Pricing of Accrual Anomaly; Evidence from Pakistan Stock Exchange

By

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Certificate of Completion

This is to certify that Mr. Muhammad Sheraz has incorporated all observations, suggestions and comments made by the external evaluators as well as the internal examiners and thesis supervisor. The title of his Thesis is: Pricing of Accrual Anomaly; Evidence from Pakistan Stock Exchange.

Forwarded for necessary action

Dr. Arshad Hassan
(Thesis Supervisor)

Dedication

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, prayers,

Support, guidance and advices.

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Abstract

This study is aimed to explore the impact of accrual and cash flow on earnings and explains how investors value the information contained in earning components for future earnings of non financial companies listed at Pakistan stock exchange (PSX). The sample size of the study consists of 100 non financial companies from 12 different sectors. The sample period is 14 years from 2001 to 2014 with 1372 firm year observations. The companies that include in sample are selected on the basis of market capitalization. Mishkin (1983) test and Hedge based portfolio test are used to investigate the level of persistence of current earning components i.e. accrual and cash flow. It also provides the insight about the impact of current earning components (cash flow and accrual) to predict the on future earnings. Result of Mishkin test indicates that current earning is statistically significant and positively explains the future earnings. Earning persistence is less attributable to accrual in comparison to cash flow. Findings are inconsistent with Sloan (1996) as market underpriced the accrual and cash flow components of earnings. Hedge based analysis results are consistent with Mishkin test, as market is unable to generate the abnormal returns by creating arbitrage portfolio. The study concludes that accrual anomaly does not exist in Pakistan stock exchange. These findings are useful for the analysts and fund managers who focus on generating the abnormal return by creating the arbitrage portfolios.

Keywords: Earnings persistence, pricing, accrual and cash flow.

Chapter 01

Introduction

Investors, management of the firm and analysts face big challenges relevant to the earning. Manager priority is to achieve attractive profit growth for the firm which is directly linked to his current and future position and compensation. Analysts have to provide useful and well directed information to investors about current and future earnings.

Whenever new information is disseminated in market, investor interprets it as good or bad news and stock prices adjust accordingly. For example, if a firm is earning handsomely but don't announce any dividend in that particular year, investors may take it positive news as firm instead of announcing the dividend reinvests the earnings for a new project or for the extension of its current operations for future growth. This news is positively interpreted in market and prices of that firm's shares move upwards. On the other hand if a firm from last few years has not distributed any dividend and constantly issuing the new shares in order to generate the funds to run the operations. Market takes it as bad news as according to the Pecking order theory a firm first choice is to fulfill its capital requirement by using its retained earning then go for the debt and last option is to issue the new share in order to raise the funds. On the basis of current earning information (that may be good news or bad news) investors make the decisions because it is linked with future earnings.

General perception is that market is efficient in the term of information that is reflecting in individual stock or as whole stock market. It is assumed whenever new information is disseminating in market, security prices adjusted accordingly without any delay. Although from three types of markets (strong, semi strong and weak) concept which is given by Fama, (1970),

only weak or semi strong form of market are practically exists. One of the main reasons of capital market inefficiency is unequal distribution of information among all stakeholders. Those stakeholders who get the information quickly, they make productive use of it and earn abnormal profit. Investors with specific knowledge are able to generate the abnormal return by creating arbitrage portfolio. Whereas, due to the insufficient information of market mostly Investors are unable to forecast the future earning on basis of current earning information and bear abnormal loss. Numbers of investors follow the trend of the market and with likely knowledge they make the investment that creates bubbles in the market. Because of this mispricing, market overvalues or undervalues persistence of earning and its components.

By linking the above two paragraph, it gives a sense that in an inefficient market, information that exist in stocks and financial statements play an important role for the investors to interpret it well and on the basis of it, make the investment decision that generate the abnormal returns.

Accounting data is crucial for any entity to measure its performance and to predict the future because it gives a financial over view. Accounting system usually categorize into two types which are cash and accrual accounting system. The basic difference among these two types is only time of recording transactions. In cash accounting system whenever any transaction related revenues or expenditure are realized in the form of cash only then entry is made. The biggest flaw in this system is not having proper record of credit transaction at the time when it happens. This type of accounting system is only used by the small size businesses.

Conversely, in accrual accounting system whenever any transaction is made whether it is on credit or in cash from, all transaction record is maintained with date and time. This type of transaction usually involves future and past cash receivable and payments. Suppose if a credit transaction is made in past, whenever cash is realized it is matched and adjusted against that past

credit transaction which helps in maintaining the record more accurately. The components of earning (accrual and cash flow) are also related to this accounting accrual system.

Estimation in accrual accounting system is not always perfectly recorded as there are also chances of inaccuracy because of any wrong entry or due to the omitted record. Whenever any transaction is completed in more than one time period, in that transaction revenue which is generated (received cash) or the expenditure (payment of cash) which incurred should be estimated and this estimation process is known as accrual (accounting adjustment). Suppose if financial institution lend debt or a firm sells a product on credit. At the same time lender or debtor feels that there is a chance that a slice of debt or receivable may not be realized in future and that portion of amount is represented in provision of bad debt while making any entry in the accounting system. The uncertainly about bad debts are known as accounting adjustment or accrual.

International accounting standard board (IASB) addresses the difference among the two components of earnings that are derived from accrual accounting system i.e. cash flow and accruals. When any cash transaction is made amount of cash is received or paid at the spot where as accrual is related to the future which has uncertainty about its outcomes. Managers decisions are crucial as it plays vital role in accrual related future earnings because they sometime overvalue or undervalue the accrual to achieve their or firms related goals. Agency problem among manager and stakeholder also play an important role in manipulation of accruals, as managers used discretion on accrual for their personal interest rather than investors or stakeholders.

In the seminal paper, by Sloan (1996) earning consists of two components one is accrual (accounting adjustment) and other is cash flow from operation. To value a firm, it is very important for the investors and analysts to differentiate the accrual from cash flow because cash flow more correctly forecast the future return then that of accruals but usually market cannot interprets this information properly. When investors use current earnings to forecast the future returns they usually overrate the persistence of accrual and underrate the persistence of cash flow. As outcome of it, firms with high (low) accrual gets negative (positive) abnormal profit or abnormal loss and vice versa for the cash flow. This condition of market pricing is called accrual anomaly.

There are number of studies that are conducted to explore the components of accruals and cash flow from operations. Following studies focused on the relationship of accruals with other anomalies Collins & Hribar (2000) and Desai et al. (2004); some studies examine accrual components Richardson et al. (2005); Thomas & Hutton (2004) and Bradshaw et al. (2001), other studies including Dopuch et al. (2010); Pincus et al. (2007) identifies the presence of accrual anomaly in developed and under developing markets. Although most of the studies are conducted in developed countries (strong or semi strong markets) like Europe and USA. However, the empirical work in emerging markets especially Pakistan is very limited.

1.1Theoretical Background

1.1.1 Signaling Theory

Past literatures are focused on management-earning debate, as manager use discretions or privilege in accounting adjustment or accruals which is a means of information for investors and

capital markets. On the basis of this useful information manager sometime exploit the market, even the stakeholder's interest for personal interest which is cause of agency problem.

Wilson (1986) and Burghstahler & Daley, (1987) explore the evidence of signaling theory in their studies. Two models are used to investigate the existence of level of incremental information in accrual components, cash flow and behavior of stock returns at two information disseminating points. One is on earning announcement and other is arrival of annual report. Findings indicate that cash and accrual both have incremental information beyond the earnings. Although total accrual have incremental information beyond the cash flow and working capital incremental information beyond the non working capital accrual.

Kang (2005) demonstrate accrual as mean of private information that usually improves predictive power of investors about future earnings. Although few managers use accrual discretion for personal interest that may minimize the uses of accruals but more precise disclosure of accrual leads to more accurate forecasting about future returns.

1.1.2 Market Efficient Theory

Fama (1970) proposes the efficient market hypothesis. Efficient market hypothesis (EMH) states that financial assets prices are based on past and current information and this information is used to predict the future prices without any biases. This hypothesis also demonstrates whether it reflects all type of information (private and public). The study also classifies the market into three types strong (which possesses all type of information), semi (which has only publicly announced information) and weak form (which base only past data). Efficient market theory by Fama (1970) concluding that current prices of stock has been adjusted for all known information about that firm. Subsequently, efficient market theory views that analyzing company's financial

reports stock outlines is meaningless. Since all prices are fair and efficient in light of the fact that the smart investors have already offered prices to their appropriate levels, there is never an error between price and value.

Practically EMH does not exist in security markets, so there is always a margin for the market players to earn the unusual or abnormal return. Whatever an investor earns above the average return of market is due to anomalous behavior of stock prices. Sloan (1996) first time documents the accrual anomaly, than Bradshaw, Richardson & Sloan (2001) confirms it. According to these studies market does not correctly price the securities as a result of it accrual anomaly exist and market no longer remain efficient. Investors usually unable to differentiate among persistence of accrual and cash flow while making the future forecast of earning. Instead of it, investors on the basis of current returns make the decision as a result of it they get future abnormal loss and profit. Sloan (1996) findings indicate both earning component (cash flow and accruals) are significantly participate in earnings, although cash flow component of earning is higher than accruals.

1.2 Problem Statement

In past one and half decade in the area of accrual anomaly, numbers of studies are conducted and these studies extended in the body of knowledge from different dimensions. Accrual anomaly is documented in USA market by Sloan (1996), which gives a comprehensive definition and methodology to test the results which are still widely used by the researchers. Pincus et al. (2007) study based on 20 different markets of the world, Lippold & Loher (2012) check the mispricing in common law and code law countries and Ozkan & Kayali study based in Borsa Istanbul market. These studies indicate persistence and pricing of earning and its components to predict

the future are widely studied in developing and developed markets of Europe, USA and Australia but in (Asian) emerging market of Pakistan is relatively unexplored. In emerging market of Pakistan past few studies of Javid & Ahmad (2008) and Ibrahim et al. (2012) are based on determinants of stock returns by using CAPM. Although this study uses different methodology and proxies from past studies of Mahmmod & Ali (2011) and Mohammad & Javid (2015) to capture the mispricing of accrual anomaly.

1.3 Research Question

This study is based on following objectives

- Do current earning low or high persistence to predict the future earnings?
- Do accrual less persistence then cash flow to predict the future earnings?
- Does the information of earning components (accrual and cash flow) predict the future earnings?

1.4 Research Objective

- To study the impact of persistence of current earning for future earnings.
- To study the impact of persistence of accrual and cash flow for future earnings.
- To study the impact of mispricing of accrual and cash flow on the future earnings.

1.5 Contribution of the Study

This study contributes in the body of knowledge by providing the empirical evidence from emerging market of Pakistan regarding the pricing of accrual anomaly to predict the future returns and how accurately stock prices reflect the earnings components accruals and cash flow. On the basis of past literature in the area of accrual anomaly, there are few questions regarding accrual mispricing like do accruals behave in same manners while predicting the future returns. 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. In this context, the study design is quite similar to the prior studies of Sloan (1996), Xie (2001), Pincus et al. (2007), Dopuch et al. (2010) and Ozkan & Kayali (2015).

The prices of accrual 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. Pincus et al, (2007) in their study identify those countries that follow common law and legal regulations have evidence of accrual anomaly than that of others. This study adds in the growing body knowledge about implication of accrual for emerging markets. This study also helps to understand which component of earning is important while making the investment decision in Pakistani market.

1.6 Plan of the Study

The road map of this thesis is as follows. First chapter of the study is comprised of the introductory text of accrual pricing. This portion is further decomposed into different parts, including theoretical background, problem statement, research questions and research objectives. Chapter two consists of literature of previous studies. Third chapter of thesis is related to the data description, variables measurement, and methodology. Second last chapter is based on empirical findings, narration or interpretations and discussion. Last chapter is based on conclusion, policy implications and future directions.

Chapter 02

Literature

According to the Holthausen & Leftwich, (1983) managers select the best method of accounting among a different choice which reports the revenues or profits and it is considered as a good forecasting technique for cash flow of the company.

Healy & Palepu (1993) study the benefits of financial reporting and make the constrictive criticism on it. Study uses Information model to address the accounting and disclosure of information from capital market point of view. As managers have more information about current and future performance of the firm than that of investors even in case of efficient market. Accrual accounting system is not only have to record the historical data but also have the capacity to predict the future, so it is very helpful for the managers to share their superior information related to firms in order to help the outsider to know the financial condition of the firms. Financial reports are also an important source of information.

Stein (1989) studies the inefficient behavior of manager in context of security market. Managers use discretion to mislead the investors about firm's current and future value for the sake of current earnings. Kothari & Watts (1996) use five different models of discretionary accrual (abnormal accrual) to test the three different hypotheses (performance measure, opportunistic accrual management, and noise or accrual information hypothesis). Results indicate that manager discretionary accruals are timely and reliable measure of firm's performance. Opportunistic accrual management hypothesis demonstrate that manager use the discretionary accruals to manipulate the bad earnings or to hide the current abnormal accruals for future. Finally, noise hypothesis narrate that discretionary accruals are noise in nature for earnings.

Subramanyam (1996) uses Jones model to identify the discretionary accrual and replicate with the opportunistic earning manipulation pricing in an inefficient market. He studies that as manager use discretion to improve the earning capacity, so pricing of discretionary accruals increased. Results also demonstrate that discretionary accruals are the source of information about future earnings.

Defond & Park (1997) link job security with managers that are looking for smooth earnings on the basis of current and future performance. Results show that if recent (future) returns are weak (strong) manager look for debt from future earnings for current use. Where as if recent (future) returns are strong (weak) managers save the extra returns for future use. In the context of opportunistic earning hypothesis these findings demonstrate that discretionary accruals are source of communicating the information for future returns.

Nayak & Prabhala (2001) study that firms which split the stocks are announced the dividend as well. Hence, it is difficult to identify market reaction, as discretional accrual association and abnormal returns are due to stock splits or because of dividend announcement. Finding indicates both stock split and dividend is means of information, although 46% is not attributing to dividend announcement.

As past studies proposes that managers use discretion for signaling the private information but usually discretionary accrual consider as opportunistic approach because general perception about manager is that they mislead the investors. Louis & Robinson (2005) conduct a study to find whether manager use abnormal accrual as a signaling mean with stock splits or not and how market prices the abnormal accrual while announcing the stock splits. Results indicate there is significant positive discretionary accrual before the announcement of stock splits. Findings also

shows abnormal accrual is positively associated with stock split announcement. Both signaling effect and earning announcement drift effect is different from each other.

Huang, Liano & Pan (2006) examine whether stock split is a source of signaling about future profitability of firm or not. Outcome of the study indicate that the stock split announcement is negatively associated with future returns. Although stock split firms that make the payment of dividend have little evidence of future profitability. This study suggests stock split is weak or not useful signal as compare to discretionary accruals signals for the future prediction of returns.

Ball & Brown (1968) indicate that changes in unexpected earnings are positively correlated with future returns of the stocks. The information of earning announcement also takes long time in order to fully reflect in stock prices.

Bernard & Thomas (1990) idea of this study is to identify whether market share prices have the implication of current earning in future returns. Findings reflect that share prices are not able to fully reflect the implications of current earning for future gains or losses. Although, from economic point of view the level of mispricing that is replaced by post announcement drift is small (less than 5%) should results are observed in case of high earnings.

Bogle, (1991) uses fundamental analysis assuming efficient capital market that if intrinsic value of the stock market prevailing price is not equal, investors will decide whether to purchase or sell by taking into account transition cost. These activities might include selling the security if the intrinsic value is higher than its market price and buy if low. This activity will proceed until it subsequently corrects itself.

Reilly & Brown, (1997) indicate that although capital markets are efficient according to various sets of information, but finding of the studies show that market doesn't adjust the public information accordingly thus weak and semi strong form exists.

Dimson & Mussavian, (1998) summarize different articles on EMH and also demonstrate that there is no as such market which practically exists. There are number of studies that demonstrate that anomalous behavior exists in stock prices but there is no evidence of profit due to the inefficiency of market.

Hong, Lim., & Stein (2000), document the momentum in stock returns by using the gradual information diffusion model of Hong & Stein (1999). Finding indicates that market slowly incorporate the information of return in stock prices, even bad news take more time to incorporate in stock prices. Impact of analyst coverage is more for the share with negative returns in past then that of positive returns stocks.

Malkiel, (2003) examines the critic on EMH and predictability of security prices. Findings demonstrate due to the large number of investors in the market, there are high chances of mistakes in the judgment and some are not rational. As a result due to the irregularities in prices, sometime stock predication pattern exist for short time. Stock market is not efficient by nature but still no abnormal return is present for investors due to any anomalous behavior of stock prices.

Previous studies are focused to find the answer regarding the link between predictive powers of current earning and future returns in a capital market. The first empirical study on earning management is conducted by Ball and Brown (1968). Empirical studies indicate that changes in unexpected earnings are positive correlated with future returns of the stocks.

Beaver, Lambert, & Morse (1980), Easton & Harris (1991) and Demirtas & Zirek (2011) study the relationship among earning component (accrual and cash flow) and stock returns. Kormendi & Lipe (1987) investigate the unexpected earning (abnormal earning) on share return are positively associated with future earnings. For this purpose univariate time series model is used. Results report that current earning components (accrual has negative and cash flow has positive) have association with future earnings.

First study on accrual anomaly by Sloan (1996) report that current earning is positively correlated with future returns, so market use current earnings to predict the future return. Generally without proper information, investors have optimistic behavior about accrual and pessimist behavior about cash flow, so they believe that firms with high accrual earn more abnormal return then those of the firms that have low accrual. As a result of it they earn abnormal loss for high accrual and abnormal profit for low accruals.

Sloan (1996) finds that current earning has low magnitude of accrual and high magnitude of cash flow. In this study, he is unable to differentiate the properties of accrual and cash flow component, so it is very difficult to capture the effect of accrual and cash flow separately. To resolve this problem the study uses Mishkin test and hedging analysis. In his finding US market misprices, the total accrual from 1992 to 1991. By using the Mishkin test the study finds that market is overvaluing the total accrual while cash flow is undervalued. To confirm the results trading strategy is used, which capture the informational accruals that cause abnormal return. The study takes long position in bucket of returns which has most negative accrual and short position for high accrual buckets of returns. Results indicate that on average 10.4% abnormal profit are earned by market for the year.

Later on number of further studies explores the accrual anomaly from different ways. Xie (2001) findings are similar with Subramanyam's (1996) as author uses the jones (1991) model to test the accrual component which are non discretionary and discretionary. Mishkin test results indicate abnormal accruals are more persistence then normal accrual but both components of accruals are less persistence then cash flow from operation. Abnormal accrual is positively associated with future returns but it does not mean results always remain positive. Hedging analysis suggests that firm with abnormal accrual gain average 11%. It also suggests that the mispricing is not only beneficial for managers for IPO or season equity offerings but also helpful for the investors to gather the information of persistence of accrual that may lead to correct decision making. Xie (2001) also control the unusual and non articulated events by using jones, (1991) model to find the existence of abnormal mispricing. Findings show that after refining the other factors, market still misprices the abnormal accruals.

Hribar & Collins (2001) aim to examine the errors in measuring the accruals through indirect balance sheet instead of using accrual from cash flow statement. To explore the intensity of mis-measurement of accruals and cash flows, sample consist of NYSE and AMEX firms which include merger, acquisitions, divestitures and international subsidies. Study uses discretionary and non discretionary components of accruals, earning management tests, contemporaneous relationship among stock returns, accruals and market mispricing of accruals tests. Studies that use balance sheet accruals are not always provide the significant outcomes because of errors in proxies. Reported results of pricing of accruals show that accruals are underestimated because of misclassification of extreme accruals buckets.

Thomas & Zhang (2002) find the negative association among accruals and future abnormal returns because of change in inventory. Firms with high and low inventories have positive or

negative returns, growth and profit. These outcomes revert whenever there is change in inventories.

Richardson, Sloan, Soliman & Tuna (2005) focus to extend the body of knowledge in accrual anomaly by constructing a model. This model provides that the less reliable accruals outcomes in lower persistence of earnings so investors don't fully anticipate for it and this leads to stocks mispricing. They also provide a comprehensive definition of accruals and classify the accruals into different groups that are ignored in past studies; although results show these ignored components of accruals have low reliability. The study also documents that stocks are mispriced about 18% then previously captured by Sloan (1996) who reports 10.4% mispricing.

Yu (2005) investigates the accrual anomaly with three factors that are omission of cash flow, annual setting and full sample of the firms' reaction of investors toward the accounting adjustment. Results indicate that by keeping the cash flow constant and using quarterly approach, accruals are positively correlated with future returns. Although cash flow is positively correlated with future earnings and it is stronger than that of accrual. Due to the omission of cash flow there is negative association among accrual and cash flow. For full sample results are average but for sub sample it is stronger due to the accrual factor. By keeping the cash flow constant, it is observed that analyst under react toward the accrual which contradicts from previous studies in which analyst over react toward the accruals.

Mashruwala, Rajgopal & Shevlin (2006) investigate that investors don't understand the pattern of market and mispricing of accrual for future earnings. Findings demonstrate that due to not having any alternative portfolio close to high accrual deciles, risk free arbitrageurs do not help to remove the mispricing of accrual.

Chan, Chan, Jegadeesh & Lkonishok (2006) focus on the information that is important in earning quality to predict future earnings. Except gaining profit analysts, investors and researches do not focus on other financial statement items that may be helpful in earnings. Overlooked items are big source of information that improves the quality of earnings and future earnings predications. A multivariate return predication regression is used after decomposing the total accrual into abnormal and normal components of accruals. Results indicate that accruals anomaly address the manipulation of earnings by managers. Firms because of high accruals look very attractive for future earnings but these firms already cooling in their growth and on the other hand due to creative accounting managers delay the bad news. In subsequent period, special items also become negative, and it address the past years effects. This phenomenon is more existed in the firms with high accruals then that of low accruals firms.

Zhang (2007) compares the two different observations, one is investments (growth) and other is persistence for accrual anomaly. Findings indicate that growth and persistence of information exist in accruals. Accruals strongly co varies with increase in the number of employees, long term asset investment, outsider finance and other growth characteristic. These characteristics indicate that accruals not only address earning persistence but also the source of economic fundamentals. Outcomes also demonstrate investment observation. Accruals are different from industry to industry as forecasting depends on the business model of particular firm. Firms have high persistence of accruals in which accruals co varies with human resource growth than that of firms which have weak association with employee's growth. Conversely, there is no explanatory power for earnings persistence in cross sectional analysis of accrual anomaly. Long period earnings don't support the persistence.

Papanastasopoulos, Thomakos & Wang (2010) try to investigate persistence and mispricing of earning and its components. Study uses Mishkin test, hedging analysis and cross sectional regression. Earning is decomposed into current and non current operating accruals and cash flow is divided among equity and debt holders. Outcome of the study indicates that future returns have same implication as retained earnings which lead to overvalue differential persistence. It is also documented that there is low persistence and under valuing for higher persistence of cash distribution among debt and equity holders.

Richardson, Tuna & Wysocki (2010), address the accounting anomalies and analysis. Current earning and its components, future earnings and returns and stock information; these all ingredients are used to develop the a framework that help to document the predication benefits and best use of accounting information by using financial statements. By combing different papers of last decade which are based on accounting anomaly and empirical studies, this study critically evaluate the opinions and perceptions of practitioner community.

Allen, Larson & Sloan (2013) study the effect of reversals of accrual on future returns and share prices, an addition in the body of knowledge. Study uses Dechow et al (1998) model which is called MDD. Accruals consist of two different procurers; one is persistence that shows the growth of the firm and the other one is reversal by nature and it is temporary flotation of working capital. Rest of accrual component known as estimation error and it is used as control variable. Findings also indicate that growing firms have persistence of accruals but it is less persistence then cash flow from operations. Results demonstrate that mispricing of accruals is attributed to two components, one is accruals that have future benefits (firm growth accruals) and other is accrual estimation error.

Wu, Zhang & Zhang (2010) document the use of q theory in order to understand the response of the accruals. With respect of working capital accrual investment, institutions balance the accrual according to the offer discount rate. With low discount rate more project are viable and become profitable so the accruals rise as well but the future return shrink because low discount rate leads to low returns. With high discount rate more future returns are realized but few projects are accepted and accruals decreased. By adding a factor of investment in regression results indicate that there is decrease in size of accrual anomaly. Accruals are negatively correlated with discount rate which is calculated by using dividend discount model and residual earning model by Gebhardt, Lee & Swaminathan (2001). Optimal investment narrates the negative correlation among account reliability and accruals effects. Real investment is the basic force that runs the accruals anomaly.

Livnat & Santicchia (2016) investigate quarterly accrual anomaly that have similar behavior on annual accrual in previous studies. Findings indicate quarterly accruals are less persistence than cash flows, where as future returns are weakly correlated with accruals than that of cash flows. Results indicate a negative association among current accrual and future abnormal stock returns for cash quarters.

Past studies used different methods in their studies to decompose the accruals in two portion abnormal accruals and normal accruals. For this purpose different models are adopted. Bartov, Gul & Tsui (2001) focus on two models which included cross sectional Jones and modified cross sectional model to address the earning management and time series counterparts. Evaluating criteria based on observing the relationship between accruals components (normal and abnormal accruals) and audit qualifications. Findings demonstrate the link among abnormal accruals

generated by model and audit qualification shows the strong evidence to address the earning management.

Bartov, Gul & Tsui (2001) evaluate the six different models (Healy (1985) model, DeAngelo (1986) model, Jones (1991) model, cross sectional Jones model by DeFond & Jiambalov (1994), Modified Jones model by Dechow et al (1995) and Industry model by Dechow et al (1995) on the basis of their performance. Through contingency table tests, outcomes indicate that all three models of Jones are able to detect relationship between accruals components and audit qualifications. Univariate logit test explain that all the models are able to differentiate the firms that manage earning and those firms that are unable to manage except DeAngelo (1986) model. However, by controlling the confounding variables only two models are able to address the earning management.

Many studies have the criticism on Mishkin test (1983) which is widely used in testing the market efficiency. Few studies mention, Mishkin test gives only statistical results not proper economic interpretation. Anderson, Woodhouse, Ramsay & Faff (2009) use the Australian data to check the pricing of the earnings. Study tries to reply on a debate about omission of proxies in the Mishkin test. Piecewise linear version is used for Mishkin (1983) test to check the pricing of earning. To study the asymmetric effects they classify variables into four different categories that are size, industry, profit making and payment of dividend and use them in predicting the future return equations. Findings narrate the nature and level of pricings for accruals and cash flow are considerable which are categorized for model. Sample which consist of firms with small capital, loss bearing and firms that pay no dividend, have not significantly different from real and implied persistence of cash flow and accruals. It shows asymmetric effect on accruals are very important for the consideration while pricing the earnings.

Konstantinidi, Kraft & Pope (2012) state that share prices demonstrate the persistence of accruals and cash flows. Study use, Miskin (1983) test which is famous to measure the market efficiency of earning components. Panel estimation method is also used which report significant impact on market efficiency outcomes. Moreover, earnings fixation hypothesis does not properly explain the accrual anomaly. Accrual anomaly is less persistence to the cash flow, gives the sense that investors rationally differentiates the accrual and cash flow properly. Mishken (1983) test is very sensitive to the cross sectional association of the residuals. Although standard errors in Mishkin (1983) test reject the both accrual and cash flow pricing for future earnings.

Past literature also studies the relationships of accrual anomaly with other anomalies. Collins & Hribar (2000) examine the post earnings announcement relationship with accrual anomaly. Study uses Mishkin and Hedging analysis test to explore the market behavior of both anomalies in the term of market inefficiency and for this purpose quarterly data is used instead of annually. The Results demonstrate that unexpected earning and accrual are different anomalies and abnormal returns are significantly positively correlated with each other. Without involvement of any additional risk and losses, when study uses combine strategy surprisingly there is significant increase in the magnitude of abnormal returns in both anomalies. Findings also demonstrate that there is significant post earnings drift even if there is moderate level of accruals, when accruals are in opposite direction to unexpected earnings greater drift exist but when both are in same direction there is very low or no drift.

Zach (2003) studies the relationship of accrual anomaly with corporate events anomaly. Findings indicate that corporate events, mergers and divestitures are the reason to generate additional returns by the accrual. After removing the corporate events (merger and divestitures) returns of hedging analysis slightly decreased. From highest accrual deciles, when observations of merger

are removed almost 50% of accrual returns are decreased where as almost 20% of returns are decreased when the observation of divestitures are removed. Overall returns are decreased from 8.3% to 6.2%. It is almost 25% change in returns. Study also debates on different methods of calculating the long term abnormal returns, although these calculation methods have not much effect on accrual returns. If we add book to market and use the momentum in size as control variable for normal returns, there is decreased of 20% in accrual returns. Finally implementing the calendar time approach, which demonstrate that cross sectional dependency does not affect accrual returns.

Fairfield, Whisenant & Yohn (2003) state that accrual is a part of return on asset (ROA) and growth in net operating assets. Findings indicate that by keeping current return on assets constant, growth in net operating asset and growth in long term net operating asset are negatively correlated with future return on assets. Pervious accruals mispricing studies state that low persistence of accruals exist because it is the component of growth in net operating assets, so the low persistence of accrual interrelated with low percentage of profit or because of accounting bias of conservatives.

Desai, Rajgopal & Venkatachalam (2004) capture the relationship between accrual anomaly and value glamour. Findings show that after controlling the proxies of value glamour (stocks) that are past sales growth, book to market (B/M), earning to price (E/P) and cash flow to price (C/P), accrual are related with future abnormal returns. If we control the accrual, value glamour are correlated with future returns. It shows that both anomalies are different from each other. By refining the operating cash flow that is earning plus depreciation minus working capital accruals, finds a new proxy cash flow from operation to price (CFO/P). This proxy captures the mispricing of both value glamour and accrual anomaly. It gives the two way interpretation, first if someone

believes that value glamour is only operational C/P instead of CFO/P then value glamour and accruals are differently mispriced. CFO/P is a proxy that captures both mispricing and value glamour separately. Although if someone considers the value glamour anomaly as fundamental to price anomaly, in such case CFO/P is an expansion proxy of value glamour and mispricing of accrual is another form of value glamour.

The theme of Atwood & Xie (2010) study is to find whether accruals and special item are two different anomalies or both are same in nature. To check the relationship among accruals and special items constant hedge, non overlap hedge and regression tests are used. Special items for hedge portfolio are insignificant for future abnormal returns when accruals are used as control variably in high and low quartiles. Conversely, accruals are positively associated with future abnormal while keeping special items constant. Another finding elaborates that after excluding the top and bottom accruals quartiles, special items hedge portfolio gain average abnormal future returns. While accrual based trading strategy earns handsomely after removing special items.

Atwood & Xie (2010) after keeping the accruals constant, regression test indicate that special items do not remain negatively correlated with future returns. On the other hand accruals stay significantly negatively correlated to future gains or loss while using the special items as control variable. In last findings, Mishkin (1983) test is used to check the impact of special items on overpricing of accruals. Results indicate that special items have an influence on accruals so market react accordingly; it overprices the accruals positively and negatively. Hence it gives a notion that special items immensely drive the accruals, although its positive or negative impact depends on scenario of the market.

Few past studies that give different or alternative narration of accrual and its components as under. Dechow (2002) explores the new avenue to assess accruals and earning quality. On the

bases of assumption and estimation, main role of the accruals is to make adjustment so that time issue can be resolved for cash flow this might help to better measure the performance of the firms. Strong assumption and estimations leads to well match among current accruals and realization of cash flow which have historical, current and future links, whereas estimation errors may decrease the role of the accruals. From empirical point of view, accrual quality is used as standard deviation for the residual form the firm working capital on the basis of historical, recent and future cash flow.

Ng (2005) studies the relationship among accrual and risk factor while predicating the future returns. Accrual not only provides the information for future returns but also inform about future distress risk of that firm. There is negative correlation among accrual and distress risk, which shows that trading strategy have exposure to high distress risks. Only way of compensating the high distress risk is high future earnings. After controlling distress risk, future abnormal returns through trading strategy is decreased. More over firms with high level of accruals have more chances to face low distress risk than that of firms with low accruals.

Kraft, Leone & Wasley (2006) provide the alternative explanation by highlighting the importance of robustness tests in pricing of accruals and market securities while empirically testing the behavioral and economic explanations. This study also has the implications for other theory testing studies about associations among accrual and share returns. Like while using the robustness tests in their study, 1% of sample size is excluded which is almost 200 year observations cause of inverted U shape association among buy and hold abnormal returns (BHAR) and Sloan (1996) total accrual. This finding is in contrast with earnings fixation hypothesis. Xie (2001) also provides evidence about the similar inverted u shaped association

among BHAR, abnormal accrual and net operating assets. Moreover accruals anomalies exist because of investor's inability to interpret the market information.

Khan (2008) studies the accrual anomaly with reference to risk. Four factor asset pricing model is used to study the persistence of accrual anomaly from risk point of view. CAPM model used for certain portion of cross sectional variation of future gains or losses which pertain to high and low accrual based firms. In hedge analysis, four factors model outcome is significantly mispriced due to low persistence of accrual but returns are smaller in magnitude as compare to the other models. Performance of this model is better from other models that are widely used for pricing the number of hedge portfolio.

Hirshleifer, Hou & Teoh (2012) document accrual anomaly in a new way, as study explore the returns correlation among accruals while controlling the other common factors. Study builds an observation and gives the explanation about accruals which negatively forecast the future share gains or losses. They interpret that market have efficient information and the low accrual firms that take long positions have more systematic risk so they earn more returns. Study also differentiates both risk and mispricing of accrual separately, this allow more effectively test, the rational pricing factors. Study constructs a mimicking portfolio which uses conservative minus aggressive (CMA) approach to capture the risk factors that veiled the accrual effects. Findings show that Sharpe ratio is 16% more than that of market factors of Fama & Frecnh (1993). Time series and cross sectional tests have not supported the accrual factors loading and these finds support the behavior expectation of accrual.

This part of the literature is based on existence of accrual anomaly and behaviors of third party, which include investing firms, analysts and auditors and inside trader. Ali, Hwang & Trombley (2000) explore the relationship between persistence of accruals and future abnormal gains or

losses are related to fixation by investors. Results indicate there is negative correlation among persistence of accruals and annual share returns for the large size firms or those firms that use analyst forecasting. These finding are replicated for both type of tests, annual and quarterly earnings announcement returns. By using the regression and hedge portfolio tests, findings show that accruals ability to forecast the future returns do not depend on share prices, volume or transition costs and these findings are converse to the naïve investor's hypothesis. It shows that persistence of accruals for future returns is not result of market inability to understand the market information.

Bradshaw, Richardson & Sloan (2001) state that high accrual firms usually face problems to earn handsomely. For investors, it is necessary to have information about quality of earring and level of accruals in a firm. To examine what level of information investor's have, study investigate analysts (seller side) and auditors level of communication about quality of future returns and level of accruals in a firms. Findings indicate that analysts make high level of mistake in future forecasting about high accruals based firms. On the other hand auditors may have idea that high accruals may cause decrease in future returns but they don't communicate to the investors. It shows that both analysts and auditors don't communicate the investors about the presence and the intensity of accrual anomaly in firms.

Teoh & Wong (2002) state that analyst use the information contains in earning components (accrual and cash flow) to predict the future earnings. Finding show analyst doesn't properly use the past accrual and its components information in order to predict the future as analyst is overestimating the past accrual. Predictive power for abnormal accruals is greater than that of normal accruals. Forecast errors demonstrate the long term under performance of new issuers where as for non issuers forecasting error explains market inefficiency.

Elgers, Lo & Pfeiffer Jr (2003) examine third party (financial analyst) prediction about future earnings and values the accruals. Sample of study is decomposed in two groups one is the low and other is high analyst's coverage. Outcomes of the study demonstrate that over price of accruals in analysts earning prediction is less than one third of over pricing that is hidden in share prices. Firms that have low analysts coverage, have less than 40% delay in securities returns and it is correlated with accruals that attributed to errors in analyst future predication. Large portion of accrual based mispricing indicate the inefficiency of investors to utilize the financial analysts information associated with future earnings. It all shows expectations of market earning are more biased then analysis future earning predication.

Kang & Yoo (2007) study the behavior of third party (analysts) earning predications and market expectations about earning with reference to accrual which in line with Elgers, Lo & Pfeiffer (2003). Mishkin (1983) test and earning response coefficient (ERC) model is used to address the omitted variables which examine one year ahead biased earning expectations. In this study market price of share (earning expectations) are compared with share prices which is estimated by analyst (analyst forecasting) where value of the accruals is different from previous study of Elgers, Lo & Pfeiffer Jr (2003). Results address stock prices in earning expectations are less biased then earnings predictions of analyst which again contradict from pervious study of Elgers, Lo & Pfeiffer Jr (2003).

Barth & Hutton (2004) examine relationship between the accrual and analyst forecast revision anomaly to find the role of information. Results show that analyst forecast revision is significantly positively correlated to the future change in accrual and earning. Accrual forecast and revision anomaly produce 15.5% and 5.5% returns respectively. In hedging analysis by using combine strategy, both accrual and forecast revisions anomaly generate 28.5% returns which is

significantly greater than the independent returns. The reason behind the greater return of combine strategy is both analyst forecast revision strategy and accrual refine each other. As the firms with low (high) accruals with positive (negative) predication generates 12.9%(-15.6%) where as firm without forecast revision generate 4.1%(-11.4%) returns. Findings also demonstrate that if the firms consistently generate the signals of accruals and analyst forecast revision, there is significant low persistence of earnings and it is attributed to low persistence of accruals. Results consider the analyst's work as information provider, by using current year information of accruals to predict the future returns.

Chan, Jegadeesh & Sougiannis (2004) examine the impact of current accruals on earnings. Usually managers manipulate the earnings to get certain incentives. Results indicate that accruals have negative correlation with future earnings. If current accruals is increased by 1$, total future returns are reduced by 0.046% for next one year and 0.096$ for three years, whereas for the full sample of 25 years future earnings decreased by 20%. The reversal or negative accruals indicate the evidence of earning management because once we control the accruals it cannot constantly influence the future returns. To find the negative association of accrual and future returns, firms are grouped on the basis of characteristics. Firms with high P/E, B/M and high accruals provide the evidence of earning management and that are significantly influence future earnings as well.

Chan, Jegadeesh & Sougiannis (2004) check the effect of discretionary accruals (proxy for manipulated earnings) and non discretionary accruals on future return by using Jones (1991) modified model. Findings demonstrate that discretionary accruals is negative than that of non discretionary accruals. It also suggests that firms which has high book to market, price earning and accruals are exposed to earning management. This model completely captures the

manipulation of earning management. Moreover, earning management is negatively correlated with current accruals and future returns.

Following studies focus on the presence of accrual anomaly and provide evidence from international markets. Pincus, Rajgopal & Venkatachalam (2007) investigate the evidence of accrual anomaly in U.S market which is tested by Sloan (1996) as a special case or as a global phenomenon. Sample size of the study consists of 20 countries that have common law. Results indicate that countries where capital market considers as efficient (Australia, Canada, UK and USA) have the evidence of accrual mispricing because in these markets investors are more focused on earning the healthy profit. It is also reported accrual anomaly exist in those countries that have common law tradition, allowing the extensive use of accrual accounting, low ownership concentration shares and weak outside share holder rights. Moreover, investors underestimate the cash flow in those markets where the evidence of accrual anomaly overestimated and overestimate the cash flow where accrual anomaly is underestimated.

Leippold & Lohre (2012) test the existence of accruals pricing from 1994 to 2008 in 26 international capital markets one by one. By using the hedging strategy returns finding indicate that 10 markets have common law countries Australia, Hong Kong, UK and US and cod law (different accounting procurer are followed) countries Denmark, France, Germany, Italy, Japan and Switzerland are attribute to accrual mispricing. Results also indicate that in recent years accrual anomaly is disappeared because investors exploit the mispricing.

Gerard, Guido & Koutsoyannis (2009) study the relationship of earning components (accrual and cash flow) as two separate anomalies and their link with stock returns in developed market of US and UK. Trading strategies indicate that both cash flow and accruals are negatively associated

with each other. One of the reasons behind accrual and cash flow correlation is inclusion of financial distress firms in sample size. Moreover Investor's sentiments play an important role in capital market performance of distressed firms. Investors with high sentiment are too positive about future and investors with low sentiments have negative future exceptions.

Soares & Stark (2009) study UK stock market to investigate the presence of accrual anomaly with future returns, pre and post implementation and trading strategy for portfolios. Investigation indicates that investors are optimistic about accrual and pessimistic about cash flow with respect to future earnings. With reference to past studies it is concluded that as abnormal returns are decreased when we move from low to high accrual portfolio. Results indicates that return of high accrual ranks firms are significantly different from zero but not for the low level ranks. If value weighted approach is used for estimation of trading cost, initially it seems like to generate losses if equal weights investment approach is used.

Koerniadi & Tourani Rad (2007) empirically address the pricing of accrual and cash flow anomaly in New Zealand context. Results indicate that firms with high accruals are significantly but negatively correlated whereas firms with low abnormal returns are insignificant correlated. These results are in line, when firms are sorted on the base of discretionary accrual model. Abnormal accruals (discretionary) are positively associated with future returns and negatively with share returns. Findings also narrate cash anomaly is positively associated with future returns. Hedging based portfolio of cash flow generated 16 % positive abnormal gains. Full sample from 1987 to 2003 have no evidence of mispricing of accrual anomaly, whereas from 1987 to 1992 before financial reporting Acts 1993, accrual anomaly is significantly present. It indicates FRA has a significant influence on accrual anomaly.

Kho & Kim, (2007) investigate the presence of accrual anomaly with risk factor in Korean stock market. From two different hypotheses it is confirmed that Korean market overvalue the accrual and under value the cash flow to predict the future returns. Risk factor hypothesis states, accrual anomaly arises due to the compensation risk factor. Mispricing hypothesis demonstrate that accrual anomaly arises due to the inefficiency of market or because of investors who overprice the persistence of high accrual and vice versa.

Kaserer & Klingler, (2008) conduct a study in developed market of Germany. Basic theme of the study is to investigate different accounting standards that affect the accrual anomaly. Empirically results indicate that in German market, people are overrated the accruals and underestimate the cash flow. This mispricing of accrual anomaly exists only in those firms that use the international accounting standards like IRFS or US GAPP for reporting the financial data. Conversely, those firms that use the German GAAP (HGB) their accrual and cash flow persistence are similar. In other words, German GAAP users firms have no evidence of accrual mispricing.

Dimitropoulos and Asteriou (2009) empirical study the code law market of Greece. The basic purpose of the study is to observe the problem of earnings and cash flow from operations related and how different informative proxies narrate the movement of share prices. By using the data of 101 companies, results indicate that earnings positively affect the share returns so it has incremental importance in describing the movement of shares. Findings also demonstrate that earnings and cash flow have equal value when investors evaluate large size firms but on the other hand cash flow are highly correlated for the firms that have growth opportunities. It is also documented that high leverage firms have low value earnings.

Mehdi (2011) studies Tunisian stock exchange to explain the accrual mispricing. The sample of the study consists of 30 companies from 1996 to 2008. For empirical test Mishkin (1983) test,

hedge portfolio and Fama & MacBeth (1973) regression are used. Results indicate earnings and its components are overvalued in emerging market of Tunisian stock exchange. Due to the large effect of abnormal accrual market is mispriced. Firms with high level of institutional ownership are undervalued, while low institutional ownership firms are overvalued by the investors.

Clinch, Fuller, Govendir & Wells (2012) test the evidence of accrual anomaly in developed capital market of Australia. Findings demonstrate the presence of accrual mispricing, although results are slightly weaker than that of Sloan (1996). In Australian capital market investors under rate the future returns. Market incorrectly interprets the information; hence not only investors overrate accruals but also underrate the cash flow from operation for future returns.

Sehgal, Subramaniam & Deisting (2012) study the persistence of earning components and understanding of investors toward the future earnings in developing market of Indian. Sample of the data consist of 493 companies and time periods is from 1997 to 2010. Results indicate high level of persistence of earnings which is attributed to cash flow rather than accrual. By Mishkin test, indicate that investors properly use the market information and use the current earnings to forecast the future returns. In Indian market, average investors use the information correctly and they under price the accruals and overprice the cash flow which is opposite to the developed markets. It is also captured that low accrual portfolios earn fewer returns than that of high accruals portfolios. Persistence of earnings is tested thorough Fama & French model; findings demonstrate the negative correlation among cash flow and accruals components. Both cash and accruals components of earning are captured by Fama & French model, therefore in Indian market asset pricing model are fit for pricing the earnings.

Celik, Ozkan & Akarim (2013) try to investigate persistence of accrual anomaly in manufacturing industry of Istanbul stock exchange. Sample consists of 131 manufacturing firms with a sample period of 12 years from 1998 to 2010. To test the persistence of accrual anomaly Mishkin test is used, findings indicate the weak evidence of accrual anomaly from Istanbul stock exchange.

Vivattanachang & Supattarakul (2013) investigate the earning persistence and market pricing in an emerging market of Thailand. Sample of study consist of 2325 observation from 1999 to 2007. For market efficiency outcome demonstrate that account return rate is mean reverting and cash flow is more persistence then accrual. Mishkin test inidacte Thailand stock market undervalues the persistence earning components although market believes accrual components are more persistence than cash flow.

Dawar (2014) study the developing market of India; the focus of the study is to empirical test of a theoretical model to identify the association among hidden accounting information and market value of shares. Results indicate in context of India market, earnings components have no addition of value which is above the abnormal returns, so only book value and abnormal address the market value of share. More over cash flow and accruals do not show any persistence and predictability to address the future abnormal returns in Indian market. While making the investment, investors fixate the earnings and usually fail to difference among cash flow and accruals. Investors who ignore this separation of earnings components they overvalue the high accruals firms and undervalue the low accrual firms.

Ozkan & Kayali (2015) conducts a study on the emerging market of Bursa Istanbul to observe the pricing of the earning components (accruals and cash flow) to predict the future returns.

Sample of the study consist of 158 firms that are listed in the Bursa Istanbul, from 2005 to 2012. Miskhin (1983) test and hedging analysis is used to test the mispricing of accruals and cash flow. Findings of Mishkin test indicate that accrual and its components are rationally priced; on the other hand cash flow is undervalued. Hedging analysis results indicate that cash flow is positive and insignificantly correlated. Both tests indicate that Bursa market is not mispricing the accrual anomaly.

In past few years, it is captured that existence of accruals is slightly disappeared due to inclusion of loss bearing firms in sample size. Dopuch, Seethamraju & Xu (2010) studies persistence of accruals in profit and loss firms in the context of accrual mispricing. Study uses the Hayn's (1995) model of Earnings Response Coefficient (ERC) in order to investigate presence of accruals anomaly. The findings show that persistence of earnings in loss bearing firms is higher than the profitable firms. Full sample of the study have the evidence of mispricing of accruals. Mishkin (1983) test for sub sample which consist of profitable and loss bearing firms is used, finding demonstrates mispricing of accrual exist only in profitable firms. These findings are confirmed with hedge portfolio analysis that shows 14.9% average returns in profitable firms and only 5.7% for loss conceded firms. Findings demonstrate ERC for persistent of loss firms has significantly negative results where as for transitory it is insignificantly positive. Hence, it shows that transitory loss firms are not mispriced where as persistence of accruals loss firms are mispriced.

Li, Niu, Zhang & Largay (2011) investigate the earning management and accrual anomaly in emerging market of China. Mishkin and hedging analysis is used to test a sample period of four years. By dividing the earning management into two parts (EM with respect to regulations and EM with respect to market pressure), finding shows that earning management don't respond

toward the delisting and special treatment regulation but it strongly respond toward market pressure and cause of accrual anomaly. Evidence of accrual anomaly is not found in China capital market as market underestimates the persistence of accrual anomaly. In China delisting and special treatment regulation, play vital role as firms with big bath losses (abnormal losses) work as signaling for the investors. After excluding the firms which incurred losses, profitable firms shows the evidence of accrual anomaly.

Green, Hand & Soliman (2011) investigate the hedge returns and disappearance of accrual anomaly. This study take place in US capital market and findings addresses the reasons of disappearance of accrual anomaly. Empirical results demonstrate that high level of investment in hedge funds exploit the accrual anomaly.

Mohanram (2013) and Ozkan & Kayali (2015) address the evidence of accrual anomaly in Bursa Istanbul market. By using the sample of 53 profitable firms, Mishkin test results identify that total accrual and its components are overvalued. Hedging analysis results also replicate the results of Mishkin test that shows there is significantly positive abnormal return. Components of total accruals that are normal and abnormal accruals are positively but not significant. After removing the loss bearing firms, profitable firms have strong evidence of existence of accrual anomaly in Bursa Istanbul stock exchange.

2.2 Development of Hypothesis

In light of above arguments Sloan, (1996) investors are unable to predict the persistence of accrual and cash flow, as a result they overweight (underweight) the earning components and get negative (positive) returns.

H1: Current earnings performance is based on persistence of accrual and cash flow.

Market is inefficient so market investors are falsely pricing the current earning components (low persistence of accrual then cash flow) to predict the future return. As a result of it market over price the accrual and under price the cash flow.

H2: Investors are overpriced the accrual and underpriced the cash flow component of earnings.

On the basis of current earning if future forecast of earning is positive (negative) and market make the decision according to the predication. As past findings of Sloan (1996), Collins & Hribar (2000) and Xie (2001) indicates that accrual is less persistent then that of cash flows so its results are more unpredictable in future, in the form of abnormal profit or loss. Although both accrual and cash flow are significantly negatively associated with each other so investment opportunity arbitrates can b created on it.

H3: *Trading strategy, by taking long position in most negative accrual and short for positive accrual, can generate the surprising positive future result.*

H4: *Trading strategy for cash flow from operation, by taking long position in most positive cash flow and short for negative cash flow, can generate the positive future result.*

Chapter 3

Data Description and Methodology

3.1 Data Description

The main objective of the study is to investigate the impact of accrual and cash flow on earnings, it also explore how stocks reflect the correct information of earning components for non financial companies listed at Pakistan stock exchange (PSX). Sample of the study consist of 100 non financial companies listed in Pakistan stock exchange. Companies with negative book value of shareholder equity are excluded from the sample. The sample period of the study consist of 14 years from 2001 to 2014 with 1372 firm year observations. The companies that include in sample are selected on the basis of market capitalization. Table 1 exhibition companies that are selected and there represent all dominant industrial sectors.

Table 3.1 Sample Composition

	No of firms in sample
Automobile and part sector	11(11%)
Chemical sector	12(12%)
Constriction and Material sector	18(18%)
Cable and Electrical Goods sector	06(6%)
Food Producer sectors	10(10%)
House hold sector	04(4%)
Mining sector	03(3%)
Oil and Gas Producer sector	10(10%)
Parma and Bio Tech sector	08(8%)
Textile sector	14(14%)
Tobacco sector	03(3%)
Telecom sector	01(1%)
Total firms	100(100%)

Secondary data regarding variables are collected from the websites of the Pakistan stock exchange and Business Recorder. Rest of data is collected from the website of State Bank of Pakistan and annual reports of the selected companies.

3.2 Model Specifications

The study examines the persistence and mispricing of earning components (accruals and cash flow) to predict the future returns by using Mishkin (1983) test and hedging portfolio analysis.

3.2.1 Mishkin test

In Mishkin test (1983), multivariate regression equation is used to explore the market efficiency and mispricing of earning components one year ahead return. Initially, Sloan (1996) uses the Miskin test to investigate the capital market efficiency. Latter on (Bradshaw et al, 2001; Xie,2001; Hanlon, 2005; Koerniadi et al, 2007; Kraft et al, 2007; Pincus et al, 2007; Dechow et al, 2008; Dopuch et al, 2010; and Ozkan & Kayali 2015) use two system of equation model to calculate the accruals and cash flow components of earnings.

Study uses following two models of Sloan (1996) to estimate the current earning persistence and its components on future earnings.

$$\mathbf{Earnings}_{i,t+1} = \alpha_t + \beta_1 \mathbf{Earnings}_{it} + \varepsilon_{it+1} \qquad \text{Equation 1}$$

$$\mathbf{NI}_{it+1} = \gamma_0 + \gamma_1 \mathbf{CFO}_{it} + \gamma_2 \mathbf{TOTACC}_{it} + \varepsilon_{it+1} \qquad \text{Equation 2}$$

Equation 1 captures the current earning persistence and its interpretation on future earnings. Accrual anomaly is attributing to the different persistence of earning components that are cash flow and accruals. In equation 2 current earning is decomposed into two components cash flow and accrual. To test the persistence of cash flow and accrual, it is not necessary to have equal value of component of current earning (cash flow and accrual). Similarly, grater the value of

component of accrual and cash flow by comparing each other, the slow it revert to its mean, reflecting the high persistence of component.

Xie (2001) further breaks the total accrual into two parts normal and abnormal accrual. Equation 3 more precisely explained the components of total accrual, normal and abnormal accrual that cause of accrual mispricing.

$$NI_{it+1} = \delta_0 + \delta_1 CFO_{it} + \delta_2 NAC_{it} + \delta_3 ABNAC_{it} + \varepsilon_{it+1}$$ **Equation 3**

Mishkin (1983) uses a framework to check presence of the of accrual anomaly. This study uses the following two systems of equations.

$$Earnings_{i,t+1} = \alpha_t + \beta_1 Earnings_{it} + \varepsilon_{it+1}$$ Equation 1

$$SAAR_{it+1} = \gamma_1 (NI_{it+1} - \alpha_t - \beta_1 * Earnings_{it}) + e_{it+1}$$ Equation 1*

$$NI_{it+1} = \gamma_0 + \gamma_1 CFO_{it} + \gamma_2 TOTACC_{it} + \varepsilon_{it+1}$$ Equation 2

$$SAR_{it+1} = \beta(NI_{it+1} - \gamma_0 - \gamma_1^* CFO_{it} - \gamma_2^* TOTACC_{it}) + e_{it+1}$$ Equation 2*

$$NI_{it+1} = \delta_0 + \delta_1 CFO_{it} + \delta_2 NAC_{it} + \delta_3 ABNAC_{it} + \varepsilon_{it+1}$$ Equation 3

$$SAR_{it+1} = \beta(NI_{it+1} - \delta_0 - \delta_1^* CFO_{it} - \delta_2^* NAC_{it} - \delta_3^* ABNAC_{it}) + e_{it+1}$$ Equation 3*

NI = Net income

CFO = Cash flow from operation

TOTACC = Total accrual

NA =Normal accrual

ABNAC =Abnormal accrual

SAAR = Size adjusted abnormal return

Equation 1 , 2 and 3 estimate the forecast coefficient of earning components (cash flow and accruals) for future predication (one year ahead), whereas equation 1* , 2* and 3* capture the estimation valuation of coefficient that are assigned by the market place for the earning components (cash flow and accruals).

If market behavior is efficient, in such case the coefficient of earning components accrual and cash flow are statistically not different from each other. Low and high coefficient of earning components (accrual and cash flow) represent the correlation of high and low mispricing of cash flow and accruals.

Mishkin (1983) system of equation is used to estimate the forecasting and valuation equations (1, 1*, 2, 2*, 3 and3*) together by using iterative weighted non liner least squares method which capture the coefficients. It proceeds in two stages, in first stage without keeping any constraint both forecasting and valuation (1, 1*, 2, 2*, 3 and3*) equations are estimated, which capture coefficients of forecasting equation are significantly different from coefficients valuation equation or not, because in efficient market both forecasting and valuation coefficients should be equal. In second stage by applying the constraints of market efficiency as $\delta q^* = \delta q$ and $\gamma q^* = \gamma q$ where (q=1, 2 or 3) are re estimate the equations forecasting and valuation equations (1, 1*, 2, 2*, 3 and3*). Mishkin (1983) to test market efficiency, likelihood statistic ratio distributed asymptotically as $x^2(q)$ is used under null hypothesis that market rationally price the earning components with respect to future earnings as Sloan (1996) and Xie (2001).

$2*n*\ln (SSR^{C}/SSR^{u})$

N = represent the no of observation

q = no of restrictions

SSR^{C}= sum of squared residuals from constrained regression

SSR^{u} = sum of squared residuals from unconstrained regression

3.2.2 Hedging Portfolio test

Past Literature identifies Mishkin (1983) test only demonstrates statistically results and doesn't focus on economical dimension. As Sloan (1996), is unable to differentiate the earning components (accrual and cash flow) so it shows the weak evidence of Mishkin test feasibility. Past studies including (Pope 2001; Zach 2005; Kraft et al. 2007; Koerniadi et al. 2007; Anderson et al. 2009; Soares 2009; Lewellen 2010; Konstantinidi et al. 2012; and Ozkan et al. 2015) use the hedging analysis in their studies to explore the accrual mispricing in future earning on the basis of current earning.

From hedging portfolios analysis, different portfolios based on total accrual, normal accrual; abnormal accruals, cash flow from operation and size adjusted abnormal return (SAAR) are formed. These portfolios are formed on the basis of magnitude of total, normal, abnormal accruals and cash flow, where as SAAR is ranked on the basis of highest to lowest market capitalization. Share returns used to calculate buy and hold returns which are measured beginning from four months after end of each firm's fiscal year. Each hedging portfolio is group into four quartile that carry equal numbers of firms. Quartile one consists of companies with retunes that have highest accrual and cash flow whereas quartile fourth comprises of firm's with returns that have lowest accruals and cash flow.

Previous literature demonstrates that more than one year ahead future returns is positive but that gains are not different from zero. By addition of more than one year ahead return cause

decrement in sample, so in this study only one year ahead future share returns are used to examine. While workings for the every new year, portfolios are rebalanced because inclusion of new firms those have sufficient data and exclusion of few old firms due to insufficient data. Through trading strategy, long position is taken for the most negative accrual firms and short position for positive accrual firms. Respectively in cash flow portfolio, long position for the portfolio with positive cash flow firms and short position for the portfolio with negative cash flow firms.

3.2.2.1 Hedging Analysis for Total, Normal and Abnormal Accrual

To explain the hedging portfolio strategy, firms are ranked on the basis of total, normal and abnormal accruals, firms with highest accrual to firms with lowest accrual for one year ahead and grouped them in quartiles. Each quartile is formed with equal distribution of firms with total, normal and abnormal accrual. By using monthly stock returns, average returns are calculated for each year. In trading strategy, long position is taken for firm with negative total, normal and abnormal accrual and short position is taken for the firms with positive total normal and abnormal accrual.

3.2.2.2 Hedging Analysis for Cash flow

For the cash flow hedging strategy, same process is followed as is mention above for accrual components. Firms with high cash flow are group in long position and shot position is taken for firms with low cash flow streams.

3.2.2.3Hedging Analysis for Size Adjusted Abnormal Returns (SAR)

To investigate the mispricing of accrual anomaly many past studies use size adjusted abnormal returns. Kraft el al. (2006); Mashruwala et al. (2006); Richardson et al. (2005); Thomas & Zhang (2002); Xie (2001) and Ozkan & Kayali (2015) are few to cite.

For portfolio of size adjusted abnormal return market capitalization is used for sorting process. Hedge portfolio is formed on basis of size of market capitalization. Quartile one comprises of highest market capitalization and quartile fourth consists of lowest market capitalization firms. Finally for annual size adjusted abnormal returns, subtracting the firms annul buy and hold returns from annual buy and hold returns of size quartile portfolio to which particular firms belongs.

3.3 Measurement of Variables

Variables which are used in the study are obtained from income statement, balance sheet, cash flow statement of the companies and stock exchange. The variables used in the study are total accrual, normal accrual, abnormal accrual, cash flow and earnings.

3.3.1 Earnings

Study employs the method used by Subramanyam (1996); Teoh et al. (1998); Xie (2001); Collins & Hribar (2000); Klein (2002); Desai et al. (2004); Chan et al. (2006); Pincus et al. (2006) and Talyor et al. (2005). It is an accounting item which shows the annual performance of company. It is basic indicator of measuring the performance, so financial analysts use it while doing the analyses of any entity. As in income statement, earning is defined as the net income before any extra ordinary items.

$$\mathbf{EAT_{it} - EOI_{it} = (NS - CGS - OE - DEP \ \& \ AMORT - I - T)_{it}}$$

NS = Net sales (revenue)

CGS = Cost of Goods Sold

OE = Operating expense

DEP = Deprecation

AMORT = Amortization

I = Interest

T = Taxes

EAT = Earnings after Taxes

EOI = Extraordinary items

3.3.2 Cash Flow from Operation

Cash flow from operations is an accounting proxy in nature. It is generated in the form of revenue from buyers by selling the goods and services and making payment to the supplier. The excess of revenues over payment made to the supplier is free cash flow from operations or cash flow from operations. Cash flow from operation which is a component of earning (accrual and cash flow) is used from cash flow statement of the companies that are listed in stock exchange and this is consistent with Collins & Hribar (2002) and Pincus et al. (2007). For companies with missing cash flow statement deprecation is added in operating income, less the taxes and the outcome of it is used as cash flow from operation.

$$\mathbf{CFO_{it} = EBIT_{it} + DEP_{it} - TAXES_{it}}$$

CFO = cash flow from operation

EBIT = earnings before interest and taxes

DEP = deprecation

3.3.3 Total Accrual

Accrual accounting system has two component of earning cash flow and accruals. Accrual is defined as whenever any transaction is completed in more than one time period, in that transitions revenues which is generated (received cash) or the expenditure (payment of cash) which incurred should be estimated and this estimation process is known as accrual (accounting adjustment). Instead of both accrual and cash flow, if we only focus on cash flow to estimate the

earnings there is chances to lose the important information which is exist in accrual. Accrual are directly affected by the managers decision because they can manipulate them for their personal (due to agency problem) or the for the company interest. Manager usually flow the company information in the form of accrual to get the benefit of mispricing.

Collins & Hribar (2002) state that cash flow which is extorted from cash flow statement has more accurate results. So this study uses cash flow obtained from cash flow statement to calculate the accrual. Total accrual is calculated as the difference between net income minus cash flow from operations and it is in line with Collins & Hribar (2002) and Ozkan & Kayali (2015). All variables (cash flow, net income and total accrual) are scaled by total assets at the begning of the period ($TA_{it)}$.

$TOTACC_{it} = NI_{it} – CFO_{it}$

TOTACC = Total Accrual

NI = Net Income

CFO = Cash Flow from Operation

3.3.4 Abnormal accrual

To calculate the components of accruals that are normal and abnormal accrual, the study uses cross-sectional modified Jones model by Dechow et al. (1995) which is in line with past studies of Defond & Jiambalvo (1994); Dechow et al. (1995); Chan et al. (2004); Xie (2001); Kothari et al. (2005) and Ozkan & kayali (2015).

Xie, (2001) uses the cross- sectional modified Jones model to decompose the accrual into two parts which are Discretionary (abnormal accrual) and Nondiscretionary (normal accrual). According to him abnormal accrual are more related to the total accrual than that of normal accrual. Abnormal accrual is the residual value of the modified Jones model.

3.3.5 Normal Accrual

The term normal accrual is known as predictive power of cross-sectional modified Jones model. The difference between total accrual and normal accrual is abnormal accrual. These normal and abnormal accruals are used in Mishkin test (1983) and hedging analysis to find the evidence of mispricing of accrual and cash flow.

In previous studies of Dechow, Sloan & Sweeney (1995); Xie, (2001); Chan et al. (2004) and Kothari et al. (2005) used the cross-sectional modified Jones model by Dechow et al. (1995) to estimate the normal accrual.

In order to estimate the accrual components, all the variables (accrual, change in revenue and property plant equipments) are scaled by total asset at the start of the period (TA_{it}). Moreover abnormal accrual is as the residual (discretionary) and normal accrual is represented as predicated power of Jones model.

$$\mathbf{TOTACC_{it} \div TA_{it-1} = \alpha 1\ (1 \div TA_{it-1}) + \alpha 2\ (\Delta REV_{it} \div TA_{it-1}) + \alpha 3\ (PPE_{it} \div TA_{it-1}) + \varepsilon_{it}}$$

TOTACC = Total accrual

TA = Total Asset

ΔREV = change in revenue

PPE = Property, Plant and Equipment

Total Assets

Assets are economic resources used to generate revenue. Total assets (TA) are taken from the balance sheet which is equal to short term or current asset plus long term or fixed assets.

$$\mathbf{Total\ assets_{it} = Current\ assets_{it} + Fixed\ assets_{it}}$$

Change in Revenue

Revenue is something that a business earns by conducting the operating activates. It is the raw form of earning which is generated after allowing the discount to the buyer and incurring the direct expense. Change in revenue means how much there is addition or increment in sales or revenue as compare to past year earning. The difference between current sales and past sale is equal to change in revenue difference

Change in revenue$_{it}$ = Current sales$_{it}$ – previous year sale$_{it}$

Property, Plant and Equipment

These are fixed tangible asset that have life more than one year and those are used in the business activities to run the operation or to provide the services.

3.3.6. Market capitalization

Market capitalization represents the market value of the firm or entity. To calculate the market value of firms, closing prices of the stock are multiplied with number of share outstanding. Market capitalization is used for the sorting of size adjusted abnormal return portfolio.

Market capitalization$_{it}$ = closing prices of stock annually$_{it}$ * number of share outstanding$_{it}$

3.3.7. Monthly Stock Returns

Monthly stocks prices (MPS) are obtained from the website of Pakistan stock exchange and business recorder which are used in Hedging portfolio analysis. Many past studies like Sloan, (1996); Richardson et al (2005); Mashruwala et al, (2006); Kraft et al, (2006); kraft et al, (2007) used monthly stocks return data from the gap of four months, after end of past fiscal year.

Chapter 04

Empirical Results and Discussion

4.1 Descriptive Statistics

Descriptive statistics is used to get the over view of the whole sample because it comprises of central tendency and variability of data. Mean and Median are measure of the central tendency whereas Standard deviation, Kurtosis, Skewness, Minimum and Maximum demonstrate the variability of data.

Table 4.1 Descriptive statistic of earning, accrual and cash flow

	NI	*CFO*	*TOTACC*	*ABNAC*	*NAC*	*SAR*
Mean	0.185	0.112	-0.031	1.468	-1.501	0.00
Median	0.065	0.078	-0.019	1.824	-1.848	-0.013
Std Dev	0.689	0.257	0.520	1.135	1.007	0.413
Kurtosis	71.287	42.087	117.460	9.041	6.125	1.748
Skewness	5.696	-2.244	5.212	-1.177	2.344	0.245
Minimum	-6.246	-3.602	-4.798	-3.946	-3.608	-1.861
Maximum	9.518	2.025	9.347	11.140	3.877	1.914

NI = net income for firm i in year t scaled by total asset at the beginning of year

CFO= cash flow from operation for the firm i in year t scaled by total asset at the beginning of year

TOTACC= total accrual is the difference of NI and CFO for the firm i in year t scaled by total asset at the beginning of year.

NAC= normal accrual is the predictive value of Jones (1991) model

ABNAC= abnormal accrual is the difference between total and normal accrual.

SAR= Annual sized adjusted abnormal return is the difference between annual buy and hold return and the buy and hold return for the same 12 months period on the market capitalization based portfolio .

Table 4.1 represents descriptive statistic of data used for study. All the variables including net income, cash flow from operation and total accrual are scaled by total assets at the beginning of year ($TA_{i,t-1}$). To calculate the normal accrual Jones (1991) model is used whereas abnormal accrual is difference between total accrual and normal accrual.

The mean value of NI which demonstrates that average profit is (18.5) % whereas median is (0.065); it means 50% firms earned more than 6.5%. For TOTACC mean and median reported values are -0.031(-0.019) whereas Mean and median value of NAC is -1.501 (-1.848).These are similar to Xie (2001), Pincus et al. (2007) and Ozkan & Kayali (2015). Standard deviation which is measure of dispersion indicates that ABNAC which is (1.135) has greater value so more impact on the variance of TOTACC then that of NACC which has smaller value (1.007).

Kurtosis demonstrates the peakedness (flatness) of the data and thinner tail. If the Kurtosis value range is below then 3 it is known as platykurtic so it is related with less peaked and have thinner trail. If the value is equal to the 3 is indicate the normal distribution pattern and it is called mesokurtic. But if the value is > 3, in such case pattern is known as leptokurtic which is linked with peaked and have thick tail. Table 4.1 indicates only SAR has (1.767) value which is less than 3 and showing platykurtic behavior. Rest of the values in the table shows leptokurtic behaviors which are > 3 with highest value of (117.460) and lowest value (6.125).

For normal distribution, assumption for Skewness is that it should b zero, but practically it does not happen. Skewness indicates except CFO (-2.244) and ABNAC (-1.177) all the values are positively skewed.

4.2 Correlation Analysis

Table 4.2: Correlation Matrix

Variable	*IN*	*CFO*	*TOACC*	*ABNAC*	*NACC*	*SAR*
IN	1					
CFO	0.173***	1				
TOACC	0.236***	-0.510***	1			
ABNAC	0.087***	-0.222***	0.461***	1		
NACC	0.029	-0.019	0.002	-0.882***	1	
SAR	0.009	0.029	-0.013	0.024	-0.036*	1

Note: This table demonstrates the outcome of correlation analysis. Moreover ***, **,* indicates that coefficient is statically significance at 1%, 5% and 10% respectively.

Table 4.2 represents the correlation among the variables that are used in the study. NI is positively associated with its independent variables which are similar with Sloan (1996); Pincus et al. (2007) and Ozkan & Kayali, (2015) studies. There is negative correlation among TOACC and CFO; however the correlation between TOACC and NI is higher than that of CFO and NI. Table 4.2 also demonstrates that the correlation among NAC and TOTACC is not higher than the correlation among ABNAC and TOTACC.

4.3 Mishkin Test for Persistence and Pricing of Earning Components

In table 4.3, panel A represents the persistence of earning. Current earning model of persistence indicates, there is positive and statistically significant relation (0.061858***) of current earning ($\boldsymbol{\alpha_2}$) to predict the future earnings. In Pakistan market future earning is captured on the basis of current earning persistence which is in line with pincus et al. (2007) findings.

Table 4.3 represents the persistence of cash flow and accruals components of earnings test

Panel A. $\mathbf{Earnings_{i,t+1} = \alpha_t + \alpha_2 Earnings_{it} + \varepsilon_{it+1}}$ Equation1

α_1	α_2	$Adj.R^2$
0.173783***	0.061858***	0.003099

Panel B. $NI_{it+1} = \gamma_0 + \gamma_1 CFO_{it} + \gamma_2 TOTACC_{it} + \varepsilon_{it+1}$ Equation 2

γ_0	γ_1	γ_2	$Adj.R^2$
0.084459***	1.064518***	0.581728***	0.171127
wald test	X^2 **Statistic**	**p-value**	
$\gamma_1 = \gamma_2$	0.482790	0.0000	

***, **, and* demonstrate the statically significance at 1%, 5% and 10%.

All variables are already defined in table 4.1

Reported results of table 4.3, panel B indicates both earnings components cash flow and accruals are positive and statistically significant explain the future earnings. The coefficient of cash flow which is γ_1 (1.064518***) greater than the coefficient of accrual γ_2 (0.581728***), demonstrates cash flow is more persistence than the total accrual.

Table 4.4: Mishkin Test for the Market Efficiency

$\mathbf{Earnings_{i,t+1} = \alpha_t + \beta_1 Earnings_{it} + \varepsilon_{it+1}}$ Equation 1

$SAR_{it+1} = \beta\ (NI_{it+1} - \alpha_t - \beta_1 * Earnings_{it}) + e_{it+1}$ Equation 1*

	Equation 1		**Equation 1***
α	0.173783***		
β_1	0.061858***	β_1^*	0.010053
Test of market efficiency (null hypothesis) wald test	X^2**Statistic**	**p-value**	
$\beta_1 = \beta_1^*$	2.708447	0.0998	
Adj. R^2	0.003099		

Equation1, and1* are estimated by using iterative generalized non linear least squares estimation procedure.

***, **, and* demonstrate the statically significance at 1%, 5% and 10%.

All variables are already defined in table 4.1

Table 4.4 reports the market perception about current earning. Results state that coefficient of forecasted earnings (β_1) is positive and statistically significant (0.061858***). It indicates in

Pakistan industry as whole earnings are positive and statistically significant. Although after excluding the industry earning (SAR), company specific earning (β_1^*) is positive but statistically insignificant (0.010053). Null hypothesis of rational pricing of earning ($\beta_{1=}\ \beta_1^*$) is rejected, as it is statistically insignificant and not different from each other with X2 statistic (2.708447) and P-value (0.0998).

Table 4.5: Mishkin Test for the Market Efficiency

Test for rational pricing for Cash flow and Accrual

$$NI_{it+1}=\gamma_0+\gamma_1 CFO_{it}+\gamma_2 TOTACC_{it}+\varepsilon_{it+1} \quad \text{Equation 2}$$

$$SAR_{it+1}=\beta\left(NI_{it+1}-\gamma_0-\gamma_1^* CFO_{it}-\gamma_2^* TOTACC_{it}\right)+e_{it+1} \quad \text{Equation 2*}$$

	Equation 2		**Equation 2***
γ_0	0.084459***		
γ_1	1.064518***	γ_1^*	-0.046865
γ_2	0.581728***	γ_2^*	-0.000878
Test of market efficiency (null hypothesis) wald test	**X^2Statistic**	**p-value**	
$\gamma_{1=}\ \gamma_1^*$	140.5050	0.0000	
$\gamma_{2=}\ \gamma_2^*$	156.6570	0.0000	
$\gamma_{1=}\ \gamma_1^*$ and $\gamma_{2=}\ \gamma_2^*$	194.2782	0.0000	
R-Square	0.177728		
Adj. R^2	0.175925		

Equation2, and2* are estimated by using iterative generalized non linear least squares estimation procedure.

***, **, and* demonstrate the statically significance at 1%, 5% and 10%.

All variables are already defined in table 4.1

To address the earning component that involve in mispricing of future returns, earning is decomposed into two parts total accrual and cash flow. Table 4.5 reports the results of cash flow and accrual of forecasting and valuation equations. Coefficients of forecasting equation indicates that accrual **(γ_2)** and cash flow ($\gamma 1_)$ are positive and significantly explain the future earnings.

Coefficient of cash flow is positive and significantly greater (1.064518***) then the coefficient of accrual **(γ_2)** (0.581728***). Affect of cash flow is higher than the affect of accrual to predict the future earnings. In valuation equation coefficient of accrual **(γ_1^*)** and cash flow **(γ_2^*)** indicate negative and statistically insignificant relationship with a value of (-0.046865) and (-0.000878). Reported results indicate industry earnings are positive and statistically significant but after excluding the industry earnings, the firm's specific earnings is negative and statistically insignificant.

To confirm the rational pricing hypothesis wald test is used, reported results of X2Statistic of cash flow $\gamma_{1=}\ \gamma_1^*$ and accrual $\gamma_{2=}\ \gamma_2^*$ are (140.5050) and (156.6570) which are statistically significant and different from each other with P-value (0.000) and (0.000). Jointly null hypothesis of rational pricing of both earning components are $\gamma_{1=}\ \gamma_1^*$ and $\gamma_{2=}\ \gamma_2^*$ with X^2Statistic value (194.2782) which is statistically and significantly different from each other with p-value (0.000).

In equation 3 and 3* Accrual is further decomposed into two parts normal and abnormal accrual. Xie (2001) in his study uses this approach to address which component of accrual is more affect on the mispricing of earnings and cause of accrual anomaly. Table 4.6 indicates similar behavior of earning components (cash flow and accrual) while forecasting the future earnings. Coefficients of forecasting equation demonstrate that cash flow (**δ_1**) normal accrual (**δ_2**) and abnormal accrual (**δ_3**) are positive and statistically significant with (1.077323***), (0.598466***) and (0.575809***) values. Cash flow is more statistically explain the current earning to predict the future earning as compare to normal and abnormal accrual. Moreover, normal accrual has grater affect then that of abnormal accrual, as the value of normal accrual is higher than the abnormal accrual. Industry current earning in Pakistan is positive and statistically significant explains by

the cash flow, normal and abnormal accrual to predict the future earnings. Coefficients of valuation equation indicates cash flow (δ_1^*) is negative and statistically insignificant with (-0.038868) value. Normal accrual (δ_2^*) and abnormal accrual (δ_3^*) are positive and statistically insignificant with (0.019400) and (0.004640) values. After removing the industry earnings, only left with firms' specific earnings which are not significantly explain the future earnings.

Table 4.6: Mishkin Test for the Market Efficiency

Test for rational pricing for Cash flow, Normal Accrual and Abnormal Accrual

$$NI_{it+1} = \delta_0 + \delta_1 CFO_{it} + \delta_2 NAC_{it} + \delta_3 ABNAC_{it} + \varepsilon_{it+1} \quad \text{Equation 3}$$

$$SAR_{it+1} = \beta\left(NI_{it+1} - \delta_0 - \delta_1^* CFO_{it} - \delta_2^* NAC_{it} - \delta_3^* ABNAC_{it}\right) + e_{it+1} \quad \text{Equation3*}$$

	Equation 3		**Equation 3***
δ_0	0.117645***		
δ_1	1.077323***	δ_1^*	-0.038868
δ_2	0.598466***	δ_2^*	0.019400
δ_3	0.575809***	δ_3^*	0.004640
Test of market efficiency (null hypothesis) wald test	**X^2Statistic**	**p-value**	
$\delta_{1=}\ \delta_1^*$	141.8436	0.0000	
$\delta_{2=}\ \delta_2^*$	135.7997	0.0000	
$\delta_{3=}\ \delta_3^*$	158.6618	0.0000	
$\delta_{1=}\ \delta_1^*$, $\delta_{2=}\ \delta_2^*$ and $\delta_{3=}\ \delta_3^*$	196.2855	0.0000	
R-Square	0.177728		
Adj. R^2	0.175925		

Equation3, and3* are estimated by using iterative generalized non linear least squares estimation procedure.

***, **, and* demonstrate the statically significance at 1%, 5% and 10%.

All variables are already defined in table 4.1

Null hypothesis of rational pricing with X^2 Statistic for cash flow ($\delta_{1=}\ \delta_1^*$) normal accrual ($\delta_{2=}\ \delta_2^*$) and abnormal accrual ($\delta_{3=}\ \delta_3^*$) having (141.8436),(135.7997) and (158.6618) value, which is statistically significant and different from each other with P-value (0.000),(0.000) and (0.00).

Joint hypothesis of rational pricing ($\delta_{1=}\ \delta_1^*$, $\delta_{2=}\ \delta_2^{*and}\ \delta_{3=}\ \delta_3^*$) with X^2 Statistic (196.2855) is statistically significant and different from each other with p-value (0.000).

4.4 Accrual anomaly and arbitrage profit

To confirm the results of Mishkin test, hedge analysis is conducted. Table 4.7 demonstrates the hedge portfolio based on total accrual (panel A), normal accrual (panel B), abnormal accrual (panel C) and cash flow (panel D). For hedge portfolio fourteen years of sample is used in the study to calculate the average return and through trading strategy hedge abnormal returns which are represented in the table 4.7. The t statistics based on mean and standard error of the fourteen year time's series are in parentheses. Total accrual, normal accrual, abnormal accrual and cash flow portfolio quartiles indicate average positive and statistically significant returns.

Table 4.5 demonstrates the hedge portfolio of annul size based on total accrual (panel A). Quartile 1st (Q1) belongs to the highest and quartile 4th (Q4) belongs to lowest total accrual. Q1, Q2, and Q3 which belongs to accrual portfolio have positive (0.01213, 0.012757, and 0.01201) and statistically significant (2.243**, 2.345** and 2.326**) returns. Although Q4 has positive (0.009146) but statistically insignificant (1.708) returns. Hedge based trading strategy by taking long position for most negative accrual firms and short position for the most positive accrual based firms. Results indicate total accrual is negative (-0.00299) and statistically insignificant returns. This indicates investors are unable to generate the abnormal returns by creating arbitrage portfolio in Pakistan stock market.

Normal accrual which is the component of total accrual is ranked on the basis of magnitude. Q1, Q3 and Q4 are positive (0.011796, 0.011913 and 0.013038) and statistically significant (2.293**, 2.034** and 2.200**) returns. Q2 of normal accrual is positive (0.004638) but statistically not

significant (0.886) return. Hedge based trading strategy, by taking long position for the negative normal accrual firms and short position for positive normal accrual firms.

Table 4.7 Accrual Anomaly and Arbitrage Profit

Portfolio ranking	Panel A Total accrual (t+1)	Panel B Normal accrual (t+1)	Panel C Abnormal accrual (t+1)	Panel D Cash flows (t+1)
Q1 (Highest)	0.01213	0.011796	0.013082	0.012129
	2.243**	2.293**	2.159**	2.225**
Q2	0.012757	0.004638	0.012754	0.014738
	2.345**	0.886	2.226**	0.0147
Q3	0.01201	0.011913	0.010574	0.012361
	2.326**	2.034**	2.068**	2.573**
Q4 (Lowest)	0.009146	0.013038	0.00986	0.010459
	1.708	2.200**	1.868	1.846
Hedge portfolio	-0.00299	0.001242	-0.00986	0.00167
	- 0.969	0.276	-0.7273	0.514

Table1 all variables are defined

**,* define the statistical significance at 5% and 10% level. The t statistics based on mean and standard error of the fourteen year time's series are in parentheses.

Portfolio are formed on annually based ranking of total accrual (panel A), abnormal accrual (Panel B), abnormal accrual (panel C) and cash flow (panel D).

Hedge portfolio formed by taking long position for lowest values of total, normal and abnormal accruals and short position with high value of total, normal and abnormal accruals. For cash flow conversely, long position for high cash flow portfolio quartiles and short for low cash flow portfolio quartile.

Results indicate there is positive (0.001242) but statistically insignificant (0.276) return. Firms are ranked on the basis of size of abnormal accruals and then grouped into four quartiles. Q1 comprises of highest abnormal accrual portfolio and Q4 comprises with lowest abnormal accrual

portfolio. Q1, Q2 and Q3 have positive (0.13082, 0.012754, and 0.010574) and statistically significant (2.159**, 2.226** and 2.068) returns. Q4 of abnormal accrual portfolio have positive (0.00986) but statistically insignificant (1.868) return. For hedge based trading strategy results indicate abnormal accrual is negative (-0.00986) and statistically insignificant (-0.7273).

For the cash flow portfolio firms are ranked on the basis of magnitude of cash flow.Q1 and Q3 of the cash flow hedge based portfolio have positive (0.012129 and 0.012361) and statistically significant (2.225** and 2.573**) return. Q2 and Q4 have positive (0.14738 and 0.012361) but statistically not significant (0.0147 and 1.846) returns. Hedge based trading strategy of cash flow, in which long position is taken for the firms with high cash flow and short position for the firms with low cash flow. Result indicates, cash flow which have positive (0.00167) but statically insignificant (0.514) return.

It clearly demonstrates in Pakistani market total, normal and abnormal accrual is not mispriced; hence investors are unable to generate any abnormal returns by creating the arbitrage portfolio. On the other hand, reported result of trading strategy of cash flow which is positive but statistically insignificant this is again a weak evidence of economic significance of cash flow in Pakistani market.

Chapter 05

Conclusion and Policy Recommendations

5.1 Conclusion

Sloan (1996) and Xie, (2001) are the two major studies which addresses the presence of accrual anomaly. Both studies provide the evidence that cash flow and accruals have different implication of persistence of current and future returns. Moreover, investors are unable to differentiate these implications of persistency as a result of it they misprice the accrual and cash flow and get abnormal gain or losses. The research design of the study is similar to the Sloan (1996) and Xie (2001) because the study investigates whether U.S market results are valid in emerging market of Pakistan or not.

The sample period of the study consist of 14 years from 2001 to 2014 with 1372 firm year observations. The companies that include in sample are selected on the basis of market capitalization. The replication test of accrual anomaly is inconsistent with Sloan (1996) and Xie (2001) as market rationally price the accrual anomaly. First findings indicate that investors in Pakistan market underestimate the earnings but null hypothesis of rational pricing of earnings is not rejected as its X^2 statistic (2.708447) with a P-value (0.0998) which is insignificant and it is in line with Sehgal et al. (2012) findings. Secondly, persistence of earning is more attribute to cash flow then accruals, as the coefficient of cash flow is greater than the coefficient of accrual and this finding in line with past studies. Thirdly, Mishkin test demonstrate that average investors under value the information of accrual, (as market is rationally price the accrual anomaly) which is inconsistence with Sloan (1996) and Xie (2001) findings. These results are not unique in Pakistan market as Pincus et al. (2007), Koerniadi (2007) and Ozkan & Kayali (2015) findings also support this evidence. It is further added that market under price, the cash

flow which is in line with the Sloan (1996) and Xie, (2001) findings. The hedge portfolio returns of total accrual and abnormal accruals are insignificant and negative whereas normal accrual is positive and insignificant. Hedge portfolio test do not verify the evidence of under pricing of cash flow. Although cash flow has positive return but again it is not significant.

5.2 Policy Recommendations

- It is recommended that in Pakistan stock exchange, investors cannot generate any abnormal gain by creating the arbitrage portfolio based on accrual. As findings of Mishkin (1983) test demonstrate that accrual is rationally priced in Pakistan stock market. Moreover hedging portfolio analysis confirms the results of Mishkin (1983) test, as total accrual and its components do not significantly earn abnormal profit.
- From management perspective in Pakistani context, the information which is provided by the portfolio manager to the investors about accrual or cash flow is not attributed to future abnormal returns. Although, conventional wisdom among the accounting and finance scholar that accrual anomaly and cash flow anomaly exist due to the over or under estimation of persistence current earning components to predict the future.
- Past studies demonstrate that accrual anomaly is linked with earning management. Weak evidence of accrual anomaly in Pakistani market doesn't show that companies are not opportunistically managing the earnings. Poor performance of firms can also be link with other reason, like errors in accrual estimation and poor corporate decisions.

5.2.1. Future Research Directions

- Empirically research on accrual anomaly can further be carried out in Pakistani market by using different returns windows and models.
- Future studies can use the larger sample size to confirm the findings of this study.

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