managerial ownership as the fourth risk factor. The total of 156 non financial firms listed with Pakistan stock exchange are considered. The results show that managerial ownership has a positive and statistically significant relationship with average returns. The intercepts values obtained by applying regression over Fama and French three factor model and proposed four factor model suggests better applying the proposed model while evaluating the stock returns for the portfolios. The R^2 analysis provides strong validity to four factor model as compared to the single factor ,two factors and Fama and French traditional three factor model.

JEL Classification: G11; G12; G14

Keywords: Three Factor Model, Stock market, Managerial ownership, Stock returns

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CHAPTER NO 1

INTRODUCTION

Background of the study:

Since the emergence of portfolio selection theory by Harry Markowitz number of articles have flooded financial journals in order to prove, disprove, sophisticate, simplify, twist, or bend the original treatise.

Number of empirical studies now exists; they are both satisfying and rebutting these conditions. Many risk-aversive investors are often irritated by the complexity and contradiction found in academic literature. The objectives of this study, therefore, are to present the major contributions to the development of asset pricing theory in a manner, which facilitates its understanding and, additionally, to present to the reader a description of managerial ownership as an important factor while calculating the expected returns of investments. Contradictory empirical evidence cited in previous literature suggest that quantitative risk measures, specifically beta, have not been developed to the point of confident application.

The main emphasis of previous studies in the fields of financial economics has been on determining the factors that helps in pricing the risky assets and their returns. Number of

asset pricing theories have been mentioned in literature. These includes capital asset pricing models (CAPM) of Sharpe (1964), Lintner (1965) and Black (1972), the arbitrage pricing theory (APT) of Ross (1976) and along these theories some multifactor asset pricing models are also included. However, among all these theories and models CAPM has been one of the most important asset-pricing model of all time.

Equity markets always hold a special attention for the researchers while investigating the relationship between prices estimation and asset return. Henery Markowitz`s portfolio selection theory (1952,1959) provides base for all the asset pricing models. However, the birth of asset pricing model was actually given by the capital asset pricing model (CAPM) of Sharpe (1964) and Lintner (1965). The base of capital asset pricing theory is based on mean fluctuation investigation and the procedure of development of productive portfolios. In the established CAPM of Sharpe (1964), Lintner (1965), and Mossin (1966), the structure of capital market balance is exhibited in an exceptionally miserly manner, relating the balance resource comes back to a single risk factor to be specific, the market beta. This approach empowers the asset pricing relationship to be elucidated in a straightforward and naturally engaging way, subsequently encouraging the CAPM to wind up plainly one of the prevailing standards in present day back.

Capital asset pricing model was created by Sharpe (1964), Litner (1965) and Mossin (1966) after the cessation of Markowitz's review (1959), this model shows the relationship between expected return of an asset and its non-diversified risk in market. The model expresses that the measure of associated risk of an asset is the sensibility of its return being observed in connection to the market portfolio return, known as beta coefficient. The

CAPM's conjectures have prompt applications in the assessment of the advantage cost, and additionally are utilized to figure the organization's cost of capital. Be that as it may, in spite of the fact that it is a basic and consistent model, the CAPM depends on extremely prohibitive suspicions on the working of the market

Literature shows that various variables are effecting average stock returns. These variables includes size, book-to-market ratio (BE/ME), ("the ratio of the book value of common equity to its market value)", earning/price (E/P'), cash flow/price (C/P'), & sales growth of past as reported by (Banz (1981) Basu (1983) ; Rosenberg, Reid, and Lanstein (1985) ; and Lakonishok, Shleifer and Vishny (1994) in literature. These are the dimensions on which the stock returns vary. Capital asset pricing model is unable to capture these dimensions. Hence they are called anomalies of CAPM (Sharpe (1964) and Lintner (1965). Because of the presence of these anomalies most of the credibility of CAPM has been lost. Roll (1997) raised an important question on the credibility of CAPM. Hence because of these irregularities CAPM has lost some of its prior fame. Roll (1997) questioned that only conclusive assumption of CAPM is its mean-variance efficiency of the market portfolio and the model is neither demonstrable nor applicative until or unless actual market portfolio is known. This is known as Roll critique. Due to this criticism the CAPM is known as a theory with ambiguous pragmatic consequences. Number of asset pricing anomalies have been highlighted hy number of researchers in literature. These include Friend and Blume (1970), Banz (1981), and Reinganum (1981) . Friend and Blume, discovers that Jensen's alpha, which is apparently a 'risk-adjusted' performance measure, is vigorously inversely related to the level of market risk. While Banz and Reinganum found

that there is a negative relationship between firm size and stock returns despite the fact that the effect of market risk has been curbed.

The studies of Cheng and Grauer (1980), Kandel(1984), Shanken (1986), etc are also relatable to above argument. Cheng and Grauer rejected the test of linear homogeneity of asset prices suggested by the CAPM. Both Kandel and Shanken used the subset of assets and observed the testability of the mean-variance efficiency of the market portfolio .They suggested that when the variance of the 'ommited' asset is edged and there is small market share of missing asset we can clearly reject the mean-variance efficiency of the market portfolio.

Average stock returns are related to the most of the anomalies of CAPM. These irregular stock return`s patterns are being seized by Fama and French (FF 1992) three factor model. In response to meager illustration of the CAPM in narrating realized returns the Fama and French three-factor asset-pricing model was developed. According to Fama and French (1992), the three-factor model has the capability of capturing anomalies relating to the CAPM.

Fama and French three factor model added two new risk factors to the CAPM to better comprehend and fix the stock returns abnormalities caused due to CAPM. Fama and French (1996, p.56) while studying the cross section of average stock returns identified that the model seized and absorbed most of the anomalies that have infested the CAPM. In the aforementioned study they also discussed that the three factor model is an equilibrium-pricing model, Merton's (1973) three-factor version of intertemporal CAPM or Ross's arbitrage pricing theory.

A study on Istanbul Stock Exchange carried by Aksu and Onder (2003) analyzed the Capital Asset Pricing Model and Fama-French Three Factor Model . the sample of this study contains only non-financial firms that were traded in the ISE during the 1993-1997 periods. The analysis used monthly stock returns along with the dividends of sample firms. The results of the study suggest that the Fama and French three factor model is more efficient and has significant explanatory power as compare to CAPM while capturing stock returns.

For a long time, economists have been fascinated by the clash of interests between principals and agents in modernized firms. Jensen and Meckling (1976) in their classic works of agency theory tried to diminish this issue, by suggesting the use of firm`s equity holdings rather than using cash compensation as a tool to obtain the alignment between the interests of managers and shareholders. A complete calibration of the manager's and owner's incentives (no equity-related agency costs) can be observed in an utmost case where there is a single owner manager (Jensen and Meckling, 1976).

According to agency theory; one expected solution in case of "managerial mischief" (Dallton, Hitt, Certo, & Dallton, 2007); i-e when there is conflict of interest between firms' owners and managers; is to use equity ownership as the structure of their compensation to align firm`s owner and agent interests .(Fama & Jensen, 1983; Jensen & Meckling, 1976). Such impetus arrangement includes two related parts: (1) money related arrangement, whereby agent's financial prizes covary with those of proprietors through possession or potentially remuneration and (2) arrangement of inclinations and activities, whereby the agent's inclinations turned out to be more lined up with those of proprietors, and the agent's

selection of activities, however still spurred without anyone else interest, are more steady with proprietor premiums. The impact of administrative possession on big business stock returns is identified with the view that an association's esteem relies on upon the appropriation of ownership amongst managers and different owners, as first underlined by Berle and Means (1932) and, later on, Jensen and Meckling (1976). Gasp and Pattanayak (2007) have expressed that when the stock possession by managers expands it adds to build firm value.

According to the proposed Jensen and Meckling (1976) agency theory, the agency problem arises due separation of ownership between managers and other shareholder. Mostly managers obtain the full repayment for their savvy behavior activities which maximizes their own interests rather than maximizing the others shareholder's interests. Jensen and Meckling (1976) are considered to be the first one who highlighted the importance of ownership while determining stock returns. According to them managerial ownership works as an efficient mechanism to align the interests of managers and other shareholders. Therefore, if manager's interests are also at stake i-e they also have ownership in the firm they will involve in selection of those investment decisions, which give high stock returns, hence reducing the cost, which would be incurred otherwise in monitoring manager's decisions. By considering this "incentive argument" managers act like shareholders when they are given shares of the firms.

Therefore, if manager's interests are also at stake i-e they also have ownership in the firm they will involve in selection of those investment decisions, which give high stock returns, hence reducing the cost, which would be incurred otherwise in monitoring

managers decisions. Within this context and the so-called 'incentive argument', giving managers corporate shares makes them behave like shareholders.

Managerial ownership is major risk factor that effects the stock returns. Firms which have high managerial ownership shows better stock returns as compare to those having low managerial ownership because if manager's interests are also at stake i-e they also have ownership in the firm they will involve in those investment decisions which gives high stock returns hence reducing the cost, which would be incurred otherwise in monitoring managers' decisions. Therefore the main aim of this research is to inspect the relationship between managerial ownership and average stocks returns by adding variable of MOP(managerial ownership premium) in conventional Fama and French three factor model (1992) and to observe whether managerial ownership exist as a risk factor and effecting the stock returns.

1.2 Theoretical Foundation:

1.2.1 Agency Theory

The fundamental conviction of capital market theory is the argument regarding what factors help in better understanding of stock returns. Banz (1981) stated that small size firm's stocks showed better returns as compared to the stocks of the firm having large capitalization. Similarly, Stattman (1980) and Rosenberg et al. (1985) reported in their study that high value firm stocks outperformed low value firm stocks i-e they captured the effect of book-to-market ratio(BE/ME). Fama and French (1993) in their most influential paper included the above mentioned anomalies by expanding the dimensions of CAPM by

incorporating the proxies for size factor and value factor in their renowed three factor model.

1.2.2 Capital Asset Pricing Model

Asset Pricing Theory is important in this domain. John Lintner (1965) and William Sharpe (1964) stated capital pricing model (CAPM) which provides base for asset pricing theory. The CAPM intuitively and effectively helps in forecasting risk and explaining the relationship between risk and expected return. The CAPM theory predicts that there exist a linear relationship between asset covariance and its expected returns on the market portfolio. The standard model states that with higher returns comes higher beta risk. However, empirical results of different studies have failed to comprehend this relationship due to the incompetency of market beta alone in explaining the fluctuations in stock returns.

1.2.3 Fama & French three factor model (1992)

Fama and French (1992) studied the cross-section of average stock returns for NYSE, Amex and NASDAQ stocks. They observed the combined role of market beta and other anomalies including size, Earnings/Price (E/P) ratio, leverage and book-to- market equity ratio. The sample period of the study was 1963 to 1990. The study reveals that there exist almost no explanatory power when beta alone is taken under consideration. However on the other hand Size, E/P, leverage and book to market equity have significant explanatory power in explaining the cross-section of average returns. Moreover, when beta is included with size factor and value factor they absorb the effects of leverage and E/P in explaining the cross-section average stock returns. According to Fama & French (1992) there exist a

multi dimensional risk when stocks are rationally priced. So, Fama and French (1993) proposed a three-factor asset pricing model for stocks that contains two more risk factors i-e size factor and value factor along with market beta.

In the developing economy like Pakistan, ownership structure of the firms is one of the most important and heedful issue. It has been long journey for financial analyst to find the impact of relationship existing between the firm`s performance and its ownership structure on the stock returns. However, no consensus in literature has been yet found among the researchers regarding the multidimensional importance of managerial ownership. Most of the literature focuses on the alleviation of agency problem which arises due to the conflict between managers and shareholder's interests.

According to Jensen and Meckling (1976) in order to obtain an alignment between interests of manager and share holders , equity holdings of firms rather than cash compensation can act as an incentive program to erase the agency problem, Based on context of the agency theory Demsetz and Lehn (1985) stated that it is favorable to combine ownership and control because in this way large shareholders can act to exclude the entrenchment and confiscation caused due to managers resulting in high stock returns.

There exists a significant relationship between managerial ownership and firm performance resulting high stock returns as documented by Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991)

1.2.4 Interest Aligned Hypothesis

According to the classic interest aligned hypothesis, when managers don't have eloquent ownership in firm they are often involved in activities that are not value maximizing like excessive use of perquisites or taking highly risky projects. As the managerial ownership increases so did the alignment between the managers and shareholders interests causing low level consumptions of perquisites and reporting high shareholder's dividends. Literature support for this is found in Lewellen, Loderer, and Rosenfeld (1985), and You et al. (1986). They find that firms that have lower managerial ownership levels earned lower returns.

Positive abnormal returns are being anticipated by recent game theory models for the firms that have high managerial ownership. Literature support can be found in research of Gorton, He, and Huang (2013), Lilienfeld-Toal (2010), and Blonski and Lilienfeld-Toal (2010).

1.3 Problem Statement:

The value of the firm is dependent on the fact that how its ownership is being divided between the managers and other owners which in returns relates to the firm performance and stock returns. The diverging interests of managers and shareholders has been an attractive area of research for researchers for a long time. To solve this problem agency theory states that in order to obtain an alignment between interests of manager and share holders, equity holdings of firms rather than cash compensation can act as an incentive

program to erase the agency problem, there exists a significant relationship between managerial ownership and firm performance resulting high stock returns as documented by Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991).

Another potential explanation based on incentive argument states that positive abnormal returns are being anticipated by recent game theory models for the firms that have high managerial ownership. Literature support can be found in research of Gorton, He, and Huang (2013), Lilienfeld-Toal (2010), and Blonski and Lilienfeld-Toal (2010).

Therefore, keeping in view the above argument the proposed study strongly suggests that managerial ownership should be included as an important factor of asset pricing equation. As there is a need to explore the effect of managerial ownership as an integral part of asset pricing model and then to analyze what kind of effect managerial ownership has on stock returns.

Therefore, keeping in view the above argument the proposed study strongly suggests that managerial ownership should be included as an important factor of asset pricing equation. As there is a need to explore the effect of managerial ownership as an integral part of asset pricing model and then to analyze what kind of effect managerial ownership has on stock returns.

1.4 Rationale of Study and Research Gap:

As we consider size factor and value factor while calculating stock returns there is a need to consider managerial ownership as an important risk factor effecting the expected returns

on stocks in a given portfolio because just as we have small capitalization and large capitalization firms, high value firm and low value firms, there is an equal probability of having some firms that contain high managerial ownership while there must be some with low managerial ownership. and the stock returns will eventually be effected by the level of ownership managers have and investors will demand premium for holding this risk.

In the context of the agency theory Demsetz and Lehn (1985) stated the importance of combining ownership with control. This will help the large shareholders to reduce the problems caused due to managerial entrenchment and expropriation resulting in high stock returns.

A significant relationship has been reported by Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991) between managerial ownership and firm performance resulting high stock returns.

According to the recent game theory, firms having high proportion of managerial ownership lead to positive abnormal returns (see, e.g., Gorton, He, and Huang (2013), Lilienfeld-Toal (2010), and Blonski and Lilienfeld-Toal (2010)).

Although the relationship between of managerial ownership and firm's performance has been broadly studied in previous studies but managerial ownership has never been studied in context of a risk factor included in asset pricing model to calculate stock returns. As per the best knowledge of researcher there is no evidence found in literature which shows that this sort of research or study has been ever conducted in Pakistan. Which means that so far no theoretical and empirical evidence has been found which shows the full

interaction among portfolio stocks return and the impact of managerial ownership on them. Hence there is a need to conduct research on this topic.

1.5 Research questions:

This study serves the following research questions:

1) Does the excess returns on portfolio stocks are sensitive to managerial ownership or not"?
2) Do firms having high managerial ownership show better average stock returns than those having low managerial ownership?
3) Does the explanatory power of asset pricing model increases with the inclusion of managerial ownership?

1.6 Objectives of the study:

The objectives of this study are as follow:

1) To check whether managerial ownership exist as a risk factor for affecting the average expected stock returns in the context of listed firms of Pakistan stock exchange.
2) To check that excess returns on portfolio stocks are sensitive to managerial ownership.
3) To check that firms having high managerial ownership show better stock returns than those having low managerial ownership.

4) The explanatory power of asset pricing model increases with the inclusion of managerial ownership

1.7 Significance of study:

The proposed study is contributing towards existing body of knowledge to explore the phenomenon that when the ownership of managers is at stake what kind of impact it had on stock returns and it significantly projects the existing literature by taking into account the relationship among asset pricing model, managerial ownership and stocks returns. There are several benefits of this study as mentioned below:

1.7.1 Practical Implications:

- This research is helpful from investor point of view because it can help them to evaluate stock returns more efficiently and effectively before making investment decisions. As rational investor's decision relies on the projected stock returns and current expected return on stocks of portfolio.
- This study is useful from management point of view i-e in order to obtain healthy performance from their company and wanting their returns to be higher then there is need to look into the managerial ownership structure in order to improve the consensus between managers and shareholders interests.
- This study can contribute knowledgeable information in guiding government while designing such a corporate governance structure which can be helpful for both managers and shareholders. This study is significant to analyze that if managerial ownership plays an important part while calculating rate of returns of investments

than whether the corporate governance code is performing well enough or there is need to make some changes in the existing code to make this managers, investors and firms relationship more transparent and promising.

- It can provide assistance to the investors to make investment decisions by keeping in mind about the level of managerial ownership in the firm. More the managers have ownership in the firm more are their interests align with the interests of share holders, more will be the return on stocks as they will involve in those investment decisions which are going to increase the investors wealth and minimize the risk.

1.7.2 Theoretical Implications:

- This research can be useful for policymakers in a sense that it will help them in designing effective and efficient policies in order to implement asset pricing theories.
- This study can help shareholders to design appropriate system of awareness about the managerial ownership percentage in the firm because when they have proper knowledge they will be able to receive impeccable and authentic information about stock returns using the proposed asset pricing model. It will benefit them at the time of investing in company's stocks and to make a portfolio of their own choice whose returns will be high.
- This study can provide direct evidence regarding the effect of managerial ownership on return calculations on investment using asset pricing model i-e it will prove that managerial ownership is also an integral part of asset pricing model equation.

CHAPTER NO 2

LITERATURE REVIEW

2.1 Capital Asset Pricing Model (CAPM):

Current scholarly back is based on the recommendation that business markets are prudent. The foundational model of market levelheadedness is the capital asset pricing model (CAPM). In Fisher Black and the Revolutionary Idea of Finance, Mehrling (2007) considers the CAPM as the 'progressive thought' that goes through finance theory. He describes the main significant stride in the advancement of present day back hypothesis as the 'effective markets theory', trailed by the second step, which is the CAPM. While the proficient market speculation expresses that whenever, all accessible data is embedded into the cost of an asset, the CAPM offers substance to how such data ought to be attributed. The CAPM says that financial specialists can hope to accomplish a risk free rate in addition to a 'market risk premium' increased by their introduction to the market.

Algebraic model formally presented by Mehrling is as follow:

$$E(Rj) = rf + \beta \cdot [E(Rm) - rf]$$

Where $E(Rj)$ is the expected return on asset j over a single time-period, rf is the risk free rate, $E(Rm)$ is the expected return on the market over the period, and β identifies the market risk. The CAPM has been ruling the literature to the limit of being called as 'the paradigm' (Ross, 1978; Ryan, 1982).

In the established CAPM of Sharpe (1964), Lintner (1965), and Mossin (1966), the structure of capital market barmony is exhibited in a profoundly miserly manner, relating the balance resource comes back to a solitary hazard calculate, in particular, the market beta. This stingy approach empowers the balance resource estimating relationship to be explained in a straightforward and instinctively engaging way, in this manner causing the CAPM to end up plainly one of the overwhelming standards in present day back.

This model was created as per Sharpe (1964), Litner (1965) and Mossin (1966) after the conclusion of Markowitz's review (1959), this model, in short, relates the normal return of an advantage, in an adjusted market, with its non expanded risk. The model expresses that the measure of significant risk, is the sensibility of the arrival of the advantage being dissected in connection to the arrival of the market portfolio, known as beta coefficient. Tbe CAPM's estimates have quick applications in the assessment of the advantage cost, and additionally are utilized to figure the organizations' cost of capital.

CAPAM seems to have lost some of its earlier glory. In the end of 1970's and start of 1980 CAPM started baving certain challenges. The main criticism was that change in the expected return is not related to the marketing beta. Literature shows that various variables are effecting average stock returns. These variables includes size, book-to-market ratio (BE/ME), ("the ratio of the book value of common equity to its market value)", earning/price (E/P'), cash flow/price (C/P'), & sales growth of past as reported by (Banz

(1981) Basu (1983) ; Rosenberg, Reid, and Lanstein (1985) ; and Lakonishok, Shleifer and Vishny (1994) in literature. These are the dimensions on which the stock returns vary. Capital asset pricing model is unable to capture these dimensions. Hence they are called anomalies of CAPM (Sharpe (1964) and Lintner (1965). Because of the presence of these anomalies most of the credibility of CAPM has been lost. Roll (1997) raised an important question on the credibility of CAPM. Hence because of these irregularities CAPM has lost some of its prior fame. Roll (1997) questioned that only conclusive assumption of CAPM is its mean-variance efficiency of the market portfolio and the model is neither demonstrable nor applicative until or unless actual market portfolio is known. This is known as Roll critique. Due to this criticism the CAPM is known as a theory with ambiguous pragmatic consequences. Number of asset pricing anomalies have been highlighted by number of researchers in literature. These include Friend and Blume (1970), Banz (1981), and Reinganum (1981) . Friend and Blume, discovers that Jensen's alpha, which is apparently a 'risk-adjusted' performance measure, is vigorously inversely related to the level of market risk. While Banz and Reinganum found that there is a negative relationship between firm size and stock returns despite the fact that the effect of market risk has been curbed.

At the same in 1977 Basu's argument that on the basis of earning –price ratios when we evaluated common stock, the expected returns are higher for high E/P stocks as forecasted by CAPM. In the 1985 Rosen berg, Reid and Lanstein return on small capitalization stocks are higher as compared to the big stocks however CAPM predicted it vice versa this is the case when we sort stocks on the basis of marketing capitalization. In 1988 Bhandari

documented another contradiction in CAPM. He argued that stocks book to marketing equity ratio have high average returns which neither are nor captured by the betas. Because of these criticisms the CAPM is generally considered to be theory with ambiguous consequences.

2.2 Fama and French three factor model (1992):

Among the individuals who presume tbat the experimental disappointments of the CAPM are lethal, two stories rise. On one side are the behaviorists. Their view depends on confirmation that stocks with high proportions of book an incentive to market cost are commonly firms that bave fallen on awful circumstances, while low B/M is related with development firms (Lakonishok, Shleifer and Vishny, 1994; Fama and French, 1995). The behaviorists contend that sorting firms on book-to-market proportions opens speculator overcompensation to great and terrible circumstances. Financial specialists over extrapolate past execution, bringing about stock costs that are too high for development (low B/M) firms and too low for distresses (high B/M, value) firms. At the point when the eruption is in the end revised, the outcome is exceptional yields for esteem stocks and low returns for development stocks. Advocates of this view incorporate DeBondt and Thaler (1987), Lakonishok, Shleifer and Vishny (1994) and Haugen (1995).

The second story for clarifying the observational disagreements of the CAPM is that there is a requirement for a more confounded resource evaluating model. The CAPM depends on numerous implausible presumptions. For instance, the suspicion that financial specialists think just about the mean and change of one-period portfolio returns is outrageous. It is sensible that financial specialists additionally think about how their portfolio returns covaries with work salary and future venture openings, so a portfolio's arrival fluctuation disregards imperative measurements of hazard.

Assuming this is the case, showcase beta is not a total portrayal of a return's risk, and we ought not be astounded to find that distinctions in expected return are not totally clarified by contrasts in beta. In this view, the pursuit ought to swing to asset pricing models that make a superior showing with regards to clarifying normal returns.

Merton's (1973) inter temporal capital asset pricing model (ICAPM) is a characteristic augmentation of the CAPM. The ICAPM starts with an alternate supposition about investor destination. In the CAPM, financial specialists think just about the returns their portfolio produces toward the finish of the present time frame. In the ICAPM, speculators are concerned with their end-of-period result, as well as with the open doors they should devour or contribute the result. In this way, while picking a portfolio at time t _ 1, ICAPM financial specialists consider how their returns at t may change with future state factors, including work wage, the costs of utilization products and the way of portfolio openings at t, and assumptions about the work salary, utilization and speculation chances to be accessible after t. Like CAPM speculators, ICAPM financial specialists lean toward high-expected return and low return change. In any case, ICAPM financial specialists are additionally worried with the covariances of portfolio comes hack with state factors. Subsequently, ideal portfolios are "multifactor efficient," which implies they have the biggest conceivable expected returns, given their arrival fluctuations and the covariances of their profits with the pertinent state factors. Fama (1996) demonstrates that the ICAPM sums up the rationale of the CAPM. That is, if there is risk free borrowing or lending, or if short sales of risky assets are allowed then clearing prices of market suggests that the market portfolio is multifaceted proficient. Besides, multifaceted effectiveness infers a connection between expected return and beta dangers, yet it requires extra betas, alongside a market beta, to clarify expected returns. A perfect execution of the ICAPM would determine the state factors that influence expected returns.

Fama and French (1993) adopt a more backhanded strategy, maybe more in the soul of Ross' (1976) arbitrage estimating hypothesis. They contend that however size and book-to-market value are not themselves state factors, the higher normal profits for small stocks and high book-to-market stocks reflect unidentified state factors that create nondiversifiable dangers (covariances) in returns that are not caught by the market return and are estimated independently from market betas. In support of this claim, they demonstrate that the profits on the supplies of small firms covary more with each other than with profits for the loads of expansive firms, and profits for high book-to-market (value) stocks covary more with each other than with profits for low book-to-market (growth) stocks. Fama and French (1995) demonstrate that there are comparative size and hook-to-market designs in the covariation of essentials like income and sales. In light of this confirmation, Fama and French (1993, 1996) propose a three factor model for expected returns,

Three-Factor Model:

$$r = R_f + \beta_3(K_m - R_f) + b_s \cdot SMB + b_u \cdot HML + \alpha$$

In this condition, SMB (small minus big) is the distinction between the profits on expanded arrangement of small and big stocks, HML (high less low) is the contrast between the profits on broadened arrangement of high and low B/M stocks, and the betas are slopes in the multiple regression of *Rit _ Rft* on *RMt _ Rft*, *SMBt* and *HMLt*.

The Fama and French (1996) three factor model distinguishes exposures to diffcrential returns across high and low book-to-market stocks and crosswise over large and small firms to the CAPM as intermediaries for additional risk elements. As is frequently commented, the model gets from a fitting of information instead of from hypothetical standards. Dark (1993) considered the Fama and French three-figure display as 'information mining'. In spite of the fact that Fama and French have criticized the limit of beta, they by and by demand that their two variables are 'extra'— intended to

catch 'certain abnormalities with the CAPM'. Formally, their model is displayed as a refinement in the soul of the CAPM. The pattern of adding components to better clarify watched value practices has kept on overwhelming resource evaluating hypothesis. Subrahmanyam (2010) reports more tban 50 factors used to anticipate stock returns. All things considered, the CAPM remains the foundational calculated building hinder for these models.

Effect of Firm Size (SMB) and Value (HML) On Stocks Returns

After 1980, the connection between firm-level qualities and stock returns is broadly examined in developed, developing and group of countries. The results of the writing recommend that there is a noteworthy linkage between firm particular factors and stock returns in the inspected sample. The size impact was first archived by Banz (1981) and Reinganum (1981) who found a return premium on small stocks amid the 1936-1975 period for the stocks cited on the NYSE. The size impact or size premium was later affirmed by Blume and Stambaugh (1983) and Brown et al. (1983) in USA and Australia individually. The BM impact was first archived by Rosenberg et al. (1985) who found a return premium to stocks with high proportions of book to market value of equity in US securities exchanges. This BM impact or value premium was affirmed by Davis et al (1994) in USA and by Chan et al. (1991) and Capaul et al. (1993) in outside the USA. These discoveries demonstrate that firm size and BE/ME are fundamentally impact on expected stock returns, negative and positive, separately. The main gathering of the reviews covers developed nations. Fama and French (1992) (from now on FF) report that the market beta has next to zero capacity in clarifying the variety in stock profits for U.S stock on selected non-financial firms and then again, they find tbat the variety of cross – sectional stock returns can be caught by two firm attributes: firm size and book-to-market value amid the time of 1962 to1989.

As indicated by Fama and French (1992), the related risk premium of the size and BM factors is effortlessly quantifiable, essentially negative and positive, separately. Andreas and Eleni (2004)

exactly inspected the FF (1993) three element display utilizing Japanese information over the time of 1992 to 2001. Tbe discoveries uncover noteworthy connection between the three factors and the normal stock returns in the Japanese market.

Moreover, it plainly demonstrates that the market consider has the most informative power in clarifying the variety of stock returns. The explanatory power of the size variable (SMB) overwhelms the explanatory power of the BE/ME calculate (HML) when the testing portfolios comprise of small stocks and the inverse happens when tbe testing portfolios comprise of large stocks.

Bryant and Eleswarapu (1997) for the period from 1971 to 1993 and Pinfold et al. (2001) for the period from mid-1993 to March 2001, reported a BM impact yet a feeble size impact in US stocks. Then again, Vos and Pepper (1997) detailed significant size and BM impacts over the period 1991-1995, while Li and Pinfold (2000), reproducing Vos and Pepper (1997) for the period beginning towards the end of 1995 to June 1999, did not discover a book to market impact.

Chui and Wei (1998) and Daniel et al. (1997) find that book-to market value assumes a critical part in clarifying the cross – sectional variety of stock returns in the Japanese market. Another group of studies test this relationship for developing market including Sri Lankan Stock Market. Drew and Veeraraghavan (2002) exhibit confirmation of the size and value premium for the instance of Malaysia utilizing multifaceted model approach. They report that the components recognized by FF (1993), better clarify the variety in stock returns in Malaysia.

Drew et al. (2003) additionally report a firm size impact and a less inescapable book to market impact in the Shanghai securities exchange. Sentbilkumar (2009) utilized Fama-MacBeth (1973) cross-sectional regression model in selected Indian ventures to analyze conduct of stock return in size and market-to-book proportion. They find that no size impact in every one of the business

sectors and a noteworthy book-to-market impact in every one of the gatherings. At the point when the test take into account both factors, the negative connection amongst size and normal return is less critical; the consideration of hook-to-market value appears to assimilate the part of size in selected Indian market stock returns.

Anuradha (2007) examine the over two most well known factors on stock returns of the CSE and reports the negative size to return connection and positive BE/ME to return connection. Mahawanniarachchi, (2006) likewise reports that there is noteworthy negative connection amongst size and individual stock returns and positive connection between BE/ME, market and individual stock returns. Moreover, it reports that size, market and BE/ME elements have noteworthy informative powers in clarifying the Sri Lankan stock returns.

Results of the study recommend that the profit (i.e., sales and income development) of a firm are related with three variables, yet it doesn't give any dependable connection between the conduct of three factors in profit and stock returns in the CSE. Furthermore, they perceive that market factor is fit anticipating the future stock returns of firms than the size and BE/ME in the CSE.

The size impact furnishes that organizations with small market capitalization show returns that on average significantly surpass those of big firms. The book-to-market value impact demonstrates that normal returns are more noteworthy for higher the book to market value firm (BE/ME) and the other way around. It is additionally alluded to as the value premium. Fama and French (1995) investigates tbe attributes of firms with high book-to-market and those with low book-to-market value. They find that organizations with high BE/ME have a tendency to be diligently troubled and those with low BE/ME are related with maintained benefit. weak firms with tirelessly low profit have a tendency to bave high BE/ME and positive inclines on HML; strong firms with high income have low BE/ME and negative slopes on HML. Dennis, Perfect, Snow, and Wiles (1995) offer help

to Fama and French's outcomes and affirm earlier discoveries that for any given size class, normal yearly portfolio returns increment as the BE/ME increments and, for any given BE/ME classification, normal returns diminish as size increments. The BE/ME impact is discovered noteworthy for various holding periods and an exchanging procedure in light of BE/ME and size could have been gainful. The ramifications of their review is that investors can essentially outperform the market if they select small size-high-BE/ME securities for their portfolios amid the period. Fama and French (1998) give extra profitable out-of-test proof by testing the FF three factor model on thirteen unique markets over the period 1975 - 1995. Study reports that 12 of the 13 markets record a premium of no less than 7.68% for every annum to value stocks. Seven markets demonstrate measurably noteworthy BM/ME betas.

Daniel and Titman (1997) don't have consensus with Fama and French (1992, 1993, 1996). Daniel and Titman (1997) explore the effect of factor loadings on stock returns for the period 1973 –1993 and report that normal returns are not a component of loadings on the Fama and French risk variables. They say that it is the covariance between high book-to-market proportion stocks that prompts comparable properties as opposed to a common risk factor.

Kothari (1995) MacKinlay (1995) and Loughran (1997) understood the matter from with an improved point of view. Kothari (1995) and MacKinlay (1995) contend that a generous piece of the premium is because of survivor predisposition and information snooping. The information hotspot for book value contains a lopsided number of high-BE/ME firms that survive trouble so the normal return for high-BE/ME firms is exaggerated. The information snooping theory sets that specialist's longing to look for factors that are identified with normal return, may prompt distinguishing proof of inconsistencies that are available just in the example used to recognize them. Be that as it may, number of studies think of it as a feeble contention and expel the survivorship-predisposition and the information snooping theory. Halliwel et al. (1999) tests the Fama and French (1993) display in

Australian value market and reports the nearness of a few premia on small sized and high book-to-market proportion stocks.

In any case, study reports that explanatory power of Fama and French three variable model is not essentially higher than conventional CAPM. Halliwel et al. (1999) don't discover any proof for the lessening in size affectability, given a move from low to high book-to-market proportion stocks. This conduct is discovered conflicting with Fama and French (1993) that reports the nearness of an inclination for size affectability to fall when moving from lower to higher book-to-market portfolios. Connor and Sehgal (2001) tests the model for India and finds that power of market, size and book-to-market components to clarify the cross-sectional mean returns is higher than CAPM in view of single market variable. Faff (2001) utilizes Australian information over the period 1991 to 1999 to look at the power of the Fama French three-factor model and finds solid support for the Fama and French three factor model. Faff (2001) presumes that his outcomes give off an impression of being reliable with other late confirmation of an inversion of the size impact Drew and Veera raghavan (2003) think about the illustrative energy of a CAPM with FF three-factor model for south east Asian markets and report the nearness of size and value premiums in these business sectors. This review additionally gives prove that Fama and French three element model can better clarify the varieties as a byproduct of these business sectors. Drew and Veera raghavan (2003) contend that premiums are pay for risks that is not caught by single element. Out of sample test performed by Gaunt (2004) in Australian equity market for the period of 1991 to 2000. The study stated higher beta for smaller companies with high book to market ratio. Hence after this long discussion on firm size and book to market ratio , this study suggests the following hypothesis.

H1: There exist a positive relationship between size premium and stock returns.

H2: There exist a positive relationship between value premium and stock returns.

Keeping in mind the literature review on CAPM as discussed previously our third hypothesis becomes:

H3: There exist a significant relationship between market risk factor and stock returns.

2.3 Agency Theory:

Agency theory has been utilized by researchers in bookkeeping (e.g., Demski and Feltham, 1978), financial aspects (e.g., Spence and Zeckhauser, 1971), fund (e.g., Fama, 1980) advertising (e.g., Basu, Lal, Srinivasan, and Staelin, 1985), political science (e.g., Mitnick, 1986), hierarchical conduct (e.g., Eisenhardt, 1985, 1988; Kosnik, 1987), and humanism (e.g., Eccles, 1985;White, 1985)

From its underlying foundations in information economics, agency theory has created alongside two lines: positivist and principal- agent (Jensen, 1983). The two streams share a typical unit of investigation: the agreement between the principal and the agent. They likewise share normal presumptions about individuals, associations, and data. In any case, tbey vary in their scientific thoroughness, subordinate variable, and style.

Positivist researchers have concentrated on distinguishing circumstances in which the principal and agent are probably going to bave clashing objectives and after that portraying the governance mechanism that cutoff the principal self serving bias. Positivist researchers have concentrated solely on the uncommon instance of the foremost operator connection amongst proprietors and directors of vast, open companies (Berle and Means, 1932) Principal-agent researchers are worried with a general hypothesis of the principal-agent relationship, a hypothesis that can be connected to boss representative, legal advisor customer, purchaser provider, and other office connections (Harris and

Raviv, 1978). The formal theory characteristics includes cautious suppositions, which are trailed by intelligent conclusion and mathematical evidence. In correlation with the positivist stream, the theory of principal -agent is unique and scientific and, in this way, less open to organizational researchers.

Efficient capital and labor market as data instruments that are utilized to control the self-serving conduct of top officials was being examined by Fama (1980). Fama and Jensen (1983) portrayed the role of the top managerial staff as an information system that the stockholders inside big organizations could use to screen the advantage of top officials. Jensen and his associates (Jensen, 1984; Jensen and Roeback, 1983) extended these thoughts to questionable practices, for example, golden parachutes and corporate raiding.

The ownership structure of the company, including how value possession by directors adjusts supervisors' interests to those of proprietors was being investigated by Jensen and Meckling (1976) . Tbere exist a potential conflict among administrators and share holders as being proposed by agency theory of (Dalton, Hitt, Certo, and Dal ton, 2007: 1) when thc interests of firm`s owners and directors (operators) vary; one set answer for this "organization issue" is that organizations adjust proprietor and agent interests through agent`s value possession and the structurc of their pay (Fama and Jensen, 1983b; Jensen and Meckling, 1976). Such impetus arrangement includes two related segments: (1) budgetary arrangement, whereby a agent`s monetary prizes covary with those of proprietors through possession and additionally remuneration and (2) arrangement of inclinations and activities, whereby the manager`s inclinations turned out to be more lined up with those of proprietors, and the agent's selection of activities, howcvcr still spurred independently from anyonc else interest, are more predictable with proprietor interests. How money related arrangement is made (e.g., using result based contracts, investment opportunities, and so on.), however, it may likewise influence agent`s risk inclinations, making them chose either more dangerous or less risky

choices than is ideal from the shareholders' point of view.

In spite of the fact that researchers displayed early good faith about the potential for agency theory to further comprehension of organizational conduct (Eisenhardt, 1989), this eagerness is plainly winding down. Researchers progressively address the legitimacy of agency theory in accordance with monetary arrangement and the arrangement of administrative inclinations and activities.

According to traditionally aligned interest hypothesis the issue of whether managers maximize shareholder wealth has generated considerable debate. Rather than maximizing shareholder wealth, managers may maximize their own utility, through either the consumption of perquisites (as in Jensen and Meckling (1976) and (Berle and Means (1932), or the selection of less-risky investment projects (as in Amihud and Lev (1981)). Managerial ownership acts as an incentive for managers to align their interests with the shareholder's interests. Accordingly, under these theories, greater equity value can be obtained by having high managerial ownership concentration which ultimately gives greater equity returns.

2.4 Managerial Ownership and stock returns:

As indicated by agency theory, the opportunistic behavior due to veering interests of managers and shareholders can prompt adverse firm performance. One recommended answer for this issue is the utilization of equity ownership in remuneration bundles to adjust the interests of shareholders and directors. Researchers build up a hypothetical idea of shareholder inclinations and firm execution and gauge monetary arrangement as the

connection between firm performance and managerial ownership(MO). The outcomes, in light of this new idea and its estimation, recommend a more nuanced structure of interims of strong alignment. However, the intervals of the alignments vary according to the extend of MO in total equity ownership in ways that have not been tested explicitly in previous studies.

Beginning with Berle and Means (1932), the issue of whether managers maximize shareholder wealth has generated considerable debate. Rather than maximizing shareholder wealth, managers may maximize their own utility, through either utilizing dividends (as in Jensen and Meckling (1976) or the selection non feasible investment projects (as in Amihud and Lev (1981)). However Managerial ownership can be used as an incentive mechanism for aligning the interests between managers and shareholders. Accordingly, under these theories, more ownership in the hands of managers leads to greater returns and ultimately greater equity value.

Under the traditional aligned-interest hypothesis, directors enjoy any non-value augmenting exchange, for example, unnecessary utilization of perquisites or problematic risk taking exercises, when they don't have a noteworthy possession stake in the firm. As the managerial stake in the firm expands, managers interests turned out to be more lined up with those of the shareholders, bringing about the directors expending a lower level of perquisites and detailing bigger profit to shareholders. Prove in support of this theory is found in Lewellen, Loderer, and Rosenfeld (1985), and You et al. (1986) They find that firms that had lower managerial ownership levels earned lower returns.

In view of the agency theory perspective, Demsetz and Lehn (1985) contend that joining

possession and control can be invaluable on the grounds that vast shareholders can act to alleviate administrative entrenchment and confiscation. Family shareholders and family administrators are seen as the proprietors and lingering inquirers who control firms that generally have a place with their own families. Accordingly, family firms may speak to a perfect hierarchical shape where the targets of the proprietor and the firm are adjusted (Schulze et al. 2003), in this manner, as their interests are adjusted they have a tendency to put resources into tasks that expand shareholder's wealth. Cavery (1998) reports that family firms have less moral issues than nonfamily firms. Anderson and Reeb (2003) find that families have a tendency to have a significantly high extent of investments into their organizations; since the family's riches is so firmly connected to firm welfare, family shareholders have solid motivating forces to screen the association's administration and to expand gainfulness.

The potential explanation of obtaining abnormal returns due to the presence of high managerial ownership because of the fact that managerial ownership acts as a motivating force mechanism and acts as a corporate governance gadget. Like other corporate administration components, it adjusts interests amongst shareholders and managers by boosting administrators to expand firm performance. Gompers, Ishii, and Metrick (2003) and Cremers and Ferrell (2009) inspect different other corporate administration systems and find that the beneficial outcomes of these instruments are not completely estimated but rather high concentration of managerial ownership prompts positive returns.

Therefore, second potential clarification is that the motivating force impacts emerging from managerial ownership are not completely valued, but it rather prompt the positive

irregular returns in light of the fact that the market is not completely productive in understanding its impetus impacts.

The third clarification depends recent game theory models that foresee positive strange returns for firms with high administrative possession (see, e.g., Gorton, He, and Huang (2013), Lilienfeld-Toal (2010), and Blonski and Lilienfeld-Toal (2010)). These models contend that market costs can't completely mirror the future exertion of a CEO, since she could somehow or another benefit from the cost increment immediately by pitching her stocks without carrying out the value expanding exertion and bearing the related individual expenses. Rather, these models demonstrate that equilibria can develop in which stock costs of firms with CEO proprietorship don't completely reflect future efforts, i.e., equilibria in which stocks can inevitably win positive abnormal returns. Consequently, while the past two clarifications depend on the inefficiency of market, this one doesn't.

Agency model proposed by Jensen and Meckling in 1976 states that the partition of possession and management in current ventures offers ascend to the irreconcilable situation between the two partners. Managers regularly take part in an artful conduct, which amplifies their own advantages as opposed to that of firm since they acquire the full repayment of such movement. They are considered as pioneer to reveal insight into the part of administrative possession in deciding firm execution. They have proposed that managerial ownership is a gadget to adjust the interests of managers and shareholders.

Therefore, if managers' interests are also at stake i-e they also have ownership in the firm they will involve in those investment decisions which maximizes investor's wealth,

hence reducing the cost, which would be incurred otherwise in monitoring managers' decisions.

Under the above arguments, it would be optimal for the shareholders of the firm to increase the managers' ownership stake. This would result in selection of higher value of expected returns projects due to an increasing convergence between manager and shareholder interests. So keeping this in view this study suggests that managerial ownership should be included as an important factor of asset pricing equation. As there is a need to explore the effect of managerial ownership as an integral part of asset pricing model and then to analyze what kind of investment decision-making behavior is being shown by managers who have their ownership at stake in the firm.

Hence considering the above discussion this study proposes that while calculating the expected return of an investment the factor of managerial ownership should also be incorporated. So keeping in mind the above discussion our third hypothesis becomes:

H4: There exist a positive relationship between managerial ownership premium and stock returns.

2.5 Hypotheses:

Therefore, our proposed hypotheses are as follow:

H1: There exist a positive relationship between size premium and stock returns.

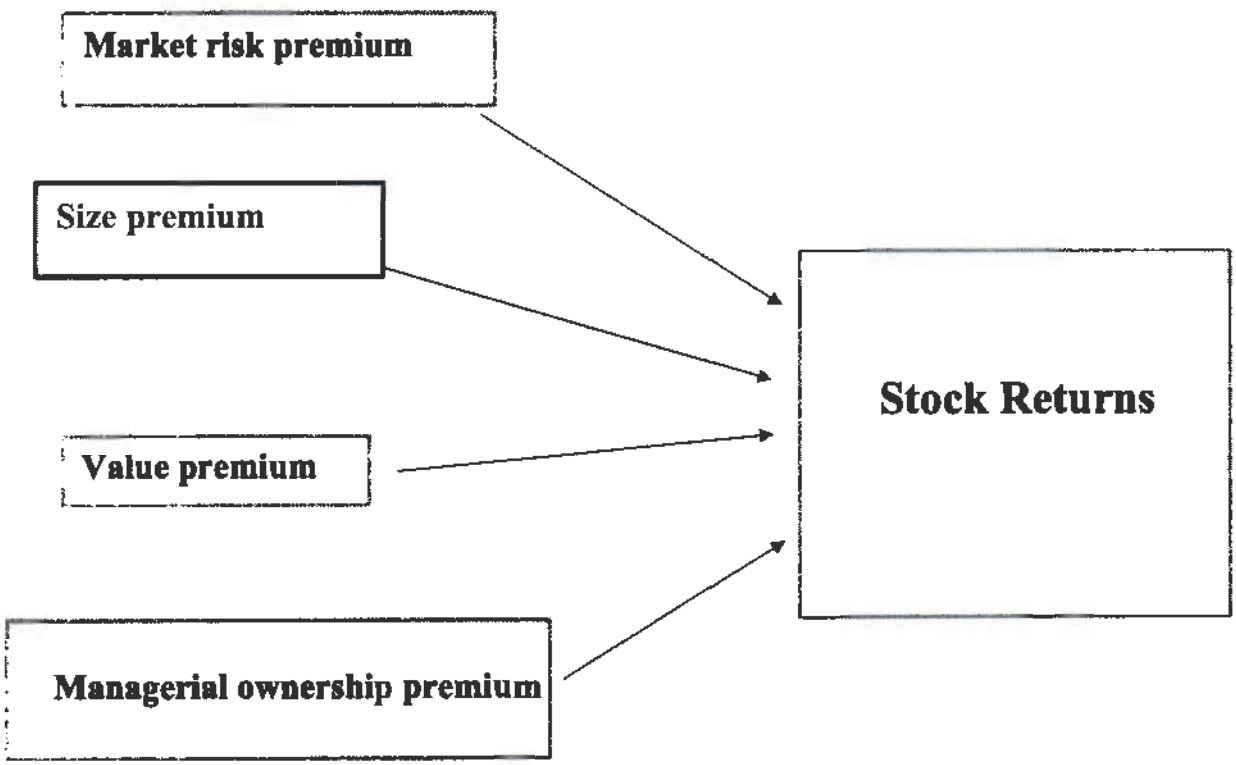
H2: There exist a positive relationship between value premium and stock returns.

H3: There exist a positive relationship between market risk factor and stock returns.

H4: There exist a positive relationship between managerial ownership premium and

2.6 Modeling Framework

Our proposed theoretical model is as follow. The dependent variable is stock returns. While the explanatory variables are market risk premium, size premium, value premium and managerial ownership premium.



Independent variables *Dependent variable*

CHAPTER NO 3

DATA AND METHODOLOGY

This section discusses the research methods and techniques for analysis, which we used in this study. The research design population and sampling, operational definitions of variables and data type are also explained in this chapter. Most importantly the data collection processes and data analysis strategies, which is used in the main explanatory study, are also explained in this chapter.

This study primarily observes the effect of managerial ownership added as a fourth risk factor in Fama and French three factor model (1992). Therefore, the methodology of this study is revolving around the methods implemented by Fama and French in their three factor model. The study is then comparing the results of extended four factor model with that of three factor model (1992).

3.1 Population and Samples:

All the non financial firms listed on Pakistan Stock Exchange (PSX) is constituting the population of this study. A total of 156 non-financial companies listed on Pakistan stock exchange (PSX) is selected as a sample because of the availability of accounting and market data over the period of 2002-2014.

Fama and French argued that small size can effect the empirical results (Davis et al.,). To avoid this problem, the time period is extended as much as possible to increase our sample size. The time period of twelve years i-e from 2002 to 2014 is selected for data collection.

3.2 Sample Screening Criteria:

The screening criteria used for the sample is as follow:

I. All the companies are continuously listed at the Pakistan stock exchange during the study period.
II. All the companies are non-financial companies.
III. All sample firms share same accounting period.
IV. All firms are listed at Pakistan stock exchange 12 months prior to portfolio formation period.
V. Negative book to market value firms are excluded from the data as negative BV/MV is an indicator of financial distress.

3.3 Data Collection:

In this quantitative research the data for all the variables is collected over the period of 2002- 2014. The data is categorized into two types. The first is market data and the other is accounting data. The market data includes stock returns, market capitalization and six months T-bills rates. While the accounting data includes book/market ratio and sample firm`s managerial ownership percentage. Both these market data and accounting data is collected from secondary sources. i-e from Pakistan stock exchange website, State bank of Pakistan website, business recorder and annual reports of the selected firms.

To collect the market data, the companies are selected that are trading on PSX for at least twelve months. Data for PSX-100 index closing, market capitalization and month wise closing prices of all stock is taken from the official website of Pakistan stock exchange(PSX) and business recorder that have been consider as the reliable information source. Percentage change in stock price and market closings are used to calculate the stock returns and market returns respectively.

The accounting data is collected yearly. Those companies are selected that have positive book to market ratio and their managerial ownership data is available. The accounting data for the book value, market value and managerial ownership are collected from published financial statement analysis report of non –Financial companies issued by Pakistan state bank, audited annual reports of respective companies, business recorder and Pakistan stock exchange data portal.

Managerial ownership(MO) is calculated by simply dividing the percentage of shares held by the managers to the total outstanding shares.

3.4 Methodology

3.4.1 Portfolio Formation:

Only those sample companies are selected for portfolio formation who have positive book-to- market ratio. Following are the steps used for the portfolio formation.

1. First of all market capitalization of main portfolio is calculated for the end of year June t-1 and then stocks are sorted in ascending order. Two portfolios are formed first half companies are moved to small portfolio because they have low market capitalization other half are placed in big portfolio as they have large market capitalization. First portfolio named as Small other portfolio named as "Big".

2. Then small portfolio is sorted on the basis of book to market equity in descending order. It is subdivided into two equal portfolios one which have high book to market named as S/H other contains remaining stocks which have low book to market named as S/L. Big portfolio is also subdivided into two portfolios in same manner named as B/H and B/L.

3.In order to incorporate managerial ownership effect we used data from annual reports of the firm. Then sub portfolios that are S/H, S/L, B/H, B/L are sorted in ascending order on the basis of managerial ownership. From all stocks in each portfolio some stocks categorize in small high managerial ownership owned portfolio S/H/HMOP and some moved to small high low managerial ownership owned portfolio S/H/LMOP, same happened with B/H and

B/L. Finally, we have S, B, S/H, S/L, B/H, B/L, S/H/HMOP, S/H/LMOP, S/L/HMOP, S/L/LMOP, B/H/HMOP, B/H/LMOP, B/L/HMOP, B/L/LMOP. Here

S= small firms

B= big firms

H=high value firms

L= low value firms

HMOP = firms having high managerial ownership

LMOP = firms having low managerial ownership.

3.4.2 Variable Construction:

The variable construction for this model is as follow:

SMB = 1/6 * [(S/H-B/H) + (S/L- B/L) + (S/H/HMOP – B/H/HMOP) + (S/L/ HMOP – B/L/ HMOP) + (S/H/LMOP-B/H/ LMOP) + (S/L/ LMOP -B/L/ LMOP)]

HML =1/6 * [(S/H-S/L) + (B/H- B/L) + (S/H/HMOP– S/L/HMOP) + (B/H/ HMOP – B/L/HMOP) + (S/H/LMOP – S/L/ LMOP) + (B/H/ LMOP –B/L/ LMOP)]

MOP = 1/4 * [(S/H/ HMOP – S/H/LMOP) + (S/L/ HMOP – S/L/LMOP) + (B/H/HMOP– B/H/LMOP) + (B/L/HMOP – B/L/LMOP)].

Finally, regression techniques are employed to process the results and ignite the discussion. These results and discussion are based for policy recommendation and further research recommendations.

3.5 Asset Pricing Tests:

This study is investigating the explanatory power of Fama and French three factor model and proposed four factor model on the variation of stock returns by looking into the time series regression statistics. As the asset pricing models of Fama and French assumes the sensitivity of excess portfolio returns to firm specific variables so we regression analysis to find the sensitivity of these variables thus we use approach of Fama & French (1992) to estimate the sensitivity of portfolio returns to the identified firm specific factors. The results provide us with alpha coefficients, t-statistics and R-square for each regression. These statistics help us to understand the relationship between the factors and portfolio returns to evaluate the relative performance of the proposed model.

3.6 Variable Definitions & Methods:

Fama and French (1993) used three factors as explanatory variables to explain average portfolio returns. These variables are market, size and book/market ratio. In four factor model apart from these three factors, managerial ownership is also defined as fourth risk factor to check its validity.

3.6.1 Market Factor

The market factor is defined as the excess return on market portfolio. The market portfolio, a theoretical portfolio, assumes that the portfolio diversification is done by selecting so many stocks that the unsystematic risk of individual stocks becomes irrelevant. The only risk, market portfolio is exposed to is systematic risk or the market risk (Miller & Modigliani, 1961).

In this study we have taken Pakistan stock exchange index as a proxy of market portfolio. This is because the index acts as a benchmark. The percentage change in closing price is used to calculate the market return. To adjust the market returns against risk, the six-month Treasury bill rate is used to mimic the risk free rate. The T-bills are government auctioned debt instrument with very low level of risk exposure. The market portfolio return is calculated as follow:

$$R_{mt} = ln\,[PSX(100)_t] / [PSX(100)_{t-1}]$$

here $[PSX(100)_t]$ &$[PSX(100)_{t-1}]$ are the closing index value on day t and t-1 respectively.

3.6.2 Size

Size is used to form portfolios in June of year t according to the size of the market capitalization of involved companies. Therefore, at the end of June, value of market equity for year t is used as a measure of the size of a company.

Market Capitalization t = price of the stock t * number of share outstanding t

3.6.3 Book-to- Market ratio (BE/ME)

Book to market ratio is used to form portfolios of companies in June of year t. this ratio compares the book value of equity to its market value. BE/ME value for June of year t is computed as BE for the fiscal year ending in year t-1, divided by ME at the end of December of year t-1. BE is computed as the total shareholder's equity minus preferred shares (if any), market Equity (ME) is closing share price times shares outstanding. It is computed at the end of every month and is available on analysis report at PSX data portal.

3.6.4 Managerial Ownership:

Managerial ownership factor is used to form portfolios of companies in June of year t . Managerial ownership(MO) is calculated by simply dividing the percentage of shares held by the managers to the total outstanding shares. The percentage of managerial ownership is given in shareholder pattern of eacb sample firm`s annual report.

$$\%\ Managerial\ ownership(MO) = \frac{Number\ of\ shares\ held\ by\ managers}{Total\ number\ of\ shares\ outstanding}$$

3.7 Model Specification

In this study we used the following four models for our regression analysis.

3.7.1 Single factor model:

In our first model we regress the portfolio returns with market risk factor only. The equation for this model is as follow:

$$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \varepsilon_t$$

Here the dependent variable is returns while the only explanatory variable is market risk or market beta.

3.7.2 Two factors model:

Second model contains two dependent variables. One is market risk and the other is size factor i-e small minus big(SMB). The algebraic representation of this model is as follow:

$$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \beta_{SMB} SMB + \varepsilon_t$$

3.7.3 Fama and French three factor model:

For the comparison of portfolio with equity market CAPM has used single factor model i-e only market risk has been considered against average returns. How ever It has been pointed by Fama and French that some assets out perform others when they are placed in certain categories. Therefore two additional risk factors namely value premium and size premium were added in order to capture size anomaly and value anomaly. The representation of dependent variable for Fama and French three factor model is done by

using formula $R_{it} - R_{ft}$,which shows excess portfolio returns. The independent variable of this model are market premium, size premium and value premium.

Following algebraic association has been shown amongst variables.

$$R_{it} - R_{ft} = \beta + \beta_1(R_{mt} - R_{ft})_0 + \beta_2(SMB) + \beta_3(HML) + \varepsilon_u$$

where,

$R_{it} - R_{ft}$ = Represents the excess return on portfolio i in time t.

β= is the intercept for each portfolio i.

Rft = risk free rate of treasury bill

R_{mt} = Basically the market returns or the return, which is value weighted during month t for all those non-financial stocks, which are listed on Pakistan stock exchange

SMB = size premium

HML = value premium

ϵ_U = Error term

3.7.4 Four Factor Model:

The four factor model is extending the three factor model with addition of managerial ownership factor. The dependent variable for four factor model is excess return of portfolio as described in three factor model and independent variables are same as in the previous model with the addition of managerial ownership premium. To check the validity of given hypothesis and to find out the relationship between managerial ownership, firm size and firm value and stock returns the following regression model is proposed:

$$R_{it} - R_{ft} = \beta_0 + \beta_1(R_{mt} - R_{ft}) + \beta_2(SMB) + \beta_3(HML) + \beta_4(MOP) + \varepsilon_u$$

The above mentioned formula captures the succeeding dimensions:

1. The return with zero risk.

2. Market premium

3. Size premium

4. Value premium

5. Managerial ownership premium

7. The management impact (β_0)

8. error term

- Rft = risk free rate of treasury bill

- R_{mt} = is value weighted average returns during month t for all those non-financial stocks, which are listed on Pakistan stock exchange.
- SMB_t = in a given portfolio is difference between return on stocks of small capitalization and large capitalization firms.
- HML_t = the difference between the portfolio return of value firms. and growth firms.
- MOP_t= The difference between return on portfolio of firm having high managerial ownership and the return on a portfolio of firm having low managerial ownership
- ϵ_{it} = Error term

CHAPTER NO 4

RESULTS AND DISCUSSION

4.1 Descriptive Statistics:

The descriptive statistics of all the portfolios sorted on the basis of size, book to market ratio and managerial ownership is reported in the following table 4.1.

Panel 1 shows average returns, standard deviation, kurtosis, skewness and minimum and maximum reruns for small size portfolios. These small portfolios are further sorted on the basis of book-to-market ratio and managerial ownership concentration of sample firms. These sub portfolios formed are S/H, S/L, B/H, B/L, S/H/HMOP, S/H/LMOP, S/L/HMOP and S/L/LMOP.

Similarly, panel 2 represents average returns, standard deviation, kurtosis, skewness and minimum and maximum reruns for big size portfolios. These big portfolios are further sorted on the basis of book-to-market ratio ratio and managerial ownership concentration

of sample firms. The sub portfolios formed are B/H , B/L , B/H/HMOP, B/H/LMOP, B/L/HMOP and B/L/LMOP.

The average return of all sample companies for the study period is 1% and standard deviation of returns is 5%. Similarly, when we move to the sub portfolios made on the bases of size the average return for small portfolio is 0.71% while its standard deviation is 5.3%. The same statistics for big portfolio is 1.19% and 5.1%. By comparing the average monthly returns of both small and big portfolios it is observed that average monthly returns of big portfolios are higher as compared to small portfolios. The tenable justification for this may be is their high concentration in value weighted KSE index and they performed well during the study period except few years of the crisis period. On average small size portfolios gives low returns how ever their risk adjusted return should be higher due their higher risk profile due to their small size.

Similarly, the average return of high book to market portfolio is 0.68% for small size portfolios (S/H) and 1.05% for big size portfolios (B/H) while their standard deviation is 6.13% and 5.68% respectively. on the other hand, the descriptive statistics of low book to market portfolios reveals 0.75% of average returns for small size companies (S/L) while 1.36% of average return for big size companies (B/L). The standard deviation of 5% and 4.78% has been reported respectively. These statistics showed that low book to market portfolios are outperforming in average returns as compared to high book to market portfolios.

Table 4.1: Descriptive Statistics (All Portfolios)

Table 4.1 presents descriptive statistics for all the portfolios used in the analysis. All returns are expressed as percent per month for the study period June, 2002 to June, 2014. The table shows the time series data of monthly averages of returns of portfolios sorted on the basis of size, value and managerial ownership concentration of sample firms of the study. Panel 1 represents the average returns and standard deviation of small size portfolios. While panel 2 reports the big size portfolios average returns and standard deviation.

Portfolios	Mean	Standard Deviation	Kurtosis	Skewness	Minimum	Maximum
Panel 1: Average monthly returns and standard deviations for small size portfolios						
P	0.01	0.05	1.009	0.222	-0.133	0.149
S	0.0071	0.0531	1.739	0.35	-0.168	0.1812
S/H	0.0068	0.0613	1.791	0.5497	-0.167	0.203
S/L	0.0075	0.05	2.0069	0.304	-0.170	0.164
S/H/HMO	0.0082	0.0643	3.305	1.095	-0.1425	0.3060
S/H/LMO	0.0071	0.0659	1.902	0.3652	-0.2036	0.2310
S/L/HMO	0.0077	0.0518	2.819	0.7026	-0.153	0.202
S/L/LMO	0.0078	0.0545	1.3833	0.3725	-0.1578	0.1935

Panel 2: Average monthly returns and standard deviations for Big size portfolios

B	0.0119	0.051	0.3113	0.0132	-0.1263	0.1392
B/H	0.0105	0.0568	0.3884	0.016	-0.1492	0.1510
B/L	0.0136	0.0478	0.5088	0.1175	-0.1326	0.1405
B/H/HMO	0.0121	0.0578	0.5757	0.2013	-0.1344	0.1914
B/H/LMO	0.0086	0.0583	1.134	0.2062	-0.1978	0.1891
B/L/HMO	0.013	0.054	1.225	0.044	-o.174	0.164
B/L/LMO	0.0132	0.0501	0.6053	-0.0365	-0.1489	0.14

4.2 Four Factor Model

The four factor model takes into consideration managerial ownership as a risk factor along with market risk, value factor and size factor in the three factor model. Following empirical results are being observed.

4.2.1 Correlation Matrix- Four Factor Model:

The result reported in table suggest weak correlation among independent variables i-e market (MKT), small minus big (SML), high minus low (HML) and managerial ownership(MO), therefore, using these factors in regression analysis of four factor model is statistically justified.

Table 4.2.1: Correlation Matrix-Four Factor Model

Table shows correlation of factors from different sorts used in ownership premium augmented Fama & French three factor model. Here, MKT=Market Risk Premium, SMB=Size premium, HML=value Premium and MO=Managerial Ownership Premium.

	MKT	SMB	HML	MO
MKT	1			
SMB	-0.2302	1		
HML	0.2060	0.2878	1	
MO	-0.1024	0.0837	0.0283	1

4.0 Regression results

The regression results for all the four models are been reported and discussed as follow.

4.2.1 Regression results for the Single factor model

When time series regression was done on the sample data the results are interesting. During this process returns are taken as dependent variable and market risk is considered as explanatory variable. The following 4.2.1 table reports the results including the intercept and adjusted R square for this model. The explanatory power of this model is 0.41. The intercepts for only portfolio P and portfolio B are statistically significant at 10% and 5% respectively. However, the findings show that high market risk i-e high market beta is not associated with higher returns i-e beta alone is not sufficient to capture the returns on stocks.

Table 4.2.1 : Regression Results Single Factor Model

Dependent Variable/Sub-Portfolios	**Intercept**	**MKT**	**Adj. R2**
$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \varepsilon_t$			
P	0.0057*	0.40***	0.41
S	0.0036	0.36***	0.3
B	0.0076***	0.45***	0.49
S/H	0.003	0.39***	0.26
S/L	0.0045	0.32***	0.26
S/H/HMO	0.0046	0.38***	0.22
S/H/LMO	0.0033	0.39***	0.22
S/L/HMO	0.0048	0.30***	0.21
S/L/LMO	0.0045	0.34***	0.25
B/H	0.0058	0.49***	0.47
B/L	0.0097	0.40***	0.45
B/H/HMO	0.008**	0.44***	0.36
B/H/LMO	0.0037	0..51**	0.47
B/L/HMO	0.0094***	0.43***	0.38
B/L/LMO	0.0092***	0.41***	0.43

4.2.2 Regression results for the Two factor model

When time series regression was done on the sample data for two factors following results are obtained. During this process returns are taken as dependent variable and market risk and market capitalization are taken as independent variables. The following 4.2.2 table reports the results including the intercept and adjusted R square for this model. The value of R square for this model is 0.465 which is higher as compared to the R square value of single factor model which is reported 0.41 previously.

Table 4.2.2 : Regression Results Two Factor Model

Dependent Variable/Sub-Portfolios	Intercept	MKT	SMB	Adj. R2
$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \beta_{SMB} SMB + \varepsilon_t$				
P	0.007**	0.4391***	O.3870***	0.4655
S	0.0065**	0.4366***	0.8196***	0.5103
B	0.0072**	0.4405***	-0.1056	0.4949
S/H	0.0068**	0.4902***	1.0688***	0.5364
S/L		0.3831***	0.7002***	0.4343
S/H/HMO	0.0070** 0.0085**	0.4803***	1.1057	0.4887
S/H/LMO	0.0072	0.4932***	1.09	0.4740
S/L/HMO	0.0073	0.3680***	0.7037	0.3812
S/L/LMO	0.0068	0.4035***	0.6577	0.3793
B/H	0.0057**	0.4884***	-0.0317	0.4671
B/L	0.0091***	0.3928***	-0.1705	0.4675
B/H/HMO	0.0079**	0.4345***	-0.0262	0.3547
B/H/LMO	0.0036	0.5022***	-0.0315	0.4693
B/L/HMO	0.0088***	0.4118***	-0.155	0.3880
B/L/LMO	0.0083***	0.3887***	-0.2590	0.4470

4.2.3 Regression results for the Three factor model

When time series regression was done on the sample data for Fama and French three factors following results are obtained. During this process returns are taken as dependent variable while market risk, market capitalization and book-to-market ratio is taken as independent variables. The following 4.2.3 table reports the results including the intercept and adjusted R square for this model. The value of R square for this model is 0.48 which is higher as compared to the R square value of single factor & two factors model which are reported as 0.41 & 0.465 respectively. The coefficients are statistically significant at 1% , 5% and 10% represented by ***,**. * respectively.

Table 4.2.3 : Regression Results Three Factor Model

Dependent Variable/Sub-	**Intercept**	**MKT**	**SMB**	**HML**	**Adj. R2**
$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \beta_{SMB} SMB + \beta_{HML} HML + \varepsilon_t$					
P	0.0074***	0.4093***	0.2934***	0.3309***	0.48
S	0.007**	0.406***	0.724***	0.34***	0.52
B	0.0076***	0.4090***	-0.2045	0.3494	0.517
S/H	0.0079***	0.4132***	0.8272***	0.8538***	0.637
S/L	0.0067**	0.4031***	0.7630***	-0.2218	0.4410
S/H/HMO	0.0097***	0.3943***	0.8356***	0.9544***	0.603
S/H/LMO	0.0083**	0.4103***	0.8297***	0.9201***	0.5747
S/L/HMO	0.007**	0.3875***	0.7647***	-0.2154	0.3864
S/L/LMO	0.0065*	0.4271***	0.7315***	-0.2611	0.3874
B/H	0.0067**	0.4188***	-0.2502	0.7723***	0.5621
B/L	0.009***	0.3999***	-0.1481	-0.0791	0.4654
B/H/HMO	0.0089***	0.3650***	0.2444	0.7711***	0.4456
B/H/LMO	0.0046	0.4338***	-0.2461	0.7584***	0.5561
B/L/HMO	0.0087***	0.4195***	-0.1305	-0.0861	0.3853
B/L/LMO	0.0082***	0.3983***	-0.2289	-0.1065	0.4457

4.2.4 Regression results for the four factor model

Table 4.2.4 reports the regression results for the four factor model. The regression on this model is run on the basis of market, size, value, managerial ownership premium and portfolio returns. This table shows very interesting findings. According to the table results large capitalization firms are yielding more returns than small capitalization firms. This is the contradiction to traditional size anomaly which states that small capitalization firms yield more returns as compared to big capitalization firms. This is due to the fact that small capitalization firms are considered to be riskier due to their high sensitivity towards macroeconomic shocks. When we move forward towards more classified sub portfolios formed on the basis of book to market ratio we observe that low value firms are yielding more returns as compared to high value firms. When these portfolios are further categorized on the basis of concentration of managerial ownership of sample firms more classified sub portfolios are made with high and low concentration of managerial ownership. The results show that firms with low managerial ownership are considered riskier as compared to firms with high managerial ownership. Therefore, ownership premium is priced in equity returns by the investors.

Its observed that returns of portfolios with small capitalization high book to market ratio and high managerial ownership(S/H/HMO) are higher as compared to the returns of firms with small capitalization high book to market ratio and low managerial ownership (S/H/LMO).

Similar is the case when big capitalization firms are sorted on the basis of managerial ownership concentration. Its observed that portfolios with big capitalization and high managerial ownership (B/H/HMO) gives higher returns as compare to big firms with high book to market value and low managerial ownership(B/H/LMO). On the other hand, average returns for big firms with low book to market ratio and high managerial ownership (B/L/HMO) are almost same as that of big firms with low book to market ratio and low managerial ownership (B/L/LMO).

The statistical representation of the results reveals some interesting facts. It is observed that when managerial ownership premium is being added as fourth factor in Fama and French three factor model, the overall explanatory power of model increases to 0.5. This explanatory power further increases when we move to more stylized sub portfolios and reaches to 0.68 in small capitalization, high value firms with high concentration of managerial ownership. Therefore, it is concluded that the managerial ownership premium exists and is priced by the investors in Pakistan`s equity market. Moreover, when the all stock portfolio (P) is further divided in to portfolio S and B i-e small (S) and big (B) on the basis of market capitalization of the sample firms the return on small size portfolio show a positive and significant relationship with risk factor market (MKT) for single factor model.

The above findings show a significant presence of managerial ownership premium when managerial ownership is added to the standard Fama and French three factor model (1992). Moreover, the findings suggest a positive highly significant relationship between managerial ownership premium and return of sub-sorted portfolios. Therefore, these results suggest the usefulness of ownership factor in explaining stock returns in Pakistan`s stock

market. These findings are consistent with the previous studies of Gompers, Ishii, and Metrick (2003);Cremers and ferrell (2009) ; lilienfeld-toal (2010) ; Blonski and lilienfeld-Toal (2010) and Gorton, He and Huang(2013) who argue that managerial ownership acts as an incentive mechanism like other corporate governance device leading to abnormal returns.

In view of the agency theory perspective, Demsetz and Lehn (1985) contend that joining possession and control can be beneficial on the grounds that huge shareholders can act to moderate administrative entrenchment and seizure. Family shareholders and family supervisors are seen as the proprietors and lingering inquirers who control firms that to a great extent have a place with their own families. In this way, family firms may speak to a perfect authoritative shape where the goals of the proprietor and the firm are adjusted (Schulze et al. 2003), therefore, as their interests are aligned they tend to invest in projects that maximize shareholder's wealth. Cavery (1998) reports that less moral hazards are faced by family firms as compare to nonfamily firms. Anderson and Reeb (2003) find that families have a tendency to have an extensively high extent of investments into their organizations; since the family's riches is so firmly connected to firm welfare, family shareholders have solid motivators to screen the association's administration and to augment benefit.

Table 4.2.4 : Regression Results Four Factor Model

The table shows the ownership premium augmented Fama & French three model regression results. The regressions are estimated on monthly stock returns, using variables updated annually at the end June of each year to explain returns of portfolios for the July through the following June. Rm-RFR is the value weighted return on the PSX-100 index minus six-months Treasury bill rate. At the end of each June, stocks are categorized to two size groups, using KSE market capitalization as break point. The size sorted portfolio are further assigned to two groups on the basis of their book-to-market equity. SMB is the average returns of resultant small portfolios minus average return of big portfolios. In similar way, HML is the average return of difference between high-book to market and low book-to-market stocks. Likewise, MO depicts difference in average of returns of high managerial ownership and low managerial ownership stocks. The last column of the table shows value of Adjusted R^2 for each corresponding regression. P indicates average returns portfolio of all sample companies in sample period. S is the portfolio of small capitalization firms and B is the portfolio of large capitalization firms. Other portfolios are formed in the same way, HBM and LBM are the portfolios formed on the basis of Book-to-Market Ratio of the firms. Similarly, HMO and LMO indicate portfolios of the firms with high managerial ownership concentration and low managerial ownership concentration in the sample firms. ***, **, * indicates significance at 1%, 5%, and 10% level respectively.

Dependent Variable/Sub-	**Intercept**	**MKT**	**SMB**	**HML**	**MO**	**Adj. R^2**
$R_{pt} - R_{ft} = \alpha + \beta_{MKT} MKT + \beta_{SMB} SMB + \beta_{HML} HML + \beta_{MO} MO + \varepsilon_t$						
P	0.0074***	0.4098***	0.2927***	0.3303***	0.0205	0.50
S	0.0070**	0.4058**	0.7239***	0.3396***	-0.0096	0.52
B	0.0076***	0.4098***	-0.2055	0.3485***	0.03	0.5138
S/H	0.0079***	0.4139***	0.8262***	0.8530***	0.8530***	0.6345
S/L	0.0067**	0.4029***	0.7632***	-0.2216	-0.12216	0.4374
S/H/HMO	0.0086***	0.411***	0.8125***	0.9356***	0.9356***	0.6481
S/H/LMO	0.0093***	0.3951***	0.8501***	0.9367***	0.9367***	0.6076
S/L/HMO	0.006*	0.4033***	0,743***	-0.232	-0.232	0.4453
S/L/LMO	0.0073**	0.4144***	0.7486***	-0.2472	-0.2472	0.4197
B/H	0.0066**	0.4192***	-0.251	0.7719***	0.7719***	0.5592
B/L	0.0089***	0.4013***	-0.15	-0.081	-0.081	0.4625
B/H/HMO	0.0081**	0.3772***	-0.2608	0.7578***	0.7578***	0.4718
B/H/LMO	0.0052*	0.4243***	-0.233	0.769***	0.769***	0.5711
B/L/HMO	0.008**	0.431***	-0.145	-0.098	-0.098	0.409
B/L/LMO	0.0088***	0.3886***	-0.2157	-0.0958	-0.0958	0.468

CHAPTER NO 5

CONCLUSION

The study sought to determine the effect of managerial ownership as a fourth risk factor in traditional Fama and French three factor model (1993) by using Pakistan stock exchange data for the period of 2002-2014. It revolves around checking the significance of the proposed model by checking the statistical significance of explanatory variable; market risk, size factor, value factor and managerial ownership factor.

The study constructed four models. First model contains market beta as only risk factor determining the returns, second model contains size factor along with market risk, third model was the traditional Fama and French three factor model (1993) containing market risk factor, size factor and value factor as explanatory variables, lastly model four is our proposed model suggesting managerial ownership as an important risk factor along with market risk factor, size factor and value factor. The following table 5.1 shows the comparison of model explanatory power of all these four models. The results show that the explanatory power of models increases with the inclusion of more explanatory variables.

The adjusted R square values for model 1, model 2, model 3 & model 4 are 0.41,0.465 ,0.48 and 0.50 respectively. The explanatory power of 0.50 shows that managerial ownership factor is very important risk factor. The results reported in table 4.25 also suggest the high statistical significance of the proposed model.

Table 5.1 R square values for single factor, two factor, three factor & four factor model.

Sr Num	MODEL	R Square
1	**Single Factor Model**	0.41
2	**Two Factors Model**	0.465
3	**Three Factors Model**	0.48
4	**Four Factors Model**	0.50

The potential explanations why managerial ownership is leading to abnormal returns are in light of the contention that ownership can act as a motivator component and is in this way a corporate governance mechanism. Like other corporate administration components, it adjusts interests amongst shareholders and administrators by boosting supervisors to expand firm value. Gompers, Ishii, and Metrick (2003) and Cremers and Ferrell (2009) inspect different other corporate administration instruments and find that the beneficial outcomes of these systems are not completely evaluated but rather that high concentration of managerial ownership gives positive abnormal returns Our findings are also showing a significant presence of managerial ownership premium when managerial ownership is

added to the standard Fama and French three factor model (1992). Moreover, the findings suggest a positive highly significant relationship between managerial ownership premium and return of sub-sorted portfolios. Therefore, these results suggest the usefulness of ownership factor in explaining stock returns in Pakistan`s stock market. Keeping in view the above reported facts it is concluded that when the managerial ownership factor is added as a risk factor in Fama and French three factor model the explanatory power of the multi-factor model is strengthened.

5.1 Implication of the Study

5.1.2 Theoretical Implications:

This study is helpful in enhancing the existing knowledge of asset pricing in academic establishments by checking the validity of these models in Pakistan Stock Exchange. More over this research study provides significant information about firm-specific factors to the managers who manage firm`s portfolio efficiently and effectively and to the investors who invest in firm`s portfolio by suggesting them on which factors to look into to get an ideal stock returns. Besides, this study helps in developing empirical research on the market recognition of managerial ownership as significant risk factor effecting the stock returns.

5.1.3 Contextual Implications:

This study provides better insight about valuing premium of risk while scaling required rates of return. As it is most important for investors to identify the determinants of portfolio returns. This study helps in risk evaluation of portfolios in easy and precise manner.

Finally, this study allows investors to categorize companies as potentially profitable on the basis of publically available information about managerial ownership. In other words, it's a kind of simple screening. The management of firms can also get benefit from it by using this information to diagnose their company's position in stock market.

5.2 Direction for the Future Research

For future research its recommended that the data used for analyzing this model should be enhanced on different types ownership. A comparative study across the different sectors of Pakistan stock exchange and across the different countries should be carried out to check the validity of this model. Lastly more firm specific factors should be added to test asset prices dynamics of equity market.

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