CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Impact of Accounting Anomalies on Stock Returns

by

Tayyaba Zahid

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This thesis is proudly dedicated to Almighty Allah

and

All my beloved family, my parents, my teachers and my friend Hassan Siddique Madni Thanks for your endless love, sacrifices, prayers, Support, guidance and advices.

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY

ISLAMABAD

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List of Publications

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Abstract

This purpose of the study is to investigate of earnings and accounting anomalies on forecasted returns and forecasted earnings. The study has employed 100 non-financial firms from 12 sectors for the period of 2004 to 2014. The empirical results of the study show that accounting anomaly variables predict future returns in the same direction as they forecast forward earnings and growth these variables are accruals, asset growth, investment and external financing. These anomalous returns which are associated with accounting variables are dependable with rational pricing.

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Chapter 1

Introduction

In recent years stock market efficiency is questionable due to availability of information. The stock market efficiency cannot be explained by single factor model to explain the relationship between risk and return, as Sharpe (1964) develops Capital Asset Pricing Model to show this relationship of risk and expected return by a sole determinant. In order to take advantage of market mispricing, investors make anomaly trading strategy to earn abnormal returns. This phenomenon is studied by previous researcher to observe the behavior of share prices and trade-off between risk and return in stock market. Ross (1976) explains this relationship by using more realistic assumptions based on stock market inefficiency in Arbitrage pricing theory.

Fama (1970, 1991) associates these abnormal returns with market inefficiency that can be explained with a asset pricing model for expected return and risk borne. It is stated, due to multi dimensional characteristics, returns are anomalous that can be exploited by investment strategies to take benefit of market mispricing. Number of accounting variables is used by researchers to predict the returns for risk taken if prices are risky, Basu (1977, 1983) use earnings-to-price to predict the returns and reports these returns as anomalous due to market mispricing, Ball (1978) argues that earnings-to-prices is a yield which are related to risk because for equities this yield reflects earning growth and based on earning realization which are differ from expectations.

Fama and French (1992) associate risk with earnings and earnings growth and identify Book-to-price as a variable in their asset pricing model that predict risky earnings growth for assessing abnormal returns but with little explanation. Along with Fama and French (1993) model to explain the relationship between risk and return with Book-to-price factor. Penman and Reggiani (2013) show that B/P indeed predicts earnings growth empirically and modifying views in the anomaly studies of recent decade show how accounting anomaly variables such as earnings-to-price, book-to-price, accruals, sales growth, and asset growth, consistently forecast returns (Penman, Reggiani, Richardson, & Tuna, 2013).

To investigate this query, model of undertaken study explains expected returns to earnings expectations and growth of earning, to observe if market prices are risky, these variables which predict earnings and growth of earnings also forecast required returns. It is found that number of accounting variables which forecast returns also predict future earnings in the direction which is same as they predict returns, these are accruals, profitability, asset growth, investment, and external financing and these returns are consistent with rational pricing of these variables. Model of this study is not a model of equilibrium expected returns for risk because asset pricing model does not include accounting characteristics directly to the model of forecasted returns.

The undertaken study is to the best of my knowledge is first study in the developing country like Pakistan to find that those variables which predicts future returns, also predict forward earnings and growth that one associates with risk with a multi factor model with good explanatory power. The goal of undertaken study is to address these questions whether earnings and earnings growth forecast expected returns? Whether accounting anomalies forecast expected return in the same direction as they forecast earnings and earnings growth? In doing so, we are able to help the decision maker to invest and analyze whether securities are fairly priced or not and it presents a model based on accounting anomalies and we are able evaluate the progress of existing empirical work, but more importantly, we also able to add some empirical work in existing literature.

1.1 Theoretical Background

The behavior of share prices and relationship between risk and return in financial markets, have long been of interest to researchers. Since the inception of Sharpe (1964) Capital Asset Pricing Model as β is the sole determinant of risk, one of the important problems in financial economics arise, that is the quantification of the relationship between risk and return. Ross (1976) develops Arbitrage Pricing Theory based on more realistic assumptions as an alternative to Capital Asset Pricing Model to overcome its weakness. Though, Arbitrage Pricing Theory has potential to overcome weakness of Capital Asset pricing Model and allow the researcher to take whatever factor with better explanatory power but it cannot explain the variation in return. However, the academic world is divided between defenders of beta yet (Sharpe, 1964; Cheng, 1995; Grundy & Malkiel, 1996) and APT supporter (Chen, 1983; Chen, Roll & Ross, 1986; Fama & French, 1992).

Stock market inefficiency and availability of information leads to abnormal returns and investors take positions against this inefficiency this phenomenon is studied by many other researchers, As Fama (1970, 1991) identify other factors which have strong impact on the relationship of risk and return, they challenge beta as a predictor of expected return and use firm size and Book-to-price combine to become a strong predictor of expected return and Earnings-to-price in a three factor model and show asset pricing effect are not always rational market overreact to the prospects of the firm. Basu (1977, 1983) use earnings-to-price ratio as predictor of expected returns which shows the returns as anomalous to mispricing of stock market, Ball (1978) argues on the earnings-to-price is a yield to forecast return that is related to risk. It is argues, unlike a bond yield, for equities this issue is difficult due to these three reasons (1) Equity does not includes fixed contractual payments (2) Earnings yield reflects future earnings growth (3) Earnings is determined by accounting and it based on how accounting is done. Finally, Basu (1983) shows that earning-to-price help to explain the average return of U.S stock and Ball (1978) declares earning-to-price is proxy that incorporate some unnamed factors in expected returns.

Considerable accounting research address these issues in their study because mostly asset pricing model which does not incorporate accounting attributes in expected returns modeling, they adapts characteristic model to identify how accounting anomalies variables are related to returns (Penma et al., 2013). The academic researchers keenly focus on this relationship, as Shafrin and Stattman (1980) explain the relation of average return of U.S stock and ratio of book value of common equity of a firm to market value is positively related. It is found that firm's book to market equity also has a very strong impact on explaining the cross section of average return (Chan, Hamao, & Lakonishok, 1991).

Researchers use some accounting numbers which add in current earnings to forecast forward earnings, forecasting returns from the financial information which predict that forward earnings are different from future earnings (Ou & Penman, 1989). Researchers add some accounting variables in their study to predict the future returns in anomaly research. Sloan (1996) uses Accrual anomaly for explaining the relationship between risk and return with better explanatory power. Change in Net operating Asset use as anomaly variables to predict future return and declare it as primary variable for predict returns (Fairfield, Whisenant, & Yohn, 2003). Afterward Penman and Zang (2006) find in their study that change in net operating asset is a primary earnings forecasting variable.

Researchers in anomaly studies use Mishkin model to investigate mispricing, in that model forecasting tools which use for forecasting future earnings and forward return which apply in parameter earning accounting but undertaken study earnings is differ from return because of expected growth. Chen, Novy-Marx, and Zhang (2010) use return on asset as a anomaly variable in their study to investigates its impact on stock return, it is found this variable is positively correlated with forward earning yield and also correlated with earnings-to-price which forecast forward earning yield. The relationship between growth in return on asset and investment is negatively associated with required return (Cochrane, 1991).

Studies prove that predicable returns are linked with accounting based variables; earning to price, growth in sales, book to price, accruals, and asset growth. Evidence generate from the portfolios constructed based on the information that

is publicly available result apparently abnormal returns. However, the problem which support these evidences usually is that the abnormal returns which we estimate is nothing just more than a premium for risk and the researchers have not succeed yet to identify and could not accurately measure. If this is so, then the evidence does not represent the inefficiency of the market, rather than the deviation from perfection may be able to measure the risk accurately which affect the asset pricing.

An enormous amount of literature has been written on the two models. It is widely believed that the Arbitrage Pricing Theory performs very well compared to the Capital Asset Pricing Model and provides an attractive alternative in the studies which are related to share price behavior and risk return trade-off, researchers find abnormal returns and the market inefficiency that explained by asset pricing model which creates a benchmark for the normal return for respective risk borne as long recognized in the study (Fama, 1970). Every theory has its unique implications on how accounting anomalies are linked with rational forecasting of future earnings and earnings growth. In order to identify which of the anomaly variable have significant effect on future earnings forecast, it is needed to predict a relationship between theories and determinants of abnormal returns. Most of the forecasted returns compare with the normal returns provided by asset pricing models such as the Arbitrage Pricing Theory in the numerous studies of multi-factor models, most widely studied three factor model of (Fama & French, 1993).

In recent years stock market efficiency is questionable due to availability of information and Arbitrage Pricing Theory based on the assumptions that risk free arbitrage cannot exist in efficient market and zero investment portfolio for sure profit which shows that decision maker while making decision based on financial statement data forecast expected return not only by using standard model of risk and return equilibrium (Ross, 1976). Some other factors also play vital role to predict future returns as suggest many researchers in their model. Due to market inefficiency returns are multi dimensional, this is why undertaken study focus on number of some other accounting anomaly variables to predict the future returns

because by adding these variable in standard models of risk and return to increase its explanatory power.

Contrary to Arbitrage Pricing Theory, Capital Asset Pricing Model Sharpe (1964) base on the Law of one price and efficient market hypothesis which, states that relation between risk and return is linear, return become higher as risk taken and beta is sole determinant of return which incorporate all factors that effects the return of a portfolio. No other factor affects the returns and investors are well-aware about the market prices and market condition but due to market mispricing and inefficiency of stock market Capital Asset Pricing Model is not valid. Other factors also affect the returns of securities and due to available information and its interpretations by the investors as per their behavior and personality traits while they make decision which deviate the securities from their fundamental value.

1.2 Problem Statement

In this Study Impact of accounting variables are examined to predict the explanatory power of model. Accounting variables and other basic forecast variables predict future returns or not to make better investment decision. Numerous studies have been conducted to investigate numerous variables to predict stock returns, including accounting variables. Emerging markets of Asian countries have greater level of information asymmetry and other market inefficiencies such as weak investor protection and inadequate disclosure systems (Tsai, Young & Hsu, 2011). Despite, the interest of researchers on anomalies and stock returns, the finding of the majority studies conducted in developed countries cannot be generalized and may not necessarily have any application in the context of Pakistan due to the absence of a robust legal system and inefficient capital market. This is the one of pioneer study in Pakistan to examine whether anomalous return predicted by accounting variables are abnormal returns or normal return for risk.

1.3 Research Questions

This study has the following research questions:

i. Do forward earning forecast and earnings growth predict expected future stock returns?

ii. Do the accounting variables such as accruals, growth in assets, investment, and external financing that predict the anomalous returns as earning and earnings growth?

1.4 Research Objectives

This study has following research objectives:

i. To investigate the impact of earning on stock returns.

ii. To examine the effect of forecasted earning on stock returns.

iii. To explore the impact of accounting anomaly on forecasted stock returns.

iv. To investigate the impact of earnings and accounting anomalies variables on growth.

v. To investigate the impact of accounting anomalies on future earnings and growth.

1.5 Significance of the Study

The study contributes by providing further empirical evidence in attempting the answer of two questions regarding accounting anomalies, risk and returns. First question is that, whether some variables predict stock returns, including variables which are based on accounting such as accruals, growth in assets, investment,

external financing, and net share issuance? Secondly, Do the accounting variables that predict the anomalous returns exhibit features that one associates with risk?

This study also contributes in the body of knowledge by providing the empirical evidence from emerging market of Pakistan regarding the prediction of future earnings and growth and as well as future returns by using basic forecasting variables and accounting anomalies. It is conjectured that the studies which are documented in European or USA may not have the same implications for the Pakistan investors and business. As country to country markets behave differently because of different accounting procedures adopted by the various countries. Moreover managers use discretion to manipulate the information for company or their personal interest.

The prediction of future earnings and returns and its components are widely studied in developing and developed markets of Europe, USA and Australia but in (Asian) emerging market like Pakistan it is still unexplored. This study adds in the growing body knowledge about implication of forecast future earnings and return forecast for emerging markets. This study also helps to understand which accounting anomaly increase the prediction power of future earnings and returns the investment decision in Pakistani market.

1.6 Plan of the Study

This thesis is organized as follows. First section of the study is comprises of introductory text regarding accounting anomalies and market inefficiency. This part also includes the theoretical background, problem statement, research questions, research objectives and significance of the study. Second section gives insights into the existing literature and their findings. Third section is comprises of the data description, measurement of variables and methodology. Fourth section is of empirical results, interpretations and discussion. Finally, the fifth part consists of conclusion.

Chapter 2

Literature Review

Sharpe (1964) put forward a question about the relationship between risk and return of securities. Since then many studies attempt to identify the number of factors that explain this relationship. Researchers in the beginning of this rising issue explain this relation by using simple linear relation and find beta as a sole determinant but with the passage of time researcher observe return is based on multi-dimensional factors and beta does not explain this relationship in better way. Role of availability of information in stock markets leads to inefficiency of market and abnormal returns, that is why other researchers associate this relationship with market pricing as Fama and French (1992) explain this relationship by using multiple factors in their studies, one of their study based on the variables Book-to-price, firm size and earnings-to-price to explain this relationship, data collects from NYSE, AMEX and NASDAQ from the years 1962 to 1989 , it is found that size has a negative premium and Book-to-price has positive premium and earning-to-price is a proxy to forecast future returns. Asset Pricing Model of Sharpe (1964), Linter(1965) and Black (1972) give a way to academic researchers that they think more deeply about the relationship of risk and return, but there are many contradiction in their model, the most important one is size effect which is challenged (Banz, 1981). He states that market equity has strong impact of expected return with better explanatory power. Bhandari (1988) argues on these models that model shows leverage should be captured by beta but in his study leverage has strong positive correlation with expected returns.

Shafrin and Stattman (1980) present this relationship in his paper, he explain the impact of Book-to-Equity ratio on the average returns of the stock in U.S market, he find there is strong positive relationship between average return and ratio between book value to market equity. Basu(1983) works on Earnings-to-price in his study and use this ratio as a proxy to predict future return and find positive correlation between Earnings-to-Price and stock returns but his proxy of earnings-to-price to capture returns is criticized by Basu (1978), he states that Earnings-to-price is used for equity securities and in case of equity, earnings realization based on future which involve risk, so this variable does not involve the factor of growth which is risky, So he add Book-to-price ratio proxy to measure growth to forecast future return.

Rosenberg, Reid and Lanstein (1985) investigates that there is a positive Relationship between return and book-to-market equity. This phenomenon is discuss frequently in that era, Chan et al. (1992) find that Book value and Equity is powerful for predicting returns. Due to multi-dimensional characteristic of returns as stated by Gruber and Ross (1978) in his model of Arbitrage Pricing Model and mispricing of prices researchers adds other accounting variables to forecast return because anomaly studies based on the financial statements data. Richardson, Tuna, and Wysocki (2010) and Dechow, Khimich and Sloan (2011) present a commentary about accounting anomaly which associates risk and return with inefficiency of market in their anomaly studies. Study on anomalies and abnormal returns is apprehension area of research and many researchers studies this topic in detail. Penman et al. (2011) adopt a model of anomalous return to find whether accounting variables impacts on expected returns. Substantial studies attempt to estimate the required return by estimation of the forward earnings rate and growth assumptions.

Researchers attempt to relate the returns with earnings growth under the umbrella of risk (Penman, 2010). This problem is study in the context of permanent income growth model where the growth of income is price risky to predict the expected returns (Ohlson, 2008). It is mentioned in the findings that market abnormality occur when markets fails to understand earning perseverance (Xie, 2001; Bart &

Hutton, 2004; Richardson, Sloan, Soliman, & Tuna, 2005). High returns associated with high risk is measured by number of researchers in their studies is the resolution of risk and uncertainty in prior periods that highly risky securities exhibits high average returns indeed (Beaver, 1968).

Various evidence here prove that market mispricing happens due to lake of analytical abilities of analyst which do not consider important factors while analyze and invest in securities which leads to mispricing and ultimately abnormal returns (Bradshaw, Richardson, & Sloan, 2001). Market practitioners and analysts ignorantly assess proper detail of financial statement information is concluded by experimental evidences, which is the reason that's why securities does not sell in their fundamental prices (Bloomfield & Hales, 2002). Researcher discuss that mistake in information processing impact on aggregate level and result in mispricing and abnormal returns caused by wrong analysis of investors (Collins & Hribar, 2000). Due to not proper evaluation and lack of information of investors deviates the securities from intrinsic values and arbitrage activities starts to grab abnormal profit which create imbalance in market shows anomalies exists (Lev & Nissim, 2006).

2.1 Earning to Price Ratio

Basu (1978) attempts to explains the relation between risk and return, to explain this relation use earnings-to-price as a proxy to capture returns and find there is a positive relation between earnings-to-price and expected returns if the market prices are risky. He uses securities from equity market, and equity does not involve fixed contractual payments that is why factor of risk involve because in this case earnings realization base on future and future is uncertain and growth in earnings create difference in current and future earnings. The expected returns deviate due to growth versus value strategies of investment which is based on the assumptions that they are due to market mispricing. It is a generally accepted inference that earning to price use to capture the returns like rate of return on bonds which is associated with risk (Ball, 1978). Earnings-to-price yield to predict expected

return and this factor relates to the risk which is associated with estimated payoff has lower priced and highly risky (Berk, 1995), and some studies describe that due to earnings fluctuations in futures, change in premium is persuade by growth in residual earning and current earnings is differ from future earnings (Feltham & Ohlson, 1995).

It is stated that when earnings are used to predict future returns, recent price earning and end period price and earning use to formulate the earning and required rate of return that shows the change in the premium is persuade by expected rate of earning (Ohlson & Juettner-Nauroth, 2005). Moreover, recent decade researches document volatility in prices of stock are effected by future earnings realization of that stock that's why anomalies create and prices deviate from their fundamental (Dubinsky & Johanner, 2006). Earnings is a factor which is extract from the accounting statements and results of difference in accounting principles approach and implementations, which creates difference in earning and expected earning calculation estimation, conservative characteristic of GAAP shows book value lower and enhance the value of expected earning in future modeled by previous study (Felltham & Olson, 1995).

Usage of conservative principles of accounting for long period move earning of future from short term to long term and change the earning expectations of investors and analyst use different techniques to analyze the future earnings it result in trading securities underpriced or overpriced which challenge the efficiency of market (Zhang, 2000). Researchers analyze that payout policy determines on the basis of prolong and stable future earning capability of company which shows that other accounting statements factors impact on earnings and capability of a company to earn high profit in future or not (Lintner, 1956). Beaver and Ryan (2000) reach at this conclusion that behavioral biases makes the investor conservative while making decisions, they think constant difference between market value and book value is temporary which is dissimilar the differences which are characterized by the facts of economic gain and loss written in the book of accounts of an organization. Gjesdal (1999) makes it clear that there is a difference between accounting and economic profitability, conservative investor when make investing decisions they

consider accounting yield is greater than economic rate of interest as compare to cost.

2.2 Book to Price Ratio

It is argued that only Earnings yield is not forecast the expected return because of growth and future realization of earnings contain element of risk, it is stated that Book-to-price ratio capture the growth of earnings to predict the expected returns (Ball, 1978). Fama and French (1992) asset pricing model include Book-to-price as a proxy of growth in their study to explain the relationship of risk and return and Book to Price to estimate the returns of future of securities. Their model show clear picture of expected future returns indicated by Book to Price that it predicts future growth or not on the basis of risk associated with growth. Penman and Reggiani (2010) also explain the growth factor in their study that explains the relationship of growth with future expected earning of securities. Penman et al. (2013) discuss their findings that Book to Price is a proxy of forecast earnings growth experientially.

Studies prove that variation in the outcome of growth leads to higher Book to Price ratio, Sharoff (2005) explains his finding that if there is no future growth then earning yield is equal to expected return of the securities and if element of growth exist and current earnings differ from future earnings then earning yield does not capture the return accurately. Another aspects of Book to Price that if premium over book value is no change as per expectations it indicated that expected future rate of return will be same as earning yield and the case of bond when premium in price considered and studies predict change in price of premium of bonds (Ball, 1978).

This relationship is explained by using another factor in their study that dividend also reduces the book value, by using clean surplus equation which is topic of interest for academic researchers in this regard and researchers observe that dividend reduces prices, it does not effect on the price and book value or the change between them and if price become less due to tax or other factors then it increase

the premium of the securities and it does not has significant effect on the dividend yield (Penma et al.,2011). It is argued that earning yield with addition of book to price capture the expected return but other researchers are doubtful to express their consent on this claim because they think that factor like profitability if add in that model predict expected return in better way because profitability has a strong positive relation with expected future return (Penman & Reggiani, 2008). Researchers find some approaches which are available to perform analysis to predict forward earnings and express this relationship of risk and return but other researchers declare these approaches less useful as they do not capture the information of financial statements completely, this strategy employed in many studies as contrarian trading strategy (Bradshaw et al., 2006), generally accepted model use the approach of multi factors to explains this relationship because it is fairly monotonic in the book to price (Fama & French, 1992).

Generally dividend base earnings and future earnings and it is indispensible to pay out dividend for organization because shareholder demands dividend and future earning realization makes the dividend risky, future earning division based on accounting rules to paid dividend on long term or short term basis, earning realized divided sometime for near future or for purchase of land and other fixed etc it creates high level of uncertainty for equity holder, they make investment decision and dividend expectations on the basis of parameter which represent future performance of a company by analyzing book-to-price ratio etc(Lettau & Ludvigson, 2005). Connor and Sehgal (2001) compare the three-factor model with Capital asset pricing model to determine which model better explains the cross section of portfolio returns in the Indian stock market. The sample companies for their study draw from CRISIL 500 (similar to the S&P index in the US). The companies sort by book-to-market ratio, taking above-median stocks as high and below-median stocks as low and researchers of previous decade do not allege to disclose all inscrutability how Book to Price influence the returns of stock but they revealed how returns influenced by some of risk (Chocrane, 1996).

Due to lack of certainty in earning growth lead short term expectations of investor to risk and following expectations of earning seems risky too it creates anomalies

and leads returns to abnormality this investor make strategy based on risky growth (Menzly, Santos, & Veronesi, 2004). Previous studies recommended low Book to Price leads to low stock returns despite of low Book to Price accredited to growth opportunities depends on other economic parameters (Merton, 1993).

2.3 Accruals

Researchers attempts to add other accounting variables to explain the relationship of risk and return, the reason behind adding accounting variable is that Arbitrage Pricing Model permits the researchers to use multiple factors to increase the explanatory power of their model, So researchers use accounting information to predict future return because returns of an organization base on the accounting data which is generated by business operations of an organizations. Sloan (1996) use accrual anomaly to predict future return, he consider earnings is a variable which is extract from accounting and business operations base on conservative accounting, it is correlated with returns, researchers focus on the availability of information in current earnings to estimate power of an organization for future earnings, it must be careful prediction to attribute abnormal return because of the correlation between particular predictor and returns, it is stated that accrual forecast earning and growth in earning in which direction where returns can be forecasted.

Considerable studies attempt to estimate the required return of return from the estimation of forward earnings, but it seems difficult to validate this estimation average realize returns (Easton & Pinder, 2007). Researchers use accrual as the change in noncash current assets, less the change in current liabilities exclusive of short-term debt and taxes payable, less depreciation expense, all divided by average total assets (Shivdasani & Yermack, 1999). Experimental results of studies show that manager's decision to perform accounting operations by using accounting standards impacts on accounting data which ultimately impact on expected returns on return in the equity market (Eckbo, Masulis, & Norli, 2000). Most of the research in the anomaly study in recent years concentrates on the quality of

accounting data which effects and change accounting estimation for calculation of expected returns and earning yield on later stages (Healy & Wahlen, 1999), this criticism applies on the calculation of accrual which use to identify poor quality earnings by using accruals anomaly.

It is found that impact accruals including depreciation along with other items is significantly associated with stock returns but this findings contradict with previous research because their findings shows that it has weak or negative predictive power for returns of the stock (Thomas & Zhang, 2002). Depreciation effect is strong on accruals and it is explained by the fact that it has impact on long term investment and working capital too. Number of study test the impact of Accrual reversals in their research of anomaly by using model of working capital accruals which is a function of sales growth and it is founded that accruals forecast earnings and earnings growth (Defond & Park, 2001). Moehrle (2002) investigates the reversal of restructuring liability accruals. It is evident that firms initially record excessively large restructuring liabilities and then strategically reverse the liabilities in future periods to meet earnings targets. Moehrle does not document the magnitude of the associated reversals or their impact on earnings and stock returns, since his hypotheses relate solely to the timing of the reversals.

Jones, Kaul and Lipson (1994) uses discretionary accruals in his research, it include un- sustainable earnings, by temporarily reducing bad debt estimation and some researchers reduce loan loss reserves from the accruals in the calculation of accrual anomaly (Beaver & Engel 1996). Study reveals that accrual has impact on the current earnings and future earnings that is why this increase or decrease returns of future (Moehrle, 2002). To calculate the accrual, current earnings consider poor indicator of the future earnings, by using this view, some accounting principles apply consistently from period to period which leads to sustainable earnings that reduce quality concern (Sloan, 1996).

Studies reveal the impact of cash flows on accruals anomaly, investors underreact or overreact to accrual while making decisions of investment and analyzing accounting information. It is found that using quarterly setting and controlling of cash flows accruals are strong positive associated with subsequent earnings

in this case investors under reacts to the accruals and this positive association between accruals and subsequent is weaker than association between cash flows and subsequent earnings. Some studies examine the relation of this anomaly to various firm characteristics and risk measures (LaFond, 2005).

Researcher tries to find out the reason why effect of cash flow increase and decrease accruals and they use accrual as a primary accounting variables in their studies (Sloan, 1996). Estimation of cash flow has impact on stock return can weaken or strengthen the relation between accrual and return, so they documented the correlation between future returns and accruals (Li, Mohanram, & Wu, 2014). In the anomaly research, impact of availability of information to the investors cannot be neglected because well aware investors analyze accounting data accurately to investigate its impact on future returns (Green, Hand & Soliman, 2011).

Collin and Hribar (2000) investigates the impact of changes in working capital a. it separates inventory and receivable accounts from discretionary and non-discretionary components, it is depend on the relationship of growth in sales, impacts of discretionary component on mispricing is captured by researcher and it is found that discretionary component is strongly associated with mispricing. Continuing the explanation of earnings management, Xie (2001) takes portfolios based on abnormal and normal accruals calculated using the Jones-model. It is found that that the abnormal returns are earned only in portfolios of abnormal accruals, and the part of accruals that is attributed to managers' accounting discretion. Firms which are indulging in insider selling is associated highly with accruals and earnings management.

Well known contributor of anomaly research who first use accrual anomaly Sloan (1996) indicates stock return of future which forecast on the basis of accrual, he explains that firms which earn high abnormal return of future leads to low standardized accruals and those firms which earn low abnormal returns of future leads to high standardized accruals.

2.4 Return on Asset

Anomaly researchers use Return on Asset anomaly to predict future returns on the basis of accounting data and financial statements but they do not measure Return on Asset as usually in text calculation of accounting because they do not add back the interest to calculate earnings (Chen, Novy-Marx, & Zhang, 2011). Theories regarding anomaly and this phenomenon are discussed by many researchers and use Return on asset with the combination of investment and it is found that correlation between Return on Asset and return is strong. Anomaly research shaped the way for the researchers to investigate the impact of profitability variables on the expected return posses good explanatory power to show the trade-off between risk and return (Fama & French, 2006).

Anomaly research use profitability variables which are related to the return, researcher argues on the impact of return on asset specifically gross return on asset is strongly associated with subsequent return (Novy-Marx, 2010) and the measure of gross profit support the forecasting of future earning in better way as compare to the bottom line earnings which is constantly.

As far as equity investors reservations about prices of stock they like to invest in those stock which pay high return and as well as positively related to future growth (Mitton & Vorkink, 2007). Contrary to equity investors, expectations of debt investors are opposite, expectations of debt investors about future earnings based on the credit risk premium that is negatively correlated with earnings of future (Dynkin et al., 2007).

The impact of accrual component of operating income is differ from cash component when we explain return on asset one year ahead. Accrual component is less persistent then cash component. Another explanation in this regard is that differential persistent of cash flows and accrual is conditional on recent return on assets and there is negative relationship between one year ahead return on asset which has inappropriate impact on growth in net operating relative to cash flows on the denominator of the ratio (Sloan, 1996).

However, increase in the risk of securities based on short time usually leads to increase in the return is temporarily which decline the prices of stock and returns are observed negatively until earning announcements create temporarily increase in expected future dividend that's why increase in systematic risk which is temporary explained through around earning announcement is usually difficult to assemble (Ball & Kothari, 1991). Many researchers of recent decade investigate the role of time period involve in arbitrage activity occur in market which challenge the market inefficiency which depends on the magnitude of days in which portfolio returns is forecasted by earning announcement (Balachandran & Mohanram, 2011).

Previous studies about the relationship of return and investor's priorities to invest in securities and opportunities of arbitrage to get high return shows that in equity market analysis base on the supposition that investor's ability to indulge them in trading according to the information circulate the market and quick reaction on the disclosure of the private information (Glosten & Milgrom, 1985; Kim & Verrecchia, 1994). Fairfield, Whisenant, and Yohn (2003) present the explanation that is base on the relationship between accruals and investments, it is observed that variable used by Sloan (1996) which is accrual is not only component of earnings but also a component of growth in net operating asset. Their study suggests that the predictive power of net operating asset changes and working capital is almost similar. So, this is found that accrual anomaly shows the growth effect due to marginal returns from investment. The relationship between net operating asset and growth is significant and net operating asset capture the impact of both new investment and non investment change, these variables considered to investigate the combine investment- and non-investment-related changes in balance-sheet accounts, to know whether investment actually explains their findings. (Wu, Zhang & Zhang, 2010).Studies show that to get high returns mostly investors involve in insider trading these investors are well informed about the fluctuation in prices and skillful to process publicly available information (Glosten & Milgrom, 1985).

2.5 Change in Net Operating Assets

Change in net operating asset use in anomaly study to explain the relationship between risk and return. Numerous studies which relates to the accounting anomaly to investigate the impact on stock returns, it is found that change in net operating asset is strongly correlated with future returns (Fairfield, Whisenant, & Yohn, 2003). Penman and Zhang (2006) states that change in net operating asset use as basic forecasting variable of earning forecast for future, forecast of growth is not clear as it should be, but change in net operating asset is itself a variable which predict growth efficiently , their study adds explanation about this phenomenon which shows that it increase the current earning and decrease future earnings because expenses is charge to the earnings in the balance sheet increase the current earnings but when they charge to income statement it decrease the future earnings but decreases future earnings.

Net operating asset use as a accounting variable in anomaly study according to conservative accounting when investment add in earning it decrease the marginal rate and this increase in expenses as a result, it is not quite surprising because under a clean surplus accounting system because change in net operating asset = investment + operating accruals (Penman & Zhang, 2006). Companies which issue new shares either by initial public offering or by seasoned equity offering and realization of poor performance of prices of long run stock, while issuing new equity firms have high capital expenditures relative to the total asset than these firms which are non issuing, it has negative impact on future stock returns (Loughran & Ritter,1995). Researchers use change in net operating asset anomaly in their studies to examine their impact on stock returns and it is documented there is positive correlation between change in net operating asset and stock return and some researchers use change in net operating asset turnover anomaly to investigate its impact on future stock returns (Soliman, 2008). A stream of researches in modern era in finance and accounting documents various evidences to explain that prices in option market are move more efficiently as compare to equity market on the basis of information that prices in the options and their volume forecast (Pan & Poteshman, 2006). It is argue that volume of options also forecast the direction

of upcoming release of earnings (Mendenhall & Fehrs, 1999). Additional research in this area states that firms which have high level of net operating asset have strong correlation with high future earnings expectations (Cremers & Weinbaum, 2010).

2.6 Investment

McConnell and Muscarella (1985) indicate that announcements of increases in planned capital investments are associated and significant positively correlated with expected future stock returns. Blose and Shieh (1997); Few & Vogt (1997) find a significant positive relation between the magnitude of capital investment announcements and the level of new investment and significant positive impact on earnings and earnings growth and return expectations.

Ofek and Richardson (2003) states that reserve level of company and past earnings and profitability have strong impact on the future earnings and earnings growth. In considerable accounting research, researchers use profitability variables like investment, returns on asset to explain the relationship of risk and return beginning with Ball and Brown (1968) use accounting variables in their study to predict earnings and returns. Easton et al. (1992) observe that returns of stock for the long term are founded by realization of earning; future earning which are based on long term time period are risky, so results of earnings based on investment in equity financing. Principle of accounting linked the earnings to uncertainty of the future.

However, in the capital market presence of market frictions like information asymmetry play vital role to the investors who are more informed and seek to exploit advantage of information, they want to invest in the options securities to protect against downside risk and options offer leverage too (Roll, Schwartz, & Subrahmanyam, 2009).

An important limitation of the literature is that no study tests whether investment does (or does not) and net operating asset measure long term accrual but does not investigates that reflect new investment expenditures made by the firm as

well as accruals such as depreciation, asset write-downs, and deferred taxes that are not tied to new investment. Investors who own private information as well invest on the basis of volatility of equity prices that make their stake in the equity market stronger to take better return (Chan, Chung and Fong, 2002). Resistances are constantly occur in option market because in this market smart operators of money performs well according to the information circulate in the market as compare to equity market.

Reaction of investors over subsequent earning announcement if it is negative it leads to wrongly measurement of risk and returns show negative because risk averse investor want to minimize risk, it decrease the level of investment due to low earnings expectations, researchers explains that negative earnings announcement associated with low return of firm because investors analyze accounting data, though this is very difficult to explain the product of mispricing and wrongly measurement (Black & Scholes, 1973). It is stated that investment as a anomaly variable is associated with future stock return, in case of market inefficiency, when investors involve in arbitrage activities then the return of zero investment portfolio seems the reward for taking risk that return for the time period. In case of zero investment returns are always positive then risk-based explanations are overwrought then it is said that they based on the concept that those losses not observed in sample period, So results shows that chances of abnormal returns attached with that strategy are due to wrongly measurement of risk (Greenball, 1969).

Fazzari, Hubbard, and Peterson (1988);Morck, Shleifer, and Vishny (1990) studies find the results that firms prefer to invest in those securities with high return on asset, high profit after tax and other accounting parameters which are related to returns. Jensen (1986) argues that earnings yield and growth is not strong indicator of future expected returns, there are some other variables which predict the future returns. Studies suggest that the negative stock returns associated with high capital investments should is concentrated in the firms that fund their capital expenditures with seasoned equity offerings (Myers and Majluf, 1984). Li, Vassalou, and Xing (2004) suggest and use a model which investigates the positive

and negative shock which prevails in the market also have strong impact on investment decision by individual investors and financial analysts. Titman, Wei and Xie (2004) documents a negative relation between capital investments and future stock returns, it is argued that firms which increase their level of capital investment achieve lower stock returns for five subsequent years and evidence suggests that the negative relation between abnormal investments and stock returns which cannot be explained by either the risks or the characteristics of the firms and that are independent of the previous long-term return and equity issue anomalies.

Lamont (2000) test hypothesis in his study by using aggregate nonresidential U.S. investment data and found that a negative relation between abnormal capital investments and future stock returns.

2.7 External Financing

External financing is accounting anomaly variable in numerous study to examine its impact on stock return as well as earnings and earnings growth. It consist of all financing activities with interaction of capital market, as far as equity financing are concerned level of external financing and borrowing from general public in form of debt or equity have strong impact on the profitability of a company, it is use to predict returns (Li, Livdan & Zhang, 2009). Study investigate negative association between external financing and returns of the stock, they calculate external financing as change in debt added in change in equity divided by average asset (Bradshaw et al., 2006).

Various studies find that high capitalization of equity financing provides more efficient vehicle to the investors who are well informed and have ability to process private information in better way that company needs fund to run its business and it will have slow growth in near future and current earnings are low which leads to negative future expected return (Black, 1975). The most important study about this anomaly indicates that firms which has high gearing ratio is inversely related to high stock returns and future growth, capital structure is highly geared

by debt financing leads to low future earnings and growth expectations (Goodman, Neamtiu, & Zhang, 2011).

When the assumption of no tax is relaxed, studies suggests that firms theoretically try to enhance their level of debt as much as possible, high external financing by using debt imbalance its firm's capital structure which negatively related to its profitability. Later on, Modigliani and Miller (1963) propose their second proposition in which they agreed that debts have the advantage of substantial tax benefits. However, Deangelo and Masulis (1980) argue that uncertainty is associated with utilization of tax shields which increase the risk and future growth.

Stiglitz (1974) suggests that bankruptcy cost enhance with the increase of level of debt, and this add limitations to the optimal level debt. Furthermore Miller (1977) challenges the Modigliani and Miller (1963) second proposition by arguing capital structure decision is irrelevant even in the presence of personal taxes and corporate level taxes. Firm's total value does not change due to change in financial structure of respective firm. Miller (1977) argues that different investors have different personal income tax rates and the tax-exempt investors prefer to invest in debt, while investors in tax brackets prefer to invest in equity. Consequently, influence of corporate taxes and personal taxes tend to get cancelled and Modigliani and Miller (1958) capital structure irrelevance proposition remains valid even in presence of taxes.

Studies suggest that firms which are suffering from poor financial conditions due to economic factors and other business operations has high level of external financing from debt financing or equity financing, So as many study suggest that there is strong negative relationship between firms external financing and current earnings. External financing is also negatively associated with one year ahead earnings and earnings growth that is why also negatively predict future returns (Li et al., 2009).

In a recent study it is suggested that there is significantly importance of the amount of external financing to predicting future stock returns rather than the equity-debt composition of external financing because to increase the predictive power of the anomaly model to forecast the relation of stock returns for risky stock (Butler, Cornaggia, Grullon & Weston, 2011). Bradsaw et al., (2006) investigate

the impact of net overall financing activities on future stock returns it is found that net overall external financing activities negatively predict future stock returns more strongly rather than the individual activities.

On the other hand, other researcher found the reason of negative association and it is argue that the negative relation is due to the representation of the accrual anomaly that firms with higher accounting accruals have lower future stock returns (Cohen & Lys, 2006).

It is stated that when the expected return or cost of capital is lower than the present values of projects are higher this is the reason of high external financing. The real options theory stats that both internal capital and external equity financing play important roles in promoting economic growth (Berk, Green & Naik, 1991).

Chapter 3

Data Description and Methodology

3.1 Data Description

For the purpose of analysis this study uses data of 100 nonfinancial firms from 12 industries. The sample period is from 06/2004 to 06/2014. Data is collected from balance sheet analysis published at state bank of Pakistan with no missing variables.

3.2 Variables Description

Variables are categories into three distinct groups: Target variables used in regression equations, Basic forecast variables preceded by anomaly variables, these variables use in regression equation before adding anomaly variables and Anomaly variables.

3.2.1 Target Variables (Dependent Variables)

Variable used in all regression equations as explained variables for all three equations.

3.2.1.1 Forward Returns

In order to calculate the forward returns R_{t+1} of firm, this study use the most followed measure, annual returns measured as compound monthly returns (Penman et al., 2013).

3.2.1.2 Earnings per Share Growth Rate Two Years after Fiscal Year t ($\Delta Earnings_{t+2}/Earnings_{t+1}$)

This is earnings per share rate of growth for two years after fiscal-year t ($\Delta Earnings_{t+2}$ $/Earnings_{t+1}$). Earnings are measured same as well as current earnings (Penman et al., 2013).

3.2.1.3 Realized Forward Earning Yield ($Earnings_{t+1}/p_t$)

It is yield for realized earning of future for the year $t+1$ $Earnings_{t+1}/p_t$. Earning is measured same as earning for the current year and share prices, P are prices four months after year end for fiscal-year (Penman et al., 2013).

3.2.2 Basic Forecast Variables (Explanatory Variables)

Basic variables are followed by anomaly variables and use in regression equations before adding anomaly variables.

3.2.2.1 Earning to Price Ratio ($Earnings_t/p_t$)

This is current earning to price for year t ($Earnings_t/p_t$) measured as earning before adding extraordinary and special items, less dividend for preferred shareholder, with allocation of tax to special items at the rate of current Federal corporate income tax for the year. Prices and Earnings are on per share basis (Penman et al., 2013).

3.2.2.2 Book to Price Ratio (B_t/P_t)

This is book to price ratio (B_t/P_t), is book value at the end of fiscal year t for common equity, divided by current price. Book value and prices taken on the basis of per share. It is used by many researchers (Fama & French, 1992; Rosenberg et al., 1985; Lakonishok, Shleifer, & Vishny, 1994).

3.2.2.3 Change in Earnings per Share ($\Delta Earnings_t/p_t$)

$\Delta Earnings_t/p_t$ is the change in per share for fiscal-year t relative to its price (Penman et al., 2013).

3.2.2.4 Sales Growth ($\Delta Sales_t/sales_{t-1}$)

It is documented as sales growth rate for fiscal-year t ($\Delta Sales_t/sales_{t-1}$) (Penman et al., 2013).

3.2.3 Anomaly Variables (Explanatory Variables)

Considerable studies indicate that inclusion of accounting variables in current earning to predict future earning. Ou and Penman (1989;1991), the previous studies use financial statement information to predict future returns.

3.2.3.1 Accruals (ACCR)

It is measured as accrual is divided by average assets (Sloan, 1996; Fairfield et al., 2003). Accrual is calculated as total the change in change in inventory, account receivable, and changes in other current asset, less the total of change in account payable and change in other current liabilities, less depreciation and pay off expenses.

3.2.3.2 Change in Net Operating Asset (ΔNOA)

It is measured as change in net operating asset which is divided by average asset (Fairfield at el, 2003). Net operating assets is calculated as the sum of accounts receivable, inventory, other current asset, property, equipment and plants and other long term asset, less the total of accounts payable, other current liabilities and other long term liabilities.

3.2.3.3 Returns on Asset (ROA)

Return on Asset is measures as income before extraordinary items divided by lagged assets (Chen et al., 2010).

3.2.3.4 Investment (INVEST)

Investment is measured as change in gross property, equipments and plants by adding change in inventory divided by lagged assets (Lyandres, Sun, & Zhang, 2008;Che et al., 2010).

3.2.3.5 External Financing (EXTFIN)

External financing use as an anomaly variable in many anomaly studies (Bradshaw et al., 2006). It calculated as the change in debt by adding change in equity scaled by average assets.

3.3 Methodology

This study use panel data analysis to estimate whether anomaly variables which estimate future return that also predict the forward earning yield and forward growth. Panel Data Analysis is the most commonly used method to explain the linear relationship of dependent and independent variables. This approach forms the workhorse of econometric model estimation.

3.3.1 Regression Model

The model of undertaken study equates expected return to expectations of earnings to investigate, variables which predict future earnings and growth as well as forecast estimated return. Empirical analysis based on this model show that number of accounting variable that predict returns also forecast future earning and future growth in that way in which the returns are expected in future and this model adapts the characteristic return model to identify how anomaly variables are related to predictable returns (Penman et al.,2013).

In this empirical analysis, it is examine whether anomaly variables predict future earning yield and subsequent growth in that way as expected forward return. So, in the regression model of this study, first step is to estimate the forward earning yield regression and earnings growth regression.

3.3.1.1 Regression Model to Forecast Forward Earning Yield

To estimate future earnings forecast starts with current earnings as many studies suggest (Basu, 1977). Forward earning yield and Book-to-price forecast return and risky growth (Ellahie, Katz, Richardson, 2013). This model shows variables can be added in two methods either they predict risky growth or they add to current earnings to predict forward earnings.

$$\begin{aligned}\frac{Earnings_{it+1}}{p_{it}} = \alpha + \delta_1 \frac{Earnings_{it}}{p_{it}} + \delta_2 \frac{B_{it}}{P_{it}} + \delta_3 \frac{\Delta Earnings_{it}}{p_{it}} + \delta_4 ACCR \\ + \delta_5 \Delta NOA + \delta_6 ROA + \delta_7 INVEST + \delta_8 EXFIN + e\omega_{it+2}\end{aligned} \tag{3.1}$$

By using this equation it is examined whether anomaly variables forecast forward earning yield in that direction as they predict returns. It examines by using primary forecast variables alone then adding anomaly variables.

3.3.1.2 Regression Model to Forecast Earnings Growth

This Model is used to examine long term growth in that direction as the prediction of returns. The inclusion of $(\Delta Earnings_t/p_t)$ and $(\Delta Sales_t/sales_{t-1})$ incorporate

current earnings growth and sales growth.

$$\frac{\Delta Earnings_{it+2}}{Earnings_{it+1}} = \alpha + \delta_1 \frac{Earnings_{it}}{p_{it}} + \delta_2 \frac{B_{it}}{P_{it}} + \delta_3 \frac{\Delta Earnings_{it}}{p_{it}} + \delta_4 \frac{\Delta Sales_{it}}{sales_{it-1}} + \delta_5 ACCR + \delta_6 \Delta NOA + \delta_7 ROA + \delta_8 INVEST + \delta_9 EXFIN + e\omega_{it+2} \tag{3.2}$$

It examine by using basic variables alone then inclusion of anomaly variables.

3.3.1.3 Regression Model to Forecast Forward Return

Forward earnings yield forecast future return is examined by many researchers (Basu, 1977; Sharoff, 1995; Easton et. al, 1992) but forward earnings based on future realization of earnings that differ from expectations which is risky (Ball, 1978). So Book-to-Price variable use in modeling to predict future growth.

$$R_{it} = \alpha + \delta_1 \frac{Earnings_{it}}{p_{it}} + \delta_2 \frac{B_{it}}{P_{it}} + +\delta_3 ACCR + \delta_4 \Delta NOA + \delta_5 ROA + \delta_6 INVEST + \delta_7 EXFIN + e\omega_{it+2} \tag{3.3}$$

This model examine whether accounting variables that forecast forward return, predict future earnings yield and growth in the way as they predict expected returns. By using basic forecast variable first then add anomaly variables.

Chapter 4

Results

Following results have been found after the empirical analysis of the data.

4.1 Descriptive Statistics

TABLE 4.1: Descriptive statistics for the period of 2004 to 2014.

	Mean	**Median**	**S.D**	**Minimum**	**Maximum**
$R_{(t+1)}$	0.057	0.042	0.134	-0.485	0.726
$\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$	0.075	0.282	0.240	-0.557	0.586
$\frac{Earnings_{t+1}}{p_t}$	0.108	0.044	0.359	-0.677	0.596
$\frac{Earnings_t}{p_t}$	0.027	0.018	0.039	-0.080	0.400
$\frac{B_t}{p_t}$	0.140	0.052	0.190	0.074	0.692
$\frac{\Delta Earnings_t}{p_t}$	0.068	0.030	0.328	-0.577	0.696
$\frac{\Delta Sales_t}{sale_{t-1}}$	0.044	0.070	0.426	-0.084	0.698
ACCR	0.072	0.026	0.227	-0.512	0.798
ROA	0.188	0.144	0.156	0.008	0.691
ΔNOA	0.070	0.025	0.223	-0.654	0.594
INVEST	0.078	0.036	0.149	-0.622	0.793
EXFIN	0.048	0.028	0.124	-0.114	0.492

Table 4.1 shows the descriptive statistics about data. Average values and standard deviation of Target variables are $R_{(t+1)}$ is 0.057 with standard deviation 0.134,

$\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$ is 0.075 with standard deviation 0.240 and $\frac{Earnings_{t+1}}{p_t}$ is 0.108 and standard deviation 0.359. Average values and standard deviation of basic forecast variables are $\frac{Earnings_t}{p_t}$ is 0.027 and standard deviation 0.039, $\frac{B_t}{p_t}$ is 0.140 with standard deviation is 0.190, $\frac{\Delta Earnings_t}{p_t}$ is 0.068 with standard deviation 0.328 and $\frac{\Delta Sales_t}{sale_{t-1}}$ is 0.044 with standard deviation 0.426.

Average values and standard deviation of anomalies variables are for ACCR is 0.072 with standard deviation 0.227, ROA is 0.188 with standard deviation 0.156, ΔNOA is 0.070 with standard deviation 0.223, INVEST is 0.078 with standard deviation 0.149 and EXFIN is 0.048 with standard deviation 0.124.

4.2 Correlation

After limited discussion of data behavior next table shows the result of correlation among variables.

Table 4.2 reports the results of correlation among variables which forecasts earning yield. Table shows that current earning $\frac{Earnings_t}{p_t}$ is positive correlated with forward earnings $\frac{Earnings_{t+1}}{p_t}$, $\frac{B_t}{p_t}$ has negative correlation with current earnings and forward earnings $\frac{Earnings_{t+1}}{p_t}$ and anomaly variables ACCR, ΔNOA, ROA, INVEST which involve in business operations are moderately positive correlated with forward earnings $\frac{Earnings_{t+1}}{p_t}$ but negative correlation with $\frac{B_t}{p_t}$. Variables other than Exfin and ROA, have positive correlation with each other.

Table 4.3 reports the results of correlation among variables which forecasts growth. Table shows that current earning $\frac{Earnings_t}{p_t}$ is negative correlated with earnings two years ahead $\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$, $\frac{B_t}{p_t}$ has weak positive correlation with forward earnings two years ahead $\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$, $\frac{\Delta Sales_t}{sale_{t-1}}$ has weak negative correlated with forward earnings two years ahead and anomaly variables ACCR, ΔNOA, ROA, INVEST which involve in business operations are negatively correlated with forward earnings two years ahead $\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$ but positive correlation with current earnings. Variables other than Exfin and ROA, have positive correlation with each other.

Table 4.2: Correlation Matrix For Variables Estimate Earnings Yield.

	$\frac{Earnings_{t+1}}{p_t}$	$\frac{Earnings_t}{p_t}$	$\frac{B_t}{p_t}$	$\frac{\Delta Earnings_t}{p_t}$	**ACCR**	**ROA**	**ΔNOA**	**INVEST**	**EXFIN**
$\frac{Earnings_{t+1}}{p_t}$	1								
$\frac{Earnings_t}{p_t}$	0.189	1							
$\frac{B_t}{p_t}$	-0.034	0.210	1						
$\frac{\Delta Earnings_t}{p_t}$	0.050	0.063	-0.016	1					
ACCR	0.061	0.014	-0.024	0.045	1				
ROA	0.097	0.055	-0.072	0.050	0.036	1			
ΔNOA	0.011	0.008	-0.050	0.066	0.475	0.055	1		
INVEST	0.038	0.026	-0.099	0.032	0.017	0.059	0.031	1	
EXFIN	-0.015	-0.050	-0.065	-0.039	0.022	-0.019	0.021	0.148	1

TABLE 4.3: Correlation Matrix For Variables Estimate Growth.

	$\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$	$\frac{Earnings_t}{p_t}$	$\frac{B_t}{p_t}$	$\frac{\Delta Earnings_t}{p_t}$	$\frac{\Delta Sales_t}{sale_{t-1}}$	**ACCR**	**ROA**	**ΔNOA**	**INVEST**	**EXFIN**
$\frac{\Delta Earnings_{t+2}}{Earnings_{t+1}}$	1									
$\frac{Earnings_t}{p_t}$	-0.041	1								
$\frac{B_t}{p_t}$	-0.037	0.210	1							
$\frac{\Delta Earnings_t}{p_t}$	-0.053	0.063	-0.016	1						
$\frac{\Delta Sales_t}{sale_{t-1}}$	-0.020	0.024	-0.080	0.034	1					
ACCR	-0.033	0.014	-0.024	0.045	0.063	1				
ROA	-0.012	0.055	-0.072	0.050	0.015	0.036	1			
ΔNOA	-0.054	0.008	-0.050	0.066	0.035	0.475	0.055	1		
INVEST	0.057	0.026	-0.099	0.032	0.070	0.017	0.059	0.031	1	
EXFIN	-0.010	-0.050	-0.065	-0.039	0.024	0.022	-0.019	0.021	0.148	1

TABLE 4.4: Correlation Matrix For Variables Estimate Forward Return.

	$R_{(t+1)}$	$\frac{Earnings_t}{p_t}$	$\frac{B_t}{p_t}$	**ACCR**	**ROA**	**ΔNOA**	**INVEST**	**EXFIN**
$R_{(t+1)}$	1							
$\frac{Earnings_t}{p_t}$	0.025	1						
$\frac{B_t}{p_t}$	0.016	0.210	1					
ACCR	-0.011	0.014	-0.024	1				
ROA	0.055	0.055	-0.072	0.036	1			
ΔNOA	-0.020	0.008	-0.050	0.475	0.055	1		
INVEST	-0.044	0.026	-0.099	0.017	0.059	0.031	1	
EXFIN	-0.057	-0.050	-0.065	0.022	-0.019	0.021	0.148	1

Table 4.4 reports the results of correlation among variables which forecasts forward returns. Table shows that forward returns one year ahead have weak positive correlation with current earnings and $\frac{B_t}{p_t}$. Anomaly variables ACCR, Change in NOA, INVEST are negatively correlated with forward return except ROA and negatively correlated with forward return.

4.3 Fixed Effects Panel Data Model

Table 4.5 shows that current earnings is strong indicator of forward earnings, and Book-to-Price also predict future earnings but negative sign shows that low (high) book value of current earnings show higher(lower)subsequent earnings, this finding support the findings of previous researchers (Ball, 1978; Basu, 1977; Freeman, Ohlson, & penman, 1982; Fama & French, 2000). Current change in earnings has negative coefficient but it does not forecast forward earning yield. Anomaly variables, ACCR measures that accrual component of earnings relative to total assets and it predict future earnings. So higher(lower) accrual predict lower(higher) forward earnings it is indicated by negative coefficient. ΔNOA and investment also show this pattern. ROA take positive sign of coefficient in prediction of forward earnings, it is good indicator of forward earnings. Financing variable EXFIN has no impact on forecasting future earnings.

TABLE 4.5: Estimation for Forward Earning Yield Regression.

	Basic Forecasting Variables		**Adding Anomaly Variables**	
Variables	**Coefficient**	**Prob**	**Coefficient**	**Prob**
Intercept	0.453	0.000	0.114	.0012
$\frac{Earnings_t}{p_t}$	0.342	0.000	0.194	0.002
$\frac{B_t}{p_t}$	-0.066	0.000	-0.016	0.006
$\frac{\Delta Earnings_t}{p_t}$	-0.346	0.176	-0.055	0.105
ACCR			-0.015	0.000
ΔNOA			-0.063	0.008
ROA			0.084	0.000
INVEST			-0.069	0.000
EXFIN			-0.141	0.219
Adj. R^2	0.241		0.327	
P Value	0.000		0.000	

4.4 Common Effects Panel Data Model

Table 4.6 shows that current earnings forecast growth negatively, because P/E reciprocal of current earnings forecast growth. Book-to-Price forecast growth positively and strong indicator of growth as suggested by many previous studies Change in current earnings does not predict future growth. Accruals predicts future growth but change in net operating assets, investments, Sales growth, Return on asset and external financing are not strong indicator of future growth and negatively associated with growth because of it increase current earnings and decrease forward earnings in future because of future realization of earnings and predict negative forecast of growth.

TABLE 4.6: Estimation for Growth Forecasting Regression.

	Basic Forecasting Variables		**Adding Anomaly Variables**	
Variables	**Coefficient**	**Prob**	**Coefficient**	**Prob**
Intercept	1.530	0.000	0.030	0.011
$\frac{Earnings_t}{p_t}$	-0.744	0.000	-0.212	0.022
$\frac{B_t}{p_t}$	0.109	0.000	0.038	0.046
$\frac{\Delta Earnings_t^a}{t}$	-0.137	0.014	-0.024	0.053
$\frac{\Delta Sales_t}{Sales_t}$	-0.067	0.027	-0.011	0.041
ACCR			-0.073	0.032
ΔNOA			-0.035	0.018
ROA			-0.015	0.113
INVEST			-0.010	0.038
EXFIN			-0.017	0.239
Adj. R^2	0.201		0.372	
P Value	0.000		0.000	

4.5 Common Effects Panel Data Model for Basic forecast model and Fixed Effect Panel Data Model for Anomaly Variables

Table 4.7 shows that earnings-to-price forecast forward earnings yield and growth so, they forecast forward returns as findings of other studies (Penman & Reggiani, 2013). Book to Price does not have impact on future returns. Anomaly variables additionally forecast return except ROA because ROA forecasts forward earning yield and growth but in opposite direction, So this is not identified as a predictor to forecast return. ACCR, ΔNOA, INVEST, EXFIN predict return because it is realization of growth expectations and investment opportunities, So the realization of higher earnings through accruals, growth in asset and higher investment resolve

uncertainty about risky growth and lower the required rate of return indicated by negative coefficients.

TABLE 4.7: Estimation for Forward Return Regression.

	Basic Forecasting Variables		**Adding Anomaly Variables**	
Variables	**Coefficient**	**Prob**	**Coefficient**	**Prob**
Intercept	0.233	0.000	0.060	0.001
$\frac{Earnings_t}{p_t}$	0.130	0.000	0.079	0.029
$\frac{B_t}{p_t}$	-0.033	0.018	0.008	0.031
ACCR			-0.032	0.026
ΔNOA			-0.016	0.019
ROA			0.0173	0.211
INVEST			-0.001	0.018
EXFIN			-0.0023	0.023
Adj. R^2	0.177		0.231	
P Value	0.001		0.001	

Chapter 5

Conclusion and Recommendations

5.1 Conclusion

The undertaken study empirically examines that many variables with inclusion of accounting variables such as, accruals, asset growth, investment and external financing predict stock returns for Pakistani non-financial companies listed in Karachi Stock Exchange for the period 2004-2014 by using OLS cross-sectional regression analysis. This study reports that required rate of return with inclusion of risk indicate by the variables that forecast forward earnings yield and growth. Accounting anomaly variables come into this category because their predictive ability forecast returns such as accruals, growth in assets, investment and external financing predict the earnings yield for future and forward growth in that direction as they forecast forward returns.

It is stated that there is a strong connection between prediction of returns and rational forecasting which is core of rational pricing because generally accepted for benchmarking normal return is not available. This empirical study does not imply that anomaly variables predict returns for risk taken rather it predict returns more accurately to avoid mispricing by adding more factors in basic forecast variables to present model with better prediction power. Previous studies show that due to

not detailed evaluation of financial information by financial analysts while making investing decisions and overweight the past patterns by individuals deviates the prices from fair values and buy-side investors take advantage of mispricing and arbitrage activities starts and inefficiency occur in financial markets (Bradshaw et al., 2006). The model of this study explains the relationship of risk and return by multi-factors that predict forward returns, addition of anomaly variables in model increase the explanatory power to predict forward returns for risk taken.

The model of undertaken study estimates the future earnings and growth factor of future earnings estimation as well as returns to investigates the impact of accounting variables in this forecast to investigate their impact in return calculation for rational decision making. Making equates the expected returns to expectations of earnings and earnings growth that gives the answer of following question whether anomaly variables predict forward earnings and earnings growth in the same direction as they forecast return. Predictable returns associate with earnings-to-price and book-to-price as many other studies suggest Basu (1977); Ball (1978) but for equities this prediction is more difficult because of no fixed payments and existence of growth So, this model adapts some characteristics of expected returns model of Penman et al. (2013) and Fama and French (1993) model of three factors due to the factor of book to price.

This study differ from other anomaly studies in the treatment of growth, researcher of previous study use investment growth in growth and this study focus on earnings growth(Fama & French, 2006). Moreover, their studies consider long term growth for infinite period of time, this study focus on short term allocation of earnings and introduce expected earnings growth. So, model of undertaken study additionally accounting anomaly variables to enhance the explanatory power of model to explains the relationship between risk and return.

5.2 Recommendations

The relationship between risk and return explains by many studies using different factors to predict required return for risk taken to eliminate market inefficiency.

Wrongly or less detailed evaluation of financial information while making investing decisions deviate security prices from fair value. So, factors that play vital role with good prediction power need to explore to avoid mispricing and market inefficiency. These factors help the investors to evaluate financial information carefully to predict required return for risk taken. When securities trade on their fair intrinsic value markets will perform efficiently and it exploits the arbitrage opportunities that arise due to mispricing.

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