CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Investment Premium, Profitability Premium and Equity Return: A Study of Pakistan, India and China

by

Saad Abdullah

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This thesis is proudly dedicated to Almighty Allah And All my beloved family, my parents, my teachers and my friends Thanks for your endless love, sacrifices, prays, support, guidance and advices.

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Abstract

The aim of this study is to investigate Chen, Novy and Zhang (2010) model commonly known as CNZ (2010) alternative model based on investment premium and profitability premium in Pakistan, India and China stock market. Regression analysis is used to analyze the data for 17 years from 2000 to 2017 for 60 non-financial firms from each country. Portfolios on the basis of size, book/market, profit and investment are constructed and regressed to explore the impact of market premium, profitability premium and investment premium on equity return. The results of the study indicate that profitability premium and investment premium have significant and positive relationship with equity return in Pakistan, India and China stock markets. The study thus proves the CNZ (2010) alternative factors to three factors model. The results of single factor Capital Asset Pricing Model (CAPM) show significant and positive relationship of market premium with equity return in all three markets of Pakistan, India and China.

Key Words: Market premium, Investment premium, Profitability premium, Equity return.

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Abbreviations

APT	=	Arbitrage Pricing Theory
BTM	=	Book to Market
CAPM	=	Capital Asset Pricing Model
AMEX	=	American Stock Exchange
NYSE	=	New York Stock Exchange
NASDAQ	=	National Association of Securities Dealers Automated Quotation

Chapter 1

Introduction

The debate for the equity return and premium has been the topic of research for number of researchers from a long time. Markowitz (1959) gives the concept of portfolio for investment. The concept of unsystematic and systematic risk by Markowitz lays a foundation of a new discussion for portfolio as well as individual security risk. The concept of systematic risk is further studies by Sharp (1964). The Capital Asset Pricing Model (CAPM) of Sharp (1964) is a fundamental and significant contribution to understand the risk and return relationship. Many researchers have reported their results about risk and return but most promising is the study of Mankiw (1986), in which he reports that equity markets do not spread risk perfectly and in particular to that, systematic risk is determined through ex-post on a small number of people. Individual stock returns can be explained with the set of common factors which are always under discussion in the capital market.

The three factor model of Fama and French (1993) provides an insight of market, value factors and size for managing portfolio. Further Titman and Jegadeesh (1993) introduces momentum as a fourth factor in explaining equity return. For portfolio risk management, many factors need to be considered. Irregularities in the market may come through market patterns that may lead to abnormal returns. A five factors model has been developed and tested by Fama and French (2015a, 2015b) which is based on three factors model, includes profitability and investment

factors. The conclusion of the above literature emphasis that convincing evidences have been gathered in order to ascertain an acceptable average returns for the expected future profitability of the investments.

An understanding of risk and return relationship can be defined with the Capital Asset Pricing Model given by Sharp (1964). Correlation between the Expected Return of stock and Expected Return of market portfolio can be portrayed from the modeled covariance. The cross sectional differences in stock return can be predicted with differences in beta. For development of CAPM, numerous studies have been carried out on market return patterns but cannot be expressed by a single factor model. With the time, the literature has evolved itself from the single factor model to multi factor model. An alternative model for asset pricing based on APT framework has been presented by Fama and French (1992, 1993, 1996 and 1998) in their subsequent studies which covers the domain of risk and return. It has been discovered that beta has a significant impact, but it is also observed that there is no explanatory power of beta, while E to P, Leverage, Size, BTM etc. have shown significant power to explain cross section of average return (Fama & French, 1992).

However, when beta is added to explain cross section average return, size and BTM are significant. In (1993) Fama and French prolonged their study on bond and stock market. Market premium, value premium and size premium have established importance for stocks and bonds default premium and term premium. As an outcome, a three factor asset pricing model has been concluded for stocks which include the market factors as well as two additional risk factors associated with value premium and size premium.

Rosenberg, Lanstein and Reid (1985) identify the value premium Fama & French confirm the existence of value premium in United States. Existence of value premium is also identify by Dimson, Quigley and Nagel (2003) in United Kingdom, in 12 EAFE countries by Fama and French (1998) and in emerging markets by Dasgupta, Claessens and Glen (1995), Rizova (2006). The effect of size in the U.S

market is studied by Banz (1981) first time empirically. Reinganum (1983), Keim 9183), Kleidon, Marsh and Brown (1983) and Fama & French has also confirmed the presence of size premium in U.S stock markets. Chen and Chan (1991) argue that size premium is generated by marginal firms in distress mainly. Empirically the existence of value premium and size premium has been proven in developed as well as emerging markets.

Further study of CAPM is resulted in three factor model. The effect of the size indicates that the returns are more favorable in small market capitalization than those of large firms. The perception behind value premium is that growth stocks earn less than value stocks. Behavior of stock market in accordance to growth stocks is more risky than the stocks known as value stock derive their market value from underlying assets. Traditionally, it is observed that value stocks earn more returns than growth stocks (Lu Zhang, 2005). Although, Daniel and Titman (1997) views are different with Fama and French model (1992, 1993 and 1996).

As per their opinion it is revealed that loadings of the risk factors are not measuring the expected return. Firms with high BTM ratio deliver more disturbing level than firms with low BTM ratio (Griffin and Lemmon, 2002). In the presence of size effect, the BTM indicates the weaker effect (Djajadikerta and Nartea, 2005). Fama-French model does not explain the anomalies in the capital market that have been increasing over the last two decades (Chen, Novy-Marx, Zhang, 2010). Furthermore, CNZ presents another alternative to three factor model based on market trends i.e profitability and investment. Fama and French (1993) argue that size and B/M along with betas can define variations in stock return with more explanatory power almost all variation produced in stock return. But when the size and B/M factors and betas are used solely, then cross sectional variations may not be explained. Snow, Perfect, Dennis and Wiles (1995) suggest the B/M ratio as explanatory factor for expected return. They argue that even after adjustments cost transactions as well as different rebalancing time periods, B/M is still significant illustrative factors for expected stock return. Nawazish (2008)

tested Fama and French three factors model on KSE data and proves its validity in Pakistan. Loughran (1997) argues that stocks of firms with small capitalization derive value premium in UK capital market. Hassan and Javed (2011) conclude higher explanatory power of Fama and French three factors model then single factor capital asset pricing model in Pakistan stock market.

In many studies the relationships between profitability premium and investment premium with equity return are observed. The impact of investment and profitability premium on equity return has been described by Amman, Odoni and Oesch (2012) resulting that CNZ (2010)'s alternative three factors model has more explanatory powers than Fama French three factor model. Further studies recommend that still there are factors other than size and book-to-market that can catch variety in stock returns in the developing business sectors. Moreover, a concise literature is available on multifactor model in equity markets. So, to find out the presence of alternative three factor model for pricing of stocks in capital.

1.1 Theoretical Background

CAPM is introduced by Sharpe (1964), Lintner (1965) and Mossin (1966) that provides a significant impact for making a significant relationship between risk and return. The model provides a picture of linkage between expected return of stock and market portfolio. Cross sectional variances in stock return can be explained with sufficient differences in beta. A single factor model is unable to explain the return patterns which are reported for the development of CAPM over the studies conducted. However, the multifactor model has been emerged through the literature of CAPM from the last two decades. Fama and French (1992, 1993, 1996, 1998), Carhaart (1997), and CNZ (2010) report Multi Factor model after improving the Single Factor capital asset pricing model with factors as size, book-to-market, investment, momentum, and profitability (ROA).

1.2 Theories

1.2.1 Modern Portfolio Theory (MPT)

The basic of the modern portfolio theory is first laid by Markowitz (1952). This model reveals the link among the risks associated with portfolio and returns. The investment portfolio stated that "a group of portfolio provides high level of return at a specific risk level or adopt low risk level at a specific level of return". The involvement comprises: diversification concept that, "Do not put all your eggs in single basket". Return and risk relationship can be identified by systematic risk of a portfolio. However, no mathematical formula has been derived for this model to define the relationship between risk and return. Furthermore, by Sharpe (1964) a risk related to portfolio, systematic risk is measured. Sharpe establishes a single factor model known as Capital Asset Pricing Model on the basis of systematic risk.

1.2.2 Capital Asset Pricing Model (CAPM)

CAPM of Sharp (1964) is widely used in determining the expected rate of return of stocks. Most practitioners and academicians use CAPM as a standard risk return model. According to CAPM, the investors of portfolio investment are rewarded for that portion of risk which may not be diversifiable in portfolio investment. The term beta is used for non-diversifiable risk and expected returns are linked to beta. Beta can be defined as non-diversifiable risk to which returns are linked. The actual rate of return can be compared with the expected rate of return in undervalued or properly valued. The findings support the capital pricing theory because CAPM is quiet valuable and used globally and in many financial institutions.

Criticism has been found on a practical application of CAPM. However, diversifiable risk has little impact on the pricing mechanism. The testing of capital asset pricing model is criticized by Roll (1977) who argues that CAPM cannot be

tested due to the reason that market portfolio of all risky asset is not observable. The findings or the arguments raise a question for researchers to verify and check the acceptance and applicability of CAPM. Fama and French prove contradiction empirically.

1.2.3   Arbitrage Pricing Theory (APT)

Ross (1976) presents a model known as arbitrage pricing theory to address the problems observed in CAPM while managing the preliminary concept of CAPM. Arbitrage Pricing Theory can also be a substitute of CAPM because of the less restrictive assumptions and more common approach than CAPM. It is considered as a unique and new approach to evaluate assets pricing which is focusing "on the law of one price" which means that same commodities cannot be sold at different price. Expected risk and return relationship can also be studied in APT and CAPM using various procedures and assumptions. APT is not dependable as CAPM on market portfolio which foresee that exclusive market change affects expected return.

It is obvious that CAPM and APT both are significant and useful models on assets pricing. CAPM model is based on theory of portfolio and very much influencing in research. CAPM model is considered as a powerful tool to explain asset return. Three assumptions are available upon which APT model is based. First one is that the investment earns high returns for more wealth instead of less wealth. The second is that return generating process is linear function of no. of different factors while the third assumption is the existence of perfectly competitive capital market. Best alternative model can explain how to define irregularities which are observed in CAPM model.

In the existing literature numerous anomalies have been identified while reviewing the APT model. Basu (1983) explains stocks with low P/E ratio outperform the stock with high P/E ratio. Benz (1981) analyzes that small stocks portfolios

outperform the large stock portfolios on risk adjusted basis. Reinganum (1981) addresses that CAPM cannot explain average return differences for small and large firms. Cho et al. (1986) likewise discovers critical outcomes while testing the arbitrage valuing hypothesis (APT) in a universal setting. Correspondingly Anecz and Yonezawa (2003) and Anatolvev (2005) worked at Japanese, Russian and New York capital markets with the assistance of APT model. Iqbal et al. (2012) explores variations in stock return in Pakistan stock market through micro economic factors and find significancy about the validity and efficiency of APT to predict future stock returns.

1.3   Literature Gap

Most of the research in recent days is focused on capital asset pricing model as well as three factors model. Fama and French (2015) include two alternative factors given by CNZ (2010) in three factors model converting the three factors model into five factors model. Then a discussion is started regarding five factors model for asset pricing. Various studies have been done to test five factors model as well as CNZ (2010) alternative factors. The results of some of the previous studies are contradicting to CNZ (2010) that encourage further study on this area in different markets with different conditions to retest the factors. There is also need of empirical testing of CNZ (2010) factors in different countries to conclude solid results. It is further noted that most of the research in this area is done in developed markets. The results in the developed market may not be replicated in underdeveloped markets. There much differences in prevailing factors in developed and underdeveloped markets.

The study is also done majorly in single market at one time. So the behavior of one market is tested at one time and the behavior of other market is tested at other time. There is lack of any study which is done in more than one market to test the CNZ (2010) alternative factors at same time to conclude comprehensive

comparing results. So there is a literature gap that encourages studying the CNZ (2010) alternative factors in more than one country at the same time to prove these factors in more than one market. Under this study, the capital asset pricing model (CAPM) also known as single factor model which is the basic model for asset pricing is tested in three countries Pakistan, India and China. The CNZ (2010) alternative factors that are Investment Premium and Profitability Premium are tested also in three countries Pakistan, India and China to see the existence of these factors in three markets and to conclude comprehensive results for contribution in finance literature.

1.4   Problem Statement

Researchers in the field of asset pricing models always have keen interest in search for a better model for asset pricing. Like in other equity markets, numerous studies have been conducted to test three factors model of Fama and French in Pakistan, India and China. Several studies including Iqbal and brooks (2007), Elahi (2008), Saima and Mirza (2008)., Javaid and Ahmad (2009), Hassan and Javed (2011) conclude the existence of three factors model by Farma and French over CAPM in equity markets of Pakistan, India and China. These studies suggest that in equity markets, various other variables except size and book-to-market can help to capture stock returns variations. So this study is an attempt to provide more insight about the variations in equity return by testing CNZ alternative to three factor models in three Asian countries Pakistan, India and China.

1.5   Research Questions

This study has the following question:

- What is the impact of market premium on equity return?

- Does three factors model has more explanatory power than single factor model?

- Whether CNZ (2010) alternative three factors model is applicable in Pakistan, India and China equity markets or not?

1.6   Objectives of the Study

The study aims to achieve following objectives:

- To test the presence of CAPM in these equity markets of Pakistan, India and China.

- To investigate the role of CNZ model in explaining equity return Pakistani, Indian and Chinese equity markets.

- To help future investors for allocation of better resources efficiently on the basis of investment and profitability premiums.

1.7   Significance of the Study

Most of the debate in financial markets is on the topic of asset pricing. Pakistan being an emerging market enjoys heavy inflow of local and foreign investment during the last decade. Due to this, it has become crucial to test the alternative three factor model in Pakistani equity market. Another noteworthy reason is lack of empirical evidence in developing and emerging markets of the world. This study is an attempt to explain the role of investment and profitability premium in the context of Pakistan and also aim to test the same in India and China equity markets.

Various researches like CNZ (2010), Cooper and priestly (2010), Stambaugh, Yu and Yuan (201 1), Min, Kan- and Lee (2011), Amman, Odoni and Oesch (2012),

Vdang (2012), Marx (2012), Fun and Yu (2013), Moez, Mahdavikhou and khotan-lou (2013),Wang and Yu (2013), Nichol and Dowling (2014) and W Valkshausl and lobe (2014), are conducted on the relationship between investment premium, profitability premium and equity return in developed equity markets. But this study will prove to be a first step in Pakistani stock market along with India and China stock markets which explain the role of profitability premium, investment premium on equity market returns empirically and extends the work of assets pricing research to new horizons.

1.8 Contribution of the Study

This study contributes the literature in two ways i.e Empirical as well as Practical. These contribution to the literature are very much important not only for future researchers but for investors as well.

1.9 Empirical Contribution

This study is contributing to the literature with further empirical evidence from three different markets of three different countries at the same time. It is noted that in past, the studies on this area have been done in individual markets of different countries at one time. So, empirical evidence for testing CNZ (2010) alternative factors to three factors model is a unique empirical contribution to literature that may help future researchers to open new fields of research for many other fields and to test other factors in different countries at the same time. For the research question that whether the market premium influence on equity return, the answer is that the required rate of return is equal to risk free return plus market premium subject to attached risk with market. So the equity return must be related to market premium. The second question is that whether the three factors model has more explanatory power than single factor model. The answer

of this question is the increase in adjusted R square for three factors model from single factors model. The third question is that whether CNZ (2010) alternative factors exist in capital markets of Pakistan, India and China. The answer is the empirical results that show the existence of these factors in these three markets. So this study enhances the literature with empirically concluded results in three capital markets of three countries at the same time.

1.10 Practical Contribution

This study is also important practically in providing policy implications to company management as well as help to investors in decision making while investing in different stocks for equity return. This study provides an ability to make comparison of different markets. It enables the investors to invest in portfolios where they can earn more return. This study enable the management to plan for the future as the investors' trend may be predicted. The management may be able to overcome the existence of different affecting factors to make the share prices more stable and to move the share prices in upward direction by protecting from the factors that move down the price.

1.11 Plan of the Study

The study will consist on five chapters. Firstly introductory text regarding market premium, investment premium and profitability premium on equity return is provided. Then in second chapter it gives insights of existing literature and findings of various studies. In third chapter, methodology and data description is explained. Fourth chapter provides empirical results and discussions of the study. Finally, the result oriented conclusion is given and future research directions are mentioned in chapter five.

Chapter 2

Literature Review

2.1 Literature Review

Now how the total risk portfolio with relation to an investment scenario can be changed whereby assets additions have been introduced. The impact of the same can happen either on the variance of the total risk portfolio or on the standard deviation of total returns. Markowitz, the developer of basic portfolio theory, has explained that investment in a portfolio instead of single security can lower the total risk for an investor without sacrificing return on the same investment. Markowitz has presented this basic theory between 1952 to 1959 eras whereby he portrays the different measuring aspects of returns on assets portfolios and their expected risks. Markowitz presumes that under a reasonable set of assumptions which are relating to investors behavior whereby the investors prefer less risk for a given rate of return or higher return for same risk. Sharpe and Lintner in 1964-1965 presented the Capital Asset Pricing Model known as CAPM describing the asset pricing theory.

CAPM is used widely to evaluate the expected rate of returns on risky assets like stocks. BETA is terminology treated as risk measuring tool in CAPM. This single factor is the prime for market return affecting the portfolio returns. This is calculated while negating the RM from RF. i.e. (RM-RF). CAPM is mostly and widely

supported only through means of experimental results and calculations and this lead to use of CAPM in many financial institutes and academies worldwide. However, on practical side researchers find and criticize on its practicability and point out implications of CAPM while evaluating diversifiable unsystematic risk in the pricing mechanism. It is only applicable while ascertaining the linear relationship between systematic risk and returns thereto.

Roll (1977) is of the opinion that the Capital Asset Pricing Model is not testable because the portfolios consist on risky assets are unobservable. There is an APT suggested by Ross (1976) as a substitute to the CAPM which is based on Markowitz portfolio theory, is presented by Sharpe (1964). Ross though does not recognize the causes and their total records. Numbers of researches later on perform in order to cover this gap with numerous replies for these outstanding issues. The main causes which are recognized are company's specifically statistical & macroeconomic factors. Chen et al. (1986) analyze about the impact of macroeconomic factors on stock return in capital markets. He tests the impact of growth rate, high and low grade bonds, unexpected inflation and long and short terms bonds on stock return. The findings of the study report that the risks of industrial growth, term spread and yield spread are significantly associated with return and so that priced for equity return. He also reports that market and consumption betas have less influence than economic state variables on stock return. Numbers of studies have been done on macro-economic factors to examine equity performance in good and bad macroeconomic times and these studies find average results. Other macroeconomic variables include investement capital ratio, consumption wealth ratio (Ludnigon and Lettan, 2000), term structure spread between short term and long term bonds, default spread, earning dividend ratio and treasury bill rate. Inflation and equity return are also extensively studied for their relationship. Jaffee and Mandellaar (1976), Nelson (1976), Fama and Schwert (1977) and Gulltekin (1983) report the evidence of relationship between equity return and expected and unexpected inflation.

In 1992 French and Fama examine the part of Book to Market equity, Earning per share & size on equity return for NYSE, NASDAQ & AMEX stock market of non-financial firm. Under the said program they employee Macbeth and Fama (1973) methodology which is based to test the returns of variable for the period of 1963-90. Study finds that following factors have more influential power than beta these factors are BTM, earning price and leverage. Utilizing both sizes and BM in the model it shows better result. It is noted that the equity return is influenced by size. The firms with big size show more equity return than the firms with small size. It is because the big size firms have more reliability and can gain investors' trust. So that investors invest in big firms in order to make secure investment. But in case of small firms, the investors consider it less reliable for investment. So the investors' investment in big size firms increases the share price. The increase in share price increases the equity return. It is also noted that the firms with low book to market ratio, show more equity return than the firms with high book to market ratio. It is because book to market ratio represents the firms' strength and high book to market means that firm has the value in his financial statements as it is valued in market. So it means that it is fairly priced and investment is secured. But return is derived by the over or undervalued stock.

In 1993 Fama and French display 5 joint factors impact on stock whereby 03 factors are relating to stocks and 02 risk factors are related to bond. The factors related to stock are size and Book to Market and other market factor related to the bonds are default premium and term premium.

Following are the key notes of this study:

- A sample study is carried out for the period 1963-91 for all non-financial firms based on NASDAQ, NYSE & AMEX.

- Regression tool is used by Macbeth and Fama (1973) for data analysis.

- Results indicate that stock related factors describe the variations in stock returns.

- French & Fama (1995) describe the size impact and value premium on return of equity of NASDAQ, NYSE & AMEX stock.

- During the period 1963-92 Macbeth & Fama (1973) model is used to examine the return of above variables.

The finding of this study reveals that the firms with low BTM equity seems with high earnings ratio and with high BTM equity the result indicates low earnings ratio. Moreover, the finding conclude that those kind of firms which have low BTM ratio and higher productivity have negative impact on value premium and those which have high BTM ratio and lower productivity found with positive impact for value premium.

Chan et al., (1991) also explores the impact of book to market ratio size and cash flow yield on stock return. Through non-financial manufacturing and non-manufacturing listed in Tokyo stock exchange firms by adopting the Fama and Macbeth (1973) research methodology on cross sectional data. So, there finding shows that stock return is significantly associated with book to market ratio, size and also with cash flow and earning yield. The equity return is positive significant related to size. It means that the investment in the firms with big size, the equity return is high. It is because investors show their trust to big size firm and consider the big size firms as more reliable and profit sustaining entity. The trust of the investors causes an increase in prices so the equity returns as well. Chan et al. also report that equity returns in firms with high book to market ratio is higher than the equity return in the firms with low market to book ratio. They also tested two other factors against equity return that are cash flows and earning yields and find significant relationship. It means that there are many other factors other than three and five factors model that can influence stock return. In addition, cash flow yield and book to market ratio provide more reliable and accurate results with stock return.

Bhandari (1988) explores the relationship between debt to equity ratio. Through considering the 1948 to 1981 as an observation period and also employing the Fama and Macbeth (1973) methodology. After controlling the size of the firms and as well as beta of company, they find debt to equity positive and significantly related with stock return. In addition, they also provide evidence of relationship between debt to equity ratio and risk premium. On the other hand, the finding of Daniel and Titman (1997) is opposite the finding of Fama & French study (1992. 1993, and 1996). They also use market to book ratio and size of the firm as a predicting variable of stock return. They use Fama & Macbeth (1973) regression estimation technique for the observation period of 1963 to 1992 on NYSE stock return. And they found that the there is no distinguish factor of stock return but high book to market ratio indicates high return.

Chuff and Wei (1997) explore the association among share market beta and market return, size and BTM value of the equity for the period of 1977 to 1993 in developing market Malaysia, Taiwan, Hong Kong, Korea and Thailand capital markets. They use Tama and Macbeth (1973) estimation technique and find size affect the Korea, Malaysia and Hong Kong market and also have strong effect of book to market ratio effect. And these findings are also in line with French (1992). But the other hand, pattern is different in various countries. Banz (1981) examines the relationship among market value and stock returns on NYSE capital market from 1926 - 1975. He finds that smaller firms have more return then larger firms by using the capital assets pricing model. However, He states that market size anomaly has not significant impact because the smaller firms' returns are more flexible then big firms.

Bourguignon and De Jong (2003) report that the value and growth investing philosophies are utmost unanimously trailed school in capital market. In between the two philosophies of value and growth, there is classification of stock either value or growth. They conclude that value and growth stock are important because of their influence on investors. Investors have preferences towards the investment in

these two classes. This propensity is so extreme that genuine style indexes are devised to satisfy investors. But according to Chan and Lakonishok (2004), value and growth are opponents to each other.

Lewellen (1999) explores the impact of expected return, book to market ratio and risk by using the monthly financial data of NASDAQ, AMEX and NYSE capital markets and observation period of 1964 to 1994. By employing the methodology of Daniel and Titman (1997) and Fama and French (1993) he finds out that BTM ratio is significantly associated with risk this finding also in line with finding of (fama and French 1993). It also explores the impact of size book to market equity on stock return on five different developing capital markets returns. He also uses Fama & Macbeth (1973) estimation technique for the period of 1977 to 1993. He finds significant but weaker relationship between stock market return and beta of market. In addition, he also indicates that book to market equity have positive and significant impact on stock return and also size have positive impact on all developing markets rather than Taiwan. Moreover, he also provides the evidence of January effect on book to market premium. So, big firms of Korea and Hong Kong and small firms of Taiwan have greater return for the month of January.

Kothari, Shanken and Sloan (199J) verify that BTM or beta explains the variations in stock returns or not. It is used for pre-classified and post-beta in the study and the data is utilized for the period 1940-1957. The data sample is based on S & P and COMPUSTAT manufacturing level data. The finding reveals that there is a more significant and weaker relationship between BTM and stock performance and less consistent with the study of Fama and French (1992). In addition to one of the other studies which is concluded by Shanken and Kothari (1997), they examined the relationship between expected return on shares and dividends yield BTM. The said study is focused on US equity market for the period 1926 -1991. They find that during the 1926 to1991 periods there is a regular relationship between stock market performance and BTM. The study also reveals that a high association among stock performance and dividend yield for the observed period 1941 to1991.

Claessens, Dasgupta and Glen (1995) conduct an empirical research on stock return performance for developing market. The study is focused on the developed eighteen emerging capital stock market for the period 1986-1993. The empirical findings of their study suggest that most of the developing markets, the size and volume of transactions have mix descriptive control. Another important element of asset returns is currency risk. But in rare of the emerging markets, have positive and significant association between the earnings/price ratio and the dividend yield and asset returns.

Griffin and Limon (2002) conduct the research study on risk premium and capital market performance of New York NASDAQ. In this study, the methodology of Fama and Macbeth (1977) is used for an experimental test to explore the stock return detrainments for the observation period of 1965 to 1996. The conclusion of this study shows that these types of companies with a greater distress risk are calculated by the 0 degree and also have difference in stock return between books to market shares is higher and lower than that of other companies. Three factor models of Fama and the French is not compatible to confirm the greater fluctuation of returns. Therefore, they also documented that higher risk of distress firms disclose the grater stock returns. Alteati et al. (2000) in his empirical study explores the risk and return relationship in Italian Stock Market. Factor analysis and time series methodologies are used in this study to examine the returns and predicting variable for the period 1981 to 1993. Their findings show value premium and size core determinants of assets return. Furthermore, they also prove that HML and SMB also factor of assets return in Italian context.

Wang (2000) conducts the research study on larger stock produce grater return and smaller stock and also beta of firms can't reflect the difference of return between larger and smaller stock for the observation period 1975 to 1994 on NYSE and AMEX capital markets. Their findings show that size have significant relationship with return and also higher book to market ratio associated with greater return. Lam (2002) examines the relationship between the stock market return and the

BTM ratio, price ratio, size and leverage anomaly. The study considerss 1980 to 1997 period as a sample size of Hong Kong stock market. Fama and Macbeth (1973) methodology is used as an estimation technique and there finding shows that size, the BTM ratio, and the production price ratio are the variables that explain the change in yield, but the most common is the size. Furthermore, they also prove the finding of balls (1978) of relationship between earning price and stock return. Moreover, in the current situation, incomes are higher for the future than high-risk securities and returns are low, prices will be qualified for their income. This is suitable in case of the companies have a positive income. The findings of the study suggest that price and size could be used an alternative BTM equity.

Djajadikerta and Nartea (2005) explore the determent of explaining the variation of stock return by using the three factor model. On New Zealand capital stock market for the observation period of 1994 to 2002 by using the Fama & Macbeth (1973) estimation technique. They find that size have more impact on return rather than book to market ration in New Zealand stock markets. On the other hand, Bryant and Eleswaparu (1997) and Vos and Pepper (1997) find positive and more effect of book to market ration and lower effect of size in New Zealand stock markets in the period of 1971 to 1993.vCook and Rozeff (1984) review the negative influence of two anomalies earning & size on the stock price of NYSE. Two types of methods are used in this study. First one is used by Reinganum (1981) in work, and the second method is used by Banz (1981) and Basu (1977), to return the variables test is used in 1964-1981. The finding of this study are not consistent with Reingan and Basu studies, as these studies also show that size effect more advantage over the earning to price ratio.

Faff (2004) examines the three factors model in Australian stock market for the period of 19919 to 19994. Daily observation about 762 from May 1996 to April 1999 and monthly data from Jan 1991 to April 1999 are used in this study. The finding of the study shows that book to market risk premium identified positive and

important relationship with return in the preference of risk-free assets. In addition, the risk premium of Size results is rated significantly negative in this sample. The finding of this empirically study supports the market anomaly, however totally opposite to the empirical finding of Halliwell. Heavy and Sawicki (1999) don't perceive the robust BTM impact.

Gaunt (2004) examines influence of value and size premium on the stock market return of the Australian capital market. In empirical findings, Macbeth and Fama (1973) methodology is used to explore the impact of variable on return for observation period of 1991 to 2000. This indicates the significantly positive results among size of equity and equality of bookmarks market. Finding this study perfectly with the study of Fama and French (1993), which has suggested that BTM and low-grade companies are very dangerous, but the size of the size is very small attachment of BT ratio. Unlike Halliwell, Heany, and Sawicki, this study explores the three-factor model and is useful in comparison to CAPM, while book to market also plays an important part in asset pricing. Hwang, and Trombley (2003) examine the ratio of stock market return to arbitrage risk and value premium. The study is conducted in accordance to AMEX and NYSE secondary market stock return for the observation period from 1976 to 1997. This empirical study used Fama & Macbeth (1973) regression model to estimate the predicting variables. The finding of this empirical research states that because of misinterpretation of the BTM effect. The BTM ratio ability to forecast the returns more strongly and consistently with volatility (1976-1997) can be determined by measuring arbitrage risk and investor sophistication.

Shiab et. all (2006) examine the impact while using risk adjustment techniques to determine the earnings ratio using investment performance of price. This empirical study is based on, the least squares estimation model which explore the influence of investment performance on return during the period of 1996 to 2004. The finding of this study indicates that the price-earning moderate portfolio has on usual a greater risk-adjusted return linked with a portfolio of high and low price return.

Finding of this study agrees of the view that price-earnings ratio info at security prices is not totally replicated. In addition, to this relation among the investment performance of a stock security and the price earnings ratio applies, and price to earnings ratio has more effective implications for the presentation of the portfolio. The results conclude the rejection of semi strong efficiency in the Amman capital stock exchange.

Homsude et al. (2009) concludes a study to analyze the significance of single factor model (CAPM) and three factors model of Fama and French for the Thai stock exchange from 2002 - 2007. The study is consisted of 421 non-financial company data and father divided it into 6 different sections. The empirical examination of this study showes that the three factor model describes the stock market return on the Thai stock market which can be easily compared with CAPM after Fama and Macbeth (1973). Liu and Vasilau (2000) find, BTM and size could be a risky factor for the economic growth. The important objective of the study is to estimate that HMA and SMB could be linked to futures growth. The said study is conducted in number of countries including USA, UK, France, Canada, Germany, Australia, Italy, Holland, Switzerland, and Japan.UK and USA have registered FAMA and Macbhabi (1973) for a database analysis of the period 1978 - 1996. The finding of this study reveals the value of Fama and French (1998) Premium is broad and reliable.

Drew, Naughtan and Veerarag, Havan (2003) have examined that Fama and French three factor model is effective model for estimating the risk. Hence, the previous empirical evidence shows that only beta can measure the risk. The study is conducted on the SSE (Shanghai Stock Exchange) for observing period of 1993 to 2000. The findings of the study support the previous studies as the superior companies generate revenues over period, but this study indicates low returns have been observed in larger companies instead of small and growing companies. Guan et al. (2004), to conduct an empirical study of CAPM model is used for price to earnings, BTM, and stable beta variables of the NASDAQ, NYSE, and AMEX

stock markets during the 1967 to 1997 as an observation period. The empirical findings of this study show that when the expected yield of CAPM is generated, in addition, if an error is found in the measurement of beta, it is possible that the individual variables are entered as explanatory variables. The role of beta can be explained with the increase in stock return, if the error is reduced in beta, whereas the role of individual variable decreases by the Fama & Macbeth (1973) estimation model.

Zevtinoglu Akarinl and Celik (2012) explore the effect of market construct proportion with respect to equity return of Istanbul securities exchange. In this investigation penal estimation technique is used to observational test of above factors for the time period of 2000 to 2009. Their findings indicate those market based rations are more effective for both situations current and also good predictor for future expected return. Mirza and Shahid (2008) examine a study that calculated Fama's ability and a three factor model for KSE from 2003 - 2007. This research also sustenance three-factor model of Macbeth and Fama (1973). The findings are consistent with earlier study which shows that the Fama and French three factor models and effective in emerging markets. The finding reveals that SM and S/L cuts are not significant, but the three-factor models are better explained by the average Karachi stock exchange yield. In addition, to that one of the six market risk exposures in the portfolio was significant.

Javaid and Ahmad (2009) test the CAPM model at Karachi stock exchange (KSE 100 index). This study relates to the KSE is used on monthly and daily stock returns during the period of 1993-2004. For the examination purpose methodology of Macbeth and Fama (1973) is used. And they find that flexibility of stock return depends upon macroeconomic factor and stock return fluctuation also related with cycle of the business. The findings of this empirical study show that stock return varies over time and this instability is correlated with the economic cycle, which is why profits rise in shocking economic times and vice versa.

The asset pricing structure is further explored by Hassan and Javaid (2011). The study is based on a Pakistani equity market from 1998 to 2007. Regression is used for data analysis Tama Macbeth (1973). While reviewing the findings it is observed the existence of market premium effect was found in Pakistani equity market. They find that the performance of stock high BTN is improved than with the low BTM stock. So, small portfolio returns is significantly related with the size premium and find insignificant with the portfolio with the big firms. A stock market return relationship is studied by Ahmad and Javid (2009) with value premium and size. The study is based on Pakistani equity market for the period 1993-2004. Regression is used as a tool for the data analysis by Macbeth and Fama (1973). The finding reveals that variation in expected return can be explained through microeconomics variation and the variability found with some business cycle correlations.

Pandva & Rao (1998) find that the most commonly used performance measure is ROA in the existing studies. According to (Anil Yigit, 2011; Yigit & Tur, 2012) ROA is considered as an essential tool to measure the effectiveness for firm performance by ROA value for the researchers. In relation to this the business managers and shareholders expressed ROA is a sufficient criteria to assess the performance of the organization (Boz et al. 2013). ROA is a tool which can be used to find out the effective management system while using the resources for profit generation. The data for the same may be obtained from the balance sheet of the company.

A momentum anomaly can be well defined in G-12 countries that explains alternative three factor model Fan and Yu (2013). To test the explanatory power for alternative three-factor model from 1989-2009, a multi stage screening methodology is employed by Griffin, Kelly and Nardari (2010).It is concluded that alternative three factors model explains abnormal return better than three factors model of Fama and French. As a result, a reduced value of significant Alpha was introduced in all the 12 countries on the application of this new model.

Amman. Odoni and Oesch (2012) explore relationship of investment premium, profitability premium on equity return. It is based on European monetary union based on Germany, Finland, Italy, Spain, Netherland, Ireland, Finland France and Portugal in the year 1990-2006. The methodology is used for the analysis of data by Fama and Macbeth (1973). While reviewing the results it is discovered that the application of five anomalies by alternative three factor model the explanatory power is higher than the three factor model of Fama and French. Moreover, the study results explain that explanatory power is stronger in alternative three factors model of CNZ (2010) as compared to Fama and French's three factors model. To evaluate the profit generation and to measure the abnormal return at international level the model should be applied for the future research. An impact of profitability premium and investment premium in United Kingdom stock market is observed by Nichol and Dowling (2014). Fama and Macbeth (1973) methodology is applied on the above variables to test the return of the period from 2002-2013. Comparison of all related models aere made starting with the application of FF three factors model leading to CNZ (2010)'s alternative three factors model, and FF five factors model as a most explanatory model for return and risk relationship.

Walkshausl and lobe (2014) study an alternative three factor model performance in the US stock market. Methodology of Macbath and Fama (1973) is used to test empirically returns of investment premium, profitability premium for the period of 1982-2009 for US equity stock return. In this Fama and French three-factor model is more appealing for averages return and an alternative three-factor model which do not provide the clarity in the international market. Moreover, the result shows that large number of portfolio and their performances cannot be explained with alternative three factor model. Return on investment and return on equity factors are explained by Min, Kang and Lee (2011) on macroeconomic condition. In the period from 1972-2010 the study is conducted for stock returns on AMEX, NASDAQ & NYSE. Regression is used as an estimation tool for data analysis by Fama and Macbeth (1973). Results show a positive indication towards economic

growth of return on investment. However, investment return show significant high effect on condition of business in the condition to the good circumstances as compared to the bad condition of' the business in bad circumstances. Furthermore, the study reveals a non-positive return on equity related to economic development. Moreover, higher investment stocks are less complex as compared to the low investment stock with high complication.

Wang (2012) explores that proxy is used in investment factor and equity return for economic risk of non-financial firms. A methodology is used by Mina and Macbeth (1973) to test the returns of variable for the period 1972-2009. The outcomes explain in the presence of other financial and economic variables by Fama and French (1993) that for the future GDP investment premium is a strong forecaster. Furthermore, there is losing some of the pricing power on return of equity premium in the presence of GDP. It is explored there are two alternative proxy variables. Firstly, is profitability premium and other is investment premium used for future planning and asset return.

Chen, Marx and Zhang (2010) explore the impact on return by other marker factors like ROA and investment anomaly. This empirical study is based on NASDAQ, NYSE and AMEX security exchange for the observation period of 1972 to 2009. They also use the fama and Macbeth (197) estimation model and there finding shows that alternative three factor model have more predicting power and quite reliable. This study suggests that when you measure your abnormal stock return in this study, calculate cost from CAPM model and evaluate the return on assets as a new alternative model. In addition, this research suggests that, once you have calculated the expected stock of the stock at this time, you should use two new factor profitability bonuses and an investment premium that is intended for the entire and the value premium.

The average stock return and real investment for non-financial firms of AMEX, NASDAQ and NYSE for the years 1960 - 2009 have a negative impact by Cooper and priestly (2011). By using Fama and Macbeth (1973) methodology the finding

of the study reveals that investment proportion risk had a very significant role in regression. Moreover, the future real economic activity can be predicted by the investment factors they determined. A positive relation in returns factor leads to real industrial growth in future, GDP growth, earning growth and real growth rate of aggregate investment. This indicates investment factor can certainly be interpreted as risk factor which investor demands a risk premium for holding. Relationships of investor sentiments and cross sectional stock return are explained by Stambaugh, Yu and Yuan (2011). To predict the results, the study is conducted for the period from July 1965 to December 2007 on NYSE stock return.

Regression is used as a tool for analyzing the data by Fama and Macbeth (1973). The finding indicates greater profitability of the short and long strategies with high sentiment. Initial source of this profit is overpricing, high sentiments will be followed by more profitable by the short strategies. So, the long leg strategies do not exhibit an important effect on profits by the sentiments. The last outcome is likewise reliable to forecast underpricing ought to be less predominant to straightforward setting where short-deal obstructions show the main impediment to brokers trying to manipulate mispricing. Another, side of assets evaluation is gross profitability premium is suggested by Marx (2012). Fama and Macbeth (1973) methodology is used for data analysis on the study conducted on NYSE for the period of 1963-2010. On the finding's it is discovered that more return had been found in profitable firms relative then unprofitable firms. The proposed model indicates that short term assets are high risky than the long duration assets. Moreover, the firm with high income has more life and vice versa.

Fama & French (2005) explore relationship among profitability premium and investment premium in relation to the stock market returns. The finding is based for the period of 1972-2004 on AMEX, NYSE, and NASDAQ firms. Macbeth and Fama (1973) regression is used to analyze the data. Three diverse classifications are concluded which indicates the firms which higher BTM equity earn better expected returns to context of investment premium and profitability premium firms.

Another one is higher expected return can be earned by higher profitable firms in respect of the given BTM and expected investment premium.

Wang and Yu (2013) conclude empirical study based on a behavioral and risk profitability premium for AMEX, NASDAQ and NYSE for 1972 to 2011. The findings after using Fama and Macbeth (1973) regression reveals that high level of arbitrage cost occurred by the profitability premium between the firms, the maximum ratio of profitability premium is occurred from those firms with negative alpha because of low profitability. Moreover, this study examines the probabilities of profitability premium in regard to under reacting is comparatively very much high related to over-reaction. While comparing all three different behavioral theories based on under and over reaction on profitability premium these finding proposed that in situation of under reacting the inattentiveness seems more reasonable. Investment on capital impact on returns for stock market has been explained by Titrman, Wei and Xie (2004). Fama & Macbeth (1973) methodology was applied to test the return of the variables from 1969-1995. Conclusion of the findings revealed that the firms with high investment, high cash flow and low debt ratio had strong relationship with negative capital return. Moreover, they find out that those types of firms which increase the investment these outcomes were high in the past.

While reviewing the literature it provides us an understanding and the overview in the different emerging markets that a significant negative impact has been observed in the investment premium however, profitability premium has a significant positive impact on firm value and equity market returns. The overall literature also provides us the insight that both the factors profitability premium and investment premium has a significant impact in developed markets. Therefore, it can be hypothesized that investment premium has a significant negative whereas; profitability premium has a positive significant impact over equity market returns in the market.

2.2   Hypotheses

$\mathbf{H}_1$: Market premium influences equity return.

$\mathbf{H}_2$: Profitability premium and investment premium influence equity return.

$\mathbf{H}_3$: Three factors model has more explanatory power for equity return than single factor model.

Chapter 3

Research Methodology

3.1 Data Sample

In this study the closing share prices of the month end for 60 firms from non-financial sector listed at Karachi Stock exchange (KSE) for Pakistan, 60 listed firms of Bombay Stock Exchange (BSE) for India and 60 listed firms of Taiwan Economic Journal Database (TEJ) for Chinese companies for the observation period of 2000 to 2017 are considered. The entire selected sample is based on higher market capitalization.

For Karachi stock exchange 100 index listed companies monthly stock prices has been obtained from KSE 100 index website and companies official websites. For Indian listed firms stock prices on monthly basis has been obtained from Bombay stock Exchange website. For Chinese listed firms monthly financial data collected from Economic journal Database (TEJ). Index preparation data obtain from Yahoo Finance database for all three countries, and Treasury bill rate obtained from the official website of concerning central state bank of selected country i.e. state bank of Pakistan, and for India risk free rate obtained from money control database and Central bank of republic of China.

3.1.1 Estimation of Variables

- To measure Market Premium, market returns for Pakistan, India and China are calculated from market index of respective markets and Treasury bill rate is taken as risk free rate of return. Market premium is measured by subtracting risk free rate from market rate of return.

  Market premium = Market rate of return – Risk free rate of return

- To measure Investment Premium, investment is calculated by taking into account the annual change in gross property, plant and equipment plus the annual change in inventory over lagged total assets. Therefore, changes to gross assets, plant and equipment are made through capital investments and long-term assets used in many years of operations such as machinery, buildings, furniture and other equipment of companies. Furthermore, Changes in inventories measure by short term assets used or working capital like, supplies, work in process goods and raw materials. Investment sorted portfolios of high and low investments are constructed. Investment premium is measured by subtracting returns of high investment portfolio from returns of low investment portfolio.

  Investment premium = Low Investment Return – High Investment Return

- To measure Profitability Premium, return on asset is calculated by taking income before extraordinary items over total assets. Return on assets sorted portfolios for high and low profits are constructed. Profitability premium is then measured by subtracting returns of low profit portfolio from returns of high profit portfolio.

  Profitability Premium = High Profit Return – Low Profit Return

- Equity returns for the firms in the portfolios are calculated from daily share prices of the firms. The average return of the year for each firm in portfolio is taken as equity return.

- To construct size sorted portfolios, market capitalization is used for each firm. Market capitalization is calculated by multiplying market price per share with numbers of share outstanding.

$$\text{Market Capitalization} = \text{MPS x No. of outstanding shares}$$

- To construct BTM sorted portfolios, book to market ratio is calculated by dividing book value per share with market value per share.

3.1.2 Portfolio Construction

- At the beginning, the whole portfolio is formed and then the total portfolio is sorted by size. Market capitalization is used for size of the firms and portfolio is sorted out on the basis of size. Top 30 firms further have been grouped to form a portfolio of big size and bottom 30 firms have been grouped to form portfolio of small size.

- To capture the investment premium affects, investment portfolios have been moulded. For preparing the investment sorted portfolios inventories or change in working capital data and change in fixed assets separated and consider only investment as an investment premium. For Investment sorted portfolios, Investment of 60 companies has been calculated. These companies are organized on Investment basis. Low 30 companies have been gathered and grouped as Inv L and High 30 have been grouped as Inv H.

- To capture the profitability premium affects, profitability portfolios have been formed. For preparing the profitability sorted portfolios change in inventory and income before extraordinary items and total assets data separated and only profitability is considered to formed the profitability premium. For Profit sorted portfolios, ROA of 60 companies have been calculated. These companies are sorted on ROA basis. Top 30 firms with high

profits are grouped to form High Profit Portfolio and bottom 30 firms are grouped to form Low Profit Portfolio.

- To construct BTM sorted portfolios, Book to Market ratio for all 60 firms have been calculated and sorted on the basis of BTM. Top 30 with high BTM are grouped to form High BTM Portfolio and bottoms 30 with low BTM are grouped to form Low BTM Portfolio.

- Returns from share prices for all companies have been calculated and average return for each year is reported for further process.

So P is a portfolio comprising of all stocks studied; Inv L is portfolio of low investment; Inv H is portfolio of high investment; Size S is portfolio of small size; Size B is portfolio of big size; Profit L is portfolio of low profit; Profit H, is portfolio of high profit; Btm L is portfolio of low B/M ratio; Btm H is portfolio of high B/M ratio.

3.2 Methodology

Capital Asset Pricing Model considers only one anomaly market premium developed by Sharp and argues that this factor influences the markets returns. But on the other hand, Arbitrage Pricing Theory developed many other factors that can affect the market return i.e. size, C/p ratio, size, value, investment, and BTM etc. After that Fama and French (1992, 1993) established three factor models by introducing value premium and size premium with market premium. This study uses the alternative to three factors model of CNZ (2010) which is based on profitability premium, and investment premium. In this study equity return stated as a dependent variable and market premium, investment premium and profitability premium are considered as independent variables.

To explore the effect of these new factors on stock return, methodology proposed by CNZ (2010) the alternative to three factor model, two additional factors, profitability premium and investment premium are incorporated. To see the impact of investment premium, profitability premium and market premium on equity return, regression is run for these three independent variables on dependent variable by constructing different portfolios. Portfolios on the basis of size, book to market ratio, profit and investment are constructed. Further the portfolio on the basis of small size and on the basis of big size are separated. Portfolios on the basis of high book to market ratio and low book to market ratio are separated. Portfolio on the basis of high profit is constructed separately than the portfolio on the basis of low profit. Similarly portfolio on the basis of high investment and portfolio on the basis of low investment are constructed to analyze the market premium, investment premium and profitability premium in three capital markets of Pakistan, India and China.

3.2.1 Model Specification

$$R_{pt} = \alpha + R_{ft} + \beta(Mkt)_t + \epsilon_t \tag{3.1}$$

$$R_{pt} = \alpha + R_f + \beta(R_m - R_f) + \epsilon_t \tag{3.2}$$

$$R_{pt} = \alpha + R_{ft} + \beta_1(Mkt)_t + \beta_2(Inv_t) + \beta_3(ROA)_t + \epsilon_t \tag{3.3}$$

$$R_{pt} = \alpha + R_f + \beta_1(R_m - R_f) + \beta_2(InvL - InvH) + \beta_3(ProfitH - ProfitL) + \epsilon_t \tag{3.4}$$

R pt = Return of a portfolio.

R ft = Risk free return.

R m - R f = Market premium.

Inv L - Inv H = Investment Premium

Profit H - Profit L = Profitability premium.

CNZ(2010) uses investment premium by subtracting high investment from low investment with a view that investors think the low invested firms may increase investment in future due to future opportunities and low investment in current periods. The future investment will cause a rise in stock prices and equity return will increase. While already highly invested firms for current periods may not be able in near future to increase investment because of already high investment. So the stock price may not increase in near future and equity return may not increase. So it is deducted that investment premium is high in low investment firms while less in high investment firms.

Return of portfolio: It is calculated by taking monthly closing prices of all firms for 17 years and then equity return is calculated for all firms. Average of the return is reported for all firms. The equity return of all the firms in a single portfolio is treated as portfolio return.

Risk free return: The Treasury bill rates of respective country i.e Pakistan, India and China is risk free return for this study.

Market return: It is the return which is offered in market. It is calculated by taking market index at the end of month for 17 years. The market return is then calculated from the index of respective stock exchange of Pakistan, India and China.

Investment L: It is the portfolio which is based on the firms with low investments in respective markets of Pakistan, India and China.

Investment H: The portfolio which is based on firms with high investments in markets of Pakistan, India and China is investment H.

Profit H: It is the portfolio constructed of the firms with high profit in the markets of Pakistan, India and China.

Profit L: It is the portfolio which is based on the firms with low profits in the markets of Pakistan, India and China.

These equations are run for all portfolios constructed on the basis of Size, B/M ratio, Profit and Investment for Pakistan, India and China to see the impact of investment premium, profitability premium and market premium on equity return.

Chapter 4

Results and Discussion

4.1 Descriptive Statistics

Tables 4.1.1, 4.1.2, 4.1.3 defines the statistical behavior of the data of Pakistan, India and China respectively. These tables include the statistics of the data regarding means, median, standard deviation, kurtosis, skewness, minimum and maximum for the data. The central tendency observed for three countries Pakistan, India and China for means, median, standard deviations, skewness, kurtosis, maximum and minimum shows variability measures.

TABLE 4.1: Descriptive Statistics for the period of 2000 – 2017 for Pakistan

V's	Mean	Median	Std. Dev	Kurtosis	Skewness	Mini	Maxi
MKT	0.010	0.014	0.075	6.948	-1.193	-0.460	0.234
SIZE	0.006	0.000	0.084	31.539	3.963	-0.156	0.763
B/M	-0.000	0.003	0.078	4.248	0.376	-0.230	0.409
ROA	0.002	0.001	0.059	1.198	-0.600	-0.214	0.156
INV	-0.002	-0.002	0.059	2.702	0.747	-0.170	0.248

The descriptive statistics in Table 4.1 show the mean ranges from -0.00014 (B/M premium) to 0.01 (market premium). The mean for profitability premium is 0.002 and for investment premium is -0.002. Standard deviation which is the measure of deviation or dispersion from means ranges from 0.05 (profitability premium)

to 0.08 (size premium). Standard deviation of market premium is 0.07 and for investment premium is 0.05. The Minimum and maximum values also showing the normality of the data. Kurtosis is associated with normal distribution of data. If kurtosis is equal to 3 then the data is normally distribute and this pattern of data is called mesokurtic.

If kurtosis is >3 then the data pattern is leptokurtic which mean that the data is peaked and fat tail. Is the kurtosis is <3 then the data pattern is called platykurtic which means that the data is less peaked and thinner tail. Kurtosis results of data for this study show that pattern is leptokurtic and associated with peaked and fat tail. Skewness shows the data distribution and equal to zero shows normal distribution which means data is symmetrical and bell shaped graph. Positive skewness means data is positively skewed (right tail is longer than left side) and negative skewness means data is negatively skewed (left tail is longer than right side). So market premium and profitability premium are negatively skewed while size, B/M, and investment premiums are positively skewed.

TABLE 4.2: Descriptive Statistics for the period of 2000 – 2017 for India

V's	Mean	Median	Std. Dev	Kurtosis	Skewness	Mini	Maxi
MKT	0.002	0.004	0.066	1.918	-0.500	-0.279	0.243
SIZE	-0.0004	-0.0003	0.004	9.321	0.213	-0.023	0.029
B/M	0.001	-0.0006	0.052	3.032	0.181	-0.224	0.213
ROA	-0.003	-0.006	0.050	2.716	0.177	-0.181	0.190
INV	0.003	0.007	0.051	2.274	-0.423	-0.226	0.159

The descriptive statistics in Table 4.2 show the mean ranges from -0.0004 (Size premium) to 0.0032 (INV premium). The mean for profitability premium is -0.0034 and for market premium is 0.0029. Standard deviation which is the measure of deviation or dispersion from means ranges from 0.0047 (Size premium) to 0.0665 (market premium). Standard deviation of profitability premium is 0.0506 and for investment premium is 0.0032. The Minimum and maximum values also showing the normality of the data. Kurtosis is associated with normal distribution of data. If kurtosis is equal to 3 then the data is normally distribute and this pattern of data is called mesokurtic. If kurtosis is >3 then the data pattern is leptokurtic

which mean that the data is peaked and fat tail. Is the kurtosis is <3 then the data pattern is called platykurtic which means that the data is less peaked and thinner tail.

Kurtosis results of data for this study show that pattern is leptokurtic and associated with peaked and fat tail. Skewness shows the data distribution and equal to zero shows normal distribution which means data is symmetrical and bell shaped graph. Positive skewness means data is positively skewed (right tail is longer than left side) and negative skewness means data is negatively skewed (left tail is longer than right side). So market premium and investment premium are negatively skewed while size, B/M, and profitability premiums are positively skewed.

TABLE 4.3: Descriptive Statistics for the period of 2000 – 2017 for China

V's	Mean	Median	Std. Dev	Kurtosis	Skewness	Mini	Maxi
MKT	0.001	0.004	0.078	1.890	-0.575	-0.286	0.239
SIZE	0.002	0.004	0.070	3.892	-0.831	-0.363	0.188
B/M	0.0003	-0.0043	0.106	1.638	0.295	-0.276	0.376
ROA	0.0005	-0.0005	0.066	3.426	0.596	-0.195	0.318
INV	0.001	-0.001	0.067	6.415	0.465	-0.325	0.349

The descriptive statistics in Table 4.3 show the mean ranges from 0.0003 (B/M premium) to 0.0027 (Size premium). The mean for profitability premium is 0.00054 and for market premium is 0.0012. Standard deviation which is the measure of deviation or dispersion from means ranges from 0.0066 (ROA premium) to 0.106 (B/M premium). Standard deviation of market premium is 0.078 and for investment premium is 0.0067. The Minimum and maximum values also showing the normality of the data. Kurtosis is associated with normal distribution of data. If kurtosis is equal to 3 then the data is normally distribute and this pattern of data is called mesokurtic. If kurtosis is >3 then the data pattern is leptokurtic which mean that the data is peaked and fat tail. Is the kurtosis is <3 then the data pattern is called platykurtic which means that the data is less peaked and thinner tail.

Kurtosis results of data for this study show that pattern is platykurtic and associated with less peaked and thinner tail. Skewness shows the data distribution and equal to zero shows normal distribution which means data is symmetrical and bell shaped graph. Positive skewness means data is positively skewed (right tail is longer than left side) and negative skewness means data is negatively skewed (left tail is longer than right side). So market premium and size premium are negatively skewed while investment, B/M, and profitability premiums are positively skewed.

4.2 Regression Analysis

To measure the impact of market premium, profitability premium and investment premium on equity return, a regression analysis is performed for Pakistan, India and China. The detailed results are discussed in following subsections.

4.2.1 Regression Results for Pakistan

To study the impact of market premium, profitability premium and investment premium on equity return, eight different portfolios regressed against MKT, ROA and INV. The regression results for KSE 100 listed firms for Pakistani stock market show that multi factor model has more explanatory power than single factor model. There is an increase in adjusted R square when two more factors profitability premium and investment premium are added in regression analysis along with single factor market premium.When market premium is regressed to identify relationship with equity premium, it is noted that in portfolio on the basis of small size firms, market premium has positive significant relationship but portfolio on the basis of big size firms has insignificant relationship with equity return. The portfolio on the basis of low BTM firms, market premium has insignificant relationship and also portfolio on the basis of high BTM firms, market premium has insignificant relationship with equity return. The portfolio on the basis of high profit firms, market premium has insignificant relationship and also portfolio on

TABLE 4.4: Regression Analysis for Market Premium, Profitability Premium and Investment Premium for Pakistan

V's	Intercept	MKT	ROA	INV	Adj. R Sqr	F Stat	F Sig.
Size B	0.007	0.033			-0.004	0.222	0.638
t Stat	1.273	0.471					
P-Value	0.205	0.638					
Size B	0.006	0.03	0.16	-0.03	0.017	1.5	0.216
t Stat	1.182	0.48	1.428	-0.27			
P-Value	0.238	0.64	0.155	0.786			
Size S	0.012	0.158**			0.014	4.031	0.046
t Stat	2.01	2.008					
P-Value	0.046	0.046					
Size S	0.012	0.15*	0	-0.21*	0.125	2.803	0.041
t Stat	1.941	1.89	0.004	-1.62			
P-Value	0.054	0.06	0.997	0.107			
BTM H	0.014	0.06			-0.002	0.516	0.474
t Stat	2.263	0.718					
P-Value	0.025	0.474					
BTM H	0.013	0.05	0.419**	-0.23*	0.455	12.225	0.000
t Stat	2.155	0.69	3.325	-1.82			
P-Value	0.032	0.49	0.001	0.071			
BTM L	0.014	0.104			0.006	2.353	0.127
t Stat	2.712	1.534					
P-Value	0.007	0.127					
BTM L	0.014	0.1	-0.15	-0.12	0.126	1.418	0.238
t Stat	2.737	1.42	-1.36	-1.04			
P-Value	0.007	0.16	0.176	0.298			
Profit H	0.009	0.089			0.002	1.507	0.221
t Stat	1.656	1.227					
P- Value	0.099	0.221					
Profit H	0.007	0.09	0.633**	-0.14	0.387	29.91	0.000
t Stat	1.524	1.45	6.35	-1.39			
P-Value	0.129	0.15	0	0.167			
Profit L	0.006	0.1			0.007	2.506	0.115
t Stat	1.338	1.583					
P-Value	0.182	0.115					
Profit L	0.007	0.09	-0.37**	-0.14	0.164	5.873	0.001
t Stat	1.524	1.45	-3.68	-1.39			
P-Value	0.129	0.15	0	0.167			

V's	Intercept	MKT	ROA	INV	Adj. R Sqr	F Stat	F Sig.
Inv H	0.01	0.170**			0.02	5.355	0.022
t Stat	1.742	2.314					
P- Value	0.083	0.022					
Inv H	0.008	0.14**	0.115	-0.66**	0.504	32.315	0.000
t Stat	1.684	2.25	1.147	-6.6			
P-Value	0.094	0.03	0.253	0			
Inv L	0.007	0.122**			0.013	3.738	0.054
t Stat	1.553	1.933					
P-Value	0.122	0.054					
Inv L	0.008	0.14**	0.115	0.337**	0.362	5.565	0.001
t Stat	1.684	2.25	1.147	3.356			
P-Value	0.094	0.03	0.253	0.001			

Note: ** and * denotes that coefficient is statistically significant at 95% and 90% confidence interval.

the basis of low profit firms, market premium has insignificant relationship with equity return.

The portfolio on the basis of high investment firms, market premium has positive significant relationship and also portfolio on the basis of low investment firms, market premium has positive significant relationship with equity return. When all three factors are regressed with equity return, the results show an increase in adjusted R square which shows the explanatory power of three factor model is more than single factor model. When three factors regressed in portfolio of big firms, adjusted R square increases from 0.004 to 0.017. In portfolio of small size firms there is increase in adjusted R square from 0.014 to 0.125. The results shows the increase in adjusted R square in portfolio of high BTM from 0.002 to 0.45 and in the portfolio on the basis of low BTM the increase is from 0.006 to 0.126. Adjusted R square increases in three factor model in portfolio of high profit from 0.002 to 0.38 and in portfolio of low profit increases from 0.007 t0 0.164. Similarly there is increase in adjusted R square in the portfolio on the basis of investment. Portfolio of high investment shows an increase from 0.02 to 0.50 and portfolio of low investment shows increase from 0.13 to 0.36.

Portfolio wise results show that for portfolio of big size firms, MKT, ROA and

INV have no significant relationship to equity return. For portfolio of small firms MKT and INV premiums have significant relationship at 90% confidence interval in which MKT has positive while INV has negative relationship to equity return. ROA has no significant relationship to equity return. In portfolio on the basis of high B/M ratio ROA and INV premiums have significant relationship to equity return in which INV premium has negative relationship. Adjusted R square is 0.455 shows 45.5% variation in equity return is due to ROA and INV premiums.

MKT premium has no significant relationship. But for the portfolio of low B/M, MKT, ROA and INV premiums have no significant relationship. When portfolio of high profit is regressed, results show positive significant relationship of ROA to equity return but insignificant relationship for MKT and INV premiums. Adjusted R square is 0.387 shows 38.7% variation in equity return due to MKT, ROA and INV premiums. Portfolio of low profit also shows significant relationship of ROA premium with equity return but insignificant relationship for MKT and INV premiums with equity return.

For the portfolio of high investment the results show that there are positive significant relationship between MKT premium and equity return, negative significant relationship between INV premium and equity return and insignificant relationship between ROA premium and equity return with adjusted R square 0.504. While the portfolio of low investment also shows positive significant relationship between MKT and INV premiums with return on equity and insignificant relationship between ROA and return on equity.

4.2.2   Regression Results for India

To study the impact of market premium, profitability premium and investment premium on equity return, eight different portfolios regressed against MKT, ROA and INV. The regression results for Bombay Stock Exchange (BSE) listed firms of Indian stock market show that multi factor model has more explanatory power

TABLE 4.5: Regression Analysis for Market Premium, Profitability Premium and Investment Premium for India

V's	Intercept	MKT	ROA	INV	Adj. R Sqr	F Stat	F Sig.
Size B	0.008	0.183**			0.02	5.326	0.022
t Stat	1.423	2.308					
P-Value	0.156	0.022					
Size B	0.007	0.183**	-0.138	-0.135	0.131	3.282	0.022
t Stat	1.418	2.32	-1.283	-1.275			
P-Value	0.158	0.021	0.201	0.204			
Size S	0.007	0.181**			0.019	5.105	0.025
t Stat	1.331	2.259					
P-Value	0.185	0.025					
Size S	0.007	0.183**	-0.138	-0.135	0.232	3.354	0.02
t Stat	1.319	2.277	-1.396	-1.28			
P-Value	0.189	0.024	0.164	0.202			
BTM H	0.01	0.135**			0.016	4.484	0.035
t Stat	2.416	2.117					
P- Value	0.017	0.035					
BTM H	0.01	0.136**	-0.095	-0.066	0.118	2.298	0.079
t Stat	2.378	2.127	-1.094	-0.766			
P-Value	0.018	0.035	0.275	0.444			
BTM L	0.009	0.153**			0.013	3.826	0.052
t Stat	1.702	1.956					
P- Value	0.09	0.052					
BTM L	0.01	0.148**	-0.037	-0.309**	0.35	4.768	0.003
t Stat	1.898	1.92	-0.348	-2.986			
P-Value	0.059	0.056	0.728	0.003			
Profit H	0.008	0.154**			0.018	4.995	0.026
t Stat	1.709	2.235					
P-Value	0.089	0.026					
Profit H	0.01	0.141**	0.439**	-0.183**	0.612	10.06	0.000
t Stat	2.267	2.153	4.901	-2.072			
P-Value	0.024	0.032		0.039			
Profit L	0.011	0.133*			0.011	3.327	0.07
t Stat	2.316	1.824					
P-Value	0.021	0.07					
Profit L	0.01	0.141**	-0.561**	-0.183**	0.505	19.461	0.000
t Stat	2.267	2.153	-6.26	-2.072			
P-Value	0.024	0.032	0	0.039			

V's	Intercept	MKT	ROA	INV	Adj. R Sqr	F Stat	F Sig.
Inv H	0.008	0.154**			0.015	4.178	0.042
t Stat	1.584	2.044					
P-Value	0.115	0.042					
Inv H	0.01	0.141**	-0.061	-0.683**	0.447	24.462	0.000
t Stat	2.265	2.144	-0.682	-7.735			
P-Value	0.025	0.033	0.496	0			
Inv L	0.011	0.133**			0.013	3.916	0.049
t Stat	2.503	1.979					
P-Value	0.013	0.049					
Inv L	0.01	0.141**	-0.061	0.317**	0.362	5.708	0.001
t Stat	2.265	2.144	-0.682	3.595			
P-Value	0.025	0.033	0.496	0			

Note: ** and * denotes that coefficient is statistically significant at 95% and 90% confidence interval.

than single factor model. There is an increase in adjusted R square when two more factors profitability premium and investment premium are added in regression analysis along with single factor market premium.

When market premium is regressed to identify relationship with equity premium, it is noted that in portfolio on the basis of small size firms, market premium has positive significant relationship and also in portfolio on the basis of big size firms has positive significant relationship with equity return. The portfolio on the basis of low BTM firms, market premium has positive significant relationship and also portfolio on the basis of high BTM firms, market premium has positive significant relationship with equity return. The portfolio on the basis of high profit firms, market premium has positive significant relationship and also portfolio on the basis of low profit firms, market premium has positive significant relationship with equity return. The portfolio on the basis of high investment firms, market premium has positive significant relationship and also portfolio on the basis of low investment firms, market premium has positive significant relationship with equity return. When all three factors are regressed with equity return, the results show an increase in adjusted R square which shows the explanatory power of three factor model is more than single factor model.

When three factors regressed in portfolio of big firms, adjusted R square increases from 0.002 to 0.013. In portfolio of small size firms there is increase in adjusted R square from 0.019 to 0.23. The results shows the increase in adjusted R square in portfolio of high BTM from 0.016 to 0.11 and in the portfolio on the basis of low BTM the increase is from 0.013 to 0.35. Adjusted R square increases in three factor model in portfolio of high profit from 0.018 to 0.61 and in portfolio of low profit increases from 0.011 to 0.50. Similarly there is increase in adjusted R square in the portfolio on the basis of investment. Portfolio of high investment shows an increase from 0.015 to 0.44 and portfolio of low investment shows increase from 0.13 to 0.36.

Portfolio wise results show that for portfolio of big size firms MKT premium has positive significant relationship while ROA and INV have no significant relationship to equity return. For portfolio of small size firms MKT premium has positive significant relationship at 95% confidence interval. ROA and INV have no significant relationship to equity return. In portfolio on the basis of high B/M ratio MKT premium has significant relationship to equity. ROA and INV premiums have no significant relationship. But for the portfolio of low B/M, MKT and INV premiums have significant relationship in which INV premium has negative relationship. When portfolio of high profit is regressed, results show that all three premiums have significant relationship to equity return in which INV premium has negative relationship.

Adjusted R square is 0.612 shows 61.2% variation in equity return due to MKT, ROA and INV premiums. Portfolio of low profit also shows significant relationship of all three premiums premium with equity return in which INV premium has negative relationship. Adjusted R square is 0.505 shows 50.5% variation in equity return due to MKT, ROA and INV premiums. For the portfolio of high investment the results show that there are positive significant relationship between MKT premium and equity return, negative significant relationship between INV premium and equity return and insignificant relationship between ROA premium

and equity return with adjusted R square 0.447. While the portfolio of low investment also shows positive significant relationship between MKT and INV premiums with return on equity and insignificant relationship between ROA and return on equity.

4.2.3   Regression Results for China

To study the impact of market premium, profitability premium and investment premium on equity return, eight different portfolios regressed against MKT, ROA and INV. The regression results for Taiwan Economic Journal Database (TEJ) listed firms of Chinese stock market show that multi factor model has more explanatory power than single factor model. There is an increase in adjusted R square when two more factors profitability premium and investment premium are added in regression analysis along with single factor market premium.

When market premium is regressed to identify relationship with equity premium, it is noted that in portfolio on the basis of small size firms, market premium has positive significant relationship and also in portfolio on the basis of big size firms has positive significant relationship with equity return. The portfolio on the basis of low BTM firms, market premium has positive significant relationship and also portfolio on the basis of high BTM firms, market premium has positive significant relationship with equity return. The portfolio on the basis of high profit firms, market premium has positive significant relationship and also portfolio on the basis of low profit firms, market premium has positive significant relationship with equity return. The portfolio on the basis of high investment firms, market premium has positive significant relationship and also portfolio on the basis of low investment firms, market premium has positive significant relationship with equity return. When all three factors are regressed with equity return, the results show an increase in adjusted R square which shows the explanatory power of three factor model is more than single factor model.

TABLE 4.6: Regression Analysis for Market Premium, Profitability Premium
and Investment Premium for China

Variables	Intercept	MKT	ROA	INV	Adj. R sq	F statis	F sig.
Size B	0.003	0.263**			0.072	17.676	0.000
t stat	0.649	4.204					
P - value	0.517	0					
Size B	0.003	0.277**	0.085	0.213**	0.104	9.328	0.000
t stat	0.56	4.461	1.149	2.99			
P - value	0.576	0	0.252	0.003			
Size S	0.006	0.243**			0.055	13.586	0.000
t stat	1.161	3.686					
P - value	0.247	0					
Size S	0.006	0.266**	0.202**	-0.147**	0.397	8.669	0.000
t stat	1.217	4.074	2.609	-1.965			
P - value	0.225	0	0.01	0.051			
BTM H	0.004	0.205**			0.036	9.002	0.003
t stat	0.768	3					
P - value	0.444	0.003					
BTM H	0.004	0.222**	0.119	0.107	0.143	4.222	0.006
t stat	0.715	3.221	1.459	1.35			
P - value	0.476	0.001	0.146	0.178			
BTM L	0.005	0.286**			0.082	20.31	0.000
t stat	1.095	4.507					
P - value	0.275	0					
BTM L	0.005	0.307**	0.169**	-0.051	0.299	8.851	0.000
t stat	1.101	4.814	2.241	-0.699			
P - value	0.272	0	0.026	0.486			
Profit H	0.005	0.189**			0.032	8.155	0.005
t stat	0.969	2.856					
P - value	0.334	0.005					
Profit H	0.004	0.271**	0.648**	0.041	0.628	35.912	0.000
t stat	1.039	4.859	9.792	0.636			
P - value	0.3	0	0	0.526			
Profit L	0.004	0.315**			0.115	28.824	0.000
t stat	0.943	5.369					
P - value	0.347	0					
Profit L	0.004	0.271**	-0.352**	0.041	0.516	20.726	0.000
t stat	1.039	4.859	-5.317	0.636			
P - value	0.3	0	0	0.526			

Variables	Intercept	MKT	ROA	INV	Adj. R sq	F statis	F sig.
Inv H	0.004	0.261**			0.07	17.178	0.000
t stat	0.791	4.145					
P - value	0.43	0					
Inv H	0.005	0.270**	0.137**	-0.458**	0.559	26.093	0.000
t stat	1.071	4.75	2.025	-7.017			
P - value	0.285	0	0.044	0			
Inv L	0.006	0.244**			0.058	14.212	0.000
t stat	1.165	3.77					
P - value	0.245	0					
Inv L	0.005	0.270**	0.137**	0.542**	0.486	29.73	0.000
t stat	1.071	4.75	2.025	8.305			
P - value	0.285	0	0.044	0			

Note: ** and * denotes that coefficient is statistically significant at 95% and 90% confidence interval.

When three factors regressed in portfolio of big firms, adjusted R square increases from 0.07 to 0.107. In portfolio of small size firms there is increase in adjusted R square from 0.05 to 0.39. The results shows the increase in adjusted R square in portfolio of high BTM from 0.03 to 0.14 and in the portfolio on the basis of low BTM the increase is from 0.08 to 0.29. Adjusted R square increases in three factor model in portfolio of high profit from 0.03 to 0.62 and in portfolio of low profit increases from 0.11 t0 0.51. Similarly there is increase in adjusted R square in the portfolio on the basis of investment. Portfolio of high investment shows an increase from 0.05 to 0.55 and portfolio of low investment shows increase from 0.05 to 0.48.

Portfolio wise results show that for portfolio of big size firms MKT and INV premiums have positive significant relationship while ROA has no significant relationship to equity return. For portfolio of small size firms MKT, ROA and INV premiums have significant relationship at 95% confidence interval. INV premium has negative significant relationship to equity return. In portfolio on the basis of high B/M ratio MKT premium has significant relationship to equity. ROA and INV premiums have no significant relationship. But for the portfolio of low B/M, MKT and ROA premiums have significant relationship while INV premium has

insignificant relationship. When portfolio of high profit is regressed, results show that MKT and ROA premiums have significant relationship to equity return while INV premium has insignificant relationship.

Adjusted R square is 0.628 shows 62.8% variation in equity return due to MKT, ROA and INV premiums. Portfolio of low profit also shows significant relationship of MKT and ROA premiums with equity return in which. Adjusted R square is 0.516 shows 51.6% variation in equity return due to MKT, ROA and INV premiums. For the portfolio of high investment the results show that there is positive significant relationship between all three premiums and equity return with adjusted R square 0.559. While the portfolio of low investment also shows positive significant relationship between all three premiums and equity return.

4.3   Discussion

The results of this study for market premium show positive significant relationship with equity return. It means that single factor model widely known as CAPM exists in capital markets of all three countries. Specially, in Indian and Chinese stock market, there is positive significant relationship between market premium and equity return in almost all portfolios tested in regression. But in Pakistani stock market, the market premium shows positive significant relationship with equity return in some portfolios based on investment and size. It means that single factor model exists in the market for asset pricing. The results are consistent with the findings of Sharp (1964), Chen, Novy-Maex and Zhang (2010), Hassan and Javaid (2011) etc. that market premium has positive significant relationship with equity return and should be incorporated in asset pricing model for required rate of return calculation. So it is also proved from this study of Pakistan, India and China stock market that market premium should be included in asset pricing model for required rate of return on equity estimation.

The results show generally the positive significant relationship between profitability premium and equity return in Pakistan, India and China. These results for profitability premium are consistent with the results reported by Pandya and Rao (1998), Fama and French (2005), Chen, Marx and Zhang (2010), Wang (2012) and Fan and Yu (2013) who conclude that profitability premium has positive significant relationship with equity return. It can also be noted that profitability premium is more prominent in Chinese stock market while less prominent in Pakistani stock market. In Indian stock market, it shows average results. It means that profitability premium should be incorporated in asset pricing model to estimate required stock return. It is also noted that the portfolio on the basis of profit shows significant relationship with equity return. It is stated that there is high equity return in the firms with high profits while there is low equity return in the firms with low profit (Fama and French, 2005). It is because high profit earning firms attract more investors and share prices are increased.

The firms with low profit may not attract more investors so the prices remain stable or less increase in price. So investment in high profit earning firms results in high equity return and investment in low profit earning firms results in less equity return. The results of the study show that there is positive significant relationship between equity return and profitability premium in the portfolio of high profit and negative significant relationship between equity return and profitability premium in the portfolio of low profit. So result of the study proves the theory in all three capital markets of Pakistan, India and China.

The results are consistent with the studies of Amman, Oesch, and Odoni (2012, Fun and Yu (2013), Min, Kang and Lee (2011) who report that INV premium has significant impact on equity return. It means that equity return has significant relationship with equity returns so it may be considered for asset pricing model. The results for investment premium in Pakistan, India and China are inconsistent with the results reported by Walkshausl and Lobe (2014), Preistly and Cooper (2010) and Nichol and Dowling (2014) who report that investment premium has

insignificant or week impact on equity return. It is also noted that the portfolio on the basis of investment shows significant relationship with equity return. It is stated that there is high equity return in the firms with low investment while there is low equity return in the firms with high investment (Fama and French, 2005). It is because low investment firms have more opportunities to invest in future and hence have capacity to grow in size and business.

So in future the increase in share price is expected by the investors and this expectation increases the share price that increases the equity return for investors. The firms with high investment may not attract more investors because of less future opportunities to invest and grow. Investors may not expect growth in high investment firms so the prices remain stable or less increase in price. So investment in low invested firms results in high equity return and investment in high invested firms results in less equity return. The results of the study show that there is positive significant relationship between equity return and investment premium in the portfolio of low invested firm and negative significant relationship between equity return and profitability premium in the portfolio of high invested firms. So result of the study proves the theory in all three capital markets of Pakistan, India and China.

This is also to observe that equity return and ROA for low profit portfolio show negative significant relationship in all three markets of Pakistan, India and China. It shows that profitability premium may decrease when investment is made in firms with low profit ratio. It is an anomaly to the general observation that the profitability premium is more in high profit firms than in low profit firms but not negative relation. Similarly equity return and INV show negative significant relationship for the portfolio of high investment. It shows that investment premium may decrease when investment is made in firms with high investment firms. It is another anomaly to general observation that investment premium is more in low investment firms then high investment firms but not negative relation. It is also to discuss here that the theory reveals the about the size and value premiums

that the size premium is high in firms with big size while less in firms with small size. Value premium is high in the firms with low BTM because return is due to variability in stock prices. Value premium is low in high BTM firms because stock prices are stable.

Chapter 5

Conclusion and Policy Recommendation

5.1 Conclusion

To examine the joint effect of market premium, profitability premium and investment premium on equity return in Pakistan, India and China stock market. Asset pricing model talks about market risk premium and then discussion has been going on to identify other anomalies that may influence stock return. Fama and French three factors model emerges and then five factors model comes on to surface. Some researchers challenge the five factors model and then CNZ alternative factors identification comes on surface. CNZ (2010) adds two alternative factors in five factors model of Fama and French by arguing that investment premium and profitability premium have more explanatory power than other factors.

This study tested the presence of market premium, profitability premium and investment premium in Pakistan, India and China stock markets. The study proves the existence of CAPM in all three capital markets and also results in existence of CNZ (2010) alternative three factors model in which profitability premium, investment premium and market premium have positively significant relationship with equity return. In India and China stock market, it is noted that

the stock market is more developed so that the impact of profitability, investment premium and market premiums are more dominant and significant then Pakistan stock market.

It is because Pakistan stock market is not as developed as India and China and there are many other forces impact the required rate of equity return then only market, profitability and investment return. The investment return in all three countries show significant relationship with equity return when portfolio on the basis of investment are tested which means that in Pakistan, India and China, investment premium affects equity return. The results of the study prove the theory in which it is stated that market premium, investment premium and profitability premium are important and significant. These premiums explain the equity return. It can be concluded that for return on equity estimation, the profitability premium, investment premium and market premiums should be incorporated in asset pricing model.

5.2   Policy Recommendations

The study results are consistent with recent studies that outline the important policy recommendation for investors and firms.

- In Pakistan, investors must incorporate other factors also than only market premium, profitability premium and investment premium in asset pricing model because there are many other factors impacting on equity return. But in India and China investors must incorporate market premium and profitability premium and investment premium in asset pricing model as this study proves the existence of these premiums in all three capital markets.

- Investors must update themselves with the information about the firms and the future plans for new investments.

- Firms must disclose all necessary financial information for investors to analyse the equity return.

- There should be minimum information asymmetry between investors and insiders that will not only strengthen the capital market but also makes the investors' decision more rational.

- Firms must update data for investors to encourage investors to take rational decisions.

5.3   Future Direction

This study gives following future direction.

- The future study should be done with large sample size from all industrial sectors from Pakistan, India and China.

- Alternative statistical tools may be used in future to confirm the results.

- The portfolio may be constructed on different basis that may change the results.

- Other anomalies i.e value premium, liquidity premium etc can also be tested along with these three premiums to find more accurate factors.

- This is country specific model but not a general model. So future research can test a general model for further study.

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